



District Disaster Management Plan

Volume-1

District DRR Plan



September, 2022

District Disaster Management Authority
Nawada, Bihar

Editorial Board

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District Disaster Management Plan, Nawada 2022

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Message



It gives us immense pleasure to present the **District Disaster Management Plan, Nawada** to all. The main objective of this scheme is to make Nawada district '*Disaster Resilient*'. This scheme will definitely strengthen the District Administration in Disaster Management Planning and its effective implementation.

The activities of Pre Disaster, Preparedness, Prevention, Response, Rehabilitation and Early Recovery have been included in the District Disaster Management Plan, Nawada.

The effects of Natural and Man-Made disasters remain constant in Nawada district. In this plan, systematic measures for prevention have been mentioned in case of Natural and Man-Made disasters. Pre-Disaster Prevention and Mitigation measures have been taken into account in the plan on the basis of prior experiences of disasters. Whatever descriptive facts have been recorded in this plan, all of them have been collected from various reliable sources. While developing the District Disaster Management Plan, it has been taken care that through this, the District Administration should be able to meet the challenges of the subscribers and the District Administration can save the lives and property of the disaster affected people by taking quick response action.

In this plan, major suggestions of Disaster Management Act 2005, Sendai Framework 2015-2030, Bihar DRR Road Map 2015--2030, National Disaster Management Policy 2009 and Sustainable Development Goals 2015-2030 etc. has been incorporated. The efforts made by the District Level Officer, Police Administration, Sub-Divisional Officer, Real Officer, Bihar State Disaster Management Authority and other stakeholders for its publication have been commendable.

Smt. Udit Singh, IAS
District Magistrate, Nawada
Bihar

Gratitude



I feel proud to present the **District Disaster Management Plan, Nawada**, to all of you. This plan has been prepared keeping in mind the local outbreak Risk, Vulnerability and Capabilities. In this scheme, the formulation of department level schemes and schemes of other stakeholders has been ensured.

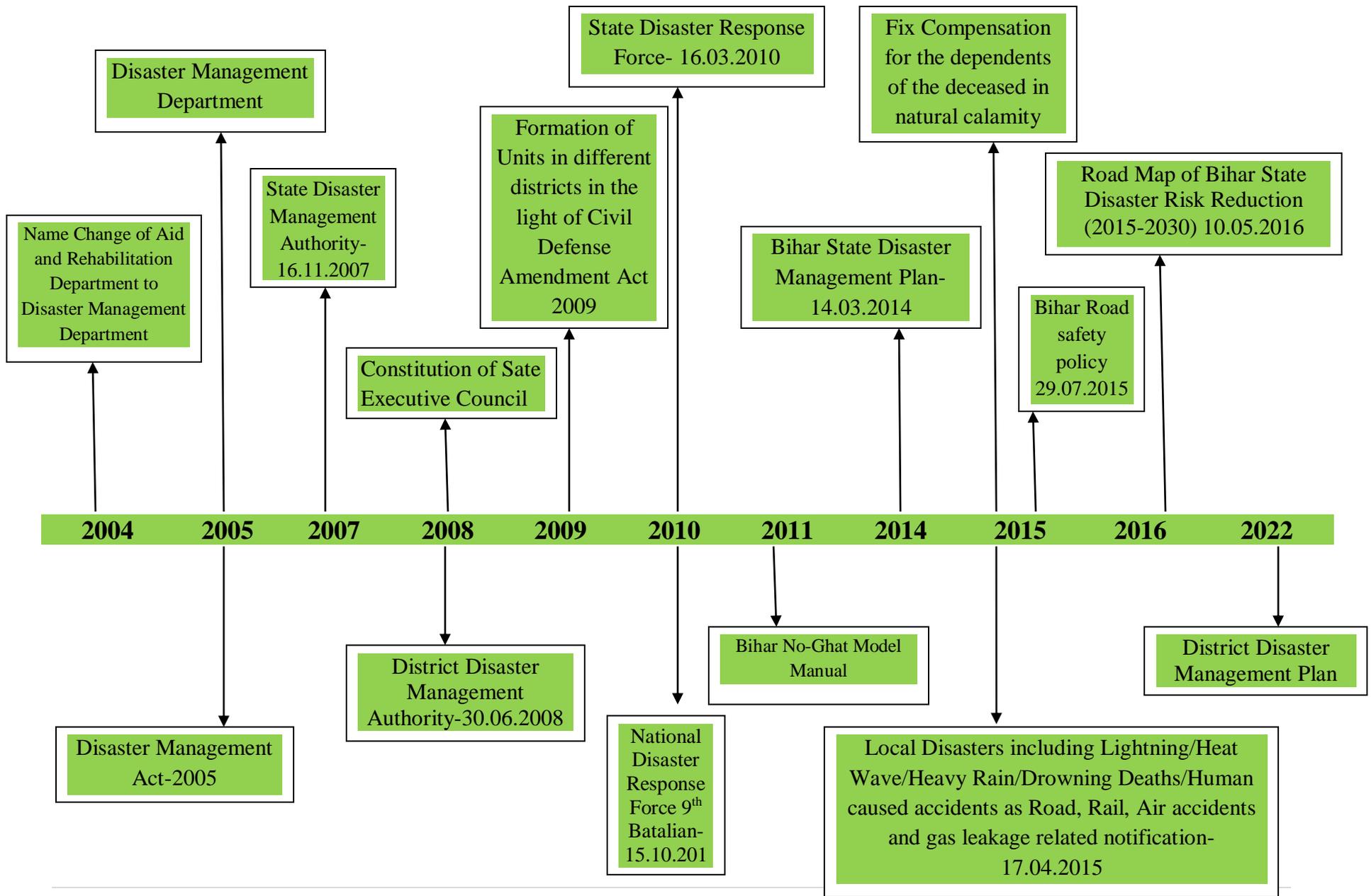
Keeping in view the disasters, the views of the District Administration and the community have been incorporated in the plan for mitigation of risks. Based on the past experiences, it has been seen that the nature, timing and extent of disasters are changing due to climate change. This scheme has been refined keeping in view the participation of various Government Departments, Public Representatives and Non-Government Organizations and minimizing the damage caused by it in case of disaster.

I would expect all the concerned officers and employees that this District Disaster Management Plan should be studied thoroughly so that they can be properly aware of their role. If the situation of Natural and Human calamities arises, then through this scheme, they will be able to get success in implementing the prescribed arrangements smoothly and at a fast pace.

District level officer, Police Administration, Sub-Divisional level Officer, Circle Block Level Officer, village panchayat representative officer, private sector and other stakeholders, the District Administration expresses its gratitude to them for their commendable cooperation.

Shri Ujjawal Kumar Singh
Additional District Magistrate
Nawada, Bihar

District Disaster Management Plan Nawada: Volume-I (DRR Plan)



(Executive Summary)

The district plan has been prepared keeping in view the Disaster Management Act 2005. Part 1 (Disaster Risk Reduction) of the Disaster Management Plan is divided into 10 chapters and Part 2 (Resources of the District, Standard Operating Procedures, Protective Suggestions and Mandate) in 27 sections.

The main objective of preparing the District Disaster Management Plan is, "To encouraging sustainable development by reduce the risk of life and livelihood ".

Keeping in view the Sendai Framework for Action (2015-2030) in the above plans, four priorities have been specially included, such as understanding the disaster hazard located in the district, strengthening of disaster hazard governance so that disaster risk can be reduced. Investment in Disaster Risk Reduction for sustainable development and promoting pre-disaster preparedness for effective disaster response and build back better i.e. better reconstruction.

To achieve the targets, area wise, weather wise and outbreak wise risk identification was ensured and coordination with department wise government schemes was ensured for mitigation. These activities have been divided into 5 (five) components, namely, Safe Village (Resilient Village), Safe City (Resilient City), Safe Livelihood (Resilient Livelihood) Safe Basic Services (Resident Basic Services and Secure Essential Infrastructure (Resilient Critical). infrastructure).

For the implementation of the disaster management plan, the role and responsibilities of the administrative set-up, personnel arrangements and especially the District Emergency Operation Center, the District Disaster Management Authority (DDMA) have been mentioned.

After identifying the outbreak, vulnerability, risk and potential in the district, 3 zones have been divided keeping in view the intensity and frequency of disasters, in which the first is divided into High Damage Risk Zone, Medium Damage Risk Zone and Low Damage Risk Zone. Identification of department wise resources has been ensured for disaster hazard reduction.

Activities to be carried out by various Departments / Agencies In the Disaster Management Plan, the details of the activities to be undertaken by various Departments / Agencies for disaster risk reduction are mentioned. In determining the activities, care has been taken that the departments should coordinate with each other and carry out the activities.

Monitoring System: A system has also been kept for continuous monitoring and evaluation of the implementation of disaster management. Under the chairmanship of Hon'ble District Officer, Nawada, the progress of the works fixed in the half yearly meeting of District Disaster Management Authority convened will be reviewed and monitored.

Plan Review and Updation

Pre-disaster preparedness will be reviewed twice every year (June and November) with the district level officers of all departments under the chairmanship of District Disaster Management Plan, Nawada. As per sub-rule 24 of Rule 31 of the Disaster Management Act, “The District Plan shall be reviewed and updated annually”.

For the updation of the District Disaster Management Plan, the Disaster Management Authority (DDMA) will ensure the updation of the previously prepared plans for the department level disaster management by coordinating with the district level departments and a copy of that plan will be sent to the District Disaster Management Plan by the district level officers. Must be sign within the stipulated time.

While updating the pre-prepared plan, it will be necessary for all the stakeholders and officers to follow the following principles:

- 1) All disasters in the district based on totality and its possible impacts, risk inclusion and review and updating of the plan by different departments keeping in view all the stages of the disasters.
- 2) All disaster prevention planning with integrated pre-preparation, relief and rescue, response and mitigation will ensure the utilities of the community, government and other stakeholders.
- 3) **Participatory:** The plan will have to be reviewed and updated by ensuring the participation of the disaster affected community, panchayat, district administration, government and expert organization.
- 4) **Sharing** the usefulness, learning and public leadership of the work done by all the stakeholders, giving importance to it with each other. To develop a common platform for effective relationship between individuals and agencies.
- 5) **Social Inclusion:** A disaster lags the development of the affected area by decades. If the affected community had incorporated adequate risk reduction measures into the development, the impact could have been mitigated. An integrated approach with growth and DRR is called Disaster Risk Management. It also means radically expanding DRR mainstreaming so that it becomes a common practice that is fully institutionalized in each agency's routine planning and programs, in addition to disaster response preparedness. There is no discrimination in hazards based on social

conditions, but human responses to disasters often do discriminate. Existing socio-economic conditions mean that disasters are equally common for similar communities can lead to different outcomes, where even the most vulnerable groups suffer disproportionately in many cases compared to others. The preamble of NPDM 2009 states that economically weaker and socially marginalized sections, women, scheduled castes, scheduled tribes and minorities suffer the most during disasters. The DM Act 2005 specifically forbids all forms of discrimination. Be it based on sex, caste, community, race or religion. Social inclusion contributes to equality of rights and opportunities, the dignity of the individual, the acceptance of diversity, and the creation of resilience for all, that does not exclude members of a community on the basis of age, gender, disability, or others.

- 6) **DRR Mainstreaming:** Development without recognizing the potential for disaster and incorporating adequate risk reduction may, in fact, exacerbate existing risks and increase the chances of new risks being introduced, thereby increasing the risk of potential disasters. The negative effect increases. Mainstream DR R is an approach in which both development and DRR are incorporated concurrently in a seamless manner in all aspects of development policies, planning and implementation. The impact of climate change also acts as a risk. Each hydro-climatic hazard worsens the associated uncertainties, thereby changing the risk landscape. Actions under the SDGs, climate change response are integral to development initiatives and have a common theme in all of them building disaster resilience.
- 7) **Gender:** They have changing roles and responsibilities within the community and at home at the general level in the society. Post-disaster effects are experienced differently by women, men, boys and girls.
- 8) **Resilience:** Adopting creative and innovative approaches for disaster risk reduction and climate change adaptation. To give importance to knowledge and scientific approach in planning based on education, training, experience, ethical conduct, accountability and continuous improvement etc.
- 9) **Developmental:** For the capacity building of the community affected by disasters, to predict the future disasters and give importance to the planning of capacity building for pre-preparation for its prevention.

Chapter-1 ***District Disaster Management Plan Nawada***

Introduction

In Nawada District Disaster Management Plan, the details of the various types of hazards possible due to natural and human error in this district, the details of the vulnerable groups, properties, vulnerable to these hazards, to prevent or reduce the damage caused by these disasters or while accessing the present capacity of disaster response, measure have been described in detail to increase it. According to section-31 (1) of the Disaster Management Act, 2005, “there will be a plan for disaster management for each district of the state”.

It is necessary for the District Disaster management Authority to give concrete shape to the indicative district disaster management plan, which can be adopted continuously, which helps in preventing and reducing the disaster risk. It will be embodied at various development stages in such a way that it will be necessary to adopt it in sync with the objectives of the Disaster Mitigation Road map in order to respond, save and recovery at the time of disaster.

Disaster Risk Reduction Road Map

The third World Disaster Risk Reduction Conference was held on March 2015 in Sendai, Japan, in which representatives from 187 countries of the world participated. In this conference four priorities and seven goals were set for Disaster Risk Reduction from the year 2015 to 2030. In the light of that, a State order titled Bihar Disaster Risk Reduction Road map 2015 to 2030 has been notified by the Disaster management Department, Government of Bihar on 10 March 2016 will work as a link

Various types of disasters present at Panchayat and block level in Nawada district, history of these disasters, response made during disasters, then and today’s disaster management, good practices done at this level, available resources and risk analysis etc. to this plan. The vision was received and after that the objectives of the disaster management plan of the district could be determined. An important basis for the formulation of the plan has been participatory and inclusive, which has made the plan maximum comprehensive. The plan is to reach out to the person who is directly affected by the disaster.

1.1. The Vision

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

1.2. Objectives and Goal

Section 31 of Disaster Management Act 2005 (DM Act), makes it mandatory to have a disaster management plan for every district. DDMP shall include Hazard Vulnerability Capacity and Risk Assessment (HVCRA), prevention, mitigation, preparedness measures, response plan and procedures. An indicative list with possible plan objectives is given below:

- a) To identify the areas vulnerable to major types of the hazards in the district.
- b) To adopt proactive measures at district level by all the govt. departments to prevent disaster and mitigate its effects.
- c) To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- d) To enhance disaster resilience of the people in the district by way of capacity building.
- e) Reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
- f) Manage future development to mitigate the effect of natural hazards in the district.
- g) To set up an Emergency Operations Centre at the District level to function effectively in search, rescue, response.
- h) To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.
- i) To set up an early warning system so as to prepare the community to deal with the disaster and responsive communication system based upon fail-proof proven technology.
- j) To prepare a response plan based upon the guidelines issued in the State Disaster Management Plan so as to provide prompt relief, rescue and search support in the disaster affected areas.
- k) To adopt disaster resilient construction mechanism in the district by way of using Information, Education and Communication for making the community aware of the need of disaster resilient future development.
- l) To make the use of media in disaster management. xiii. Rehabilitation plan of the affected people and reconstruction measures to be taken by different govt. departments at district level and local authority.

The District Disaster Management Plan (DDMP) is the guide for achieving the objective i.e. mitigation, preparedness, response and recovery. This Plan needs to be prepared to respond to disasters with sense of urgency in a planned way to minimize human, property and environmental loss.

1.3 Scope of the Plan

The scope of this plan, the entities (e.g., departments, agencies, PRIs, ULBs, private sector, NGOs, citizens) and geographic areas to which the plan applies need to be stated explicitly with identified role and responsibilities. The purpose statement need not be complex but should include enough information to establish the direction for the plan. The scope should include all disaster phases (Prevention, Preparedness, Mitigation, Response and Recovery), hazards addressed, area / district etc.

1.4 Methodology

Keeping the communities at the center of all the processes, the development of disaster management plan for Nawada district took a multi-disciplinary, multi-stakeholder approach keeping into consideration the emerging threats of climate change, global warming, rapid urbanization, and challenges of population pressure on resources (crowd management) etc.

DDMP draws its roots from State Disaster Management Plan, activities of state and ongoing plans and seeks to integrate the disaster context of district into it. DDMA has conducted multiple rounds of consultations, conducted HVRCA to assess disaster context of district and integrated with SDMP to prepare a comprehensive DDMP. Following steps have been followed by Nawada DDMA in preparation of DDMP:

Task 1: Secondary Study of the District

Task 2: Selection of Study Area

Task 3: Hazard, Vulnerability & Capacity Assessments in Panchayats

Task 4: One-to-one Consultations with Line Departments

Task 5: Consultation Methodology

Task 1: Secondary Study of the District

A secondary HRVCA report was formulated for the Nawada district by researching on various hazards existing in the district. The research utilized all possible sources from the web to put them together so that the team responsible for making assessment can be made well acquainted with the hazards faced by the

district. The report formulated also highlighted the profile of the district and made assessments on the level of development in the district.

Task 2: Selection of Study Area

The criteria and the process followed for the selection of Study Area which is the Panchayats is mentioned below:

- ✓ Analysing detailed map of Nawada along with Additional District Magistrate, Circle→ Officers and Block Development Officers to locate Panchayats by focusing on various factors in their proximity that included
 - i. Vulnerability to floods due to proximity to major rivers on the map
 - ii. Any major industries
 - iii. Heritage Sites
 - iv. Wider geographical coverage of the District
 - v. Remoteness of the village
 - vi. Forest Areas or Encroached Forests
- ✓ Identification and selection of relevant Panchayats by taking required inputs from→ Circle Officers or their reports.
- ✓ Finalisation of geographically spread out Panchayats considering all factors for→ conducting detailed analysis through a two day field study was done. The entire district lies in seismic zone V, Thus, it didn't have any bearing on the selection of Panchayats.

Task 3 Hazard Vulnerability Risk & Capability Analysis (HRVCA)

HVRCA was conducted at 1 village per block to get a detailed assessment of hazard profile for the district. Efforts have been made to ensure that the village selection represents the entire disaster profile of state and include most vulnerable villages in particular multi hazard. As per the common framework identified at BSDMA, following disasters frame main components of the study.

- Lightening
- Earthquakes
- Road Accident
- Drowning
- Fire
- Heat Wave

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- Floods
- Droughts
- High Speed Winds/ Cyclones
- Diseases

In addition, an effort has been made to plan mitigation and response for other disasters such as road accidents, attack of wild animals, hail storm, fire incidents, lightening, heat wave etc., manmade disasters such as Industry hazards and environmental damage. A dedicated team at every village was deployed to conduct detailed analysis of hazard profile and possible vulnerabilities. DDMA conducted surveys and collected data through one-to-one meeting, detailed questionnaire circulated to collect exhaustive data related to DM mitigation and preparedness including current capacities and existing DM awareness levels. Following are the key outputs identified from HVRCA study

- Detailed hazard profile of district
- Detailed assessment of vulnerabilities and risk exposure to disasters
- Vulnerabilities to livestock and cattle were also included in the study
- Assessment of capacities at state to cope up in the event of a disaster

Data collection

As part of HVRCA, DDMA had collected exhaustive data using primary & secondary sources from various departments and villages of the district. The data collected was analyzed for assessment of institutional structure, disaster readiness, elements at risk, stakeholder involvement, statuses of existing DM schemes, HVRCA etc.

Task 4: One-to-one Consultations with Line Departments

The consultations were held with various line departments that included Agriculture, Animal Husbandry & Veterinary, District Industries Centre, Education, Police, Power, Fire Services, Fishery, Food & Civil Supplies, Forest, Health, Irrigation, District Rural Development Agency, Public Health Engineering, Public Works – Building, Public Works – Roads & Bridges, Sericulture, Social Welfare, Nawada Municipal Authority, Transport and Water Resources.

These consultations allowed discussion with the Heads of Departments and the subordinates to gauge the extent of disaster risk mitigation in implementation of projects at the district level, besides challenges faced in the implementation of projects. The assessments were conducted to assess departments on the following parameters:

1. Human Resources – Shortfalls and skill gaps.
2. Physical Resources – Procurement Challenges.
3. Physical Infrastructure – Issues that concern infrastructure established by the departments or its Vulnerability to various forms of hazards.
4. Financial Resources – Budgets and issues with receipt of funds that delay or hamper projects.
5. Intra and Inter-departmental linkages – Establishing level of convergence between departments, where required, or issues faced in the communication or convergence.

Task 5: Consultation Methodology

The study was conducted by making use of multiple tools and a combination of methods depending on the kind of information that was to be sought.

The techniques used included the following:

1. Transect Walks
2. Household Surveys
3. Focused Group Discussions
4. One-to-one Stakeholder Consultations

1.5 Implementation of District Disaster Management Plan (DDMP)

The entire responsibility of the plan prepared for this district will be with the District Magistrate-cum-Chairman, District Disaster Management Authority. In its implementation, cooperation has to be taken from the members of the authority and the special committee constituted in this regard and the line department. The district will be responsible for prevention, mitigation, response and restoration work related to all possible disasters arising out of danger and risk. The above-mentioned works will be divided into pre-disaster, during the disaster and after the disaster and completed in a well-planned manner. Observation of past events and learnings from them will be maintained before the disaster. Whereas during the disaster, the work of response to be done in the entire district, the necessary steps mentioned in this plan and other measures to be taken in view of the specific time will be ensured. A nodal officer will be appointed for various works so that coordination is maintained. Similarly, after the disaster, the restoration and rehabilitation works will be conducted and the affected families can return to their homes. The District Disaster Management Center will work in different shifts for 24 hours to complete all the procedures.

The District Magistrate concerned will be the Disaster Command Officer (Incident Commander) and with his permission, the District Disaster Management will be implemented smoothly. The District Disaster Management Plan/Guidelines should be accessible so that it can be used meaningfully. It is necessary to do this because at some intervals the office bearers are transferred to different posts.

1.6 Plan Review and Updation

Monitoring and evaluation:

The monitoring and evaluation of the DDMP is an essential component for making the plan action-oriented and holistic in its approach. The purpose of the monitoring and evaluation of DDMP is as follows:

- Ensure a year-round implementation of measures and projects for disaster risk reduction;
- Check the level of preparedness of line departments and other stakeholders;
- Assess the trainings imparted for capacity building of the officers;
- Determine the adequacy of resources; and
- Verify if the coordination between departments and agencies, NGOs, and community is in place and functional.

The process is not necessarily successful if flaws are not found, but rather if the appropriate measures are undertaken in face of the necessary improvements. In view of this, the role and responsibilities of the DDMA are as follows:

- ✓ Monitor the functioning and adequacy of the resources present in the district every
Six months;
- ✓ Based on the analysis, the DDMA has to procure/purchase/borrow resources from the concerned authorities and replace the dilapidated and non-functioning resources using the developmental funds;
- ✓ Ensure that all the departmental plans are operational and checked by the respective nodal officers;
- ✓ Monitor that all the officers of the frontline departments are trained as per guidelines/requirements;
- ✓ Monitor that all mitigation, preparedness and response measures are properly implemented within the district; and

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- ✓ Identify and ensure implementation of disaster risk reduction into developmental projects and schemes. Additionally, all heads of departments at the district level must identify suitable and relevant schemes (centrally sponsored or state-funded) which can be used for and/or linked with disaster management.

The reasons for the review and further update of the DDMP can be categorized in two major groups: a) domestic changes, i.e. changes within the district itself, whether related to operational activities, geo-characteristics of the environment, physical resources or knowledge enhancement; b) external changes, i.e. those related to changes in regulatory requirements.

Among the internal grounds for the DDMA to review and update the DDMP, there are:

- ✓ Changes in disaster profile or district vulnerability;
- ✓ Major change in the set operational activities;
- ✓ Acquisition of new resources;
- ✓ Lessons learned from training;
- ✓ Inputs from mock drills/ simulation exercises;
- ✓ Lessons learned from near-miss incidents;
- ✓ Inputs from actual disasters; etc.
- ✓ Names and contact details of the officers/officials who are the nodal officers or the in-charge of resources are to be updated on regular basis.

When it comes to the external changes, the plan has to be updated once every year and preferably within the first month of the new financial year in order to incorporate:

- ✓ Changes made to existing centrally and state-sponsored schemes;
- ✓ Introduction of new schemes by the central or state governments that are relevant for disaster risk reduction;
- ✓ Passing of the new acts in the parliament that have any bearing on the DDMP irrespective of any prior reference to the functions of the act;
- ✓ Change of directions by the state or any updates to the State Disaster Management Plan;
- ✓ Installation of new technology by the NDMA/BSDMA related to communication networks, knowledge management systems, early warning, etc.;
- ✓ Opening up of any relevant state/national institution or mechanism for training; etc.

Every time the DDMP is reviewed and updated, it has to be uploaded on the website of the Bihar State Disaster Management Authority (BSDMA) and the updated version should distinctly mention the major

changes and newly added components so that the plan can be easily studied by any block or district official, community-based organization, NDMA, etc. Additionally, the updated DDMP has to be circulated to all stakeholder departments, agencies and organizations.

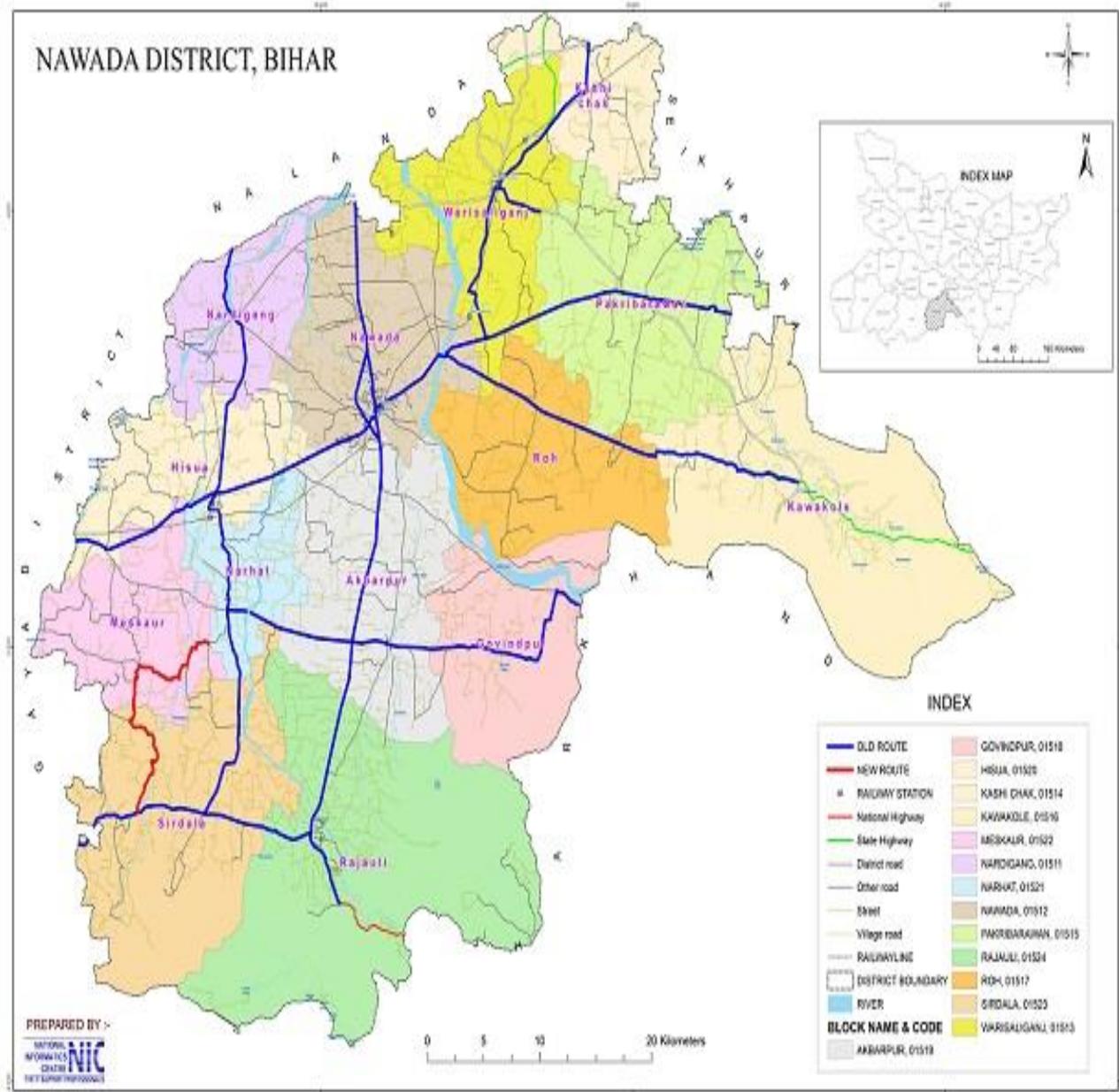
1.7 Coordination and Communication Plan of the District

In the disaster management plan coordination is

- among the government departments
- among the agencies/institutions and
- among the stakeholders

Among the government departments the best agency to coordinate shall be the DM/DC who is also the chairperson of the DDMA. Among the other stakeholders as well, the co-ordination shall have to be done by the DDMA. Being the leading and apex body for disaster management in the district, DDMA shall have an authority to communicate, assign and solicit support from stakeholders like Departments, multilateral agencies, corporate bodies, professional bodies, civil societies, NGOs and media. Besides, Media briefing shall be done by the DDMA only.

Chapter-2 District Profile



Nawada district is situated in the southern part in Bihar and is one of the thirty-eight district of Bihar State. Nawada town is the administrative headquarters of this district. It occupies an area of 2,494 square kilometers (963 sq mi) and is located at 24.88N 85.53E.

In 1845, it was established as a Subdivision of the Gaya district. On 26th January 1973, Nawada was formed as a separate district. The origin of the name Nawada is believed to lay in a corruption of the old name Nau-abad or the new town which was earlier known as ‘The Eliot Market (Bazaar)’. It is divided into two parts by Khuri River, the Portion on the left bank being the older, while that on right bank is modern and Contains public offices, sub-jail, dispensary and school.

Famous “Sarvoday Ashram” inaugurated by Desh Ratana Dr. Rajendra Prasad and nourished by Shree Jai Prakash Narayan has enhanced the glory of Nawada

2.1 Geography & Climate

Nawada is the westernmost district of the Magadh division, one of the nine administrative divisions of Bihar. Nawada is located between North Latitudes 24° 31'": 25° 08'" and East Longitudes 85° 00'": 86° 03'". The district is bounded in north by Nalanda and Sheikhpura district, in east by Jamui district, in west by Gaya district, while southern half boundary of districts bounded by Jharkhand boundary. Nawada district contains 14 blocks with 189 Gram Panchayat including 1099 villages. The district is having a geographical area of 2494 Sq. Km and occupying 1.43% of the total geographical area of the Bihar State. The district experiences a tropical climate and receives an average annual rainfall of 1,037 mm.

2.2 The Cultural & Historical Perspective

Apart from Nawada Sadar the district has another sub-division as well named as Rajauli. The town of Rajauli situates on NH-31 nearly 35 km south of Nawada town. At a distance of nearly fifteen kilometers further south one finds the northern border of the state of Jharkhand. In the vicinity of the town of Rajauli there are seven hillocks which, as believed by the local people, housed on their tops the Ashrams of Saptarishi. Two to three kilometers west of the National highway aforesaid and at a distance of six to seven kilometers from the town of Rajauli is situated a dam known as Fulwariya Dam meant for irrigation. The dam presents a very beautiful sight and is flanked on one of its sides by a towering hillock.

2.3 Demographic Profile

In 2011, Nawada had population of 2,219,146 of which male and female were 1,144,668 and 1,074,478 respectively. The total population growth rate had been 22.63% for the period between 2001 and 2011. It constitutes 2.13% of total population in Bihar with a density of 890 persons per square km. Hindus form 88.53% of total population; Muslims constitute the rest- 11.01%.

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In terms of urban-rural divide, population of Nawada is primarily rural with only 9.71% of residents in urban areas as shown in chart below:

District Profile	Source:- Cencus Report, Gazetter, District Agriculture Office, ibhugol.nic.in
State	Bihar
District Code	1036
Geographical Area	248057 Hq
Latitude and Longitude	24 ⁰ 31 ¹ N-25 ⁰ 06 ¹ N and 85 ⁰ -17 ¹ E-86 ⁰ -03 ¹ E
Area under Forest	50943 Hq
Area under Agriculture use	90716 Hq
Net Sown Area	90716 Hq
Gross Cropped Area	169278 Hq
Net Irrigated Area (Rabi/Khariff)	70872 Hq
Net Rainfed Area	2759 Hq
Gross Irrigated Area	143262 Hq
Gross Rainfed Area	69631 Hq
Total Number of Block	14
Total Number of Panchayat	189
Total Number of Revenue Villages	1099
Total Population	2205049
Population Growth Rate	21.46
Total Male	924271
Total Female	877074
Total Population SC	565112
Total Population ST	2045
Total Population OBC/Gen	1651633
Total Livestock	847370
Stored Surface Water	585.17 MCM

2.4 Administrative profile

Nawada has an area of 2494 sq. km. Nawada town is the administrative headquarters of this district. The city is divided into two blocks by the Khoori River, the left bank being the older, while the right bank is the modern section with public offices, sub-jail, dispensary and school.

