STATE DISASTER MANAGEMENT PLAN
Madhya Pradesh

Prepared by

seeds TECHNICAL SERVICES

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Preface

The Disaster Management Act, 2005 stipulates to put in place Disaster Management Plans aimed at reducing potential loss of life and property in disasters as well as ensuring strong preparedness, responses and recovery measures to manage any disaster situation. Disasters either natural or manmade have been main hurdles in the development of civilization since ages and affect humanity on long term basis.

SEEDS Technical Services was appointed as the technical consultant for preparation of State Disaster Management Plan of Madhya Pradesh. We are pleased to present the State Disaster Management Plan of Madhya Pradesh. This plan has been prepared with support from School of Good Governance and Policy Analysis (SGPA), the nodal agency appointed by the Government of Madhya Pradesh and in consultation with Madhya Pradesh State Disaster Management Authority (MP-SDMA) and other stakeholders.

This Plan has been developed as per the guidance provided by the National Disaster Management Authority and mandates the roles and functions to be played by the State Disaster Management Authority. Further, the other national and international standards and guidelines have also been referred like HFA priorities, INEE and SPHERE Standards, for preparation of this ambitious state plan. On the basis of same, a draft framework was prepared and shared with all key stakeholders, including SDMA, SGPA, UNDP, all concerned nodal departments and Disaster Management Institutions. Further, the specific questionnaires were prepared and discussed to extract the specific inputs from all concerned entities. Based on the inputs received from all concerned, including the valuable support and guidance of State Disaster Management Authority and key stakeholders, the draft plan has been prepared.

The plan starts with the general overview and profile, and then it addresses the policy, governance and institutional arrangements. Later it talks in detail about the state hazard, vulnerability, and risk analysis. The analysis has been carried out based on the information available, through primary and secondary sources, 50 District DM Plans, one to one meetings, and the focused group discussions. Afterwards it switches over to all 5 important phases of disaster management framework (including prevention & mitigation, preparedness, response, disaster relief, and rehabilitation & reconstruction. The plan also covers the issues pertaining to mainstreaming and Research & Development measures. Later it focuses on the general & specific Standard Operating Procedures (SOPs), partnerships, inter- intra state coordination mechanism and overall monitoring of the plan.

However the key functions of all the concerned agencies are listed out in the State Disaster Management plan, the regular updating of this SDMP shall help to initiate real time management. As such, each agency/ line department/ entity requires preparing its own Disaster Management Plan in alignment with this plan. This plan shall be reviewed periodically by the SDMA to update all activities and information.

SEEDS Technical Services is thankful to all the agencies involved in providing support for preparation of state disaster management plan of Madhya Pradesh, including SGPA, MP-SDMA, UNDP, all concerned nodal departments and Disaster Management Institutions. This plan has been made possible with support of all these agencies.

We are grateful to Mr. Rajendra Mishra, SDMA Coordinator & Principal Advisor, State Planning Commission, Mr. Akhilesh Argal, Director – Good Governance (SGPA), Dr. Haider Rizvi, Director – Policy Analysis (SGPA), Project Officer Mr. Gaurav Khare (SGPA), and Mr. Amit Singh,State Project

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- Narmada Valley Development Authority, Mr. Khush Ram
- Bhopal Gas Peedit Mahila Purush Sangharsh Morcha, Ms. Shahzadi
- Bhopal Memorial Hospital & Research Center, PRO, Doctors and Patients

We hope that plan serves the purpose to ensure safety and well being of the citizens of the state, and will ultimately lead to a safer Madhya Pradesh.

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Abbreviations

APL: Above Poverty Line
ASHA: Accredited Social Health Activists
BMTPC: Building Materials & Technology Promotion Council
BPL: Below Poverty Line
BRGF: Backward Region Grant Fund
CBO: Community Based Organisation
CD: Civil Defence
CHC: Community Health Centre
CMHO: Chief Medical & Health Officer
CWC: Central Water Commission
DDMO: District Disaster Management Officer
DDMA: District Disaster Management Authority
DDMC: District Disaster Management Committee
DM: Disaster Management
DMI: Disaster Management Institute
DDMP: District Disaster Management Plan
DCR: District Control Room
DRR Disaster Risk Reduction
EOC: Emergency Operation Centre
ESF Emergency support functions
GoMP: Government of Madhya Pradesh
GP: Gram Panchayat
HFA Hyogo Framework for Action
INEE Inter-Agency network for education in emergencies
ICS: Incident Command System
IAY: Indira Awaas Yojana
NGO: Non-governmental Organization
NIDM: National Institute of Disaster Management
JNNURM: Jawahar Lal National Urban Renewal Mission
NREGS: National Rural Employment Guarantee Scheme
NVDA: Narmada Valley Development Authority
NRHM: National Rural Health Mission
PHC: Primary Health Centre
PWD: Public Work Department
PHE: Public Health Engineering
SSA: Sarva Shiksha Abhiyaan
RD: Rural Development
SDMA: State Disaster Management Authority, MP
SDMP State Disaster management plan
SEOC: State emergency operation centre
SOP: Standard Operating Procedure

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Chapter 1-Introduction

1.1 Aim and Purpose of the Plan

Madhya Pradesh the 'Heart of India' is the second largest state of the country. Due to its diverse physiographic feature and richness in resources it is prone to multi hazard problems which includes both natural and industrial hazard and makes the 7.25 crore[1] population vulnerable to such calamities. As a matter of fact, Madhya Pradesh has faced major disasters, especially in last 30 years. Bhopal gas tragedy is one of the most popular industrial catastrophes caused inIndian history. First India's urban earthquake hit the Jabalpur[2], 6 to 12 times occurred floods in last 26 years, drought are some of the calamities which highlights the need of proper disaster management plan for the state. Although section 23 of the DM Act 2005 provides guidelines that there shall be a DM plan for every state but it's also the realization of the requirement of such plans emerging within the state that makes the purpose of the plan more effective. It then helps in the involvement of different stakeholders to come up with problem based requirements.

Purpose

- Assess hazard, vulnerability and risks in the state.
- Coordinate with different line departments to know their suggestions based on the existing gaps that need to be incorporated in the SDMP (State Disaster Management Plan).
- To identify measures through Research and Development for upgrading the information and knowledge to reduce the risk of disasters.
- To know the immediate response, relief and recovery measures
- To prepare department wise SOPS and hazard wise action plans

1.2Legislative Requirements

A decade ago, the occurrence of disaster in any part of India was generally taken up as the responsive and relief centric approach. It's only after major calamities such as the 1999 Orissa Super Cyclone, 2001 Bhuj earthquake, 2004 Tsunami in Southern India, when National Committee on Disaster management was set up to shift the existing relief centric approach to holistic approach. This includes preparedness, prevention and mitigation measures and to enable DM plans.

Disaster Management Act 2005 was enacted to cover all aspects of pre disaster measures. The Act provides a legal and institutional framework for "the effective management of disasters and for matters connected therewith or incidental thereto." It provides for establishment of National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA) and District Disaster Management Authorities (DDMA) at the National, State and District levels with adequate financial and administrative powers and creation of the National Institute of Disaster Management (NIDM) with the mandate of undertaking training and capacity building, Develop Training Modules on various aspects of Disaster

[1] Census 2011
[2] http://mpsdma.nic.in/imagescroll/Slide1.GIF

management, Undertake Research and Documentation, Formulate and implement comprehensive HRD Plan covering all aspects of DM, Provide assistance in national level policy formulation and Provide assistance to state governments and State Training Institutions. The act also provides guidelines for creation of National Disaster Response Fund, National Mitigation Fund and Establishment of funds by State Government and Allocation of funds by Ministries and Departments for Emergency procurement. The act also provides for establishment of National Disaster Response Force (NDRF).

As per Chapter the III Section 23 of Disaster Management Act 2005, State Disaster Management Plan (SDMP) s mandated for all the states. It has to be supervised by State Executive Committee and to be approved by State Disaster Management Authority. Further the SDMP Guidelines came into existence from August 2007, through NDMA. The prepared plan has covered all the elements of SDMP guidelines.

The **National Policy on Disaster Management** was approved by the Government in November 2009. This comprehensive policy document lays down policies on every aspect of holistic management of disasters in the country, including the state disaster management planning. It was approved by the Union Cabinet of India on 22nd October, 2009 with the aim to minimize the losses to lives, livelihoods and property, caused by natural or manmade disasters with a vision to build a safe & disaster resilient India by developing a holistic, proactive, integrated, Multi-disaster oriented and technology driven strategy. With this national Policy in place in India, a holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels. The themes underpinning the policy include Community based Disaster Management, Capacity development in all spheres, Consolidation of past initiatives and best practices and Cooperation with agencies at National and International levels with multi-sectoral synergy.

The Policy is also intended to promote a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education. It encourages mitigation measures based on environmental sustainability. It seeks to mainstream disaster management into the developmental planning process and provides for Institutional and Financial arrangements at national, State, and District-levels for Disaster Prevention, Mitigation, Preparedness and Response as it ensures adequate budgeting for disaster mitigation activities in all Ministries and Departments.

1.3Principles of SDMP and Approach

State plan requires proper assessment of the hazard vulnerability as there is an exposure to multiple risks depending on the location. Since some district is vulnerable to one type of hazard while some are exposed to multiple, in any of the case it's the residing community in different parts of the state that becomes the first responders to disaster. Communities at the grass root level makes the population of the district, group of districts makes state and group of state makes the nation hence there is a strong need of the proper coordination between top to bottom and bottom to up approach for effective preparation of the disaster management plans. For the preparation of this SDMP holistic approach was taken in which equal priority was given to all the levels i.e. national, state, district and grassroots. The approach includes:

- Desktop review of documents, such as Madhya Pradesh State Disaster Management Policy etc.
- Meetings conducted with various government line departments of the state to take their suggestions to incorporate in SDMP as well as Madhya Pradesh State disaster management policy was also referred
- Study the primary and secondary data, including the district wise information, collected through all the 50 DDMPsprepared recently also referred the other statistical information and verified with the concerned agencies.

- At national level DM Act 2005 as well as the National Disaster Management Guidelines August 2007, prepared by NDMA referred for preparation of a comprehensive framework.
- Universal Guiding Principles(including HFA, INEE, SPHERE) were also referred for the preparation of SDMP
- Draft framework was reviewed and consulted with nodal departments such as SDMA, SGPA etc.
- Consultation meetings with Corporate bodies, Disaster Management Institutions, concerned state level boards, and nodal bodies w.r.t. disaster management, NGO's, communities, victims of Bhopal gas tragedy for the involvement of stakeholders from grassroots level;
- Information collected from various levels and later compiled in this SDMP.

There are 9 guiding principles of the state plans according to the NDMA guideline which are:

- Vulnerability of different parts of the state to different kinds of disasters.
- Measures to be adopted for prevention and mitigation of disasters.
- Manner in which mitigation measures shall be integrated with development plans and projects.
- Capacity building and preparedness measures to be taken.
- Roles and responsibilities of each department of the government of the state in relation to the measures specified above.
- Roles and responsibilities of different Departments of the government of the state in responding to any threatening disaster situation or disaster.
- State plan will be reviewed and updated annually
- Appropriate provisions will be made by the state governments for financing the measures to be carried out under the state plan.
- Copies of the state plan will be made available to the departments of the government of the state and such department will draw up their own plans in accordance with the state plan.

Most of the principles have been broadly covered in this state disaster management plan document. Further the other remaining guiding elements are being addressed currently through systematic process.

1.4Universal Guiding Principles (HFA, INEE and SPHERE)

Losses causing due to disaster in different nations is a global concern which faces more or less common problems with varied intensities. Hence there are certain standards and frameworks set with an aim to minimize the risk linked with disasters that are applicable universally and can be modified for effective implementation considering the local scenarios.

For over all disaster risk reduction (DRR) **Hyogo Framework for Action** (HFA) has been set that includes the 5 priorities to meet the aim of DRR. These 5 priorities are:

Priority 1: Making DRR a policy priority for institutional strengthening
Priority 2: Identify, assess and monitor disaster risks and enhance early warning.
Priority 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels
Priority 4: Reducing underlying risk factors
Priority 5: Strengthening disaster preparedness for effective response and recovery

Inter-Agency network for education in emergencies(INEE) standards: are to ensure that all persons have right to quality education and a safe learning environment in emergencies and post-crisis recovery.

Right knowledge and awareness is essential in minimizing the losses. The INEE Minimum Standards for Education: preparedness, response, and recovery is the only global tool that articulates the minimum level of educational quality and access in emergencies through to recovery. There are major 5 domains under which under which minimum standards have been set these 5 domains are:

Domain One: Foundational Standards

Community Participation, Coordination, Analysis

Domain Two: Access and Learning Environment

Domain Three: Teaching and Learning

Domain Four: Teachers and Other Education Personnel

Domain Five: Education Policy

SPHERE standards help in minimizing the problems arising sector wise during emergencies. These minimum standards are for:

- Common to all sectors
- Water, sanitation and hygiene promotion
- Food security nutrition and food aid
- Shelter, settlement and non-food items and
- Health services

These are the sectors that generally get affected during any disaster adding more miseries in the after math of the emergency.

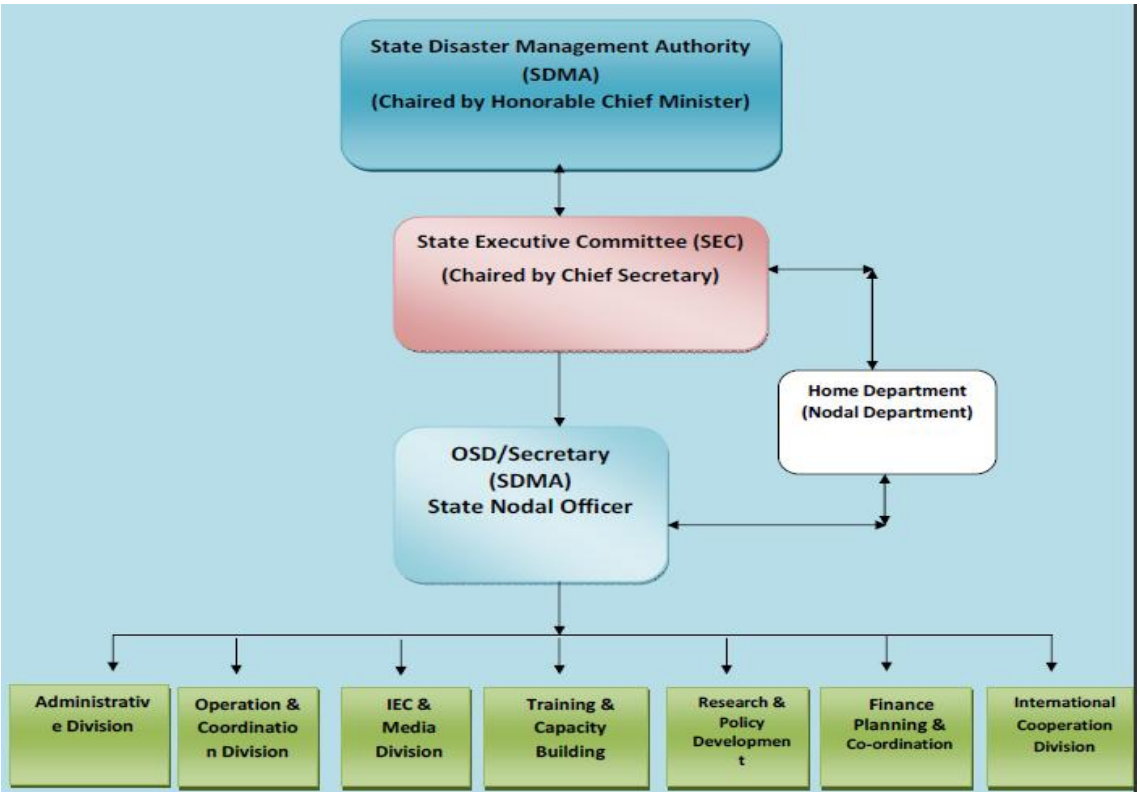
For preparing the Madhya Pradesh SDMP, the following above mentioned universal guiding standards have been taken into consideration and have also been implemented under different parts of this state plan. To include DRR aspect sections 3, 4 and 5 of Part B and section 11 and 14 of Part C in SDMP includes the HFA priorities. To generate right knowledge and education in emergency sections 6 and 7 of Part B have taken consideration of INEE standards. To prepare measures for planning regarding preparedness, relief and rehabilitation in sections 8, 9 and 10 respectively SPHERE standards have been taken as the guiding principle. For preparing the SOPs department wise and hazard wise action plans, these universal guiding principles helped in applying these standards at the local level.

PART - A

Chapter 2- Policy and Governance

2.1 Overall State level DM Structure

The State Government of Madhya Pradesh has shifted its focus from reactive response measures to proactive preparedness and preventive mechanisms, with a view to generating synergy, prevent conflict, optimize use of resources and avoid oversight. The notified state level disaster management structure caters to all types of disasters and in particular, deals with situations where more than one organization is involved. The overall state level DM structure is as below:



As per the DM Act 2005, the state level disaster management functions will be activated, and directed by the State Disaster Management Authority (SDMA), which has already been notified in state of Madhya Pradesh in September 2007. Under the SDMA, there will be a State Executive Committee (SEC), which will work in coordination with Home Department. There will be a State Nodal Officer cum Secretary SDMA, who will report to State Executive Committee, about various disaster management functions of the state. There will be seven divisions in total (Administrative, Operation & Coordination, IEC & Media, Training & Capacity building, Research & Policy Development, Finance planning & Coordination, and International Coordination Divisions), which will work under supervision of State Nodal Officer, and will perform the respective disaster management and allied functions, in line with the State DM policy.

2.1.1 State Disaster Management Authority

As per the 2005 Act State Authority shall consist of the Chairperson and such number of other members, not exceeding nine, as may be prescribed by the State Government.

1. SDMA is chaired by honorable chief minister
   Other members are:
2. Minister of Finance Department

3. Minister of Revenue Department
4. Minister of Public Health and Family Welfare Department
5. Minister of Citizen Administrative and Development Department
6. Minister of Varinjya, Udyog and Rozgar Department
7. Minister of Public Welfare Department
8. Minister of Home Department
9. Chief Secretary of Madhya Pradesh

SDMA will be overall responsible for institutionalization and implementation of all the disaster management functions. SDMA will meet periodically to review the overall progress of disaster management initiatives at the state level.

2.1.2. State Executive Committee

State Executive Committee (SEC) is formed by SDMA in order to assist the State Authority for achieving the state objectives as per the state disaster management guidelines.

1. SEC according to the Act 2005 is chaired by Chief Secretary of the Government of Madhya Pradesh.
   Other members that have been included for this committee are the chief Secretaries of the following department:
2. Department of Home,
3. Revenue Department,
4. Finance Department and
5. Public Health and Family Welfare Department.

Apart from these other special invited members are Chief Secretaries/ Heads of:

1. Public Welfare Department,
2. Department of Commerce, Industry and Employment,
3. Khad avam nagarik aapoorti vibhag, Madhya Pradesh
4. Police, Madhya Pradesh
5. Home Guards & Civil Defense, Madhya Pradesh

The responsibility of the SEC:

- To coordinate and monitor the implementation of the national policy, the national plan and the state plan.
- To provide information to the NDMA relating to various parameters of DM.
- To earmark funds for prevention and integration of disasters in their development plans and projects.

There are further state nodal officer from various division such as

- Administrative division
- Operation and coordination
- IEC and media division
- Training and capacity building
- Research and policy development
- Finance planning and co-ordination
- International cooperation division

2.2 Financial Arrangements

2.2.1 State Disaster Mitigation and Preparedness

Disasters can cause extensive strain on financial resources, therefore it has to be a dedicated fund allocation for the state, district level and sub district level disaster mitigation and preparedness activities. Government of Madhya Pradesh intends to have a budgetary allocation for the disaster management. The mitigation and preparedness fund shall be available through capacity building component/ as per the CRF.

2.2.2State Disaster Relief and Response

Under the Constitution of India, provision of immediate relief to the victims of natural calamities is the primary responsibility of the States. However, often the scale of a natural calamity combined with the economic and infrastructural abilities of the State Government create such a situation where assistance from the Central Government towards meeting the relief expenditure becomes necessary. In the Ninth Finance Commission to recommend for setting up of the **Calamity Relief Fund** scheme for financing relief expenditure of States in the wake of natural calamities. The main objectives of this initiative were to ensure that:

- the assistance extended to the States is in accordance with their needs
- the provision of relief to the victims is quick
- the States have greater autonomy in the relief operations and
- the States are more accountable as well for their activities regarding relief.

There is a requirement for every State to have a separate CRF, with Finance Commission recommendations deciding the annual allocations. Every year, the Centre provides 75 per cent of the size of the CRF of a State as a non-plan grant to the State while the rest of 25 per cent comes from State Government itself[3].

CM's Relief Fund

Aidsmay be received as grant in aid from Central Govt., World Bank and/or other departments/agencies to carry out specific projects/schemes related to disaster management/ mitigation/ capacity building.

NDRF/NCCF is to supplement the funds from the SDRF of a state to facilitate immediate relief in case of calamities of a severe nature.

SDRF the GoMP allocates funds in the state budget for relief activities through State disaster Response fund. To carry out Emergency Response & Relief activities after any disaster the State Disaster Response Fund is made available to Commissioner of Relief, Revenue Department under which the Central Government will share 75% and the Govt. of Gujarat has to share 25% as per the recommendation of 13th Finance Commission.

[3] Natural Disasters and relief provisions in India: Commitments and Ground Realities
http://www.cbgaindia.org/files/research_reports/Natural%20Disasters%20and%20Relief%20Provisions%20in%20India.pdf

2.2.3 Funding from external agencies for special cause

There are various international organizations that have supported the state in the past disasters which are:

2.3 Monitoring and Review

The state disaster management plan (SDMP) brings together risk assessment, preparedness/mitigation measures and disaster response plan for the state on one platform. Mainstreaming disaster management concerns in development process, coordination/implementation mechanisms of the plan and identifying financial arrangements have been included as part of the plan to facilitate smooth implementation.

2.3.1 Dissemination and monitoring of SDMP

While the state plan has been prepared keeping in view the framework suggested by NDMA, reviewing and monitoring of the progress of plan implementation is internalized in the plan.

Reviewing and monitoring will be on-going exercise to be undertaken **annually** by the State Executive Committee and the updated state plan will be approved by the State Authority as prescribed in section 23 of the Disaster Management Act 2005.

2.3.2 Plan review schedule and amendments

Disaster management is dynamic. Ground realities, changing population characteristics, evolving government mechanisms in handling disasters/emergencies determine the effectiveness of the State Disaster Management Plan. The plan will be reviewed and updated periodically. The Disaster Management Act, 2005 section 23(5) requires the state plan be reviewed and updated annually; accordingly the review and update of the plan will be taken up annually.

2.3.3 Periodic Social Auditing

According to the MPSDMP policy audit is one of the important tools to know whether the proper utilization of fund has been done or not. In the state, whatever fund will be utilised for the disaster management, 3rd party audit will be done. There will be a

- **Financial audit**: Through this it will be identified that the given fund is utilized for the purpose it was given to respective authorities.
- **Process audit**: to identify whether the proper process has been followed by the respective authorities for the utilization of fund or to achieve the set target.

2.4 State Guidelines (Policy, Private Security) and Role of DDMOs

The Government of Madhya Pradesh has come out with a very detailed and comprehensive **MP State Disaster Management Policy**, which consists of the applicable principles of disaster management in the state, approach and strategy for implementation, the financial arrangements and the documentation.

State Guidelines have set the tone for a well laid disaster management planning and institutionalization.

Very recently, in March 2012, the **Private Security Bill** of Madhya Pradesh has also come into existence, which has emphasized the safety and security needs, and the way forward to achieve the same, with clear rules and regulations, laid down in the Bill itself. Now the Private guards and security agencies will have to play very vital role in disaster management.

After the recent shift of state disaster management functions to Home department in Madhya Pradesh, the **Role of DDMOs** (District Disaster Management Officers) has become very important. In each district of Madhya Pradesh, one nodal officer has been appointed to take care of all the disaster management functions at the district level. The Nodal officer will be from Civil Defense & Home Guards department, so that his/ her expertise can be useful in emergencies. He/ she will be designated as the District Disaster Management Officer (DDMO) of the district; and will report to the District Collector (DC), for disaster management functions.

PART - B

Chapter 3 -Hazard, Vulnerability Assessment and Risk Analysis

3.1 State Profile:

Madhya Pradesh, is a landlocked state in exists in the central part of India. The state is also known as heart of India, due to its geographical location in India; Madhya Pradesh is the second largest state in the country by area. Madhya Pradesh had the honour of being the largest state of the country until Chhattisgarh was carved out of it on 1st November 2000. With over 75 million inhabitants, it is sixth largest state in India by population. Its capital is Bhopal,

3.1.1 Madhya Pradesh - Facts

Below is a table representing important facts about Madhya Pradesh

Facts on Madhya Pradesh	
Date of Formation	Nov 1, 1956
Size	3,08,000 sq km
Population	7,25,97,565
Capital	Bhopal
Rivers	Narmada, Tapti, Betwa, Son, Chambal
Forests & National Park	Bandhavgarh NP, Kanha NP, Pench NP, Indrawati Tigar Reserve, Kheoni WS
Languages	Hindi
Neighbours State	Maharashtra, Gujarat, Rajasthan, Uttar Pradesh, Chhattisgarh
Industries	FMCG, Cement, Elec, Handloom
Literacy rate	70.6

3.1.2 Geography

Madhya Pradesh literally means "Central Province", and is located in the geographic heart of India, between latitude 21°04'N-26.87°N and longitude 74°02'-82°49' E. The state straddles the Narmada River, which runs east and west between the Vindhya and Satpura ranges; these ranges and the Narmada are the traditional boundary between the north and south of India. The state is bordered on the west by Gujarat, on the northwest by Rajasthan, on the northeast by Uttar Pradesh, on the east by Chhattisgarh, and on the south by Maharashtra.

3.1.3 Climate

Madhya Pradesh has a subtropical climate. Like most of north India, it has a hot dry summer (April–June), followed by monsoon rains (July–September) and a cool and relatively dry winter. The average rainfall is about 1,370 mm (53.9 in). It decreases from east to west because monsoon wind moves from east to west and drained clouds in eastern part takes less quantity of water vapours with them to western part. The south-eastern districts have the heaviest rainfall, some places receiving as much as 2,150 mm (84.6 in), while the western and north-western districts receive 1,000 mm (39.4 in) or less. Overall, the state has a tropical climate varying from dry sub-humid to semi-arid. Summers are hot and at some places, it remains humid, while winters are reasonably comfortable.

The maximum temperature during summer ranges from 33-44oC while minimum temperature from 19-30oC. The temperature during the winter season ranges between 10-27oC.

3.1.4 Water Resources (Ground Water and Surface)

Groundwater use is also common in the state. In total, there are ten river basins in Madhya Pradesh as ten major rivers originate from the State. The rivers namely, Chambal, Sindh, Betwa, Ken flow northward and meet with Yamuna whereas the river Sone falls directly into Ganges. Narmada Tapi and Mahi rivers flow westward and meet Arabian Sea whereas Wainganga and Pench rivers meet Godavari in the south. More details on the rivers are available in the rivers section. The state of Madhya Pradesh has four major rivers namely Narmada, Tapti, Sone and Mahanadi. Availability of water in the state is more than 81,000 million cubic meters out of which approximately 56,857 million cubic meters (69.74%) had already been utilized. Surface water is commonly used for all purposes.

3.1.5 Air Quality

Average air quality in the state is good except few urban and industrial centers, where due to industrial activities and transport sources, air quality is poor.

3.1.6 Economy

Agriculture is the basis of Madhya Pradesh's Economy. Less than half of the land area is cultivable; however its distribution is quite uneven because of variations in topography, rainfall, and soils. The main cultivated areas are found in the Chambal valley, the Malwa Plateau, the Rewa Plateau, and the Chhattisgarh Plain. The Narmada valley, covered with river-borne alluvium, is another fertile area. The most important crops are rice, wheat, sorghum (jowar), corn (maize), pulses (legumes such as peas, beans, or lentils), and peanuts (groundnuts). Rice is grown principally in the east, where there is more rainfall, while in western Madhya Pradesh wheat and sorghum are more important. The state is the largest soybean producer in India. Other crops include linseed, sesame, sugarcane, and cotton, as well as inferior millets,

which are grown in hilly areas. The state is a large producer of opium (in the western district of Mandsor, near Rajasthan) and marijuana (in the southwestern district of Khandwa [East Nimar]).

Madhya Pradesh's gross state domestic product (nominal GDP) for 2010–11 was ₹ 259,903 crore (approximately US$ 47,120). The per-capita figure was US$ 583: the fourth lowest in the country. Between 1999 and 2008, the annualized growth rate of the state was very low: 3.5%. Subsequently, the state's GDP growth rate has improved significantly, rising to 8% during 2010-11 and 12% during 2011-12.

The state has an agrarian economy. The major crops of Madhya Pradesh are wheat, soybean, gram, sugarcane, rice, maize, cotton, rapeseed, mustard and arhar.Minor Forest Produce (MFP), such as tendu leaves used to roll beedi, sal seed, teak seed, and lak also contribute to state's rural economy.

Madhya Pradesh has 5 Special Economic Zones (SEZs): 3 IT/ITeS (Indore, Gwalior), 1 mineral-based (Jabalpur) and 1 agro-based (Jabalpur). In October 2011, approval was given to 14 proposed SEZs, out of which 10 were IT/ITeS-based.Indore is the major commercial center of the state. Because of the state's central location, a number of consumer goods companies have established manufacturing bases in MP.

The state has the largest reserves of diamond and copper in India. Other major mineral reserves include those of coal, coalbed methane, manganese and dolomite.

3.1.7 Industries

The major industries of the state are electronics, telecommunications, petrochemicals, food processing and automobiles. The state has also taken a lead in the production of cement. The state is also famous for its traditional handicrafts and handlooms manufactured at Chanderi and Maheshwar.

Madhya Pradesh is rich in minerals, though these resources have not yet been fully exploited. There are large reserves of coal and important deposits of iron ore, manganese ore, bauxite, limestone, dolomite, copper, fireclay, and china clay. Diamond reserves at Panna are of particular interest.. The state is well endowed with potential hydroelectric power. Main hydroelectric projects (jointly developed with other states) are the Babanthadi with Maharashtra, the Ban Sagar with Bihar and Uttar Pradesh, the Chambal Valley with Rajasthan, the Narmada Sagar with Gujarat and Rajasthan, and the Rajghat and Urmil with Uttar Pradesh. The Hasdeo Bango, Bargi, and Birsinghapur thermal power projects are also within the state. Narmada Sagar project has been a source of controversy because of its potential for damaging environment.

The economy of Madhya Pradesh is based on agriculture, forest products, industries, mineral resources, and cottage industry sectors.

3.1.8 Infrastructure and transportation

Lot of effort has gone so far towards the infrastructure and transportation so far, at the state level, especially in recent years. However, in comparison to the other Indian states, Madhya Pradesh is slightly lagging behind with adequate transport and communications facilities. The main railroads that pass through the state were originally laid down to connect the ports of Madras, Bombay, and Calcutta with their hinterlands. Important railway junctions include Bhopal, Ratlam, Khandwa, Bilaspur, and Katni. Also connecting the state with other parts of India are airports at Bhopal, Gwalior, Indore, Raipur, Jabalpur, Rewa, Bilaspur, and Khajuraho, as well as several national highways.

The urban infrastructure has improved considerably in the past decade. 22 projects costing above $500 million have been sanctioned under the Jawaharlal Nehru National Urban Renewal Mission for the development of Bhopal, Indore, Jabalpur and Ujjain.

There are five airports in the state: Devi Ahilyabai Holkar International Airport in Indore (the busiest), Raja Bhoj Airport in Bhopal, Jabalpur Airport, Gwalior Airport and Khajuraho Airport. Besides, minor air strips are located at Ujjain, Khandwa, Satna and Rewa.

Bus and train services cover most of Madhya Pradesh. The 99,043 km long road network of the state includes 18 national highways. A 4,948 km long rail network criss-crosses the state, with Jabalpur serving as headquarters for the West Central Railway Zone of the Indian Railways. The Central Railway and the Western Railway also cover parts of the state. The state has a total of 20 major railway junctions. The major inter-state bus terminals are located in Bhopal, Indore and Jabalpur. More than 2000 buses are conducted daily from these three cities. The intra-city transit systems mostly consist of buses, private autos and taxis.

The state does not have a coastline. Most of the sea trade happens through the Kandla and Jawaharlal Nehru Port (Nhava Sheva) in the neighboring states, which are well-connected to MP by road and rail networks.

3.1.9 Demography

The population of Madhya Pradesh (MP) is a medley of a number of ethnic groups and tribes, castes and communities, including the indigenous tribals and relatively more recent migrants from other states. The scheduled castes and the scheduled tribes constitute a significant portion of the population of the State. The main tribal groups in Madhya Pradesh are Gond, Bhil, Baiga, Korku, Bhadia (or Bhariya), Halba, Kaul, Mariya, Malto and Sahariya. Dhar, Jhabua and Mandla districts have more than 50 percent tribal population. In Khargone, Chhindwara, Seoni, Sidhi and Shahdol districts 30-50 percent population is of tribes. According to the 2001 census, the population of the tribals in Madhya Pradesh was 122.33 lakh, constituting 20.27% of the total population. There were 46 recognized Scheduled Tribes and three of them have been identified as "Special Primitive Tribal Groups" in the State.

Due to different linguistic, cultural & geographical environment, and its peculiar complications, the diverse tribal world of Madhya Pradesh has been largely cut-off from the mainstream of development. Madhya Pradesh ranks very low on the Human Development Index value of 0.375 (2011), which is below the national average.[2] According to the India State Hunger Index (2008) compiled by International Food Policy Research Institute, the malnutrition situation in MP was "extremely alarming. State is also worst performer in India, when it comes to female foeticides.

3.1.10 Education

According to the 2011 census, Madhya Pradesh had a literacy rate of 70.60%. As per 2009-10 figures, the state had 105,592 primary schools, 6,352 high schools and 5,161 higher secondary schools. The state has 208 engineering & architecture colleges, 208 management institutes and 12 medical colleges. This indicates the emerging focus towards education, in current scenario.

The state is home to some of the premier educational and research institutions of India including IIM Indore, IIT Indore, IIIT, Design and Manufacturing, Jabalpur and IIITM Gwalior, SPA (Bhopal), IIFM, NLIU Bhopal, MANIT (Bhopal), University Institute of Technology RGPV Bhopal. Overall, there are 500

degree colleges, which are affiliated with one of the universities in the state. These universities include Jawaharlal Nehru Agriculture University, Madhya Pradesh Veterinary Sciences University, Madhya Pradesh Medical University, Rajiv Gandhi Technical University, Barkatullah University, Devi Ahilya University, Rani Durgavati University, Vikram University, Jiwaji University Gwalior and Dr Hari Singh Gaur University (Sagar University) etc.

3.1.11 Health

To address any emergency situation, the State has 50 district Hospitals, 333 Community Health Centres, 1,157 Primary Health Centres and 8,867 sub-centres in place. Further, in addition to it, there are number of private hospitals as well. Though these Hospitals are equipped with the Ambulance, Beds, and key medical support, but at the sub district level, especially at the CHC and PHC level, the availability of women staff, including the Lady Doctor (Gynecologist etc), ANMs and Lady Support/ Assistant, is a cause of concern. The quantity is quite less than the expected numbers. The ratio of availability of sub centers, covering across the number of villages is not good enough. Moreover, it's highly challenging to meet the requirements, even in normal circumstances. The another concerned area is the regular power supply at the sub district level.

3.1.12 Ecology

According to the 2011 figures, the recorded forest area of the state is 94,689 km^2 (36,560 sq mi) constituting 30.72% of the geographical area of the state.[9] It constitutes 12.30% of the forest area of India. Legally this area has been classified into "Reserved Forest" (65.3%), "Protected Forest" (32.84%) and "Unclassified Forest" (0.18%). Per capita forest area is 2,400 m^2 (0.59 acre) as against the national average of 700 m^2 (0.17 acre). The forest cover is less dense in the northern and western parts of the state, which contain the major urban centers. Variability in climatic and edaphic conditions brings about significant difference in the forest types of the state. There are four important forest types: Tropical Moist, Tropical Dry, Tropical Thorn, Subtropical broadleaved Hill forests.

The major types of soils found in the state are:

- Black Soil, most predominantly in Malwa region
- Red and yellow soil, in Baghelkhand region
- Alluvial Soil, in Northern Madhya Pradesh
- Laterite Soil, in highland areas
- Mixed Soil, in parts of Gwalior and Chambal division

3.1.13 Flora and fauna

Madhya Pradesh is home to 9 National Parks, including Bandhavgarh National Park, Kanha National Park, Satpura National Park, Sanjay National Park, Madhav National Park, Van Vihar National Park, Mandla Plant Fossils National Park, Panna National Park, and Pench National Park. There are also a number of natural preserves, including Amarkantak, Bagh Caves, Balaghat, Bori Natural Reserve, Ken Gharial, Ghatigaon, Kuno Palpur, Narwar, Chambal, Kukdeshwar, Narsinghgarh, Nora Dehi, Pachmarhi, Panpatha, Shikarganj, Patalkot and Tamia. Pachmarhi Biosphere Reserve in Satpura Range and Amarkantak biosphere reserve are two of the 17 biosphere reserves in India.Kanha, Bandhavgarh, Pench, Panna, and Satpura National Park are managed as project tiger areas. Sardarpur sanctuary in Dhar and Sailana are managed for conservation of kharmor or Lesser Florican. Ghatigaon sanctuary is managed for Great Indian Bustard or Son Chiriya. The National Chambal Sanctuary is managed for conservation of gharial and mugger, River dolphin, smooth-coated otter and a number of turtle species. Ken-gharial and Son-gharial sanctuaries are managed for conservation of gharial and mugger. Based on composition, the

teak and sal forests are the important forest formations in the state. Bamboo-bearing areas are widely distributed in the state.

3.1.14 Rivers

The Narmada is the longest river in Madhya Pradesh. It flows westward through a rift valley, with the Vindhyas sprawling along its northern bank and the Satpuras along the southern. Its tributaries include the Banjar, the Tawa, the Machna, the Denwa and the Sonbhardra rivers. The Tapi runs parallel to Narmada, and also flows through a rift valley. The Narmada–Tapi systems carry and enormous volume of water and provide drainage for almost a quarter of the land area of Madhya Pradesh.

The Vindhyas form the southern boundary of the Ganges basin, with the western part of the Ganges basin draining into the Yamuna and the eastern part directly into the Ganges itself. All the rivers, which drain into the Ganges, flow from south to north, with the Chambal, Shipra, Kali Sindh, Parbati, Kuno, Sind, Betwa, Dhasan and Ken rivers being the main tributaries of the Yamuna. The land drained by these rivers is agriculturally rich, with the natural vegetation largely consisting of grass and dry deciduous forest types, largely thorny. The eastern part of the Ganges basin consists of the Son, the Tons and the Rihand Rivers. Son, which arises in the Maikal hills around Amarkantak, is the largest tributary that goes into the Ganges on the south bank and that does not arise from the Himalayas. Son and its tributaries contribute the bulk of the monsoon flow into the Ganges, because the north bank tributaries are all snow fed. The forests in their basins are much richer than the thorn forests of the north-western part of Madhya Pradesh.

The Satpuras, in the Gawilgarh and Mahadeo Hills, also contain a watershed, which is south facing. The Wainganga, the Wardha, the Pench, the Kanhan and Penganga rivers, discharge an enormous volume of water into the Godavari river system. The Godavari basin consists of sub-tropical, semi-moist forests, mainly in the valley of the Indrawati. There are many important multi-state irrigation projects in development, including the Godavari River Basin Irrigation Projects.

3.1.15 Energy

The state has a total installed power generation capacity of 8,381.3 MW (March 2011), most of which is under the control of the State and the Central governments.