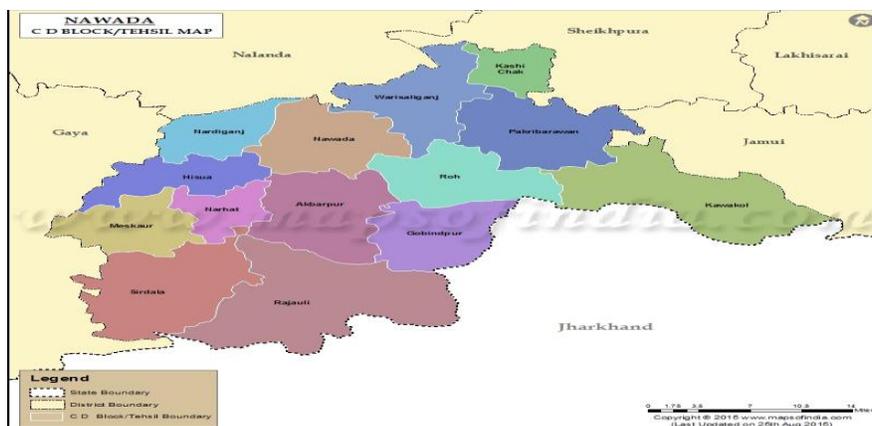
Sl. No.	Item	Count (no)
1.	No. of Sub-Divisions	03
2.	No. of Blocks	14
3.	No. of Panchayats	187
4.	No. of Villages	1081

http://dcmsme.gov.in/dips/Nawada_BIHAR.pdf

2.4.1 Political set up at Nawada

Sl. No.	Item	Count (no)
1.	No. of MP Constituency	01
2.	No. of MLA Constituency	05
3.	Lok Sabha Constituency	33

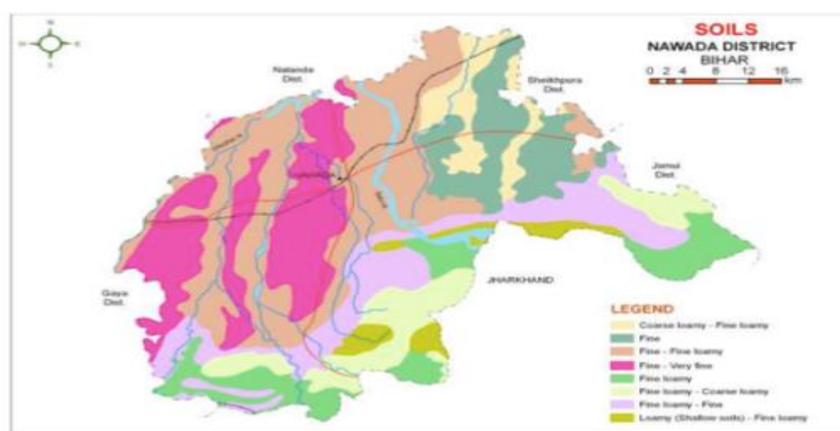
(Source: District website, Nawada)



(Source: District website)

2.5 Agriculture

Agriculture is the primary source of economy in Nawada. The major crops include Paddy, wheat, Pulses, pigeon-pea, chickpea etc. Further, the main fruits grown in the district are mango, guava, banana, lemon whereas the main vegetables include potato, sponge guard, tomato, cauliflower, cabbage, brinjal, Onion etc.



(Source: <http://agricoop.nic.in/Agriculture%20contingency%20Plan/Bihar/BIS-%20Nawada-28.08.12.pdf>)

2.6 Soil

In the district there are five types of soils.

These are

- (i) Loam,
- (ii) Sandy,
- (iii) Clay,
- (iv) Sandy loam and
- (v) Clay loam.

The areas where these kinds of soils are generally found and the corresponding crops grown in these soils are described below: -

- ✓ Loam – Found in Nawada, Sirdala and Akbarpur.
- ✓ Sandy – Available in some parts of Nawada, Sirdala and Hisua blocks. It is suited for crops like Maize, Oil seeds and Groundnut.
- ✓ Clay – Available in parts of Pakribarwan, and Kauakol blocks. It is suited for paddy, grams and wheat.
- ✓ Sandy Loam – Found in the development blocks of Nawada, Warsalianj, Akbarpur, Narhat and Hisua. It is useful mainly for wheat, Maize and Paddy.
- ✓ Clay Loam – Available in Rajauli and Sirdala blocks. It is useful for paddy, wheat and potato.

2.7 Industries

Nawada doesn't have any major medium or large size industrial establishments. There is just one industrial area at Gaya road- area 248752 sqft having 37 units for production, however only 5 units are under production. Following table gives an indication of industries at Nawada.

Sr No	Head	Unit	Particulars
1.	Registered Industrial Unit	No.	3286
2.	Total Industrial Unit	No.	5258
3.	Registered medium and large unit	No.	Nil
4.	Estimated avg no of daily worker deployed in small scale industries	No.	2.96
5.	Employment in large and medium industries	No.	Nil
6.	No. of Industrial Area	No.	1
7.	Turnover of small-scale industries	Lac	NA
8.	Turnover of medium & large-scale industries	Lac	Nil

(Source: http://dcmsme.gov.in/dips/nawada_bihar.pdf)

2.8 Service Enterprises

Nawada has potential for several service enterprises. Some of them are mentioned below:

- Auto Servicing
- Agricultural equipment,
- Technical Consultancy Services,
- Plumber Works for Hand Pumps
- Private ITIs.

In addition, there is a significant potential for new MSMEs such as Rice Mill, Potato, Tomato, Corn Flakes and Sugar Cane. As of now there are some clusters already in the district namely Pottery cluster, Bamboo products and leather footwear.

2.9 Education

Total number of literate persons (2011)	10,91,012	49%
Male Literates	6,59,474	58%
Female Literates	4,31,538	40%

(Source: http://dcmsme.gov.in/dips/nawada_bihar.pdf)

Following table shows the total number of institutions in Nawada:

Sl. No	Type of institution	Count
1.	Schools	1750
2.	Anganwari	439
3.	Technical Institutions	2
4.	College	15

(Source: <http://gis.bih.nic.in/GPS/SCH/REPORT/ReportNew.aspx>)

2.10 Transport Infrastructure and Network

Nawada has a fairly good system of road interconnection. The NH-31 and NH-82 road run through the district. National Highway 31 runs roughly north-south through the western side of district, serving many villages and towns, including the administrative center of Nawada. The total lengths of both the Highways in the district are around 84 Kms. There are 4 State Highways in the district name SH-8 (Hisua-Sikandra), SH-83 (Bagibardiha-Warisaliganj), SH-85 (Rajauli-Gaya) & SH-103

District Disaster Management Plan Nawada: Volume-I (DRR Plan)

(ManjhnayNarhat-Govindpur). State roads have the total length of 120 km. 90% of the total villages is linked to the rural and urban road facilities.

The district lies in the East Central Railway of Indian Railways. The Gaya–Kiul line crosses the district roughly east-west, and connects with the Bakhtiyarpur–Tilaiya line at Tilaiya Junction. Two express trains and several local trains run on the Gaya-Kiul line via Nawadah station. The nearest airport is Bodhgaya Airport, Gaya which is about 58 kilometers from Nawada.

2.11 Healthcare infrastructure at Nawada

Following table shows healthcare infrastructure at Nawada.

Sl. No	Details	Count
1.	Number of District Hospital	1
2.	No of referral hospitals	1
3.	Sub- divisional hospital	1
4.	PHC	08
5.	CHC	06
6.	APHC	35
7.	No. of doctors	154Registered 04Contractual 316 Total Sanctioned Posts
8.	No. of ASHA workers	1907

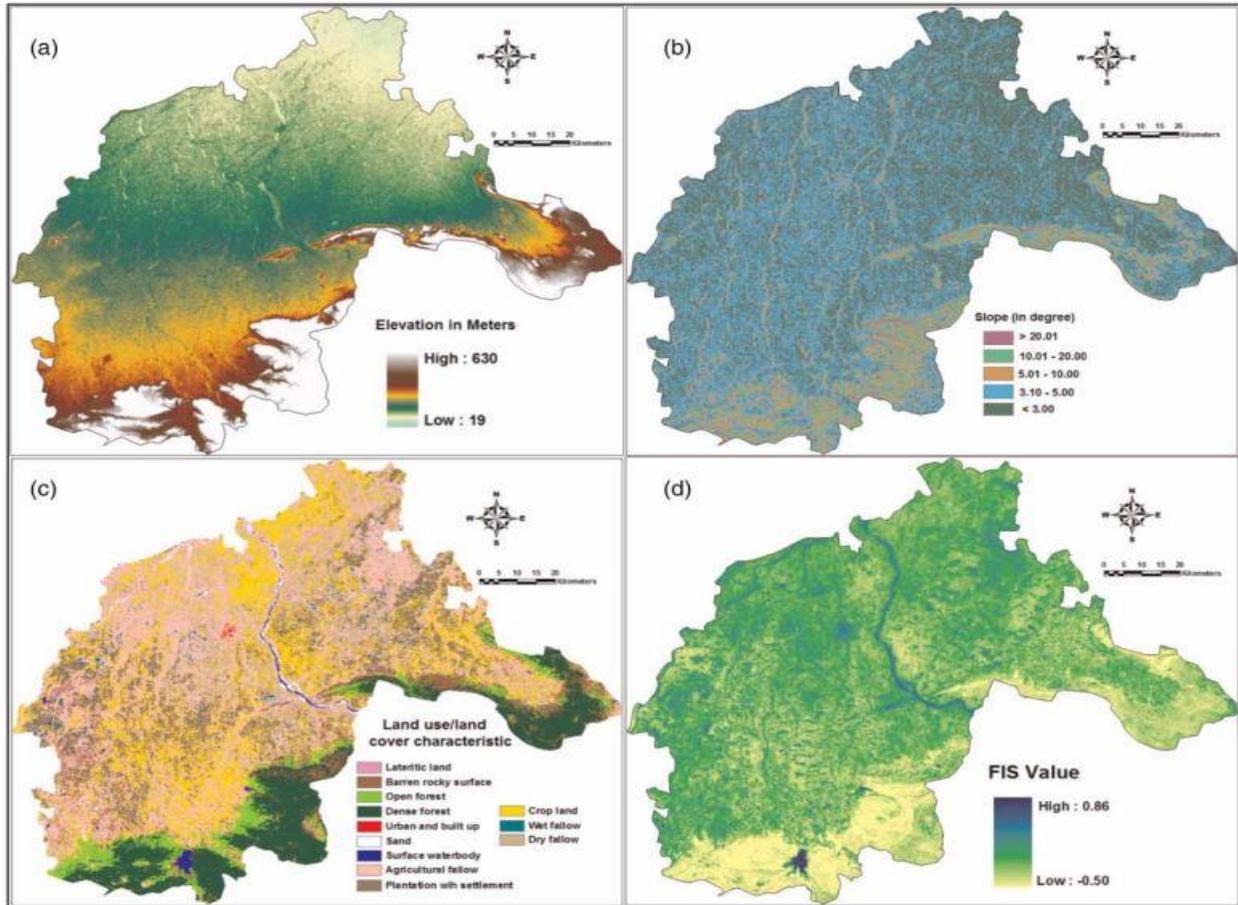
2.12 Telecom Infrastructure at Nawada

- Mobile: Major telecom players present in the region: Reliance, BSNL, Airtel, Vodafone, Telenor,
- Internet: Present
- Any other technology- (agriculture/ industry)

2.13 Topography

The Nawada District comprises of two distinct landscapes

- Plain land of North- 45% comes under the plain land which is used for agricultural purposes.
- The hilly area of the south



Thematic maps of Nawada district derived from the satellite data: (a) elevation, (b) slope steepness, (c) land use/land cover characteristics, (d) (FIS)

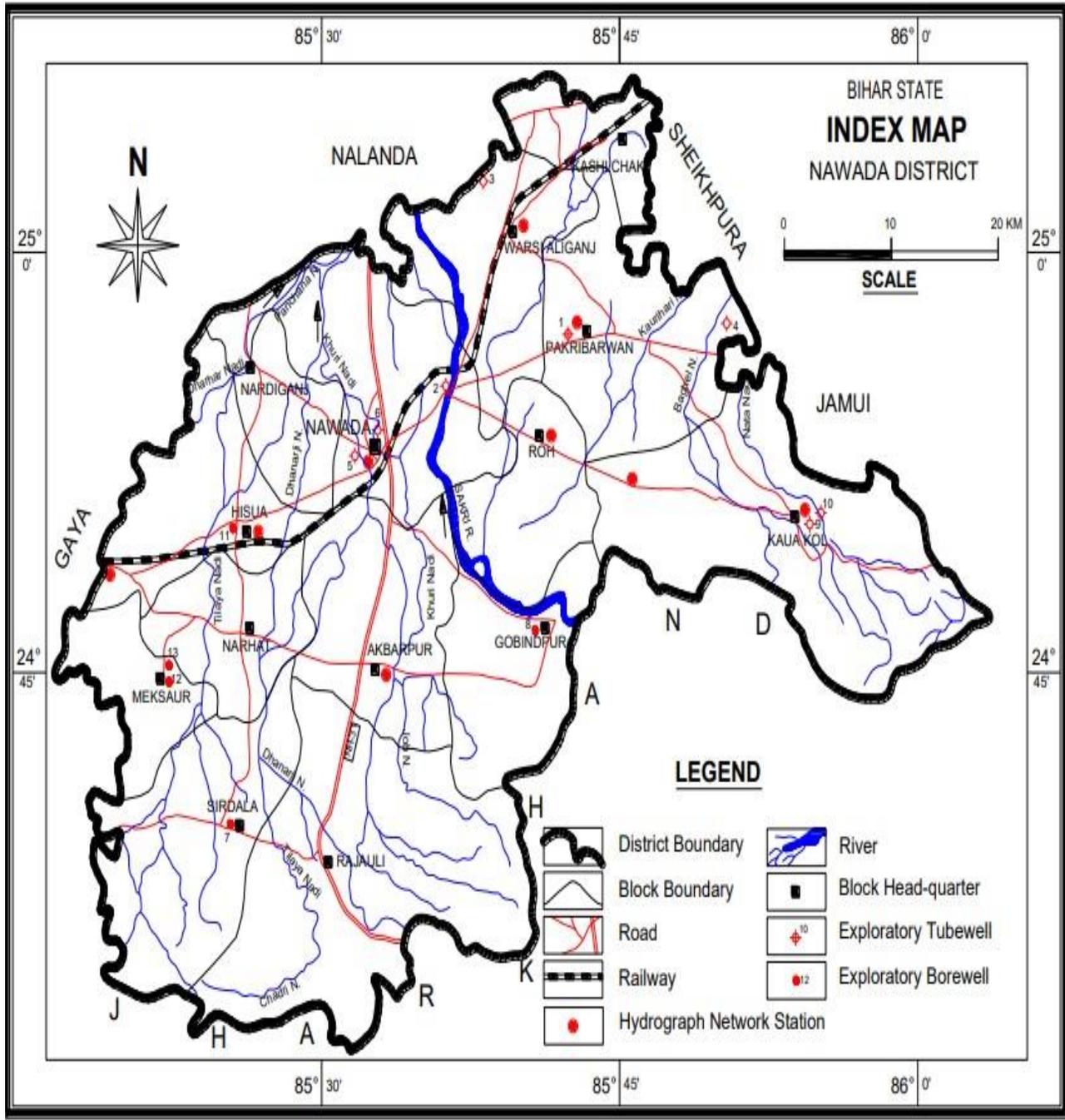
2.14 Natural Resources

2.14.1 Agriculture

Soil Type- Sandy and Loamy Soil	➤ Total No of Hand pump- 31827 Departmental- 22598 Private- 9229
Agricultural Land- 130325 Hectare Irrigated Land- 62000 Hectare Unirrigated Land- 38080 Hectare	➤ Cattle Trough- 22
Major River- Sakri, Khuri, Tilaiya	➤ No of Well- 187
Major Tourist Place- Kakolat Jal Parpat, Shekhodevra Ashram, Narad Sangrahalay, Surya Mandir	➤ Average Ground Water Level- 25.44 Foot (15-07-2022)
Forest Land- 63775 Hectare	

2.14.2 Water Resources

The main rivers are the Sakri, Khuri, Panchane, Bhusri by Kakolat, Tilaiya, and Dhanarjay. The beds of these rivers are shallow, wide and sandy. They are ephemeral in nature and are virtually in spate during the rainy season.



Water Availability Map of Nawada

2.14.3 Dams present in the Nawada district

Sr. No	Name of the Dam	Construction and History	Total Area, Water Source, Danger Level, Avg. Water level, Length, Height, Depth	Approximately Irrigated land in the district
1.	Phulwariya Dam	This dam is located on Tilaiya river near Hardiya village, Rajauli Block, Nawada. Construction of this dam was started in the year of 1979 and was completed in the year 1988.	<ul style="list-style-type: none"> ▪ Total Area-170.20 km² ▪ Water Source-Tilaiya River ▪ Danger Level- F.R.L.-180.48 Meter ▪ Avg. Water level-180 Meter ▪ Length- 1136 Meter ▪ Height- 25.13 Meter ▪ Depth- 25.13 Meter 	5185 Hectare, The irrigated areas of this dam are Rajauli, Sirdala and Narhat blocks.
2.	Job Dam	This dam is located in Hathochak village, Rajauli Block, Nawada. The construction of this dam was started in 1972 and completed in 1977-78.	<ul style="list-style-type: none"> ▪ Total Area- 42.24 km² ▪ Water Source- Khuri River ▪ Danger Level- F.R.L.- 149.08 Meter ▪ Avg. Water level-N/A ▪ Length- 1616 Meter ▪ Height- 18.90 Meter ▪ Depth- 18.90 Meter 	1635 Hectare,
3.	Kol Mahadev Dam	This dam is located in karpuri village, Gobindpur Block, Nawada. Construction of this dam was completed in 1965-66.	<ul style="list-style-type: none"> ▪ Total Area- 11.52 km² ▪ Water Source- Bhusari River ▪ Danger Level- F.R.L.- 504 feet ▪ Avg. Water level-N/A ▪ Length- 157 Meter ▪ Height- 9.20 Meter ▪ Depth- 9.20 Meter 	600 Hectare
4.	Puraini Dam	This dam is located in Peepra village, Gobindpur Block, Nawada. The construction of this dam was completed in 1975-76.	<ul style="list-style-type: none"> ▪ Total Area- 3.326 km² ▪ Water Source- Rain Water ▪ Danger Level- F.R.L.- 132.93 feet ▪ Avg. Water level-N/A ▪ Length- 335.28 Meter ▪ Height- 10.36 Meter ▪ Depth- 10.36 Meter 	250 Hectare
5.	Tarakol Dam	This dam is located on Nati River, Teliyagarhi village, Koakol Block,	<ul style="list-style-type: none"> ▪ Total Area- 3.84 km² ▪ Water Source- Nati River ▪ Danger Level- F.R.L.- 155.91 feet 	257 Hectare

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		Nawada. The construction of this dam was completed in 1980. But in 2000 its damaged.	<ul style="list-style-type: none"> ▪ Avg. Water level-N/A ▪ Length- 106.67 Meter ▪ Height- 23.15 Meter ▪ Depth- 23.15 Meter 	
6.		This dam is located on Nati River, Teliyagarhi village, Koakol Block, Nawada. The construction of this dam was completed in 1980. But in 2000 its damaged.	<ul style="list-style-type: none"> ▪ Total Area- 3.84 km² ▪ Water Source- Nati River ▪ Danger Level- F.R.L.- 155.91 feet ▪ Avg. Water level-N/A ▪ Length- 106.67 Meter ▪ Height- 23.15 Meter ▪ Depth- 23.15 Meter 	257 Hectare
7.		This dam is located on Nati River, Teliyagarhi village, Koakol Block, Nawada. The construction of this dam was completed in 1980. But in 2000 it's damaged.	<ul style="list-style-type: none"> ▪ Total Area- 3.84 km² ▪ Water Source- Nati River ▪ Danger Level- F.R.L.- 155.91 feet ▪ Avg. Water level-N/A ▪ Length- 106.67 Meter ▪ Height- 23.15 Meter ▪ Depth- 23.15 Meter 	257 Hectare

2.14.4 Ground Water Scenarion

Quality of Groundwater

In general groundwater in the district is potable and is also used for irrigation purposes. The chemical analysis of these water samples has indicated that the ground water in the area is alkaline in nature. The pH of the groundwater varies from 6.96 to 8.41. The chloride in ground water in the area varies from 18 ppm to as high as 270 ppm. The bicarbonates in ground water vary from 195 to 488 ppm. Concentration of bicarbonate in ground water is more in Hisua and Roh blocks and low concentration in Nawada block. The total hardness as CaCO₃ varies from 160 to 390 ppm, minimum at Pakribarwan and maximum being at Hisua. Calcium content in water varies from 16 to 104 ppm, the lowest at Rupau in Roh block and the highest in Hisua block, Magnesium content in these shallow water varies from 15 to 71 ppm. The lowest concentration is marked at Akbarpur and the highest at Rupau. The overall study of the chemical contents in the shallow water of Nawada district has indicated that they are within the permissible limits for drinking and irrigational purposes as per the standard in our country, except some small patches in Rajauli block where fluoride concentration has been found beyond permissible limit.

Block Wise Underground Water Availability

Water Table Block Wise, Nawada		
Sr. No	Block Name	Average water table
1	Akbarpur	31.28
2	Govindpur	22.62
3	Hisua	23.84
4	Kashichak	33.42
5	Kawakol	28.32
6	Meskaur	18.11
7	Nardiganj	22.7
8	Narhat	21.54
9	Nawada Sadar	24.68
10	Pakribrawan	29.24
11	Rajauli	25.66
12	Roh	25.77
13	Sirdala	18.58
14	Warisaliganj	30.4
Average water table in the district:-25.44		

(Source: District statical Office, Nawada)

2.15 Tourism

Nawada district has its own glory in the field of tourism and has potential to be developed as a tourist center. There are several places of interest located in the vicinity of the town. These include Kakolat Waterfall (24km from town), Sekho Devra Ashram (Sarvodaya Ashram was established here in Kowakole block by Jaiprakash Narayan and inaugurated by Dr. Rajendra Prasad), Hariya Sun Temple (located in Hariya village under Nardiganj block), Baba Majaar and Hanuman Temple (located on NH 31, a shrine of Hazrat Saiyyad Shah Jalaluddin Bukhari and a Hanuman temple), Jarra Baba (located in Sirdalla), Hanuman Mandir (located in Kendua village) and Maa Bageshwari Mandir (located in Jamuawa, in 3 km of Jamui road of Nawada in side of Sakri River).

Chapter 3

Hazard, Risk, Vulnerability and Capacity Analysis of the District

Under this chapter, due to natural wrath or human activities in the district, due to the sudden interruption in the daily activities of a group or community settled in a particular area or in the context of multiple calamities that cause loss of life and property, experienced by the people here in the past. Hazards effects a detailed analysis of the risk posed to vulnerable groups, community or environment located in the area and their present capacity to deal with these disasters is presented.

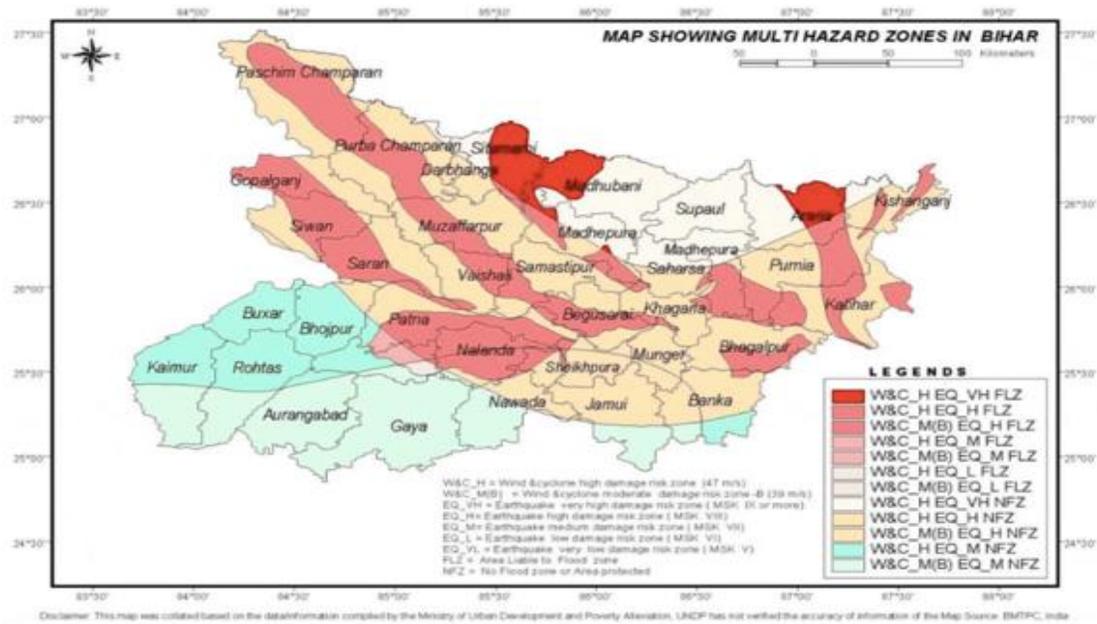
Nawada is a relatively lesser risky district in terms of disasters. Road Accidents and Lightning is the major hazards at Nawada and the district falls in Zone- IV and zone III intensity earthquake zone. Other disaster types include Drowning, Lightning, Road Accident, flood, drought, wind & cyclone and Heat & Cold Wave. In addition to hazard-proneness, disaster risks in the districts are a function of the existing vulnerabilities and capacities of communities and governance systems.

The nature of disaster risks in this group emerges as qualitatively different from those of Groups A and B. In comparison to the districts in the other groups, Group C has the maximum (58%) districts without access to improved drinking water sources. This is notable because, unlike other human development indicators, only 29% of the state's 38 districts have lesser access to improved drinking water sources than the state's average. And a large part of this is situated in Group C. Further, almost all districts in this group have habitats with either arsenic or fluoride contamination in the water sources. Few villages in Rajauli block of Nawada district are affected with fluoride contamination in the water sources which is adversely affecting the health and wellbeing of the communities residing in those areas. Many families have suffered ill-effects of the contamination in form of disabilities. The main disasters in the district and their possible time cycle is as follows:-

Hazards Seasonability Map of Nawada District

Sr. No	Hazards	Likelihood of Occurrence (Indicative, based on data available in Nawada)												Sensitive Block				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
1.	Flood	Orange	Orange	Orange	Orange	Orange	Purple	Purple	Purple	Light Blue	Light Blue	Light Blue	Orange	Warisiliganj, Pakribarawan, Akbarpur, Rajauli, Nardiganj, Narhat, Gobindpur				
2.	Earthquake	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Ver Hingh Zone- Warisiliganj, Kashichak, Pakribarawan, Koakol High Zone- Rest of Blocks lying in High zone.				
3.	Drought	Light Blue	Orange	Orange	Orange	Orange	Light Blue	Light Blue	Light Blue	Light Blue	Orange	Orange	Light Blue	Koakal				
4.	Lightening	Orange	Orange	Orange	Orange	Orange	Purple	Purple	Purple	Purple	Orange	Orange	Orange	Roh, Koakol, Gobindpur, Kashichak, Nawada, Warsiliganj				
5.	Road Accident	Purple	Light Blue	Purple	Purple	Purple	Light Blue	Purple	Purple	AKbarpur, Nawada Sadar, Warisiliganj, Pajali, Pakribarawan, Hisua								
6.	Fire	Light Blue	Light Blue	Light Blue	Purple	Purple	Purple	Light Blue										
7.	Heat Wave	Orange	Orange	Orange	Purple	Purple	Purple	Orange	Orange	Orange	Orange	Orange	Orange	All Blocks				
8.	Cold Wave	Purple	Orange	Purple	Purple	All Blocks												
9.	Hail Storm	Orange	Orange	Orange	Purple	Orange	Purple	Orange	Orange	Orange	Orange	Purple	Orange	Warisiliganj, Pakribarawan, Akbarpur, Rajauli, Nardiganj, Narhat, Gobindpur				
10.	Rail Accident	Purple	Orange	Purple	Nawada													
11.	Drowning	Orange	Orange	Orange	Orange	Orange	Purple	Purple	Purple	Purple	Orange	Orange	Orange	All Block				
12.	Snake Bite	Orange	Orange	Orange	Orange	Orange	Purple	Purple	Purple	Purple	Orange	Orange	Orange	All Block				
Possibility of the Hazards		Purple			High			Light Blue			Medium			Orange		Low		

District Disaster Management Plan Nawada: Volume-I (DRR Plan)



The districts in Group C also display significantly lesser rates of immunization in comparison to the districts in the other groups. Overall, Nawada has the highest disaster risk in Group C, and it scores higher than the state average on all the chosen health indicators and the lowest percentage of immunization the state.

Criteria for Size

- Large: Number of blocks - 16 and above
- Medium: Number of blocks - 9 to 15
- Small: Number of blocks - 8 and Below

(Legends: Z – Zone, F – Flood Prone, D – Drought Prone, CY – Cyclonic Storm, I – Intensive Fire)
(Vulnerability Scale – H – High Vulnerability, M – Medium Vulnerability, L – Low Vulnerability) (Size of Districts – L – Large, M – Medium, S – Small)

S · N o	District	Vulnerabilities to Prominent Disasters								Heat /Cold wave	Overall Vulnerabilities
		EQ		Flood	Lightening	Drought	Fire	Road Accident	Drowning		
		Z- V	Z- IV								
Category 3 Districts											
	Nawada	M		L	M	L	M	H	M	M	M

Hazards Analysis

The district is prone to multiple hazards like drought, earthquake (moderate, zone-III), flash floods (occasional in monsoon), road accidents, lightening, drowning, animal attacks, and diseases, which pose the threat of potential disaster. A hazard risk assessment matrix was prepared based on the probability and frequency of occurrence of hazard in the district and accordingly priority ranking was done. The table below shows the hazard matrix and priority ranking in the district. `

Disaster History

Year Wise Total No of Deaths Data in Nawada from Different Disaster (2016 to September, 2021)						
Sr. No	Death Reason	2018	2019	2020	2021	Total Death
1	Road Accident	-	155	153	150	458
2	Lightning	4	17	17	15	53
3	Drowning	4	18	15	18	55
4	Fire Accident	2	0	0	0	02
5	Heat Wave	0	19	19	-	38
6	Epidemic- TB	36	34	36	34	140
7	Covid-19					
8	Diarrhoea	0	0	0	21	21

Source: District Emergency Operation Center, Nawada

3.1 Drought

The district comes under rain fed area under of South Bihar. Agriculture practices in large area of the district are still fully dependent on rainfall. The canal system and other irrigation sources are dependent on rainfall. Erratic and low rainfall behavior affects the groundwater recharge to a great extent and thus reduces the discharge of tube wells which are major source of irrigation in the district. Vast gap between irrigation potential created and utilized is being observed in the district. The district faces drought on a frequent basis. The district of Nawada does not have any important perennial river. Those, which are worthy to mention, are the Tilaiya, Ghaghra, Khuri, Sakri and Dhanarjya. The beds of these rivers are shallow, wide and sandy. They are ephemeral in nature and are virtually in spate during the rainy season. The district of Nawada also has some important waterfalls such as Kakolat and Hadhadwa.

The net area under irrigation in the district is 2, 65,123 acres, which constitutes 43.13% of the total geographical area of the district. Barren and uncultivable land constitutes 4.99%, land put to nonagricultural accounts for 8.83% and current fallow land makes up 10.42% of the total geographical area of the district. Out of the total geographical area of the district, net area sown constitutes 50.43%. The net area under irrigation comprises, area irrigated by tube wells (23.06%), through wells (7.30%), by canals (7.37%) and other sources (62.27%).

Monsoon sets sometimes in the third week of June and it lasts till the end of September. The average annual rainfall in Nawada district is 996.5 mm. The maximum rainfall in the district comes from South West monsoon with a little about 10% spread over the summer and winter. There is a large variation in the rainfall over year to year. Rainfall increases from Southwest to north-east. After analysis of rainfall data, it is revealed that there is a wide variation in the average annual rainfall values, least being at Rajauli and maximum at Nawada.

3.1.1 Drought Indicator

- ✓ Rainfall is low, not timely or continuous insufficiency of rainfall.
- ✓ Continuous fall in ground water level on a regular basis.
- ✓ Due to lack of water, the crops are adversely affected and eventually ruined.
- ✓ Lack of water in ponds and reservoirs and continuous fall of water level.
- ✓ The crop cannot be planted in unfavorable conditions.

One reason for the drought is the sandy sandy loam and loamy soils found in the district. The moisture in it does not stay for very long 13 days. More or less sandy loam soil also has this quality. If we look at the economic perspective of drought, then it is directly related to the interrelationship of land and agriculture. It is natural that drought is directly related to agriculture and ultimately to the local economy. Cultivated land is where the possibilities of agriculture are created.

3.1.2 Man Made reasons of the Drought

It seems necessary to mention here that some of the factors responsible for drought are natural, while some human factors are also to be misused under human factor, encroachment on canal dam and sluice etc. Under the Gandak Irrigation Scheme, water reaches the last end of the proposed canals. The condition of canals in which irrigation water has not reached for many years is very pathetic. Not having a means of paving from other small rivers, lack of power lines, lack of proper irrigation system etc. are also other reasons for drought.

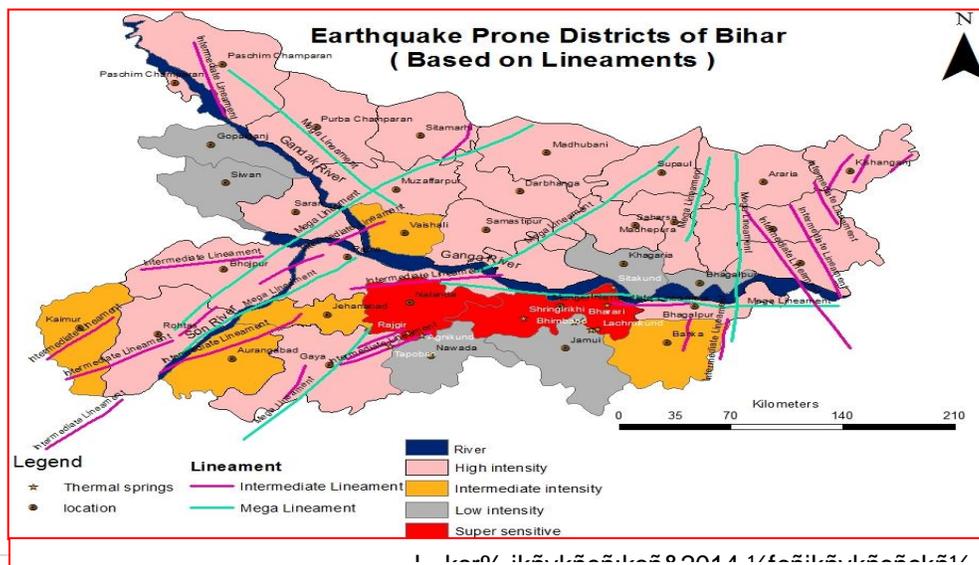
3.2 Earthquake

The new and growing urban centers in the state where building codes and control mechanisms are not enforced, earthquake remains a major threat to cities. This could result in social infrastructures such as schools and hospitals that are not built to be earthquake resistant could lead to severe damage and loss of lives as well. Approximately 70 to 75 % of the total area of the district lies in seismic zone IV and 20 to 25 % area lies in seismic zone III which is comparatively lesser risky zone for earthquakes.

Major Earthquake in Bihar History

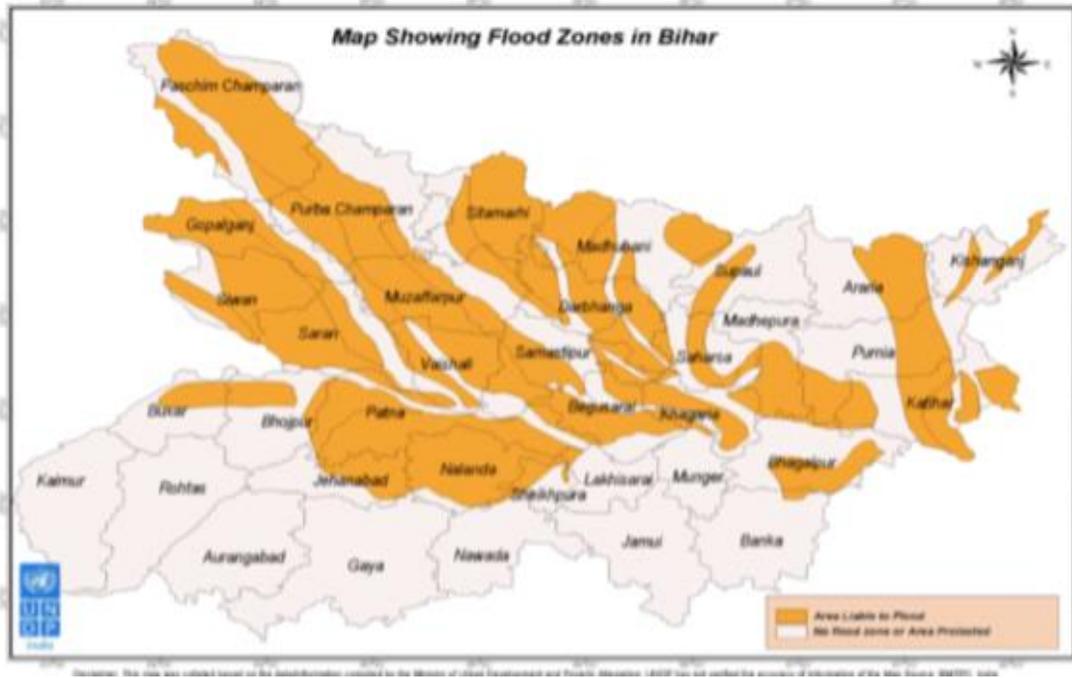
Sr. No	Date	Place	Magnitude	No of Deaths	Affected Districts
1	04-06-1764	Bihar Nepal Border	6.0		
2	27-08-1833	Nepal Border	7.7		
3	23-05-1866	Nepal Border	7.0		
4	23-05-1866	Jharkhand Bihar Border	5.5		
5	30-09-1868	Hazaribag	5.7		
6	07-10-1920	India Nepal Border	5.5		
7	15-01-1934	India Nepal Border	8.4	70	Patna, Gaya, Shahbad, Saran, Mujjafarpur, Darbhanga, Bhagalpur
8	11-01-1962	India Nepal Border	6.0		Munger and Purnia
9	21-08-1988	India Nepal Border	6.7		Madhubani, Darbhanga
10	18-09-2011	Sikkim Nepal Border	5.7	1000	
11	25,26-04-2015	India- Nepal Border	6.6	60	Patna and Border districts near by Nepal Border

(Detailed Earthquake Prone Map of Bihar State)



3.3 Flood

Very rare incidents of floods are observed at Nawada. Main rivers at Nawada are Sakri, Khuri, Panchane, Bhusri by Kakolat, Tilaiya, and Dhanarjay, there are no perennial rivers in Nawada. Whenever there is a heavy rainfall occur in the district, that time water logging arises in the said situation. No flood situation has been reported in the district so far.



Major Rivers and there flowing area of Nawada

Sr. No	Name of the River	Related Block
01	02	03
01	Sakri	Gobindpur, Roh, Nawada, Koakol, Warsiliganj
02	Dhanarjay	Sirdala, Rajauli, Hisua, Narhat
03	Dhadar	Narhat
04	Khuri	Akbarpur, Nawada
05	Panchane	Nardiganj, Nawada

3.4 Fire

Fire incidents keep happening in the district every year, so the entire area of the district is vulnerable to fire. If seen on the basis of vulnerabilities, then the Block **Hisua, Nawada Sadar, Narhat and Warsiliganj** are most sensitive to fire accidents, according to the report of the Fire Brigade Office Nawada.

Generally, due to the carelessness of human beings in dry weather, fires are started by burning pieces of beedis, cigarettes, matches etc. Cattle grazing tourists, smoldering wood residues by travellers, sudden breaking of electric wires, burning of crop residues in fields, chulhas burning in homes, short circuits of electricity with gas or coal, bare electrical wires and their loose ends. Caused by careless use of joints, sparking or short circuit in electrical equipment, accident of airplane, train, bus or other means of transport, sparks of wind blown fire, sudden explosion of combustible or flammable materials, cooking gas Accidents, explosions in factories or electric sparks, etc. are the main causes of fire inside or outside the house. In summer, fires are common in standing crops, barns, huts and kutcha houses. Similarly, in the densely populated parts of cities, the accumulation of combustible materials, electrical failure or accidents in the kitchen catches fire.

According to the details received from the Fire Department, Nawada, there have been a total of 1106 fire incidents happened in the district from the financial year 2015 to 2021, causing heavy economic loss. The details of the incident of Agnika are given below.

Fire Accidents from 2015 to March 2021 in District Nawada				
Sr. No	Year	Fire Accidents	No of Death	Economic Loss in rupees (Approximately)
1.	2015	79	0	8,67,5000
2.	2016	218	0	1,29,44,200
3.	2017	137	01	3,41,84,000
4.	2018	246	0	2,43,56,200
5.	2019	286	0	2,31,84,600
6.	2020	79	0	2,75,2000
7.	Till March 2021	61	0	N/A

(Source: Fire Department, Nawada)

3.4.1 Risk Analysis

Hazard Assessment Every year in the months of March, April and May, due to high temperature, low humidity, strong wind and persistent dryness, there is a strong possibility of fire. Most of the fire hazards in this district are from huts made of flowers, tiles and raw clay in rural areas. The stalks left in the field after harvesting, the straw kept in the ground and the fire in the process of moving the paddy on the chulo have also been identified as hazards which have been caused by unsafe kitchens and kerosene lamps in the huts in the suburban areas. Incidents keep happening. In private and government buildings and offices, due to old dilapidated wires, there is an incident of fire due to shut-circuit of electricity. Fire can happen anywhere. So we need to be prepared to reduce and deal with it.

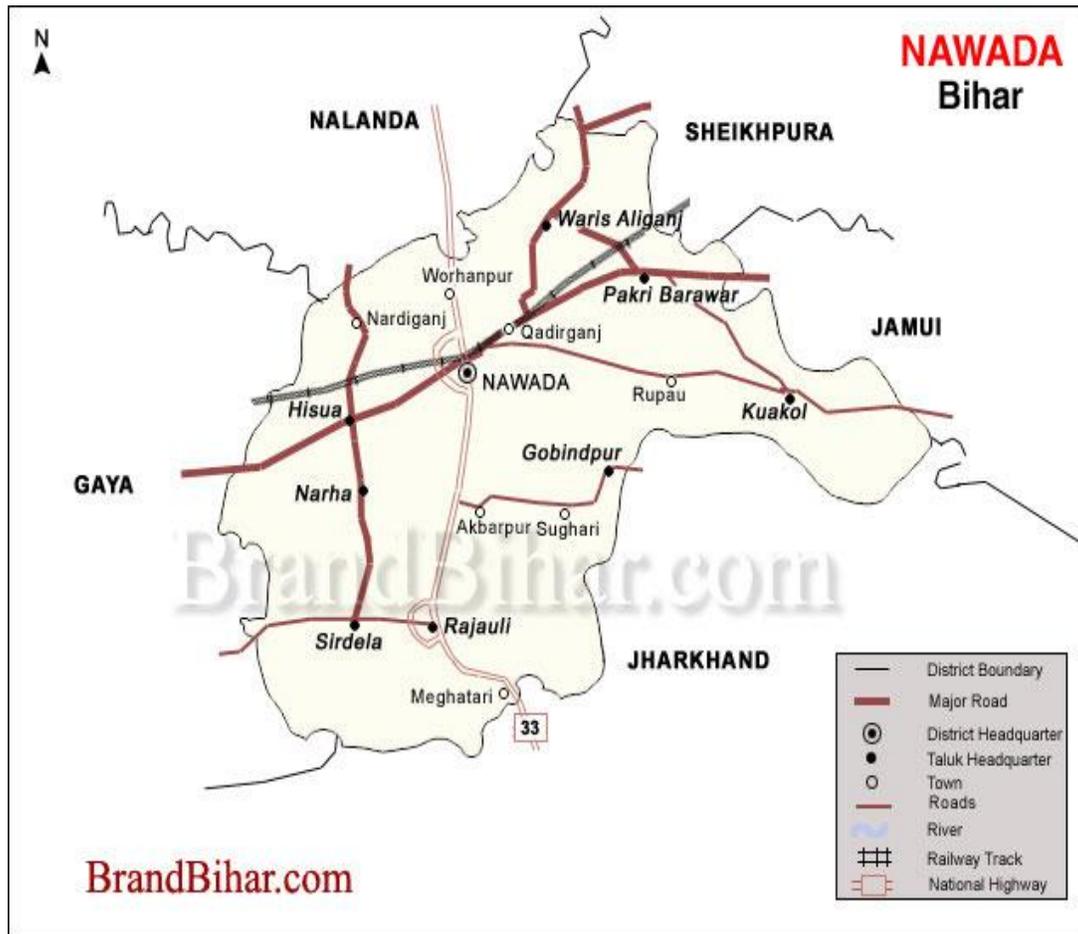
3.5 High Speed Wind/Gale/Hail Storm

The district is in moderate Damage Risk Zone (wind speeds between 39 and 44 m/s). Only some part of the district is affected by high-speed wings/ gale/ hail storm.



3.6 Road Accident

The sensitivity and risk related to road accidents in Nawada district can be accessed on the basis of road accidents formed earlier in the district. The density of the Pucca road has been increased rapidly to promote faster transport. These new roads pass through densely populated areas; accidents on these roads are quite big in recent time.



In 2020, 204 no of accident reported and in those accidents 153 peoples lost their life and 193 were injured. Where in 2021, 209 no of accident reported and in those accidents 150 peoples lost their life and 173 were injured. Akbabrpur, Warsiliganj, Rajauli, Hisua and Pakribarawa hotspot remained in road accidents. Over Speed & without Helmet/Safety are the main reasons of the accidents. “In 50% to 70% of the road accidents, trucks, lorries or heavy commercial vehicles are involved.

Detail of the Road Accidents in Nawada

Sr. No	Months	Year -2019		Year-2020		Year-2021		Year-2022	
		Death	Injured	Death	Injured	Death	Injured	Death	Injured
1	Jan	14	16	11	24	13	18	11	05
2	Feb	10	28	16	23	24	32	08	06
3	March	17	11	08	18	08	07	09	05
4	April	12	09	03	07	09	16	07	08
5	May	21	28	06	07	17	16	18	21
6	June	14	15	16	16	11	19	10	12
7	July	14	13	15	21	16	07	16	13
8	August	11	15	15	15	05	09	17	10
9	Sep	12	03	13	15	14	13	-	-
10	Oct	12	09	13	12	17	03	-	-
11	Nov	09	09	17	23	09	18	-	-
12	Dec	09	16	20	12	07	15	-	-
Total		212	172	153	193	150	173	96	80

The above figures show that there has been a huge increase in the number of road accidents in the last couple of years (2019-22). Some Black Spots have been identified in the district where the death toll to road accident is high. According to the central criteria, in the year 2019,2020,2021, under 500 mt., black spots have been identified on the basis of 05 accidents or 10 dead, serious/simply injured, on the national highway, State highway, Nagariya Path or Other Roads. Which is like follow:-

- ✓ NH-31, Near by Sadbhawna Chowk
- ✓ NH-31, Kharrat Chowk, Nagar Thana
- ✓ NH-31, Between Sehpara and Gordhova Road, Muffassil Thana
- ✓ NH-31, Karakut, Rajauli Thana
- ✓ Other Road, Jhikruaa, Narhat Thana
- ✓ Other Road, Repura, Sithamarhi Thana
- ✓ Other Road, Near by Dak Baba, Kadirganj
- ✓ NH-31, Six Mile, Akbarpur Thana
- ✓ NH-31, Kenduaaa Morh, Akbarpur Thana
- ✓ Other Road, Baghibagdiha Road, Warisiliganj Thana

3.7 Lightning

Lightning is an electrical discharge caused by imbalances between storm clouds and the ground, or within the clouds themselves. Most lightning occurs within the clouds. This heat causes surrounding air to rapidly expand and vibrate, which creates the pealing thunder we hear a short time after seeing a lightning flash. In Nawada 78 death recorded from 2015 to 14 September, 2022. Mostly it happens in rainy season and effected people are those who are working in the fields while sowing rice plant, grazing cattles or working in the fields. Mainly related to agricultural work. On the basis of the death cases reported due to lightning, we have divided all the blocks into three zones is as follows:

- ✓ **Highly Risk Zone** (Kashichak/Gobindpur/Nawada- Including the blocks where 05 or more deaths recorded due to lightning since 2018 to 19 September 2022)
- ✓ **Medium Risk Zone** (Akbarpur/Meskaur/Roh/Pakribarawan/Koakol/Sirdala/Hisua- Including the blocks where 02-05 deaths recorded due to lightning since 2018 to 19 September 2022)
- ✓ **Low Risk Zone** (Warsiliganj/Rajauli/Narhat- Including the blocks where 0-02 deaths recorded due to lightning since 2018 to 19 September 2022)

Further, there has been a 34% rise in Lightning strikes in the country. It has advanced from 1.38 crore strikes in 2019-2020 to 1.85 crore strikes in 2020-2021 in Bihar, an increase of 46, 83,989 strikes.

List of the Victims due to lightning of the year 2022 is as follow:

Detail report of the Lightning, till 19.09.2022 Year-2022			
Sr. No	Name of the Victim	Address	Date of Death
1	Sunil Pandit	Village-Thalpos ,Panchayat-Konandpur, Ps-Pakribawan, Nawada	24-02-2022
2	Pintu Chaudhary	Village-Ataari,Panchyat-Gulni, Ps-Pakribawan, Nawada	24-02-2022
3	Bhagirath Chauhan	Village-Netna,Post- Marui,Panchayat,Najardih,Circle-Roh, Dist-Nawada	21/06/2022
4	Ishwari Mahto	Village-Kolja,Post-Budhwara, Circle-Gobindpur	21/06/2022
5	Shiv Kumari Devi	Tola-Marpo,Panchayat Lalpur, Circle-Kowakol	29-06-2022

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6	Leela Devi	Village-Parma,Ps-Nardiganj,District-Nawada	30-06-2022
7	Ramdev Chaudhary	Village-Bholakudha, P.S-Sirdala, District-Nawada	27-07-2022
8	Rajo Yadav	Vill-Chotta,P.S-Rajauli	28-07-2022
9	Chandan kumar	Village-Mahugayn Post-Sandh,Circle-Sirdala	03-08-2022
10	Babulal rajwanshi	Village-Chakpar ,Post-Bandhi,Circle-Sirdala	03-08-2022
11	Faguni Mahto	Village-Kunjaila,Ps-Roh	03-08-2022
12	Kajal Kumari	Village-Kolja,Post-Budhwara, Circle-Gobindpur	03-08-2022
13	Balram Rajwanshi	Village-Meyapur,Panchgawan, Circle-Akbarpur	01-09-2022
14	Price Kumar	Village-Ghuriha, PO-Hisua,Dist-Nawada	02-09-2022
15	Anita Devi	Village-Barsot, Bhelwatand, PS-Sirdala,Nawada	13-09-2022
Total Death		15	

As a thunderstorm moves towards the earth, a large amount of electrical discharge moves from the clouds towards the earth. The fear of electrical orders becomes greater, when the amount of electric charge within the clouds increases. The field mill instrument is capable of measuring the charge within the clouds. As soon as it reaches a specified limit. The probability of a thunderstorm falling on the earth can be ascertained.

3.8 Drowning

Drowning is a type of suffocation induced by the submersion or immersion of the mouth and nose in a liquid. Drowning is more likely to happen when spending extended periods of time near large bodies of water. Total 55 deaths recorded to 2018 to September, 2021 in different blocks of Nawada. Drowning, also looking to be a disaster for the district. Year wise data of drowning in the district as follows:-

Sr. No	Year	Total No of Death	Affected Blocks with number of Death
1	2018	04	<ul style="list-style-type: none"> ✓ Nawada-01 ✓ Warsiliganj-02 ✓ Nardiganj-01
2	2019	18	<ul style="list-style-type: none"> ✓ Meskaur-02 ✓ Rajauli-03 ✓ Pakribarawan-03 ✓ Warisiliganj-02

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			✓ Akbarpur-04 ✓ Nawada-04
3	2020	15	✓ Gobindpur-05 ✓ Nawada-05 ✓ Meskaur-01 ✓ Akbarpur-02 ✓ Warsiliganj-02
4	Till September, 2021	18	✓ Nawada-03 ✓ Warsiliganj-07 ✓ Roh-02 ✓ Pakribarwan-02 ✓ Gobindpur-01 ✓ Sirdala-02 ✓ Meskaur-01

In Nawada it has been found that the cases of drowning have been increased because of unawareness of the community of vulnerable/danger spots. The following are the causes of death due to:

- ✓ Inability of the group/persons presents here to rescue that person during drowning/distress.
- ✓ Suddenly the depth of the river/ponds increases.
- ✓ Don't come swimming
- ✓ Don't pay attention to the kids.

3.9 Spread of Rumours

Activity of anti-social elements, lack of patience, rush to leave the dead place mentality escape from the crowd, etc. is such a mental state that turns the crowd into a stampede. After a stampede situation, it becomes difficult to estimate the number of people killed and injured. The physical activities that are formed as a result of the mentality of saving their lives, they do not care about the lives of others. That's why if someone falls on the ground in a stampede, then the whole crowd passes over his body and does not give him a chance to stand up. This means that without worrying about the lives of others, it turns into a stampede. During the world-class Prakash Utsav organized on the occasion of 350th birth anniversary of Guru Gobind Singh in Patna, the plan made by the government for crowd control and its implementation is a milestone. This can be exemplary for each district.

In view of the danger and danger prevailing in the district, a large number of people gather at Surya Mandir Ghat, Paar Nawada. In such a situation, the movement of religiously connected crowd on the road and on the ghats for bathing can become a cause of possible accident. In the absence of information about

the actual number of such crowds and their entry and exit, many times there are lapses which take the form of Mead accident. Therefore, efforts need to be made to improve these opportunities also from risk perspective. Preparing for sleep or panic can avert any potential risk

No special incident happened in the past to convert the sweets collected in the district into an accident.

3.10 Climate Change

Developing States including Bihar and other states of India that tend to share similar sustainable development challenges, including small but growing populations, limited resources, remoteness, susceptibility to natural disasters, vulnerability to external shocks, excessive dependence on international trade, and fragile environments. Their growth and development is also held back by high communication, energy and transportation costs, irregular international transport volumes, disproportionately expensive public administration and infrastructure due to their small size, and little to no opportunity to create economies of scale. Climate change will have wide-ranging effects on the environment, and on socioeconomic and related sectors, including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Changes in rainfall pattern are likely to lead to severe water shortages and/or flooding. Melting of glaciers can cause flooding and soil erosion. Rising temperatures will cause shifts in crop growing seasons, which affects food security, and changes in the distribution of disease vectors putting more people at risk from diseases such as malaria and dengue fever. Temperature increases will potentially severely increase rates of extinction for many habitats and species (up to 30 percent with a 2° C rise in temperature). A rise in extreme events will have effects on health and lives as well as associated environmental and economic impacts.

3.11 Heat wave

Under the provision of 14th Finance Commission, the state government has declared heat wave along with some other calamities as a local calamity to facilitate the preparation of special action plan and special assistance on such occasions.

The Indian Meteorological Center has defined severe heat or heat stroke. According to the magnitude of the center, if at any time 4-5 degrees above the normal temperature, then it is called severe heat or heat wave. In the plains, when the temperature continues to be more than 40 ° C, then we call it a condition of extreme heat or heat. 22 people died in 2018 due to heat wave in the district. Due to climate change, the increase in temperature and changes in rainfall pattern is being seen not only in the district but all over

India. If the above situation persists for two-three days, and then under an action plan, the process of preparation will have to be started by taking the forecast of the Meteorological Department as the basis.

3.13.1 Consequences of Danger

- ✓ Heat rash (boils due to heat) Convulsions (cramps due to heat).
- ✓ Fainting (fainting from the heat).
- ✓ heat exhaustion
- ✓ Heatstroke (sunstroke).
- ✓ Dehydration (dehydration).

In this situation the person reaches in emergency and seeks immediate medical attention along with first aid. Help is needed. The Indian Meteorological Center has marked the extreme heat or heat wave conditions with a color code. This will also make it easier for the public to understand. Newspaper to inform the general public about the severity of heat or heat and alerted through the color code issued by the Government of India on the display board located in the district and block can be done.

The color code is shown in the table below-

Table for heat wave warnings color code

Color code	Heat wave condition	Temperature
Red Color Dangerous Situation	Almost above normal (maximum) temperature critical situation	At about 6 degree centigrate or more above normal temperature
orange color medium condition	Hot wind day	4 to 5 days above normal (maximum) temperature of warm air alert
yellow color heat wave warning	Warm Day	Temperature around normal
White Color Normal	Normal Day	Below normal temperature

(Source Indian Weather Science Center)

The district wise temperature map of Bihar published by the Indian Meteorological Center shows that the maximum temperature compiled so far in Nawada district has been found to be 45 to 47 degree centigrade and the maximum average temperature is between 30 to 39 degree centigrade (found in the month of May). The temperature records indicate the intensity of heat and heat related risk of this district.

3.12 Cold Wave

Generally, this calamity in Bihar between Decembers to January, when the prevalence and intensity of cold becomes severe and frightening, then it is called cold wave.

Threat scale

The scale of intensity of cold is fixed by the state government to bring it into the category of cold wave. Bihar Government, Disaster Management Department's letter number 4285 dated 18.10.2012 can be seen at Annexure-56 of section-2 could.

Cold Wave Conditions	Temperature
Cold Wave	Where the normal minimum temperature is found to be 10 degree or more, the minimum temperature if found to be less than 7 degree the normal minimum temperature
	If the normal minimum temperature is found to be 10% or less, this is the minimum temperature If the normal minimum temperature falls below 5degree.
Frost	Where the temperature falls below 0 degree or if there is abnormal condition for the kept crop, then it will be called frost.

In this regard, Indian Meteorology also considers the difference between the normal day (maximum) and night (minimum) temperatures of any region as the basis for defining the temperature for the summer season. A cold wave is considered to be moderate or severe when the current minimum temperature falls below normal (6-7) or falls by more than 3. When, its estimation takes into account local climatic conditions and changes in temperature is performed.

3.13 Biological Disasters

Biological disasters are natural scenarios that involve widespread disease, disability, or death in humans, animals, and plants due to micro-organisms such as bacteria, viruses, or toxins.

Noval Coronavirus:

The world has seen the severe impact of many pandemics that have devastated the entire humanity. COVID-19 is a pandemic that the world is facing since December 2019. Covid-19 caused huge loss of life and almost destroyed the world economy. The sudden lockdown made the situation worse, though there was no other option during that time. It disrupted almost all sectors like transport, formal and

informal sector, small medium and large scale industries. A large number of people became unemployed and many families were marginalised.

Due to this epidemic, 427 crore people were affected in the country, out of which more than 5 lakh people lost their lives due to this disease. The situation in Bihar has been almost the same, so far 8.29 lakh people have been affected by this epidemic in the state and more than 12 thousand people have lost their lives.

Due to this epidemic in Nawada district also there has been devastation. The disease affected 26,393 people in the district and about 274 people died due to the novel coronavirus disease. Following are the details related to NovAI Coronavirus disease in the district.

3.14 Epidemic and Health Hazard

Health problem has been identified in this district as the most Fyleria, Diaria, T.B, in health hazard and risk. In the last years, after declaring Kala-Zaar a national disease, measures have been taken to eradicate it on a large scale. The result of this is clear from the fact that in the last six years there has been a significant decline in the number of people suffering from this disease. Considering this as the main disease, continuous medical arrangements are being made. Other major health problems include TB. Leprosy, Diarrhoea etc. is prominent.

Apart from this, the problem of dog bites has emerged on a large scale in the district. A comparative study of 2016 to July 2022 shows that while there are 55100 dog bites recorded. Most of the dog bites have been reported more between June and January. In view of such health related hazards. For this, attention has to be paid towards well-planned disaster management. Between 2016 and July, 2022, 8029 patients were treated with T.B, out of which 169 patients died.

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1	Disease	2016		2017		2018		2019		2020		2021		Till July, 2022	
		Affected	Dead	Affected	Dead										
1	Kalajar	6	0	5	0	21	0	5	0	0	0	2	2	0	0
2	Malaria	197	0	142	0	141	0	210	0	69	0	196	0	25	0
3	Fyleriya	1235	0	1819	0	2520	0	2130	0	3310	0	3618	0	1376	0
4	T.B	1116	0	1603	21	953	36	1204	34	875	36	1309	34	969	8
5	Brain fever	25	5	0	0	1	0	10	2	3	1	10	0	0	0
6	Swine Flu	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dengu	20	0	34	0	5	0	43	1	0	0	52	0	0	0
8	Chikungunya	9	0	3	0	0	0	1	0	0	0	0	0	0	0
9	Diarrhoea	449	1	408	10	502	0	158	0	198	0	543	0	672	0
10	H.I.V	95	0	102	0	129	0	108	0	105	0	105	21	57	0
11	Chikun Pokes	33	0	27	0	118	0	84	0	18	0	65	0	138	0
12	Mijils	277	1	159	1	399	1	191	1	14	0	31	0	80	0
13	Dog Bite	7355	0	8516	0	8264	0	9733	0	8132	0	7306	0	5794	0
14	Leprosy	315	0	213	0	376	0	640	0	265	0	313	0	135	0
15	Snake Bite	-	-	-	-	-	-	-	-	-	-	41	0	35	0

(Source: - As per the data provided by Civil Surgeon Office, Nawada)

3.14. Sensivity and Risk Analysis

Nawada district is vulnerable to multiple disasters and there is a risk of loss of life and property due to lack of sufficient capacity to deal with these multiple hazards. Vulnerable to hazards like earthquake, flood, drought, drowning, fire, storm etc. and the disaster wise details of the risk are given below.

3.14.1 Earthquake

Nawada district comes under the seismic zone II and IV on the earthquake scale. There are total 346,749 houses in Nawada district as per 2011 census. In which there are 313,669 is situated in Rural and 33,080 is situated in urban areas. In residential houses 103,611 are in good, 208,664 are in Livable and 34,494 are in dilapidated conditions. In total no of 14,541 Residential cum other use buildings, 4,713 are in good, 87, 80 are in Livable and 1,048 are in dilapidated conditions.

Number of households by condition

Total/ Rural/ Urban	Number of households with condition of Census House as											
	Total				Residence				Residence-cum-other use			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Total	346,749	103,611	208,644	34,494	332,208	98,898	199,864	33,446	14,541	4,713	8,780	1,048
Rural	313,669	85,784	195,508	32,377	300,961	82,182	187,386	31,393	12,708	3,602	8,122	984
Urban	33,080	17,827	13,136	2,117	31,247	16,716	12,478	2,053	1,833	1,111	658	64

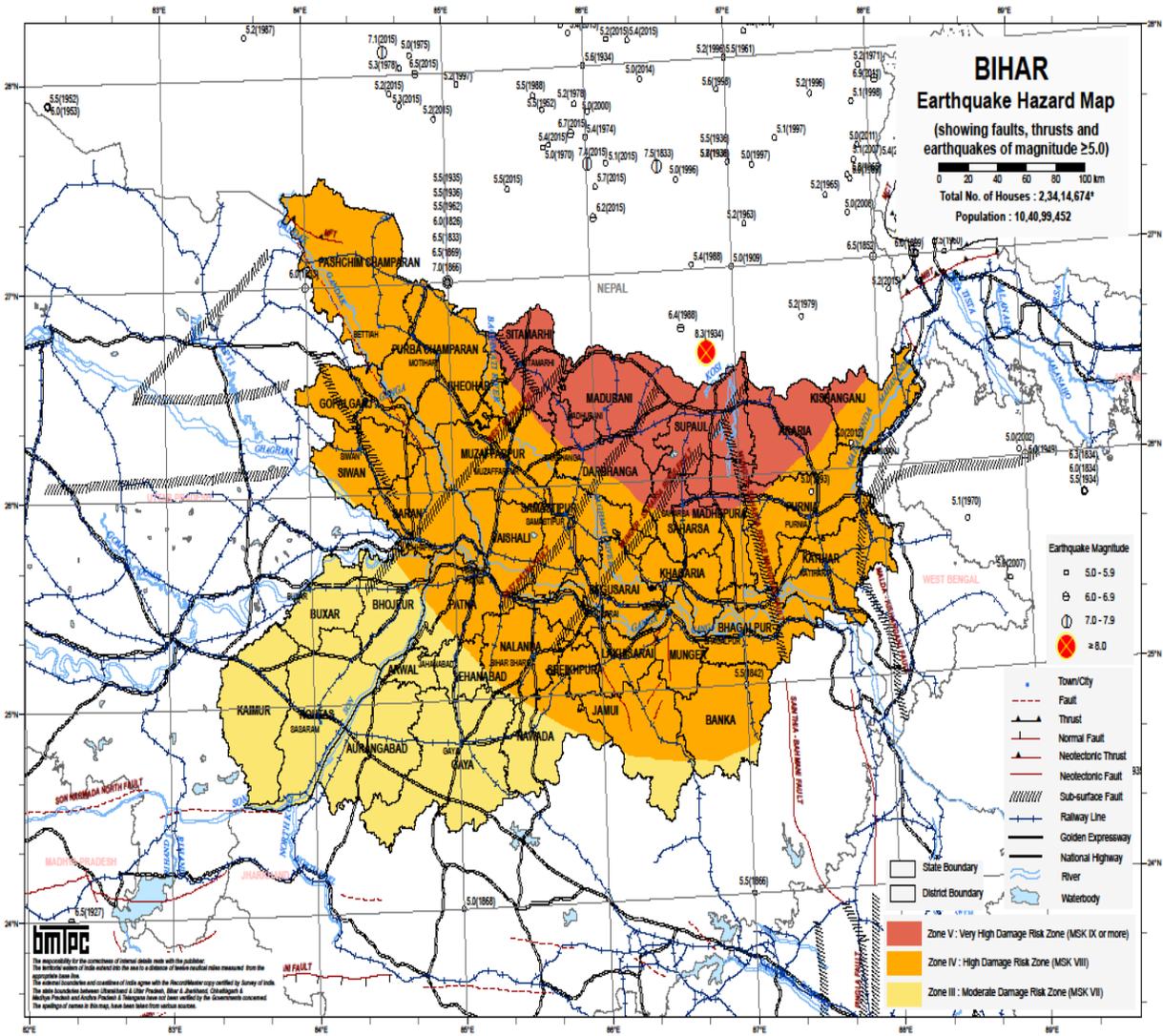
Percentage of households to total households by condition

HOUSELISTING & HOUSING CENSUS, 2011												
PERCENTAGE OF HOUSEHOLDS TO TOTAL HOUSEHOLDS BY AMENITIES AND ASSETS												
Rural/ Urban	Number of households with condition of Census House as											
	Total				Residence				Residence-cum-other use			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Total	100	29.9	60.2	9.9	95.8	28.5	57.6	9.6	4.2	1.4	2.5	0.3
Rural	100	27.3	62.3	10.3	95.9	26.2	59.7	10	4.1	1.1	2.6	0.3
Urban	100	53.9	39.7	6.4	94.5	50.5	37.7	6.2	5.5	3.4	2	0.2

Percentage of Households by Type of Structure

Rural/ Urban	Households by Type of Structure of Census Houses					
	Permanent	Semi-Permanent	Total Temporary	Serviceable	Non-Serviceable	Unclassifiable
Total	49.9	29.1	20.1	17.4	2.7	0.9
Rural	46.8	30.9	21.3	18.5	2.8	1
Urban	78.8	11.9	8.5	6.8	1.7	0.9

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BMTPC : Vulnerability Atlas - 3rd Edition : Peer Group, MohUA, GOI; Map is Based on digitised data of SOI; Seismic Zones of India Map is: 1993 (Part I); 2002, BIS; Earthquake Epicentre from IMD; Seismotectonic Atlas of India and its Environs, GSI; Houses/Population as per Census 2011; Houses including vacant & locked houses. Disclaimer: The maps are solely for thematic presentation.