Power generation in MP (March 2011)

Power type	**Capacity (MW)**
Thermal	4,617.3
Hydro	3,223.7
Nuclear	273.2
Renewable	267.1

3.1.16 Society and Culture

Madhya Pradesh has at least four agro-climatic zones, and thus, has the most interesting mix of people and ways of life. It is home to about 40 percent of India's tribal population. There are three distinct tribal groups in the state. The largest chunk is formed by Gonds, who once ruled a major part of the state and after whom Gondwana, the central portion of the state is known. Western Madhya Pradesh is inhabited by the Bhils, a colorful group of warriors and huntsmen. Eastern Madhya Pradesh is dominated by the Oraons, most of whom have now turned Christians. Hindi is the most widely spoken language though Marathi is also widespread. Urdu, Oriya, Gujarati and Punjabi are spoken by sizeable numbers. The Bhils speak Bhili and the Gonds Gondi and a major chunk of the population also speak Hindi. Textiles are important but Madhya Pradesh also has a strong traditional village handicraft industry. Handloom Chanderi and Maheshwar silks are especially sought after. The tribal population produces attractive handicrafts. Among the temples known throughout the world for their art are those at Khajuraho in Chhatarpur district in the north of the state; dating from AD 1000, they were built by the Chandela kings. The palaces and mosque at Mandu (near Dhar), the majestic Bandhogarh fort built in the 14th century, and the Gwalior fort represent other notable architectural achievements. The state has several well-known annual cultural events, such as Kalidas Samaroh (for performing and fine arts) in Ujjain, Tansen Samaroh (music) in Gwalior, and a dance festival in Khajuraho, where artists from all over India participate.

The state has important yearly religious melas (gatherings) in Mandsor and Ujjain, as well as religious festivals like Dashhara.

3.1.17 Tourism

The state's tourism industry is growing, fuelled by wildlife tourism and a number of places of historical and religious significance. Sanchi and Khajuraho are frequented by external tourists. Besides the major cities, Bhedaghat, Bhimbetka, Bhojpur, Maheshwar, Mandu, Orchha, Pachmarhi, Kanha and Ujjain are the other popular tourist destinations.

Khajuraho, once the capital of Chandela rulers is 595 km from Delhi. The city is home to 22 temples which are the embodiment of great artistic activities of the rulers of the region between the 9th to the 12th centuries. Ujjain where Kumbha Mela is held every 12th year, Sanchi with ancient Buddhist monuments, Bhopal the lake-side capital city, Jabalpur, famous for marble rocks and Gwalior with beautiful forts, Indore the largest city in the state, Panchmarhi, the hill station, Mandu the historical town and Amarkantak, the source of the Son and Narmada rivers are among the other tourist attractions. Kanha National Park near Jabalpur is one of the most beautiful wild life sanctuaries in India.

3.2 Hazard Assessment

The State of Madhya Pradesh is vulnerable to natural and manmade disasters owning to its unique geo-climatic features and the industrial establishments. The major applicable natural hazards for the State are earthquake, floods, drought, fire, etc. Currently the state is separated into 10 divisions, 50 districts, 272 tehsils, and 313 community development blocks. Out of that, there are 28 districts that come under Zone – III and 22 districts come under Zone – II of Earthquake. Likewise in last 30 years there are 32 districts of the State affected from the flood and around 7 districts highly affected from drought. Other than the Natural disasters, the State is also vulnerable to manmade disasters. The Bhopal gas tragedy was one of the worst manmade disasters in history of the State. The tragedy took an immediate toll of about 3000 innocent lives and left thousands and thousands of innocent citizens physically impaired or affected in various degrees. There are more than 400 industries operational in various districts, out of which around

256 are registered with Madhya Pradesh Pollution Control Board. The others are however operational but are running on their own risks. So, if we look at the state of Madhya Pradesh overall, then we will find that the people of Madhya Pradesh are at higher risk. Further, the state of Madhya Pradesh is also prone to frost and frequent accidents, in the recent past. All the key hazards will be addressed one by one.

FLOOD HAZARD:

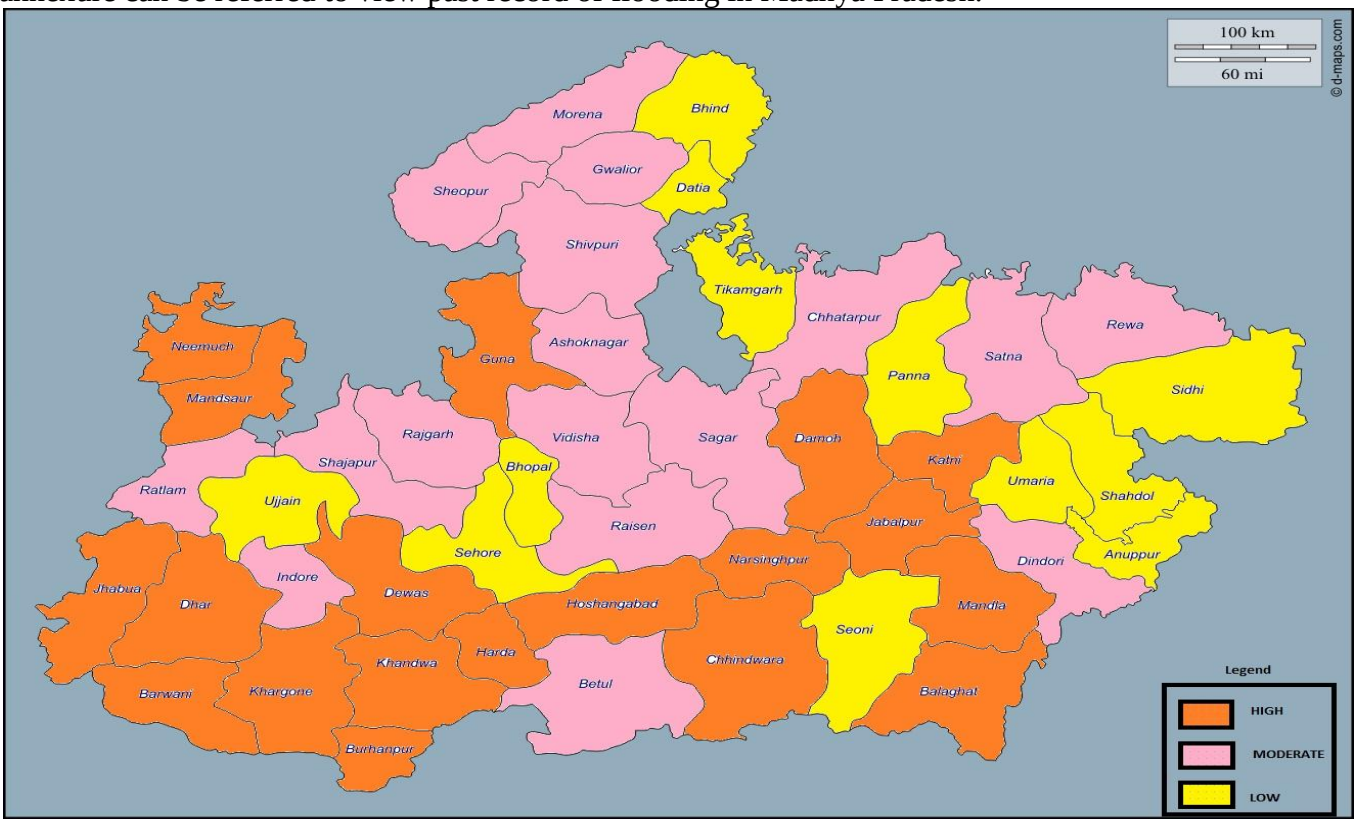
Among all the natural hazards, affecting the State of Madhya Pradesh, floods are most frequent and devastating. In other words, the state is highly prone to flood hazard. As per the data available from the Revenue Department, the state has faced severe floods in the year of 1982, 1983, 1984, 1986, 1992, 1994, 1996, 1997, 2003, 2005, 2006 and 2012 (recent year). It was also observed that more than 80% of the annual rainfall is concentrated over a short monsoon period of 3 months. This leads to heavy siltation, flash floods and poor discharge of flood waters, and thus sometimes even the embankments are breached due to this reason.

After analyzing the previous data of last 30 years pertaining to floods, all the 50 districts now have been categorized into 3 categories of flood hazard: Low, Medium and High.

High flood Hazard districts are those, in which flood occurred more than 8 times since 1982, in last 30 years. These districts are marked in Orange on the map.

Moderate level flood Hazard districts are those, in which flood occurred 6 to 8 times, since 1982, in last 30 years. These districts are marked in Pink on the map.

Low level flood Hazard districts are those, in which floods have occurred for less than 5 times since 1982, in last 30 years. These districts can also be seen in the attached map, colored with Yellow. Further, annexure can be referred to view past record of flooding in Madhya Pradesh.



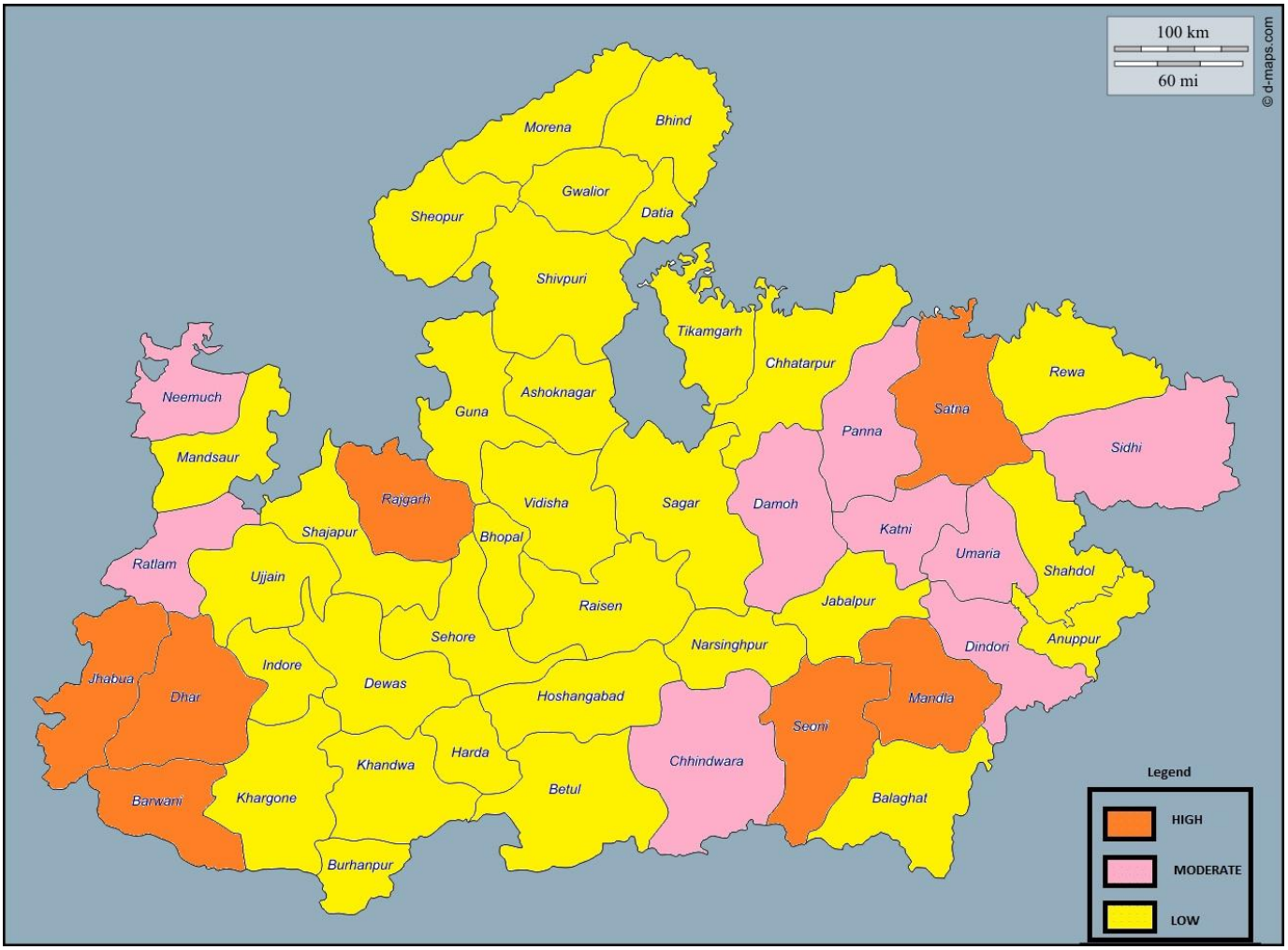
Flood Affected Districts of Madhya Pradesh

DROUGHT HAZARD:

After the flood hazard, the next severe hazard applicable to the state is Drought. On the basis of the data available of last 30 years, it was observed that the pattern of drought in the state is of a varied one, sometimes affecting the entire state, sometimes a few regions, and sometimes a few districts.

However the contiguous patches of 7 districts have been identified as chronic drought prone districts. The districts have been classified into highly drought prone, moderate drought prone and less drought prone, on the basis of the rainfall data, which has been referred during this state level analysis.

The very highly drought prone declared districts can be identified with Orange Colour in the map. Later, the Moderately affected drought prone districts can be seen in Pink colour. Whereas the comparatively lesser drought affected districts have been identified with Yellow colour, in the state map enclosed on the adjacent page.



Drought Affected Districts of Madhya Pradesh

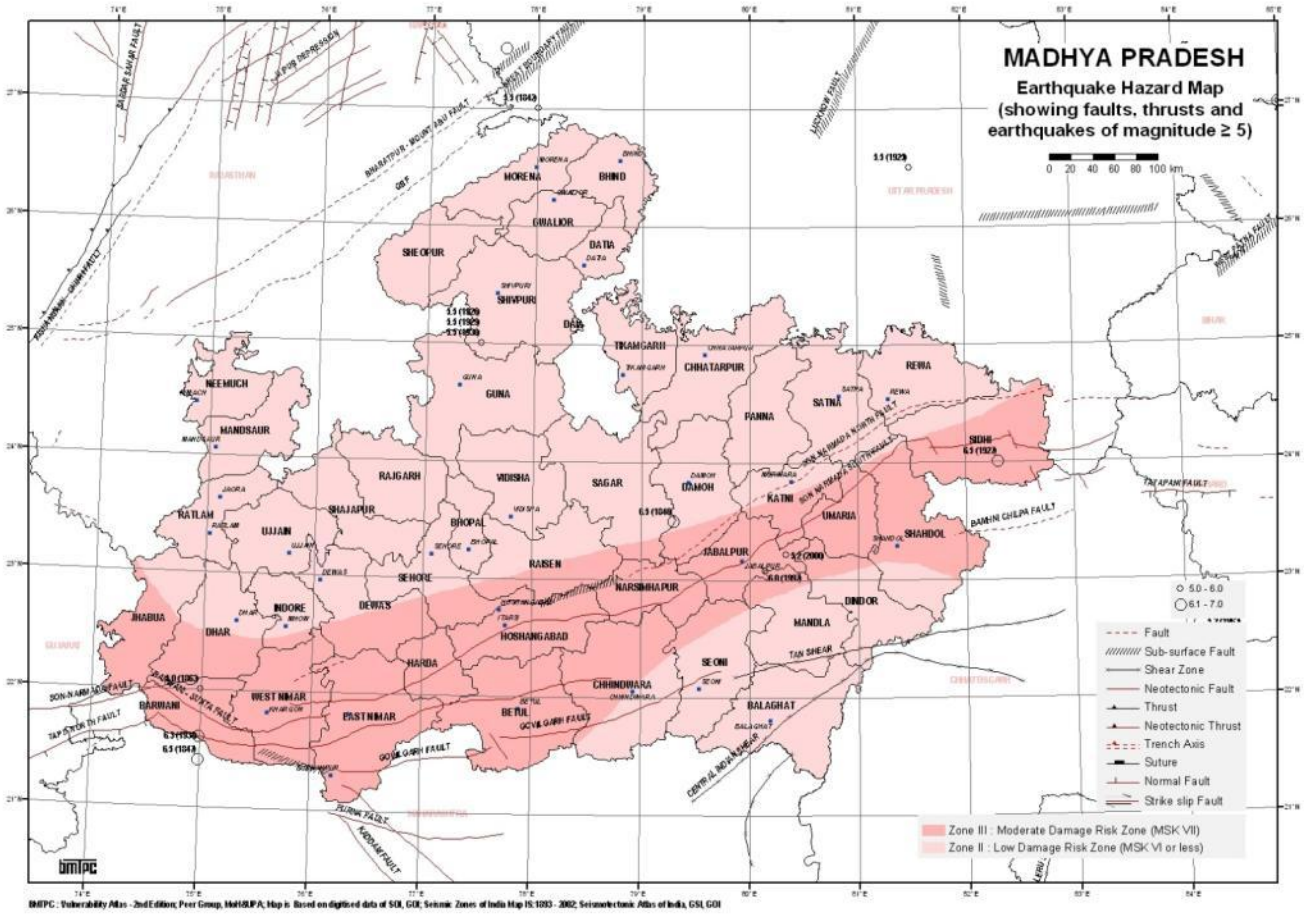
EARTHQUAKE HAZARD:

It is another major hazard applicable to the state of Madhya Pradesh. In major parts of the state, seismicity is moderately high. Especially, in the recent past, a couple of events triggered the entire state (including the 1997 Jabalpur Earthquake). After that, the earthquake is being taken quite seriously here. However, as per Vulnerability Atlas of India 2007, there are 28 districts come under Zone III, and 22 districts come

under Zone II of earthquake. In addition to it, a state level Madhya Pradesh Earthquake Study has been carried out just recently. The study has emphasized the need of the revision of seismic zoning map of the state. And as per the recent categorization, some of the districts have been categorized under high seismic zone IV (earthquake prone high risk zone), and rest of those have been covered under zone III and zone II.

Hence on the basis of the Vulnerability Atlas of India, and recently carried out MP Earthquake Study, the districts have been categorized into the Medium and Low hazard prone. In the district wise hazard analysis table, earthquake hazard has been categorized into following:

Medium earthquake prone districts are those, which come under the moderately high risk Zone III, and Low earthquake prone districts are those, which come under Low damage risk Zone II.



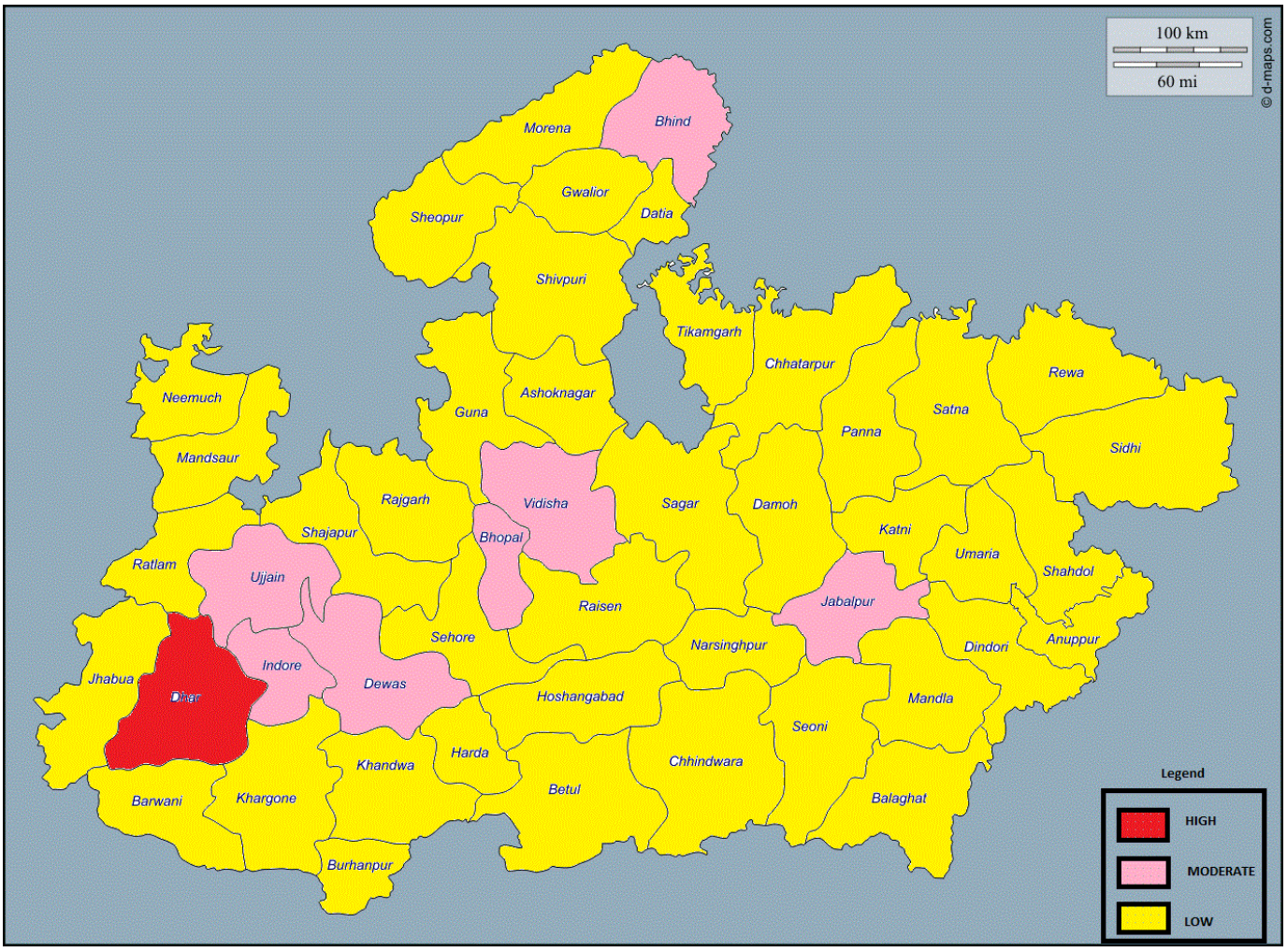
INDUSTRIAL HAZARD:

Over the years, there is substantial increase in the industrial activities in the state. Many industries in the state store handle and process large volume of the hazardous chemicals. This can cause potential damage to the employees, surrounding community and the environment, in general. The industries, dealing with hazardous chemicals above certain limit, are known as Major Accident Hazard (MAH) Units. In Madhya Pradesh, many industrial accidents have been occurred so far, including the mega disaster of Union Carbide, Bhopal 1984. The tragedy took toll of 2500 lives (on record), further there is a long list of affected people in thousands, which are still suffering from the chronic diseases due to the inhalation of poisonous MIC gas.

Some areas of the state have been identified, having cluster of industries, also known as the MAH Units, handling the hazardous chemicals and pose chemical and industrial disaster. Currently in Madhya Pradesh,

there are 75 MAH units, spreading across the 20 districts. The list of these MAH Units is enclosed in the annexure, also clearly specifies the type of industry (like petroleum, agro, chemical, cement, metal, glass, fertilizer, automobile, polymer, paper mill, Elect. and power plants etc). The list also contains the hazardous chemicals stored, handled in particular place or district.

The Industrial hazards have been categorized into High, Medium and Low, on the basis of MAH units. High industrial hazard prone districts are those, in which there are more than 7 units. Medium industrial hazard prone districts are those, in which at least 4 units exists but less than 7 units and Low Industrial hazard prone districts are those, in which, at least 1 unit exist but less than 4 MAH unit exists.



Potential Industrial Hazardous Places in Madhya Pradesh

ACCIDENTS:

Madhya Pradesh is one of the states, where more people die in road accidents, as compare to other disasters. The figures of road accidents and casualties indicate rising trend in the state. In 2008 the casualties recorded around 6000 plus, in 2009 it crossed 7000, in 2010 the figure reached nearly 10,000 and by end of 2011, it crossed 15,000 road deaths. As per recent half year data of 2012, casualties already reached up to 9784, which is significantly very high.

After the preliminary analysis, it was found that with the stagnation of growth of railways and neglected network of other modes of transport in the state, road transport obviously acts as the principal mode of transportation, which has been evident during last few decades.

In the district wise hazard analysis table, the districts have been classified into High, Medium and Low category, on the basis of the casualties occurred in the last three and half years.

In case of more than 700 deaths from January 2009 to June 2012, due to road accidents, the district has been classified in High category.

In case of 500 to 700 deaths due to the road accident in the district, in the same period mentioned above, district comes under Moderate category.

Whereas in the same period, if the road deaths are between 0 to 500, the district comes under the Low hazard category. The District wise Road Accidents table is also available to get more detail.

The district wise overall hazard analysis has been carried out primarily considering the Flood, Drought, Earthquake, Accidents and Industrial installations and handling of hazardous chemicals. The prime data of these hazards was available from authentic sources, and hence it has been analyzed.

The overall hazard analysis was carried out on the basis of the total hazard score, coming out of the weightages assigned to high, medium and low categories, as applicable in the respective districts.

The state is also susceptible to train and air accidents, boat capsizing, landslides, mining and festival related disasters, frost, biological hazards, fire and electrical accidents. As there are cases of occurrence of these disasters. However the availability of detailed authentic data, pertaining to these hazards, remains an issue.

The specific Reasoning, Guiding Notes cum Advisory has been covered in the later part of the State Disaster Management Plan, in order to address the specific hazards. However as a matter of fact, the state neither have any nuclear industry, nor have the coastline; hence it is protected from the cyclone and Tsunamis.

BIOLOGICAL HAZARDS AND EPIDEMICS:

All the natural hazards are usually followed by the epidemics of communicable diseases and non-communicable diseases like psychological trauma, malnutrition etc. Epidemics and biological hazards are potential threats to Madhya Pradesh because of the following reasons:

- Madhya Pradesh is prone to water and vector borne communicable diseases, which get compounded by poor health knowledge, poor sanitation, and scarcity of drinking water.
- Ecological changes and regular impact of different kinds of natural disasters like floods, drought, frost, and the climatic disorders create a favourable climate for the emergence of new types of pathogenic agents.
- Increase in urbanization leading to a rise in the number of slum dwellers with extremely poor sanitation and drinking water facilities, very poor health awareness and increasing risk of water borne diseases, from endemic to non-endemic areas.
- Chemical/ industrial hazards are potential dangers to many industrial belts of the state.

- Possibility of use of biological and chemical weapons by terrorists/ naxalites cannot be ruled out in Madhya Pradesh, which can also lead to a kind of biological hazard.

FIRE HAZARD:

Fire accidents are quite common, especially in the rural areas because of the following factors:

- Close proximity of houses in many areas leading to spread of fire and wider destruction.
- Lack of availability of adequate water, equipments for fire fighting, in small towns.
- Lack of awareness about the basic Do's and Don'ts, at the level of the common man living in the houses that uses inflammable material.

ELECTRIC HAZARDS:

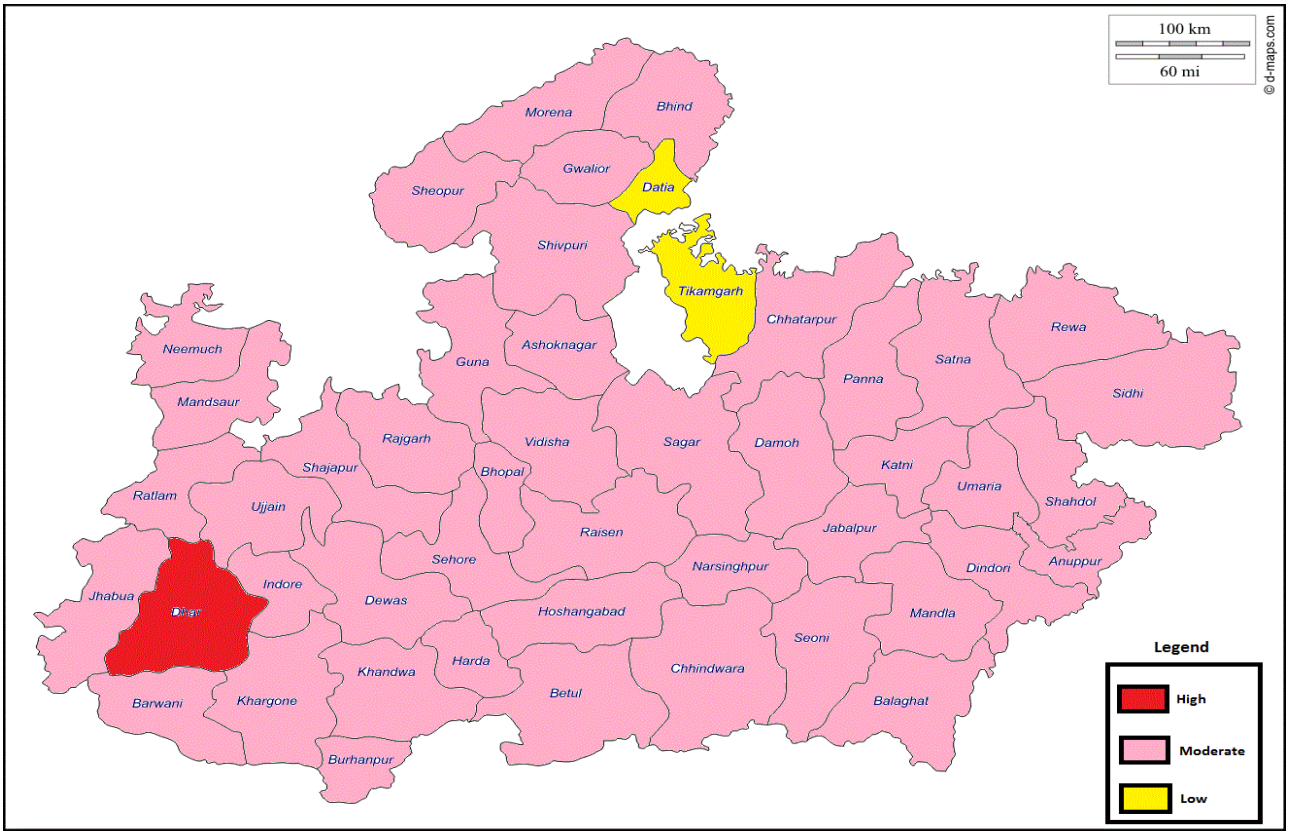
Madhya Pradesh is also becoming increasingly vulnerable to electrical accidents, due to the following causes:

- Use of substandard electrical fittings.
- Lack of check up of overused electrical items.
- Lack of trained electricians.

EPIDEMICS AMONGST ANIMALS:

Main diseases and causal factors that affect animals in the state are following:

- Poor disease surveillance system.
- Lack of trained personnel, poor equipments and communications systems.
- Traditional beliefs of not slaughtering cows in spite of the animal being infected by diseases like TB, Anthrax etc, leading to spread of disease to human beings and sometimes death.



District wise Hazard Analysis

3.2.1 District wise Hazard Analysis Summary of Madhya Pradesh

Key Potential Hazards		Floods	Drought	Earthquake	MAH Units[Industrial]	Accidents	Over all Hazard
#	District Name						
1	Sheopur	Moderate	Low	Low	Low	Low	Moderate
2	Morena	Moderate	Low	Low	Low	Low	Moderate
3	Bhind	Low	Low	Low	Moderate	Low	Moderate
4	Gwalior	Moderate	Low	Low	Low	Moderate	Moderate
5	Datia	Low	Low	Low	Low	Low	Low
6	Shivpuri	Moderate	Low	Low	Low	Low	Moderate
7	Tikamgarh	Low	Low	Low	Low	Low	Low
8	Chhatarpur	Moderate	Low	Low	Low	Low	Moderate
9	Panna	Low	Moderate	Low	Low	Low	Moderate
10	Sagar	Moderate	Low	Moderate	Low	Low	Moderate
11	Damoh	High	Moderate	Moderate	Low	Low	Moderate
12	Satna	Moderate	High	Low	Low	Moderate	Moderate
13	Rewa	Moderate	Low	Low	Low	Low	Moderate
14	Umaria	Low	Moderate	Moderate	Low	Low	Moderate
15	Neemuch	High	Moderate	Low	Low	Low	Moderate
16	Mandsaur	High	Low	Low	Low	Low	Moderate
17	Ratlam	Moderate	Moderate	Low	Low	Low	Moderate
18	Ujjain	Low	Low	Low	Moderate	Moderate	Moderate

19	Shajapur	Moderate	Low	Low	Low	Low	Moderate
20	Dewas	High	Low	Moderate	Moderate	Low	Moderate
21	Dhar	High	High	Moderate	High	Moderate	**High**
22	Indore	Moderate	Low	Moderate	Moderate	High	Moderate
23	Khargone	High	Low	Moderate	Low	Low	Moderate
24	Barwani	High	High	Moderate	Low	Low	Moderate
25	Rajgarh	Moderate	High	Low	Low	Moderate	Moderate
26	Vidisha	Moderate	Low	Low	Moderate	Moderate	Moderate
27	Bhopal	Low	Low	Low	Moderate	Low	Moderate
28	Sehore	Low	Low	Moderate	Low	Low	Moderate
29	Raisen	Moderate	Low	Moderate	Low	Low	Moderate
30	Betul	Moderate	Low	Moderate	Low	Moderate	Moderate
31	Harda	High	Low	Moderate	Low	Low	Moderate
32	Hoshangabad	High	Low	Moderate	Low	Low	Moderate
33	Katni	High	Moderate	Moderate	Low	Low	Moderate
34	Jabalpur	High	Low	Moderate	Moderate	Low	Moderate
35	Narsinghpur	High	Low	Moderate	Low	Low	Moderate
36	Dindori	Moderate	Moderate	Moderate	Low	Low	Moderate
37	Mandla	High	High	Moderate	Low	Low	Moderate
38	Chhindwara	High	Moderate	Moderate	Low	Low	Moderate
39	Seoni	Low	High	Moderate	Low	Moderate	Moderate
40	Balaghat	High	Low	Low	Low	Low	Moderate
41	Guna	High	Low	Low	Low	Low	Moderate
42	Ashoknagar	Moderate	Low	Low	Low	Low	Moderate
43	Sehdol	Low	Low	Moderate	Low	Low	Moderate
44	Anuppur	Low	Low	Moderate	Low	Low	Moderate
45	Sidhi	Low	Moderate	Moderate	Low	Low	Moderate
46	Singrauli	Low	Moderate	Moderate	Low	Low	Moderate
47	Jhabua	High	High	Moderate	Low	Low	Moderate
48	Alirajpur	High	High	Moderate	Low	Low	Moderate
49	Khandwa	High	Low	Moderate	Low	Low	Moderate
50	Burhanpur	High	Low	Moderate	Low	Low	Moderate

3.2.2 Criteria for allocation of ratings to the selected hazards

1) **Flood Hazard (Source: MP State DM Policy, State websites, data collected from deptt.)**

   High (H) - **Flood occurred above 8 times since 1982**

   Moderate (M) - **Flood occurred 6 to 8 times since 1982**

   Low (L) - **Flood occurred for 0 to 5 times since 1982**

The flood hazard has been graded on the basis of incidence per year. Other criteria which influences flood hazards include severity of floods, death due to floods, shifting of affected population, type of river and its catchments and presence of big dams in catchment area or upstream. These being local context specific, it is recommended that they be included in the local disaster risk assessment and response planning process.

2) **Drought Hazard (Source: MP State DM Policy, State websites, info. collected from deptt.)**

High (H) - Declared highly drought prone area with reference to rainfall etc

Moderate (M) - Drought prone area of the state, as per available info

Low (L) - Less drought affected area of the state

3) **Earthquake Hazard (Source: Vulnerability Atlas of India 2007, MP Earthquake study)**

Moderate (M) - Moderate damage risk Zone 3

Low (L) - Low damage risk Zone 2

4) **Industrial Hazard (Source: DMI Bhopal website)**

High (H) - Above 8 no. of MAH units in the district

Moderate (M) - Minimum 4 to 7 no. of MAH units in the district

Low (L) - Between 0 to 3 no MAH units in the district,

Other than number of MAH units, size of the unit and nature of the chemicals used or produced can also be considered as criteria for grading of industrial hazards. These being local context specific, it is recommended that they be included in the local disaster risk assessment and response planning process.

5) **Road Accidents (Source: Safety Life Cycle, Safety First Education, inputs from traffic control)**

High (H) - More than 700 deaths in district, since Jan 2009 onwards

Moderate (M) - 500 to 700 deaths in the district, since Jan 2009 onwards

Low (L) - 0 to 500 deaths in the district, since Jan 2009 onwards

6) **Overall Hazard: It was evaluated after assigning weights to High (3), Medium (2), and Low (1).**

High Hazard - for Total score of 11 and above

Moderate Hazard – for Total score between 6 to 10

Low Hazard - for Total score between 0 to 5

The overall hazard analysis is based on identified key potential hazards. However, the magnitude and impact of disasters also depend on incidence of fire, incidence of building or other structural collapse and presence of big dams. These being local context specific, it is recommended that they be included in the local disaster risk assessment and response planning process.

3.3 Vulnerability Assessment

Despite the applicable hazards in the state, the vulnerability of an area is specified by the capacity of its social, physical, environmental and economic structures to withstand and respond to hazards. An analysis of the vulnerability in a defined geographic location, an understanding of the socio economic factors and the capability of the community to cope with disasters, will give an understanding to the development and planners to plan for disaster risk reduction against future hazards.

Physical vulnerability:

The state is handicapped due to inadequate electrification, irrigation facilities, insufficient storage facilities, insufficient marketing & promotion, poor road infrastructure. Basic services like housing etc is also inadequate in certain remote areas. Poor accessibility to infrastructure increases the vulnerability of population during disasters.

Housing:

In Madhya Pradesh, 56.3 % of houses are vulnerable to disaster impacts (made of mud, stone, unburnt brick wall), which is significantly higher than the Indian average coming up around 39% as per Vulnerability Atlas of India 2007, it means that housing of the state is 17% more unsafe, as compare to the national level. From the technical point of view, the quality and design specifications of houses as well as materials used for housing have a bearing on the vulnerability of houses to earthquakes, cyclones, high wind, floods and fires. As a result, the houses due to their poor type of construction and materials used for the walls and roofs, are vulnerable to disaster impacts and the damage risk to such type of houses is very high.

In order to categorize and analyze the housing construction and subsequent vulnerability at the district level, the High, Medium and Low categories have been defined, as per the following:

High level housing vulnerability will be there when the % of Kuchcha houses will be more than 75% in the district. There are a number of districts under this unsafe category. As per housing criteria, Medium level housing vulnerability will be in those districts where Kuchcha houses are between 50 to 75%, as a whole. Whereas, the Low level housing vulnerability will be applicable in those districts, where the % of Kuchcha houses is less than 50 %, at the district level. Please refer the table to know more about it.

Urbanization:

Madhya Pradesh has the increasing trends of people migrating from rural areas to towns. The increasing influx of poor immigrants adds the additional pressure on the existing infrastructure. Being poor, these immigrants settle in slums or low lying areas, vulnerable to disasters, lacking in basic infrastructure like safe drinking water, sanitation and drainage facilities. Further, weak techno-legal regime and poor implementation of building bye-laws make the population highly vulnerable. Narrow roads, poorly maintained electrical and telephone wires, congested drains make the settlements more vulnerable during disaster time.

Socio- Economic Vulnerability:

Social vulnerability is one of the major components of the vulnerability leading to multiple shocks, including the repercussions of natural hazards. Social vulnerability refers to the inability of people, organizations, and societies to withstand adverse impacts from multiple events to which they are exposed. The economy, population, education etc, all are socio economic factors.

Economy:

Poor economy, low per capital income and significant poverty contribute to the vulnerability of people. The economy of the state is under developing stage. However, agriculture is the primary sector of the state, it is characterized by low productivity due to the traditional practices, inadequate irrigation facilities and low investments. The lack of alternate occupation and repeated crop failures are making people more vulnerable and marginalized. Since the livelihood helps to improve the coping capacity of the people, therefore the livelihood vulnerability has been categorized on the basis of the following:

High livelihood vulnerability is applicable in those districts where BPL families are more than 50% in the district. The Middle livelihood vulnerability is applicable in the districts where the % of BPL families are in between 35 to 50 %. And the Low livelihood vulnerability is applicable in the districts where the % of BPL families are less than 35% in the district.

Education:

Education is a very basic requirement that helps to improve the coping capacities of the population. The state's literacy rate is still low at around 70%, and further lowers in case of women, which is 60%, whereas the country's literacy rate is 74%, which is far better, overall. This data speaks itself the entire story of Madhya Pradesh education, which is directly linked with the vulnerability. It is a well accepted fact that inadequate education becomes a strong detriment for understanding the disaster management.

The vulnerability of illiteracy has been classified into 3 broad categories, as per the following:

The districts in which the illiteracy level is more than 35% come under the high vulnerability. Those districts, which have the literacy level between 25 to 35%, come under the medium vulnerability. And the districts, where illiteracy level is less than 25%, come under the low vulnerability pertaining to illiteracy.

Health:

Health is also the basic requirement and one of the major attributes, to strengthen the coping capacities of the community. The health care system and health infrastructure of the state are inadequate and add to the vulnerability of the people. The medical support plays a very vital role, especially during and after the emergencies, to save lives of the people. In Madhya Pradesh, the health facilities are not up to the mark, as ideally it should be to tackle any crisis situation. The health vulnerability has been categorized district wise, into the following categories:

High level health vulnerability is applicable in those districts, where the health facilities are available in less than 20 % villages of the district.

Medium level health vulnerability is applicable in those districts, where the health facilities are available in 20 to 35% villages of the district.

Low level health vulnerability is applicable in those districts, where the health facilities are available in more than 35% of villages, in the district.

More details are available in the Vulnerability table, in this regard.

Population:

The population is another important vulnerability feature, and plays crucial part in vulnerability analysis. More population also sometime leads to more congestion and hence also increases the vulnerability. It is

also observed that where the numbers of people are more, only the selected few ones are sensitized about issues such as disaster management not all, therefore the lack of public awareness also increases the social vulnerability in a way. As per provisional census data of 2011, the population vulnerability has been categorized into following categories:

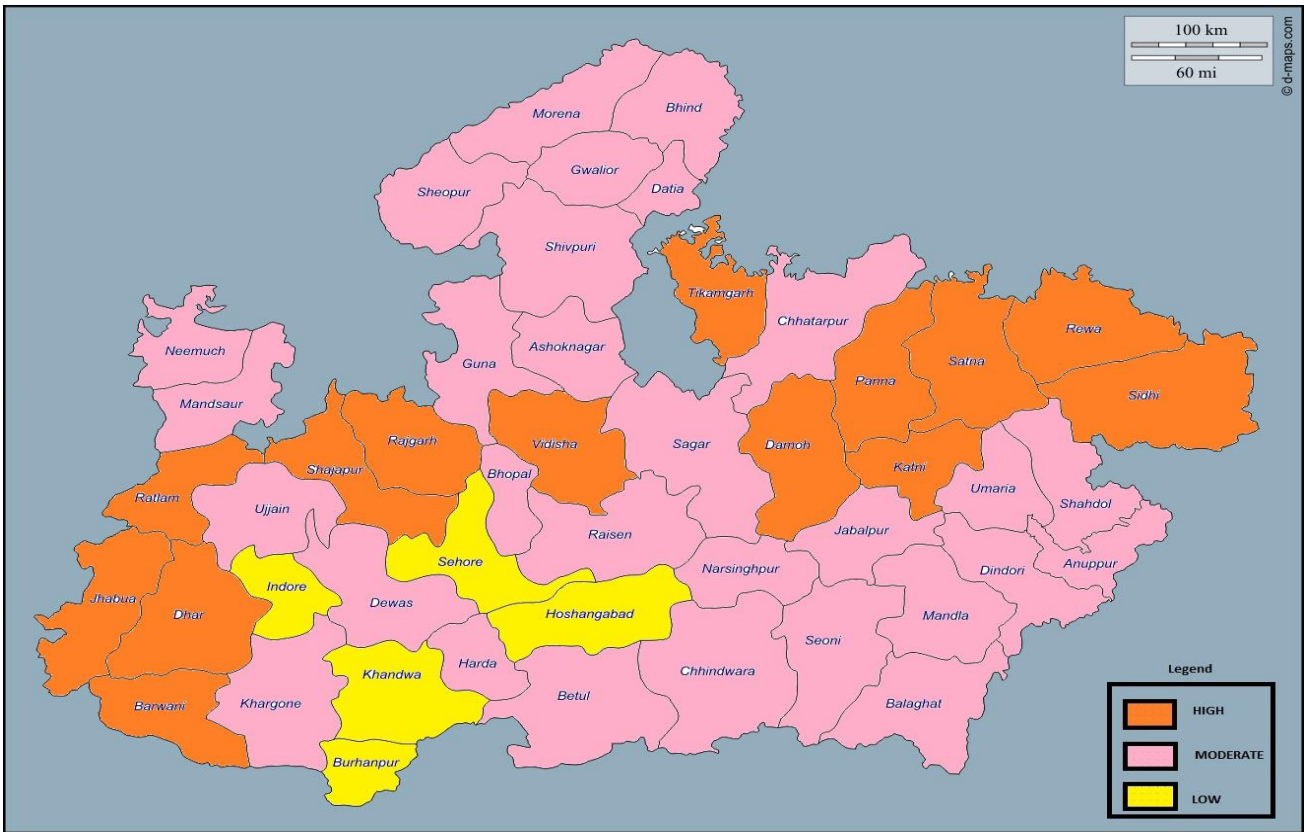
High population vulnerability is applicable in those districts where population density is more than 250 persons/ sq.km. in the district.

Moderate population vulnerability is applicable in the districts where the population density is in between 200 to 250 persons / sq. km. in the district.

Low population vulnerability is applicable in those districts where population density is less than 200 persons / sq.km. in the district.

The overall vulnerability analysis has been carried out on the basis of the data available pertaining to the key attributes applicable in various forms of the vulnerability.

3.3.1 District wise Vulnerability Summary of Madhya Pradesh



Vulnerability Indicators →		Housing construction	Health facilities	Population density	Education level	Poverty level (BPL)	Overall vulnerability
Sr.No.	District Name						
1	Sheopur	High	Low	Low	High	Moderate	Moderate
2	Morena	Low	Moderate	High	Moderate	Low	Moderate
3	Bhind	Low	Moderate	High	Low	Low	Moderate
4	Gwalior	Low	Moderate	High	Low	Low	Moderate

5	Datia	Low	Moderate	High	Moderate	Low	Moderate
6	Shivpuri	Moderate	Low	Low	High	Moderate	Moderate
7	Tikamgarh	Low	Moderate	High	High	Moderate	High
8	Chhatarpur	Moderate	Moderate	Moderate	High	Low	Moderate
9	Panna	High	High	Low	Moderate	High	High
10	Sagar	Moderate	Moderate	Moderate	Low	High	Moderate
11	Damoh	Moderate	High	Low	Moderate	High	High
12	Satna	Moderate	Moderate	High	Moderate	High	High
13	Rewa	High	High	High	Moderate	Moderate	High
14	Umaria	Moderate	Moderate	Low	Moderate	High	Moderate
15	Neemuch	High	Moderate	Low	Moderate	Moderate	Moderate
16	Mandsaur	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
17	Ratlam	Moderate	Moderate	High	Moderate	Moderate	High
18	Ujjain	Moderate	Low	High	Moderate	Moderate	Moderate
19	Shajapur	Moderate	High	Moderate	Moderate	Moderate	High
20	Dewas	Low	Moderate	Moderate	Moderate	Low	Moderate
21	Dhar	Moderate	Low	High	High	Moderate	High
22	Indore	Low	Low	High	Low	Low	Low
23	Khargone	Low	Moderate	Moderate	High	Moderate	Moderate
24	Barwani	Low	Low	High	High	High	High
25	Rajgarh	Moderate	Moderate	High	High	High	High
26	Vidisha	High	High	Low	Moderate	Moderate	High
27	Bhopal	Low	Low	High	Low	Moderate	Moderate
28	Sehore	Low	Low	Low	Moderate	Moderate	Low
29	Raisen	Moderate	High	Low	Moderate	Moderate	Moderate
30	Betul	Moderate	Moderate	Low	Moderate	Low	Moderate
31	Harda	Low	Moderate	Low	Moderate	Moderate	Moderate
32	Hoshangabad	Low	Moderate	Low	Low	Moderate	Low
33	Katni	Moderate	Moderate	High	Moderate	Moderate	High
34	Jabalpur	Low	Low	High	Low	Moderate	Moderate
35	Narsinghpur	Moderate	High	Moderate	Low	Moderate	Moderate
36	Dindori	Moderate	Moderate	Low	Moderate	High	Moderate
37	Mandla	Moderate	Moderate	Low	Moderate	High	Moderate
38	Chhindwara	Moderate	High	Low	Moderate	Moderate	Moderate
39	Seoni	Moderate	Low	Low	Moderate	High	Moderate
40	Balaghat	High	Low	Low	Low	High	Moderate
41	Guna	High	Moderate	Low	Moderate	Moderate	Moderate
42	Ashoknagar	High	Moderate	Low	Moderate	Moderate	Moderate
43	Shahdol	Moderate	Moderate	Low	Moderate	High	Moderate
44	Anuppur	Moderate	Moderate	Low	Moderate	High	Moderate
45	Sidhi	High	Moderate	Moderate	Moderate	Moderate	High
46	Singrauli	High	Moderate	Moderate	High	Moderate	High
47	Jhabua	Moderate	Moderate	High	High	Moderate	High
48	Alirajpur	Moderate	Moderate	Moderate	High	Moderate	High
49	Khandwa	Low	Low	Low	Moderate	Low	Low
50	Burhanpur	Low	Low	Moderate	Moderate	Low	Low

3.3.2 Criteria for allocation of ratings to the selected vulnerabilities

1) **Housing vulnerability (Source: vulnerability atlas of India, 2007)**

   High (H) - Kuchcha houses more than 75% in the district

   Medium (M) - Kuchcha houses more than 50, less than 75%

   Low (L) - Kuchcha houses less than 50 %

2) **Health vulnerability (Source: Ministry of Health & Family Welfare report, 2010)**

   High (H) - Health facilities available in less than 20% villages

   Medium (M) - Health facilities available in 20 to 35% villages

   Low (L) - Health facilities available in more than 35% villages

3) **Population vulnerability (Source: Census of India, 2011, provisional data)**

   High (H) - Population density more than 250 persons/ sq.km. in district

   Medium (M) - Population density between 200 to 250 persons/ sq.km.

   Low (L) - Population density less than 200 persons/ sq.km.

4) **Illiteracy vulnerability (Source: Census of India, 2011, provisional data)**

   High (H) - Illiteracy more than 35% in district

   Medium (M) - Illiteracy 25 to 35% in the district

   Low (L) - Illiteracy less than 25 % in district

5) **Livelihood vulnerability (Source: Ministry of Health & Family Welfare report, 2010)**

   High (H) - BPL families more than 50% in the district

   Medium (M) - BPL families between 35 to 50% in district

   Low (L) - BPL families less than 35% in the district

6) **Overall vulnerability: It was evaluated after assigning weights to High (3) Medium (2) Low (1).**

   High vulnerability - for total score of 11 and above

   Moderate vulnerability – for total score between 8 to 10

   Low vulnerability - for total score 7 and below.

3.4 Risk Analysis

The risk analysis has been carried out on the basis of potential hazards and vulnerabilities of respective districts. The main objective of the risk analysis is to know about the status of districts overall, which will be helpful in taking preventive measures from disaster management point of view. All the districts of Madhya Pradesh have been categorized into the 8 categories as mentioned below in the matrix.The base of hazard and vulnerability has been taken into consideration from the criteria defined in the previous section hazard and vulnerabilities.

MADHYA PRADESH (DISTRICT WISE) RISK PRIORITIZATION CRITERIA:

VULNERABILITY

LOW HAZARD HIGH VULNERABILITY (6)	MEDIUM HAZARD HIGH VULNERABILITY (3)	HIGH HAZARD HIGH VULNERABILITY (1)
LOW HAZARD MEDIUM VULNERABILITY (8)	MEDIUM HAZARD MEDIUM VULNERABILITY (5)	HIGH HAZARD MEDIUM VULNERABILITY (2)
LOW HAZARD LOW VULNERABILITY (9)	MEDIUM HAZARD LOW VULNERABILITY (7)	HIGH HAZARD LOW VULNERABILITY (4)

HAZARD

DISTRICTS OF MADHYA PRADESH LYING IN THE FOLLOWING RISK CATEGORIES:

1. **Low Hazard High Vulnerability**: Tikamgadh

2. **Low Hazard Moderate Vulnerability**: Datia

3. **Low Hazard Low Vulnerability**: Nil

4. **Moderate Hazard High Vulnerability**: Panna ,Damoh , Satna , Rewa, Ratlam , Shajapur, Barwani , Rajgadh , Vidisha, Katni , Sidhi , Singrauli, Jhabua , Alirajpur

5. **Moderate Hazard Moderate Vulnerability**: Sheopur , Shivpuri , Neemuch , Morena, Chhatarpur, Mandsaur , Bhind , Sagar , Ujjain , Gwalior , Umaria , Dewas , Khargone , Bhopal , Raisen , Betul , Harda , Jabalpur, Narsinghpur , Dindori , Mandla , Chhindwara , Seoni, Balaghat , Guna , Ashoknagar , Shahdol , Annupur ,

6. **Moderate Hazard Low Vulnerability**: Sehore, Hoshangabad, Khnadwa, Burhanpur, Indore

7. **High Hazard High Vulnerability**: **Dhar**

8. **High Hazard Moderate Vulnerability**: Nil

9. **High Hazard Low Vulnerability**: Nil

3.5 Emerging Concerns

The following are the emerging concerns coming out of the potential hazards and existing vulnerabilities.

3.5.1 Urbanization:

Madhya Pradesh has the increasing trends of people migrating from rural areas to towns. The increasing influx of poor immigrants adds the additional pressure on the existing infrastructure. Being poor, these immigrants settle in slums or low lying areas, vulnerable to disasters, lacking in basic infrastructure like safe drinking water, sanitation and drainage facilities. Further, weak techno-legal regime and poor implementation of building bye-laws make the population highly vulnerable. Narrow roads, poorly maintained electrical and telephone wires, congested drains make the settlements more vulnerable during disaster time.

3.5.2Gender Discrimination:

In Madhya Pradesh, ratio of women at present is 930 per 1000 males, which is below national average. Further the literacy rate of women is 60% as against the men having 80%. Even the women earn lower wages compared to men, especially in the non-organized sectors. For the illiterate people the lack of education psychologically becomes a strong reason for not getting trained enough to deal with disasters. Even though, the women constitute nearly half of the population, they are more vulnerable to disasters because of socio-cultural barriers to various forms of livelihood opportunities. Their lack of access to better education, livelihood, and the discrimination at work, coupled with marginalized social status, make women more vulnerable to disasters.

3.5.3 Children in Emergencies:

Children are the most vulnerable stakeholders, to any type of disasters. It's estimated that two thirds of children in Madhya Pradesh are malnourished. In emergencies it is often that children are most affected. They may lack food, shelter and healthcare. Their education also comes to a halt, in emergencies. They are more likely to be affected by disease or injury. Their physical and emotional development may be halted. They may not receive basic literacy and essential life skills, and their education could be interrupted. In emergencies, children are often abandoned or orphaned, or they become separated from their families. There is also a risk that with the loss of paperwork such as birth certificates and proofs of identity they may lose their legal rights. It's a long way to go in Madhya Pradesh, to deal with children with proper attention, especially to handle in emergencies.

3.5.4 People needing special care:

Pregnant women, aged and sick people are the most vulnerable, during and after the disasters because of their physical vulnerability and also their lack of capacity of earning their livelihood. The state has a high

concentration of the above group of people, also the widows, and malnourished persons. These categories of people are the most vulnerable as they lack the capacity of earning their livelihood and later, to address the subsequent disaster related issues.

Chapter 4 - Prevention and Mitigation Planning Measures

4.1Techno legal regime, land use planning and zoning

Techno legal regime

Madhya Pradesh has a sound legislative mechanism in place in terms of MP State Policy, Municipality Act and subsequent Rules and Regulations. However, the disperse nature and lack of coherent regulations make it difficult to achieve a state of 'complete' preparedness. The development without adequate infrastructure, construction of buildings that is inadequate to cope with hazards such as floods, high wind velocity and earthquakes etc. increase the risks manifold.
In view of this, proper techno-legal regime will be established by providing adequate safety measures against natural hazards. While there is legal framework available to decentralize disaster management, concerted efforts will be initiated on the part of the government to translate this framework on the ground.

National Building Code prepared by the Bureau of Indian Standards in 1970 and subsequent revisions are advisory in nature and not mandatory. The various provisions in the Code are framed by a panel of experts keeping other standards in view. It lays down a set of minimum provisions designed to protect the safety of the public with regard to structural sufficiency, fire hazards and health aspects in buildings. The code also covers aspects of administrative requirements and bye-laws including building services.

Under different programmes and schemes, the state government is modifying existing laws,development control rules, bye-laws to make techno-legal regime in the state; efforts will be made to consolidate the gaps identified and requisite measures will be taken up to fill the gaps in achieving ideal techno-legal framework. This will enable streamlining disaster management as top priority of the government. Building regulations/bye-laws provide the mandatory techno-legal framework for regulating building safety in terms of planning, design that can withstand hazards like flood, high wind velocity and earthquakes.

At local level, the Municipal Authorities and Panchayat regulate the development/construction of buildings through the building regulation/building bye-laws as followed in their respective areas. The State Government from time to time will issue directions/guidelines for safety against natural hazards, which are followed by local bodies while granting permission for construction of buildings/structures.

The Madhya Pradesh Municipalities Act 1961 will have to be strictly adhered, which has emphasized all the safety requirements, will be taken into consideration for construction and other development works. The Town Planning Act and Land Development Rules also to be adhered by all means. The role of ULBs

has become critical especially after the transfer of responsibility from Home Deptt to Municipalities since 2011. The ULBs are also adhering the Municipal Corporation Act 1956. Currently there are 14 corporate bodies in MP, 377 Local bodies,100 Nagar Palikas, and 277 Nagar Parishads. These bodies are supposed to adhere all the safety clauses come under the Municipalities Act.

Land use planning and regulations:

The department of Town and Country planning, Madhya Pradesh will be the primary agency to encourage new development to occur in locations avoiding or minimizing exposure to hazards or enhance design requirements to improve resiliency in future disasters.This office should also ensure proper enforcement of existing regulations and acts.

The physical impacts of hazards in urban areas can be reduced by preventing or modifying the occurrence of the hazard. In areas where structural measures would be difficult or expensive to implement, disaster mitigation will be achieved through land-use planning and management by taking up non-structural measures.

Rapid urbanization has led to higher concentration of people living in hazardous areas;consequently loss of lives is higher when disasters occur. Disregard and non-compliance of building codes, un-checked construction in flood plain zones in the cities and ULBs is exposing large population to dangers of emergencies/disasters. Watershed catchment areas especially in the peri-urban areas, with lack of proper storm drainage planning experience floods and massive inundation during heavy rains.

Long-term disaster reduction efforts need to aim at promoting appropriate land uses and compliance of building and other development codes in the disaster-prone areas. The heavy industries, chemical industrial plants that have combustible products or by-products are discouraged closer to residential development are crucial.

Fire and industrial accidents can be reduced if the land-use planning ensures separation of industrial units from residential areas, and or fire-prone industries from other industries. Licensing authorities of industries shall examine site location and land use codes.

The measures to promote proper land use shall include both legislative and economic investments and creation of public awareness of proper land use practices. Formulation of land-use policies for long-term sustainable development is an imperative action needing immediate attention.

Large concentrations of people live in potentially hazardous zones, such as along river bunds/ shores, not capable or unwilling to move to safer areas will be educated and provided awareness on the dangers of inundation, loss of property and lives. Introduction of legal enforcement of property insurance against damage inflicted by disaster events may be considered as effective ways to ensure that building codes are followed.

Development that conforms to regulation is less prone to damage than pre-existing development. Enforcing the regulations requires training of personnel and financial resource besides providing techno-legal regime as back up to the local governments and ULBs.

4.2 Structural and non-structural measures:

Structural mitigation measures generally refer to capital investment on physical constructions or other development works, which include engineering measures and construction of hazard resistant and protective structures and other protective infrastructure.

Structural measures such as the construction of protective works or alterations designed to diminish the vulnerability of the elements at risk, and non-structural measures, such as regulating land use and building codes and bye-laws, incorporating preventive aspects into development planning, and equipping line departments for damage reduction, can all reduce the impact of a disaster on a region or a population. Everything that is done to reduce or prevent the damages that a disaster may cause is called mitigation of risks. Such mitigation measures can be integrated with normal development activities and interdepartmental coordination. Mitigation is not a cost as such, instead in the long run it pays for itself. And it does so in lives saved and in real money.

In Madhya Pradesh, many of the public buildings and transport infrastructure are vulnerable to the damage from earthquakes, winds and other hazards. Departments like PWD (Public Works department), Urban Administration and Development, Panchayati Raj, Rural Development etc are primarily responsible for the construction and maintenance of critical infrastructure, public buildings and Installations in the state. As part of mitigation strategy, these departments will have to consider both structural design and material standards to ensure strengthening and protection of these structures and installations. Modifications to conceptual design of critical infrastructure and buildings will be carried out in consultation with the user-departments/institutions and professionals such as building & sanitation inspectors, civil engineers, utilities engineers and identified Structural Engineers.

Non-structural mitigation measures refer to awareness and education, policies techno-legal systems and practices, training, capacity development etc.

Among non-structural measures, initiatives such as flood plain zoning and flood proofing will be undertaken. Flood plain zoning aims at disseminating information on a wider basis so as to regulate indiscriminate and unplanned development in flood plains and is relevant both for unprotected as well as protected area. Non-structural flood control solutions will be used wherever possible, including limiting development in historically flood-prone areas, regulating structural design and limiting increases in peak flow runoff from new upland developments. Structural solutions to reduce shoreline damage will be allowed only after calculated proof that non-structural solutions would not be able to reduce the damage. Whenever feasible, natural vegetation systems for bank stabilization shall be used in place of protective structures.

Environmental planning would also be necessary to avoid or mitigate losses from disasters, by using instruments such as land-use planning and disaster management. Mitigation of the effects of disasters and

protection against hazards require both structural and non-structural measures. The traditional approach to reducing losses relied upon the implementation of structural mitigation measures such as the construction of dams, levies and channel improvements.

4.3 Communications

Communication is one of the very important elements in disaster management planning. As Communication is central to the effort for public education, early warning, evacuation, and post-disaster relief.

The vision of disaster management planning is fail proof communication, authentic and accurate data base documented, rehearsed to be activated in shortest possible time with minimum, simple orders and procedures ensuring participation by administration, communities, industries, private/ NGOs, Volunteers at all levels, making optimal utilization of human and material resources with no gaps or no overlaps to prevent/minimize loss to lives and property and faster restoration of normal life in the affected areas.

To deal with emergencies, it is highly important to have a reliable and speedy communication channels amongst the concerned authorities (DDMA/Deputy Controller of Civil Defense) and the chief coordinators of these organizations in the districts in view of the special requirements arising out of emergency situations.

Use of Amateur Ham Radio system in disaster management

As a part of an effective communication, the use of amateur radios in times of crisis and disasters is well recorded and has wide acceptability, across the globe. The use of ham radio has higher significance when wire lines, cell phones and other means of conventional communication become inadequate or under distress. Unlike commercial systems, Amateur radio is not as dependent on terrestrial facilities that can fail. It is dispersed throughout a community without choke points such as cellular telephone sites that can be overloaded. Although amateur radio operators are experienced, capacity building measures identified in improvising antennas and setting up systems at relatively short time will be needed.

In Madhya Pradesh, currently the Ham radio concept is not popular. However there is lot of scope for this very effective communication technique. Further is expected that the training youth from local community on the techniques of handling amateur radio systems, maintenance and setting up will prove beneficial and sustainable means of preparedness of the community. In addition, wireless and radio communications along with 24x7 hotline will also have to be activated with the district collectors of the affected districts.

It has to be ensured to establish communication links with appropriate central government departments, agencies and institutions for financial, personnel or military assistance as needed; and also with the Deptt of Police, Fire brigade, PWD, Irrigation, Agriculture etc. and private sector stakeholders for assistance at the state level and district level.

It will also be ensured that the EOC has state-of-the-art communication technology including wireless, computer and live-feed systems. Also will make certain that the district EOCs are also well equipped and are operational throughout the year.

4.4 Training Needs Assessment:

One of the most critical components of Disaster Mitigation Strategy is training to be imparted to the stakeholders, including the officials and staff of the various departments involved at the state and district level. Through the training inputs it is visualized both information and methodology, which has to be adopted with the concerned actors. The disaster management training activities will be primarily undertaken, at the state level through DMI (Disaster Management Institute) Bhopal, and at district level through DTIs (District Training Institutes), NGOs, Government training institutions and the institutions affiliated to universities and research centers.

Considering the size of Madhya Pradesh disaster management stakeholders, and the existing capacities and resources available at DMI Bhopal, the up gradation of the institute is need of the hour. Only then it will be possible to periodically train and retrain the concerned stakeholders. Later on at the district and sub district level as well, the training and capacity building provisions will have to be analyzed, and revised according to the local requirements. The Administration will have a major role to play in organizing all these training and capacity building needs.

In Madhya Pradesh, the need for action and intervention in a disaster situation is at multiple levels and cuts across various sectors. The quality of intervention depends a lot on the inter-sectoral, inter-departmental coordination and efficient teamwork Thus, it is pertinent to assess the specific training requirements of the key personnel to be involved in the intervention.

DMI Bhopal has to undertake a comprehensive TNA study for Disaster Management in Madhya Pradesh, through covering all the nodal departments and for appropriate levels of functionaries, which will enable identification of the gaps that need to be attended to through training activities. These will be done by assessment of the level of knowledge, attitudes and skills, with respect to the task to be undertaken and the expected levels of knowledge, attitudes and skills. Preparation of training modules and materials based on such TNA exercises will be undertaken by the training institutions. Later on it has to be taken forward by the concerned nodal departments.

It is intended that the DMI Bhopal will organize training for state level and district level officials, the officials from line departments, as well as major NGOs, and private sector organizations and community.

The training implementation strategy envisages that the NGOs, private sector organizations and other Government training institutions will, in turn, organise training and simulation exercises at the district and community level, in order to ensure preparedness at the grass-roots. Apart from spreading awareness of disasters, the focus will essentially be on community capacity building.

In order to further strengthen the training component, it is proposed to establish the Madhya Pradesh Institute of Disaster Management (MPIDM) as part of overall mitigation strategy. The Institute will organize the training in collaboration with DMI Bhopal, for state level and district level officials, officials from line departments, as well as the private sector organizations. The MPIDM will be the primary agency for conducting training to all government officials involved in the planning and implementation of the mitigation strategies at the state, district and sub-district level.

At the sub-district level, the special focus will be given to local contractors and masons, who are the prime responsible for construction work. Training programmes will target the informal construction sector by building their capacities on safe construction practices and retrofitting of existing structures. An institutional arrangement is required to ensure that in the long term, contractors and mason ensure safe construction practices.

Primary agencies, for community level training and public awareness will be Higher Education Department, Social Education Department, NYKS Volunteers, Private sectors, NGOs and CBOs.

4.5 Insurance

Insurance is the best way to transfer the risk, as per the disaster management experts. It is a mechanism for spreading the cost of losses over time that are known to impact community. Introduction of disaster linked insurance will be actively pursued and insurance cover will be made available not just for life but also for household goods, livestock, structures and crops.

Generally the insurance premiums are based on the location of a structure within the disaster-prone areas; and are determined essentially on the extent of risks, different slab rates may be developed where higher rates may be applied to structures with high risk. Strategies for introducing disaster insurance for structures will include:

- More stringent enforcement by lenders of the mandatory purchase/construction requirements – Increasing public awareness of the hazard like Fire, Drought, Flood, Earthquake etc.
- Imposing risk disclosure requirement on real estate agents is vital
- Offering special insurance converge and policy riders
- Maintaining premiums at affordable rates.

Apart from it, Special Insurance Package to be encouraged, especially for the Below Poverty Level (BPL) families, in order to address their basic needs and health facilities. So that poor community can build back better. In the same manner, for general community also, disaster specific insurance schemes to be introduced, so that their loss can be minimized up to some extent.

4.6 Disaster Mitigation Work Plan:

The objective of Madhya Pradesh State Disaster Mitigation Plan is to conceptualize the mitigation and prevention activities at State level and institutionalize the same, in line with Madhya Pradesh State Disaster Management Policy. This will fulfill the need to develop sustainable and comprehensive Mitigation framework to ensure systematic incorporation of Disaster Reduction elements into the Mitigation Planning process in order to reduce the risk factors. The MP State Disaster Mitigation Plan is an effort to reduce the potential impact of disasters on people and property.

Based on the state's priority, Madhya Pradesh State Disaster Mitigation Work Plan has been prepared, which is also in line with HFA (framework accepted nationally) and state level priorities. The nodal

agency for progress, monitoring and review of this MP State Disaster Mitigation Plan is MP State Disaster Management Authority. Following is the MP State Disaster Mitigation Work plan :

Work Plan for Madhya Pradesh State Disaster Mitigation

Sr. No.	Key Components	Milestones to achieve	Nodal Authority / Lead Agency	Targets		
				Year 2013	**Year 2015**	**Year 2017**
1	Institutionalization and Mainstreaming	A) Fully functional State Emergency Response Force, with adequate manpower and sufficient resources	MP- CD&HG, SDMA	Significant achievement	Total achievement	Review
		B) Integration of Disaster Risk Reduction (DRR)with Govt. development initiatives		Incremental progress	Partial improvement	Significant achievement
		C) Orientation of officials , NGOs, Institutes, professional bodies and sensitization of community through IEC, Campaigns		Partial improvement	Significant achievement	Total achievement
1	Safe Schools	A) Include DRR component in relevant sections of schools curriculum at all levels, promote NCC and NSS	Education Department	Significant achievement	Total achievement	Review
		B) Prepare and institutionalize DM Plans of schools, Undertake overall assessment of schools		Partial improvement	Significant achievement	Total achievement
		C) Ensure safe construction of new schools, and retrofitting of old schools		Incremental progress	Partial improvement	Significant achievement
3	Road Transport Safety	A) Conduct detailed study and benchmarking of accident rates and safety standards.	Transport Department	Significant achievement	Total achievement	Review
		B) Preparation of detailed Road Safety Plan and its implementation mechanism		Partial achievement	Significant	Total achievement

					achievement	
2	Hospital Safety	A) Promote Hospital Safety, strengthen health facilities in districts, train health workers and sensitize patients	Public Health Department	Significant achievement	Total achievement	Review
		B) Assessment of hospitals , prepare and institutionalize DM Plans for hospitals		Partial improvement	Significant achievement	Total achievement
		C) Ensure safe construction of new hospitals, retrofit old hospitals as per prescribed safety norms		Incremental progress	Partial improvement	Significant achievement
4	Resilient Cities, and Districts	A) Local level preparedness through community sensitization, Task Force Institutionalization in all 50 Districts	Urban Admin. & Development Department	Significant achievement	Total achievement	Review
		B) Formation of Distt Forums, City Alliances in 5 major cities/ distts (Bhopal, Indore, Jabalpur, Gwalior and Ujjain)		Significant achievement	Total achievement	Review
		C) Retrofitting of key lifeline buildings of 5 cities/districts, Cap building of Masons, Engineers, Architects & volunteers D) Install fully equipped Fire Stations with advanced telecommunication systems in identified 5 major cities, districts		Partial improvement Partial improvement	Significant achievement Significant achievement	Total achievement Total achievement
5	Early Warning Dissemination	A) Develop Public Centered/ User Friendly Early Warning System, using the local wisdom, and maximizing outreach.	Revenue	Partial improvement	Significant achievement	Total achievement
		B) Establish & maintain advance information systems, with specialized control rooms, for improved forecasting and prompt warning dissemination		Incremental progress	Partial improvement	Significant achievement

		C) Coordination and Integration of early warning mechanism with other Nodal Departments	Department, MP - SDMA	Significant achievement	Total achievement	Review
6	Preparedness for Effective Response	A) Strengthen HR capacities of Institutions at state and district level (like ATI, DTIs etc) with rigorous focus on Disaster Mgmt.	MP - SDMA	Significant achievement	Total achievement	Review
		B) Operationalize the Offsite Emergency Planning, Support and supplement the District and Local Crisis Mgmt. Groups		Partial improvement	Significant achievement	Total achievement
		C) Mock drills realization district wise to ensure disaster preparedness		Partial improvement	Significant achievement	Total achievement
		D) Develop and establish emergency funds, to support response and recovery		Partial improvement	Total achievement	Review

Note: Incremental Progress indicates 10%achievement;

Partial Improvement indicates 25% achievement;

Significant achievement indicates 50% work progress;

Total achievement indicates 100% work achieved.

Review indicates periodic monitoring and assessment.

Chapter 5 - Mainstreaming Disaster Management Concerns into Development Programmes

The chapter on mainstreaming disaster management concerns into the development programmes, will address and align the pertinent issues of construction (structural & non-structural elements), infrastructure, repair & maintenance, health and education, transport, water and sanitation, coordination and communication, research & technology transfer, environment and land use planning. Here the integration of disaster risk reduction issues have been explained and advocated at three different levels, including international, national and local, in the following manner:

5.1 Disaster Risk Reduction initiatives and activities, in line with HFA priorities

The overall objective of HFA (Hyogo Framework for Action) is to build resilience of communities to disasters, by achieving substantive reduction of disaster losses in lives, and in social, economic, and environmental assets of communities and countries. Internationally, the HFA is adopted by 168 countries, as the outcome of World Conference on Disaster Reduction, held in 2005.

In Madhya Pradesh, efforts are required to integrate Disaster Risk Reduction (DRR) into development policies and programmes, which is also the strategic goal and major priority of Hyogo Framework for Action (HFA) 2005 - 2015.

However in the recent years Government of Madhya Pradesh (GoMP) has made some progress in this direction. Towards the first priority of HFA, which focuses on the DRR institutionalization and mainstreaming, Govt of Afghanistan has taken few important steps. GoMP has come out with the State Disaster Management Policy. The document emphasized the existing vulnerabilities, potential hazards, and the capacities, to build upon. However, there is also a growing need that the existing mechanisms need strengthening in order to make the process truly effective on the ground. Considering the preparedness angle, the stakeholders need to be further trained, and from prompt response point of view, the State level disaster Response Force to be fully activated.

On the second priority of HFA, which is Early Warning, a comprehensive and precise approach will be worked out to identify, assess and monitor disaster risks and enhance the early warning mechanism through advance methods. The existing system will be further strengthened to build the capacity of local community on early warning dissemination and response management.

The issue of using knowledge, innovation & education to build a culture of safety (HFA priority No. three), is also very vital. Efforts are being made to build capacity and strengthen research institutions/ organizations/ schools in the state. The MP-SDMA with support from Education Department, will apply the scientific knowledge and research findings into policy, planning and practice. Apart from that specific guidelines will be developed on mitigation aspects.

To integrate DRR into the health sector (which is linked with HFA priority No.4), a state level initiative will be launched, promoted & supported by the Government led nodal agencies. To address the new and old construction of buildings and houses, the national level guidelines will be followed, latest building codes will be addressed and the capacities of Masons, Engineers and Architects will be built further.

To strengthen the disaster preparedness for effective response at all levels (as per HFA Priority No. 5), the disaster management committees will play a crucial role especially at District level. And then the respective disaster management plans of all 50 districts will be further reviewed and revised, under the scope of DDMA. The State level Risk Mitigation & Preparedness Fund will be institutionalized, to take care of all the DRR activities at the state, district and sub-district level.

There will be special focus on making the cities more resilient to disasters. An initiative called Resilient Cities and Districts, will be taken up. Based on advance and extensive research, the retrofitting of lifeline buildings of major cities will be completed and community will be gained in terms of safer cities campaign.

A time bound work plan of State Disaster Mitigation has been prepared for the mitigation and prevention of disasters in Madhya Pradesh, keeping in mind the DRR initiatives in line with HFA.

5.2 Integrating Disaster Risk Reduction (DRR) in National Development Flagship Programmes

- **Mahatma GandhiNational Rural Employment Guarantee Act (MGNREGA)** provides the strengthening and maintenance of such physical features that may vitally protect/ help in rescue of communities during disaster situations. Under this act maintenance and strengthen of wells, dams, ponds etc. will take place and also it will provide the job to unemployed youth. Especially under the construction of river embankments, smaller dams, stop dams, rural roads, the youth can work under MNREGA and contribute towards reducing the vulnerability. Addition to this during the time of disaster like flood or drought if any plan has been taken by Zila Panchayat for relief and construction of drains for reducing the impact of flood so this job can be implemented under MNREGA. In rural areas during flood, people are more vulnerable because of the open drains and rivulets which get flooded and make it difficult for people to cross. So, construction of small bridges should be encouraged to avoid such circumstances. Apart from this Unemployed youth can also work during disaster for relief work under MNREGA so that rescue & relief will be fast. Further, MGNREGA is quite effective in drought mitigation activities.

- Under **Indira Awaas Yojana (IAY)** all the houses should be advised and instructed to construct earthquake resistant. Special instruction should be provided by State Govt. to District Administration and at Sub District level, and further the block will guide and instruct to Gram Panchayat for the construction of houses under Indira Awaas Yojana (IAY) for earthquake resistant house construction. The training should be provided at gram Panchayat level for construction of small earthquake resistant houses under this scheme. This vulnerability due to earthquake and flood can be reduced. There is provision of 3% of Indra Awas to be given to people affected with disaster.

- Under **SSA (Sarva Siksha Abhiyan)** whatever schools are being constructed should be earthquake resistant by following the proper guidelines. This should be instructed State level to District level, and from the district SSA office to Block level. Also awareness should be spread at Gram Panchayat level about earthquake-resistant house by education department.

- **PDS (Public Distribution System)** system should be made very efficient and should play a critical role during the time of disaster. As the PDS have sufficient foods in stock for providing food during crisis.

- Under **NRHM (National Rural Health Mission)** special attention should be given to the diseases like Falaria, Dengu, Chickengunia and jaundice at the district level so that epidemics can be

avoided. Under this scheme proper vaccination should be carried out by the district health administration through CHC and PHC. Apart from it, Special camps should be arranged at block level or Gram Panchayat level about awareness of diseases and how to be safe. Doctors should be trained to tackle the epidemic in that region. Under this scheme there should be availability of qualified and trained doctors and further the sufficient stock of medicines related to the epidemics, by which generally people of these areas are affected.

- Under **PMGSY (Pradhan Mantri Gram Sadak Yojna),** proper communication should be established at sub district level, so that transportation should not become vulnerable during rainy seasons. The special attention to be given to the water logging area which is more affected during the rainy seasons. Roads should be constructed under this scheme in rural area for the proper communication from village to block. During rainy seasons transportation becomes very difficult so these areas should get priority under PMGSY.

- In order to deal with the severe cases of Drought, the components of **National Food Security Mission (NFSM)** should also to be linked based on the relevance and according to the needs of the sufferers, in line with the criteria of the mission.

- **JNNURM (Jawaharlal Nehru National Urban Renewal Mission) is** a massive city-modernization scheme launched by Govt. of India under Ministry of Urban Development. JNNURM is a huge mission which relates primarily to the development in context of urban conglomerates focusing majorly to the Indian cities. Mission provides a very strong infrastructure base, and as a result helps the citizens in order to reduce the disaster impacts. Cities of Madhya Pradesh are also part of this very ambitious Mission.

5.3 Linking Disaster Risk Reduction (DRR) with State level Development Programmes

Disaster management is no more confined to the revenue department or just national level drive. It is a subject of all key departments at state level. Well planned implementation of development schemes by respective departments can help in reducing impact of disaster on the lives of people and infrastructure.

The State Govt. of Madhya Pradesh is in process of integrating disaster reduction components into various state level development programmes/ schemes. In this regard, following are the key state level initiatives:

Project UDAY: Like JNNURM, the Project UDAY is primarily pertaining to urban problems, such as solid waste management, infrastructure development, public participation and awareness, leading to urban risk reduction and allied issues. The Project also helps in reducing the possibility of Epidemics, water related diseases and other biological disasters.

The project is being implemented in four major cities of Madhya Pradesh – Bhopal, Gwalior, Jabalpur, and Indore. Due to shortage of drinking water in all cities, rehabilitation and expansion of the urban water supply and treatment systems have been primary focus of project UWSEIP (Urban Water Supply and Environmental Improvement Project). The project will also finance infrastructure development and rehabilitation pertaining to solid waste management and storm water drainage, capacity building of existing Municipal Corporation, community development and awareness program, upgrading of slum and poor settlement under Municipal action plan for poverty reduction as a part of the improvement program to be taken up under the project. Project UDAY is also expected to benefit the low served localities, including the slums in all the cities. Besides, there are several other interventions that will benefit the entire city from urban risk reduction point of view.

Backward Region Grant Fund (Zila Panchayat and RES):

This scheme can help to reduce infrastructural vulnerability by capacity building. Community halls, Anaganwadi Bhawan, Yatri Pratikshalaya and Crimination ground constructed under the scheme should consider mitigation perspective for the area.

Rural Livelihood Mission (Panchayat and Rural Development):

This scheme can help to reduce economic vulnerability.

- To enhance poor people's livelihoods in tribal districts
- Self employment opportunities for disaster prone areas of flood and drought. Scheme should try to provide alternative employment based on the skills and abilities of the people.

The scheme is currently available in 10 districts in MP.

Mukhyamantri Avas Yojana:

The Mukhyamantri Awas Yojana has been started in Madhya Pradesh with a view to providing dwellings to a large number of houseless families. Financial assistance to 33 thousand 739 families has been made available for constructing their own houses under the scheme which was launched in 2007.The scheme has benefited those houseless people who do not come under the ambit of Indira Awas Yojana. Had this scheme not been implemented, such people would not have been able to construct their own dwellings.