In the North of Nawada, the faultline passes through the nearest Munger-Sharsa Ridge Fault Line. Due to which it can be prone to large-scale earthquake at any time. If there is any kind of geological vibration on that fault line/linament, it is likely to have maximum impact in Kashichak, Warisiliganj, Pakribarawan and Kowakol blocks of Nawada district. Apart from this, East Patna fault line is passing adjacent to the North-West end of Nawada district.

3.14.2 Drought

The drought has been the main reason for the district having less than expected rainfall in most of the years or less rainfall in the required months. Therefore, the entire block of Vaishali is affected by agricultural work. The vulnerability increases even more because drought shows its effect gradually. Poverty, shortage of food grains, cost of food grains, migration of people to other places for employment and health related problems have emerged mainly in the form of risks. Climate change also increases the severity of drought. Similarly, the shortage of livestock fodder Lack of water in Pokhara pond, animal health sensitive due to drought becomes. The fall in the water level during the dry months also poses a risk. The increase in malnutrition and hunger due to dragging and taking loans also made people sensitized in the district. Lives Loss in livelihood of people becomes a serious problem.

3.14.3 Fire

There is a risk of fire due to wood / Goitha stove, cooking gas, kerosene oil based stoves and lamps, matchsticks and unsafe electrical equipment etc. The gas stove distributed in the extremely poor sections under the government scheme also carries the risk of fire. A spark emanating from an 11000 volt electric wire also occasionally causes a fire.

3.14.4 Road Accident

To know the increasing number of road accidents, there is a need to study at the district level keeping in mind the various dimensions so that various steps can be taken after assessing the consequences. After assessing the frequent road accidents in the state, the following points were found to be responsible for road accidents:

Violation of safety rules by drivers, poor road conditions, over-loading (hasty and overtaking while driving goods and passenger vehicles, haphazardly driving vehicles where illegal stumbling blocks, wearing helmets while driving two wheelers) Non-use, Uncontrolled motor cycle by minors or youths, Lowering or burping of eyelids on both sides of the road after road elevation, Tractor driving in rural areas by unauthorized persons, "Guidelines on roadside" signage strips and the absence of radium stickers, sudden human or animal crossing on the roads, in order to transport sand from mining areas by open vehicles, due to the dispersion of sand on the roads, slipping of two paddy vehicles, poor glass / dark and four arm roads etc.

Central Formulation Organisation, Department of Construction, Government of Bihar Patna has marking some sites on N.H., the following main reasons have been mentioned in its report.

- ✓ Heavy Traffic
- ✓ high speed driving
- ✓ densely populated

3.14.4 Drowning

Incidents of drowning happen from time to time in the district. Here it has been seen for a few years that J.C.B. Due to the large amount of soil being harvested, large pits are formed in which the possibility of drowning is strong. Apart from humans, there is a possibility of animal drowning in these geckos. Hence such a structure also increases the sensitivity.

3.14.5 Climate Change

Based on the soil composition, agro-climatic of the district, Nawada is located in the agricultural zone III of Bihar. Keeping this sum in mind, the statistics of temperature and rainfall due to climate change have been compiled by the Department of Agriculture. An attempt has been made to know the trend of annual change in rainfall and temperature conducted by Agriculture Department, Bihar with the data of last 68 years. On the basis of this study, the following trend of change in temperature and rainfall per year was observed in the districts located in the agricultural zone.

- Maximum temperature- reduction (-0.012 °C / Per year)
- Minimum temperature- rise (+0.015 °C. / Per year)
- Medium temperature- rise (+0.002 °C. / Per year)

Mid-Temperature Agriculture Department, Bihar has prepared a study report on scaling up climate smart agriculture through a study report Mainstreaming Climate Smart Village, which is to be implemented through Rajendra Agricultural University, Bihar Agricultural University and Indian Council of Agricultural Research used to be. In the January 2017 report, all districts of Bihar have been considered vulnerable to climate change.

The above mentioned maximum, minimum and mean temperature shows that even in Nawada district there is a possibility of increase and decrease from time to time. In the past the rainfall data also shows that. There has been a gap between the expected rainfall and the actual rainfall in the previous years. According to the study report till the year 2050 for Bihar climate projections, maximum and minimum temperatures (2 to 4 degree centigrade) in different months of the year showed an increasing trend. This will affect the agriculture, food security and livelihood of the rural people.

3.14.6 Heat Wave

The effectiveness of heat wave depends to a large extent on the geographical structure of the particular place. The geographical structure of Nawada district is of two types, with less than half the sand and more than half the flat plains, whose nature is sloping. Due to the sloping nature, the rays coming from the sun are more absorbed here and makes the earth hot. As far as rivers are

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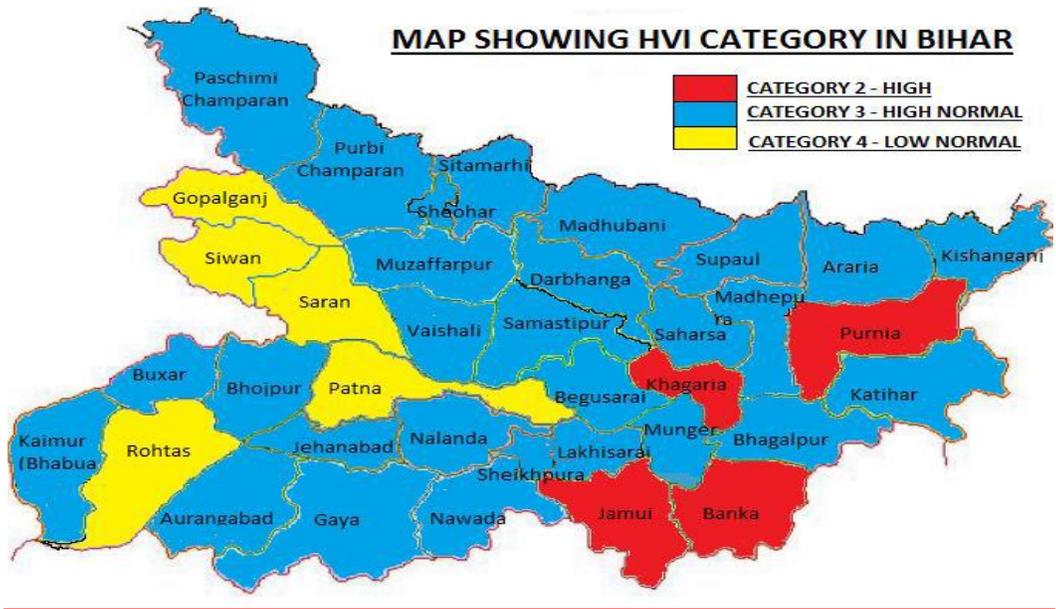
concerned, only three or four perineal rivers presented in the district are the Sakri, Khuri, Panchane, and Bhusri by Kakolat, Tilaiya, and Dhanarjay. The beds of these rivers are shallow, wide and sandy. They are ephemeral in nature and are virtually in spate during the rainy season.

Sensitivity

- ✓ Economically Weaker Sections
- ✓ Vulnerable age group (old, children, weak health, chronically ill)
- ✓ Alcoholic / drug addicts
- ✓ Vulnerable women- pregnant and young children

It is well known that health related conditions like heatstroke, dehydration, numbness in body parts, etc. need attention in summer. School and college going children and youth are most affected during this increased temperature. Similarly, rural development works like MNREGA and daily wage laborers in cities have to work in direct sunlight. Other economic activities are also affected by the scorching heat. Travelers going from one place to another by transport etc. also have to face difficulty. At such times agricultural work also gets interrupted.

In a joint study by the Indian Institute of Public Health, Gandhinagar, all the districts of the country experienced severe heat and its effects the map book has been prepared to be affected or the areas. Prepare this map the population of those districts, socio-economic outlook and environmental issues have been kept in mind in doing this.



CATEGORY 2-HIGH CATEGORY 1- HIGH NORMAL CATEGORY 4 LOW NORMAL

3.14.7 Cold Wave

The wrath of cold wave in the district is felt mostly in the months of December and January. People living in kutcha houses, Shripadi and open are more affected. On these occasions, arrangements are made by the district administration to light bonfires in all the blocks.

Most of the poor, homeless and homeless people in the city, people from economically weaker sections, old or weak health agricultural production and livestock, chronically ill, some drug addicts are more vulnerable.

Cold Wave Diseases

- ✓ Faustnip: - Numbness of human organs, temporarily turning the color of the skin blue-white.
- ✓ Frostwhite:- (from touch of leached metal)
- ✓ Chilburn
- ✓ Hypothermia: - Excessively low body temperature. This is an emergency.
- ✓ Heart attack / concussion
- ✓ Winter Diarrhea

Effect of cold wave on seasonal/monthly crops other than humans like potatoes, Rabi crops, fruits and flowers there is a lot and the loss is also massive. Animals also have the same effect as humans due to cold wave.

3.14.8 Lightning/Thunderbolt

Thunderstorm is such a natural disaster that strikes immediately on humans and livestock in which they die. This type of incident mostly takes place in the district in the months of June to September. The incident of lightning occurs suddenly and mostly poor laborers working in the fields and living in huts are affected by it. People living in open plains, communities of low socio-economic status and people living in contact with impulse are also more susceptible to the accident. Due to its effectiveness, most of the public loss, animal loss and money loss occur.

3.16 Capacity Analysis

This section includes an assessment of both vulnerabilities and capacities within the line departments. As part of the process, a number of consultations were held with several line departments on one-to-one basis. The exercise revealed the existing capacity of line departments to deal with emergency in terms of trained manpower, equipment and resources.

Capacities and resources analysis should highlight the capability and availability of resources with the district administration and stakeholders to reduce disaster risk and to organize effective response. Capacities could be policies, institutions, equipment, early warning, and trained human resources to handle variety of responses and coordination functions, financial resources that the district stakeholders have for disaster risk management. Following are the details of Key equipment, resources and infrastructure available in the Nawada District.

SI No.	Equipment Category	Availability of Equipments	Available Location	Disaster Types
1.	Search and Rescue Equipment	76	Available in Blocks and Subdivisional Offices.	Fire, Earthquake, Flood, Accidents (Road and other) etc.
2.	Skilled Manpower	393	Available in Blocks and Subdivisional Offices	Flood, Drowning etc.
3.	Transportation	202	Available in Blocks and Subdivisional Offices	All types of disaster
4.	Safety & Shelter	936	Available in Blocks and Subdivisional Offices	All types of disaster
5.	Medical Emergency Supply & Services	124	Available in Blocks and Subdivisional Offices	All types of disaster
6.	Food and Water Resources	31	Available in Blocks and Subdivisional Offices	All types of disaster

Annotation: Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management.

Coping capacity is the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

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

Capacity development is the process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals. It is a concept that extends the term of capacity-building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems and the wider enabling environment.

Following detailed list are attached in the Annexures

1. Annexure 1: Resources list in BSDRN portal
2. Annexure 2: Health Profile of the Nawada District
3. Annexure 3: List of Masons trained
4. Annexure 4: List of available equipment for Disaster Management
5. Annexure 5: Department wise list of equipment available
6. Annexure 6: List of vulnerable villages along with list of safe shelters
7. Annexure 7: Detailed power and functions of District Disaster Management Authority
8. Annexure 8: List of trained PRIs including Sarpanch and Mukhiyas on Disaster Risk Reduction
9. Annexure 9: Bihar state disaster relief norms

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Identified Safe Shelters in Flood Vulnerable Villages

Nawada					No Year-2022		
Sr. No	Block Name	Name of the Flood Vulnerable Village	Name and Contact No of the Panchayat Sachiv/Revenue Officer	Identify or Not	Name of the safe places in flood vulnerable villages	Identify and preparation of maps for safe routes leading to vulnerable sites	Availability of resources for transport to higher refuges
1	2	3	4	5	6	7	8
1	Nawada Sadar	No Village is affected by flood in this block	-	-	Gandhi High School/aanti High School	Yes	Will be made as required
2	Warisiliganj	Dariyapur/Panchbara /Hemda/ Bhalua	Ramji Parsad- 9934617254 Premanand Parsad- 8409517010	Yes	Middle School Dariyapur	Yes	Will be made as required
3	Kashichak	No Village is affected by flood in this block	-	-	-	-	-
4	Koakol	No Village is affected by flood in this block	-	-	-	-	-
5	Pakribarawan	Baliyari/Rohua	Mirtunjay Patahk- 9470209605 Rajesh Kumar- 8651248401	Yes	Middle School Rohua / Primary School, Baliyari	Yes	Will be made as required

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6	Roh	No Village is affected by flood in this block	-	-	-	-	-
7	Gobindpur	Budhwara	Dharmender Parsad Singh- 9473142502	-	High School, Budhwara	Yes	Will be made as required
8	Akbarpur	No Village is affected by flood in this block	-	-	Middle School, Gosayi Bigha	Yes	Will be made as required
9	Rajauli	Takua Tand Mehsayi/Rajauli Kundla/Hardiya Suar Leti	Ajit Kumar- 9661258453	Yes	Inter School Rajauli / Urdu Primary School, Kundla / High School, Chirol	Yes	Will be made as required
10	Sirdala	No villages affected by flood in this block	-	Yes	-	-	-
11	Meskaur	No villages affected by flood in this block	-	-	-	-	-
12	Narhat	Ibrahimpur	Randhir Kumar- 7739438062 Shri Kumar Dayanidhi- 9123258261	Yes	High School, Narhat	Yes	Will be made as required
13	Hisua	No villages affected by flood in this block	-	Yes	-	-	-
14	Nardiganj	Ichuakarna/ Pandpa/Biku/ Baguli/ Anarpur Tola/Panchu Bigha/Bhalua	Kishore Singh- 9135250448	No	Primary School, Pandpa / Primary School, Bhalua	Yes	Will be made as required

Identified Safe shelters during flood disaster

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Availability of Godowns for Food Storage

District Name- Nawada				Year- 2022		
Sr No	Name of the Block	Name of the Panchayat	Village Name	No. of Warehouses	Capacity in Qtl.	No. of other godowns available for storing food grains
1	Nawada Sadar	-		18	28000	-
2	Warisiliganj	Nagar Parishad		2	-	-
3	Kashichak	-		-	-	-
4	Koakol	Koakol	Koakol	-	-	-
5	Pakribarawan	Pakribarawan South	Pakribarawan	1	7000	1
6	Roh	-	-	-	-	No villages affected by flood in this block
7	Gobindpur	Gavanpur/Sarkanda/Budhwara/Bakso ti/Baniya Bigha/Bisanpur	Kariona/Sarkanda/Budhawara/Baksoti/ Baniya Bigha/Bisanpur	7	-	-
8	Akbarpur	Paati	Block Campus	1	-	-
9	Rajauli	Takuatad	Block Campus	1	-	-
10	Sirdala	No villages affected by flood in this block	-	-	-	-
11	Meskaur	Meskaur	Meskaur	2	0	-

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12	Narhat	-	-	Block Level Godown	-	1
13	Hisua	Nagar Panchayat Hisua	Block Campus	1	-	-
14	Nardiganj	Nardiganj	Nardiganj	0	-	-
Total				33	35000	02

FCI Godowns availability in the district

Action Plan For Prevention of Epidemic Arising out of any Disaster

Sr. No	Name of the Institute	Medical team Formation	Name of the Officer	Availability of the Medicine	Awareness
1	District Headquarter	Medical team has been constituted at district level	Dr. Parbhakar Singh	Available	Meeting are held in Every Week
2	Primary Health Care, Hisua	Team has been formed by deviding the block into two parts	Dr. Sweety Kumari	Available	Meeting are held in Every Week
3	Primary Health Care, Narhat	Team has been formed by deviding the block into two parts	Dr. Ramkumar	Available	Meeting are held in Every Week
4	Primary Health Care, Sirdala	Team has been formed by deviding the block into two parts	Dr. Ramparvesh Singh	Available	Meeting are held in Every Week
5	Primary Health Care, Rajauli	Team has been formed by deviding the block into two parts	Dr. B.N. Cahudhary	Available	Meeting are held in Every Week

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6	Primary Health Care, Meskaur	Team has been formed by deviding the block into two parts	Dr. Ramkirshan Parsad	Available	Meeting are held in Every Week
7	Primary Health Care, Gobindpur	Team has been formed by deviding the block into two parts	Dr. Dhananjay Kumar	Available	Meeting are held in Every Week
8	Primary Health Care, Koakol	Team has been formed by deviding the block into two parts	Dr. Amit Kumar	Available	Meeting are held in Every Week
9	Primary Health Care, Pakribarawan	Team has been formed by deviding the block into two parts	Dr. Anil Kumar Sinha	Available	Meeting are held in Every Week

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3.17.1 Resources Available with the various Departments/Agencies in the district

Sr. No	Capacity/ Resource	Quantity/ Description	Remarks
1	Hand pump	31827	22598- Departmental 9229-Non Departmental
2	Communication	BSNL Telegraph/Telephone Office Telephone Exchange Internet	Almost all families and individuals have mobile phones. District Collectorate NIC office is equipped with internet facility for information communication.
3	T.V/Radio Set	-	Due to the presence of T.V set and cable connections in the district for information transmission, the availability density is sufficient.
4	Road Connectivity		The NH-31 and NH-82 road run through the district. The total length of both the Highways in the district is around 84 Kms. There are 4 State Highways in the district name SH-8 (Hisua-Sikandra), SH-83 (Bagibardiha-Warisaliganj), SH-85 (Rajauli-Gaya) & SH-103 (ManjhwayNarhat-Govindpur). State roads have the total length of 120 km. 90% of the total villages is linked to the rural and urban road facilities.
5	Railway		The district lies in the East Central Railway of Indian Railways. The Gaya–Kiul line crosses the district roughly east-west, and connects with the Bakhtiyarpur–Tilaiya line at Tilaiya Junction. Two express trains and several local trains run on the Gaya-Kiul line via Nawadah station. The nearest airport is Bodhgaya Airport, Gaya which is about 58 kilometers from Nawada.
6	National Disaster Response Force		Presented in Patna, Bihar 90 km far from the district Nawada.
7	Water Tanker		20 Water tanker available in the district.

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8	Cattle Trough		22 cattle trough presented in the district.
9	Public Well		187 No. available
10	Ambulances		107 No. Ambulances available in the district.
11	Bank		93 No. Banks presented in the district
12	Hospital		17 No. Hospitals presented in the district
13	College		04 No. college presented in the district.
14	Police Station		35 No. Police Station presented in the district.

List of the Swimmers presented in Nawada District

Sr No	Name of the Swimmer	Mobile No
1	Vijay Rajvansi	8292164779
2	Sandeep Rajvansi	7070265580
3	Manoj	8002884147
4	Ajay	9162803286
5	Kapil	8709531719

Fire Brigade Nawada- Resources Availability

Sr. No	Name of the Place	Officer	Fire Safety Vechicle	Driver	Home Guard	Big Vechicle	Small Vechicle
1	Fire Brigade Nawada	02	11	05	02	01	02
2	Fire Brigade Rajauli	01	06	02	03	02	-
3	Police Station, Hisua	-	-	01	02	-	01
4	Police Station, Nardiganj	-	-	01	02	-	01

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5	Police Station, Roh	-	-	01	02	-	01
6	Police Station, Koakol	-	-	01	02	-	01
7	Police Station, Wrsiliganj	-	-	01	02	-	01
8	Police Station, Akbarpur	-	-	01	02	-	01
9	Police Station, Sirdala	-	-	01	02	-	01
10	Police Station, Gobindpur	-	-	01	01	-	01
Total		03	17	15	20	03	10

Chapter 4

Institutional Arrangements

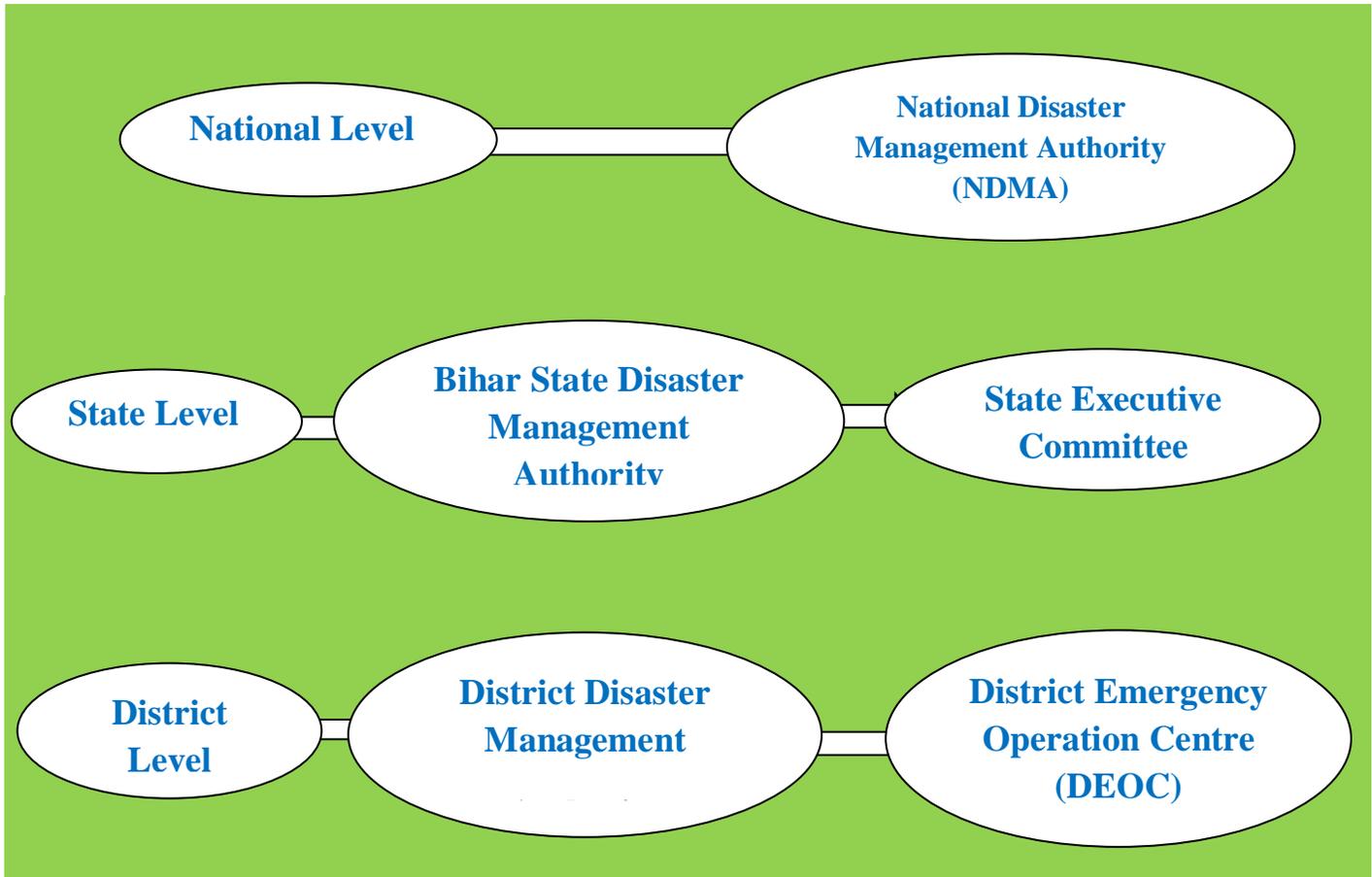
The DM Act 2005 lays down the institutional mechanisms for drawing up and monitoring the implementation of the disaster management plans, ensuring measures by various wings of Government for prevention and mitigating effects of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation. Salient features of DM act are:

- Setting up of a National Disaster Management Authority (NDMA) under the chairmanship of the Prime Minister
- State Disaster Management Authorities (SDMAs) under the chairmanship of the Chief Ministers
- District Disaster Management Authorities (DDMAs) under the chairmanship of District Magistrates
- Constitution of National Executive Committee (NEC), National Institute of Disaster Management (NIDM) and National Disaster Response Force (NDRF)
- Draw up National Plan for disaster management for whole of the country
- Department wise plans in accordance with the National Disaster Management Plan
- Constitution of National Disaster Response Fund and National Disaster Mitigation Fund and similar Funds at the State and District levels
- Specific role to local bodies including Panchayati Raj Institutions (PRIs) as well as Urban Local Bodies (ULBs) in disaster management

Under the aegis of the DM act, a National Disaster Management Policy has also been prepared by NDMA and has come into effect on 23.10.2009.

4.1 Regulatory framework for disaster management in Nawada

The regulatory structure at Nawada flows from the DM Act 2005.



4.1.1 District Disaster Management Authority

Section 25 (1) of DM Act 2005, further mandates establishment of District Disaster Management Authority for management of disasters at District level. The district magistrate is the chairperson of the District Disaster Management Authority. The disaster management functions at district of Nawada are carried out by the District disaster management cell.

District Disaster Management Authority has been constituted in Nawada district. Along with this, District Disaster Management Committee has also been constituted. District Road Safety Committee has also been constituted. Special preparations are made by the line departments related to the District Agriculture Officer and the District Animal Husbandry Officer regarding the danger

and risk related to agricultural Stubble Burning, Drought and livestock. The Disaster Management Branch is located in a separate building.

Disaster Management Act, 2005 Section-41 of the Functions of Local Authorities

41 (1) Subject to the directions of the local authorities, the district authority:-

- a) Ensure that its officers and staff are trained for disaster management.
- b) Ensure that resources relating to disaster management are maintained in such a way that they are always available for use in the event of any threatening disaster situation or disaster.
- c) Ensure that all construction projects under or within its jurisdiction conform to the standards and specifications for prevention and mitigation of disasters laid down by the National Authority, State Authority and District Authority.
- d) Undertake relief, rehabilitation and reconstruction activities in the affected area as per the State Plan and District Plan.

41 (2) the local authority may take such other measures as it may consider necessary for disaster management.

4.2 Constitution of District Disaster Management Authority

In the light of the provisions contained in Section 25(1) of the Disaster Management Act, 2005, in all 38 districts of Bihar (including Nawada) from the State Order issued by the Department of Disaster Management, Government of Bihar on 30.06.2008.) District Disaster Management Authority has been constituted. According to this order, the following officers have been included in this Authority.

- | | |
|-----------------------------------|--------------------------------|
| ✓ District Magistrate | Ex Officio President |
| ✓ President of the Zilla Parishad | Co-Chair |
| ✓ Supritendent Of Police | Member |
| ✓ Deputy Development Commissioner | Member |
| ✓ Civil Surgeon | Member |
| ✓ Senior Deputy Collector | Member/Chief Executive Officer |
| ✓ District senior Engineer | Member |

4.3 Panchayati Raj Institutions

By the 73rd and 74th Amendments to the Constitution of India, the end of the Panchayati Raj system is the preparation of village development and public welfare plans by the urban local bodies at the local level along with the Gram Panchayat, Panchayat Samiti and Zilla Parishad and the level of District Planning Committee in each district. But their integration with other development and public welfare schemes has been made necessary. Panchayats have been given the responsibility of planning in their respective areas for the purpose of economic development, social justice.

Bihar has envisioned "Resilient Village" in the Disaster Risk Reduction Road Map-2030, so the role of Panchayati Raj Institutions will be very important from the point of view of disaster management, considering it as "First Responder" at the village level. The structures constructed by them will be capable of coping with the hazards experienced in this particular area and having the imagination of the village/city/school/hospital etc. They will play a major role in disseminating this warning advice or early information to the affected group/community once the hazards are forecast. Since Gram Panchayat is the lowest level administrative system under Panchayati Raj system, there is a need to be empowered from the point of view of this disaster management. For this, in order to cooperate with the Panchayat, the committees can be engaged in the work of disaster mitigation, response and rehabilitation services. The dangers, risks, resources - human and natural etc. present in the villages can be compiled. This will enable the Panchayat to play its important role before and after the disaster. Keeping these things in view, the Bihar State Disaster Management Authority has organized a large scale Panchayat representatives have been trained and made master trainers. It is expected from the Panchayats that they will establish Panchayati Raj as a strong institution by using the training module prepared by the authority.

One room for disaster management and IT for all works in all newly constructed Panchayat Sarkar Bhawan of the district. A cell is a computer system that can be connected to disaster operations.

4.4 Community Based Institutions

✓ Civil Defense

Civil Defense was established with the aim of protecting civilians from the risks posed by air strikes. Its purpose changed over time and according to the circumstances, the Civil Defense Act, which was passed by the Parliament in 1968, was changed in 2009. Simultaneously, the Civil Defense was separated from the Ministry of Defense and the Ministry of Home Affairs and brought

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under the Department of Disaster Management and it was entrusted with the responsibility of training for disaster management, mitigation and capacity building among the common people. The Directorate of Civil Defense is established in each state, which is headed by a senior officer from the Indian Police Service. Known by the designation of Inspector General of Police cum Commissioner, Civil Defense.

The Act provides for the establishment of civil defense units at the district level. The District Magistrate of the district is its controller and it entrusts the responsibility of its deputy controller to a senior collector under him (detailed view on the website of the Department of Disaster Management, Government of Bihar)

✓ **Bihar State Citizen Council**

The Cabinet Secretariat Department, Government of Bihar in its Resolution No.A./N.P. 1-104/37 MC-705 National unity and integrity as well as social harmony and harmony are maintained through date 24.04.1987. For this purpose, the Bihar State Citizen Council was formed. Bihar government has taken all the previous resolutions In supersession of Resolution No. M.M.- 2 / B. Ra. Ra. Fifth note of musical scale. 502/03-1218/c dated 14.06.2007

The civic council was directed to fulfill its responsibility keeping in view the objectives of getting public cooperation in the prevention of disasters. Its goal has been set as follows:

- a) Cooperation in times of man-made and natural disasters
- b) Unity, integrity, social harmony and harmony sustain.

For this, the Bihar State Citizen Council was reorganized as a three-tier organization which is the following:-

- ✓ Bihar State Citizen Council at the state level
- ✓ District Citizen Council at the district level
- ✓ Thana Nagrik Parishad at the police station level

There is an urgent need to strengthen the Civil Defense in the district and the District Citizen Council at the district level and at the police station level.

4.5 District Disaster Management Centers

Emergency Operation Centers as shown District level, sub-division level, block level, Gram Panchayat level and community level, where the Emergency Operation Center will be established or the building in which it will be located, there will be a seating arrangement for the members of

the Essential or Essential Support Work (ESF) team. Modal ESF only The team itself will sit in the Emergency Operations Center. They will coordinate the ongoing disaster management works at the district / sub-division / block / panchayat level with the partner / associate agencies; Effective communication facilities will be operational in the emergency operation center.

The Disaster Management Center is operating in a separate building in the district. Telephone and computer are installed in this centre. There is also a provision of rest rooms for those working in different shifts. District to take prompt action For this, a satellite phone is installed in the office of the District Magistrate.

4.5.1 DEOC Empowerment of

- The District Emergency Operation Center will have to be equipped with the proposed equipment, the main of which VSAT, VHF Wireless, GSM Mobile, GPRS, Doppler radar, SW Radio Receiver, Satellite Phone is incorporated into the public domain and satellite based Weather monitoring station etc.
- VSAT, VHF and water quality and level measurement plant presented at subdivision level in emergency operation center.
- In the block level emergency operation center, there should be a list of VSAT, VHF Wireless, GSM Mobile, SW Radio Receiver, Telemetric Rain Gauge, Computer with email Facility, Video Conferencing Facilities, and Power Back-Up.
- In the Gram Panchayat level emergency operation center - VHF Wireless, GSM Mobile, SW Radio receiver, Ham Radio, Computer with Internet, Printer & Genset, Public Address System etc should be available
- at the community level Public Address System, SW Radio Receiver etc should be available

4.5.2 The Role of each level of DEOC in the event of a disaster

Transmission of warnings based on information received from weather forecasting agencies at district level warning should be issued to the general public including all the allied departments of the government.

This information is given to the sub-division level EOC, block level EOC. and gram panchayat level EOC. The forecast based warning of the Meteorological Department will be transmitted / publicized to the general public including the department under it. Thus E.O.C. Its primary duty is to issue the right warnings in time. For this it is necessary that EOC at all levels. Must be equipped

with well-planned communication system. In district District Magistrate, Sub-Divisional Officer in the sub-division, Block Development Officer in the block and for Panchayats Heads will be able to issue warnings.