This scheme will again facilitate in rehabilitation programs in affected villages.

Madhyanah Bhojan Karyakram:

The Midday Meal Scheme is the popular name for school meal programme in India which started in the 1960s. It involves provision of lunch free of cost to school-children on all working days. The key objectives of the programme are: protecting children from classroom hunger, increasing school enrolment and attendance, improved socialization among children belonging to all castes, addressing malnutrition, and social empowerment through provision of employment to women.

This scheme can also prove to be beneficial by supplying food during emergencies.

Mukhyamantri Gram Sadak Yojana

The Mukhyamantri Gram Sadak Yojana has been launched in the year 2010-11 to construct roads in general category villages having less than 500 population and tribal-dominated revenue villages having less than 250 population. A target has been set to connect all such villages with all-weather roads by the year 2013. The scheme has been launched for the villages, which are not covered by Pradhanmantri Gram Sadak Yojana. Nineteen thousand 386 kilometer gravel roads will be built under the scheme in three phases. Due to construction of these roads, the life of villagers is improving since these roads have paved the way for various social and economic activities there.

Due to this connectivity lots of problem could be solved during the disaster.

Kapildhara: Under this scheme govt. provides wells to farmers; so that the farmers shall get water during lesser rain seasons and same will help out in water yields of crops, main aim is to reduce the impact of drought.

Rural Connectivity: in this govt. uses workers for road construction, so that connectivity of villages with other places becomes good, and could help out in case of an emergency.

Meenakshi: Under this scheme govt. provide infrastructure and equipments for fishermen's, so that they could have their own pond and business, which eventually helps them to tackle the flood situation and at same time govt. has another reservoir for water conservation.

Sell Pearl: Plantation and Greenery scheme to help villagers in employment along with reducing the impact of hazards due to plantation.

Jal Abhishekh Abhiyan:
Provide for clean drinking water during response and relief period, can work in collaboration with sanitation systems during relief period. Jal Abhishekh Abhiyan can work in collaboration with WATSAN.

Environmentally Sustainable Development:
The Madhya Pradesh Pollution Control Board, need to go hand in hand for ensuring sustainability with environmental and developmental efforts. Eco systems of forests, agricultural, urban and industrial environment are also to be considered for restoration of ecological balances and sustainable development. Department of Pollution & Forest must ensure the preservation of natural habitats. All roads in the rural areas should be converted in to Pucca road. Irrigation department should concentrate on Strengthening and raising the height of weak embankments, points. It should have facility of Storage of flood fighting materials like sandbags, bamboo's mats etc. There should be also provision of regular maintenance of bridges.

Samagra Swachta Abhyan:

This scheme can also be used for providing sanitation in the relief camps to the affected population. Since relief camps are the places where lot of diseases and epidemics may break out, proper defecation and sanitation should be ensured by this scheme.

Integrated Watershed Management Program (Zila Panchayat):

- Harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water by creation of structures like stop dams, check dams, Gabion structures and other watershed management techniques
- Make communities aware of Rainwater harvesting techniques,
- Water-shed Management can check the formation of ravine and could help in reclaiming ravine land. The major cause of ravine formation is soil erosion, which can be addressed.

Agriculture department with the help of Krishi Vigyan Kendra:

- Facilitating farmers in doing insurance on Crop and Livestock and Crop diversification as per the agro-climatic zone
- Localized weather data through community radio and farmers,
- Make farmers aware and train them in climate resilient farming techniques

Development under "Bundelkhand Package": It should be made sure that all the construction work is aligned to disaster management. All the norms for safe construction, zoning laws, etc. should be followed. Bundelkhand Package was announced in 2009. The package is meant for the overall development of the region spread across districts in Uttar Pradesh and Madhya Pradesh — collectively known as the Bundelkhand region.

There are many other schemes which can be integrated as disaster measures in the state. Like **Gramin Vikas (Medh Bandhan**) for making water shed or control trench. There is provision for digging lakes or increasing their depth, this can be used as an effective measure against draught. Similarly there is **jan jal sanwardhan yojna** for the purpose of water harvesting.

Lokswar: The PWD needs to assess the records of the buildings in place, their expected life and safeguards to be implemented. A public query system at the Collector Office as well as an online forum by name *Civilian Box* or *LokSwar* can be in place wherein people can post their worries or plausible measures with regard to potential hazards in the form of building/dam/road collapse. This would be an effective measure towards retrofitting of potentially weak and unsafe structures. Further, besides details of risky buildings and dams, the public may also post in their complaints regarding the lack of safety guidelines which may be as simple as the non-availability of fire extinguishers or emergency exits in theatres to as sophisticated as the foundational faults and cracks in food godowns. Further, the petitioner needs to specify his name, address and the estimated risk which has prompted him/her to post a complaint.

Various schemes like **SGSY (Swarna Jayanti Gramin Swarojgara Yojana)**, Pension schemes for old people and physically challenged people can be used for providing livelihood opportunities.

Special fund has been allotted to few districts under scheme **Sahariya Development Authority (SDA)** which is utilized for the upliftment of Sahariya Community – a local tribal community of Madhya Pradesh. Under this scheme fund will be utilized for the development of infrastructure and creating livelihood opportunities for Sahariya Community.

Further at the **district level**, it is expected that local authorities like Town Planning, Municipal Board, R&R Deptt, Zila Parishad shall ensure that construction projects, land use planning, control and the management of civic services under them will be as per the standards and specifications. It will also be ensured that Public Works Department will be the primary agency responsible for conducting structural assessment, retrofitting and renovation of lifeline buildings.

In current circumstances, a grave need is being felt for Public Private Partnership (**PPP**) in order to address Disaster Risk Reduction. It will certainly help in long run to sustain the implementation of schemes and in reducing risks at all levels with the involvement of public, as a key stakeholder.

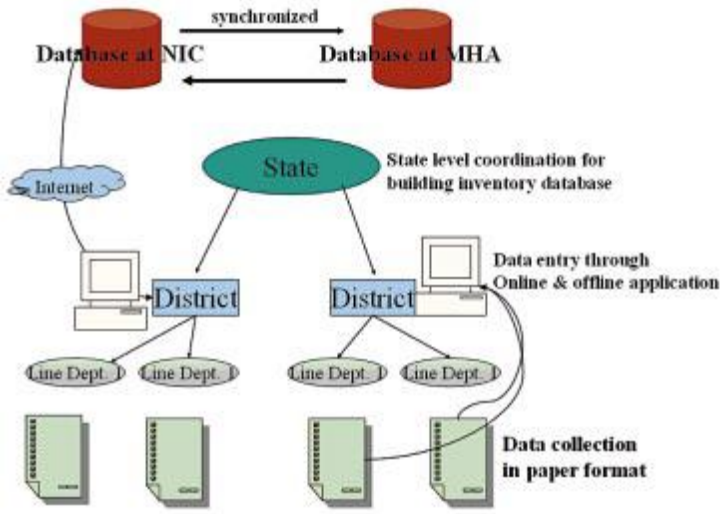
Chapter 6 - Preparedness Planning Measures

6.1 India Disaster Resource Network (IDRN) and State Disaster Resource Network (SDRN)

IDRN is a web based information system to manage the inventory of equipments, skilled human resources and critical supplies for emergency response during emergencies. The primary focus isto enable the decision makers to find answers on availability of equipments and human resource required to combat any emergency situation. This database also enables the decision makers to assess the level of preparedness for specific vulnerabilities.

IDRN is a prototype based on management information system (MIS) principles to facilitate data entry, retrieval, query building and report generating. The information system is accessible through the URL http://www.idrn.gov.in to all government disaster response officers at the district, state and national level. Data collection, compilation, date entry and updating at regular intervals need to be carried out at the district level under the supervision of District Collector.
Overall supervision and coordination will be the responsibility of the state level nodal officer for disaster management in the state. Since it is web based network, officials are required to register to access the system. Nodal officers at the village, Blocks, District and State level are required to register and update the information pertaining to their jurisdiction periodically. The tool cuts across not only state departments, but also helps in inter-state coordination and cooperation.

A state disaster resource network (SDRN) similar to IDRN will be developed and exhaustive inventory of resources, both personnel and other resources will be identified. This network will be so developed to have clear links with the management information system (MIS).



Framework of data storage and retrieval

The State Disaster Resource Network (SDRN), will result into systematic generation of inventory of all resources which can be put to use or mobilized in an emergency situation. This centralized system presents many advantages such as the easy availability of plans at all levels, minimum duplication and

time saving and finally the visual data reports generation that assists in gap analysis and will also support overall management of the event with complete information regarding the affected area and neighborhood.

6.2 Community Based Disaster Preparedness (CBDP)

Communities being the first responder and having more contextual familiarity with hazards and available resources are in better position in planning and executing immediate rescue and relief actions. In areas that have experienced repeated disasters, the communities are realizing that they need to work out a plan to prevent losses and at the same time enable faster recovery in the event of an emergency situation. To convert this realization into an effective plan, they need guidelines which will help them to prepare their own Community Based Disaster Management plans to safeguard lives, livelihood and property.

So far, in Madhya Pradesh, there is no rigorous community based disaster preparedness in place. Now, considering the advantages of this very effective disaster management tool, it is highly recommended to go for the community based disaster preparedness.

The Community Based Disaster Preparedness (CBDP) planning referred to in following sections pertains to preparedness, mitigation and response plans. The primary goal of CBDP is to reduce vulnerability of the concerned community and strengthen its existing capacity to cope with disasters. The approach of preparing the CBDP plans considers people's participation a necessary pre-requisite for disaster management. By involving the community in the preparedness phase, it not only increases the likelihood of coordinated-action by the communities to help in mitigating disasters but also brings the community together to address the issue collectively. There are evidences of collective and coordinated action yielding good results and to a great extent it has been effective in lessening the impact of disaster.

Components of CBDP

a)Disaster Management Committee: Village Disaster Management Committee (VDMC) is formed in each village and it is responsible for initiating disaster preparedness activities. It consists of local elected representatives, grass root level government functionaries, local Non-Government Organisations (NGOs)/ Community Based Organizations (CBOs), members of youth groups such as the National Service Scheme (NSS) and Nehru Yuva Kendra Sangatan (NYKS), women groups, youth club members, grass root level government functionaries, etc. The size of VDMC is based on the population and need of the villagers. The head of the VDMC takes a lead in mobilizing the community for the preparation of the CBDP plans.

b) Review & Analysis of Past Disasters: It refers to prioritizing disasters based on its frequency and analysis of the estimated losses. This can be carried out by taking the help of elderly people of the village. The villagers analyze the losses that they had incurred during various disasters and learn the best practices carried out. This is an important activity as it forms the basis for preparedness and mitigation plans.

c) Seasonality Calendar of Disasters: While analyzing the past experiences pertaining to various natural disasters, communities develop the seasonality calendar based on the occurrence of disaster events. In the calendar below prepared by the community show the month of occurrence of the disaster and month for preparedness and mock drill.

d) Mapping Exercises: One of the most important activities of CBDP is the mapping of risk, vulnerabilities and capacities of the Village by the community itself because it is considered to be a very simple and cost effective tool to collect ground level data. This is done through Participatory Rural Appraisal (PRA) exercise. Before the mapping exercise starts, the community members first discuss

among themselves, about the experience of previous disasters they have faced or the disasters they may face in future. It aims to provide a pictorial base to the planning process especially for the semi — literate populace and ensures maximum community involvement across gender, caste and other divides. The maps generate awareness among the community about the avenues for smooth evacuation during any imminent disaster. The strategy adopted is to use locallyavailable resources rather than depending on the external agencies for help and support. The villagers/ community members are encouraged to draw the maps on the ground using locally available materials such as stone, sand and various colour powders for different items and indicators. The maps drawn need not be to scale.

The types of maps are as follows:
Resource map: Resource mapping focuses on identifying locally available assets and resources that can be utilized for building the capacities of the community during and after disasters. Apart from infrastructure and funds, this could be individuals with specific skills, local institutions and people's knowledge as all these have the capacity to create awareness and bring about changes in the community. A resource map is therefore not limited to a map depicting the available resources but also plotting of the distribution, access and its use by within the village.
Risk and vulnerability map: In the vulnerability map the community members have to identify the hazards that village is prone to and the possible areas that would be affected. They also demarcate the low lying areas, areas near the water bodies such as the sea and river, direction of wind, etc. Through this mapping exercise the community members identify the location of groups at risk and the assets that require protection from various hazards.
Safe and alternate route map: In a similar exercise, the villagers identify safe areas such as strong houses /buildings, raised platforms etc. These act as a shelter place for people in the event of an evacuation. It would be useful to identify the alternate approach routes which could be used during the time of an emergency.

e) Disaster Management Team: Village level Disaster Management Teams (DMT)/ Task
Forces are formed to outline coordinated response during crisis situations. DMTs havesectoral focus such as early warning, shelter management, evacuation & rescue, medicaland first aid, water and sanitation, carcass disposal, counselling, damage assessment andrelief and coordination. Based on a needs assessment of the teams, specialized trainingcould be provided to the members. DMT members would be linked to the existing serviceproviders for continuous training and discharging of their responsibilities effectively.

The roles and responsibilities of the DMTs are the following:
1) Early Warning Team: Members of this team are responsible for providing latest warning information to villagers so that villagers get ample time to get prepared for the advent of the hazard. At the time of the disaster the members of this team keep a track of the developments. Emergency contact telephone numbers are collected well in advance of the hazard season, tools such as radio, television etc. are to be kept in working condition prior to the hazard period. During the occurrence of the event, the team would be responsible to inform every household of the latest position. They would also keep a track of the situation and listen to the de-warning messages to decide on the timing for calling off the emergency state.

2) Evacuation, Search and Rescue: Team Members of this task force are mainly responsible to evacuate and carry out search and rescue operation during the time of emergency. The members of this team are mainly young men and women of the village, ex-service men; swimmers, etc. Rescue kits necessary to carry out activities of this team would be ideally made locally with indigenous materials available. These members are trained with the help of Civil Defence, Police, Fire services etc.

3) Shelter Management: Team Members of this team takes care of the identified shelter buildings in pre, during and post disaster scenario. Care needs to be taken to stock necessary material such as food,

drinking water, medicines, bleaching powder, firewood, lantern, etc. Special care needs to be taken for the animal stock during any disaster. The team needs to ensure hygiene in and around the shelter place. Women are generally active members of the shelter team as they are well acquainted with house management, and are able to manage shelters during emergency. The team leader or any other team member should have the keys of the safe shelters so that prior to the disaster they will
clean up the place and make available the necessary materials like food, water, medicines, leaching powder, firewood, lantern, etc. required for the evacuees during disaster period.

4) Water & Sanitation Team: Members of this team ensures availability of safe drinking water and the cleanliness of the village so that there is no danger of epidemics even after the event. They will make arrangements for storing drinking water and water for cooking and other chores.

5) Medical & First Aid Team: This specialized team is responsible for preparing and updating the list of vulnerable population like old and ailing people, pregnant ladies, children etc. They also have to procure the necessary medicines before the hazard season and conduct a routine check-up of the ailing people in the village. They have to collect health related information and make community aware of the health measures to be taken up. Women and existing health practitioners of the village are the members of this team. This team would receive periodic training from the local medical (local health centre) personnel.

6) Relief and Coordination Team: This team maintains the list of all household members so that they can arrange or procure sufficient quantity of food materials for each category of people. They are also responsible for the distribution of relief materials. And in the post disaster period they will make arrangements for getting relief materials from the Block office. They should have the list of shops, wholesale dealerships where food grains are available for use during the time of emergency.

7) Carcasses Disposal Team: The team is responsible for the clearing of carcasses (if any) after the disaster. They are exposed to different types of carcasses disposal methods. The team should put in all their efforts to check spread of diseases by disposing of carcasses at the earliest and in the right manner.

8) Trauma Counselling Team: The existing relief system does not have any provision for treatment of mental health, which enhances suicidal cases after any major disaster. It has been seen that most of the community members are traumatized due to loss of family members and assets. After large scale damages, it becomes difficult for some of victims to get back to normalcy. In such a situation, counselling team is responsible for counselling the victims to ease them of their trauma.

9) Damage Assessment Team With things getting better after the disaster, the damage assessment team carries out an assessment of the damaged houses, livelihood assets and crops etc. Usually a Govt. functionary from the state Revenue Department carries out such assessments after a particular period. During this exercise, the damage assessment team helps him/her in making a timely and useful assessment.

f) Mock Drill: Mock drill is an integral part of the village CBDP plan, as it is a preparedness drill to keep the community alert. Keeping this in view, mock drills are organized in all villages to activate the DMTs and modification of the DM plan based on the gaps identified during such exercises. Basically this is a simulation exercise, which if practiced several times, would help in improving the cohesiveness of the community during an emergency.

g) Identification of Hazard Specific Mitigation Activities: While developing CBDP, the villagers would develop a mitigation plan for each hazard for long term planning. These could be coastal belt plantation, cyclone shelters in cyclone prone areas, improved drainage system in low lying areas, raising the platform

of the community hall or school building etc. All mitigation plans would be forwarded to higher authorities for financial provision. It helps the community to minimize the loss, and prevents impact of various natural disasters. All community mitigation plans are consolidated at Gram Panchayat (GP) level and become the part of the respective GP developmental plan. The
Mitigation plans would eventually be funded under the on-going development programmes in the district, for which the District Magistrate/Collector is the nodal officer. Disaster management committee at the district levels and the State Steering Committee Mechanism is established at the State headquarters level) play a major role in ensuring this.

h) Community Contingency Fund (CCF): Availability of resources for various activities to be carried at different phases of the cycle is very crucial. To meet this contingency, each household in the village would be motivated to contribute resources which could be in the form of funds and/or food grains, which becomes the grain bank for the village. A very nominal amount based on the affording capacity of the inhabitants (households) will be collected and kept as the Community Contingency Fund or village emergency fund. In the annual meeting it will be decided, how to use this fund as per the need and developmental plan of the village.

i) Contingency Actions: It is experienced that after informing people about flood from district administration maximum people reach safe places before flood comes, but some people stays even after knowing the danger to safeguard animals, food grains and fodder. When flood comes district administration has to face a lot of problems to rescue these people, even army has to be called in and there are continuous chances of accidents. So, under preparedness planning for flood following proceedings will be effective:

1. Godowns should be built in every village at a higher place to keep food grains safe.
2. Like humans, for animals to be transferred to safe places, proper arrangements under supervision of responsible officials should be made by the administration.
3. Stockade/Pen should be made for animals and arrangement of fodder should be ensured by government.

6.3 Training, Awareness and Capacity Building

One of the key requirements of any disaster management planning is providing the training of stakeholders. The Regular training of relevant department officials should be carried out to ensure compliance during disaster situations. As per the Disaster Management Act, the State Disaster Management Authority (SDMA) and the state plan are mandated to provide direction and coordination to ensure the implementation of all disaster management policies and plans. Strengthening training and capacity building interventions for effective disaster mitigation and management at the state is one of the stated objectives of the state plan.

Training is the central activity of the overall capacity development strategy. Training needs have to be identified; appropriate training programmes need to be designed and conducted at all levels involving broad spectrum of stakeholders (from government, NGOs and civil society) to fully realize the needs of sensitization, knowledge/information management and skill development of personnel involved in the disaster management functions.

Awareness and public outreach is critical to successful implementation of disaster management plan. Integrating Disaster Management as part of training modules or curricula will result in achieving awareness and strengthening capacities of stakeholders in meeting challenges during and after disasters.

Capacity building through education, training and mid career intervention using on campus as well as off campus model will have to be streamlined. The plan envisages activities such as interacting with Government and Non Government Sectors, to impress the need to internalize disaster management as key capacity building.

Capacity building is a long-term process requiring incremental strengthening of institutions and personnel involved in disaster management. Internalizing capacity building at the policy level, plan implementation level, government department level and individual levels is paramount in preparing for disaster management in the state. The process of capacity building also includes development of appropriate tools that can be used to convey useful information pertaining to disasters. Capacity development generally encompasses various layers of governance by central and state governments, district administration, local authorities, PRIs and NGOs. Capacity building measures shall address the needs of all target groups within the government and private sector. Components of the multi-layer capacity development framework include training, techno-legal framework, knowledge management and developing organizational, institutional and individual capacities. The target groups identified for training and capacity development shall include the government officials, elected representatives, scientific and technical institutions NGOs, PRIs, other Community Based Organizations (CBOs) and private sector etc.

In Madhya Pradesh, there is no single training institute or agency has requisite expertise, infrastructure and resources to fulfill all the needs of training and capacity building in disaster management at the state level. Currently the Disaster Management Institute Bhopal has the expertise but the institute needs to be upgraded further in order to meet the state level requirements. In addition, different agencies and organizations would play different roles in training and capacity building in specific disasters. Because of disperse and varied strengths of the training institutes/agencies, coordination and systemic networking among the agencies is key in achieving the goal of trained personnel in disaster management.

The performance of the personnel will have to be improved by appropriate need based training; functionaries at various levels in all government departments, organizations and institutions will have to be empowered through training and capacity building to exercise their responsibilities.

6.3.1 Development of Trainers

Imparting training to each and every individual stakeholder at the DMI Bhopal/ State Training Center is practically not viable; the training of trainers to meet the demand of training majority of government personnel is the key. Identified trainers with specific capacities could be trained as trainers. Once Training of Trainers (ToTs) is completed, by strengthening the ToTs with training material and resources, outreaching other stakeholders at the district and divisional level becomes easier and practical. Identification of stake holders at various levels in all the relevant government departments and organizations, NGOs, VOs, CBOs is required. Creating a pool of trainers at district and divisional level to facilitate decentralized and region-hazard specific training is identified as the approach.

Training, Capacity Building of nodal agencies and volunteers

The capacity building and training of the key line departments, State Government officials and professionals are very crucial. And equally important is the capacity building and training of Non Govt. sector, Welfare Associations and Volunteer Organizations. It is a proven fact that Proactive measures such as strengthening community defense; training and enhancing capacities of non-government stakeholders in disaster management will supplement SDMAs efforts in achieving risk reduction and well

prepared civil society. There are several institutions such as NCC, NSS, NYKS, NGOs, and SHGs that are active in the state.

Key Line Departments of State Government for capacity building and training

The government departments at the state and district level which are involved in multi-hazard management are grouped as follows based on the similarity in functions. While designing training and capacity building, the following line departments as listed below will be considered on priority:

1.) Agriculture
2.) Urban Administration & Development Department
3.) Panchayat & Rural Education Department
4.) Finance Department
5.) Revenue Department
6.) Higher Education Department
7.) School Education Department
8.) Housing & Environment/Forest Department
9.) Commerce & Industry Department
10.) Women and Child Development Department
11.) Social welfare Department
12.) Water Resource Department
13.) Transport Department
14.) Animal Husbandry Department
15.) Mineral Resources Department
16.) Department of Information Technology
17.) Police Department
18.) Police Telecommunication
19.) Critical Infrastructure and Cyber Crime
20.) Police Training
21.) Community Police
22.) Home Guard
23.) Traffic/Prisons
24.) Govt. Railway Police
25.) Police
26.) Public Health
27.) Fire Services
28.) Bhopal Gas Relief & Rehabilitation
29.) PWD
30.) SDMA / SDERF

Capacity Building and Training of other Stakeholders

NGOs, Indian Red Cross Society, CARE, Home Guards, Scouts and Guides, NCC, Rotary club, Trusts, Private Corporations, CBOs, SHGs, Urban area Residential Welfare Associations, etc. Research and academic institutions located in districts, state capital and other central government agencies/ research institutions, and Community representatives will have to be involved in training and capacity building pertaining to disaster management.

National Cadet Corps (NCC):

National Cadet Corps is a Tri-Services Organization comprising the Army, Navy and Air Force, engaged in grooming the youth into disciplined and patriotic citizens. The National Cadet Corps came into existence with following aims:

- Development of leadership, character, comradeship and the ideals ofservice
- Stimulation of interest in the defense of the country, to the widest possible extent
- Building up of a reserve of potential officers to enable the Armed Forces to expand rapidly in a national emergency

Induction into NCC is voluntary; boys/girls join at the age of 13 years in junior division (Generally Class VIII to X) and in senior division from 11th class onwards.

NCC is known to extend help during natural & other calamities and accidents. Over the years, NCC cadets have rendered service during floods, earthquakes, tragic train accidents and provided the healing touch in riot affected areas. Streamlining NCC training to include disaster management tasks and identifying NCC cadets as ambassadors of disaster management in their respective schools will be encouraged; concerted efforts will be undertaken to harness trained NCC cadets in disaster management in the state.

National Social Service (NSS)

National Social Service (NSS) was set up to strengthen the idea of involving students in the taskof national service. NSS volunteers generally work with villages, slums and voluntary agencies. As per the fundamental principles of National Service Scheme, a volunteer is expected to remain in constant touch with the community. The basic principle of the programme organizing volunteer work by the students themselves and both students and teachers through their combined participation in social service, get a sense of involvement in the tasks of national development.

Expanding the activities covered under NSS to include disaster management awareness in villages and training youth from villages by NSS volunteers in the field of mitigation and risk reduction measures would strengthen the mission of disaster-free state. Concerted efforts will be undertaken to harness trained NSS volunteers in disaster management in Madhya Pradesh.

Nehru Yuva Kendra Sangathan (NYKS)

The National Advisory Board on youth recommended taking up of national programme for nonstudent youth. It also recommended setting-up of one district youth centre and two block centresin every district. As part of Silver Jubilee Year of India's Independence Nehru Yuva Kendra centres at the district level were established in 1972-73. The NYKS objectives are to provide rural non-student youth avenues to take part in the process of national development and opportunities for the personality and skill development.

Expanding the activities covered under NYK to include disaster management awareness in villages and training the youth in the field of mitigation and risk reduction measures would strengthen the mission of disaster-free State. Concerted efforts will be undertaken to harness trained NYK youth in disaster management in Madhya Pradesh.

Home Guards

Home Guards are a voluntary force, first raised in India in December, 1946, to assist the police in controlling civil disturbance and communal riots. Subsequently, the concept of the voluntary Citizen's force was adopted by several States.

In Madhya Pradesh, the total strength of Home Guards is approx. 3000. The role of Home Guards is to serve as an auxiliary to the police in maintenance of internal security, help the community in any kind of emergency such as an air-raid, fire, cyclone, earthquake, epidemic etc., help in maintenance of essential services, promote communal harmony and assist the administration in protecting weaker sections, participate in socio-economic and welfare activities and perform Civil Defense duties. Training plays an important role for human resource development in Civil Defense, Home Guards and Fire Services.

6.4 Development and dissemination of IEC Material

The objective of Information, Education and Communication (IEC) material is basically for (1) Raising awareness and responsiveness amongst people to strengthen their coping abilities, and (2) Raising knowledge and understanding to strengthen skills and capacities of departments/ agencies, and ensure their participation in preparedness, response, recovery and mitigation initiatives.

The development and dissemination of IEC plays a crucial role in the entire disaster management process, especially in enhancing the capacity at the village/ community and individual level. Timely information, enhanced knowledge and awareness & effective communication: all together enhance the impact of disaster management strategies.

Following will be the key educational initiatives and communication aimed at the stakeholders:

1. Preparing the flyers, booklets, safety tips and checklists in local languages (Hindi) for coping with various disasters.

2. Incorporating disaster related themes in school curriculum and its institutionalization.

3. Preparing the training manuals for public education on disaster management.

4. Carrying out awareness raising activities through mass media, radio talks, panel discussions on TV, advertisements in newspapers, pamphlets, posters, telecasting documentaries, clippings through local cable TV networks etc.

5. Disseminate disaster preparedness guidelines in simpler form, to concerned nodal agencies, including the pictorials for ease and understanding.

6. Develop the posters on flood, earthquake, fire etc and display the same at public places, common joints, convenient entry/ exit points for information of staff and general public in most of the office compounds, shopping complexes, and common meeting points etc.

Roles of different agencies in IEC dissemination:

Various agencies will be responsible for carrying out IEC activities at the different levels;

a) **Warning dissemination:** Primarily Govt. is responsible, in addition, the private TV channels, print media, NGOs and community volunteers can also supplement in this life saving effort.

b) **Disaster information management**: State Task Force and concerned nodal departments at state/ district/ sub-district level are responsible. Alternatively the Police Wireless and also the Community HAM radios to be encouraged for prompt disaster information dissemination.

c) **Education and information dissemination:** For awareness raising purpose, primarily the nodal departments like Revenue, DM Cell, Education, Civil Defence and Home Guards are accountable. In addition, the NGOs and Welfare associations should also come forward to educate the community and disseminate the information in a simpler user friendly manner.

The state disaster management committee will monitor all the IEC activities for disaster management. A major role of this committee will be to set timeframes, workout implementation strategies, and monitor outcomes/ impacts of IEC activities.

6.5 Medical Preparedness

Medical preparedness is a crucial component of state disaster management plan. Madhya Pradesh State Disaster Management Authority in close coordination with the Department of Health, state medical institutes and premier private medical institutions will formulate policy guidelines to enhance capacity in emergency medical response and mass casualty management. Disaster management plans for hospitals will include developing and training of medical teams and paramedics, capacity building, trauma and psycho-social care, mass casualty management and triage. The surge and casualty handling capacity of all hospitals at the time of disasters will be worked out and recorded through a consultative process by all divisions and districts in the pre disaster phase.

The district hospitals, CHCs and PHCs will be encouraged to formulate appropriate procedures for treatment of casualties during disasters; private hospitals will also be encouraged to prepare similar plans. These plans will also address post-disaster disease surveillance systems, networking with hospitals, referral institutions and accessing services and facilities such as availability of ambulances and blood banks.

Creation of mobile surgical teams, mobile hospitals and heli-ambulances for evacuation of patients is a crucial component of disaster management efforts. EMRI services, private ambulance operators, St. John's ambulance services, and where available the Accident Relief Medical Vans (ARMVs) of the Railways will be utilized for emergency medical response. Proper and speedy disposal of dead bodies and animal carcasses will be given due attention in the guidelines.

In addition, there will be a First Aid and Medical Group at district and sub-district level, with equal numbers of men and women, those with some knowledge of nursing (such as trained dais and AWW/ ANMs) will be preferable. The members have to go through intensive training and drills for first aid and medical responsibility.

In emergency the following procedure to be followed for Evacuation of Marooned persons:

With all the administration intentions for early warning and evacuation, there may not be adequate time opportunity for evacuation of all. Communities' individuals may be marooned. In cases of marooned communities, the administration may decide to reach out these for providing relief supplies or may decide to evacuate them. In case the administration decides to evacuate marooned persons:

• Evacuation must be carried out within the shortest possible time.
• The marooned persons must be transferred to transit camps
• Marooned people must be provided Water, Medicines, First-aid, cooked food must be provided
• Emergency transport for the seriously injured by Motorized boats
• The senior medical officer of PHC should accompany the rescue team along with required medical kit and ensure priority for shifting of those seriously injured or requiring immediate medical attention.
• Water supplied must be in accordance with acceptable standards of potable water. It is the responsibility of medical officer to check the water quality.

Key check points for Health Centers, in case of any emergency:

Organize mobile medical teams of specialists from within the state (and outside if the need arises) for immediate response, coordinate with adjoining districts on request from district control room for supply of;

1. Medical relief for the injured
2. Number of ambulances required and locate hospitals where patients could be sent, (public and private
3. Medical equipment and medicines required
4. Special information required regarding treatment as for epidemics etc.
5. Blood
6. Monitor
7. Treatment of the injured and sick
8. Disposal of dead bodies
9. Disposal of carcasses
10. Preventive medicine and anti-epidemic actions
11. Reports on food, water supplies, sanitation and disposal of waste and coordinate services of investigation laboratories, for support services at district level
12. Transit and relief camps for cooking arrangements, sanitation, water supply, disposal of waste, water stagnation and health services

Exclusive Emergency Service in Madhya Pradesh:

108 is a free telephone number for emergency services to call anywhere in Madhya Pradesh when an emergency arises. The 108 Emergency Response Services is a free 24/7 emergency service for providing integrated medical, police and fire emergency services. The service is provided in Public Private Partnership between State Government and GVK Emergency Management and Research Institute.

When an emergency is reported through 1-0-8, the call taker gathers the needed basic information and dispatches appropriate services. Basic information obtained includes:

1. Where the call is placed from (District/Taluka/City/Town/exact location/landmark)
2. The type of emergency
3. Number of people injured and the condition of the injured
4. The caller's name and contact number – for location guidance if required

Emergency help dispatched through this process is expected to reach the site of the emergency in an average of 18 minutes. Pre-hospital care will be given to patients being transported to the nearest hospital.

In addition, **St.John's Ambulance Services** are also available to handle any sort of medical emergency, as and when required in the state of Madhya Pradesh.

6.6 Early Warning and Dissemination:

Early warning of floods and other hazards are based on the technology, which is highly critical in current scenario and play a vital role in reducing the risk and planning for evacuation of villages. India Meteorological Department (IMD) has been entrusted with this function since its inception in 1875. IMD has nodal stations across the country which monitor the overall weather conditions and also come up with the forecasting.

In Madhya Pradesh, there are key IMD nodal stations, which are based at Bhopal, Indore, Satna and Jabalpur. These nodal stations monitor the overall weather conditions, and disseminate the information/ warning to concerned officials, after observing the change in normal weather.

In Madhya Pradesh, the flood forecasting and early warning will be very effective, considering the geographical conditions. Flood forecasting enables forewarning as to where the river is going to use its flood plain, how long the flood water will stay in the flood plain zones and to what extent. The system under CWC (Central Water Commission) is largely on major interstate rivers and states further supplement these by their own efforts at other stations.

With reliable advance information warning about impending floods, loss of human lives and movable properties and human miseries can be reduced to a considerable extent. People and livestock can be shifted to safer places.

Dissemination of warning will have to be doneby the following means:

- Inform, update through website, sending emails to the concerned
- Telecast of warning bulletins through TV broadcasting
- Broadcast of information through AIR
- Informing through Police Wireless
- Telegrams with highest priority
- Bulletins to the press
- Broadcast through Postal and Telegraph's (P&T) radio stations.

Key Activities of Early Warning, Dissemination:

Activities	Responsibilities
- Setting up Control Rooms round the clock at the site/ district - Assigning duties/functions to the District officials and Sub-Collectors/ Tehsildars. - Arranging vehicles and sound system for information broadcasting - Alerting NGOs and seeking assistance from them; assigning responsibilities - Early warning to communities close to the rivers and canals - Holding District-level natural calamity meeting by the District Collector - Insure functioning of warning systems and communication systems - Drafting local cable operators to broadcast alerts as running flashes on the TVs/SMS - State-wide amber alerts - Drafting local radio stations/Ham radios with early warning message - Undertaking mock drills and rehearsals of Preparedness.	- Special Relief Commissioner - Revenue Department - Government Departments, both at state and district level - District Collector - Emergency Officers - All district level officials - Local cable operators and radio stations - State and local NGOs.

6.7 Conduct of Mock drills at all levels

Mock drills are important in normal times as well as during the emergency. The mock drill and preparedness for disaster are considered as a part of periodic exercise, to be carried out by the respective nodal agencies at various levels (state, district, sub-district, and at the entity/ unit level). Mock drill should be conducted in at state level and also in all the districts to make the agencies alert / fit to cope with any situation.

In Madhya Pradesh, there are 75 MAH (Major Accident Hazard) Units, spreading over 20 districts. Here in these hazardous industries, the mock drills are essential as per the respective Onsite and Offsite Emergency Planning. These drills have to be conducted at regular intervals. Similarly all police stations should have internal security scheme, based on which they should have mock drills and update it for safety measures as per requirement.

Besides, the hazard specific contingency drills should be conducted (based on scenario of flood, earthquake, fire, , major accident etc), involving all the key stakeholders, so that everyone should know what he/she should do and where he/she should go. The mock drill exercise will help to learn the possible problem that would be faced. These learned lessons could be utilized in preparing the contingency plan in a much-prepared manner.

Mock drill is also an integral part of the village CBDP plan, as it is a preparedness drill to keep the community alert. Keeping this in view, mock drills are organized in all villages to activate the DMTs and

modification of the DM plan based on the gaps identified during such exercises. Basically this is a simulation exercise, which if practiced several times, would help in improving the cohesiveness of the community during an emergency.

Debrief and Evaluation

After the mock exercise debriefing and evaluation is very important. It is of critical importance that these insights are collected from participants (who participated in the mock exercise) and used to modify the disaster management plan.

- Hot debriefing is very effective as it is carried out immediately after the exercise. It also includes documentation in terms of recommendations and improvements of the plan.
- The lessons learned from the mock exercise are likely to be similar to those from real events. The only major difference is that exercises are controlled events, specifically designed to test procedures and they can be repeated again and again until sound/workable arrangements are in place.

Conduction of Mock Drills

The mock drills have to be conducted at least once in a year at state level, six monthly at district level, and preferably quarterly at the sub district level (block/ tehsil) at different locations, so that all the gram panchayats/ villages can be involved in this, on periodic basis.

Chapter 7 - Research and Development Measures

The research and development measures will be institutionalized and supervised by a State level Research & Development Disaster Management Cell (R&D DM Cell) and the overall progress will be reviewed at the state level by the State Disaster Management Committee of Madhya Pradesh (MP-SDMC).

The following will be the key components of Research & Development measures:

7.1 Research and use of Technology

There will be a Technical Wing, which will be the integral part of R&D DM Cell, it will function in order to deal with research and use of technology, taking into consideration the disaster management aspects. Following will be the key functions of the Technical Wing of R&D Cell:

- Research, develop, and promote adoption of cost-effective building and development laws, regulations, and highlight ordinances exceeding the minimum levels needed for life safety.
- Report on changes in hazards, (like as per recent Madhya Pradesh Earthquake Study, the status of 24 districts and major settlements have been modified and recommended the subsequent changes in Vulnerability Atlas of India, 2007)
- Study & review new opportunities arising through advancements in technology (Ex: Railway safety through crash resistant coaches, advance signaling, robust traffic management system, institutionalization of modern communication mechanism, GIS monitoring and control etc).
- Capture, recognize and incorporate the community based traditional coping capacities against natural and induced disasters, after suitable scientific validation.
- Identify and interact with research institutions, professional bodies and other stakeholders, to evolve more effective and workable mitigation strategies towards achieving larger goal of *Risk Free Madhya Pradesh.*

7.2 Knowledge management

Disaster preparedness is inculcated among others by developing strong knowledge base on thesubject. And here comes the role of Knowledge Management into picture. There are various modes of spreading knowledge. Though Madhya Pradesh has high quality educational and research institutions spread across the state. While dispersed and non-coordinated knowledge generation related to state specific hazards is going on, there is a need to develop DM specific knowledge management center. However Disaster Management Institute (DMI, Bhopal) conducts wide range of trainings, to State as well as other stakeholders. Apart from it, there are few other institutions carry out the research, studies & analysis on similar subjects. Still, it's a long journey to reach to certain level of satisfaction from knowledge management point of view. And in order to achieve that, the role of knowledge resource center / hub will be the key.

7.3 Knowledge Resource Centre (KRC)

KRC will act as the hub of knowledge and information, pertaining to disaster management. The major functions of KRC will be to train state government officials, sensitize the district and sub district level staff, and spread awareness amongst community on the disaster preparedness. At trained team of disaster management experts will lead the KRC initiatives across the state.

Awareness programmes on the disaster management, will specifically consist of sensitizing the vulnerable communities, farmers and other stake holders at the house hold level, community level and organizational institutional level by involving Corporate, NGOs, and voluntary organizations.

Knowledge Resource Center (KRC) will act as a knowledge facilitation service center that will also provide a platform for disaster management practitioners to discuss the concerned issues, share information and gather solutions to existing or anticipated challenges that they face on a day-to-day basis.

Involving schools, colleges and other educational institutions will be made mandatory. With support from KRC, the awareness will have to be sustained through regularly updating and incorporating latest innovations and technologies in the field of disaster management.

The Hospitals, Health Institutions, Public Health Centers, Sub-centers, Private Health Agencies and other allied entities will also be encouraged to address the disaster management component, with support from KRC.

7.4 Resource Gallery – Documentation

The Resource Gallery will be a repository of sound disaster management experiences, and will play an important role in the research and development on the subject matter. A dedicated and qualified team will run the resource gallery, and will work under supervision of R&D DM Cell.

In view of making the available resources relating to disasters management to decision makers and concerned stakeholders, the efforts will be made to collect, compile and disseminate disaster related studies, best practices, innovations and promotional materials from various stakeholders including technical, academic, training and government agencies.

Primarily the Traditional knowledge, indigenous wisdom and good old practices will be widely documented and disseminated in local language (Hindi). Further, a statutory order will be preferred to make it mandatory for all the DM stakeholders to make available Madhya Pradesh related disaster management research studies to be used for disaster risk reduction of the State. Provision will be made for disaster management stakeholders to have access to these resources to gain knowledge and understanding about the subject and to effectively part take in the Disaster Risk Reduction efforts of the State.

An online web portal will also be developed and maintained for ease of the concerned users of resource gallery.

Chapter 8 - Response Planning Measures

Response planning measures are those which are taken instantly prior to, and following, a disaster aimed at limiting injuries, loss of life and damage to property and the environment and rescuing those who are affected or likely to be affected by disaster. Response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the disaster is declared to be over. Response includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and shelters, but also includes systems developed to coordinate and support such efforts. For effective response, all the stakeholders need to have a clear perception/vision about hazards, its consequences and actions that need to be taken in the event of it.

8.1 State Disaster Response Plan

The effective state level disaster response planning requires realistic identification of likely response functions, uninterrupted communication and coordination amongst concerned agencies, assignment of specific tasks to individual response agencies, identification of equipment, supplies and personnel required by the response agencies for performing the assigned tasks. A state level response plan essentially outlines the strategy and resources needed for search and rescue, evacuation, also defines the role of nodal agencies involved in disaster response etc.

Following are the key components of State Disaster Response Plan:

8.1.1 State Emergency Response Force:

The State is expected to create response capabilities by forming State Disaster Emergency Response Force (SDERF) from its existing resources by equipping and training battalion equivalent force for effective management of disasters and necessary training arrangement aligned with disaster management skills in consultation with the National Disaster Response Force. Primarily, the State Disaster Emergency Response Force will be responsible for handing any sort of emergencies, at the state level.

8.1.2 Role of Civil Defence & Home Guards

Providing the public safety, minimizing damages to property and protecting public lives are the primary objectives of Civil Defence & Home Guards. The trainings are imparted to the Civil Defence and Home Guards to include disaster management aspects, especially on response, recovery and relief operations, which actually strengthen the mission of disaster free state and will yield significant results in mitigating disasters in Madhya Pradesh.

At state level, this portfolio will be headed by DG, or ADG (in command) level to command and control the entire state level functions pertaining to Civil Defence & Home Guards. Now with recent developments, the District Commandants, Home Guards will be in charge of the force at the district level. District Commandants are also designated as District Disaster Management Officers (DDMOs).

8.1.3 Role of Private Security

As per the recent private security bill introduced by the State Government of Madhya Pradesh, the private guards and security agencies have to play a very vital role in disaster management, and especially in the disaster response stage. These guards would act as an extra helping hand and thus would hasten the process of relief work.

The guards of private companies can be called for assistance if required but for that purpose they need to be trained well enough for the occasion well in advance. So this training can be carried out in the Home Guard dept. or in the Police Line training grounds by the officers designated by the district authorities for the purpose.

8.1.4 Fire Services

Fire Services have always been discharging duties round the clock & gets themselves ready to responds in any emergent nature of calls***. The Fire and Emergency Services are crucial and one of the most immediate responders to disasters***. Fire Services can be approached by dialling the direct number 101, in case of any emergency.

In order to further enhance the level of services in crisis, the staff of Fire Services should be trained and retrained in disaster management skills on periodic basis, and will have to be further upgraded to acquire multi-hazard rescue capabilities, in order to tackle any emergency related to fire or the allied substances.

8.1.5 Media support

In emergency and disaster situations, the media will act as both, will demand and provide the information. In other words, the media is responsible for collecting reliable information on the status of disaster and disaster victims and broadcasting it for effective coordination of relief work at every level.

The role of media, print as well as electronic, thus becomes critical, especially the ways, in which media can play a vital role in public awareness, and preparedness, through educating the public about the disasters, warnings, information dissemination, to alert the Govt. machinery and nodal entities, reaching to the affected communities well in time, helping out the relief communities and facilitating discussions about disaster preparedness, and updating the people.

The stage wise action plans will not only bring the clarity and transparency on media's part, but will also help the administration in avoiding communication of wrong information and creating panic. The nodal person will act as the Public relations officer and the person will coordinate with the local media to publicize the right information. Following are the action plans for media.

8.1.6 Role of NGOs and Volunteer Organizations

NGOs and voluntary organizations are the first to respond before any outside assistance can reach the disaster site.

In certain disaster prone areas of Madhya Pradesh, a group of young volunteers are being formed and trained to undertake essential tasks which would reduce loss of life and property.

Further, there are several volunteer organizations, local CBOs and reputed institutions such as NCC, NSS, NYKS, NGOs, and SHGs which are active in the state, and well versed with disaster response scenarios.

8.2 The State Emergency Operation Centre

The State Emergency operation Center (SEOC) will be hub of all the activities related with disaster response in the state.

The primary function of the SEOC is to implement the State Disaster Management Plan which includes coordination, data collection, operation management, record keeping, public information and resource management.

For the effective management of resources, disaster supplies and other response activities, focal points or centers will have to be established. These points will have to be well networked starting from the State to the District and finally leading to the disaster site.

Emergency Operations Centers at the State (SEOC) and the District (DEOC) and Incident Command Post (ICP) at the disaster site are the designated focal points that will coordinate overall activities and the flow of relief supplies from the State.

The State Emergency Operations Centre (SEOC) will be maintained and run round the clock which will expand to undertake and coordinate activities during a disaster. Once a warning or a First Information Report is received, the SEOC will become fully operational.

During a disaster situation, the SEOC will be under direct command of the Additional Chief Secretary or the designated person by him as the Chief of Operations.

During non disaster times, the State Emergency Operations Centre stays operational through-out the year in preparedness mode, working during day time in order to take care of the extended preparedness activities of data management, staff awareness and training, which is essential for the smooth functioning of the SEOC during crisis situations and handling of emergency Toll Free Contact Lines .

During an emergency, the SEOC will get upgraded and will have all emergency stakeholders manning it round the clock.

8.2.1 The aim of the EOC will be to provide centralized direction and control of all the following functions

- Emergency operations
- Communications and warning, which includes handling of 24 hrs emergency toll free numbers.
- Centralized state level disaster resource database
- Requesting additional resources during the disaster phase from neighboring districts of the affected area
- Coordinating overseas support and aid.
- Issuing emergency information and instructions specific to departments,
- consolidation, analysis, and dissemination of Damage Assessment data and preparation of consolidated reports.

8.2.2 Organizational Setup of SEOC:

The EOC will comprise the following:

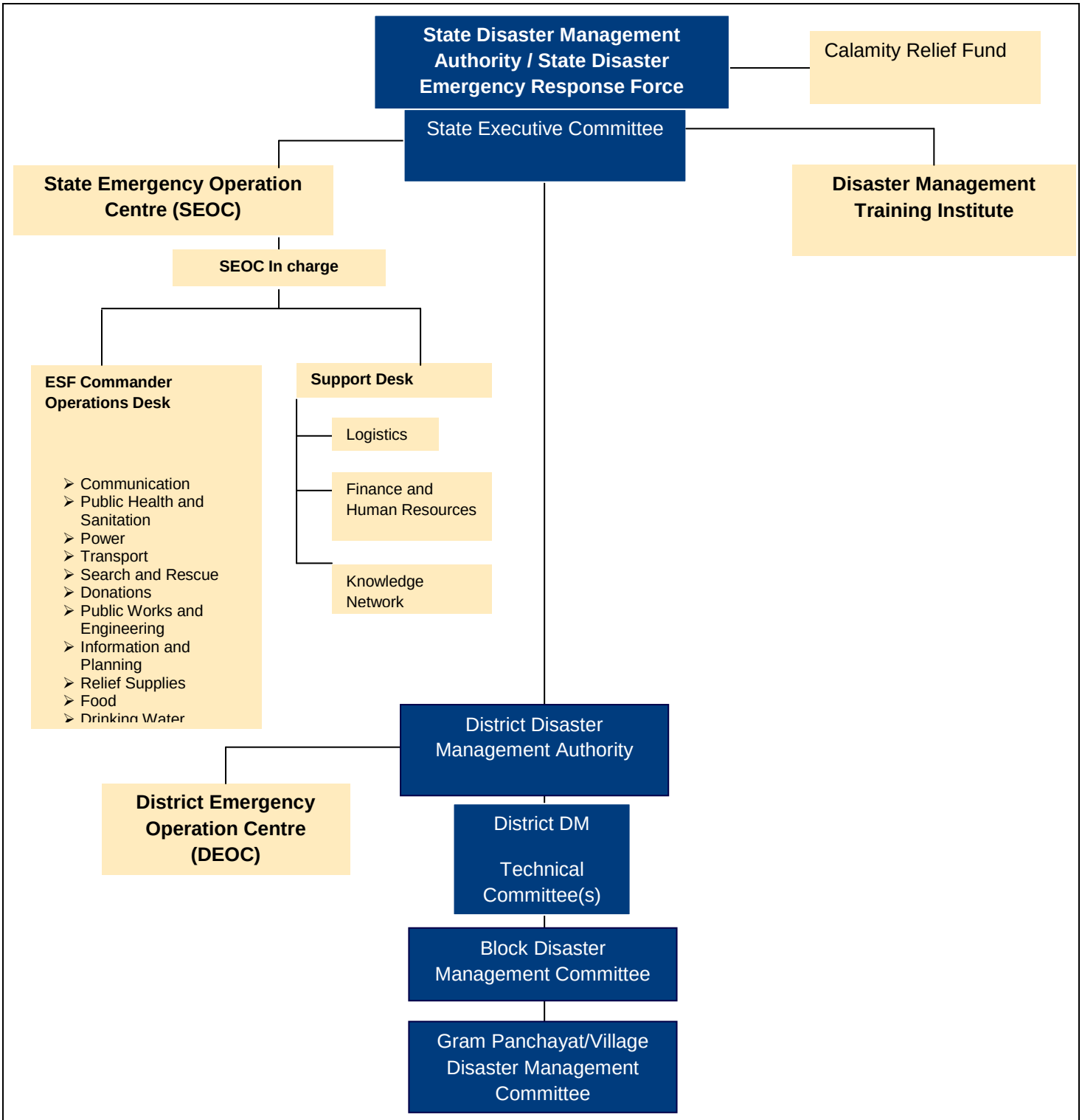
1. SEOC In-charge

During non disaster times, the SEOC will work under the supervision of the relief commissioner.

In a disaster situation, the SEOC will come under direct control of the Additional Chief Secretary or the person designated by him as the Chief of Operations.

He/she is the primary role player in the EOC, and is responsible for the overall coordination and decision making.

He/she will also report the status of the SEOC operations and the disaster situation to the Chief Secretary.



2. Operations Section

The Operations Section will ensure smooth and planned functioning of the SEOC. It will fulfill the following functions:

a) Handle requests for emergency personnel, equipment and other resources

b) Designate responsibilities and duties for management of the SEOC

c) Manage storage, handling and set-up of incoming equipment and personnel

d) Ensure medical care, feeding and housing for SEOC personnel

e) Maintain documentation of resource inventories, allocation and availability.

f) Manage finances for SEOC operations

3. Representatives in SEOC

Representatives of State Departments of the following departments will be present at the SEOC to take part in the operations and facilitate quick coordination between the SEOC command and their parent departments towards ensuring quick information availability and decision making:

- Department of Public Works Department
- Department of Public Health
- Department of Education
- Department of Town and Country Planning
- Department of Transport
- Department of Power
- Department of Home
- Department of Revenue
- Department of Police
- Department of Panchayat & Rural development
- Department of Planning
- Department of Information Technology
- Department of Housing & Environment
- Department of Agriculture
- Department of Water Resource
- Department of Urban Admin. and Development
- Department of Civil Defence & Home Guards
- Department of Finance
- Department of Fire Safety Services
- Department of Industries
- Department of Traffic Control
- Govt. Railway Police/ PAC
- Red Cross Society
- Media
- NGO

Emergency Support Functions (ESF) have been established, to support the SEOC functions. Each ESF is headed by a lead department for coordinating the delivery of goods and services to the disaster area, and it's supported by various departments and agencies.

During a disaster, the ESFs will be an integral part to carry out response activities.

After a major disaster or emergency requiring State response, primary agencies, when directed by the EOC will take actions to identify requirements and mobilize and deploy resources to the affected are and assist the State in its response actions under fourteen ESFs.

8.2.3 Location of SEOC

It is proposed that the SEOC to be established in the Department of Home since the Civil Defense and Police for Disaster Preparedness is a dedicated department suited to the logistical management of an EOC.

The SEOC will be set up with the entire infrastructure as per the given layout.

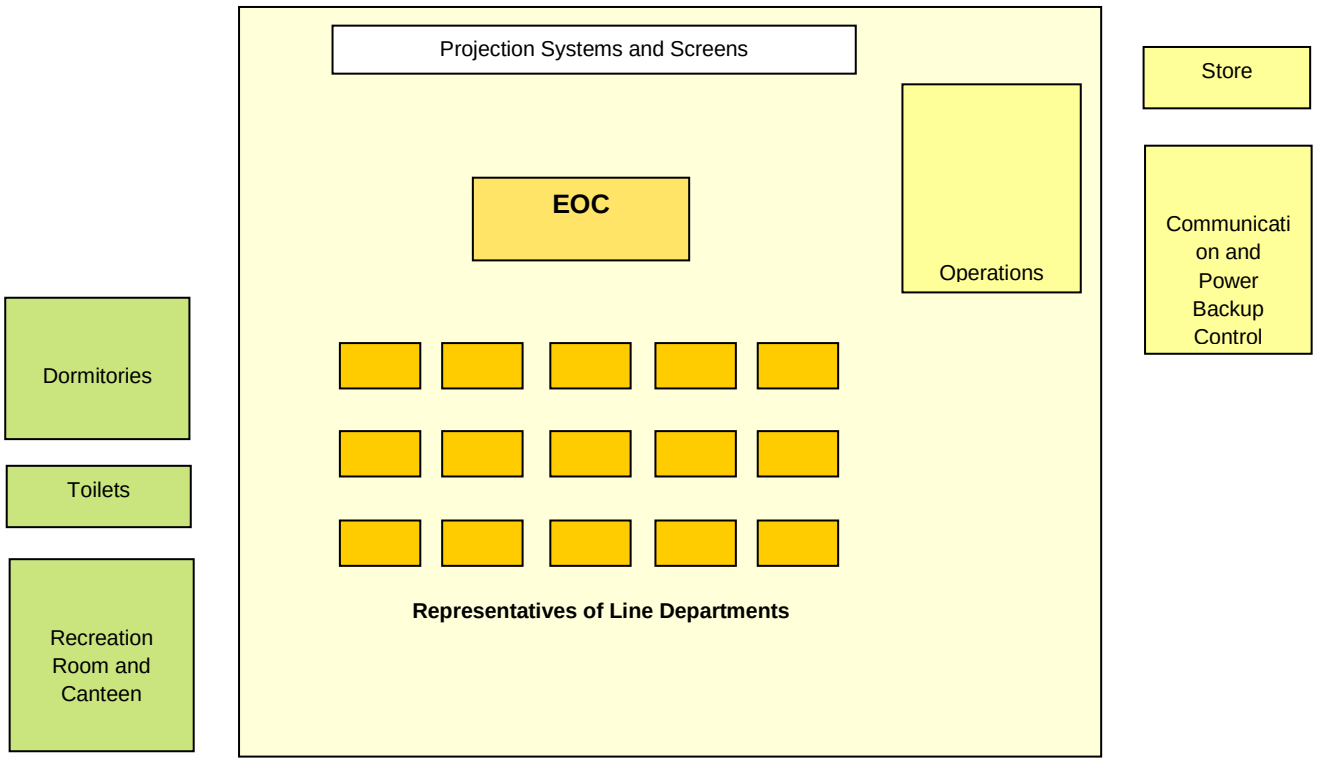
- The Chief of operations will initiate the activation of emergency services of the SEOC as established.
- Activation of the SEOC should immediately follow the declaration of a State Level Emergency.
- The Individuals staffing the SEOC are responsible for establishing communications with their respective departments through radio and telephone etc.
- The SEOC Chief or designee will determine what staff he/she deems necessary to effectively operate the SEOC apart from the prescribed staff.
- The designated officers of the Police will provide security at the SEOC

8.2.4 Back-up SEOC

It is recommended that an alternate SEOC must also be established. It is suggested to setup the backup SEOC within the secretariat building, as most of the departmental heads sits there.

8.2.5 SEOC Layout

The SEOC will be organised comprising the below features in a user friendly layout and in a disaster resistant building. A suggested conceptual layout is given below.



Conceptual Layout of Emergency Operations Centre

8.2.6 Equipment Requirements

The SEOC will need to operate round the clock, and may itself be subjected to adverse conditions due to the impact of disaster. It needs to be equipped with the following hardware and software for its efficient functioning:

1. Resource Inventories and databank of maps and plans at block, district and state level on a GIS platform for quick retrieval and analysis.
2. State-of-art communication equipment for staying linked with the Additional Chief Secretary's office, headquarters of line departments, district collectors, field teams, media, and national and international support agencies.
3. A mobile command vehicle with communication equipment.
4. Workstations and communication lines for all representatives of the line ministries.
5. Radios and television sets tuned to different news channels and coverage.
6. Video conferencing facility.
7. Projection equipment and screens.
8. Emergency power backup.
9. Stock of drinking water, food, medicines, bedding and essential items required for personnel manning the SEOC for long time durations.

8.2.7 Resource Inventories

Resource inventories are useful in quick retrieval of vital information regarding availability and sources of rescue and relief material and personnel during times of emergency.

Resource inventories are essential elements of EOC operations. Such inventories will be prepared and maintained through regular updating at the State and District levels.

Inventories will include the following basic elements, and other locally relevant information:

1. Contact details of all personnel and organizations concerned with emergency management
2. List, with specifications and availability procedures, of all equipment that may be useful for responding to an emergency. This will include communication equipment, transport vehicles, earth moving equipment, cranes, and tools etc. that are available with agencies within the jurisdiction.
3. List, with specifications and rate schedules, of relief material that can be sourced from local aid agencies and markets. This will include dry rations, tents and bedding, clothing, utensils, first-aid items and other basic necessity items.

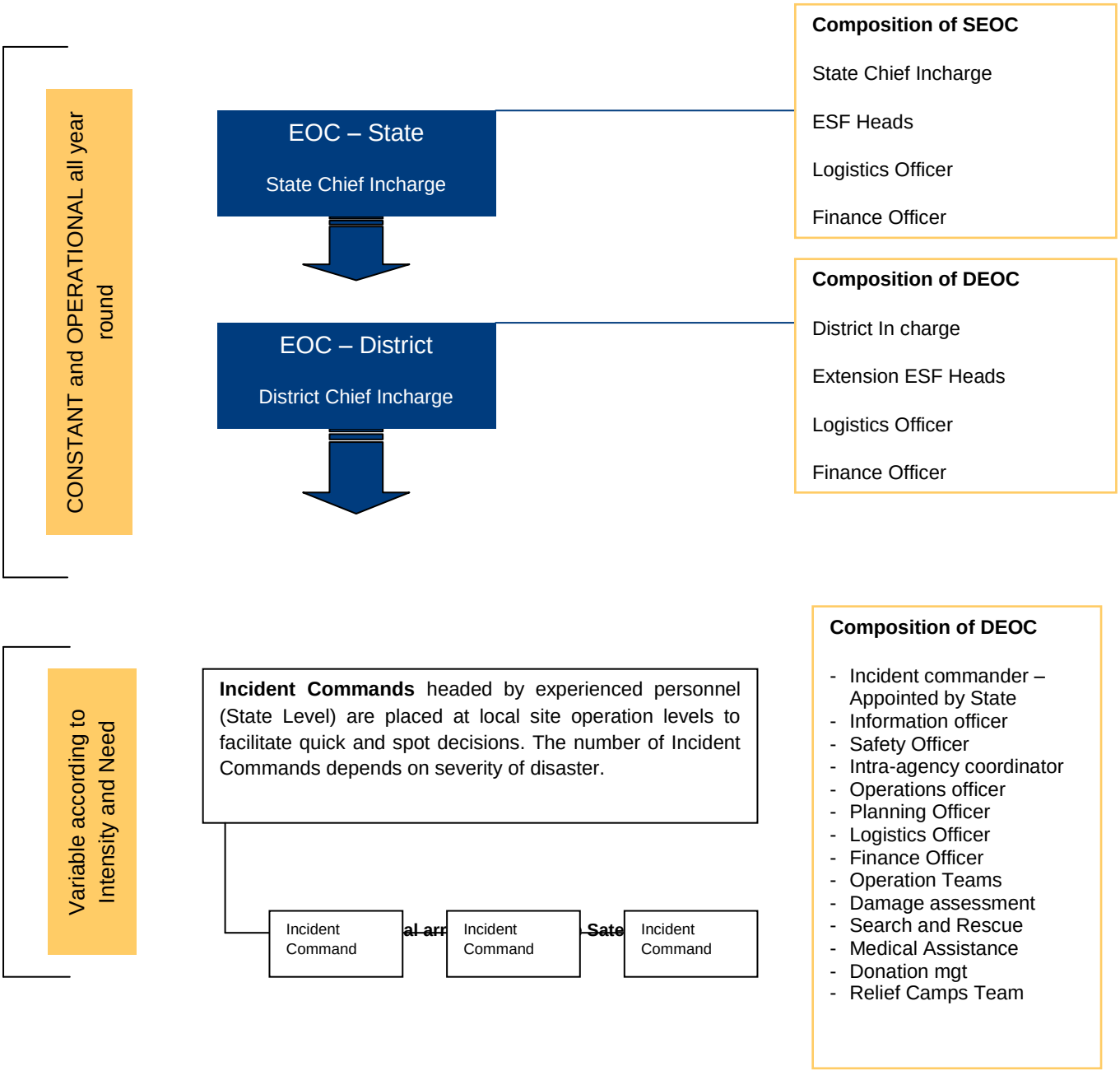
8.3 Incident Command System

The District Administration and local authorities do not have the capacity to play an efficient role at local level to support the SEOC's requirements for field information and coordination. The SEOC will therefore need to field its own field teams and through them establish an Incident Command System. The system will comprise:

- Field command
- Field information collection
- Inter agency coordination at field level
- Management of field operations, planning, logistics, finance and administration

Rapid Assessment Teams and Quick Response Teams described in the next section will be fielded by the SEC through the SEOC as part of the Incident Command System.

Flow Chart (EOC and ICS)



8.3.1 Activities of the SEOC

The responsibilities of SEOC at the state level shall be to provide centralized direction and control of the following activities:

Non disaster time

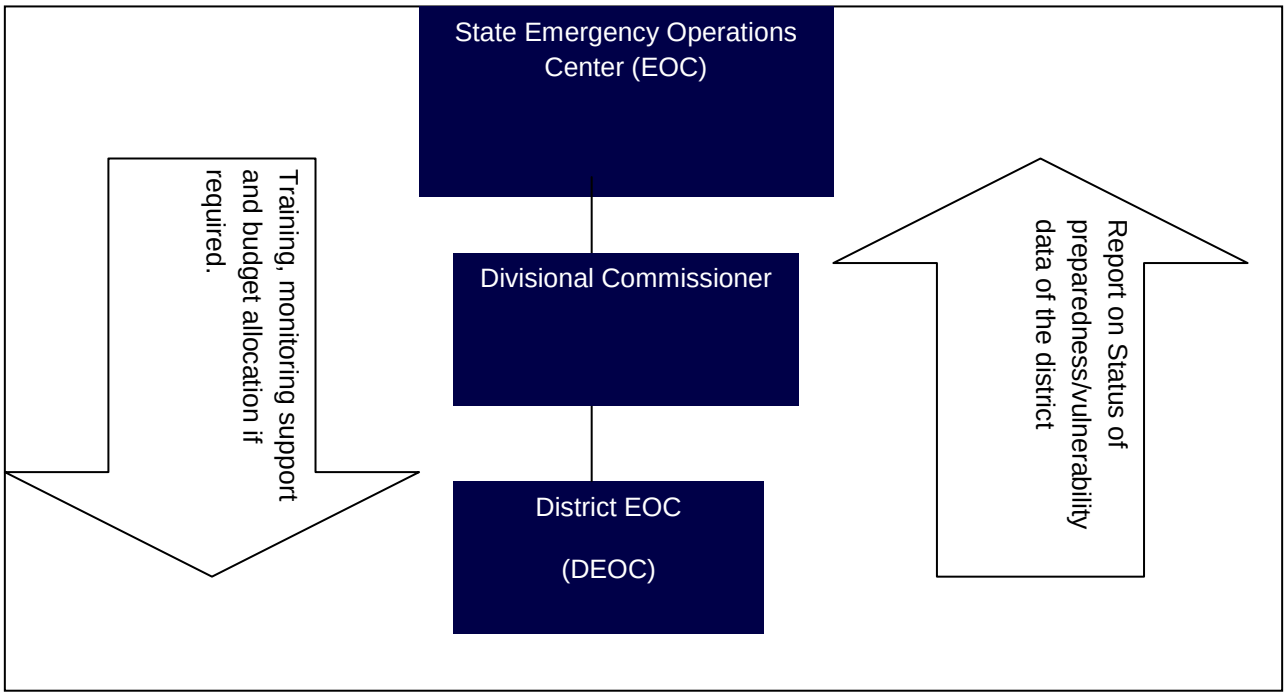
During non disaster times, the activities of the EOC will be under the supervision of the relief commissioner.

Activities to be conducted by the SEOC:

- Ensure that all districts prepare and regularly update the District Disaster Management Plans.
- Encourage districts to prepare area-specific plans for areas prone to specific disasters.
- Monitor training imparted to state level officials, private sector and NGOs in coordination with the SDMA
- Keep record of the State and district disaster management plans.
- Disseminate information about the State DMP to other departments.
- Ensure that the warning and communication systems and instruments in the SEOC are in working conditions round the clock.

- Keep and update state level disaster resource inventory
- Establish functional facility of Toll free emergency numbers.

Flow of Information between SEOC and DEOC during normal conditions



8.3.2 Activation procedure of EOC

Once the Sub-Divisional officer/SDM deems a disaster to be beyond the management capacity of local authorities, the District Disaster Management Authority (DDMA) will declare it as a District Level Disaster and activate the DEOC.

Once the DDMA deems a disaster magnitude to be beyond its management capability, it will forward the report to the SEOC for deliberation at the SDMA and subsequent appropriate State intervention.

On verification of the magnitude of the disaster, and the scale of response required, the State Emergency Operations Centre will get activated and after declaring a State Disaster, will take control.

Step 1: The State EOC is activated on orders from the SDMA.

On receipt of a disaster warning or a FIR, the Chief Minister, after verification that the situation merits declaration of a State Disaster, will convene a meeting of the State Disaster Management Authority.

Based on the ratification of the Authority, the Chief Minister, will declare a State Disaster.

Step 2: SEOC is upgraded to emergency mode

The SEOC, till then operating in the preparedness mode, will be upgraded to the emergency mode. Concerned line departments will be informed to post their representatives at the SEOC on a round the clock basis with immediate effect.

SEOC will be activated and all community preparedness measures will be put into operation and the ESF to be on full alert and activate their SOPs.

The activation of the SEOC should be followed after the DDMA declares a major disaster.

Step 3: Field Assessment Reports

The Additional Chief Secretary/ Relief Commissioner will assume the role of the Chief of Operations for Disaster Management. The Chief of Operations of the EOC will coordinate for setting up the ESFs and are asked to prepare and send the Field Assessment Report to the SEOC.

The Chief of Operations of the SEOC will spell out the priorities, coordinate services of the ESFs, including national, state and district level nodal and support entities / aid agencies.

8.4 Rapid Assessment and Quick Response Teams

Quick response teams of specialized personnel will have to be sent for effective management of disaster. Depending on the magnitude of the disaster, two different types of teams will be fielded by the SEOC:

- Rapid Assessment Teams
- Quick Response Teams

Rapid Assessment Teams

The Rapid Assessment Teams will be multi-disciplinary teams comprising four or five members. They will mainly comprise senior level specialized officers from the field of health, engineering, search and rescue, communication and one who have knowledge of disaster affected area, physical characteristic of the region, language etc. These officials should share a common interest and commitment. There should be a clear allocation of responsibilities among team members. To make a first / preliminary assessment of damage, the assessment report will contain the following basic elements or activities:

- Human and material damage
- Resource availability and local response capacity
- Options for relief assistance and recovery
- Needs for national / international assistance

Quick Response Teams

Deployment of search and rescue teams can help in reducing the numbers of deaths. A quick response to urgent needs must never be delayed for the reason that a comprehensive assessment has yet to be completed. The following teams must be sent to disaster site or disaster affected area as early as possible, even prior to First Information Report.

- First Aid Team
- Search and Rescue team
- Communication Teams
- Power Team
- Relief Teams
- Rehabilitation teams
- Transport Team

All other focal departments will keep ready their response teams, which may be deployed after receiving the first information report.

Reporting Systems

Representative of the affected community directly informs either the nearest district administration office or any government official or an NGO, who will then inform either the province Governor or his office. Based on the information available, the EOC activation process will be initiated if deemed required.

First information Report

The main aim of the first information report is to confirm a disaster event. It specifies the location, scale, and magnitude of a disaster and its effect on the local area and the people. It also talks about the steps that have been taken by the local administration to control the situation, the type of relief that may be required and the resources and services for immediate emergency measures.

A sample format of a First Information Report is given below.

MADHYA PRADESH DISASTER MANAGEMENT PLAN **FIRST INFORMATION REPORT**		
1	NATURE OF DISASTER:	
2	DATE OF OCCURRENCE:	TIME:
	SEVERITY HIGH MEDIUM LOW	
3	*AFFECTED AREA*	
	NAME OF THE VILLAGE DISTRICT:	
4	*DAMAGE AND LOSS ESTIMATES*	
	NUMBER OF FAMILIES AFFECTED TOTAL POPULATION AFFECTED:	
5	TOTAL HOUSES DAMAGED: LIGHT DAMAGE: MEDIUM DAMAGE: HEAVY DAMAGE:	
6	NUMBER OF PEOPLE INJURED:	DEAD:
7	NUMBER OF ANIMALS INJURED:	DEAD:
8	CROP DAMAGED (SPECIFY TYPES): HECTARES:	
9.	ANY OTHER VITAL INFORMATION:	

10.	**SPECIFY IMMEDIATE NEEDS: (With quantity)**
	Food Medical Supplies
	Other Items
11.	NAME THE CONTACT PERSON: AGENCY/ADDRESS: TELEPHONE NUMBER
DATE:	SIGNATURE:
ACTION TAKEN:	
FOR OFFICE PURPOSE:	REPORT NO.:
INFORMATION DATE:	

Initial Assessment Report

A clear and concise assessment of damages and needs in the aftermath of a disaster is a pre-requisite for effective planning and implementation of relief and recovery measures. The objectives of damage and needs assessment are to determine:

- Nature and extent of disaster
- Damage and secondary threats
- Needs of the population

Two types of assessment that may have to be carried out are:

- Initial Assessment
- Technical Assessment

Rapid Assessment Teams will carry out the Initial Assessment. Sample format for initial assessment is given below.

MADHYA PRADESH DISASTER MANAGEMENT PLAN **INITIAL ASSESSMENT REPORT**								
1	NATURE OF DISASTER:							
2	DATE OF OCCURRENCE:				TIME:			
3	*DAMAGE AND LOSS ASTIMATES*							
	Name of the Site (Village, Block District,)	Total Population Affected	People missing	People injured	Severity H L	Immediate needs	Houses Damaged L M H	Action taken

4	*INFRASTRUCTURE DAMAGE*									
	Name of the Site (Village, Block District,)	Housing	*Agriculture*	*Animals*	*Water source*	*Road* and bridge	*Power*	*Communication*	*Govt Building*	*Others*

5	*NEED ESTIMATES*							
	Name of the Site (Village, Block District,)	*Medical* Needs	*Population requiring shelter*	*Clothes*	*Food*	*Water*	*Sanitation*	Any Other

6	ANY OTHER VITAL INFORMATION
7	**SPECIFY IMMEDIATE NEEDS: (With quantity)** Food
	First aid
	Machinery
8	**Possible Secondary Affects:**
.	
9	**NAME THE CONTACT PERSON:**
10	AGENCY/ADDRESS: TELEPHONE NUMBER
11.	

DATE:	SIGNATURE:
FOR OFFICE PURPOSE:	REPORT NO.:

ACTION TAKEN:		

Technical Assessment Report

Line departments will send specialist teams and prepare the technical assessment report to assess the losses and restoration of services.

The following aspects will be covered in most disaster situations, but these may be determined by the EOC in accordance with situational requirements.

- Health
- Housing
- Social impacts
- Drinking water
- Power
- Agriculture and livestock
- Telecommunication
- Transport
- Environment
- Industries

Sample format for technical assessment report is given below.

MADHYA PRADESH DISASTER MANAGEMENT PLAN **TECHNICAL ASSESSMENT REPORT (Example: HEALTH)**									
1	NATURE OF DISASTER:								
2	DATE OF OCCURRENCE:					TIME:			
3	*AFFECTED POPULATION*								
	Name of the Site (Village, District, Province)	Total Population Affected	Main health problem	People injured	Dead	People in trauma	Female	Children	Pregnant women
4	TYPE OF INJURY								
5	IMPORTANT HEALTH BELIEFS AND TRADITIONS								
6	LOCATION OF OPERATING HEALTH CENTERS								
7	NO. OF AVAILABLE BEDS								

8	NO. OF TRAINED PERSONNEL AVAILABLE - DOCTORS /NURSES							
9	CLIMATIC CONDITION							
10	*NEED ESTIMATES*							
	Name of the Site (Village, District, Province	Trained health personnel	*Drugs*	*Beds*	*Medical Equipment*	*Emergency Van*	*Ambulance*	First Aid Kits
11	ANY OTHER VITAL INFORMATION							
12	**SPECIFY IMMEDIATE NEEDS: (With quantity)** Personnel							
	First aid							
	Equipment							
	Medicines							
13	**Possible Secondary Effects:**							
	NAME OF THE CONTACT PERSON:							
14	AGENCY/ADDRESS: TELEPHONE NUMBER							
DATE:					SIGNATURE:			
FOR OFFICE PURPOSE:					REPORT NO.:			
ACTION TAKEN:								

Leading departments directly concerned in the given situation will set up their emergency operating center and update the State Emergency Operating Center of their activities. After the initial report and the technical report stages, the SDMA will re-assess the situation of the site for deciding on further action.

Disaster Documentation Report

Lessons need to be learnt from each disaster, and all disasters should be documented and maintained as part of a databank. A sample disaster documentation report is given below.

MADHYA PRADESH DISASTER MANAGEMENT PLAN **DISASTER DOCUMENTATION REPORT**		
1	NATURE OF DISASTER:	
2	DATE OF OCCURRENCE:	TIME:
3	VILLAGE: DISTRICT: PROVINCE:	
4	TOTAL FAMILIES AFFECTED: TOTAL POPULATION AFFECTED:	
5	TOTAL HOUSES AND INFRASTRUCTURE DAMAGED: LIGHT DAMAGE: MEDIUM DAMAGE: HEAVY DAMAGE:	
6	TOTAL NUMBER OF PEOPLE INJURED:	DEAD:
7	TOTAL NUMBER OF ANIMALS INJURED:	DEAD:
8	TOTAL CROP DAMAGED (SPECIFY TYPES): HECTARES:	
9.	ANY OTHER VITAL INFORMATION:	
10.	IMMEDIATE LOCAL RESPONSE:	
11.	EXTERNAL AID AGENCIES THAT RESPONDED, WITH DETAILS OF TIME, NATURE AND SCALE OF RESPONSE:	
12.	DETAILS OF GOVERNMENT AID AND PROCESS:	
13.	NATURE OF AID DELIVERED (SPECIFY):	
14.	TYPE OF MATERIALS AND QUANTITY DELIVERED:	

15.	ANY OTHER ASSISTANCE DELIVERED (SPECIFY):
16.	NUMBER OF FAMILIES BENEFITED:
17.	ANY PROBLEMS FACED BY VICTIMS:
18.	LAPSES, CONSTRAINTS, AND LESSONS LEARNT:
19.	SUGGESTIONS FOR FUTURE PROGRAMMES, IF ANY:
20.	ATTACH PHOTOGRAPHS, MAPS AND CASE STORIES.
NAME AND ADDRESSESS OF CONTACT PERSON SIGNATURE	

8.5 Resource Mobilization

Under the resource mobilization, the following key components will have to be addressed:

8.5.1 Search & Rescue:

The dedicated teams will be formed to lead the search and rescue operations. Team members have to be periodically trained, retrained on the elements of collapsed structure, confined space search & rescue, and rope rescue etc.

Further at the district level, it is the duty of the DDMA to provide specialized life saving assistance to district and local authorities. In the event of a major disaster or emergency its operational activities include locating, extricating and providing on site medical treatment to victims trapped in collapsed structures. In the event of any disaster the **Home Guards along with the support of the Police dept.** form teams to locate injured and dead and try to rescue the ones in need. There are other bodies too that help these departments in this work, like the PWD, Health dept, Fire dept and also the people that voluntarily form teams to help the ones in need. Proper training for search and rescue process needs to be undertaken so as to minimize the time taken in rescuing someone.

8.5.2 Medical Response

Medical preparedness is a crucial component for any DM Plan. The SDMA, in close coordination with **Health Department,** will formulate policy guidelines to enhance the capacity in emergency medical response and mass casualty management. DM plans for hospitals will include developing and training of medical teams and paramedics, capacity building, trauma and psycho-social care, mass casualty management and triage.

Medical response has to be quick and effective. The execution of medical response plans and deployment of medical resources warrant special attention at the District level in most of the situations. The voluntary deployment of the nearest medical resources to the disaster site, irrespective of the administrative boundaries, should be emphasized. Mobile medical hospitals and other resources available with the State should also be provided to the district in a proactive manner. Post-disaster management of health, sanitation and hygiene services is crucial to prevent an outbreak of epidemics. Therefore a constant monitoring of any such possibilities is necessary.

The specialized medical care shall be required to help the affected population. The preventive medication may have to be taken to prevent the outbreak of diseases. Further, at the district level, dedicated medical teams will be activated at the time of emergency, which will consist of the doctors, nurses, pathologists, etc. Mobile Medical Vans, equipped with emergency requirements, also to be identified. Members of the medical emergency team to be well trained, retrained on operationalizing the advance life support, well versed with golden hour-platinum minutes concept, quick steps of first aid response etc.

8.5.3 Logistics support

Details of the good working condition vehicles, allied equipments and its maintenance schedule will be displayed on line, on board, for reference, which will be useful in case of any type of emergency so that it can be called for by the search and rescue team during crisis time. Further, an emergency stock of fuel for disasters is usually maintained at petrol pumps and this will be made mandatory.

The **Logistics Section** is overall responsible for the following:

- Facilities
- Transportation
- Communications
- Supplies
- Equipment maintenance and fueling
- Food Services
- Medical Services
- Ordering Resources

The Logistics Section Head manages the Logistics Section. On very large incidents, or on incidents requiring a great deal of equipment or facilities, the Logistics Section may be divided into two branches – Service Branch and Support Branch. This is most often done for span of control reasons, resulting in a more manageable organization. Six Units will be established within the Logistics Section:

1. Supply Unit
2. Facilities Unit
3. Ground Support Unit
4. Communications Unit
5. Food Unit
6. Medical Unit

8.5.4 Communications

The **communication dept**. will have the following duties during emergency period, like sending all out-messages on behalf of camp officer of the relief camp, data collection, record keeping, assistance in locating missing persons, information center, organization of information for site operations center and on specific demands, maintaining in-message and out-message register.

In addition to it the following facilities are available in the communication room:

- Telephones
- Fax
- Intercom units
- VSAT connection
- PC with modem and printer
- Mobiles
- Photocopying machine
- Wireless

The media should handle such sensitive situation carefully as it may affect the victims mentally. It should issue authenticated and verified information as far as possible rumors should not be spread and should also be prevented from spreading. Correct data should be published after well quantifying it so that the public is not ill-advised.

8.5.5 WATSAN (Water and Sanitation)

WATSAN is also a very important element, which needs to be addressed on the top priority, as it is directly related to the basic needs, especially in case of the affected population. Overall the **Water Resource Dept** will be responsible for the supply of fresh water.

Further, the required provisions will have to be made by the respective municipalities under supervision of the **State Municipal Board,** in all districts/ city level, for supply of pure drinking water, and to meet the other needs of water as well as timely addressal of sanitation requirements. This also includes the maintenance of hygiene, in & around emergency shelters, periodic monitoring and inspection of storm water drainage, nallah, adherence of the cleaning schedule of the camps and other places.