4.5.3 Information / warnings should be communicated to the following institutions from the district level

- ✓ ESF Necessary assistance to all parties of the work
- ✓ To all the members of District Disaster Management
- ✓ To the District Magistrate's Office
- ✓ Bihar State Disaster Management Authority and State Government
- ✓ Emergency Operation Center (EOC) of neighboring districts as required
- ✓ State/National Emergency Operation Center (EOC) as required
- ✓ To all the elected representatives of the district
- ✓ To the sub-divisional and block level officers from the sub-division level

4.5.4 Block level officials

- ✓ various response team members to agencies
- ✓ To the public representative
- ✓ to the media personnel.

4.5.5 From the block level

- ✓ To all affected Panchayats
- ✓ To the various response team members and agencies.
- ✓ To the people's representatives
- ✓ To the public representatives
- ✓ To the media personnel

4.5.6 From the Panchayat Level

- ✓ To all ward members
- ✓ To all community based centres
- ✓ To all response team members
- ✓ Public representatives
- ✓ Media personnel

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The Emergency Operation Center, District Disaster Management Centers of each level will provide necessary space in their premises for necessary assistance work and for co-ordination of works with ESF of circumstance keep up to date with the latest information.

4.5.7 What Emergency Operations Centers Do in Normal Time?

The District Magistrate, exercising his power, will depute an administrative officer to the Emergency Operation Center and he will be accountable for the work related to the Emergency Operation Center, this officer will perform the following tasks in normal time:-

- ✓ Ensuring that all equipment in the Emergency Operations Center is in working order and should be turned on at any time can be done.
- ✓ Regularly collecting data for disaster management from the line department.
- ✓ Preparation of reports on pre-disaster preparedness and disaster mitigation activities in the district.
- ✓ To ensure proper implementation of the disaster management plan of the district. Recording and updating the data bank regularly and activating the trigger mechanism on receipt of information/warnings of any disaster.

4.5.8 Regional Emergency Operation Center

This is an emergency operation center that will be temporarily established near the disaster affected site. This regional center will work in coordination with the district level emergency operations center jointly. Concerned Sub-Divisional Officer / Block Development Officer / Circle Officer, this Regional EOC. will lead. The Sub-Divisional Officer will be the controller at the sub-division level and the Block Development Officer / Circle Officer at the block level. Under the direction of the District Incident Commander cum District Magistrate, the Regional Commander will do all the work in coordination with his local management team under his direction. The Sub-Divisional Officer, Block Development Officer/Achal Officer will be responsible for executing all the activities at the disaster site. But the work is done by the District EOC through the Nodal Desk Officers Controlled and coordinated.

4.5.9 Emergency Operation Center

Deputation of personnel in this center and their work in shift times will be determined. The Emergency Operation Center will work under the leadership of the District Magistrate and the officers of the level of Additional Collector will be in its senior charge. In his absence, the Deputy Development Commissioner of the district will automatically be in charge of it.

The officer-in-charge of each shift will receive the information and after recording them in the respective register, will send the information to the concerned departments including the District Disaster Management Authority. The telephone numbers of all the deputation officers will be mentioned with the deputation order.

4.5.10 National and State Disaster Response Force

The National Disaster Response Force has been constituted under the given provision of the Disaster Management Act 2005. Keeping in view the disaster prone situation of Bihar province, a unit of National Disaster Response Force (Battalion No. 9) has been located at Bihta in Patna district. The State Disaster Response Force has also been established and prepared in Bihta itself. While issuing it, the protocol to be adopted has been discussed. This force was used by various communities in peace time.

4.5.11 State Disaster Response Force

On the lines of National Disaster Response Force, State Disaster Response Force has been constituted by the Department of Disaster Management; Government of Bihar in the state of Bihar in March 2010, whose headquarter is located in Bihta. Its units:-

- 1) Gaighat (Patna)
- 2) Konhara Ghat, Hajipur, Vaishali
- 3) Koshi College, Khagariya
- 4) Tilkamanjhi, Bhagalpur
- 5) Bariyarpur, Middle School, Sitamarhi
- 6) District School, Purnia
- 7) Madhepur, Madhubani
- 8) Madhepura

In addition, under the Disaster Management Act, there is a Disaster Management Department at the state level, Bihar State Disaster Management Authority and State Executive Council, which can

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help in various tasks before and after the disaster. In this way, State Disaster Management Center is established at the state level, which will be effective in maintaining the information flow to the district. Guidelines are issued from time to time by the National Disaster Management Authority regarding danger, risk, so the availability of institutional framework as per the need to make the management work smooth can make.

Different levels of Disaster Management

L-0 level

It is a time of peace when no calamity is happening. Risk efficiencies during this period are and most of the mitigation work will be done.

L-1 level

In this, D.D.M.A. the main institution will be and the District Magistrate will be the event invigilator. The respondent authority of the Responsibility is D.D.M.A, DEOC, Block and Circle Office. District Emergency Operation Center Control Room and will be the main focal point of operation.

L-2 level

In case of situation outside the power of the district, the Principal Secretary, State Disaster Management Department will be the commandant. The State Emergency Center (SEOC) will be the control room for emergency assistance and the focal point of operations. N. Dr. F. and SDRF will be ready.

L-3 level

In this level of disaster, the state needs assistance from the center and in such a situation the Chief Secretary is the leader role in which the Crisis Management Group / State Executive will be involved in the Incident Management Team.

Chapter 5

Disaster Prevention, Mitigation and Preparatory Measures

To reduce the possible damage caused by various disasters, work has to be done for disaster prevention, mitigation and pre-preparation so that the main objective of disaster risk reduction can be achieved in a time bound manner. For this, it is necessary that the works should be identified for the mitigation and preparation, as well as the departments and divisions should also be identified for the same. In this chapter, the works of various interests have been identified for disaster prevention, mitigation and pre preparation.

5.1 District Disaster Management Authority

The District Disaster Management Authority, Nawada 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 responsibilities of various main functions will be as follows:

Specific Works	Responsibilities
Director, Controller and Coordinator	District Magistrate
Information Collection, Analysis and Damage assessment	District Magistrate
Communication	District Telecom Center
Search and Rescue	Transportation, District Police, State Disaster Response Force, National Disaster Response Force, Supply Officer, Civil Defense Council
Shelter	Revenue and land reforms
Health Care	District Health Committee
Drinking Water and Sanitation	Public Health Engineering
Animal Shelter and Feed	Animal Husbandry Officer
Power Supply and restoration	Department of Energy
Restoration of Basic Infrastructure	Inter Structure Construction, Corporation Stone Department, Building Construction and Bridge Construction Corporation.
Disposal and Cleaning	Municipality
Public Relations Early Notification & Alert Media Management	District Public Relation Officer
Law and Order	District Magistrate and Superintendent of Police

In addition, various departments/divisions, Panchayati raj Institutions, Community Organizations and Private Sector Agencies will also be able to cooperate in the above three works. In these works, the Panchayat, which is the chosen institution at the village level, may have to play a special responsibility in preventing the risk, reducing or pre-preparing.

5.2 Common work for all Departments and Agencies

Developing understanding on disaster risk under planning, strengthening risk sensitive governance systems, investing in disaster risk reduction measures and preparing for effective responses are some of the points that should be taken into account.

5.3 Departments/Agencies Work

Earthquake

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration/ District Disaster management Authority	To ensure that the standards set in the context of disaster mitigation and preparedness are included in the plan prepared at the gram panchayat level.	<ul style="list-style-type: none"> Equation mitigation work related to earthquake in district disaster management plan and monitoring of building construction according to earthquake zone. Review of block and Panchayat level risk reduction works. Capacity building works, Panchayat raj representatives, volunteers, training, of the people of the line department for the tasks prescribed in the disaster management plan. 	<p>Structure construction analysis and risk assessment.</p> <p>Initiative to make village disaster management plan related to earthquake.</p> <p>To ensure formation of various teams related to village level disaster management.</p> <p>To practice mock drills for earthquake preparedness.</p>
2	Building Construction	To ensure compliance of the provision of Bihar State Building Construction Code 2014 for earthquake resistant building construction.	Retrofitting of vulnerable buildings identified during rapid visual screening.	<p>Assessment of anti-earthquake capacity of all pre-constructed govt. buildings, especially of all hospital, school and administrative office buildings-conducting rapid visual screening.</p> <p>Promotion of earthquake resistant building construction techniques and training of all the engineers' masons and bar binders working in the district.</p>
3	Civic Bodies	<ul style="list-style-type: none"> Passing the map is compliance with the provision of the building construction act. Identifying dilapidated buildings and 	Retrofitting of the buildings vulnerable to earthquake.	To keep ready to deal with any situation by proper repair and maintenance of heavy vehicles, dozer, dumper and crane etc. available with the body.

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		banning its must use. • Pre construction of building keeps in view the seismic zone III and IV permitting registration under RERA act.		
4	Health Department (Civil Surgeon and their subordinates hospitals and offices)		<ul style="list-style-type: none"> Nearby Trauma centre orthopaedic clinic, MRI to ensure speedy proper medical treatment of injured persons during earthquake. Marking of X-Ray and surgical centre. Preparation of management plan for large number of victims in hospitals. 	<ul style="list-style-type: none"> Adequate storage of essential life saving medicines and other aids in these hospitals. Keeping ASHA workers active and ready for first aid. Keeping an ambulance fully equipped.
5	Fire Department		Training of employees for search and rescue and ensuring audit of fire safety in buildings.	To keep fire fighting equipments, vehicles and trained work force and be ready at all times to deal with fires during earthquakes.
6	NDRF/SDRF/Red Cross/Civil Defence		To do public awareness and mass training through mock drills. To build community capacity and to be self prepared and ready for search and rescue.	
7	Education Department	To ensure earthquake resistant construction of school buildings to be constructed by Bihar State		<ul style="list-style-type: none"> To establish relief camps, to keep the school playground and copy planning to appoint teachers for the education of refugee children in these camps. Conducting mock drills from

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		Educational Infrastructure Development Corporation Limited and other institutions.		time to time in every school to protect you from earthquake during earthquake. <ul style="list-style-type: none"> Formation of earthquake disaster response team like first aid team, emergency alarm team, evacuation team, search & rescue team etc. in each school and their regular training etc.
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Flood

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration/ District Disaster management Authority	<ul style="list-style-type: none"> Ensuring construction and repair of embankment as per requirement. After doing flood plain zoning, making and implementing appropriate act to prevent encroachment and people from settling in the flow area of river. 	<ul style="list-style-type: none"> Preparation of a list of Panchayats on flood risk analysis at gram Panchayat and block level review and approval of their flood management plan of those Panchayats on floods. Monitoring of flood disaster mitigation action plan in District Disaster Management Plan. 	<ul style="list-style-type: none"> Establishment of an effective information system for flood forecasting, warnings and necessary information to all stakeholders immediately. To carry out preparations every year as per standard operating procedure related to pre flood preparedness.
2	Department of Water Resources	<ul style="list-style-type: none"> Formulation of flood protection plans. Formulation and construction of discharge plans in 	<ul style="list-style-type: none"> Identification of sites in the course of the river, where there is a possibility of damage to the flood protective embankment, construction of appropriate structures to change the direction of flow of the river quickly and promptly. 	<ul style="list-style-type: none"> Broadcasting of a pre-disaster warning of a possible flood. Ensuring pre-preparation in light of the on-going guide on possible floods. Removal of encroachment on Dam, Canals, Nalas, Ponds, get them

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		areas prone to water logging.		cleaned and repaired before time. <ul style="list-style-type: none"> • Development and planning of information system to disseminate early disaster warnings. • Storage of construction materials required to control it during possible floods at identified sites.
3	Revenue and Landforms			Determination of location of Helipad sites and selection of shelters.
4	Education Department	School Building to be constructed by Bihar State Educational Infrastructure Development Corporation Limited and other institutions should not be constructed on flood affected land	<ul style="list-style-type: none"> • To arrange swimming training and for this to appoint instructor from swimmer in schools. • Flood safety week organized in schools. • To make aware of the prohibitive obligations through public awareness such as avoiding the sue of flood water, not allowing children to go near the flood water, not leaving the children alone and emphasizing the children studying in the school to comply with the above prohibitory activities. 	<ul style="list-style-type: none"> • Formation of earthquake disaster response team like first aid team, emergency alarm team, evacuation team, search & rescue team etc. in each school and their regular training etc. • To establish relief camps, to keep the school playground and copy planning to appoint teachers for the education of refugee children in these camps.
5	Rural Engineering Organization		Timely inclusion of flood disaster management in road and other construction works.	Collecting information about alternate access paths to flood affected areas and marking them on the map.
6	Road Construction Department	To emphasize that the proposed road completions under construction in flood vulnerable Panchayats should be flood proof, to work for awareness		

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		among the community for making flood proof roads.		
7	Health Department		<ul style="list-style-type: none"> Storage of adequate quantity of emergency medicines such as halogen tablets, chlorine tablets, ORS packets, snake bite needles, bleaching powder etc., for the prevention of diarrhea, in district hospitals, sub-divisional and referral hospitals, first aid centres and sub-centres. Training of ASHA workers/ANM, so that delivery work in relief camps is safe and auspicious. Deployment of doctors with ambulances in the affected areas. 	<ul style="list-style-type: none"> Assessment health functions and needs. Always ready with first aid kit. Ensuring the level and quality of medicine and food being supplied. To conduct awareness campaign through local nurses and ASHA workers regarding safe food and sanitation in flood affected areas.
8	Food and Supply			To store sufficient quantity of food grains for flood relief before floods in effected Panchayats.
9	Panchayat Rah	Incorporating disaster management into development activities.	Making a disaster management plan keeping in mind the floods and making the community aware by giving training in flood management.	To emphasize that the proposed houses under construction in the flood vulnerable Panchayats should be completely flood resistant and to do awareness works in the community to build flood resistant houses.
10	Agriculture		<ul style="list-style-type: none"> To train agriculture and other related stakeholders in disaster management. Preparation of disaster management plan in agriculture sector. Propagation of high quality 	<ul style="list-style-type: none"> Preparation of alternative agriculture plan for floods vulnerable Panchayats. To motivate the farmers for cultivation of water-bearing plants like structures, etc., in areas where there is a

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			varieties of crops.	possibility of water logging.
11	Animal Husbandry		To train the veterinary doctors and assistants in the prevention and control of animal diseases in floods and to conduct awareness campaigns among the people.	To ensure adequate storage of fodder in flood affected Panchayats and vaccinations against all the animals. Marking animal's shelters for animals.
12	Transportation		To strictly implement the act related to the new operations and to conduct training and awareness campaign to the citizens by the state authority.	
13	Public Health Engineering		Ensuring maintenance of damaged hand pumps in the affected areas within 36 hours.	Halogen tablets for pure drinking water supply and proper storage of chlorine tablets.
14	NDRF/SDRF/other organizations		Organizing training and public awareness programs.	Formation of civil defence team and training of communities in flood vulnerable Panchayats.
15	Central Water Commission / Meteorological Department			Public dissemination of flood forecast information.

Drought

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration / District Disaster Management Authority		<ul style="list-style-type: none"> Formation of drought force and coordination among various stakeholders. Making weather forecast information accessible to all visitors. To prevent hoarding with power and encourage to join crop damage insurance scheme 	Identifying the famine affected areas and contacting the affected farmers and rural welfare at the gram Panchayat block level.

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2	Agriculture Department	<ul style="list-style-type: none"> Promotion of drip irrigation system To encourage planting of drought resistant and less irrigated crops. Formulation of a plan for check dam water harvesting and making organic manure to increase the ground water level. 	<ul style="list-style-type: none"> Creation of contingency cropping plan in view of drought. Determining the equation and mitigation measures on the basis of check list and making the stakeholders aware of it. Field exposures to techniques developed from laboratory research. Research and training of farmers for different crops in line with climate change. 	<ul style="list-style-type: none"> If there is less rainfall than normal, the possibility of drought increases, in such a time to take necessary steps, to develop a check list from time to time to give guidelines related to agricultural work. Monitoring and action estimation of drought related equation mitigation work in district disaster management plan. To do public awareness work for excellent water management, for this calendar, booklet, posters, wall painting, holdings, newspaper, radio messages, television etc. can be made a medium.
3	Panchayat Raj Department/Municipal Committee/Panchayat Samiti/Gram Panchayat	Emphasis on reuse of waste water after use by the community	To arrange employment creation alternative employment through various employment oriented government schemes and non-government schemes run by the government.	Cleaning the excavation of Ponds/Canals etc. and running awareness campaign for environmental protection and greenery.
4	Water Resources	<ul style="list-style-type: none"> To construct and strengthen the damaged semi built/built canals under Tirhut Canal System in Nawada district. Irrigation repair and construction of irrigation drains for smooth delivery of water to the fields in 	In view of the warning of drought disaster, preparation of contingency cropping plan so that the available water can be used efficiently.	Formulations of irrigation plan to make unirrigated fields to irrigate and plan to supply water to all the fields in turn according to the requirement in case of decrease in the availability of irrigation water in waves.

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		<p>canal command area.</p> <ul style="list-style-type: none"> • Water distribution Control, all irrigation ensuring the provision of water delivery to the ends of canals. 		
5	Minor water Resources		To achieve 100% irrigation potential in all irrigation schemes and to promote rain water conservation, especially in schools, households, public places.	Keeping all tube wells more live and working and removal of silt from irrigation canals and ponds.
6	Public Health Engineering Department	<ul style="list-style-type: none"> • Developing a system to provide at least 40 liters of water per person. • Ensuring availability of clean drinking water and cleanliness of the environment. • to ensure speedy implementation of Har Ghar Jal Yojna 	<ul style="list-style-type: none"> • To monitor the consumption of water in the drought affected areas, till then arrange water supply through tankers. • Regular cleaning water sources and making it free from contamination and making clean drinking water supply in lifeline buildings and hospitals, schools. 	To make arrangements for disinfection of all drinking water sources like hand pump, tube well and to keep adequate arrangement of bleaching powder halogen tablet.
7	Animal Husbandry	Ensuring timely vaccination of animals.	To encourage dairy, poultry, animal husbandry etc. to supply adequate fodder and to promote agricultural research and economic activities by organizing animal fodder camps.	To mark the group fodder, water camp site for the animals and to vaccinate the animals to avoid the diseases of the season
8	Social Welfare		Ensuring availability of ORS packets at	Updating the list of children, pregnant

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	Department		Anganwadi centers and publicity of available facilities	lactating mothers etc. falling under the jurisdiction of Anganwadi
9	Energy		To maintain the regular supply of electricity and to keep the pump of state tube well energy new	To make necessary arrangements for power supply in the event of drought
10	Village Development		Providing employment under MNREGA and Saat Nischay Yojana, maintained by the state government.	
11	Health		Monitoring of diseases like malnutrition, eminently related to drought and running public awareness campaign	Assessing health related tasks and needs, keeping ready first aid kits and collecting and storing emergency medicines, ORS packets etc. in sufficient quantity
12	Home			Deployment of police force at the time of distribution at all distribution centers and other food distribution center
13	Weather Department			To announce the time of weather forecast and to inform the concerned departments
14	Bank		Providing loans at cheap rates and making arrangements to provide loans to farmers on easy installments through various lending agencies and to provide information to the people about this effect	
15	Food Corporation of India		To strengthen the public distribution system, to promote Antyodaya Yojana and to monitor the fair price shops	Repair and maintenance of damaged Godwns and storage of food grains
16	Co-operative Division		Agricultural machinery Establishment of a bank and providing machinery on rent to farmers	

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Fire Accidents

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration / District Disaster Management Authority	Compliance of Bihar Fire Rule 2014 and ensuring compliance of fire safety instructions in Bihar Building Construction Rule 2014	To conduct awareness campaign for prevention of fire, to broadcast suggestions and advice from district level through Doordarshan and Radio and to ensure compliance of Bihar Home Defense Corps Headquarters Patna letter number 1042 dated 02.03 2016.	Equipping the emergency operation center with modern communication resources and capacity building related to fire safety measures, Panchayat representatives, village level personnel of various departments, volunteers and representatives of NGOs, regular activities like celebrating fire safety week to organize
2	Fire Department		<ul style="list-style-type: none"> • Full arrangement of fire fighting in multi-storey buildings and offices, permission to be constructed on a combined map and no basis • Preparation of fire fighting plan of important buildings in the district and testing it from time to time through mock drills • To organize regular training of fire fighters and to do public awareness work for fire prevention for the people 	<ul style="list-style-type: none"> • Publication of telephone and mobile numbers of fire stations established at district sub-division and police station level • Always equip your fire fighting vehicle with the necessary materials and have trained fire fighters ready at all times • To keep a study map of the roads of the fire permit area, to be fully acquainted with them and to observe them regularly and to ensure the availability of latest fire fighting equipment
3	Public Health Engineering Department	In the rural piped water supply scheme, the resolution of the state government regarding the construction of	Planning the construction of sufficient number of large diameter tube wells	Installation of device for filling water in vehicles made for fire fighting in tube wells

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		hydrants at every 2 km should be effective (Letter No. 6554 Dated 24:12 2015 State Fire Officer cum Director)		
4	Education Department	Fire safety arrangements in school buildings		To organize fire safety week in all schools and to do other work of community awareness
5	Building Construction Department	<ul style="list-style-type: none"> • Follow up the rules of Bihar Fire Rules 2014 • Compliance with fire safety instructions in Bihar Building Construction Rules 2014 • Permission to build various types of hospitals, banks, blood stations and sensitive office buildings on the basis of the map containing only fireproof 	To make necessary corrections in the safety instructions from time to time by taking lessons from fire accidents	Discouraging the use and storage of highly flammable materials in building construction
6	Panchayat Raj Department	To widen the access road of Ahar, Pokhar,	<ul style="list-style-type: none"> • Pay attention to the use of fire-fighting techniques in the construction of 	<ul style="list-style-type: none"> • There must be space between the construction of building huts in the

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		to make encroachment free and to incorporate the technique of making fire-cum-house in the future plan of your Panchayat	rural buildings that are fairies, writing clay on the lower part of the huts and the place of the lamp and changing the cooking time to prevent fire in the summer months <ul style="list-style-type: none"> Preparation of village based disaster management plan 	village so that it is not easy to reach there in the event of a fire <ul style="list-style-type: none"> To carry out public awareness work related to fire and to list the availability of fire fighting material and water source, pumping set, search, nozzle, long ladder etc. at village level
7	Municipal Committee		To make various fire prevention measures, to make painting posters etc. on the wall for public awareness and to pass the construction map of such buildings which should be on the roads of prescribed width so that the fire fighting vehicles can reach there	Keeping the roads passing through dense population free from encroachment and installation of large diameter tube wells at various places
8	Health			<ul style="list-style-type: none"> To provide the list of hospitals, the details of the medical facilities available and the information of all access roads to the local fire office / police station Efforts should be made to set up Special Commissioner Burn Unit in Primary Health Centres Sub-Division and Sadar Hospital and to maintain proper arrangement of ambulances.
9	Animal Husbandry			To create awareness among the villagers to keep the pet animals safe from fire and to make proper storage of medicines etc. for the animals affected by fire

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Stampede

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration / District Disaster Management Authority	Ensuring and following the standard operating procedure of crowd management and getting their purpose accomplished within the time limit as per requirement by the gathered crowd	<ul style="list-style-type: none"> • Preparation of crowd control plan on major festivals and other occasions in which the role of stake holders is ensured and preparation and distribution of identity cards for children, old women, disabled people in the possible crowd • Preparation of important departments and police control rooms, hospitals, drinking water, toilets, rest places for women and children, etc. at the identified sites and to provide information about its location from place to place • Spreading awareness by screening of films on Overcrowded, Past accident and action to be taken, arranging for registration and construction of watch towers to keep an eye on crowds and stampedes. 	<ul style="list-style-type: none"> • To map the place of crowd fair and to prepare effective crowd management action plan by marking the place of entry, exit and security • Forecasting the number of possible crowd sold at any particular place and at a particular time and training of police volunteers in crowd management • It is necessary to have an action plan in writing and if there are identified crowded places in the district, then their risk analysis should be done
2	Police The Disaster Management Act 2005 has identified 24 types of disaster situations, including crowd management, four mechanisms should be	Do not allow crowds to gather where security is suspicious.	<ul style="list-style-type: none"> • If the exit and entry routes are of sufficient capacity, then keep both open for movement and establish a control room from the Mela Camp on the occasion of Kartik Purnima, Durga Puja, Chhath Puja etc. • If at any point of time the crowd is more, then at the time of exit strictly according to the restriction of entry by converting the entry way into the exit 	<ul style="list-style-type: none"> • Depute police and magistrates for crowd control. • First Aid training to deputation policeman and Community Volunteers

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	<p>developed to prevent stampede or any untoward incident</p> <ul style="list-style-type: none"> • System of Registration • Police and Community Volunteers need to be trained • Mock drill related to stampede relief • Action plan available is in writing 		<p>route and if the exit entry way is the same then opening it alternately for coming and going</p> <ul style="list-style-type: none"> • Marking and announcement of vehicle parking space and keeping the road from crowded place to hospital free from obstruction • Keeping a close watch on anti-social elements and keeping a check on those spreading rumours and rumour. 	
3	Health		To prepare an action plan for providing medical facilities at crowded places and to keep adequate number of ambulances and doctors at the potential site	To keep local hospitals resourceful and to have available a sufficient number of drug, bandage and stretchers
4	Fire Department		<ul style="list-style-type: none"> • Approving and rejecting the fireproof pandals constructed at places where crowds gather. • To fix the approach road safety of fire vehicles at all cities and to prepare standards guide for setting up of pandals etc 	Identification of hydrant locations in congested places, keeping fire fighting vehicles and hydrants in working condition and organizing mock drills.

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Road / Rail Accidents

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration / District Disaster Management Authority		Every year Road Safety Week is organized from January 9 to 15 programs to ensure greater participation of NCC/NSS/School children/youth	Formation and regular meeting of District Road Safety Committee and encouragement of community policing.
2	Transport	<ul style="list-style-type: none"> • Strict adherence to the Motor Vehicles Act and ban on using mobile while driving • To ensure compliance of the order issued by the Transport Department, Government of Bihar on 9 January 2017 with the following intention: <ul style="list-style-type: none"> • Vehicles shall not exceed the maximum speed of kilometres per hour • There will be a compulsion to install speed controllers for maximum speed of 40 km in four wheelers used in all school buses • There will be a no compulsion to install speed controller/two-wheeler/three-wheeler/fire fighter/ambulance 	<ul style="list-style-type: none"> • Prohibiting unsuitable vehicles and unhealthy drivers by checking the fitness of vehicles on time and checking health and vision defects of drivers from time to time • To ensure that the use of seat belt helmets is definitely there and to conduct public awareness campaign regarding road safety 	To ensure the availability of necessary materials in government and non-government vehicles along with first aid kits
3	Police	Ensuring compliance with traffic rules		<ul style="list-style-type: none"> • Establishment of traffic lights on all main roads and intersections at different times and planning for traffic police and to determine no

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				<p>entry and one way traffic in light of the transport capacity and traffic density of the roads</p> <ul style="list-style-type: none"> • Reconstruction of traffic system on roads in and around special events and deployment of creams or fire fighting vehicles around accident visit sites
4	Road Construction/Village Road Construction	<ul style="list-style-type: none"> • Removal of unauthorized tow from constructed roads and banning the construction of new stumbling block • The committee constituted by the Supreme Court related to road safety has issued three major guidelines. They are as follow: <ul style="list-style-type: none"> • Road safety marking should be done keeping in mind that these road networks should be user friendly in case of construction and use of road devices by the parties • Road safety marking of roads costing more than 10 crores should be ensured • Compilation of current status report on national and state high offices and slowing down of trains on sharp mode or different matching roads on main district roads 	<ul style="list-style-type: none"> • Emphasizing compliance with 10 golden rules of road safety • Increasing the width of the flowers on the road and constructing alternative roads • Improvements in road marking such as straightening of blind tax and identification of dangerous road • To conduct regular studies on road safety from time to time Compliance with the instructions of the Ministry of Road Transport and Highways, Government of India to collect data related to road safety in the prescribed format • Incorporation of various works of accident and redressal in the design while preparing the DPR. 	<ul style="list-style-type: none"> • Clear Chineseization of all lanes with white colored separator signs on the road and installation of road safety signs at all necessary places • Installation of bright steel rails on sharp turns, making zebra crossings for pedestrian crossings and conducting public awareness campaigns on road safety in inhabited villages to protect against roads passing through dense settlements
5	Health		Adequate paramedical work has to be	<ul style="list-style-type: none"> • Keeping adequate

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			done, not being on duty, so that there is no difficulty in taking the injured to the hospital and there is a trauma center and referral hospital around the roads, its information should be put up with roadside signs and distance	<p>numbers of ambulances and doctors available near the identified potential accident site</p> <ul style="list-style-type: none"> • To keep sufficient quantity of medicines bandage structure available in the hospitals • Nearest blood bank m.r.i. in each hospital. Maintaining information about X-ray canters and blood donors and specialist surgeons and providing first aid training to community volunteers
6	Education		Organizing Road Safety Week in the school and giving information about various road signs and first aid knowledge to the students	
7	Indian Rail	<ul style="list-style-type: none"> • To appoint Rail Mitras at all gateless railway crossings and to ensure compliance of Railway Safety Rules 	<ul style="list-style-type: none"> • Installation of following guide bar for vehicles passing through all unmanned level crossings:- • Cross the vehicle only after entering the first year. • Turn off the music system of the vehicle. • Do not use an earphone while crossing the level crossing gate 	<ul style="list-style-type: none"> • To ensure proper maintenance of the track and to ensure that the train runs as per the prescribed speed limit • Emergency Medical To keep ready the great emergency S&R team and rail protection force and to keep the mobile hospital equipped and ready with medical Para medical and emergency medical equipment

Boat Accident and Drowning

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration and District Disaster Management Authority	<ul style="list-style-type: none"> • Model Rules Compliance with Model Boat Rules 2011 under Bengal 9 Ghats Act 1885 • Availability of these ponds, lakes and river etc. and installation of risk warning boards on dangerous river/ ghats 	<ul style="list-style-type: none"> • Restricting operations to hazardous sites and restricting children's access to hazardous sites. • To bring about structural improvements in the identified dangerous forests and to put up warning signs etc. and to make the safe swimming program run by the Bihar State Disaster Management Authority a success 	<ul style="list-style-type: none"> • Navel training and construction of river ghat • Siege of ponds and training of diving and swimming to local people where there is a place to cross the river canal by boat
2	Transport	Under the Bihar Adarsh 09 Ghat Act Motor Boat Rules 2011, the registration of the name and the sailor and ensuring the safety	The maker of the boat, its various parts, size and type, the maintenance of the boat, the capacity of the vehicle and passengers outside the boat to be determined, the above graph is to be marked, precautions are taken in the transportation of passengers and material together	Registration of names and marking of registration number on names
3	Police		Dangerous Ghats Spotting and Guarding	
4	Rural Engineering Organization			Siege of river canal pond lake waterfall and construction of ghat
5	Health			Ensuring the presence of ambulances and doctors in the primary health center

Heat Wave/Cold Wave/Lightning

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration and District Disaster Management Authority	<p>a) Heat Wave-</p> <ul style="list-style-type: none"> • Fixing of summer working period in government non-government establishments like schools, colleges • To change the time of opening and closing of the school by the children, instructing to keep the school closed in case of serious people <p>b) Cold Wave</p> <ul style="list-style-type: none"> • Change in the time of opening and closing of the school of the children Instruction to keep the school closed in the event of severe cold wave 	<p>a) Heat Wave</p> <ul style="list-style-type: none"> • Arranging drinking water at market railway station, bus stand and other congested places • Adequate publicity should be given to preventive measures against heat stroke. <p>b) Cold Wave</p> <ul style="list-style-type: none"> • Keeping the body warm from external sources Consuming sunlight when it is sunny • To make arrangements for lighting bonfire for the people of the weaker sections near the public place, the people sleeping in the public place and the night shelter, rickshaw stopage, musafirkhana, railway station, bus station etc <p>c) Lightning</p> <ul style="list-style-type: none"> • Preventing from taking shelter under tall trees, electric poles, towers, etc. in weather prone to thunderstorm • Advising to refrain from using mobile or electrical equipment in view of the possibility of thunder and refusing to connect metal wires 	<p>a) Heat Wave</p> <ul style="list-style-type: none"> • Taking cognizance of the announcement of weather forecast and use of cotton clothes as far as possible <p>b) Cold Wave</p> <ul style="list-style-type: none"> • To arrange a bonfire, to arrange warm clothes to protect against winter, • to make people aware of the effective measures and relations of cold wave • to arrange shelter for the patients <p>c) Lightning</p> <p>installation of lightning conductors in tall buildings</p>

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			between the windows and doors of the house	
2	Health		<p>a) Heat Wave To issue necessary advisories from time to time for the community to avoid heatstroke</p> <p>b) Cold Wave Issuance of necessary advisories from time to time to avoid cold wave for the community Treating</p>	<p>a) Heat Wave Storing of medicine in quantity required for the treatment of heat stroke caused by heat stroke and heat stroke, fainting from heat exhaustion, dehydration</p> <p>b) Cold Wave Storage of medicine in the required quantity for the treatment of cold wave borne disease like Frastneep</p>
3	Animal Husbandry		To take heat to the livestock /poultry farm/dairy farm and to disseminate appropriate advice for measures to prevent cold wave	Storing animal related medicines

Polluted Drinking Water

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration and District Disaster Management Authority			Formation of Task Force on District level
2	Public Health Engineering	<ul style="list-style-type: none"> Marking the polluted hand pump and keeping it with red colour, by putting a locket, water purification, the infected pump and prohibiting its use. 	<ul style="list-style-type: none"> Installation of treatment plant at the source of water supply through rural piped water supply Conversion of traditional water sources into clean wells and establishment of water quality 	Developing information education communication materials for community volunteers, officials, government and non-

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	<ul style="list-style-type: none"> Extension of the water scheme of every household 	training laboratory and quality mapping of water sources <ul style="list-style-type: none"> Identification of sources of safe and contaminated water, compilation of village level Geographic Information System Tata Developing a transparent information system between awareness health education for all beneficiaries providing alternative drinking water sources 	government organizations, through these materials, preparing questions and answers based on reality and preparing signs and symptoms on posters, general awareness, etc., in the same way as field staff, To develop relevant training material for.
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Cyclone/Storm/Hail Storm

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration and District Disaster Management Authority		Special precautions will need to be taken in the construction work of special branched area and bamboo house election in rural areas	<ul style="list-style-type: none"> To publicize the prior information related to cyclonic storm, hailstorm received from the Meteorological Department and to alert all the peoples To make the weather forecast information public at public places regularly and to analyze the risk related to storms at the village level. At the village level, in the analysis, the sensitive community and interests of the rebels should also be included

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				<ul style="list-style-type: none"> To disseminate the advisory issued by the government and to train village level government employees, civil society workers etc
2	Health			To order all private and government hospitals, including trauma centers in the affected area, to be ready and instruct all nearby blood bank testing centers to be alert

Health Related Issues

Sr. No	Name of the Department/Agency	Prohibition Work	Mitigation Work	Pre Preparation
1	District Administration and District Disaster Management Authority		<ul style="list-style-type: none"> Providing R.K.39 Testing facility at all health centers Reducing the number of abandoned dogs Availability of vaccines at all health centre's 	<ul style="list-style-type: none"> Special spraying in selected Panchayats conducting pre-publicity cleanliness campaign during Dengue Chikungunya season
2				
3				

5.4 Hospital safety

In India, experiences from the Gujarat earthquake of 2001, the Indian Ocean Tsunami of 2004 and the Kashmir Earthquake of 2005 have shown that disasters affect not only the population but also health facilities. Particularly when the Children's Hospital in Jammu collapsed; in the city of Bhuj, where thousands of people died and the civil hospital was reduced to a heap of debris when it was needed the most. The fire in AMRI Hospital in Kolkata in December 2011, where more than 90 people died, and the fire in SUM Hospital in Bhubaneswar in October 2016, where 22 people died, reminded us that it is not simply the structural resilience but also operational resilience of hospitals that needs to be addressed, if we wish to reduce the impact of disasters on hospitals.