8.5.6 Animal Care

Animals, both domestic as well as wild are exposed to the effects of natural and man-made disasters and thus it are the duty of the **Veterinary department** to take care of them.

It is necessary to devise appropriate measures to protect animals and find means to shelter and feed them during disasters and their aftermath, through a community effort, to the extent possible. It is pertinent to note that many communities have shown compassion to animals during disasters, and these efforts also need to be formalized in the MP state preparedness plan.

The Departments/Ministries of the GoI such as **Animal Husbandry and Dairy Department**, Social Justice & Empowerment and the district have devised such measures at all levels. Under this, the major

function will be of Animal & Husbandry deptt, to treat the cattle, disposal of carcass, with a view to restore public life, and arranging necessary equipments in the affected areas.

8.5.7 Law and Order

Maintaining law & order is major responsibility of **Police Dept;** apart from its other stakeholders are also involved in it. The Police Forces are one of the key responders to disasters. The police force will be trained in disaster management skills and will be upgraded to acquire multi-hazard rescue capability.

The Police dept. maintains law and order in such a panic struck situation and safeguards the people (especially women and old) from theft, teasing or molestation in the disaster struck and the relief camp area.

The Police Department along with the Home Guards is also responsible for moving the affected people to safer places. They also help the Revenue Department to carry out relief work without any encumbrance or hindrance during the disaster period. And it is their duty to safeguard the property of the victims. Police Dept. also co-ordinates search and rescue operation through NCC/VTF/NGO. Police will also arrange for security at the relief camps/relief material storages. They are also responsible to maintain law and order at the time of distribution of relief material. They assist authorities for evacuation of people to the safe places and makes due arrangements for post mortem of dead bodies, and hastens legal procedure for speedy disposal. The Dept. specially protects the children, women, old and the physically challenged at the shelter places.

Chapter 9 - Disaster Relief Measures

Disaster relief is a very important phase of disaster management cycle. In broader terms it is a provision of assistance or short term intervention immediately after a disaster, to meet the life preservation and basic subsistence needs of those people affected.

9.1 Accountability

Primarily, the State Relief Coordinator will be overall responsible for all relief related functions and allied activities. The Revenue Department of State, will follow the Instructions of State Relief Commissioner, and will also take care of major relief activities, on a high priority basis. Apart from it the other concerned nodal departments will also play their part in relief related activities, with support from administration.

9.2 Key Relief Functions

The following will be the key relief functions, which will be taken care by Relief Commissioner and his/ her team:

- Primary responsibility of co-ordinating the effective emergency relief with nodal agencies, on the occurrence of a disaster.
- Develop an appropriate relief implementation strategy for the State in consultation with the State Disaster Management Authority, taking into account the unique circumstances of each district and deficiency in institutional capacity and resources of the State.
- Analyze the emergency situation, take stock of the arrangements, and recommend the State Government accordingly, to declare the level of disaster.
- Provide directions to the Collector and the local authority having jurisdiction over the affected area to provide emergency relief in accordance to minimize the effects of disaster.
- Assess search and rescue requirements as per information from the concerned district control room and take necessary action.
- Direct, supervise and provide assistance to agencies wherever necessary for the following:
- Set up relief camps; livestock camps
- Relief supplies to relief camps or to staging areas
- Set up mobile surgical teams, mobile hospitals, promptly arrange ambulances, vans in order to provide the prompt medical support
- Supplies of fodder and cattle-feed to livestock camps
- Supply of seeds, agriculture inputs and services to staging areas
- Maintain law and order through district police
- Arrange to provide the safe drinking water to the concerned
- Arrange to provide logistic support, including temporary housing
- Extend financial support to disaster affected people as per the Revenue Book Circular (RBC), April 2012, Revenue Department, Govt of Madhya Pradesh.
- Carry out post relief assessment, document learning from relief experience, which can be used as inputs into future relief and rehabilitation plans.
- Apart from it, one major function during relief stage is setting up of Emergency Kitchen. Following are sub activities of the same, and concerned responsible agencies, to deal with it: **e activities Responsibility**

Relief Activities	Responsible Agencies
- Identifying and assigning one high ranking district official to coordinate setting up kitchen operations - Procuring and transporting relief materials to affected districts/ villages - Setting up free kitchen for affected villages in the vicinity of shelter camps or in shelter camps itself - Coordinating with NGOs/ CBOs and the other voluntary groups to continue kitchen operations beyond the planned timeline (as required) - Monitor and assessing the need to continue kitchen operations by assigned authority	- District Collector - Special Relief Commissioner - District Collector and other district level officials - Government functionaries at Panchayat, Mandal and District level - Civil supplies department - Police - Civil Defense structures such as NCC/NSS - NGOs

9.3 Minimum standards in Relief w.r.t. Humanitarian Services

The minimum standards describe conditions that must be achieved in any humanitarian response and relief in order for disaster affected population to survive and recover in stable conditions and with dignity.

Focusing on the period of humanitarian response and relief, the **sphere minimum standards** cover activities which meet the urgent survival needs of disaster affected populations.

The Sphere Handbook 2011, will be followed for the purpose of adhering minimum standards in the following sectors:

- Minimum standards in water supply, sanitation and hygiene promotion (WASH)
- Minimum standards in food security and nutrition
- Minimum standards in temporary shelters, and non-food items
- Minimum standards in Health Action

Under each section of minimum standards, there are few sub sections to address the respective sectors, like in the first case of WASH, apart from it there will be other sub sections on water supply, vector control, hygiene, drainage and solid waste management etc. The sphere standards are the guiding tools, further the review and adherence will come under the scope of MP-SDMA.

9.4 Financial Arrangement

9.4.1 Financial support from National Government

Calamity Relief Fund (CRF) is set up at the national level to meet the expenditure for providing immediate relief to the victims of drought, earthquake, fire, flood, and various other disasters. Government of India contributes 75% of the yearly allocation in the form of non plan grant and remaining 25% is covered by the state government. Outlay of funds in consultation with the state government is allocated by the Finance Commission. In the event of shortfall of funds, on the request of the state government, additional financial assistance from National Calamity Contingency Fund (**NCCF**) is provided by the Government of India.

9.4.2 Finalizing relief payouts and packages at State level:

The Relief packages shall be customized, if required, to the specifics of the disaster by the GoMP. Relief packages would include details relating to collection, allocation and disbursal of funds to the affected people.

The GoMP allocates funds in the state Budget for relief activities. In addition, funds may be available through the **State Disaster Response Fund** (Calamity Relief Fund will be merged into SDRF). However, these funds may not be adequate to meet disaster management requirements in the aftermath of large-scale disasters. In such circumstances, the GoMP shall explore additional sources of funding through aid, grants, loans etc.

The Revenue Department has come out with revised **RBC** (Revenue Book Circular) April 2012, which has covered **38 crucial attributes** where the relief support will be provided as per standard. This will include the damage due to natural calamity, nature induced event, fire, loss of lives, animals, collapse of house, damage to crops so as livelihood, etc. The details of the RBC 2012 are available in the Annexure part in the end.

It will be notified that every department both at state and district level providing emergency support will maintain records of all the operations, including cost records for eventual reimbursement during relief and recovery operations.

It has been clearly observed that there is a shift in the approach and policies of Madhya Pradesh state as well as central government's approach to manage disasters and emergencies from 'relief centric response to preparedness'.

Chapter 10 - Rehabilitation and Reconstruction planning measures

The Rehabilitation and Reconstruction planning activities come under the post-disaster phase. Rehabilitation refers to the activities that are undertaken to support the victims, in order to return to normal life. The Reconstruction includes the replacement of buildings, houses, infrastructure and lifeline facilities so that long-term development prospects are enhanced.

The reconstruction and rehabilitation planning is carried out specifically for worst case scenario. It is activated in case of a strong disaster in which the capacity of State and District authorities have been overwhelmed and require assistance from the Central Government for re-establishing normalcy in the State.

The key activities of post disaster reconstruction phase are detailed damage assessment, restore/ relocate houses accordingly, finalize reconstruction & rehabilitation after generating substantial funds from appropriate & reliable sources. The activities in thepost disaster phase will be primarily carried out by the local bodies (Gram Panchayats, Block, District, Municipal Corporations, and Municipalities etc.) and various Government departments and boards, under supervision and periodic guidance of State Disaster Management Committee/ SEC. These post disaster reconstruction and rehabilitation activities shall be carried out, in conjunction with the implementing authorities.

10.1 Owner Driven Re Construction (ODRC) for Housing

Owner Driven Reconstruction (ODR) is the one of the simplest, most challenging and at the same time democratic & decentralized approach to mass scale reconstruction; and yet it demands a controlled, strong centralized policy framework in effective post-disaster governance. It encourages people to do what they normally do – build their own homes; and yet it has to construct a range of extraordinary support systems to ensure that they do it better and faster post disasters.

The key for a successful Owner Driven Reconstruction lies in providing an enabling environment, by regulating the price and subsidizing key construction materials, ensuring special support to most vulnerable people, access to good quality construction materials, technical support and training. This requires adequate planning to develop a better understanding and cooperation the government and civil society organizations.

One of the most challenging tasks, in any post disaster stage is to institutionalize the Owner Driven Reconstruction. Prior to institutionalization, an in depth planning plays a very crucial role. And as the first step of Owner Driven Reconstruction planning is defining the ingredients of ideal ODR.

In Madhya Pradesh, the Ideal Owner Driven Reconstruction planning process should have the following key components:

- The existing vulnerabilities, applicable risks and local capacities of the area concerned should be clearly known.
- Following the disaster, a comprehensive damage and loss assessment has to be carried out.
- The settlement planning, land titles and specific uses of the same should be known to the user/ implementer.
- The appropriate Owner driven housing technologies have to be documented and shared across.
- The house owner should be empowered to make an independent choice based on his/ her preferences, affordability and needs with the broad parameters outlined in the reconstruction policy.

- A decentralized governance should support and facilitate the Owner Driven Reconstruction process.
- A techno legal framework should support the Owner Driven Reconstruction with diversity of materials, codes and flexibility in designs.
- As a part of Ideal Owner Driven Reconstruction planning, the adequate technical skills and required material should be easily available locally to work on the available technologies.

10.2 Reconstruction of damaged buildings/ houses/ social infrastructure

Reconstruction efforts in Madhya Pradesh, after the disaster, have witnessed a growing increase in State responses, as well as in the range of stakeholders supporting reconstruction. However, this increase in sophistication and support to reconstruction has often been inversely proportionate to affected house-owners actually being in control of the rebuilding of their own homes. So it is high time to face challenges at preparedness stage of owner-led reconstruction.

In most post disaster reconstruction programmes w.r.t. damaged buildings and houses, the speed, cost and quality of construction as well as meeting population targets and deadlines compete for priority; designing and structuring a policy environment which allows for a genuine owner led role of the affected community is intended, but not always prioritized or achieved. Reconstruction is driven less by the strength of the local economy, or indigenous knowledge, wisdom and skills available in the affected region. Policy seldom integrates contemporary knowledge systems with local choices to generate informed decision making on issues of cost, material, quality and safety, by the surviving communities. The underpinning of an effective ODR includes issues of governance, state-civil society relations, institutional frameworks, stakeholder capacities and integration of indigenous knowledge and construction practice.

When a disaster affects housing, there are important choices to be made in the rebuilding effort, related to design and construction technology and whether to repair/retrofit a house or demolish it. These choices must take into account environmental, cost, social, institutional, and technical factors. The size and scale of ODR as well as the geographic concentration of the affected area also play a significant role in taking decision on the appropriate housing technologies at the time of reconstruction of buildings and houses:

The following guidelines have to be followed for a sound housing, building design and construction technology:

1. The re constructed design should be compatible with local traditions or with the local population's willingness to change.
2. Ensure re constructed design is consistent with infrastructure plan so all necessary services are provided (either in the community or in the individual house) and are not redundant.
3. Ensure intense community participation in the design and decision-making process (house size, morphology, spatial organization, functions, form, and position on the plot).
4. Design the house or building and landscape to take advantage of the climate and reduce the demand for operating energy: sun/shadow exposure, solar shading, thermal insulation, passive solar energy, solar hot water, photovoltaic electricity, rain water collection, wind ventilation system, etc.
5. Incorporating flexibility, modular design, and expandability in the housing design and concept will make those operations easier and cheaper to carry out when necessary.
6. Design a house/ building that facilitates future expansion (or reduction); it will reduce modification costs. Limit the needs of operating energy through the design; heating and cooling costs may force inhabitants to forego comfort.
7. Limit a house's vulnerability to hazards through its design elements, especially form, dimension, and morphology.

8. Use traditional technologies and vernacular tradition and provide the most appropriate solutions by integrating costs, climate, culture, and technical capacity. Improve and adapt traditional solutions by integrating modern technologies.
9. Use indigenous materials, unless the scale of the disaster, its origin, and transportation availability hinders access to local materials.
10. Mitigate risks by merging modern technology components with traditional construction practices and improving existing traditional practices.

10.3 Funds Allocation

Govt. of Madhya Pradesh shall finalize the fund generation mechanism, including the covenants and measures that govern fund inflow and disbursement and usage. This includes:
i. Estimation of funds required based on detailed damage assessment reports and consolidation of the same under sectoral and regional heads;
ii. Contracting with funding agencies and evolving detailed operating procedures for funds flow and corresponding covenants.
The financing of rehabilitation and reconstruction activities will be explored from the following sources:

- State Disaster Response Fund
- National Calamity Relief Fund
- Chief Minister's Relief Fund
- Prime Minister's Relief Fund
- Special Programmes of Govt.
- Grant in Aid / Loan / Assistance from national and international funding agencies

10.4 Dispute Resolution Mechanism

It is a very common and yet highly complicated component of post disaster phase. Under this phase, the issues pertaining to distress land of sale, rights abuse and debris management will be addressed in detail and in most transparent manner. Further, Madhya Pradesh State Disaster Management Authority, in conjunction with relevant agencies, shall institutionalize mechanisms to address beneficiary grievances at various levels, as well as explore innovative ways of dispute minimization like involving the community in reconstruction initiatives. Appropriate mechanism with penalties for dealing with false claims will be evolved to prevent misuse of assistance.

Hence while going for the resolution mechanism, especially in the post disaster phase, it has to make sure that dispute related issues to be addressed very patiently and carefully.

10.5 Monitoring of recovery, rehabilitation and reconstruction activities

Monitoring will be carried out at different stages of recovery, rehabilitation and reconstruction processes. The transparency in operations and accountability in the process shall be ensured through periodic process and social auditing.

Further the feedback will be taken from the target groups as well. The State Disaster Management Authority will lead and monitor the activities during this phase. The authority will define the role for each government departments, private, public, nongovernment organizations, and individual volunteers. At the

State, the MPSDMA who will be contacted first by any other agency during the phase and at district the DDMA will be approached. They will guide and lead the other agencies to avoid the duplicity of work. Also on requirement basis, the SDMA may contact to any other agencies, with the State, Nation or out of country.

The learning of the entire rehabilitation and reconstruction activities shall be documented and shared across. The lessons learnt would certainly help in improving rehabilitation and reconstruction interventions in the future.

PART C

Chapter 11 - Partnership with Stakeholders

In order to achieve the larger goal of overall community resilience and preparedness, the public and private sectors, institutions, NGOs and key resources need to work together, before, during and after disaster stage. To mitigate disasters and create a better prepared society for disasters and other hazards, strong public-private partnership is critical, involving all the key stakeholders.

11.1 Role of academic and scientific institutions

The role of Academic and Scientific institutions is very crucial in the disaster management. These institutions within the state and also outside the state could help with subject specific expertise for disaster management planning.

There are few selected institutes, currently providing their expertise in disaster management in the state. Apart from preliminary research, they are actively participating in generating awareness in the state, providing training to the people and building their capacity.

On the basis of exposure to disaster management in Madhya Pradesh and having the required potential, the following key institutes, can play a major role in disaster preparedness and risk reduction in the state:

- **Disaster Management Institute (DMI), Bhopal**

  This was formulated after the Bhopal Gas Tragedy and offers extensive training, research and consultancy services concerning prevention, mitigation and management of disasters.

- **Emergency Response Centre (ERC), MPPCB, Bhopal**

  The ERC Cell of Madhya Pradesh Pollution Control Board, is involved in sensitization of concerned stakeholders, through developing training materials, IEC on the subject matter.

- **Directorate of Industrial Health & Safety (DIHS), Indore**

  DIHS is the nodal body for the preparedness and updating of industrial disaster management planning (Onsite & Offsite), and also involved in providing trainings on the industrial disaster management.

- **School of Good Governance & Policy Analysis (SGPA), Bhopal,**

  The autonomous body of Public Service Management Deptt, has been actively involved in the preparation and finalization of all 50 District Disaster Management Plans and allied activities.

  Apart from the above, there are few other potential institutes within and outside Madhya Pradesh, which can also be approached for playing a vital role in the state disaster management planning and execution.

11.2 Involvement of Public and Private sector

In Madhya Pradesh, there are many private and public sector units, which have the equipments and skilled human resource, could be used during response and recovery phase. Apart from it, there are many private vendors within state, who can readily supply different relief materials within short notice.

The major public sector organizations, which are well equipped in terms of the resources and preparedness, are BHEL, HPCL, IOCL, BPCL, NFL, GAIL etc. These organizations can certainly help during and after the disaster, if any.

There are some prominent private sector organizations/ corporate like Tata Steel, Reliance Industries, Grasim, Eicher, Shell, Wardhman, Orient, Prakash, Surya etc known for sound safety systems in place, can play a major role not only in disaster time, but also in preparedness, relief, rehabilitation and reconstruction stage as well, as part of the corporate social responsibility.

As a matter of fact, in business current scenario, the Corporate houses have begun foraying into community development; by participating in community development, the corporate sector is making efforts to fulfill social responsibility. Identifying disaster management and preparedness as one key aspect of social welfare will prompt private corporations to streamline in the sphere of disaster management.

Further, the role of industrial associations like CII and FICCI will be very crucial in bringing the corporate/ private sector on board, and serving to the society through disaster management initiatives.

11.3 Sensitization and involvement of media

The management of print and electronic media is an important phase in Disaster Management. In Madhya Pradesh, the media is very active and agile, at both the levels, electronic and press, hence it can play a major role in disaster management. After the detailed review with SDMA, the following measures will have to be considered pertaining to media, for long term disaster reduction point of view:

- Emphasize the need of media ethics in the syllabi of Mass Communication and Journalism courses offered in numerous colleges.
- Have in place severe penalty and castigation measures in all electronic and print media offices whether public or private against reporters or staff who send rumours or violate the guidelines of media ethics in any manner.
- Strict law in place to ensure that the above-said castigation measures are put to practice in their letter and spirit.
- Appoint a Vigilance Team to check media actions and conduct surprise inspections.

Role of Media in Disaster Management

- Media can play a huge role in warning dissemination in the *Before Disaster Stage*. T.V, newspapers, magazines, journals, fortnightly issues etc. can focus on the impending monsoon and spread awareness to the general public regarding the plausible mitigation measures.
- Publish news of missing persons/damage assessments to help the administration take the necessary measures.
- Sensitize its reporters to indulge in rescue operations if possible rather than cashing on the plight of the victims by generating flash bulletins to compete with their counterparts.
- Be sensitive to people's sentiments by not picturing heart-breaking and scary images of severe road/dam/bridge accidents or other unpleasant events.
- Deliver unbiased service.
- Avoid hoax messages and rumours about disasters which may create panic among the mob.
- Assist the concerned departments in every possible manner for information dissemination and act as a vibrant bridge between public and administration.

- Give due opportunities to the public to relate their conditions in flood and the rescue measures taken without external compulsion.
- Refrain from misdirecting the administration or the public about disaster situations by creating unnecessary jargons simply to capture audience and earn the limelight.

Role of Police in media management

- Seal the sites of serious rail/road accidents and curb the barging-in of the media personnel as much as possible.
- Agree peaceful pacts with media to respect the sentiments of the disaster-victims.
- Carry out *Media Sensitization* workshops on a quarterly basis with the IG or SP convening the same and with the due presence of major staff of all local T.V channels and newspaper/magazine editors.
- Alert the force to tackle the severe harassment of the media in situations when they need to focus on assisting the concerned departments for relief and rescue and need to ensure law and order.
- Seek the help of NCC officials, army, Home guards to manage media in the disaster0hit area.

Other than the police, the public, local authorities, village-level committees etc. can take necessary measures to check the media.

11.4 Involvement of NGOs, Community representatives

Local NGOs, CBOs and Community volunteers due to their proximity to the surrounding community, will be able to act as a vital link between government and the community particularly during emergencies. They are in a better position to appreciate the area and time specific problems of the people and their flexibility in approach makes them more acceptable in the community. The Role of NGOs, CBOs and Community Representatives in disaster management will be in three stages:

Preparedness

- Community awareness and capacity building
- Community Based Disaster Management Planning.
- Assisting and participating in preparation of disaster management plans at Block, district, municipal and gram Panchayat levels.
- Support in vulnerability assessment and mapping
- Support in preparing mitigation strategy and plans; assessments for structural and non-structural mitigation.
- Support in policy review on disaster management
- Reviewing and upgrading DM Plans
- Documentation

Emergency Response

- Assist in dissemination of warning
- Evacuation, Search and Rescue
- Relief distribution
- Medical aid
- Emergency shelter
- Immediate restoration
- Women and Child care
- Trauma Counseling

- Coordination of Volunteers
- Community mobilization
- Documentation

Recovery Support

- Restoration of damaged community structures (schools, etc.)
- Restoration of livelihood
- Rehabilitation of vulnerable groups
- Restoration of environment
- Managing emergent group activities
- Recovery planning, coordination, evaluation
- Documentation

Chapter 12 - Standard Operating Procedures

There are various departments who get involved during emergency and hence department wise responsibilities need to be cleared. Designated primary agenciesby High Powered Committee as emergency support functions (ESF) have also been considered while preparing SOPs of various departments which are:

1) Tele Communication
2) Public health and sanitation
3) Power/Electricity
4) Transport
5) Search and Rescue/Home guard
6) Donation/ Revenue
7) Public Works and Engineering
8) Food
9) Agriculture
10) Urban development department
11) Panchayat and rural development department
12) Forest Department
13) Fire services
14) Home
15) Irrigation and water resources
16) Rural water supply
17) Education
18) Industrial health
19) Police department
20) Veterinary department

Roles and responsibilities of each department have been mentioned under 5 main disaster management process which are:

1. Preparedness
2. Mitigation
3. Response
4. Relief
5. Rehabilitation

12.1 SOP for Department of Telecommunications

1. Preparedness
• Communication establishment with State, District and Block /Tehsil Control Rooms and departmental offices within the division. • An officer to be appointed as nodal officer. • Continuous training of staff on the usage of new equipment that are procured.
2. Mitigation
• Prepare an inventory of resources that would be required and procure the material based on estimation. • Train staff on quick response to restore the Tele-connectivity of the districts.
3. Response
• Standby arrangements for temporary electric supply or generators. • Inspection and repair of poles etc. • Identification of materials required for response operations.
4. Relief
5. Rehabilitation
• Repair of damaged poles & lines etc as soon as possible to restore Tele-connectivity in the district. • Share experiences with the department. Training of employees for better performance.

12.2 SOP for Department of Health

1. Preparedness

- Check on the tasks done at Zila, Tehsil & Block level
- Demarcate areas prone to epidemics and other similar disasters.
- Coordination with private health organisations
- Demarcate areas where medical camps can be set.
- Take regular inputs from Swastha Kendras about any unwanted/hostile conditions in terms of endemic/epidemic diseases.
- Awareness among people about diseases & how can they be prevented from spreading.
- Generators to be made available in all major hospitals.
- Prepare a list of inventories required in case of disaster (vehicles/equipments/ medicines)

2. Mitigation

- Construction & repair of IEC inventory.
- ORS & other important medicines to be procured as requirement.
- Training of employees and people regarding the basic treatment in case of flood/loo/minor bruises etc.
- Procure necessary medicines for cases that are otherwise rare like snake bite, chlorine for cleaning water etc.
- Prepare mobile units for sensitive & prone to be hit areas.
- Identification of sites in probable disaster areas for site operation areas

3. Response

- Send task force with necessary medicines to affected areas.
- Strong emphasis to be given to sensitive areas.
- Ensure that appropriate no of Staff/Doctors are present at the affected areas.
- Frequent checks on the Staff/Doctors on duty.
- Post-mortem of dead bodies.

4. Relief

- Ensure cleanliness at the medical camps.
- Procure required medical equipment & medicines in case they fall short of it.

1. Rehabilitation

- Monitoring against spreading of diseases
- Continuous medical aid & proper arrangements till situation is under control
- Dead/Injured counselling
- Injured/handicapped to be treated and arrangement for healthy living facilities.
- Provide healthy rehabilitation to disaster affected people.

12.3 SOP for Department of Power /SOP for Electricity Department

1. Preparedness
• Prepare and manage inventory for emergency operations. • Training of electricity department workers and make sure that proper norms are being followed at the time of installation of various electric units/instruments. • Make various applicable and implementable schemes regarding the setup and examination of electrical units/instruments. • Make people aware so as to minimize the damage to life/limb caused due to electricity.
2. Mitigation
• Make provisions for providing electricity to rehabilitation centers in disaster hit areas & to cut off electric supply from risky areas in case of emergency. • Follow proper regulations monitor continuously so that in case of wire breakage the current does not spreads. • Make proper arrangements and follow stringent norms such that in case of a natural calamity, (like earthquake, flood, cyclone etc) the high tension line does not get damaged.
3. Response
• Cut off electricity immediately after receiving information about any disaster so as to minimize the damage caused. • Survey the spot and estimate (also help in estimation) the damage caused. • Make a plan about how to re supply electricity to important areas, site operation centers, Industries, etc. • Examine and repair major poles, transformers & wires necessary for getting electricity supply back to areas needed. • Minimize the damage caused to life by demarcating dangerous areas and cutting electricity in time. • Restore the electricity facility in affected areas.
4. Relief
• Be ready to provide electricity in areas where it is needed and can be provided safely.
5. Rehabilitation
• Repair of damaged poles, transformers and conductors etc as soon as possible to restore electricity in the district. • Surveillance for protection of people. • Share experiences with the department. • Formulate a checklist and re-prepare an emergency plan.

12.4 SOP for Department of Transport

1. Preparedness
• Designate one Liaison Officer of the department as the Focal Point and inform all concerned. • Develop and implement disaster management plan for the department. • Carry out survey of condition of all highway systems at state and district level. • Identify and inventories transport vehicles available with the department and ensure that they are all in good working condition. • Identify and inventories transport vehicles available with the private operators in the district. • Allocate additional force to possible Disaster prone roads/routes identified • Ensure that the force so allocated are aware of the possible disaster prone spots on these routes along with the possible type of disaster which may happen, as in the case of Petrol and Diesel transport vehicles leading to and from the IOC depot. • Make departmental mitigation plan and ensure its implementation. • Enforce the speed limits in the government vehicles regulated by the department and organize departmental awareness programs for the same
2. Mitigation
• Depute an officer at the DEOC. • Ensure availability of fuel, recovery vehicles and equipment. • Take steps for arrangement of vehicles for possible evacuation of people
3. Response
• Establish contact with the SEOC. • Take steps for movement of affected population to safer areas. • Collate and disseminate information regarding operational and safe routes and alternate routes, fuel availability etc. to personnel operating in the field. • Launch recovery missions for stranded vehicles.
4. Relief
• Take steps for transportation of relief personnel and material to affected areas.
5. Rehabilitation
• Assess damage to transportation infrastructure. • Take steps to ensure speedy repair and restoration of transport links.

12.5 SOP for Department of Home guard and Civil Defence

1. Preparedness
• Get details of the staff with their address and phone numbers • Arrange for details of fuel arrangement for ships-mechanized launches at the time of emergency. • Do's and Don'ts to be observed during emergencies and details of priorities should be given to the staff. • Set up for evacuation of people from affected area of the river side area. • Details of buildings, vehicles and equipments and list of contractors with vehicles and equipments should be procured. • Prepare map showing rivers and the important routes • Maintain communication equipments, telephone line, telex lines, megaphone and amplifiers with statistical data. • Make a list of details of important telephone numbers of water supplies, control room, hospitals, drainage system, railway stations, bus depots, strategically important places, Army Air force Navy camps and other sensitive places, major industrial units, and other communication channels which can be used during emergency. • Ensure the arrangement for transportation & evacuation of people from the affected areas. • Prepare the action plan regarding repairs and alternative ways in case of disruption of transportation. • Prepare plan showing the alternative routes and arrangement for transportation of goods etc. during emergencies. • Inspect the garages and control point etc; which are damage prone. • Make due arrangement for materials to restore the facilities in case the movement of the materials and goods on the ports are damaged. • Prepare an action plan to avail on temporary bases, the technical personnel from the nearby district which is not affected. • Collect the details of swimmers in the district. • Make arrangement for sufficient fuel during emergency.
2. Mitigation
• Maintain the equipments available such as cranes, diesel generator, earth mover machines, de-dusting pumps, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, etc. which can be used during emergency and will ensure that those are in the working conditions. • Take due care to see that the transportation at shelters and emergency hospital is not disrupted during calamities. • Prepare a list of public properties related to transport department, which are in the damage prone area and will arrange in advance to minimize the damage.

- Specifically take action to ensure that the fishermen do not move out for fishing as well as sailing during the final warnings of flood, etc.
- Evacuate the fishermen to a safe place and if they deny, to get it done forcefully.
- Ensure that the warning signals are received in time and shown immediately to the people.

3. Response

- Undertake the work of search and rescue and also the relief work
- Set up a temporary special control room and information centre at the main bus station.
- Immediately contact the state control room and will assist in the work
- Ensure that the staff is on duty at the headquarters.
- Assign the work to be done by the subordinate officers and staff regarding transportation under SDMP and to send them to their sites.
- Consult the liaison officer to close the ports and sailing in the rivers, which is damage prone or dangerous for the safety of the people as well as the property.
- Assist the administration to send the messages regarding warning to the remote area.

4. Relief

- Ensure the availability of resources included in the SDMP and will make due arrangements to get those during emergency.

5. Rehabilitation

- Follow the instructions of State Liaison Officer.
- Carry out the duty assigned for search and rescue work.
- Engage the resources and manpower available to manage the disaster.
- Review the matters regarding closing of movement at the port for safety measures and will ensure that it is restarted very soon.
- To contact the control room if additional equipments, vehicles, manpower, technical personnel are necessary to restore the port related activities.
- Prepare a primary survey report of damage and send it to the state Control Room and to the administrative head.
- Collect the details of approach roads connecting the damaged area and get them repaired in co-ordination with the competent authority.

12.6 SOP for Department of Donation/Revenue

1. Preparedness
• To appoint a nodal officer in the SEOC. • Establish infrastructure for SEOC and maintain in state of readiness with all equipment in working order and all inventories updated. • Train personnel on operations of SEOC. • Ensure basic facilities for personnel who will work at district level for disaster response. • To coordinate the preparedness functions of all line departments. • Establish disaster management funding mechanisms to ensure adequate resources for preparedness work, and quick availability of resources for relief and rehabilitation when required. • Ensure that all the Gram Panchayats, urban bodies and blocks prepare their disaster management plan. • Coordinate with other state departments of state and centre for their disaster management plan at the district level and synchronise the same with the district disaster management plan. • Help District Administrators with additional resources for disaster preparedness, if necessary. • On annual basis report to the SEC of the preparedness activities. • To ensure that funds are being allocated under the State Disaster Mitigation Fund. • To ensure that structural and non-structural mitigation measures are taken by all its department offices.
2. Mitigation
• Maintain contact with forecasting agencies and gather all possible information regarding the alert. • Ensure activation of state EOC in standby mode. • Instruct all ESFs remain in readiness for responding to the emergency. • Advice concerned state collectors to carry out evacuations where required, and to keep transport, relief and medical teams ready to move to the affected areas at a

short notice.

- Dispatch field assessment teams, if required.
- Provide assessment report to the SDMA.

3. Response

- Activate SEOC in full form.
- To coordinate and plan all activities with the ESFs.
- Conduct Rapid Assessment and launch Quick Response.
- Conduct survey in affected areas and assess requirements of relief.
- Distribute emergency relief material to affected population.
- Coordinate NGO, INGO and international agencies interventions/support.

4. Relief

- Coordinate all activities involved with emergency provisions of temporary shelters, emergency mass feeding, and bulk distribution of coordinated relief supplies for victims of disasters.
- Organise initial and subsequent technical assessments of disaster affected areas and determine the extent of loss and damage and volume and nature of relief required.
- Keep the SDMA informed of the situation.
- Ensure supply of food, drinking water, medical supplies and other emergency items to the affected population.

5. Rehabilitation

- Visit and coordinate the implement of various rehabilitation programmes.
- Coordinate the activities of NGOs in relief and rehabilitation programmes.
- Allocate funds for the repair, reconstruction of damaged infrastructure after considering their overall loss and damage.

12.7 SOP for Department of Public Works

1. Preparedness
• Designate one Liaison Officer in the department as the Disaster Preparedness Focal Point. The Chief Executive Engineer will be the liaison. • Take precautionary steps for the protection of government property against possible loss and damage during disaster. • Formulate guidelines for safe construction of public works. • Prepare list, with specifications and position, of heavy construction equipment within the district. • Organize periodic training of engineers and other construction personnel on disaster resistant construction technologies. • Inspect all roads, road bridges by a bridge engineer, including underwater inspection of foundations and piers. A full check should be made on all concrete and steel works. • Inspect all buildings and structures of the state government (including hospital buildings) by a senior engineer and identify structures which are endangered by the impending disaster. • Emergency tool kits should be assembled for each division, and should include: • The designation of routes strategic to evacuation and relief should be identified and marked, in close coordination with police and district control room. • Prepare mitigation plan for the department and enforce the same. • Advise the district disaster management authority on structural mitigation measures for the district. • Repair, Maintenance and retrofitting of public infrastructure. • Identify / prioritize mitigation activities of lifeline buildings and critical infrastructure and coordinate with the SDMA for its implementation. • Place danger sign boards in the areas highly prone to specific type of disasters, such as road accidents etc.
2. Mitigation
• Establish radio communications with SEOC. • Depute one representative at the SEOC as per the directions from SDMA. • Instruct all officials at construction sites to keep manpower and materials prepared for protection and repair of public works. • Direct construction authorities and companies to preposition necessary workers and materials in or near areas likely to be affected by disaster. • Vehicles should be inspected, fuel tanks filled and batteries and electrical wiring covered as necessary. • Extra transport vehicles should be dispatched from district headquarters and stationed at safe strategic spots along routes likely to be affected. • Heavy equipments, such as front-end loaders, should be moved to areas likely to be damaged and secured in a safe place. • Establish a priority listing of roads which will be opened first. Among the most important are the roads to hospitals and main trunk routes. • Give priority attention to urgent repair works that need to be undertaken in disaster affected areas. • Work under construction should be secured with ropes, sandbags, and covered with

tarpaulins if necessary.

- Emergency inspection by mechanical engineer of all plant and equipment in the district workshops.

3. Response

- Provide assistance to the damage assessment teams for survey of damage to buildings and infrastructure.
- Adequate road signs should be installed to guide and assist the drivers.
- Begin clearing roads. Assemble casual laborers to work with experienced staff and divide into work-gangs.
- Mobilize community assistance for road clearing by contacting community organizations and village disaster management committees.
- Undertake cleaning of ditches, grass cutting, burning or removal of debris, and the cutting of dangerous trees along the roadside in the affected area.
- Undertake construction of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- If possible, a review of the extent of damage (by helicopter) should be arranged for the field Officer-in-Charge, in order to dispatch most efficiently road clearing crews, and determine the equipments needed.
- If people are evacuating an area, the evacuation routes should be checked and people assisted.
- Take steps to clear debris and assist search and rescue teams.
- Provide sites for rehabilitation of affected population

4. Relief

- Identify locations for setting up transit and relief camps, feeding centers and quantity of construction materials and inform SEOC accordingly.
- As per the decisions of the StateEmergency Operations Center undertake construction of temporary structures required, for organizing relief work and construction of relief camps, feeding centers, medical facilities, cattle camps and Incident Command Posts.

5. Rehabilitation

- Carry out detailed technical assessment of damage to public works.
- Assist in construction of temporary shelters.
- Organize repairs of buildings damaged in the disaster
- Prepare detailed programs for rehabilitation of damaged public works.
- Arrange technical assistance and supervision for reconstruction works as per request.

12.8SOP for Department of Food & Civil Supplies

1. Preparedness
• Make go downs in disaster prone areas in advance. • Collect necessary resources keeping the type and intensity of disasters that have previously occurred or are expected to occur. • Make proper arrangements so that the stock in the go downs does not rots/spoils.
2. Mitigation
• Make necessary arrangements according to the expected requirements and procure the material which the department is short off. • Form teams and train them on how to ration resources.
3. Response
• Proper keeping of resources. • Make an inventory according to the prevailing needs and the estimated time and hence procure the needful.
4. Relief
• Arrangements made for the distribution like vehicles through help from SDMA or other departments.
5. Rehabilitation
• Use the equipments/resources from time to time so that they remain in working condition. • Strict monitoring to keep a check on unauthorized using of resources and legal proceedings to be carried out if required.

12.9 SOP for Department of Agriculture

1. Preparedness
• Designate a focal point for disaster management within the department. • Identify areas likely to be affected. • Arrange for keeping stock of seeds, fertilizers and pesticides. • A pests and disease monitoring system should be developed to ensure that a full picture of risks is maintained. • Historical data to be gathered on the drought prone areas.
2. Mitigation
• Provide timely warning to SEOC/SDMA about droughts. • Check available stocks of equipment and materials which are likely to be most needed after the disaster. • Stock agricultural equipment which may be required after a disaster • Determine what damage, pests or diseases may be expected, and what drugs and other insecticide items will be required, in addition to requirements of setting up extension teams for crop protection, and accordingly ensure that extra supplies and materials, be obtained quickly. • Provide information to all concerned, about disasters, likely damages to crops and plantations, and information about ways to protect the same. • All valuable equipment and instruments should be packed in protective coverings and stored in room the most damage-proof
3. Response
• Depute one liaison officer to the SEOC. • Monitor damage to crops and identify steps for early recovery. • Estimate the requirement of Seeds Fertilizers Pesticides, and Labour. • Ensure that adequate conditions through cleaning operations are maintained to avoid water-logging in flooded areas.
4. Relief
• Organize transport, storage and distribution of the seeds, fertilizers, pesticides with adequate record keeping procedures.
5. Rehabilitation
• Quantify the loss and damage within the quickest possible time and finalize planning of agriculture rehabilitation. • Ensure availability of adequate supply of seeds, seedlings, fertilizers, pesticides and agricultural implements. • Assist farmers to re-establish their contacts with agriculture produce market and ensure that appropriate prices be offered to them.

12.10 SOP for Department of Urban Development

1. Preparedness
• Designate one Liaison Officer in the department at district level as the Disaster management Focal Point. • Develop a disaster management plan for the department, including the identification of location of camps for different type of disasters, existing locations that can be used as shelters, inventories of agencies that can be used for tent establishment. • To conduct regular training the staff on minimum standards for shelter, relief camps and tent structures. • Prepare department's disaster management plan. • Develop alternative arrangements for population living in structures that might be affected after the disaster.
1. Mitigation
• Designate one Liaison Officer in the department as focal point for the mitigation activities. • Coordinate with the SDMA for implementation of mitigation activities in the urban areas. • Prepare & implement department's mitigation plan
Response
• Quick assessment of damaged areas and areas that can be used for relief camps for the displaced population • Locate adequate relief camps based on survey of damage • Clear areas for setting up relief camps • Locate relief camps close to open traffic and transport links • Set up relief camps and tents using innovative methods that save time • Provide adequate and appropriate shelter to the entire population • Coordinate with other ESFs in equipping shelter and relief sites with basic needs of communication and sanitation. • Maintaining and providing clean water • Procurement of clean drinking water. • Coordinate with SEOC & ICP's for proper disposal of dead bodies in the urban areas. • In case of damage to offices, assist local authorities to establish and house important telecom equipment and officials at the earliest
2. Relief
• Setting up water point in key locations and in relief camps
Recovery and rehabilitation
• Implement recovery & rehabilitation schemes through municipalities for urban areas.