The Pan American Health Organization (PAHO) and the World Health Organization (WHO) have defined: "a Safe Hospital as one that:

- will not collapse in disasters, killing patients and staff;
- can continue to function and provide its services as a critical community facility when it is most needed; and,
- Is organized, with contingency plans in place and health workforce trained to keep the network operational."

The concept of safe hospitals does not merely refer to the physical and functional integrity of health facilities but also the preparation to function at full capacity and cater to the needs of the affected community immediately after disaster strikes.

The first step towards making hospitals safe is to create awareness among various stakeholders about the need to have safe hospitals, what it entails and actions that can be undertaken.

Disaster preparedness and response for hospitals/healthcare institutions is the critical action to ensure that they can remain functional and continue providing the necessary health care services during and immediately after an emergency. To fulfill this objective, initiatives need to be taken with regard to

1. Coordination & Management,
2. Planning, Training and Drills,
3. Information and Communication,
4. Safety and Security,
5. Human Resources,

6. Logistics, Supply and Finance Management,
7. Continuity of Essential Services,
8. Triage,
9. Surge Capacity for Medical Response,
10. Post-disaster Recovery,
11. Patient Handling,
12. Volunteer Involvement and Management,
13. Area Level Networking of Hospitals, and
14. Coordination and Collaboration with Wider Disaster Preparedness Initiatives.

Each hospital should also have its own **Hospital Disaster Management Committee (HDMC)** responsible for developing a **Hospital Disaster Management Plan (HDMP)**. Members of this committee should be trained to institute and implement the **Hospital Incident Response System (HIRS)** – for both internal and external disasters.

The hospitals and health institutions should also acquire the necessary permits, certificates and approvals such as Building permit from municipality, NOC from CFO, NOC under Pollution Control Act, Radiation protection certificate (from BARC), Atomic Energy Regulatory Body approvals, Excise Permit to store spirits, PAN number and other Tax documents, Permit to operate lifts under the Lifts and Escalators Act, Licenses under the Narcotics and Psychotropic Substances Act and License, Sales Tax Registration Certificate, Vehicle Registration Certificates for Ambulances, Retail and Bulk Drug License (Pharmacy), and Wireless Operation Certificate from Indian Post and Telegraphs (if applicable).

5.4.1 Checklist for hospital preparedness

Following is a checklist intended to provide a list of potential issues for a hospital facility to assist in maintaining a safe environment of care and ensure continuity in operations. This checklist intends to offer a preliminary guide and by no means is complete. To help remain operational, hospitals should consider taking the following steps:

- ✓ Prepare a **Disaster Management Plan** (for both *internal* and *external* emergency) by setting up a multidisciplinary planning committee and enter into a collaborative relationship with the local emergency management/services agency. Operate a 24-Hour **Emergency Operation Centre**.
- ✓ Prepare **contingency plans** for medical treatment during different types of disasters.

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- ✓ Establish an **in-house team** and designate **emergency coordinator** on 24hr basis – HEICS
- ✓ Establish **activation** and **deactivation stages** in the plan and **outline roles** for all stages.
- ✓ Develop **SOPs** for each department reflecting **continuity of operations** to provide services.
- ✓ Arrange to address **cash needs** and **inter sharing of resources** during the emergency period.
- ✓ Prepare a plan of **action** to handle **Mass Casualty Care**. Designate staging area and resources.
- ✓ Prepare **plans** for the **operation, preventive maintenance, and restoration** of critical services.
- ✓ Put in place an **Evacuation Plan** in case need arise and identify place for setting **Field Hospitals** and providing emergency care.
- ✓ Undertake detail **hazard risk and vulnerability assessment** of the hospital facility and prioritize **structural and non-structural mitigation** activities and **preparedness** activities.
- ✓ Establish a minimum of **one-week supply** of potable water, diesel fuel for generators and gasoline for emergency vehicle use.
- ✓ Work in advance with the nodal emergency agency to **determine plans** for **crowd management** and **protection** of the facility, supplies, patients and staff.
- ✓ Establish **transport service** to pick and drop employees during the emergency phase/72 hours.
- ✓ Make provisions for **alternative communication** and **power supply** arrangements.
- ✓ Make provisions of **basic services/on-site day care** for engagement of additional people, visitors and **volunteers**.
- ✓ Develop/update **recovery plans** for business/management **information systems**. Establish **backup** of all electronic information outside the facility. Update contact **information directory**.
- ✓ Purchase **additional hardware supplies** for repair of windows, electrical wiring, lighting lamps and fixtures, water supply and drainage network, fire extinguishing equipment etc.
- ✓ Establish an **in-house general store** for employees to obtain dry goods, cleaning supplies and donated items.
- ✓ Undertake **need assessment** of essential equipment, laboratory facilities, human resources, PPE and drug supplies.
- ✓ Set up a **24-hour materials management** and receiving department, and stock 7-day supply of important items, including: water, ice, food, blankets, clothes, linens; IV sets and solutions; disinfectants; gloves; medications such as insulin, heart drugs, antibiotics, anti-diarrhea

remedies; blankets, pillows and cots for staff; medical gases; hand sanitizers; scrubs; personal hygiene items; equipment and supplies for dialysis and chemotherapy treatments. Anticipate patient load increase in critical diseases.

- ✓ Establish **relationships** with community and corporate that might provide **needed supplies**.
- ✓ Make elaborate arrangements for **traffic flow** and control.
- ✓ Designate **internal spokesperson** as media contact
- ✓ Undertake **education and training programmes** on Hospital Safety for the employees and the community.
- ✓ Conduct **annual exercise** or **drill** as part of the Hospital Safety Programme.
- ✓ Record **detail inventory of all hospital assets** as proof about the “as was” condition. This documentation will be needed when applying for damage reimbursement/claiming of insurance.
- ✓ Establish a **Network** of Hospitals within the region.

5.4.2 Possible Shortfalls, their Impact and Mitigation Measures for safety and preparedness in health facilities

Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
1.	Absence of land use plans leading to siting of health facilities at land vulnerable to natural hazards and/ access routes being vulnerable	<ul style="list-style-type: none"> ✓ Siting of health facilities at slopes/ land sliding areas can result in damage to these facilities and render them unusable in case of earthquake or heavy rains/ floods. ✓ Siting in low laying areas / depressions can render the facilities vulnerable to flooding and unusable following heavy rains / floods. ✓ Siting in areas vulnerable to becoming inaccessible in the event of a flood or earth quake or a land slide can result in non-availability of these facilities to the affected people in event of a natural hazard. 	<ul style="list-style-type: none"> ✓ The Location should not be at the edge of a slope, near the foot of a mountain vulnerable to landslides, near creeks, rivers or bodies of water that could erode its foundation, on top of or in proximity to active fault lines (less than 10 meters away), near the river banks and areas prone to storm surges. The building should have appropriate provisions for addressing hazards related to location such as rainwater drainage and dikes ✓ Relocate the facilities away from land sliding areas. ✓ Adopt slop stabilization measures including bio engineering. ✓ Site these facilities on higher grounds or make flood protection bunds around these facilities. ✓ The Health Facility should be located along or near good roads and adequate means of transportation readily accessible to the community. Should preferably have access to more than one well-paved access roads (cemented or asphalt) that are properly identified and labelled. The site should be reasonably free from undue noise, smoke, dust, foul odours, flood and shall not be located adjacent to

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
			railroads, freight yards, children's playgrounds, airports, industrial plants, disposal plants.
2.	Lack of building codes and standards for health sector infrastructure	<ul style="list-style-type: none"> ✓ Unsafe buildings codes can endanger both the staff and the patients. ✓ The designs may not suit the local environment and culture. ✓ The facility may not be available for the service delivery during an emergency following a disaster. 	<ul style="list-style-type: none"> ✓ Develop and enforce safe building codes for multiple hazards like floods, earthquake and windstorms. ✓ Develop designs suitable to local environment and customs. ✓ The facility has a simple shape and is symmetrical along both the lateral and longitudinal axes (e.g. square or rectangle), making it resilient when subjected to stress such as that produced by an earthquake. The foundation, columns, beams, floors, slabs and trusses should conform to Building code. Glass walls, doors and windows resist basic wind speeds of 200-250 kph with regional application of secondary covers
3.	Standard of construction	<ul style="list-style-type: none"> ✓ Substandard construction can result in different types of disaster risks. ✓ The men and material can be injured /damaged and rendered ineffective following an earthquake, heavy rains or wind storm etc. ✓ The facility can become unusable 	<ul style="list-style-type: none"> ✓ Ensure proper quality control through monitoring and inspection regimes. ✓ Ensure use of safer materials and construction techniques.

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
		following a disaster event.	
4.	Construction of ramps for persons with disabilities	<ul style="list-style-type: none"> ✓ Non-availability of ramps for bed patients and persons with disabilities can deny easy access to these people. 	<ul style="list-style-type: none"> ✓ Ramps should be present in appropriate areas for moving bed patients and for use by people with disabilities
5.	Construction of multiple exits for emergency and doors opening outwards	<ul style="list-style-type: none"> ✓ In case of single entry and exit it is likely to be choked during an emergency and result in casualties. ✓ Similarly, the doors opening inwards are likely to be choked in an emergency especially following an earthquake. 	<ul style="list-style-type: none"> ✓ Construct multiple emergencies exits and create DRR awareness among all stakeholders. ✓ Ensure that doors open out wards. ✓ Spell out detailed SOPs for evacuation in an emergency.
6.	Firefighting Arrangements	<ul style="list-style-type: none"> ✓ Non installation of fire alarm system. ✓ Substandard or non-functioning fire alarm system. ✓ Substandard or non-functional firefighting equipment. 	<ul style="list-style-type: none"> ✓ New structures should be built with fire-resistant and nontoxic materials. ✓ Fire Suppression System with alarm, detection and extinguishing systems should be provided. An emergency Exit System with directions at all points including angles and intersections of corridors and passageways, landings of stairs and exit doors; should be provided. ✓ Training of HR for proper maintenance and use of fire alarm and firefighting equipment.

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
7.	Architectural Elements	<ul style="list-style-type: none"> ✓ Insecure roofing, different fittings or leakage can harm the occupants. ✓ Unsafe doors and windows material and choking of doors can be dangerous during emergency. ✓ Check list for architectural elements is given in the remedial measures. 	<ul style="list-style-type: none"> ✓ Roofing materials should be completely and securely fastened, welded, riveted or cemented. The roof is leak-proof and where possible, insulated. ✓ Door materials are wind-and fire-resistant. Doors are securely attached to jambs. Main doors are double swing; bathroom door is swing out; emergency room doors are swing in and out, fire exit doors fire-resistant; swing out; with self-enclosing device and panic bar. Corridors should be double swing, per groups of rooms or sections, for compartmentalization. ✓ Windows should have wind and sun protection devices, should have features to secure the safety of the patient (e.g. grilles, railings). ✓ Rooms may be subdivided provided that the arrangement allows for direct and constant visual supervision by nursing personnel ✓ Exterior elements (cornices, ornaments, facade, plastering) should be securely fastened to walls, hanging light fixtures properly anchored, electrical wires and cables properly

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
			fastened and secured, non-slip floor materials without crevices should be provided in all clinical and service areas and easy-to-clean floor materials in all other nonclinical areas.
8.	Additional engineering works for improving the safety of the buildings	<ul style="list-style-type: none"> ✓ A building needing retrofitting can be unsafe for both the staff and the patients. ✓ A health building located in low lying area may be vulnerable to flooding unless an embankment is constructed around it. ✓ A health sector building located at slop will be vulnerable without the support of a retaining wall. 	<ul style="list-style-type: none"> ✓ There should be no major structural cracks on structural members. Minor or hairline cracks should be investigated by a qualified civil or structural engineer and determined to be localized and repairable. Cabinets, shelves, appliances and equipment should be properly anchored. ✓ Carry out proper retrofitting and ensure quality control through regular monitoring. ✓ Construct an appropriate bund / embankment to make the building safe for use during an emergency. ✓ Construct an appropriate retaining wall to provide required protection to the building. <ul style="list-style-type: none"> ✓ Create DRR awareness among the community/ all stakeholders.
9.	Coordination between the relevant sectors/stakeholders	<ul style="list-style-type: none"> ✓ Lack communication and coordination between the various national and international 	<ul style="list-style-type: none"> ✓ Improving the communication and coordination between the various stakeholders within the health sector, as well as outside the health sector.

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
		<p>stakeholders can result in duplication of efforts in some areas and leaving gaps elsewhere</p>	<p>✓ Establishment of a well-defined and efficient coordination mechanism at union council level, district level, provincial level and national level.</p>
10.	<p>CBDRM. The community which is first one to help itself may not be organized to react with resilience and prudence following a disaster.</p>	<ul style="list-style-type: none"> ✓ Lot of damage would have been done before arrival of outside help and irrecoverable losses would have occurred due to poor response at the community level. ✓ Provision of first aid and casualty evacuation may be neglected and people may get involved in burials and other things. 	<ul style="list-style-type: none"> ✓ Organizing the community at village and UC level to react resolutely. ✓ Educating the community on priority of work specially importance of first aid and causality evacuation. ✓ Training volunteers in first aid and administration, as well as having an emergency Rotas with a list of extra available health professionals that can work following a disaster. <ul style="list-style-type: none"> ✓ Create DRR awareness among the community.
11.	<p>Lifeline facilities/ back up support for health sector</p>	<ul style="list-style-type: none"> ✓ The health facilities particularly in rural areas generally lack life line facilities and run short of medicines due to inadequate financial support. ✓ These facilities do not have important back up like electricity, water, 	<ul style="list-style-type: none"> ✓ Emergency generator should be provided with the capacity to meet priority hospital demands (provision for backup electrical system to include operating room, intensive care, pathways). ✓ There should be functional electrical and emergency lights with battery backup in all critical areas.

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
		<p>medicines, medical gasses etc and thus cannot function properly during an emergency.</p>	<ul style="list-style-type: none"> ✓ The water tank storage should have sufficient reserve to satisfy the hospital demand for three days at all times. ✓ Medical Gases should be properly stored and secured in well ventilated areas or compartmented storage areas and secured from theft and vandalism. ✓ A Logistic System should be put in place for estimating drug requirement, maintaining an inventory, storing and stocking and issuing and controlling the use of drugs, stockpile of emergency medicines and supplies, special arrangement with vendors and suppliers for emergency purchases in times of disaster2 emergency kits and blood bank facility during emergencies.

5.5 School Safety

5.5.1 Suggested Measures for Safer School Construction

- Set up a committee for the school building at the community level (school director, community leaders) to monitor maintenance.
- Capacity building of the committee members so that the committee members can explain to the architect the design that will suit the local conditions.
- Build all structures above the high flood level
- Ensure early warning of storms for the community
- Roads should be flood proof for continued access even after flood
- Train architects, private contractors, masons, etc.
- Master plan is essential. Should include the size and location of school and how much area needed for playground and class rooms.
- Must have professional architect for school building. Also need to study the level of water and volume of flood before initiating construction.
- Knowledge should be imparted to community on what they should and should not do to ensure storm resilience in the construction. This can be done through capacity building campaign.
- Clear evacuation routes during floods or during emergency should be developed for the community.
- Need to manage and utilize funds appropriately and effectively. Community and concerned government officials should form a committee to monitor school building construction.

5.5.2 Possible Shortfalls, their Impact and Mitigation Measures for safety and preparedness in schools

Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
1.	Absence of land use plans leading to siting of Governance facilities at land vulnerable to natural hazards	<ul style="list-style-type: none"> ✓ Sitting of these facilities at slopes/ land sliding areas can result in damage to these facilities and render them unusable in case of earthquake or heavy rains/ floods. ✓ Siting in low laying areas / depressions can render the facilities vulnerable to flooding and unusable following heavy rains / floods. ✓ Routes to the governance buildings / facilities are blocked by the flood / rains / traffic / natural hazards. 	<ul style="list-style-type: none"> ✓ The Location should not be at the edge of a slope, near the foot of a mountain vulnerable to landslides, near creeks, rivers or bodies of water that could erode its foundation, on top of or in proximity to active fault lines (less than 10 meters away), near the river banks and areas prone to storm surges. The building should have appropriate provisions for addressing hazards related to location such as rainwater drainage and dikes ✓ Relocate the facilities away from land sliding areas. ✓ Adopt slop stabilization measures including bio engineering. ✓ Site these facilities on higher grounds or make flood protection bunds around these facilities.
2.	Lack of building codes and standards for the schools	<ul style="list-style-type: none"> ✓ Unsafe buildings codes can endanger both the teachers and the students. ✓ The designs may not suit the local environment and culture. ✓ The building may not be available for the service delivery during an emergency 	<ul style="list-style-type: none"> ✓ Develop and enforce safe building codes for multiple hazards like floods, earthquake and windstorms. ✓ Develop designs suitable to local environment and customs.

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
		following a disaster.	
3.	Construction of ramps for students with disabilities.	<ul style="list-style-type: none"> ✓ Non-availability of ramps for students and other persons with disabilities can result in them getting trapped following a disaster. 	<ul style="list-style-type: none"> ✓ Ramps should be constructed at appropriate places for use by the persons with disabilities.
4.	Construction of multiple exits for emergency and doors opening outwards.	<ul style="list-style-type: none"> ✓ In case of single entry and exit it is likely to be choked during an emergency and result in casualties. ✓ Similarly, the doors opening inwards are likely to be choked in an emergency specially following an earthquake. 	<ul style="list-style-type: none"> ✓ Construct multiple emergencies exits and create DRR awareness among all stakeholders. ✓ Ensure that doors open outwards. ✓ Lay down and rehearse SOPs for evacuation in an emergency.
5.	Firefighting arrangements	<ul style="list-style-type: none"> ✓ Non installation of fire alarm system. ✓ Substandard or non-functioning fire alarm system. ✓ Substandard or non-functional firefighting equipment. 	<ul style="list-style-type: none"> ✓ New structures should be built with fire-resistant and nontoxic materials. ✓ Fire Suppression System with alarm, detection and extinguishing systems should be provided. ✓ Training of HR for proper maintenance and use of fire alarm and firefighting equipment.
6.	Additional engineering works for improving the safety of the	<ul style="list-style-type: none"> ✓ A building needing retrofitting can be unsafe both the staff and the students. ✓ A building located in low lying area may be 	<ul style="list-style-type: none"> ✓ There should be no major structural cracks on structural members. Minor or hairline cracks should be investigated by a qualified civil or structural engineer

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Sl.	Shortfalls in the Facilities/Activities	Potential negative DRR impacts	Proposed mitigation measures
	buildings	vulnerable to flooding unless an embankment is constructed around it. ✓ A building located at slop will be vulnerable without the support of a retaining wall.	and determined to be localized and repairable. ✓ Carry out proper retrofitting and ensure quality control through regular monitoring. ✓ Construct an appropriate bund / embankment to make the building safe for use during an emergency. ✓ Construct an appropriate retaining wall to provide required protection to the building.
7.	Lack of awareness and Capacity building of the teachers, community and students.	✓ Lack of capacity / awareness about possible disasters and capacity to respond appropriately can result in a paralysis during a disaster situation. ✓ The teacher's other staff may not be trained to function efficiently during a natural disaster.	✓ Educate the both the staff and the students about possible hazards and required risk reduction measures. ✓ Build response capacity of the staff and the students through training workshops and short courses. ✓ Involve the parent's teachers' committees in DRR awareness and capacity building. ✓ CBDRM.

5.5.3 Suggested template for School Disaster Management Plan

Sr.No.	Content in the plan
1.	School Profile
2.	School location Map (indicating access routes, nearest important resources such as fire station, police station, hospital etc.)
3.	HRVA (hazards and vulnerability identification inside school and outside school)
4.	Database of past disasters, if any (disaster history)
5.	Existence of SDMC (List of members of SDMC and team with contact numbers and address)
6.	Formation and Training of Disaster Management Team (List of how many trainings have been conducted and trained staff in the school)
7.	Task forces (list of the following task forces with names of members, designation, age, sex, mobile, e-mail). Team leader should be clearly identified and mentioned. <ul style="list-style-type: none"> • Awareness Generation, Warning and Information Dissemination Team • Evacuation Team • Search and Rescue Team • Fire Safety team • First Aid Team • Bus safety Team • Site security Team
8.	Resource inventory (list of key resources available in the school such as fire extinguishers, stretchers, sirens, first aid kits, vehicles (buses, cars, jeeps, 2-wheelers),
9.	Important contact details (within the school and outside the school)
10.	Communication plan (flowchart of communication within the school and outside the school with key responsible persons and their contacts)
11.	Evacuation plan of school in an emergency (with floor wise evacuation maps)

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Sr.No.	<i>Content in the plan</i>
12.	Annual calendar for disaster management preparedness activities to be conducted in the school (such as competitions on disaster management topics, trainings, mock-drills etc.)
13.	Response plan for identified hazards <ul style="list-style-type: none">• Earthquake• Fire• Electric hazard• Flood• Water-logging• Stampede• Hazards in school transport (Response plan should be prepared assuming the worst-case scenario for the above hazards. This means that, the worst case should be assumed and plan should be made how to respond to that situation.)
14.	Provisions and plan for children (and sometimes, staff) with special/different needs
15.	Plan for uninterrupted education (Ensure that the education is not interrupted due to any disaster. Continuity of education should be planned in advance.)
16.	Actions for hazard risk mitigation in the school (with clear timelines and responsibility mentioned)
17.	Miscellaneous

5.6 Stubble Burning Management

In Nawada district, the problem of stubble burning may not have reached the alarming level like Haryana & Punjab. But in other districts of the Bihar, farmers using the practice more in the last few years due to huge residue in the farms after the harvest due to wider use of combine harvesters.

As per the report a total number of 72 cases of stubble burning were reported from 2017 to till now (*Source: - Agriculture Department, Nawada*). Of course this figure is not big but we have to work for this figure not to be big. As per the data provided by Fire Department, Nawada, from 2018 to 2022, a total number of 80 incidents of burning fields have occurred in the district. Most of these incidents have happened at the time of harvesting of wheat crops. There is no evidence that these events are human events.

If the year 2019 omitted, then in the district, every year Rice sowing percentage has been more than the set target (in hectare). In year 2021-22, the set target was to sow paddy on 76000 hectare of land in 187 Panchayat, While, Paddy was sowing on 78346 hectares with 103 percent. So much attraction of farmers towards Paddy crop can also cause problems in the coming time.

5.6.1 Crop residue Burning Management Schemes/Works Ongoing/Done in the District

Good work is being done by the Agriculture Department, Kirishi Vigyan Kendra, Nawada and Contribution of the other departments also regarding crop residue management in last couple of years. Which are given below:-

✓ A total no of 80 Combine Harvesters are present in the district, which are given by all the combine harvester operators/Owners/farmers before harvesting. Only after taking an undertaking from the farmers not to burn the crop residue.

✓ Agriculture Department has 26- Straw Reaper, 01- Straw Baler, 02-Happy Seeder, 03-Super Seeder, 22-Self Propped Reaper, 18-Reaper present for crop residue management.

✓ Scientists of Kirishi Vigyan Kendra, Nawada is also doing good job regarding crop residue management in the district. Total no of 04 Happy Seeder machine and 01 Round Baler Machine is under KVK. They also organized awareness making programs among farmers with the help of the line departments. KVK is also a member of the Crop Residue Management **Task Force** of the district.

✚ By contacting CONFED this year (2021-22), CONFED given the target of 15 Ton crop residue to KVK. This pilot project was headed by District Magistrate Sir, in Fajiha and Darma village of Akbarpur Block. In which the cost of crop residue is Rs 2 per kg for farmers and Rs 1 per kg for loading and transport cost. After the delivery of Crop residue to CONFED, payment successfully delivered in the bank accounts of the farmers.



(District Magistrate, Nawada during the inspection of Belor Machine Working Capacity)

✚ The target is to supply 100 tons of crop residues from Mahanandpur, Derma, Kajiha, Gopalpur and Dergaon villages to CONFED in the year 2022-23.

✓ On dated 26.03.2022, in a meeting of the Inter Departmental working group for crop residue management under the chairmanship of District Magistrate, Nawada, the District Program Officer, MGNREGA was instructed by the DM to clean the fields and remove the crop residue after harvesting the crop from the combine harvester under the MGNREGA program, Near the fields will make sure to make compost by making pits.

5.6.3. Future activities of Agriculture Department regarding Crop Residue Management

Crop Residue Management related activities of Agriculture Department

Sr. No	Activity	Date
1	Training of all Combine Harvester owners and other equipments.	20.08.2022
2	Meeting for Inter Departmental Crop Management	01.09.2022
3	Receipt of application for pass for operation from combine harvester owners.	02.09.2022 to 09.09.2022
4	Error redressal of applications received from combine harvester owners.	10.09.2022 to 12.09.2022
5	Approval of the pass issued by the District Agriculture Officer, Nawada, presentation before the District Magistrate, Nawada	15.09.2022
6	Monitoring committee meeting for the management of crop residue at the block level.	16.09.2022 to 21.09.2022
7	Follow up for compliance of crop residue management at block level.	22.09.2022 to 25.09.2022
8	Linking all farmer advisors with responsibility for harvester operations.	23.09.2022

5.6.4 Crop Residue Management related activities of AATMA, Nawada

Sr. No	Activity	Date
1	Training of Combine Harvester owners	20.08.2022
2	Training of farmers of areas burning more crop residue.	25.08.2022
3	Training of crop residue management equipment without harvester.	30.09.2022

5.6.5 Sorting by Holding

Sr. No	Block Name	Holding of sorting
1	Nawada Sadar	High Holding
2	Warisiliganj	
3	Kashichak	
4	Hisua	
5	Mardiganj	
6	Akbarpur	
7	Pakribarawan	
8	Narhat	Medium Holding
9	Roh	

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10	Rajauli	Low Holding
11	Gobindpur	
12	Koakol	
13	Meskaur	
14	Sirdala	

5.6.6 Panchayat wise crop residue burning area

Sr. No	Block Name	Panchayat Name
1	Akbarpur	Badail
	Hisua	Chittarghatti
	Nawada	Samaye
		Sonsihari
	Pakribarawan	Doomrawa
	Warisiliganj	Baghibardiha
Paingri		
Sore		
2	Akbarpur	Badail
	Nawada	Makhar
		Samaye
	Warisiliganj	Baghibardiha
		Barnama
		Chakvaye
3	Nawada Sadar	Kuttri
	Roh	Samaye
	Warisiliganj	Kunj
		Barnama
		Sore

5.6.7 Responsibilities of the various Departments

Sr. No	Department	Responsibilities
1	Agriculture Department	<ul style="list-style-type: none"> ✓ To train farmers in the district regarding crop residue management through Aatma and Krishi Vigyan Kendra. ✓ Instead of burning crop residue in the fields, baler machine is used for cleaning the fields, instead of burning the crop residue in the fields, mixing it in the soil to make vermi compost, to encourage the training of sowing of paddy with happy seeder to save the soil by mixing it in the soil with mulching method in the farming etc.

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		<ul style="list-style-type: none"> ✓ To make farmers aware about burning of crop residues in kisan choupal and other awareness programs organized at Panchayat level by agriculture department. ✓ To make farmers aware through advertisements in newspapers from time to time. ✓ To make farmers aware through small documentaries and radio jingles related to crop residue burning.
2	Forest and Environment	<ul style="list-style-type: none"> ✓ Burning of crops residues ingresses the amount of carbon dioxide and carbon monoxide in the atmosphere. ✓ Due to which the environment is polluted which becomes a factor of climate change. ✓ To make public aware of all of these.
3	Health Department	<ul style="list-style-type: none"> ✓ Medical camps are to be organized through ANM and Asha workers in various blocks before the cutting season of the crops. ✓ In the medical camps ANM and Asha workers aware the villagers/farmers, create the awareness about diseases caused by smog arising from burning of crop residue.
4	Education Department	<ul style="list-style-type: none"> ✓ Organizing debate competition, painting etc. on burning of crop residue among the students. ✓ Incorporation of chapter on burning of crop residues in the fields in the syllabus of primary, secondary, higher and higher secondary.
5	Rural Development	Creating awareness about not burning crop residue through Jeevika Didi and MGNREAGA.
6	Animal, Fishery and Dairy Department	<ul style="list-style-type: none"> ✓ To make the livestock farmers aware about the agricultural residue and weeds to be introduced into the beds and goats in the fields after harvesting. ✓ To make the villagers aware about the dairy farming so that the remaining crop residue can be used as animal fodder.
7	Cooperative Department	To make farmers aware on crop residue management through pecso and block cooperative officer.

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8	Department of Panchayat Raj	To make farmers aware about crop residue management through three-tier Panchayati Raj Institutions and Panchayat sevaks.
9	District Public Relation Department	To make farmers aware about burning crop residues in the fields through various types of awareness channels.
10	Disaster Management Department/NGOs	<ul style="list-style-type: none">✓ To coordinate with the all line departments time to time regarding what and how they work on Crop Residue Management .✓ To make people aware about the crop residue burning through different types of activities.

Chapter 6

Capacity building & Training

Capacity building plays a critical role in the disaster preparedness. A prepared and resilient society results in much lesser loss of human lives and property in the unfortunate event of a disaster. The paradigm shift from reactive to pro-active approach in Disaster Management has identified capacity building as one of its core strategies. For a better and prepared society, it is imperative that the community as a whole is better prepared.

More specifically, capacity building of stakeholders-government and non-government helps to better understand the risks, mitigation, emergency and relief measures leading to reduced vulnerabilities and damages in the event of a disaster.

6.1 Current state of Capacity Building

Currently there is a limited capacity exists at Nawada district to cope up with the negative impacts of disasters. Most of the capacity is with the local level and to some extent at DM cell at the district. From the year 2021 more than 50 training organized by the Consultant Disaster Management. In those trainings more than 6000 peoples sensitized about the different types of aspects of the disaster by the Consultant Nawada.

Besides this during the Covid 19 period more than 10 online training program organized by the Consultant. In the online and offline training programs: NCC, NYK, Scoutt and Guide, Focal Teachers, Jivika Didi, Mukhiyas, Official Staff of the Collectriate, School and College Students with staff and Community Volunteers participated.

6.2 Scope of Capacity Building

The scope of this capacity building framework is limited to human, organizational and institutional capacities for the district of Nawada in the area of Disaster Management only.

6.3 Objectives of Capacity Building

- i. Build and strengthen the capacity of difference stakeholders in the areas of multi-disaster prevention, preparedness, mitigation, response and recovery

- ii. Develop and reinforce the capacities of officials and representatives, NGOs, CBOs in appropriate hazard assessment, vulnerability analysis, resource analysis and local capacity assessment
- iii. Lay down framework for Govt. officials, PRIs, ULB representatives to enlist the support of local institutions, NGOs, CBOs, etc., for community awareness, as well as capacitate the officials and local institutions to procure the support from other relevant quarters
- iv. Develop the required disaster management knowledge base of various stakeholders
- v. Formulate and institutionalize training methodology, modules for every aspect of DM training for stakeholders
- vi. Enable stakeholders to be better equipped to deal with natural disasters such as earthquakes, floods, landslides and other natural phenomena that are likely to cause damage
- vii. Identify professionals already received various DM related trainings as master trainers and designate them as change agents and be the front face to act on a continuous basis for dissemination of information related to hazard mitigation, relief and response to other stakeholders and general public
- viii. Disseminate important concepts of NDMP, SDMP, DDMP in the regional language through use of technology, wherever needed

6.4 Key Steps in Capacity Building

- Identify training needs periodically according to the disaster type, stakeholder type and their roles in disaster management & mitigation. The key disasters profile of Nawada is as follows:
 - ✓ Earthquakes
 - ✓ Floods
 - ✓ Droughts
 - ✓ High speed winds/ gale/ hail storm
 - ✓ Health disease scare
- Establishment of framework for delivery of trainings consisting of
 - ✓ Institutions at district and state level and
 - ✓ Create a pool of trainers for delivery of trainings
 - ✓ Prepare training material
 - ✓ Prepare a yearly and monthly Training calendar
 - ✓ Mobilise Financial and other resources

- ✓ Monitor the effectiveness of trainings
- ✓ Explore new age trends
 - Special focus on role of ICT
 - Use of mobile app for information dissemination and push awareness/ capacity building messages
- Sign up MoAs to conduct periodic trainings
- Conduct TOT to train the first set of master trainers and create a common pool across the district
- Nominate champion blocks for every hazard to take the lead in capacity building in that district
- Conduct awareness drives, mock drills with active involvement of social volunteers
- Conduct periodic monitoring, refresher trainings for trained manpower, mock drills etc for continuous involvement
- Use ICT and mobile apps for time to time dissemination of information and facilitate a two-way communication between public and administrators to facilitate early warnings, disaster related data collection and preparedness

6.5 Key actions in Capacity Building

1. Built capacity of GP level standing committees on DRR for undertaking disaster risk analysis and incorporating it into GP annual plans.
2. Built capacity of CERTs for preparedness and response actions.
3. Built capacity of District and block level officials and members of CERTs and PRIs on the relevant SOPs and guidelines.
4. **Multi-hazard:** Prepare barefoot engineers for conducting Rapid Visual Survey (RVS) of public and community buildings and submit report to the concerned Gram Panchayat for necessary action.
5. **Flood:** Develop a cadre of divers and search and rescuers with at least 5 trained personnel for each (including women divers) in each Gram Panchayat.
6. **Earthquake:** Train engineers and masons on retrofitting and seismic-zone wise building codes and construction norms.
7. **Road Accidents:** Train community members, youth club members, college students, teachers, shop keepers, police personnel on (i) first aid, (ii) traffic rules, (iii) safe driving in all conditions

including wet and foggy, (iv) maintaining vehicle fitness, (v) communication to trauma and police centres in case of accident events.

8. Stampede: Train volunteers and other personnel at the vulnerable areas, through mock drills, workshops, demonstrations, simulations, table-top exercises, and other such methods on crowd and movement management, communication, and other topics pertaining crowd management and stampede.

9. Boat Capsize: Sensitize boat drivers and community members on the model boat safety rules, norms, load line, search and rescue, and first aid.

10. Communications and Awareness:

- Develop pre-agreed ‘communication plans’ for disaster preparedness and emergency response with media agencies and civil society organisations.
- Develop a basket of communication tools for use through media like TV, Radio, Newspapers, Nukkad Nataks, Vichaar Sabhas, and Demonstration Exercises.
- Promote ‘Community Radio’ for enhancing resilience of villages, including targeted programmes for different social groups including women, children, and the elderly amongst others.

Develop a disaster related database (with information about annual risk analysis, disaster losses, position of CERT teams, pre-positioned resources etc.) at block and district level and make it openly available in the public domain.

6.6 Awareness activities and campaigns spearheaded by BSDMA

BSDMA has spearheaded proactive administrative measures to usher in a culture of disaster preparedness. Following weeks/days are observed throughout the State of Bihar at BSDMA’s behest for spreading awareness on related issues:

Dates (Period)	Event	Activities to be carried out*
11 – 17 January	Road Safety Week	Awareness Programmes to be carried out with educational institutions, various offices, Panchayat and other stakeholders.
15 – 21 January	Earthquake Safety Seek	
14 – 20 April	Fire Safety Week	
1 – 7 June	Flood Safety Week	
First Fortnight of July	School Safety Fortnight (4 July is observed as School Safety Day)	
22 – 24 March	Bihar Diwas Celebrations	Every year BSDMA puts a huge awareness pavilion including stalls of NDRF, SDRF, NGOs/INGOs and other important stakeholders on important issues.
13 October	International Day for Disaster	Awareness and sensitization programmes at

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	Reduction	district level.
6 November	BSDMA Foundation Day	BSDMA organizes its foundation day with specific theme every year. State level essay and slogan writing competition is also held on relevant issues with suitable cash prizes.

6.7 Strategic framework for Capacity Building

Category	Level	Audience	Type of training	Institutions	Tools
A	District level	<ul style="list-style-type: none"> DM District administration Heads of departments 	<ul style="list-style-type: none"> High level view of DM Management during DMs Mitigation measures and institutional structures Role of state, districts and PRIs Other relevant topics 	<ul style="list-style-type: none"> Disaster management institutes ATIs/ similar Common trainings at State 	<ul style="list-style-type: none"> Classroom eLearning
B	District level	<ul style="list-style-type: none"> ESFs, EOC members, DMMs, response teams etc 	<ul style="list-style-type: none"> Specialised training programs for different kind of functionaries 	<ul style="list-style-type: none"> BSDMA/ Similar specialized training institutes Common trainings at State 	<ul style="list-style-type: none"> Classroom/ ICT
C	Department level	<ul style="list-style-type: none"> Department functionaries Construction professionals 	<ul style="list-style-type: none"> Management during DM Mitigation measures and institutional structures Role of state, districts and PRIs Relief measures, bye-laws Other relevant topics Who's who 	<ul style="list-style-type: none"> Disaster management institutes State level training institutes 	<ul style="list-style-type: none"> Classroom
D	PRIs	<ul style="list-style-type: none"> Panchayat Administrators Key influencers 	<ul style="list-style-type: none"> Management during DM Mitigation measures and institutional structures Role of state, districts and PRIs Relief measures, bye-laws Other relevant topics Who's who 	<ul style="list-style-type: none"> District level ITI/ polytechnic/ district training centres 	<ul style="list-style-type: none"> Classroom
E	Non Govt. stakeholders	<ul style="list-style-type: none"> NGOs Civil Society 	<ul style="list-style-type: none"> Mitigation measures and institutional structures Relief measures, bye-laws 	<ul style="list-style-type: none"> Common trainings at State 	<ul style="list-style-type: none"> Classroom/ workshops

The responsibility of conducting the disaster works has been given to the District Magistrate of the district. Act as the Commanding Officer to the District Magistrate. Any activity related to the accident cannot be started without the permission of the District Magistrate and after completion, the information about the safety of manpower and material, that is, the accident command officer has to go out of the accident area. According to the need, if the District Magistrate considers it necessary, then by him to any senior Collector, the accident commands.

The officer may be appointed. If the disaster has happened at many places in the district, then the District Magistrate will be the commanding officer of the worst and most damaged accident site of the district, while another senior collector can be appointed as the commanding officer of the second accident site.

As soon as the District Magistrate or the deputed Senior Collector starts working as the Incident Command Officer, all the Line Departments and the Nodal Agency constituted will start working directly under the direction of the Incident Command Officer. It is also important that in the event of an accident, any resource in the area shall be diverted by the Incident Commander. Can be deployed / commanded / deputed to deal with the disaster. (See section 65 of the Disaster Management Act 2005)

The officer or officer in charge is appointed by the Incident Command Officer for many activities under him. Many types of teams are prepared for the response, they are deputed on the spot. These teams inform their arrival at the accident site, update the status of action taken and after the completion of the work, permission from the command officer after giving information about the safety and completion of the work. They leave the accident site only after receiving it.

Operations Division (Sub-Division Search & Rescue First Aid) under various subsidiary divisions. The Logistics and Logistics Division (including ambulance and hospital service etc.) will be the Planning Division and the Finance cum Administrative Division. These divisions will automatically get engaged. The officer-in-charge of these divisions can be appointed only by the Incident Commanding Officer. All these divisions will start functioning at an accelerated pace.

The officer-in-charge of the Assistant Division/Sub-Division will be appointed from amongst the District Collector, the District Level Line Department and the Officer-in-Charge, from amongst the Senior Officer of the District or an officer holding an equivalent post. Their

appointment and timing should also be kept in mind that the top officials of the sub-division or the block are appointed on the post of incident commander.

The Regional Emergency Operation Center at each head shall be equipped with an Emergency Management Team so that To take action as per the rules.

7.1 Responsibilities of the Honorable Officer

- ✓ To maintain and integrate the communication system and communication flow during also kept
- ✓ Keeping the whole scenario in front of it, managing it completely, controlling the coordinated plan and preparation of the report by the associate and partner units,
- ✓ Determined to various departments/agencies whether at district, state or central level and to make available all those facilities under standard procedure so that they can perform their functions perform the execution conveniently.
- ✓ To keep the information system, including the exchange of information, in a proper and regular manner during the course of time so that all kinds of information can be obtained, they can be kept safe on record and on the basis of this acceptance letter can be given,
- ✓ Information on their deputation and work progress from them by calling search and rescue teams during any disaster
- ✓ To keep complete information regarding camp and shelter site and issue guidelines in time
- ✓ During this time management for distribution of relief materials available among the affected people of the community. Doing, To do so that this material reaches the needy.
- ✓ To monitor all types of works executed during the disaster and also completed after the disaster
- ✓ To assess the disaster affected area / to estimate the severity of the situation to the Commanding Officer to take stock of the situation.
- ✓ Also forecasting the risk in the affected area and informing/messaging the community to be affected
- ✓ Listing the necessary actions to be taken for the community in times of disasters so that disaster mitigation can be done completely,
- ✓ Ordering to provide adequate necessary resources for response to disasters and the above list Providing relevant information to appropriate agencies/persons so that response action can be taken,

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- ✓ Determining the immediate action plan and giving proper instructions to the necessary mechanisms,
- ✓ Formation of a preliminary improvised core committee,
- ✓ The targets set for disaster mitigation, the extent to which the response plans were determined, were successful in their objectives, review, improve, change and as per the need, it should be included in the action plan of the district.
- ✓ After the completion of the response, after receiving the message of completion and safety from all the agencies involved, to approve the permission to complete the work.

7.1.1 Stakeholders and their action plans in the district

Stakeholders are divided into three categories according to their work Can be - Government, Community, Private and Voluntary Organization NGO.

- 1) **Government Line Department:** - The unit of Government Line Department prescribed for the district is in the district. Many schemes are run in These schemes are of both the central and state government. In District Disaster Management Plan, the action plans and responsibilities of all the government stakeholders have been shown, these government Stakeholders / All departments have been made accountable to the district administration.
- 2) **Community Based Groups:** - Community is directly related to the people living in different tolas or villages in rural areas and people living in different mohallas in urban areas. The community groups are thus accountable to the Gram Panchayat which is directly accountable to the public that the Gram Panchayat is connected to the Zilla Parishad through the Panchayat Samiti, which comes under a three-tier integrated process.
- 3) **Voluntary Organization / NGO:** - Various types of NGO stakeholders / Voluntary Organization / NGO are involved in the economic, social, political life of the people of the district. These agencies are active from Gram Panchayat to different communities residing in the society like urban/rural, consciously working towards the interests of different socio-economic groups.

7.2 Common Actions in Disaster Situation

In the light of the above statement, the normal actions to be taken in any disaster to deal with such situations. The actions can be as follows:

- a) On receiving early warning / in the event of information received from the disaster affected community, the intensity of the disaster will be assessed by the incident commander of the

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district. If the situation is unusual, it will be informed to various departments and general public.

- b)** Regularly 24 hours by activating Disaster Operation Standard Procedure for response work by Incident Commander. Hourly Emergency Operations Center will be activated. For this work in three shifts personnel will be deputed for
- c)** The Emergency Operation Center shall disseminate information related to the disaster with respect to its severity, location, division etc. and shall inform the concerned departments. It will also be the responsibility of the concerned department to get the information to this effect from the Emergency Operation Center by making an effort on its own.
- d)** If it appears that the situation of the disaster is very serious, the information in this regard may be obtained more than twice a day.
- e)** If the disaster is related to the neighboring district, state, then it will be confirmed after obtaining all the necessary information in this regard.
- f)** District Disaster Management Committee (DDMC) representatives of the team engaged in Emergency Service Work (ESF) by the Incident Commander, officials of the Emergency Operation Center (EOC). The seriousness of the situation will be reviewed; updated status and necessary action will be discussed by convening a joint meeting.
- g)** Incident command team and concerned officers in the light of standard operating procedure related to disaster. Will be alerted to be ready.
- h)** The block level officers and disaster management teams will disseminate early information, advice and warnings in the area affected by the disaster so that the community can be mentally prepared.
- i)** Emergency Operation Center (EOC) immediately reviewing the seriousness of the threat by the Incident Commander. Disaster management team, first responder team and emergency service work etc. will be activated.
- j)** In all types of disasters, relief search and relief in accordance with the standard operating procedure related to the particular disaster. Loading will be done in both type of Disasters.
- k)** Competent agencies/Ghinags will be activated for immediate response after the Assistant Commander is satisfied after receiving the information. Under this –
 - ✓ Immediate activation of Emergency Operation Centre, Disaster Management Team, Quick Response Team (Q-RT). Immediate activation of community level rapid response teams and disaster management teams. Activating Gram Panchayat.

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- ✓ To initiate communication of local disaster related information by stating the telephone number of the emergency operations center and the telephone number of the in-charge so that the response can be better.
 - ✓ Obtaining information and instructions from the Emergency Operation Center and maintaining coordination and communication with the disaster management team in this sequence.
 - ✓ Maintaining the flow of information from bottom to top officials.
 - ✓ After receipt of all the information jointly by the District Disaster Management Authority and the Emergency Operation Center, to analyze and decide whether the disaster is of the village, block, sub-division or district level. This will help in assessing the severity of the disaster.
- l) *After determining the severity and level of the disaster***
- ✓ If the disaster is at the block level, the Block Development Officer will be responsible for disaster response and the Quick Response Team (QRT) and the Disaster Management Team (DMT). Will carry out response work in collaboration with Emergency Support Task (ESF) and First Response Team (FRT) etc.
 - ✓ The Circle Officer of the affected zone will be in regular contact with the District Disaster Management Authority and the Emergency Operation Center and will do the work of response in coordination with the Block Development Officer.
 - ✓ If the effectiveness of the disaster will be at the district level then: - The district's Senior Deputy Collector, Disaster Management In-charge will be responsible for coordinating disaster response. Magistrate in charge, Emergency Operation Center, District Disaster Team, QRT. F. R. T., Task Response Team, E.S.F. Will work in coordination etc.
- m) To convene a joint coordination meeting on this occasion in which the members of the District Inter Agency Group (if any) and representatives of the Essential Services Task Force will be involved. It would be better if this meeting is held in the disaster affected area. In this, the people of the inter-agency group working in the district will also be involved so that the ground reality can be known. If needed, the provincial / national / international agencies will be contacted to get the necessary resources.**
- n) The District Disaster Management Authority shall act as the nodal agency for the assistance received from the agencies outside the district and similar relief materials as may be felt**

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from outside. Planned distribution and supply will be done after preparing the required details of these materials.

- o) All the agencies interested in disaster assistance, the information of the things of need related to the disaster of that district. Will receive from the district administration and accordingly the goods will be sent to the designated officer for this work will hand over.

Monitoring of Response Tasks

To regularly monitor that even the most vulnerable groups of the society must have an eye on allied organizations and they are not deprived of relief assistance. Also to ensure that the response work is being carried out in the right direction? District Disaster Management Authority, Inter Agency Group and other stakeholders will prepare a record after collating and analyzing the efforts so that in future the flaws in it will be removed.

- ✓ Regular monitoring of program implementation, punctuality and resources.
- ✓ Stakeholder group affected people, Block Officer, DMT. Coordinating the response work related to disaster according to the changing disaster situation by contacting and consulting etc.
- ✓ Collecting experiences during the work done in the affected communities and sharing them in the letter on joint assessment.
- ✓ All information regarding empirical reports, monitoring results, evaluation, etc., should be made available to all stakeholders. It should also be put on the website of the District Disaster Management Authority so that the result is meaningful.

7.3 In general, the main components of a response plan for all disasters will be as follows

- 1) Communication and pre-consciousness system
- 2) Search, rescue, relief work
- 3) Therapeutic response
- 4) Disposal of dust and debris
- 5) Assessment and compensation of damages and losses automatically.
- 6) Logistics Arrangement
- 7) Operation of relief camps
- 8) Support and Charity Management Position
- 9) Media and Information Broadcasting

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Their post sub-section Objectives of all the above major components of response work during disasters, activities covered thereunder. The description of the responsibility of operation and the time taken to start, continue and complete it is shown in detail in the table below.

Chapter 8

Reconstruction, Rehabilitation & Recovery

Disasters are destructive, in which the basic structure is destroyed and it interferes with its functioning. In this event human and animals are also damaged. In this chapter it has been discussed that what will be the methods of damage assessment to complete the above work and how the reconstruction and setting up of resettlement will be done in the disaster prone areas.

Due to extensive damage in private and public transfer elections during calamities, daily activities are completely partially disrupted with many occurrences of disasters, extremely sensitive information such as electricity, road connectivity, water, education, medical, business, employment etc. Reconstruction, Resellement and Recovery is required to make it normal, by starting the process of completing these works, it takes a lot of resources and time to complete it, meanwhile, life-saving relief work is started so that the affected community can live in the life of the society. Ensure the safety of to be.

Reconstructiion

Because it is a long process, it is advisable that the immediate and medium and long term process should be adopted then. In the then activities, the concerned team will first assess the damage under the prescribed procedure, as well as ensure relief arrangements through the agencies concerned, through civil surgeon and municipality, all measures will be taken for the prevention of possible epidemics after the disaster For the repairs, the work of construction can be done with the help of the building construction department and various infrastructure bodies.

Apart from this, construction of pucca under medium and long term work, restoration of general facility in Pune, restoration of teaching health work, construction of units of water and sanitation and restoration of uninterrupted power will be the main work.

Recovery by Restoration

It is only after the disaster that it is necessary that people can be sent back from the camp or other refuge places back to the place where they live. The ongoing schemes of the state and central government will also be used to provide livelihood resources. Arrangement of psychiatrists and counselors will be made for the persons suffering from trauma in the disaster so that that person can be successful in recovering from the accident

8.1 Damage Assessment

According to the Disaster Management Department's notification number 3601 dated 30.09.2014, in the case of natural calamity, non-natural calamity, the decision of the competent authority to assess the damage and the competent authority for grant approval is to be taken by the District Magistrate only can purpose.

Post disaster recovery assessment should be mainly focused on sensitive population, inter-structure, property and environment, so that it can be divided into two sections:

- a) Damage Assessment
- b) Need Assessment

In situation assessment, the magnitude of the disaster and its impact on the affected population area is assessed, while in need assessment, it is decided to do what is necessary for the affected population area. It is decided.

The assessment should assess the nature and extent of the disaster and the affected community especially the vulnerable community, to recover from this impact. The compensate for the immediately damage and its long term effects, grants to vulnerable populations and compensation for damage to public property and environment.

Among the various dimensions of disaster damage, the following are prominent:

- Human deaths and destruction of property
- Damage to residential buildings and public structures
- Loss of livelihood resources
- Damage to the environment
- Psycho-social impact

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Partwise Disaster Damage Assesment Methodology and Responsible Agency:

Sr. No	Affected Division	Method	Responsible Agencies
1	Human Loss	<ul style="list-style-type: none"> • After identifying the dead body, hand it over to the close relatives. • Standard honorium zone set for final action pay • Last action of unclaimed dead bodies from socio-cultural tradition. 	Responsible agency community, chief, ward councilor, close relative officer responsible citizen authorized by District Police.
2	Injured	<ul style="list-style-type: none"> • Injured peoples reach the local hospital and relief camps. • Proper care and medical treatment of the injured peoples. 	specialized, chokidars, communities
3	Basic infrastructure	After the disaster, the damage caused in the government buildings will be taken by the engineering department and will dedicate it to the District Magistrate along with the estimates of necessary repairs.	Building Construction
4	Repair/Reconstruction of life support structure	Officers of the concerned department, the concerned department of damage the estimate of the repair along with photographs and scale will be submitted to the District Magistrate.	Related Department
5	Private house	To collect the details of partial damage or complete damage by classifying private houses on the basis of their structure and nature of roof.	Circle Officer
6	Agriculture/Animal Resources	<ul style="list-style-type: none"> • Compilation of data of complete damage or partial damage of crop, area and details of land owners. • To make financial assessment after getting information about the damage to the animals of the victims. 	Block Agriculture Officer, Policy Company
7	Medical (Physical, Psychological)	In the field of medicine, a list of the dead and injured will be prepared and proper facilities will be suffering from mental trauma due to disaster of people identity doing and counseling should be done by a psychiatrist.	Civil Surgeon, District Health Society
8	Restore menas of livlihood	To ensure the means of livelihood or industries which are established/operated in the disaster prone area and prepare the assessment for their return	Policy Company

8.2 Relief of the Victim's Guidance

In the context of the relief given to the people suffering from disasters like Flood, Drought, Earthquake, Fire Accidents etc.. Guidance, clarifications and instructions have been issued from time to time by the Disaster Management Department, Bihar. Referred letter / notification of Disaster Management Department mentioning below details in attached with this scheme.

✓ For the year 2015-2020, with effect from 01.04.2015, the persons/families affected by natural calamities notified by the government of India and local calamities notified by the State government, notified by the Govt. of India, issued date 26.05.2015 letter number 1973 of Disaster Management Department in relation to providing subsidies prescribed by SDRF and NDRF)

✓ To be set up by the National Disaster Management Authority during all types of disasters. In the relief camps where disaster victims have shelter, food, drinking water, medical facilities and sanitation. To provide relief in relation to the prescribed minimum parameters and to take action against the disaster. Regarding making special arrangements for the widows and orphans during letter No. 1202 issued dated 17.03.2016.

✓ Regarding rge successful operation of the relief center, the letter no 2493 of the Disaster Management Department dated 05.09.2006 issued.

✓ By letter number 1418 dated 17.04.2015, thunderbolt, excessive rain and untimely heavy rain, boat accident ue to drowning in rivers/ponds/pits. The date of notifying itself as a special local calamity and the loss of life and property due to these disasters is to notify itself as a special local natural disaster from 20.03.2015, it has been decided to provide ex-gratia grant/other grant as per the prescribed procedure or honarrium by Kutch.

✓ Letter no 76 dated 12.01.2009 due to natural calamity the body of the decaeesed was not recovered in this situation the procedure for recognition of ex-gratia grant has been notified

✓ Gudelines have been issued vide letter no 1692 dated 22.04.2016 regarding providing the amount of Credit grant to the disaster affected families.

✓ The following relief has been provided by the government for the victims affected by fire in certain circumstances. Provision has been made. The detailed description can be seen at Annexure held in Section-2 :-

- Compensation for shop/goods damaged by fire
- Operation of Special Relief Center for Fire Victims
- Grant against crop damage due to fire

- Grant to the victim of fire due to gas leak
- ✓ Regarding the distribution of relief to the affected by hailstorm / cyclonic storm / earthquake, in the state section – 2 Attached to Annex 41. To give equivalent ex-gratia amount to the dependents of the deceased due to lightning. Provision has been made.

8.3 Resettlement of Basic infrastructure

Infrastructure related to infrastructure like administrative building, hospital building, school building, electrical communication, road connectivity, telecommunication, drinking water supply etc. will be done on priority basis. For this, the Disaster Management Department will provide funds to the concerned implementing agencies and the concerned agencies will ensure its resettlement on a war footing.

8.4 Repairing of life-giving buildings

Action will be taken to repair and use those buildings which are very important for the day-to-day work of any community or society, affected and damaged by floods and earthquakes. The repair of buildings useful for emergency operations centres, hospitals and relief camps will be ensured on a war footing.

Repair/reconstruction of other damaged buildings

Repair and reconstruction of other damaged buildings shall be done in such a way that. So, that they are safe from risk during any future disaster.

Restoration of livelihood

The means of livelihood of the residents of the area falling under the purview of the disaster are also destroyed or damaged become. The crop is killed. The business of animal husbandry is adversely affected. Traffic is affected. Economic activities come to a halt. The problem of energy affects the production of cottage industries. Hence Disasters have an adverse effect on the livelihood of the community or society there. It again All necessary measures should be taken to bring back the situation and grant loan insurance to the affected. Their means of livelihood can be restored by providing them etc. Currently in the process of rehabilitation and resettlement, the state government's Department of Agriculture, Social Welfare, Animal Husbandry and Fisheries Resources and rural development programs may be given priority.

Medical Resettlement

It is very important to provide all kinds of medical assistance for the speedy recovery of the injured person from the impact of the disaster. Sometimes, even if the eyewitnesses of these accidents are not physically injured, they suffer a deep mental trauma, after being affected by which their behavior changes. They are found unable to do normal work. Proper management of psychotherapy is also essential for the persons suffering from these psycho-social disorders.

Timely Resettlement:

It is not possible to compensate for the extensive damage caused during past disasters in multiple disaster-affected areas through early restoration and reconstruction works. Disaster Risk Reduction, long-term recovery plan will be prepared and implemented. Women and children especially women and children are going through mental tragedy after suffering a major disaster. In such a situation, there will be a need to identify and psychologicalize the communities so that their suffering can be reduced.

Chapter 9

Finacial Arrangements

Section 46 (I) and Section 47 (I) of the Disaster Management Act, 2005 stipulate the constitution of a National Disaster Response Fund (NDRF) and National Disaster Mitigation Fund (NDMF) at the National level. The Government of India has notified the constitution of the NDRF vide its Gazette notification, Extraordinary Part-II-Section-3-Sub-Section (ii) No. 1995 dated 28.09.2010.

Section 48 of the Disaster Management Act, 2005 -The state government shall, immediately after notification issued for constitution the State Authority and District Authority, establish for the purposes of this act the following funds, namely:

- a) State Disaster Response Fund
- b) District Disaster Response Fund
- c) State Disaster Mitigation Fund and
- d) District Disaster Mitigation Fund

The Thirteenth Finance Commission has made provision for funds for SDRF in its recommendations which has been accepted by the Government of India.

9.1 Disasters included for providing financial support under NDRF / SDRF

Under 13th Finance Commission following disasters were included –

- ✓ Flood
- ✓ Drought
- ✓ Earthquake
- ✓ Cyclone
- ✓ Fire
- ✓ Hailstorm
- ✓ Avalanche
- ✓ Landslide
- ✓ Cloud Burst
- ✓ Tsunami
- ✓ Pest Attack
- ✓ Cold Wave

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14th Financial Commission has made an attempt to cover more disasters by including provisions for '*local disasters*'.

As per the prescribed standards of relief, funds are made available to disaster affected people mainly for the following –

- i. Ex-gratia relief to nearest relative of the victim, in case of dead or to injured person*
- ii. Expenses relating to hospitalisation and treatment*

No funds are released to DDMA's. All funds are released in the name of DM and it is utilized by District Disaster Cell (Zila AapdaPrashakha) headed by Additional District Collector or Senior Deputy Collector.

9.2 Procedures of receiving funds and furnishing utilization report

1. Demand is raised at the level of block / circle
2. This demand is sent to DM Office
3. DM sends request to state government
4. Request is then examined by State Executive Committee headed by Chief Secretary and Development Commissioner and Principal Secretaries of Water Resource Department, Disaster Management Department and Finance Department as Members.
5. Allotment if any, then sent to districts
6. A consolidated utilisation certificate is sent from district to state government.
7. This consolidated utilisation certificate is sent to State Executive Committee for approval.

(For provisions of standard relief measures and other financial provisions for districts, please refer to latest orders and circulars available at the website of Disaster Management Department and see recommendations of Fourteenth Finance Commission with regard to disaster management)

9.3 Central, State Plan and Non Plan Program

Sr No	Name of the Plan	Amount to be used in Disaster Reduction Work	Implementing Department/Agencies
1	Agriculture Road Map	Under this, the effect on crops due to climate change and the work of changes to be brought in it can be promoted	Agriculture Department
2	MNREGA	Creation of infrastructure up to Panchayat Level and orientation of work of various departments. From this fund, activities	Rural Development and Environment and Forest

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		like reconstruction, restoration etc. can be done	
3	Seven Determination Program	Establishment of street drain and piped water supply of every household under Har Ghar Jal	Rural Development, Panchayat Raj, Drinking Water and Cleanliness
4	Prime Minister Crop Policy Scheme	In case of crop damage, farmers can get compensation by paying some inobtrusive amount.	Agriculture Department.
5	Bihar State Crop Support Scheme	Compensation amount given to farmers in case of crop loss of 20% or more	Cooperative
6	Shatabdi Anna Kalash Scheme	Help to poor, old, widow	District Disaster Management Authority/District Program officer
7	Bihar Distressed Farmer Scheme	To provide ex-gratia grant and other benefits to the families of small farmers or sharecroppers who commit suicide under mental pressure due to crop failure in the event of calamity	Disaster management Department, Bihar
8	Jivika	Women Empowerment	Bihar State Rural Livelihood Mission
9	Anganwadi	Providing nutritious food to young children and pregnant womens through this	ICDS
10	National Rural Drinking Water Scheme	Establishment of infrastructure construction for pure drinking water up to Panchayat Level	Drinking water and cleanliness
11	National Rural Health Mission	Constructions of the Hospitals	District Health Society
12	Chief Minister Safe School Scheme	Trained the teachers and students in Disaster risk reduction	Education Department and Bihar Education Policy
13	Sarva Siksha Abhiyan	Installation of toilets and hand pumps in schools	Education Department and Bihar Education Policy
14	Prime Minister Irrigation Scheme	Strengthening irrigation system during drought	Water Resource
15	Asha Workers	Identifying pregnant women and full fil their medical needs.	District Health Society
16	Mid Day Meal Scheme	Providing food to school childrens	Mid-Day-Meal, District Program

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17	Prime Minister Housing Scheme- Rural	Providing housing for the poor peoples under disaster damage.	
18	Road Safety	Some part of the tax fee from various vechicles by the state is used for the mitigation of road accidents in the district.	Transportaion Department
19	14 th Finance Commission (2015-20)	To provide Capacity addition and Compensation amount for local calamities out of the funds received.	Disaster Management Department
20	Fifth State Finace Commission	Use of Disaster Mitigation from available funds for the Development of Panchayat and Local bodies.	Panchayat Raj/Muncipal Corporation
21	Disaster Response Fund	Availibility as per the Section 48 (1) and (2) of Disaster Management Act, 2005	District Disaster Management Authority
22	Disaster Mitigation Fund	Availibility as per the Section 48 (1) and (2) of Disaster Management Act, 2005	District Disaster Management Authority
23	National Food Safety Act	Food Availibility for the poor peoples	Food & Supply

Chapter 10

Monitoring & Evaluation framework

To achieve the envisaged goals and objectives in each plan, its continuous experience during the implementation period of that plan is very important. If the same plan has to be done again or again, then by evaluating the previous plan, it can be known that to what extent the envisaged goals, objectives were achieved? If there is a mistake in achieving the goal, what could be the main reason? Therefore, it is necessary and beneficial from time to time to evaluate and update the plan to be implemented continuously. The District Disaster Management Plan is a planned plan with the objective of keeping the public at bay from frequent occurrences and progressively reducing disaster risk. Therefore, its continuous experience will be assessed at regular intervals. After dealing with each disaster, its evaluation and review document will be prepared. In the light of these documents, the District Disaster Management Plan will be updated every year in the month of April.

10.1 Guidance for monitoring and evaluation of the plan

The following steps will be taken for continuous monitoring and periodic evaluation of the plan, under the sub-committee.

10.1.1 Relevant Sections of the Disaster Management Act, 2005

31(4) the annual review of the district plan will be updated and updated.

31(5) Copies of the District Plan referred to in sub-sections (2) and (4) shall be made available to the Government Departments in the district.

31(6) The District Authority shall send a copy of the District Plan to the State Authority which it shall submit to the State Government.

31(7) The District Authority shall from time to time review the implementation of the scheme and issue such instructions to the Departments of the Government in the district as it may consider necessary for implementation.

Section 32

Every office of the Government of India and the State Government at the district level and the local district officer subject to the district authority shall (c) review and carry out regular review of the plan.

10.1.2 Regular review of plan implementation

Monitoring and evaluation is most important for the success of any plan. From monitoring it can be known whether the prescribed instructions are being followed or neglected, the same evaluation is a process by which the program is aware of its usefulness. is dead and some calamities happen suddenly without any prior notice/intuition. Both types of disasters are based on prior experience for risk assessment, preparedness, response, recovery. Good efforts from the past are repeated and rendered ineffective.

While documenting it after recovery, it should be considered both effective. In the light of these education documents, April will have to be done every year.

10:1.3 testing the effectiveness of a plan in times of a severe disaster

Effectiveness is the rate of success of a program, whereas the ratio of program effectiveness to effort invincibility indicates efficiency. After dealing with every severe disaster, it is very important to thoroughly evaluate the effectiveness of the provisions made from the plan to deal with the particular disaster. From this evaluation, it can be known which measures, equipment or procedures have proved to be more efficient and effective in disaster response, recovery or restoration works. These experiences can be freely replicated in future disaster management plans or can be replicated at any other disaster affected equivalent site. Similarly, if any measures, equipment or procedures do not prove to be effective or increase the hazard of the disaster instead of reducing it, then it should also be considered in the disaster management plan for the future or similar other site.