12.11 SOP for Panchayat and Rural Development Department

1. Preparedness

- Develop a disaster management plan for the department at state level & update it annually.
- Analyze the training needs of the department's personnel, which include its officials and elected representatives of Gram Panchayat, Panchayat samiti's and Jila Panchayat and organize trainings with the help of HIDM or other agencies.
- Constitute gram panchayat Disaster Management Committee
- Conduct gram Panchayat level mock drills as part of preparedness.
- Designate one Liaison Officer in the department and the state as the Disaster Management Focal Point.
- Develop a state disaster management plan for the department.
- Prepare maps showing population concentration and distribution of resources.
- Encourage disaster resistant technological practices in buildings and infrastructure.
- Encourage the people in earthquake prone areas to adopt earthquake resistant technologies.
- Report activities in periodic meetings of the district disaster management advisory committee and to SDMA.
- In coordination with PWD conduct regular training to the engineers of the department.
- Appoint one officer as focal point for mitigation activities
- On the basis of its developmental responsibility, liaise with other line departments and agencies for a coordinated mitigation approach.
- In coordination with the SDMA, conduct building assessments, identification of structural and non structural mitigation activities.
- Organize awareness programmes for BDO's, Panchayat secretaries and Gram Pradhans on structural and no-structural mitigation activities.

2. Mitigation
• Prepare & implement department's mitigation plan • Ensure that all the development schemes of the department have a mitigation component as an integral part • Focal Point in department to keep in touch with the SEOC. • Alert all concerned about impending disaster. • Ensure safety of establishments, structures and equipment in the field • Ensure formation of committee for rescue, relief and rehabilitation work and local volunteer teams.
3. Response
• Coordinate with local authorities and support the response efforts. • Coordinate the support from unaffected gram Panchayats. • Ensure information flow from affected Gram Panchayats and maintain regular contact with SEOC (24 hrs). • Support revenue department in establishing ICP's in the affected areas • Provide necessary infrastructure to carry out relief works • Assess initial damage
4. Relief
• Ensure availability of drinking water at times of need.
5. Rehabilitation
• Ensure proper distribution of reconstruction schemes and monitoring of the same during Block development committee and Zila Parishad meetings • Quantify the loss/damage • Organize reconstruction of damaged houses on self help basis with local assets and materials received from the government. • Take up repair/reconstruction work of infrastructure damaged by disaster.

12.12SOP for Forest Department

1. Preparedness
• Prepare a department disaster management plan for the state. • Depute one liaison officer for disaster management. • Forest Fire prone areas should be identified and extra vigilance be ensured in such cases. • Depute one liaison officer within the department, who will be in contact with the SEOC during disasters. • Every year pre-fire season meetings should be organized to take the stock of the preparedness at Range level • Prepare & maintain forest lines • Organize community awareness programs • Train the Gram Panchayat disaster management committees in forest fire prevention, protection and control, especially in those gram Panchayat which are located at the fringes of forest areas. • Prepare mitigation plan for the department buildings and infrastructure.
2. Mitigation
• A rapid response team will be established at division/sub-division/range level, which will have all tools and equipments readily available. • Information regarding issue alerts to nearby population
3. Response
• Respond within the department as per the department disaster management plan • The liaison officer will coordinate with SEOC for information exchange & also for requirements of resources to & from SEOC
10) Relief
-
11) Rehabilitation
• Damage assessment and sharing of reports with SEOC

12.13 SOP for Department of Fire Service

1. Preparedness
• Strict enforcement of laws made for the security of Fire squad and proper proceedings to be done in case the law is violated. • Regular check of equipments and procuring new ones as and when necessary. • Demarcating Industries and areas susceptible to fire, events that are susceptible to fire etc. • Aware people about their safety how to mitigate fire & its effects. • Training of employees keeping their safety in mind. • The blueprint of any building/house should not be accepted without proper Fire Safety measures.
2. Mitigation
• Train people how to mitigate fire in early stages and foremost how to avoid it. • Training of people on how to react in an emergency situation. • Train staff and Raj Mistri's about latest Fire Fighting techniques
12 Response
• Find a safe way to save people trapped in fire in a house/ building/ aero plane/ train/ industry/ boiler etc. • Get control over fire and minimize damage in case of an explosion. • Control the situation in case of gas leak or leakage of some dangerous chemical.
13 Relief
• Help other departments in search & rescue and estimation of damage. • Share experiences with the department.
14 Rehabilitation
• Training of employees about new disasters (related to fire) that can occur. • Formulate a checklist and re-prepare an emergency plan.

12.14SOP for Department of Home

1. **Preparedness**
• Vulnerability map of the state. • Resource Inventory, Capacity analysis. • List of cut off areas with safe route map for communication. • Formulation/ Updation of Disaster Plan for thestate.
2. Mitigation
• List of storage facilities, dealers of food. • Control room setup/assignment of control room duty. • Pre-positioning of staff for site operation centres. • Pre-arrangements to be made as per the demand of various departments.
3. Response
• Arrangement of alternative communication/generator sets etc. • Arrangement of vehicles/boats of for evacuation. • Dissemination of warning/coordination with state Control room. • Monitor the working of various departments and make frequent visits to disaster struck areas to cross-check. • Estimating the loss and damage and keep a record. • Share experiences with all the departments.
4. Relief
• Continuous aid & proper arrangements till situation is under control.
5. Rehabilitation
• Monitor that the Repair & Restoration work is in progress as planned. • Examine the performance reports of various departments. Examine the reports in order to make amendments and prepare a better strategy by taking inputs from all departments

12.15 SOP for Department of Irrigation and Water Resources

1. **Preparedness**
• Communication establishment with state Control Rooms and departmental offices. • An officer to be appointed as nodal officer. • Activation of flood monitoring mechanism • Methods/communication arrangement of alerting officers on various sites established • Check the preparation level of the department. • Identify the areas that face the maximum flow of the major rivers and also make the locals aware about it. • Identify the flood prone areas and demarcate them and also send a flood surveillance team to such areas. • Mark the maximum safe level of water at all the embankments of rivers, reservoirs and dams.
2. Mitigation
• Mechanism evolved for forewarning settlements in the downstream/evacuation/coordination with other dam authority. • Identification of materials required for response operations • Repairs/ under construction activity are well secured • Water level gauges marked • Inlet and outlet to tanks are cleared • Watch and ward of weak embankments & stock piling of repair materials at vulnerable points • Guarding of weak embankments • All staff informed about the disasters, likely damages and effects. • Procure necessary inventory for flood situations and keep it properly maintained. • Inventories for the case of breakage of dam/embankments like sand sacks, rocks, etc need to be brought and checked well in advance.
3. Response
• Surveillance of flood hit/susceptible areas. • Make announcements about the coming flood. • Usage of advanced technology like GPS to calculate damage and the areas where maximum damage would occur. • Safety of equipment of the Irrigation department to be maintained. • Survey of major dams, embankments, bridges, channels etc is done. • Emergency help services to areas where bank got broken.
4. Relief
-
5. Rehabilitation
• Estimating the loss and damage and keep a record. • Surveillance for protection of people. • Share experiences with the department. • Formulate a checklist and re-prepare an emergency plan. Training of staff to minimize the loss of life/property.

12.16 SOP for Department of Rural Water Supply & Sanitation

1. **Preparedness**
• Provide clean drinking water in all areas rural/urban. • Regular cleaning of nalas and prevent them from choking. • Facilitate proper drainage in all areas to prevent diseases.
2. Mitigation
• Proper arrangement of water tankers in good condition. • Arrange for generators in advance. • Make necessary arrangements of chlorine tablets for disaster prone/expected areas. • Repair the platforms of tube wells if required and any other necessary repairs if required to avoid damage.
3. Response
• Cleaning water sources and continuous monitoring. • Supply of clean water at hospitals and medical camps. • Provide water through water tankers wherever required. • Provide emergency help to clean and start tube wells & other water sources. • Repair of damaged water sources to be carried out. • Aware people about how to keep the hand pumps free of microbial infections.
4. Relief
5. Rehabilitation
• Reinforcement & reconstruction of damaged sources and to keep records. • Share experiences with the department. • Training of employees. Formulate a checklist and re-prepare an emergency plan.

12.17 SOP for Department of Education

1. Preparedness
• Identify one Liaison Officer in the department at district level as Disaster Management Focal Point. • Develop state level disaster management plan for the department • In consultation with SDMA, state education directorate and state education board include disaster related subjects in the curricula in schools, and colleges. • Arrange for training of teachers and students on Disaster management and school safety activities. • Ensure that all schools and colleges develop their disaster management plans. • Ensure that construction of all educational institutions in earthquake zones is earthquake resistant. • Conduct regular mock drills in the educational institutes
2. Mitigation
• Identify structural and non structural mitigation measures and get them implemented. • In coordination with the SSA &/or Public works department assess schools and colleges buildings conditions and place the proposal of retrofitting of the structurally unsafe buildings with the state education department and/or SDMA. • Make departmental mitigation plan and ensure its implementation. • Ensure that earthquake resistant features are included in new school buildings.
3. Response
• In the event of disaster, place required number of education institutions and their buildings, under the SEOC for use as emergency shelter and relief centre, if necessary.
4. Relief
• Students and staff trained as task forces as part of the school disaster management planning's can provide local voluntary assistance for distribution of relief material and assistance to special needy people in the locality.
5. Rehabilitation
• Determine the extent of loss in educational institutions and submit the report to SDMA and state education department.

12.18 SOP for Department of Industrial Health and Safety

1. Preparedness
• Designate one Liaison Officer in the Department as the Disaster Management Focal Point at district level. • Ensure all possible steps for the security of manpower, implements, stock, installations/factories etc. • Prepare listing and locations of industries and establishments for possible sourcing of relief material during disasters in the district. • Ensure training on preparedness programmes to be adopted at different levels for all manpower employed in factories and establishments in disaster vulnerable areas. • Issue disaster management guidelines to all the industries and ensure on-site and off-site plans for all industries. • Prepare and disseminate guidelines for the labor security and safety. • Prepare and implement rules and regulations for industrial safety and hazardous waste management.
2. Mitigation
• Support the State Pollution Control Board to enforce the law for preventing environmental disaster in chemical industry or industries emitting toxic gases and effluents. • Issue detailed instructions to the employees about their duties and responsibilities in precautionary, disaster and post-disaster stages of normal disaster. • Prepare and disseminate public awareness material related to chemical accidents. • Prepare & implement department's mitigation plan for the district
3. Response
• Evacuation of the workers from the Industrial are vicinity • During any industrial disaster, respond as per the disaster management plan of the respective industry or as per the guidelines for the specific hazard involved in the event.
4. Relief
• Request industries to provide emergency relief material such as food products, temporary shelter, medicines and medical equipment and search & rescue equipment.
5. Rehabilitation
• Take steps to plan for rehabilitation of industries adversely affected by disasters.

12.19 SOP for Police Department

1. Preparedness
• Keep the force constantly prepared for Rescue & search operations and other emergency operations. • Procure latest equipments and train the force, how to use them. • Posting of emergency team should be done in such a way such that they constantly remain physically fit.
2. Mitigation
• Constant check of the condition of all equipments like wireless. • Make proper arrangements for any extra equipment in case they may be required. • Coordination with the District Management and the Disaster manager is kept. • Advance arrangements for vehicles that may be needed at time of emergency.
3. Response
• Post some senior Police Officer at the State Disaster Management Office. • Post Police team at dangerous banks and other risky places. • Proper arrangements for security to be made. • Help the state authority in search & rescue and also in evacuating places. • Prepare for emergency transportation facilities. • Strict enforcement of law in affected areas to avoid any chaos. • Strict surveillance and proceedings against black-marketing/stockpiling of necessary resources.
4. Relief
• Provide temporary shelters and arrange for relief materials (food/water) on roads.
5. Rehabilitation
• Strict enforcement of law in affected areas to avoid any chaos. • Surveillance for protection of people. • Share experiences with the department. • Formulate a checklist and re-prepare an emergency plan.

12.20 SOP for veterinary department

1. Preparedness
• Communication establishment with district and Block / Tehsil control rooms and departmental offices within the division. • Listing of club houses, schools, community centers that can be used as shelter for animals.
2. Mitigation
• Collect information from different areas and to act accordingly (Assignment of duties). • Preparation of shelters in clubs, Schools, Halls etc, for animals and shifting them if necessary. • Tagging the animals to avoid mix up and chaos. • Getting proper stock of fodder for cattle.
3. Response
• Veterinary Hospital & Veterinary Dispensary at every important place (thickly cattle populated areas) headed by the Veterinary Assistant/ Surgeon. • Regular collection of situation report of the risk and vulnerable areas from the officers assign for the purpose. • Replacement of affected cattle in the shelters/camps, collection of faecal waste and cleaning etc. • Feeding the animals.
4. Relief
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5. Rehabilitation
• Veterinary First Aid centre/stockman sub-centre at most of the areas to be made and all the wings should be ready to combat the situation. • Getting the animals back to their owners and returning the stray ones to Nagar Maha Palika. • Cleaning of temporary shelters.

Chapter 13 - Disaster Specific Action Plans

13.1Action Plan for Earthquake

Do's before an Earthquake

- Repair deep plaster cracks in ceilings and foundations. Get expert advice if there are signs of structural defects.
- Anchor overhead lighting fixtures to the ceiling.
- Follow BIS codes relevant to your area for building standards
- Fasten shelves securely to walls.
- Place large or heavy objects on lower shelves.
- Store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches.
- Hang heavy items such as pictures and mirrors away from beds, settees, and anywhere people sit.
- Brace overhead light and fan fixtures.
- Repair defective electrical wiring and leaky gas connections. These are potential fire risks.
- Secure a water heater, LPG cylinder etc., by strapping it to the wall studs and bolting it to the floor.
- Store weed killers, pesticides, and flammable products securely in closed cabinets with latches and on bottom shelves.
- Identify safe places indoors and outdoors.
    1. Under strong dining table, bed
    2. Against an inside wall
    3. Away from where glass could shatter around windows, mirrors, pictures, or where heavy bookcases or other heavy furniture could fall over
    4. In the open, away from buildings, trees, telephone and electrical lines, flyovers, bridges

- Educate yourself and family members
- Know emergency telephone numbers (doctor, hospital, police, etc)
- Have a disaster emergency kit ready

    - Battery operated torch
    - Extra batteries
    - Battery operated radio
    - First aid kit and manual
    - Emergency food (dry items) and water (packed and sealed)
    - Candles and matches in a waterproof container
    - Knife
    - Chlorine tablets or powdered water purifiers
    - Can opener.
    - Essential medicines
    - Cash and credit cards
    - Thick ropes and cords
    - Sturdy shoes

Develop an emergency communication plan

1. In case family members are separated from one another during an earthquake (a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.
2. Ask an out-of-state relative or friend to serve as the 'family contact' after a disaster, it's often easier to call long distance. Make sure everyone in the family knows the name, address, and phone number of the contact person.

Help your community get ready

1. Publish a special section in your local newspaper with emergency information on earthquakes. Localize the information by printing the phone numbers of local emergency services offices and hospitals.
   - Conduct a week-long series on locating hazards in the home.
   - Work with local emergency services and officials to prepare special reports for people with mobility impairments on what to do during an earthquake.
   - Provide tips on conducting earthquake drills in the home.
   - Interview representatives of the gas, electric, and water companies about shutting off utilities.
2. Work together in your community to apply your knowledge to building codes, retrofitting programmes, hazard hunts, and neighborhood and family emergency plans.

Do's during an Earthquake

Stay as safe as possible during an earthquake. Be aware that some earthquakes are actually foreshocks and a larger earthquake might occur. Minimize your movements to a few steps to a nearby safe place and stay indoors until the shaking has stopped and you are sure exiting is safe.

If indoors

- **DROP** to the ground; take **COVER** by getting under a sturdy table or other piece of furniture; and **HOLD ON** until the shaking stops. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
- Protect yourself by staying under the lintel of an inner door, in the corner of a room, under a table or even under a bed.
- Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
- Stay in bed if you are there when the earthquake strikes. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.
- Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load bearing doorway.
- Stay inside until the shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.
- Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.
- DO NOT use the elevators.

If outdoors

- Stay there.
- Move away from buildings, trees, streetlights, and utility wires.
- Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.

If in a moving vehicle

- Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

If trapped under debris

- Do not light a match.
- Do not move about or kick up dust.
- Cover your mouth with a handkerchief or clothing.
- Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

Do's after an earthquake

- Keep calm, switch on the radio/TV and obey any instructions you hear on it.
- Keep away from beaches and low banks of rivers. Huge waves may sweep in.
- Expect aftershocks. Be prepared.
- Turn off the water, gas and electricity.
- Do not smoke and do not light matches or use a cigarette lighter. Do not turn on switches. There may be gas leaks or short-circuits.
- Use a torch.
- If there is a fire, try to put it out. If you cannot, call the fire brigade.
- If people are seriously injured, do not move them unless they are in danger.
- Immediately clean up any inflammable products that may have spilled (alcohol, paint, etc).
- If you know that people have been buried, tell the rescue teams. Do not rush and do not worsen the situation of injured persons or your own situation.
- Avoid places where there are loose electric wires and do not touch any metal object in contact with them.
- Do not drink water from open containers without having examined it and filtered it through a sieve, a filter or an ordinary clean cloth.
- If your home is badly damaged, you will have to leave it. Collect water containers, food and ordinary and special medicines (for persons with heart complaints, diabetes, etc...)
- Do not re-enter badly damaged buildings and do not go near damaged structures.

13.2 Action plan for Floods

Preparedness before Flood

- Avoid building in a flood prone area unless you elevate and reinforce your home.
- Elevate the furnace, water heater, and electric panel if susceptible to flooding.
- Install "check valves" in sewer traps to prevent floodwater from backing up into the drains of your home.
- Contact community officials to find out if they are planning to construct barriers (levees, beams, floodwalls) to stop floodwater from entering the homes in your area.
- Seal the walls in your basement with waterproofing compounds to avoid seepage.

Do's During a Flood

1. Listen to the radio or television for information.
2. Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.
3. Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.

Do's during evacuation

1. Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.
2. Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.
3. Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
4. Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and the vehicle can be quickly swept away.

Do's after flood

1. Listen for news reports to learn whether the community's water supply is safe to drink.
2. Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.
3. Avoid moving water.
4. Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a vehicle.
5. Stay away from downed power lines, and report them to the power company.
6. Return home only when authorities indicate it is safe.
7. Stay out of any building if it is surrounded by floodwaters.
8. Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
9. Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
10. Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

13.3 Action plan for Chemical disaster

Citizens can be identified by observing the people who start coughing, vomiting or seizing.

Dos

- Evacuate the area immediately and dial disaster management control room for help.
- If indoors, exit the building rapidly as possible.
- Once outside, if you believe that you may have been exposed to toxic substance, discard you inhibition to remove your clothes immediately, which may save your life.
- Taking out your clothes can remove 80 percent of the contamination hazards.
- Look for a nearby water tap or fountain, pool or other source of water so that you can quickly and thoroughly rinse any skin part that may have been exposed.
- Fire brigades on arrival in area may spray water on every one affected and decontaminate.
- Remain calm.
- Medical attention shall be needed and first aid to be given to seriously affected people.
- Evacuate most seriously exposed individuals.
- If you happen to be in open and outdoor, you may observe birds and small animals falling to the ground due to poisonous gas. You must immediately move indoors and create a physical barrier between you and toxic cloud. A building protection is preferred; however, getting inside your car will also help you.
- Shut all doors and windows of the house and put off fans and air conditioners.
- Try to plug flow of air or wind to you rooms.
- Stay indoors.
- Listens Radio, TV News and Announcements.
- Authority will notify you when it is safe to come out.
- Have a bath immediately on entry to the house and keep your cloth in a plastic bag, it will help remove any contamination that might have occurred before you were able to get indoors. It may be done in period of less than a minute or one minute.
- You may like to keep gas, mask handy.
- Protect your mouth and nose, if in the open, with a wet cloth or a protective mask.
- Take shelter in the nearest building and remain inside until otherwise instructed by the authorities.
- Follow the orders of the Civil Defense, fire services, Police or other intervening services.
- Eat only food stored inside a building such as tinned food and preserved one. Drink only from bottles or cartons. Follow the instructions on the use of tap water.
- If you are in a car, turn off the ventilation and close the windows. Listen to the radio and take shelter in the nearest building. Follow the instructions of the authorities.

DON'Ts:

- Do not consume open food/drinks/water beverages etc. lying under the open sky.
- Do not move out of shelters/ basement unless instructed by authorities.
- Don'ts stir up dust or brush against things when moving in contaminated areas.
- Don't smoke, eat or drink in exposed areas.
- Don't kneel, lie or sit on the ground.
- Don'ts walk barefooted or in open slippers.
- Don't move out of your shelter without proper protection to breathing passages.
- Don't permit contaminated persons in basements/shelter unless decontaminated for the chemical vapors.

13.4 Action plan for Nuclear disaster

DO'S:

- Plug ears, save skin from heat, put on head gear, know the explosion site and go away from ground zero, breath normally, stay calm.
- Lie down on ground with face down - head away from ground zero, cover face with handkerchief. It will avoid internal contamination.
- If in shelter, close doors/windows, switch off AC & remain inside, evacuate, relocate: Fallout may continue for more than 24 hours depending upon weather.
- Go underground to reduce external radiation & avoid external contamination. (Wet sand & 30 cm earth give 20 P.F.).
- If contaminated, remove clothes and put them in poly bags. Take showers. Stay in tunnels, trenches, foxholes, tents vehicles decontaminates food or areas. (Covered items like bread, butter, jam can be consumed after removing wrapper.
- Put on mask to avoid inhaling contaminated air.
- Put on protective suits, if available help injured. Become part of rescue team.
- Look for terrorists and help police to trap them
- Consume Bioprotectors like KI, KIO3, Beer, Tulsi, Arnica, Caffein, Diltiazem, Vitamin C/E, podophylum.
- Get treatment for burn, cut and other injuries.
- Keep monitoring radiation level/radiation dose
- Follow time, distance, and shielding principle.

DON'TS:

- Do not look at blinding flash; don't go in to cloud/rain/fog.
- Do not run or get panicky. INR will be over in about 1 min.
- Do not spread rumours.
- Do not crowd the site: Keep away.
- Do not crowd hospitals/road/areas.
- Know the explosion site and do not go in downwind direction.
- Do not go to radioactive contaminated area.
- Do not remain in open air. Water is a good neutron shield.
- Do not spread radioactive contamination (External & Internal).

13.5 Action Plans for Biological Disaster

Do's and Don'ts for Biological Disasters:

Before

Children and older adults are particularly vulnerable to biological agents. Ensure from a doctor/the nearest hospital that all the required or suggested immunizations are up to date.

During

- In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. It will take time to determine what the illness is, how it should be treated, and who is in danger. Close the doors and windows when a biological attack is imminent.
- Watch television, listen to radio, or check the Internet for official news and information including signs and symptoms of the disease, areas in danger, if medications or vaccinations are being distributed, and where you should seek medical attention if you become ill.
- The first evidence of an attack may be when you notice symptoms of the disease caused by exposure to an agent.
- Be suspicious of any symptoms you notice, but do not assume that any illness is a result of the attack.
- Use common sense and practice good hygiene.

After

Pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical protocols for handling exposure to biological agents are the same as for any infectious disease. It is important for you to pay attention to official instructions via radio, television, and emergency alert systems.

13.6 Action Plans for Stampede

Dos and Don’t

- One must also be very alert to the fact that some pilgrims of certain nationalities come in bunches and batches and push their way through. Pilgrims should not get into their way or try to stop them as one could get harmed in the process. It will be more sensible to avoid their path and wait till they get out.
- It is advisable to move in groups from the camps with the assistance of the controlling authority or group leader or police person.
- Do not try to go against the direction of the crowd. Move with the crowd.
- Do not lose temper and do not fight with others. If required, pilgrims can retrace steps after the rush has passed.
- Understand the evacuation routes, emergency exits and layout of the place of event.
- Keep calm. Don't panic.
- In case of emergency do not run.
- Think before you do. Do not just blindly follow others.

- Open area is safer. On exit try to get away in diverse directions.
- Follow instructions given by the authorities, public address system etc.
- Do not spread rumors.
- Assist and collaborate with the organizers, authorities, fire services. Police etc.
- Try to help others in your best capable way.

13.7 Action Plans for Accidents

Road Accident

Railway Accident

- All railway staff whether on duty or otherwise, should involve themselves in rescue and relief,
- Senior most officers at the site of accident is the in-charge of recue/relief operations at the site.
- There should be utmost speed in rushing medical and other relief to the site of the accident.
- There should be utmost care, consideration and courtesy extended to the passengers involved in the accident.
- Adequate and swift arrangements should be made for good, drinking water etc to the affected passengers.
- Employee responsibilities at the site should be clearly defined. This helps prevent confusion.
- Quick transmission of information, particularly details of dead and injured, should be ensured.
- Ensure proper preservation and care of the dead.
- Ensure security of passenger's luggage.
- Timely dissemination of information to passengers of evacuation arrangements to relieve panic and create re-assurance.
- Ensure proper liaison with civil administration and press.
- Ensure that clues are preserved and restoration operations are well planned and swiftly executed.

Action Plan for Construction

- Get the building inspected by a qualified engineer after 10 years of its occupation and at an interval of 5 years thereafter for structural assessment and carry out the works suggested by him.
- Attend to all the leakages promptly.
- Keep all the sanitary pipes, water pipes and its fittings in good condition by replacing the broken parts promptly.
- Check terrace waterproofing before every monsoon and attend to the repairs. Renewal of waterproofing layer, whenever necessary, shall be undertaken to prevent leakage from terrace.
- Any cracks, plaster peeling off, exposed reinforcement etc. shall be immediately brought to notice of structural Engineer.
- Render two coats of waterproof cement paint for external face of the building at regular intervals.
- Cement paint every 3 years (b) Acrylic paint every 5 years
- Preventive maintenance of lifts shall be done by giving service contracts to the lift companies. Arrange operation of lifts by liftman.
- Keep the water pump in working condition. Yearly contract for maintenance is advisable.
- Fire fighting installation shall be maintained through qualified agencies.
- Keep the terrace clean especially during monsoon.

Don'ts

- DO NOT allow any unauthorized additions/ alterations thereby loading the existing structure.
- DO NOT allow any internal changes with- out consulting the structural engineer and without obtaining prior approval of Municipal Corporation or Municipality wherever necessary.

- DO NOT allow extension of toilets or lavatories over other rooms.
- DO NOT permit internal works such as re- placement of flooring, repairs of internal plastering, repairs to RCC members, renovation of toilets or kitchen etc without consulting the professionals in the field.
- DO NOT allow gardening in any manner unless specifically designed.
- Change of internal loading shall not be allowed.
- Subsequent addition of lofts shall not be permitted.

13.8 Action plans of the Public

Do's

- The Society or Association of every building should have copies of approved plans, structural plans, services plan (plumbing/ drainage/electrical/ A. C. ducting, etc.)
- The Society should maintain copies of as built drawings, soil investigation reports, material test results, concrete test results as well as result of any other tests including that on the building component
- The Society should also have record of any subsequent modifications as per actual site conditions from time to time.
- The Society should formulate the policy for any kind of additions, alterations and re- pairs to be carried out by members.
- The Society should ensure that any additions or authorizations are permitted only after scrutiny and approval of the structural consultant.
- The Society members desirous to carrying out any additions, alterations should take prior N.O.C. from Society by applying for the same with plan and Structural Stability Certificate from Structural Engineer and not Interior Designers.
- The Society should verify the same from their Structural Consultant/ Architect prior to giving the required N.O.C. The Society should consider the views of all the affected members before giving the NOC.
- The Society should grant N.O.C. to the member for proposed additions and alterations subject to permission from Municipal Corporation or Municipality.
- The Society should ask the member certain amount as Security Deposit towards fulfillment of Terms & Conditions of N.O.C. and to safeguard the property of other members and Society.
- The Security Deposit should be released only after N.O.C. from adjoining members on same floor as well as just below and just above floors and N.O.C. from Society's Structural Consultant/ Architect.
- The leakages from bathroom, W.C., kitchen and drainage, plumbing systems and from terraces should be attended immediately. Generally societies take action on external leakages and internal leakages being the responsibility of members concerned, normally remain unattended. Every Society should formulate the policy for immediate repairs of internal leakages to save the building from further damage. Growth of plants in drainage pipes should be re- moved periodically.
- The building should be painted with good quality cement paint, externally at every 4 to 5 years.
- Structural Audit of buildings is essential at the interval of around every 10 years. The recommendations should be compulsorily implemented by Society on priority basis.

Don'ts

- Tampering of structural members *i.e.* columns, beams and slabs and walls, load bearing walls, should not be allowed under any circumstances. Even chiseling or cutting into structural members for laying electric conduits or drainage pipes should not be allowed.
- R.C.C. slabs should not be loaded beyond for which it is designed. Shifting of walls resulting in loading directly on slab with- out proper beam below should not be allowed.
- Shifting of toilets or creating new toilets on normal R.C.C. slab should not be allowed.
- Balconies should not be allowed to be converted into bathrooms & kitchens. Even additional weight by way of planters' storage with box type grills should not be allowed on any cantilevered portion of building such as balcony or chajja.
- Change of the user from residential to commercial or godown should not be allowed because generally the slab of residential premises is not designed to make additional load of commercial or godown premises.
- Additional water storage tanks should not be allowed resting on terrace slabs directly or without proper consultation from Structural Consultant.

13.9 Action Plan for Family

Do's

- Educate your children wife and other family member in respect of natural and manmade disasters and other crises. In case of your being unaware, take help of Civil Defense and Home Guard organization and other NGOs. Develop habit in you and your children to spare 1% of you busy time to think about Individual security and security interests.
- Keep the phone numbers of the local police station, police control rooms, fire stations, and schools, colleges, TV station, All India Radio, ambulance services and Chemists for emergency use.
- Guide children to remain at schools in emergency.
- Prepare an emergency kit of items and essentials in the house including essential documents and valuables.
- Store food and water for survival in case you had a pre-warning.
- Any suspicious incidents observed be reported to police on 100. Callers do not have to give their identity on the phone. Information of immediate use be conveyed to control rooms to help early relief.
- Carry your identity card, residential telephone number or address or personal card with you. Have your blood group and any medical allergies recorded with you.
- Check information in case of disasters and crises from Ward, Civil Defense / Home Guard, and BMC, TV and All India Radio Control room.
- Learn to fight such emergencies untidily.
- Support authorities and NGOs.
- Identify scooters, cars, vehicles parked in society and identify vehicles which are unknown and parked for long.
- Organize societies and muhalla committees to educate people.

Don'ts

- Do not encourage rumors.
- Do not blame any community for any crises.
- Do not encourage communal hatred in such situations.

Do's at work place

- Your mode of travel by car, bus, train and taxi be known to your people.
- High rises buildings must check their electric and water supplies and organize periodic mockup drills for fire fighting and escape routes.
- Drills for bomb blast, threats be organized and practiced.
- Air/Helicopter evacuation be examined and organized from selected rooftops of high rises.
- Firefighting equipment be kept serviceable and periodic check is effected.
- Office societies be organized and prepared to coordinate such emergencies of fire brigade, medical help and other assistance. Such people be nominated and they should guide relief.
- Everyone must know use of fire extinguisher in emergency.
- Security guards are trained to coordinate in such crises.

Do's during Transit

- Be concerned and develop habit of surveillance when out of our house. Check your seat in cinema hall, train, bus and air. Have you observed a bird, she jumped around and looks in all directions before selecting a spot on a tree for her security. Do we learn anything from this bird instinct?
- Look for the objects, baggage, at bus stand, railway stations, compartments, airport, which is unclaimed.
- Unknown vehicles parked at airports, Railway Stations and bus stands have to be kept under surveillance by common citizens, and this alertness may help authorities.
- Bus, trains and airlines passengers who notice any suspicious behavior of co-passengers, be brought to the notice of officials,
- Every passenger should identify a friend or relations residence in case of requirement of staying away in emergency. The family should know about such a plan.

Don'ts

- Do not touch any suspicious object. Report to concerned people.
- Do not crowd the object.
- Passengers should not accept parcels from unknown persons in hurry while boarding train or bus.

13.10Action Plans for media

1. Preparedness

External

- Broadcast programs to raise people's awareness of disaster prevention measures
- Develop news sources in emergency situation
- Liaison with community leaders
- Publicize station frequency
- Broadcast public planning meetings
- Outreach to the elderly, women, children, mentally and
- physically disabled people, as well as other marginalized
- and other vulnerable groups
- Encourage stockpiling of (hand –powered) radio receivers
- Compile local knowledge on signs of impending disaster and share it with community

Internal

- Back up important documents and files (including audio content) and store in a safe location
- If possible, place a set of minimum broadcast equipment such as a microphone, tape/CD player, transmitter and antennae in a safe location
- Plan radio programs to raise people's awareness of disaster prevention
- First aid training for station personnel
- Technical preparedness (Generator, APS, securing, transmitter
- Guidelines for managing staff and volunteers
- Arrange emergency drills in the station
- Develop a contact list and post in station
- Map community (ethnicity, religion, race, culture, vulnerability)
- Prepare pre- recorded Emergency Response
- Announcements and scripts and post in the studio

2. Mitigation

- Develop networks with local Disaster Management and Response (DMR) NGOs, local government and key stakeholders: hold regular meeting with them
- Arrange emergency drills in the community
- Training of on- air personnel - what and how to broadcast

3. Response

External-on air

- Broadcast pre- prepared announcements
- Broadcast emergency public meetings
- Broadcast emergency evacuation announcements
- All announcements broadcast in a reassuring and calm

- manner
- Dispel myths and rumours and provide timely and accurate
- updates
- Broadcast updates on damage situation
- Produce programs in which victims can express themselves
- Establish contact with the meteorological office and
- broadcast weather information

Internal-behind the scenes

- Ensure safety of all station personnel
- Call station briefing meeting
- Notify CR networks of status
- Monitor all official announcements and activities of
- national government, local government and aid
- agencies(NGOs)
- Enact station evacuation plan if needed
- Log all communications for reference
- Stay calm

  Divide information work so that all voices of the community can be heard and not just male leaders.

4. Relief

- Establish Information Support Centre for information sharing and logistic distribution

5. Rehabilitation

External – Networking and Support

- Broadcast pre- prepared announcements
- Broadcast programs to heal victim's psychology trauma.
- Interview trauma counselors, monks, Imams and priests
- Broadcast recovery announcements
- Cooperate with DMR NGOs, local government and key stakeholders
- Broadcast recovery public meetings
- Provide call in or talk- back programs for people to people interactions

- Broadcast positive entertainment programming

Internal – Evaluation and Review

- Decentralise and copy important documents
- Call meeting of all personnel to debrief
- Monitor all official announcements and activities of national
- government, local government and aid agencies(NGOs)
- Evaluate response and update guidelines
- Check physical infrastructure and repair damage
- Log all communications for reference
- Update preparedness and response manuals as required

Chapter 14 - Coordination Mechanism

14.1 State Inter Agency Coordination

During emergencies, Madhya Pradesh may require support from other adjoining states, which are not affected by disasters. For this the StateEOC Head can seek help from other statesin congruence with the National EOC. The interstate coordination will elaborate the issues pertaining to mutual support, understanding, communication and coordination amongst state level.

While devising the Inter State Coordination mechanism, the Zonal level approach to be kept in mind. The Inter State Coordination Mechanism will prove to be very effective in terms of the dissemination of warning, as well as resource mobilization in terms of manpower, volunteers, safety equipments, and medical response.

The western part of the MP state is known for industrial belt, is close to Gujarat (known for sound industrial safety mechanism). Therefore in this part, the required help can be taken from Gujarat. However the southern part of MP, which is more vulnerable to flood and fire etc, is closure to Maharashtra (state has national level fire and civil defense institutions), hence the required assistance can be taken from Maharashtra in this regard. The eastern Madhya Pradesh is famous for national parks, mines and minerals. Here also the Maharashtra and Jharkhand states can extend the required assistance, whenever required. The eastern part of Madhya Pradesh is prone to drought, flood and other hazards, where the state of Uttar Pradesh and Rajasthan can come forward to extend the prompt support, as and when required.

It is recommended that there should be a formal inter-state coordination mechanism in place, so that prompt information such as the discharge of water from particular dam can be timely communicated to the state which may get affected due to the same. Similarly there are major accident hazard industries located at the bordering districts of Madhya Pradesh and surrounding states. In case of leakage of harmful gas, or spillage of hazardous waste, the information has to be communicated to concerned district of the other state at the earliest. So that potentially affected community can be saved in time, by taking the prompt precautionary measures. This mechanism will certainly help to handle emergencies in a better prepared manner.

In addition to it, with reference to any railway related interstate level disaster, the Zonal Railway Headquarter takes charge of the situation and accordingly the required prompt actions are taken, as per the standard operating procedure of Crisis Management Plan. The Headquarter of Western Central Railway is located in Jabalpur, which is in direct touch with Jabalpur, Bhopal and Kota Divisions. The standard procedures to deal with interstate railway disaster is also available in the crisis management plan, which can be accessed at www.wcr.indianrailways.gov.in

In order to deal with any aviation related disaster, at the interstate level, the Aviation Safety Management System has to be referred, which is prepared under guidance of DGCA (Directorate General Civil Aviation). The document is available on the Ministry of Civil Aviation website, which can be referred at the time of dealing with any state level aviation emergency.

14.2 Intra State – District Coordination

The intra state coordination is highly important in order to deal with any major disaster, leading to beyond district level. This requires mutual coordination, and clarity of role amongst intra state nodal agencies at the state, and district level with reference to disaster management functions.

Intra stage coordination will be applied in all 5 key stages of disaster management, including the Preparedness, Mitigation, Response, Relief and Rehabilitation. The specific State Coordination Groups will be formed to expedite the functions at each stage. The group's members representing state coordination, will be associated with State departments, NGOs, Disaster Management Specialists, national stakeholders, and respective Districts/ Divisions.

Successful disaster management at intra state level, requires robust planning and preparedness, quick & organized response, prompt relief and fail safe communication and inter coordination. The active participation of affected communities, NGOs, private sector and various Government departments like Fire Brigade, Police, Health, PWD, Civil Defense and Home Guards etc. thus become critical to any preparedness, response or relief activity. Therefore, Madhya Pradesh intra state coordination shall focus on establishing the effective disaster management mechanism which should be quick, co-ordinated and participative.

In addition to it, state of Madhya Pradesh should also have specific State level Aviation Disaster Management Plan in place. Currently the state has 9 fully active airports. However the internal security system of the airport is not so bad, but the major problem is outside the airport. The population near the airport will come under the impact zone since before landing the aeroplane takes quite a while above the ground. The golden time to save lives of a crashed aircraft is less than 7 minutes.
Though there a number of Indian civil aviation Acts and the National Disaster Management Act exist, but now it needs to be synchronized, so that conflicts in managing civil aviation emergencies could be avoided at the inter or intra state level.

14.3 Divisional level coordination

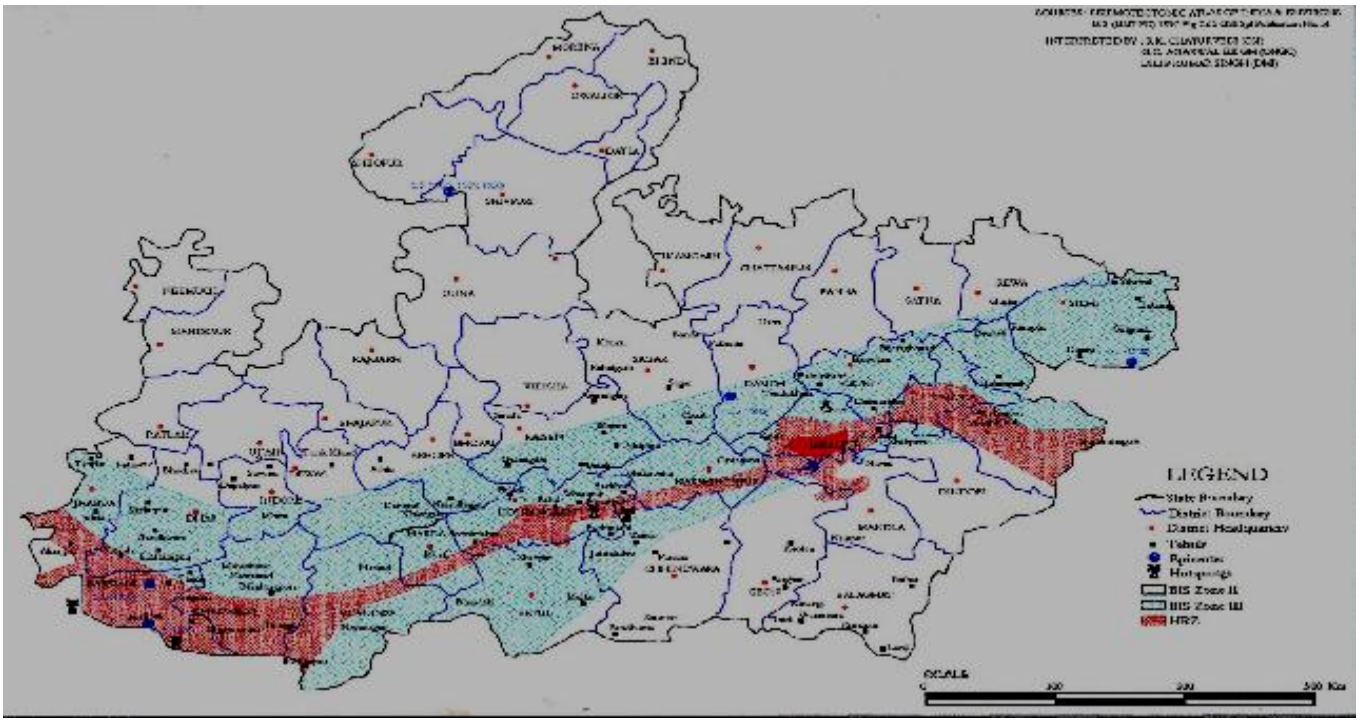
Currently state of Madhya Pradesh has 50 districts which come under the 10 following divisions:
Bhopal, Chambal, Indore, Rewa, Jabalpur, Sagar, Shahdol, Gwalior, Ujjain, and Narmadapuram However, the National Disaster Management Act 2005 does not talk about the Divisional Level Approach/ Coordination. But in case of Madhya Pradesh it has been observed through Divisional and Zonal level workshops, that the divisional level concept will be very effective in this bigger state.