10:1.4 updating the list of available resources (private, public, community and other) at the district level

Diligent personnel of various state or central government offices, bodies, Panchayati Raj institutions and other industrial, military and civil establishments working under the district and First responders can be prepared to help during the disaster from amongst the office bearers, school and college students and teacher-professor, medical personnel working in hospitals and private nursing homes and nearby medical personnel etc. The selected personnel / volunteers should be trained and made available in the appendices of the scheme after training them to cooperate in various tasks of disaster response. Similarly, the list of various types of small and big equipments helpful in disaster response should also be maintained on the appendix of the plan. Due to the transfer or retirement of personnel from time to time, new pre-trained / untrained personnel take

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their place in place of the old trained personnel. In equipment also, new equipment is procured and old unused equipment is disposed of. Therefore, it is necessary to update this resource list regularly.

10.1.5 Checking the effectiveness of the scheme by regular mock drills and efforts

The actual effectiveness of the effective measures/equipment in the particular situation envisaged in the plan should remain intact during the actual disaster, for this purpose it is necessary that In the event of an envisaged disaster, one or more mock drills and pre-planning should be done to achieve coordination between the responsibilities assigned to all the stakeholders before the actual disaster occurs. During this rehearsal, if errors are seen in the coordination and effectiveness of the equipment, efforts can be made to correct it successfully and its effectiveness can also be re-checked by repeating the rehearsal. By doing so, the trigger mechanism and co-ordination of interdependent responsibilities work best to deal with it during an emergency ensures the success of the scheme.

10.1.6 Regular orientation and training of officials responsible for plan implementation

An orientation-cum-training program will be organized regularly every quarter for all government and non-government officials related to disaster management under the district.

10.1.7 Updation of the plan

District Emergency Operation Center; Aapda Sadi will do the work of compiling, maintaining and analyzing the information of all. Evaluation of the effectiveness of the management plan and the efficiency of the efforts implemented during severe disasters Document more efficient disaster response and mitigation programs with the least amount of money as cost, time, human resources etc. have to be invested, giving priority to it, the work of updating the plan will be done.

10.1.8 Distribution of copies of the plan

By making available to all the stakeholders about the scheme, the work of making them aware about their responsibilities and role will be continued. Awareness programs will be organized from time to time for the active stakeholders at the Panchayat, Block and District level. Apart from this, information about what to do and what not to do will be disseminated with the help of telecommunications media.

10.1.9 Co-ordination

Maintaining mutual coordination among the nodal officers of all the participating agencies/departments is very important for effective disaster response. All efforts to keep it up to

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date will be done on a priority basis. For this, the head of the emergency operations team constituted at each level will be accountable and the members of the team will follow the instructions of the commander.

10.1.10 Public Awareness

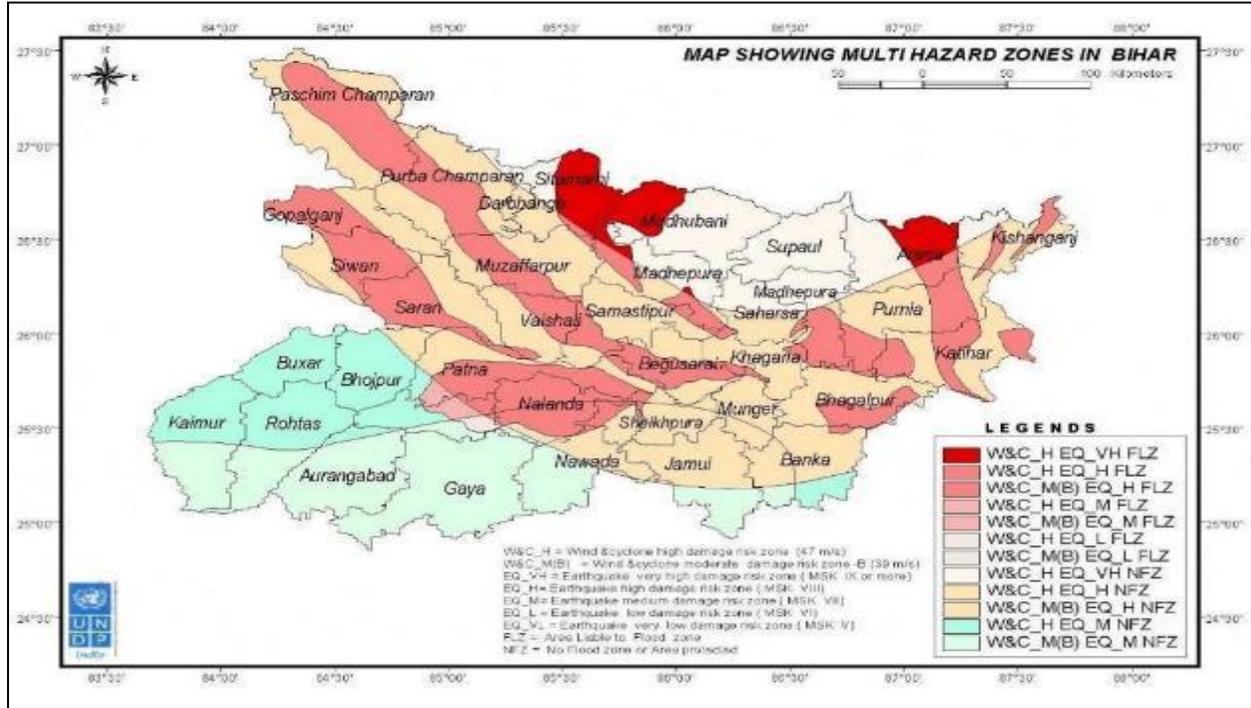
District Disaster Management Plan will be made available on the website of the district. The details of the appendices will be linked to the list of its appendices. Recording the information of disaster on the website of the district through internet and the precautions to be taken for self-protection and collective security in case of disaster will be mentioned prominently.

Monitoring & Evaluation framework allows DDMA to monitor project progress and facilitate decision making on the project. This framework also allows DDMA and SDMA to evaluate their various projects and programs. Monitoring helps to track key targets through regular data collection to assist timely decision making and provide the basis for evaluation and learning. Following is the monitoring and evaluation framework for DDMA Nawada for the disaster management initiatives in the district:

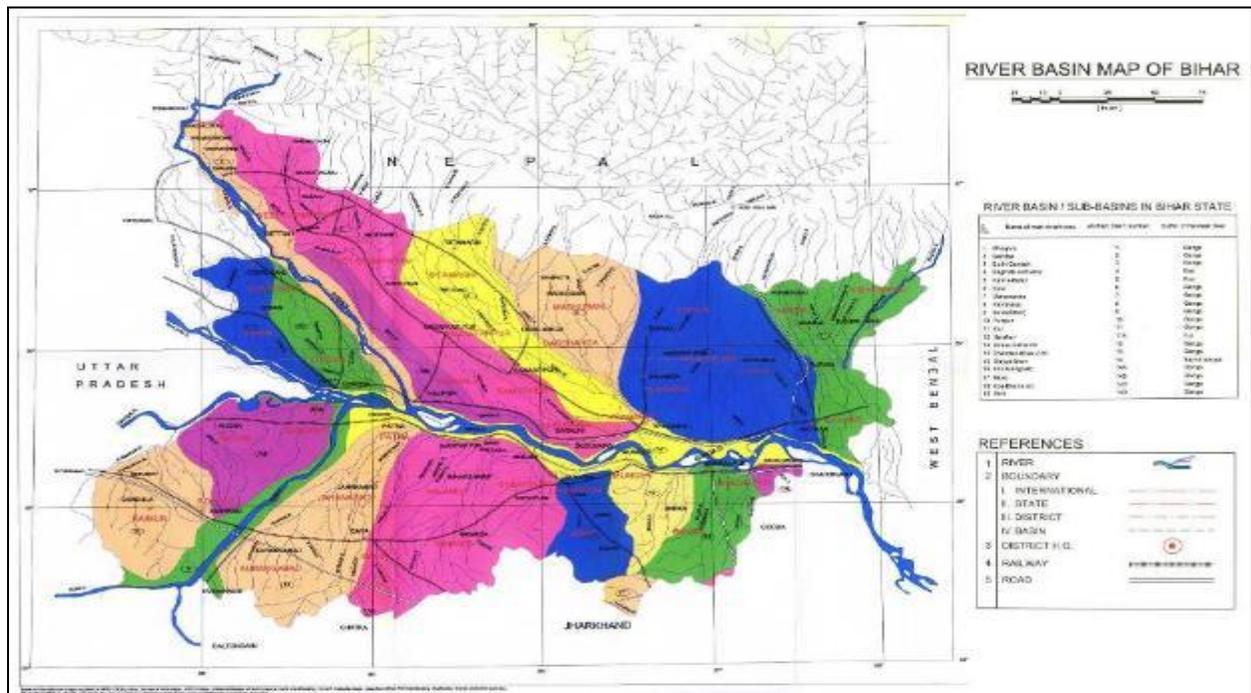
Component	Parameter to measure	Frequency of monitoring
Setting up of implementation structure		
District	<ul style="list-style-type: none"> • Number of vacant posts 	Bi Annually
PRIs	<ul style="list-style-type: none"> • Number of vacant posts 	Bi Annually
Physical implementation		
Capacity building of identified department staff	<ul style="list-style-type: none"> • Department wise number of staff trained in DM measures divided by total number of employees in Department 	Quarterly
Emergency Operation Centers	<ul style="list-style-type: none"> • Functional EOCs set up 	Bi Annually
Resource availability	<ul style="list-style-type: none"> • Department wise % of resources (personnel/ equipment available in working conditions) 	Quarterly
Technology implementation	<ul style="list-style-type: none"> • Panchayat/ block-wise number of downloads of DM mobile app 	Quarterly
General public awareness	<ul style="list-style-type: none"> • Number of awareness campaigns – disaster wise, block wise& Panchayat wise 	Quarterly
Financial implementation		
District	<ul style="list-style-type: none"> • % amount spent (Amount utilized divided by the amount allocated) • % growth in amount allocated 	Yearly
PRIs	<ul style="list-style-type: none"> • % amount spent (Amount utilized divided by the amount allocated to PRIs) • % growth in amount allocated 	Yearly

Maps

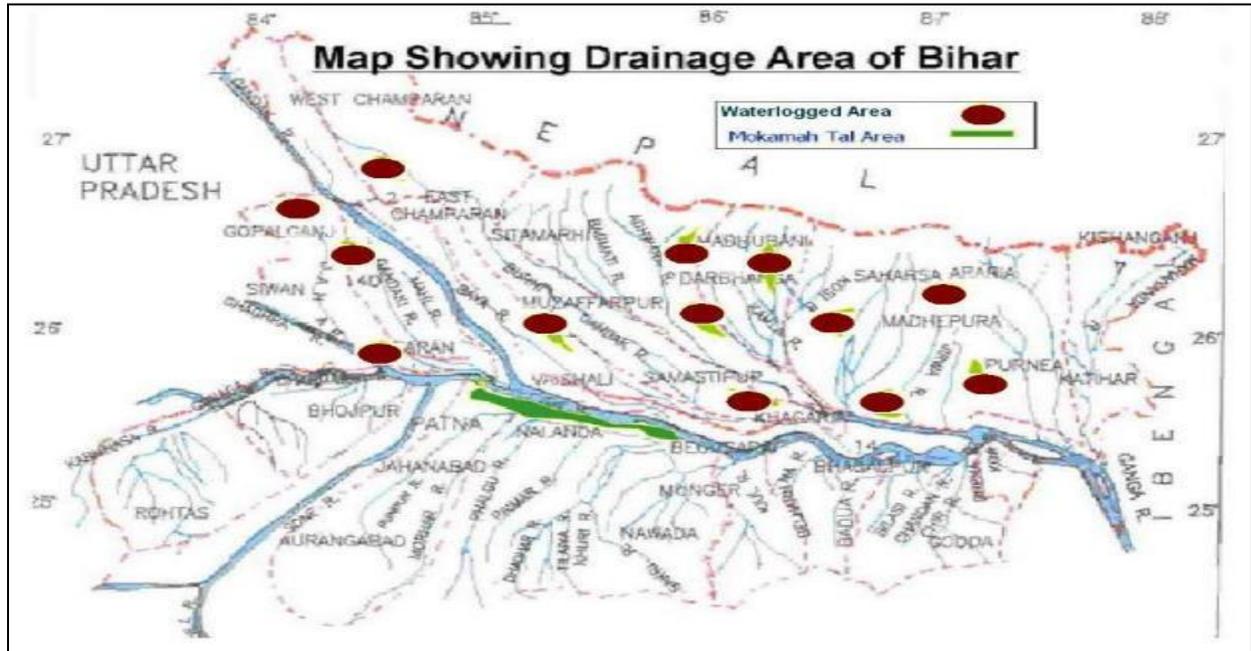
Multi-hazard map of Bihar



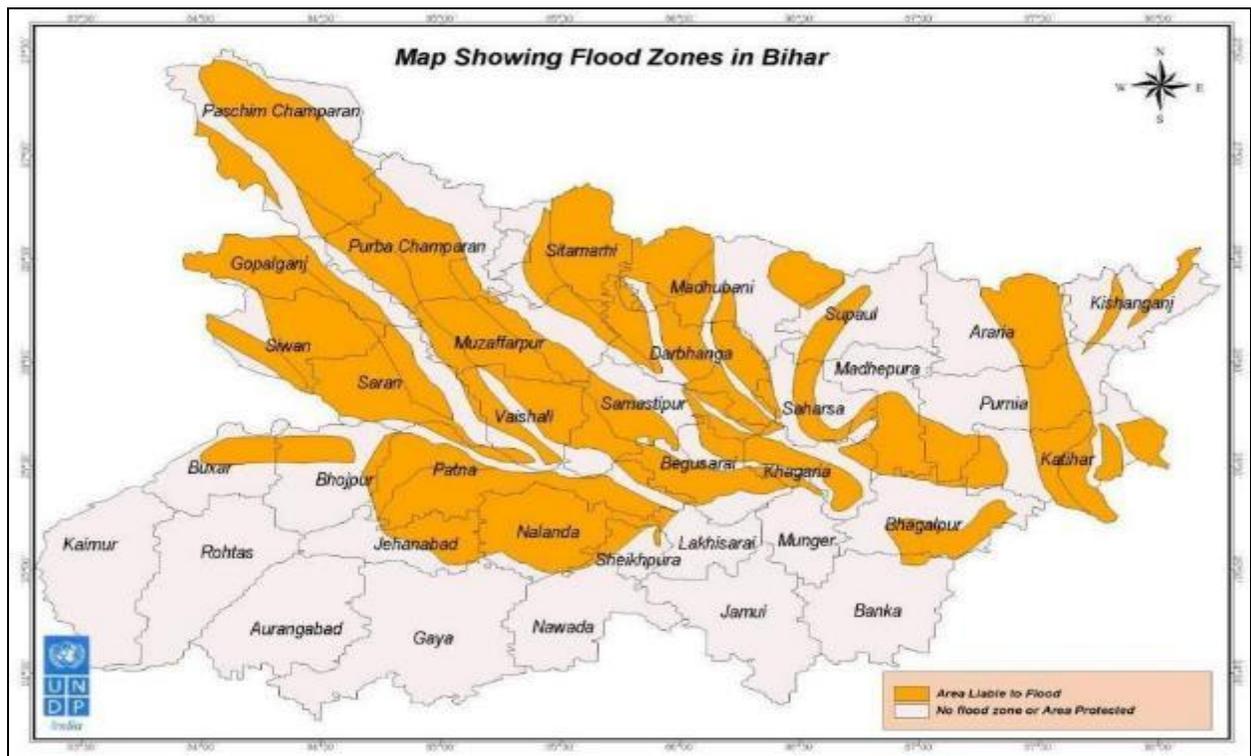
River basin map of Bihar



Drainage area map of Bihar

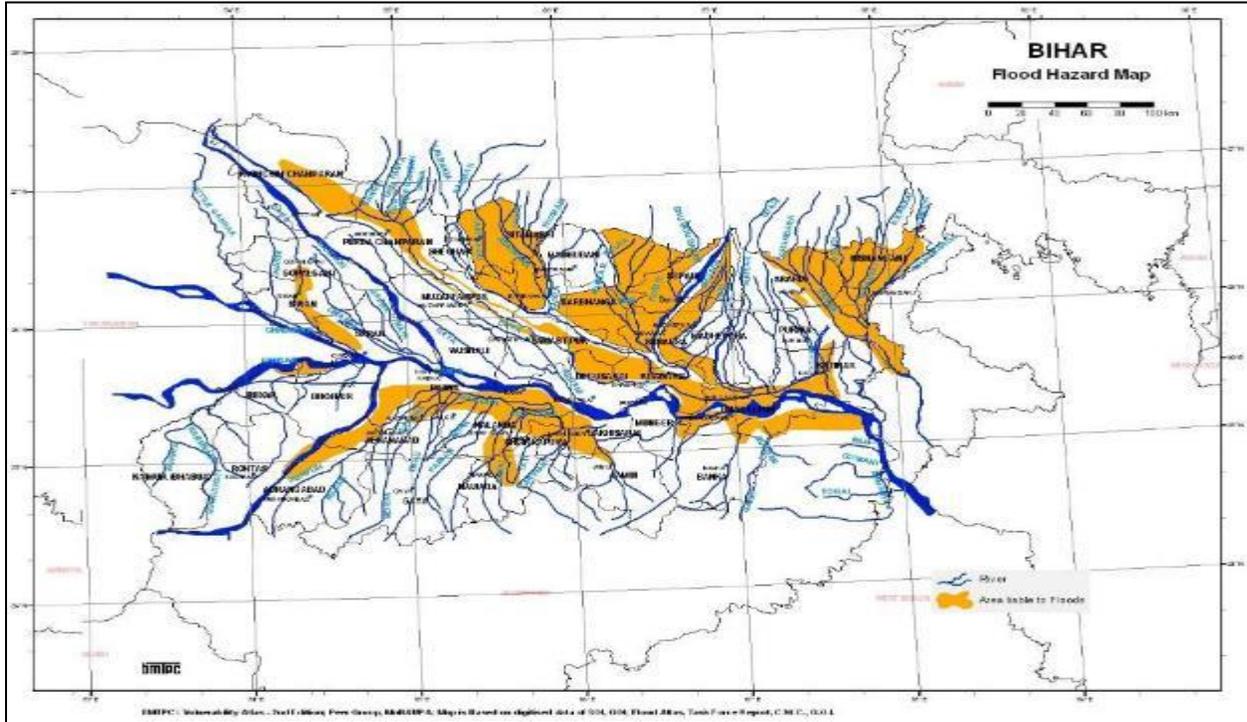


Flood zone map of Bihar

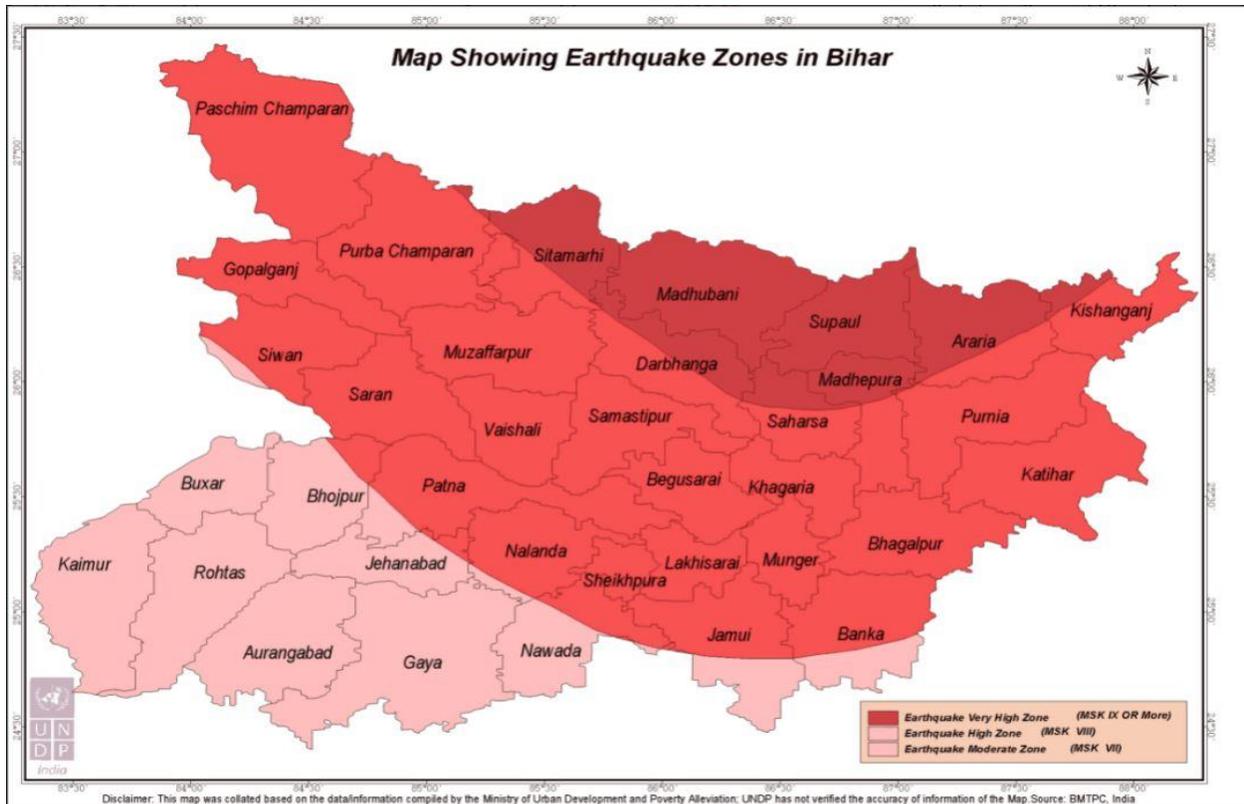


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Flood hazard map of Bihar

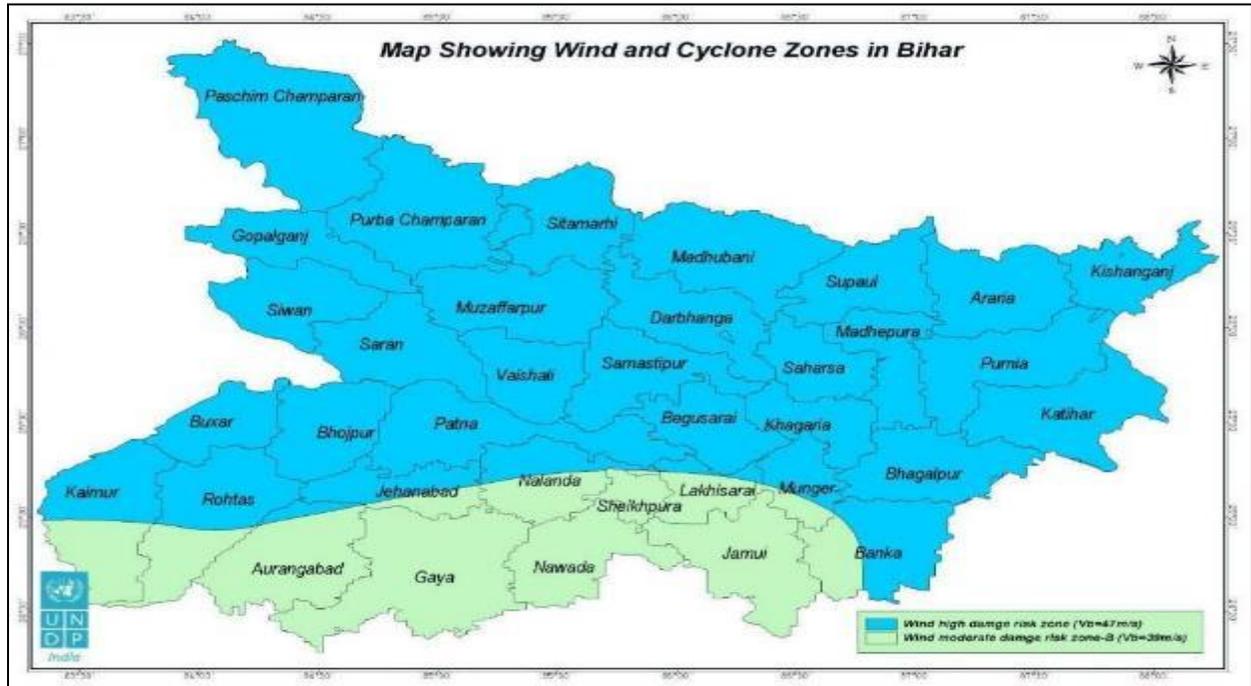


Earthquake zone map of Bihar

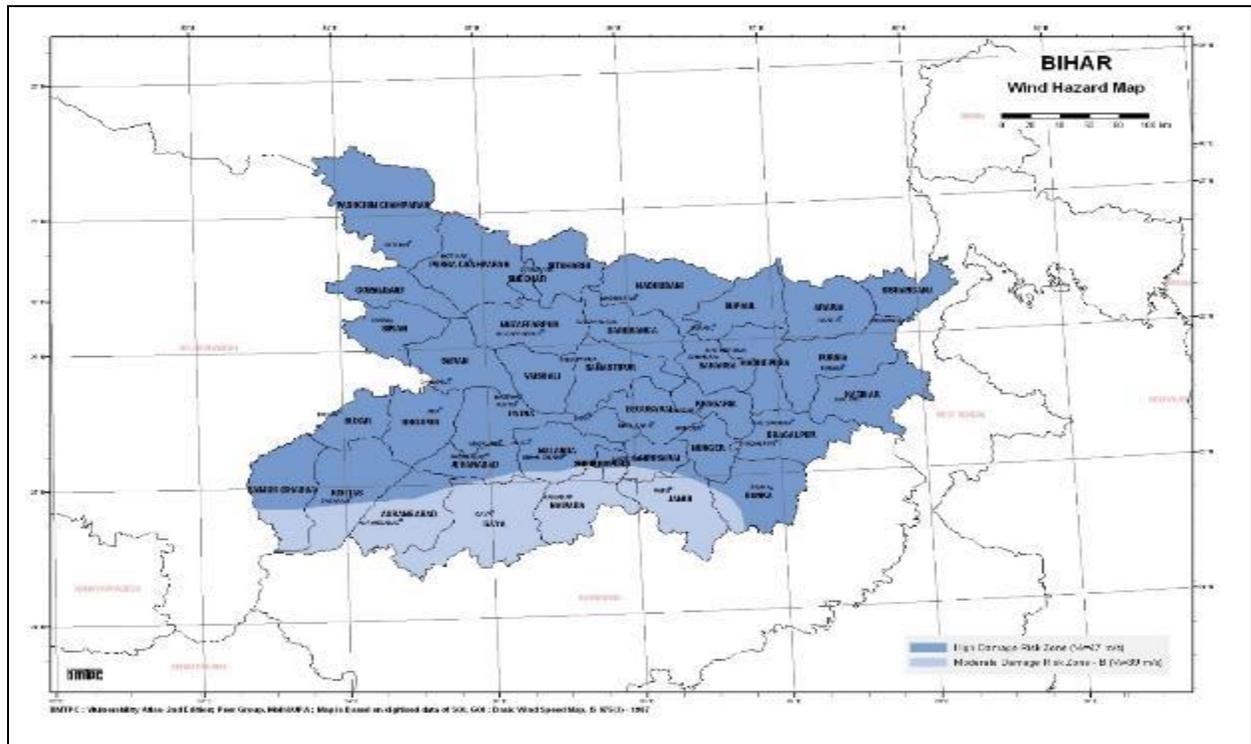


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Cyclone and wind hazard map of Bihar



Wind hazard map of Bihar



11.1 Demographic information

Sub-division and Block wise details of Gram Panchayat and Revenue villages

Sr. No	Division	Block	No of Gram Panchayat	No of Revenue Village
1	Rajauli	Rajauli	16	169
		Narhat	10	65
		Gobindpur	09	73
		Akbarpur	20	157
		Roah	14	77
		Sirdala	15	89
		Meskaur	10	58
2	Nawada	Nawada Sadar	18	74
		Hisua	10	53
		Nardiganj	11	55
		Pakribarawan	16	68
		Warisiliganj	16	80
		Kashichak	07	33
		Koakol	15	48
Total		14	187	1099

<u>Population, sex-ratio and literacy rate</u>			
01	Total Population	Total Population	2219146
		Male	1144668
		Female	1074478
02	Sex Ratio	Total Female on 1000 Male	938
		Density (Per Sq. Km)	608@KM ²
		Decadal Growth Rate	22-62
03	Ppulation of the Children from 0-06 years	Total Population	393547
		Male	202310
		Female	191237
04	Population of aboe 07 years	Total Population	1825599
		Male	942358
		Female	883241

Source: As per the census 2011

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<i>District Population and percentage share on the basis of Gender</i>			
01		Total Population	2219146
		Male	1144668
		Female	1074478
02	Percentage share in population		
			2.13

Source: As per the census 2011

<i>Literacy Rate by Gender</i>			
01	Literate	Total Population	1091012
		Male	659474
		Female	431538
02	Literacy Rate	Total Population	59-76 %
		Male	69-98 %
		Female	48- 86%

Source: As per the census 2011

Livestock population details

Sr. No	Species	Male	Female	Total
1	Local	118642	173402	292044
2	Exotic	5498	19659	25157
3	Buffalo	30855	101069	131924
4	Kulgo & Buffalo	&	&	449125
5	Sheep			3405
6	Goat	&	&	220997
7	Pig	&	&	41221
8	Cock-Hen	&	&	142227

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Number of households by condition

Total/ Rural/ Urban	Number of households with condition of Census House as											
	Total				Residence				Residence-cum-other use			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Total	346,749	103,611	208,644	34,494	332,208	98,898	199,864	33,446	14,541	4,713	8,780	1,048
Rural	313,669	85,784	195,508	32,377	300,961	82,182	187,386	31,393	12,708	3,602	8,122	984
Urban	33,080	17,827	13,136	2,117	31,247	16,716	12,478	2,053	1,833	1,111	658	64

Percentage of households to total households by condition

HOUSELISTING & HOUSING CENSUS, 2011												
PERCENTAGE OF HOUSEHOLDS TO TOTAL HOUSEHOLDS BY AMENITIES AND ASSETS												
Rural/ Urban	Number of households with condition of Census House as											
	Total				Residence				Residence-cum-other use			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Total	100	29.9	60.2	9.9	95.8	28.5	57.6	9.6	4.2	1.4	2.5	0.3
Rural	100	27.3	62.3	10.3	95.9	26.2	59.7	10	4.1	1.1	2.6	0.3
Urban	100	53.9	39.7	6.4	94.5	50.5	37.7	6.2	5.5	3.4	2	0.2

Percentage of Households by Type of Structure

Rural/ Urban	Households by Type of Structure of Census Houses					
	Permanent	Semi-Permanent	Total Temporary	Serviceable	Non-Serviceable	Unclassifiable
Total	49.9	29.1	20.1	17.4	2.7	0.9
Rural	46.8	30.9	21.3	18.5	2.8	1
Urban	78.8	11.9	8.5	6.8	1.7	0.9

Key References

- I. Disaster Management Act, 2005
- II. Orders and circulars issued by Disaster Management Department, Government of Bihar.
(Available at Disaster Management Department website)
- III. National Disaster Management Guidelines: Role of NGOs in Disaster Management, National Disaster Management Authority, September 2010.
- IV. Disaster maps of Bihar accessed from <http://disastermgmt.bih.nic.in/Map/Maps.htm>
- V. Agriculture road map , Bihar accessed from
http://krishi.bih.nic.in/roadmapEN/Road%20Map%20Pdf_book/Page-156-157.pdf
- VI. Information Sharing: A study of information attributes and their relative significance during catastrophic events accessed
from http://www.som.buffalo.edu/isinterface/papers/IA%20_080917-1.pdf
- VII. DRM Solution Exchange query: Guidelines for Functioning of District Disaster Management Authorities (DDMAs) accessible from
<ftp://ftp.solutionexchange.net.in/public/drm/cr/cr-se-drm-29011301.pdf>
- VIII. Education in Emergencies- a Resource Toolkit, UNICEF 2006
- IX. Hyogo Framework for Action 2005-2015
- X. World Disasters Report, 2002 IFRC
- XI. Flood Hazards of North Bihar Rivers. Indo-Gangetic Plains, Rajiv Sinha and Vikrant Jain, Deptt of Civil Engg, IIT Kanpur, accessed from
http://home.iitk.ac.in/~rsinha/PDF's/1998_Floods_memoir.PDF
- XII. Handbook for Effective Disaster Management at Micro Level, NDMA and IGNOU accessed from
<http://www.ignou.ac.in/upload/Handbook%20for%20Effective%20Disaster%20Management%20at%20Micro-level.pdf>
- XIII. Model framework for Preparation of District Disaster Management Plan and explanatory notes, National Disaster Management Authority <http://ndma.gov.in/ndma/pdf/ddmp.pdf>,
<http://ndma.gov.in/ndma/pdf/DDMP%20-EXPLANATORY%20NOTE.pdf>.
- XIV. Also refer <http://ndma.gov.in/ndma/ddmp.html>
- XV. SOP for Flood Management: <http://disastermgmt.bih.nic.in/publications.htm>
- XVI. SOP for Drought: <http://disastermgmt.bih.nic.in/Circulars/DroughtSOP.pdf>

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- XVII. SOP for Fire management: http://disastermgmt.bih.nic.in/Circulars/SOP_1061.pdf
- XVIII. SOP for Cyclones:
<http://disastermgmt.bih.nic.in/daily%20flood%20reports/letter%20no-4599.pdf>
- XIX. SOP for Drinking water crisis
<http://disastermgmt.bih.nic.in/sop%20drinking%20water%20crisis.htm>
- XX. Deployment of NDRF <http://disastermgmt.bih.nic.in/Circulars/SOP0001.pdf>