However the divisional approach adds another level in the hierarchy, but seems quite impressive overall. The divisional level coordination will be very useful in terms of resource management and overall disaster preparedness and response. The divisional level platform will be used from effective disaster management point of view, by the state to reach out to districts, and vice versa.

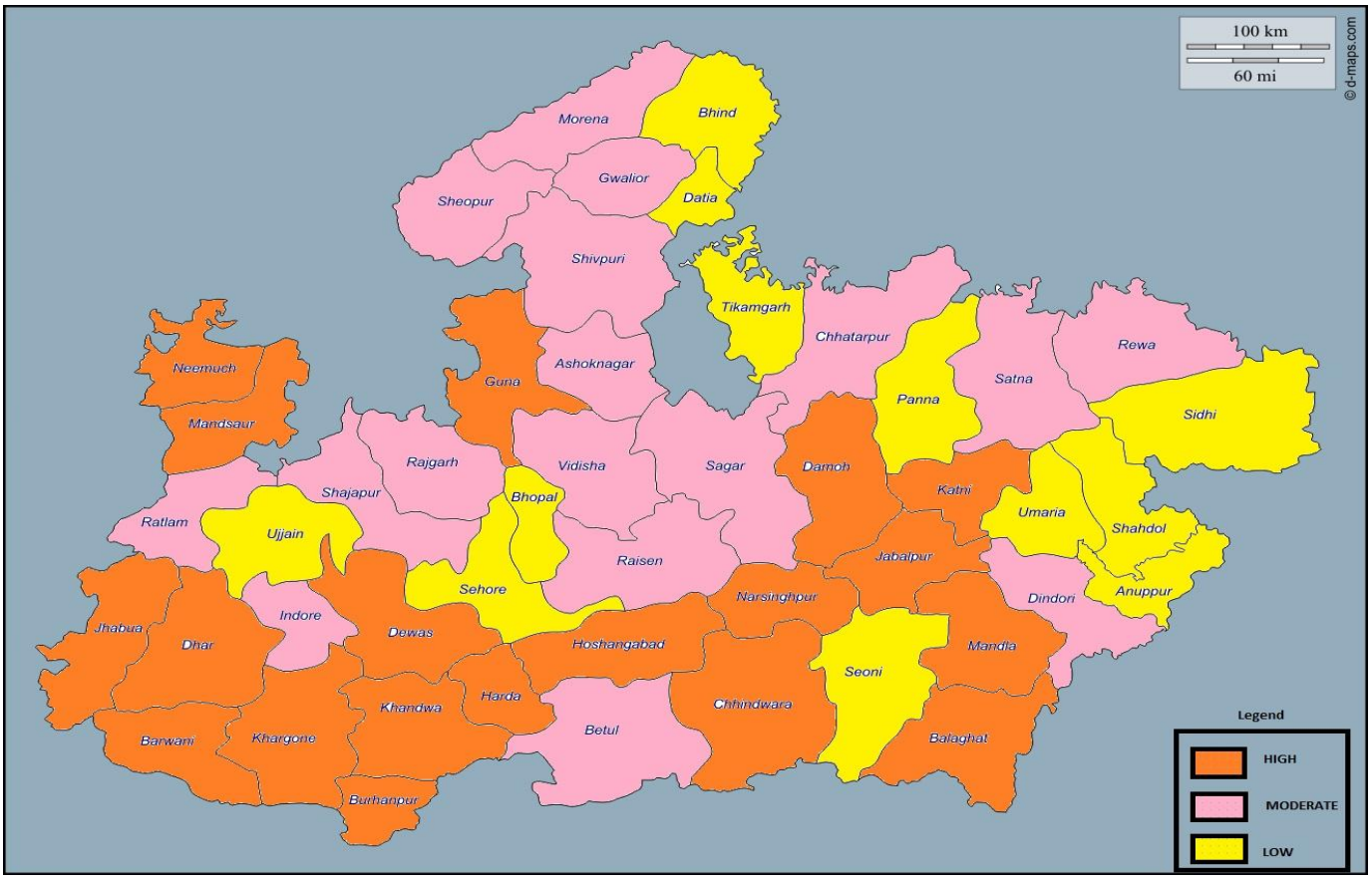
PART D

15Annexure

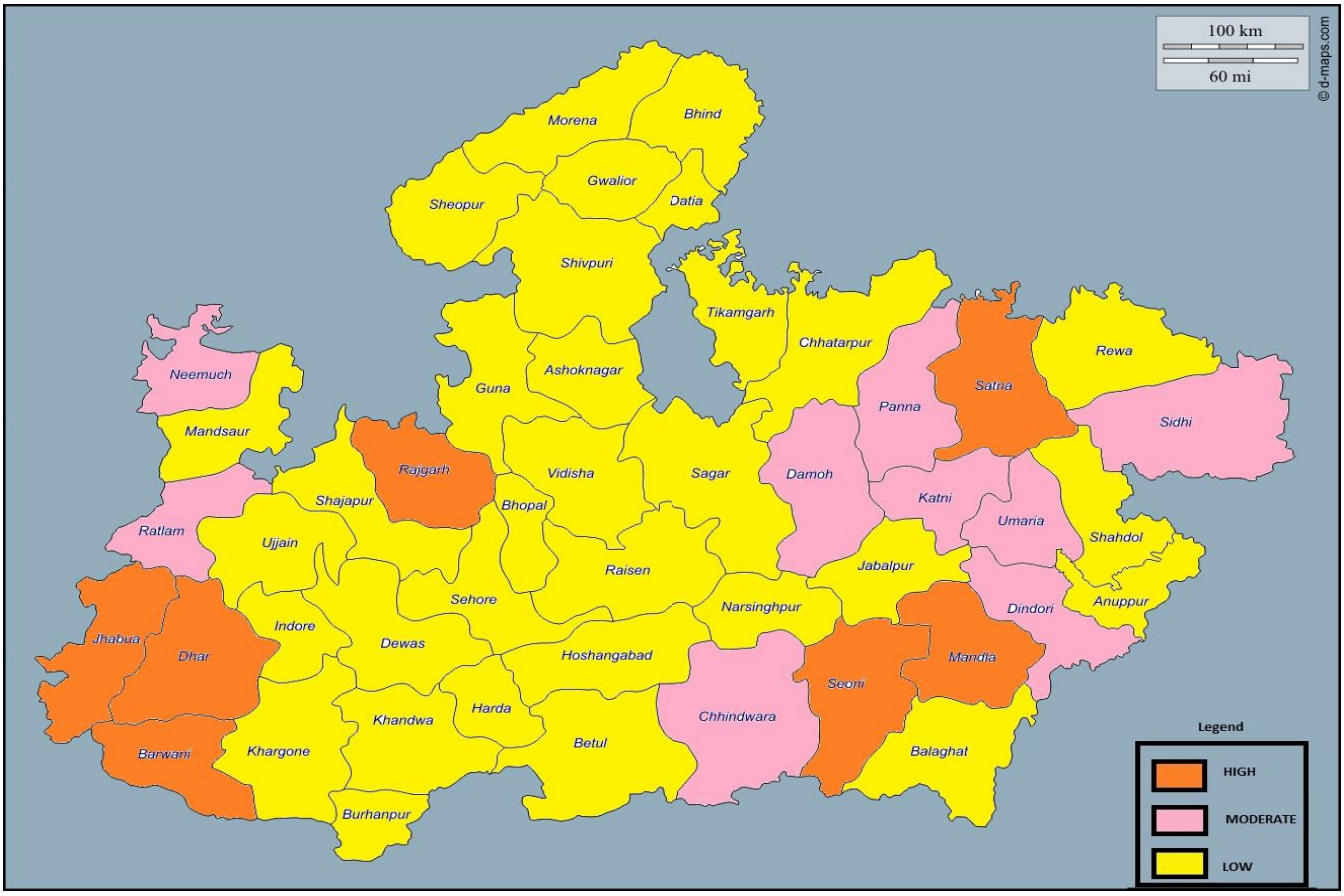
15.1 District Level Hazard, Vulnerability and resource maps



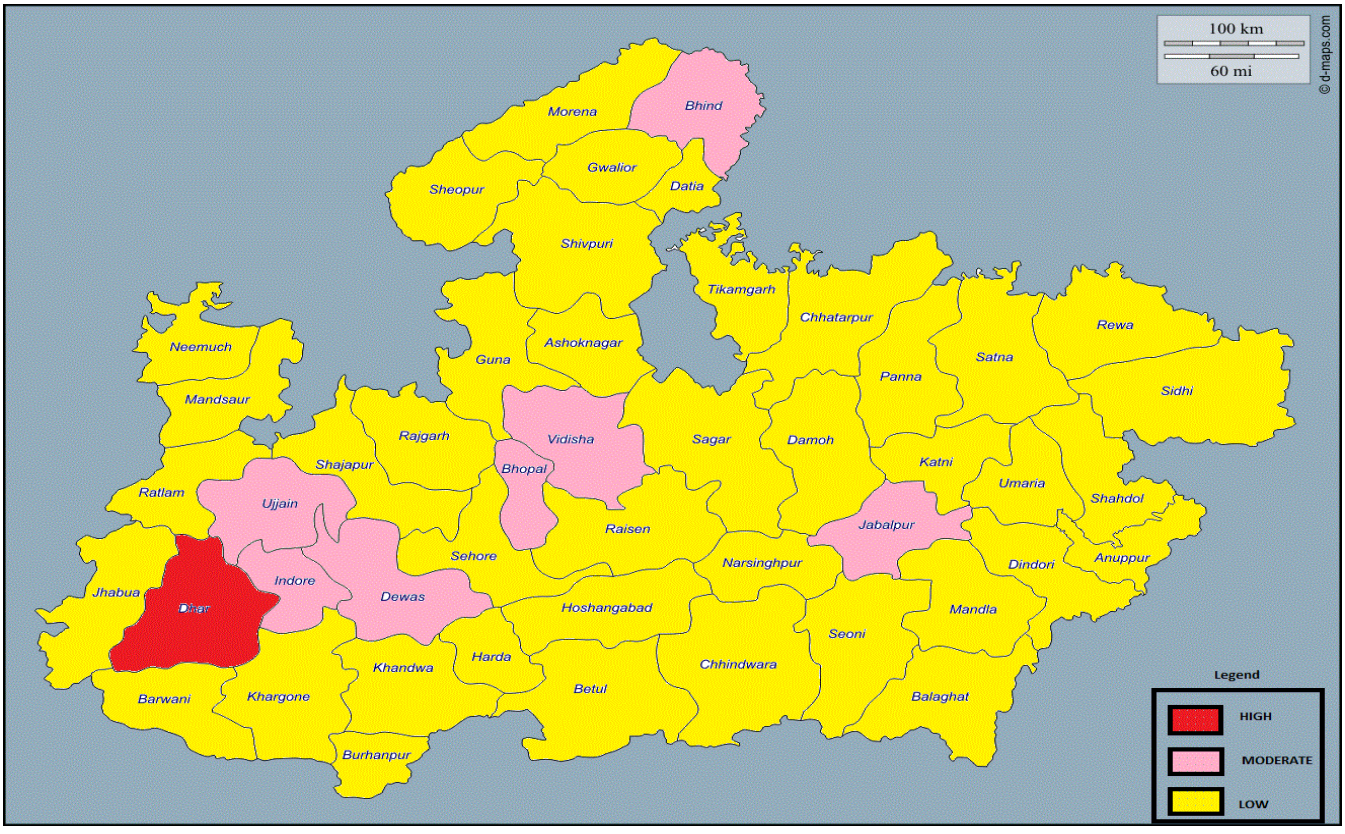
Earthquake Zone of M.P.



Flood Prone Districts



Drought Effected Districts of Madhya Pradesh



Industrial Hazard Prone Districts of Madhya Pradesh

15.2 Relief Codes – Key Government orders

List of the Constitution of SDMA

गृह विभाग
(सी-अनुभाग)
मंत्रालय, वल्लभ भवन, भोपाल

भोपाल, दिनांक 5 सितम्बर 2007

आदेश

क्र. एफ 35-115-2006-सी-एक.—आपदा प्रबंधन अधिनियम, 2005 (2005 का 53) की धारा 14 की उपधारा (1) के अनुसरण में राज्य शासन, एतद्द्वारा, राज्य आपदा प्रबंधन प्राधिकरण का गठन निम्नानुसार करता है:—

1.	मुख्यमंत्री, मध्यप्रदेश	अध्यक्ष
2.	मंत्री, वित्त विभाग	सदस्य
3.	मंत्री, राजस्व विभाग	सदस्य
4.	मंत्री, लोक स्वास्थ्य एवं परिवार कल्याण विभाग	सदस्य
5.	मंत्री, नगरीय प्रशासन एवं विकास विभाग	सदस्य
6.	मंत्री, वाणिज्य, उद्योग एवं रोजगार विभाग	सदस्य
7.	मंत्री, लोक निर्माण विभाग	सदस्य
8.	मंत्री, गृह/राज्य मंत्री गृह	सदस्य
9.	मुख्य सचिव, मध्यप्रदेश	सदस्य

प्रमुख सचिव, गृह विभाग, राज्य आपदा प्रबंधन प्राधिकरण के सचिव/संयोजक होंगे.

क्र. एफ. 35-115-2006-सी-एक.--आपदा प्रबंधन अधिनियम, 2005 (2005 का 53) की धारा 20 की उपधारा (1) के अनुसरण में द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, राज्य शासन, एतद्द्वारा, राज्य आपदा प्रबंधन प्राधिकरण को अधिनियम के अंतर्गत प्राधिकरण के कार्यों में सहायता करने के लिये राज्य कार्यपालन समिति का गठन निम्नानुसार करता है:--

1.	मुख्य सचिव, मध्यप्रदेश शासन	अध्यक्ष
2.	प्रमुख सचिव, गृह विभाग	सदस्य
3.	प्रमुख सचिव, राजस्व विभाग	सदस्य
4.	प्रमुख सचिव, वित्त विभाग	सदस्य
5.	प्रमुख सचिव, लोक स्वास्थ्य एवं परिवार कल्याण विभाग	सदस्य

विशेष आमंत्रित सदस्य :

1.	प्रमुख सचिव, लोक निर्माण विभाग	सदस्य
2.	प्रमुख सचिव, वाणिज्य, उद्योग एवं रोजगार विभाग	सदस्य
3.	प्रमुख सचिव, खाद्य एवं नागरिक आपूर्ति विभाग	सदस्य
4.	पुलिस महानिदेशक, मध्यप्रदेश	सदस्य
5.	महानिदेशक, होमगार्ड्स एवं नागरिक सुरक्षा, म. प्र.	सदस्य

उक्त समिति के सचिव/संयोजक, सचिव गृह विभाग होंगे.

क्र. एफ. 35-115-2006-सी-एक.—आपदा प्रबंधन अधिनियम, 2005 (2005 का 53) की धारा 25 की उपधारा (1) के अनुसरण में राज्य शासन, एतद्द्वारा, द्वारा प्रत्येक जिले के लिये जिला आपदा प्रबंधन प्राधिकरण का गठन निम्नानुसार करता है:--

1.	कलेक्टर एवं जिला मजिस्ट्रेट	अध्यक्ष
2.	अध्यक्ष, जिला पंचायत	सह अध्यक्ष
3.	जिले में नगरपालिका निगम होने की स्थिति में नगरपालिका निगम का मेयर.	सह अध्यक्ष
4.	पुलिस अधीक्षक	सदस्य
5.	मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी	सदस्य
6.	कार्यपालन यंत्री, लोक निर्माण विभाग	सदस्य
7.	मुख्य कार्यपालन अधिकारी, जिला पंचायत	सदस्य
8.	राज्य शासन द्वारा नामांकित अपर कलेक्टर अथवा अपर जिला दण्डाधिकारी.	सदस्य सचिव

List of the constitution of governing body

(3)

मध्यप्रदेश शासन
सामान्य प्रशासन विभाग
मंत्रालय
वल्लभ भवन, भोपाल-462004

:: आदेश ::

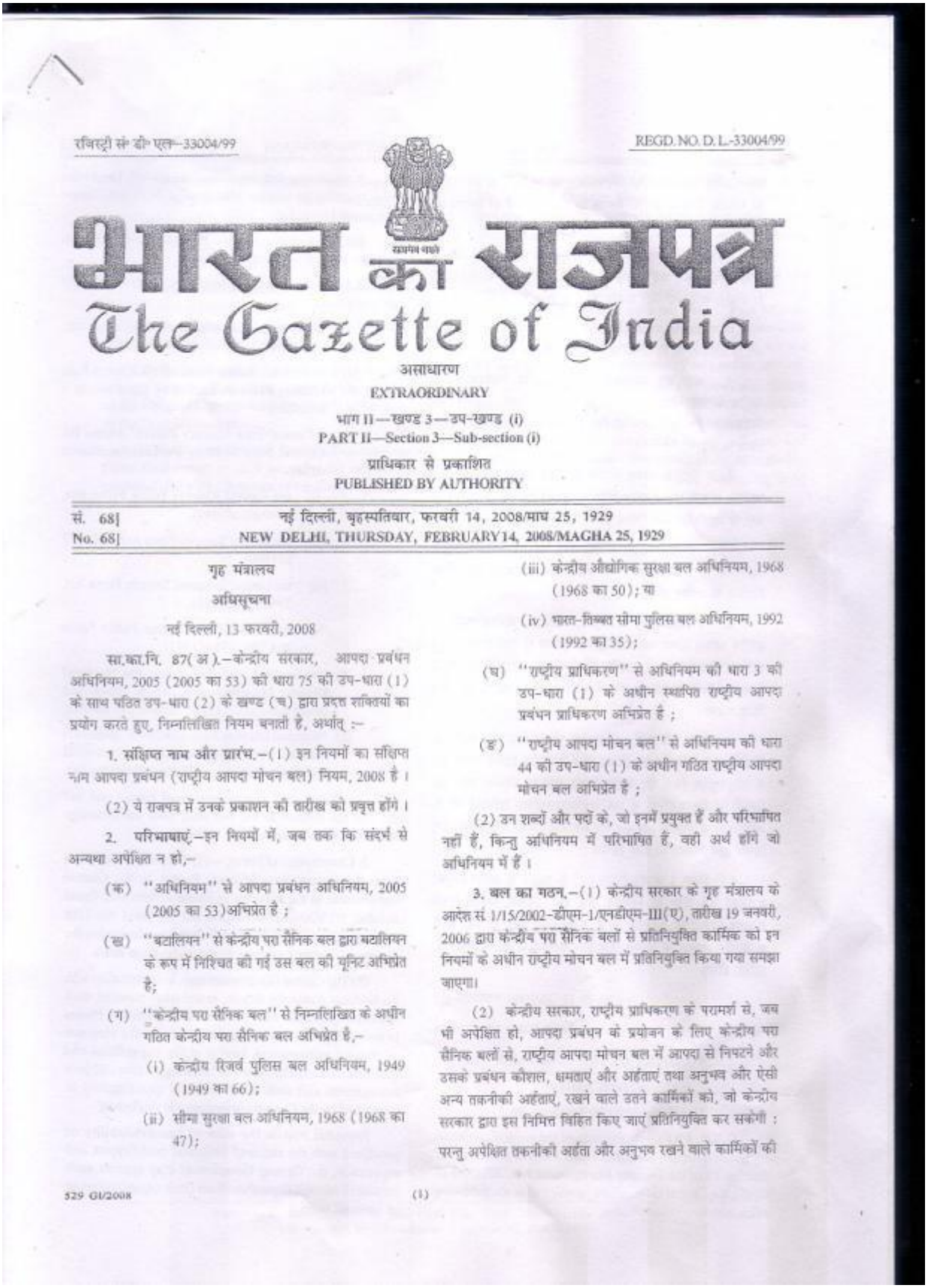
भोपाल, दिनांक 29 दिसंबर, 2010

क्रमांक एफ-19-17/2006/1/4 इस विभाग के आदेश क्रमांक एफ-19-17/2006/1/4, दिनांक 31 जनवरी, 2006 द्वारा आपदा प्रबन्ध अधिनियम, 2005 की धारा 20 अन्तर्गत गठित राज्य कार्यकारिणी समिति का पुनर्गठन राज्य शासन द्वारा निम्नानुसार किया जाता है:-

1.	मुख्य सचिव	अध्यक्ष
2.	अपर मुख्य सचिव/प्रमुख सचिव गृह	सदस्य
3.	प्रमुख सचिव, राजस्व एवं राहत आयुक्त	सदस्य
4.	प्रमुख सचिव, वित्त	सदस्य
5.	प्रमुख सचिव, आवास एवं पर्यावरण	सदस्य
6.	प्रमुख सचिव, नगरीय प्रशासन एवं विकास	विशेष आमंत्रित
7.	पुलिस महानिदेशक, मध्यप्रदेश	विशेष आमंत्रित
8.	प्रमुख सचिव, स्वास्थ्य	विशेष आमंत्रित
9.	एव एरिया कमाण्डर (थल सेना), भोपाल	विशेष आमंत्रित
10.	सचिव, गृह	संयोजक

2/ सचिव, गृह विभाग समिति के संयोजक/सचिव होंगे ।

Gazette



रजिस्ट्री सं० डी० एल०-33004/99

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भारत का राजपत्र
The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

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गृह मंत्रालय

अधिसूचना

नई दिल्ली, 13 फरवरी, 2008

सा.का.नि. 87(अ).—केन्द्रीय सरकार, आपदा प्रबंधन अधिनियम, 2005 (2005 का 53) की धारा 75 की उप-धारा (1) के साथ पठित उप-धारा (2) के खण्ड (च) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, निम्नलिखित नियम बनाती है, अर्थात् :–

1. संक्षिप्त नाम और प्रारंभ.–(1) इन नियमों का संक्षिप्त नाम आपदा प्रबंधन (राष्ट्रीय आपदा मोचन बल) नियम, 2008 है ।

(2) ये राजपत्र में उनके प्रकाशन की तारीख को प्रवृत्त होंगे ।

2. परिभाषाएं.–इन नियमों में, जब तक कि संदर्भ से अन्यथा अपेक्षित न हो,–

(क) "अधिनियम" से आपदा प्रबंधन अधिनियम, 2005 (2005 का 53) अभिप्रेत है ;

(ख) "बटालियन" से केन्द्रीय परा सैनिक बल द्वारा बटालियन के रूप में निश्चित की गई उस बल की यूनिट अभिप्रेत है;

(ग) "केन्द्रीय परा सैनिक बल" से निम्नलिखित के अधीन गठित केन्द्रीय परा सैनिक बल अभिप्रेत है,–

(i) केन्द्रीय रिजर्व पुलिस बल अधिनियम, 1949 (1949 का 66);

(ii) सीमा सुरक्षा बल अधिनियम, 1968 (1968 का 47);

(iii) केन्द्रीय औद्योगिक सुरक्षा बल अधिनियम, 1968 (1968 का 50); या

(iv) भारत-तिब्बत सीमा पुलिस बल अधिनियम, 1992 (1992 का 35);

(घ) "राष्ट्रीय प्राधिकरण" से अधिनियम की धारा 3 की उप-धारा (1) के अधीन स्थापित राष्ट्रीय आपदा प्रबंधन प्राधिकरण अभिप्रेत है ;

(ङ) "राष्ट्रीय आपदा मोचन बल" से अधिनियम की धारा 44 की उप-धारा (1) के अधीन गठित राष्ट्रीय आपदा मोचन बल अभिप्रेत है ;

(2) उन शब्दों और पदों के, जो इनमें प्रयुक्त हैं और परिभाषित नहीं हैं, किन्तु अधिनियम में परिभाषित हैं, वही अर्थ होंगे जो अधिनियम में हैं ।

3. बल का गठन.–(1) केन्द्रीय सरकार के गृह मंत्रालय के आदेश सं. 1/15/2002-डीएम-1/एनडीएम-III(ए), तारीख 19 जनवरी, 2006 द्वारा केन्द्रीय परा सैनिक बलों से प्रतिनियुक्ति कार्मिक को इन नियमों के अधीन राष्ट्रीय मोचन बल में प्रतिनियुक्ति किया गया समझा जाएगा।

(2) केन्द्रीय सरकार, राष्ट्रीय प्राधिकरण के परामर्श से, जब भी अपेक्षित हो, आपदा प्रबंधन के प्रयोजन के लिए केन्द्रीय परा सैनिक बलों से, राष्ट्रीय आपदा मोचन बल में आपदा से निपटने और उसके प्रबंधन कौशल, क्षमताएं और अर्हताएं तथा अनुभव और ऐसी अन्य तकनीकी अर्हताएं, रखने वाले उतने कार्मिकों को, जो केन्द्रीय सरकार द्वारा इस निमित्त विहित किए जाएं प्रतिनियुक्ति कर सकेगी :

परन्तु अपेक्षित तकनीकी अर्हता और अनुभव रखने वाले कार्मिकों की

529 GI/2008

(1)

अनुपलब्धता की दशा में, केन्द्रीय सरकार, अन्य संगठनों से प्रतिनियुक्ति के माध्यम से या संविदा के आधार पर ऐसे कार्मिकों को नियुक्त कर सकेगी।

(3) इन नियमों के अधीन राष्ट्रीय आपदा मोचन बल में प्रतिनियुक्ति किए गए बटालियन के कार्मिक, ऐसी बटालियन में सामान्यता पांच वर्षों की अवधि के लिए रहेंगे :

परन्तु बल के पच्चीस प्रतिशत से अनधिक कार्मिकों को एक वर्ष में प्रतिस्थापित किया जा सकेगा।

4. **बल का अधीक्षण, निदेशन और नियंत्रण.**—(1) राष्ट्रीय आपदा मोचना बल का साधारण अधीक्षण, निदेशन और नियंत्रण राष्ट्रीय प्राधिकरण में निहित होगा और उसके द्वारा प्रयोग किया जाएगा।

(2) राष्ट्रीय आपदा मोचना बल की कमान और पर्यवेक्षण केन्द्रीय सरकार द्वारा नियुक्त किए जाने वाले राष्ट्रीय आपदा मोचन बल के महानिदेशक में निहित होंगे।

(3) राष्ट्रीय आपदा मोचना बल का महानिदेशक राष्ट्रीय प्राधिकरण के उपाध्यक्ष को रिपोर्ट करेगा और वह उसके प्रशासनिक नियंत्रण के अधीन होगा।

5. **उत्तरदायित्व, प्रशिक्षण, कौशल, कर्तव्य आदि.**—राष्ट्रीय आपदा मोचन बल को, आपदा प्रबंधन से संबंधित कार्यों को करने के लिए आपदा की आशंका की स्थिति या आपदा से निपटने के लिए एक विशिष्ट बल के रूप में प्रशिक्षित किया जाएगा और लैस किया जाएगा।

6. **सेवा की शर्तें.**—(1) सेवा के निबंधन और शर्तों को, जिसके अंतर्गत केन्द्रीय परा सैनिक बलों से राष्ट्रीय आपदा मोचन बल में प्रतिनियुक्ति किए गए कार्मिकों की सेवा के निबंधन और शर्तें जिनके अंतर्गत कार्मिकों से संबंधित अनुशासनिक शक्तियां भी हैं, अधिनियम के उपबंधों और संबंधित बल और उसकी सेवाओं को लागू नियमों द्वारा विनियमित होती रहेंगी।

(2) नियम 3 के उप-नियम (2) के परंतुक के अधीन नियुक्त कार्मिकों की सेवा के निबंधन और शर्तें, जिनके अंतर्गत उनसे संबंधित प्रशासनिक शक्तियां भी हैं, ऐसे नियमों द्वारा, जो उसी श्रेणी के केन्द्रीय सरकार के अधिकारियों और कर्मचारियों को लागू होते हैं, शासित होंगी।

[फा. सं. 31-10/2006-एनडीएम-II]

प्रभांशु कमल, संयुक्त सचिव

MINISTRY OF HOME AFFAIRS

NOTIFICATION

New Delhi, the 13th February, 2008

G.S.R. 87(E).—In exercise of the powers conferred by clause (f) of sub-section (2) read with sub-section (1) of Section 75 of the Disaster Management Act, 2005 (53 of 2005), the Central Government hereby makes the following rules, namely :—

1. Short title and commencement.—(1) These rules may be called the Disaster Management (National Disaster Response Force) Rules, 2008.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions.—(1) In these rules, unless the context otherwise requires,

(a) "Act" means the Disaster Management Act, 2005 (53 of 2005);

(b) "battalion" means a unit of the Central Para Military Force earmarked by that Force as a battalion;

(c) "Central Para Military Forces" means the Central Para Military Forces constituted under,—

(i) the Central Reserve Police Force Act, 1949 (66 of 1949);

(ii) the Border Security Force Act, 1968 (47 of 1968);

(iii) the Central Industrial Security Force Act, 1968 (50 of 1968); or

(iv) the Indo-Tibetan Border Police Force Act, 1992 (35 of 1992);

(d) "National Authority" means the National Disaster Management Authority established under sub-section (1) of Section 3 of the Act;

(e) "National Disaster Response Force" means the National Disaster Response Force constituted under sub-section (1) of Section 44 of the Act.

(2) Words and expressions used herein and not defined but defined in the Act shall have the meanings respectively assigned to them in the Act.

3. Constitution of Force.—(1) The personnel deputed from the Central Para Military Forces by the Central Government in the Ministry of Home Affairs *vide* Order number 1/15/2002-DM-I/NDM-III(A), dated the 19th January, 2006 shall be deemed to have been deputed in the National Disaster Response Force under these rules.

(2) The Central Government may, in consultation with the National Authority, depute, as and when required, such number of personnel from the Central Para Military Forces to the National Disaster Response Force for the purposes of disaster management, having skills, capabilities and qualifications and experience of handling disaster and their management and such other technical qualifications as prescribed by the Central Government in this behalf :

Provided that in the case of non-availability of personnel with the required technical qualification and experience, the Central Government may appoint such personnel through deputation from other organizations or on contract basis.

(3) The personnel of a battalion deputed to the National Disaster Response Force under these rules shall remain ordinarily in such battalion for a period of five years :

Provided that not more than twenty-five per cent of the Force may be replaced in one year.

4. Superintendence, direction and control of Force.— (1) The general superintendence, direction and control of the National Disaster Response Force shall vest in, and be exercised by, the National Authority.

(2) The command and supervision of the National Disaster Response Force shall vest in the Director General of the National Disaster Response Force to be appointed by the Central Government.

(3) The Director General, National Disaster Response Force shall report to, and be under the administrative control of, the Vice-Chairman of the National Authority.

5. The responsibility, training, skill, duties, etc.— The National Disaster Response Force shall be trained and equipped as a specialised force to carry out the disaster management related tasks and for dealing with threatening disaster situations or disaster.

6. Conditions of service.— (1) The terms and conditions of service including disciplinary powers relating to the personnel deputed from the Central Para Military Forces to the National Disaster Response Force shall continue to be regulated by the provisions of the Act and the rules applicable to the respective Force and its services.

(2) The terms and conditions of service including disciplinary powers relating to the personnel appointed under the proviso to sub-rule (2) of rule 3 shall be governed by such rules as are applicable to the officers and employees of the Central Government of the same grade.

[F. No. 31-10/2006-NDM-II]

PRABHANSHU KAMAL, Jt. Secy.

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मध्यप्रदेश राजपत्र

(असाधारण)

प्राधिकार से प्रकाशित

क्रमांक 55] भोपाल, शुक्रवार, दिनांक 11 फरवरी 2011—माघ 22, शक 1932

नगरीय प्रशासन एवं विकास विभाग

मंत्रालय, वल्लभ भवन, भोपाल

इन्दौर, दिनांक 11 फरवरी 2011

क्र. 23-एफ. 1-05-2011-अठारह-3.—इन्दौर शहर में दो लाख से अधिक परम्परागत व्यावसायिक केन्द्र हैं जो शहर को राज्य में आधुनिक एवं गतिशील व्यावसायिक व आर्थिक राजधानी का दर्जा देते है. इन्दौर मध्यप्रदेश का अत्यंत ही प्रभावशाली शहर होने के साथ ही जिला मुख्यालय है तो मालवा के पश्चिमी क्षैत्र (ऐतिहासिक रूप से डक्कन का पठार) एवं दो छोटी खान एवं सरस्वती के किनारे स्थित है. जनगणना 2001 के अनुसार इन्दौर 10 लाख से अधिक आबादी वाले शहरों में भारत का 17 वाँ शहर है. वर्ष 2001 की जनगणना के अनुसार इन्दौर वर्तमान में 1637461 की आबादी के साथ मध्यप्रदेश का सबसे अधिक आबादी वाला शहर है.

यहां पर जवाहर लाल शहरी नवीनीकरण मिशन एवं एम.पी.यू.एस.पी. (डी.एफ.आई.डी. सहायता प्राप्त परियोजना) के माध्यम से शहरी विकास के बहुत से कार्य किये जा रहे हैं. इन परियोजनाओं के परिणामस्वरूप नगर निगम स्तर पर सुधार के बहुत से कार्य सम्पादित हुये हैं. इसमें सबसे नवीनतम इन्दौर शहर के लिये वर्ष 2010-15 के लिये अग्निशमन एवं प्रतिक्रिया प्रस्ताव की तैयारी है. यह प्रस्ताव नगर निगम, इन्दौर, पुलिस अग्निशमन सेवा इन्दौर एवं विभिन्न क्षेत्रों के विशेषज्ञों जिसमें सामाजिक क्षेत्र भी सम्मिलित है के द्वारा तैयार किया गया है. इसमें प्रथम चरण में सबसे पहले खतरा पहचान एवं जोखिम विश्लेषण को सम्मिलित किया गया है. यह सम्पूर्ण प्रयास व्यक्तिपरक एवं इन्दौर को मध्यम संभावना (मॉडरेट इंपैक्ट) की श्रेणी अंतर्गत किये गये. इन्दौर शहर का मुख्य लक्ष्य "नगर निगम, इन्दौर एवं अग्निशमन विभाग के मार्गदर्शन में स्थानीय समुदाय की सहायता से इन्दौर नगर में अग्नि दुर्घटनाओं को रोकना एवं न्यूनतम करना है."

प्रस्ताव प्राक्कलन के प्रमुख उद्देश्य निम्नलिखित है :—

- जीवन एवं संपत्ति की सुरक्षा व अग्नि घटनाओं को कम करने पर फोकस करना.

- अतिसंवेदनशील आपातकालीन सेवाओं की मौजूदा व्यवस्था को मजबूत करना.
- सम्पूर्ण प्रणाली को सहभागी एवं पारदर्शी समावेशी बनाना.
- भागीदारी एवं नेटवर्किंग.
- अनुश्रवण एवं नियमित मूल्यांकन हेतु मजबूत तंत्र विकसित करना.
- उपलब्ध वैज्ञानिक एवं तकनीकी ज्ञान व सूचना का उपयोग निर्धारित मार्गदर्शिका के अनुरूप उपयोग करने हेतु चिंतन करना.

लक्ष्य एवं उद्देश्य के आधार पर शमन रणनीति निम्नानुसार घटकों पर निर्धारित की जावेगी—

1. पूर्व से तैयार रणनीति, योजना एवं कानून को नियमित रखना
2. अतिरिक्त संसाधन जुटाना
3. शमन की पहल का क्रियान्वयन—

(अ) जागरूकता लाना

(ब) पूर्व से तकनीकी का उपयोग एवं उसे समकालीन करना इसके लिये—पूर्व से उपलब्ध जल भरण स्थल (Hydrant) एवं नवीन जल भरण स्थल की पहचान करना.

(स) सक्रिय एवं आपात व्यवस्था को मजबूत करना

(द) शहर में स्थायी रूप से आपातकालीन केन्द्रों का परिचालन

(इ) संस्थागत सुदृढ़ीकरण.

उपरोक्त समग्र बिन्दुओं के आधार पर वर्ष 2010-2015 के लिये पूंजीगत निवेश की विस्तृत योजना वर्तमान में प्रचलित तैयार मानकों के आधार पर तैयार की गई है.

मध्यप्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,
एन. एस. मिश्रा, सचिव.

केपीटल इन्वेस्टमेंट प्लॉन (फायर हेजार्ड एवं मिटीगेशन, इन्दौर 2010-15)

(राशि रु. लाख में)

1. **इन्दौर फायर फाइटिंग मुख्यालय (शहरी स्तर—01 नं.)**

क्रमांक (1)	उपकरण (2)	विवरण (3)	वांछित संख्या (4)	कुल संख्या (5)	उपलब्ध इंफ्रा स्ट्रेक्चर (6)	अंतर (7)	दर (8)	आवश्यक राशि (9)
1	हाइड्रोलिक प्लेटफार्म		1	6	1	5	500.00	2500.00
2	हेजमेट वैन		1	6	0	6	500.00	3000.00
3	एडवांस रेस्क्यू/इमरजेंसी टेण्डर		1	6	1	5	100.00	500.00
4	वाटर वाउजर		1	6	1	5	18.00	90.00
5	होज लेईंग टेण्डर		1	6	1	5	40.00	200.00
6	लाइटिंग वैन		1	6	1	5	15.00	75.00
7	हाई कैपेसिटी पम्प		1	6	0	6	5.00	30.00
8	वाटर टेंडर		2	12	10	2	18.00	36.00
9	एंबूलेंस		1	6	1	5	9.00	45.00
10	मिनी वाटर टेंडर		2	12	0	12	13.00	156.00
11	मोटर साइकिल आधारित फायर पार्टी		6	36	0	36	3.75	135.00
12	कंट्रोल पोस्ट वेन		0.5	3	0	3	15.00	45.00
13	कैण्टीन वेन		0.5	3	0	3	12.00	36.00
14	मोबाइल वर्कशाप एयर एप्लीकेशन		0.5	3	0	3	15.00	45.00
15	मोबाइल वर्कशाप टेलीकम्यूनिकेशन		0.5	3	1	2	15.00	30.00
16	ब्रेक डाउन वेन		0.5	3	0	3	15.00	45.00
17	डिजास्टर एक्यूपमेंट वेन		0.5	3	0	3	50.00	150.00
18	ट्रेनिंग सेंटर एवं कंट्रोल रूम		1	1	0	1	100.00	100.00
							योग—(1)	7218.00
2.	**फायर स्टेशन (49)**							
1	वाटर टेंडर		2	98	14	84	18.00	1512.00
2	रेस्कू टेंडर		1	49	7	42	60.00	2520.00
3	एंबूलेंस		1	49	1	48	9.00	432.00
4	मिनी वाटर टेंडर		1	49	0	49	13.00	637.00
5	मोटर साइकिल आधारित फायर पार्टी		2	98	0	98	3.75	367.50
6	वाटर वॉउजर		1	49	0	49	18.00	882.00
							योग—(2)	6350.00

टीप—वर्ष 2001 की जनगणना के अनुसार इंदौर की आबादी के आधार पर 49 फायर स्टेशन की आवश्यकता है.

महायोग—(1+2) 13568.50

3 प्रतिशत अन्य व्यय	407.06
प्रस्ताव की सम्पूर्ण राशि	13975.56
योग—	13976.00

मध्यप्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,
एन. एस. मिश्रा, सचिव.

URBAN ADMINISTRACTION AND DEVELOPMENT DEPARTMENT
GOVERNMENT OF MADHYA PRADESH

Indore the 11th February 2011

No.23-F-1-05-2011-XVIII-3.—Indore a two million plus city today has transformed from a traditional commercial urban centre into a modern dynamic commercial capital of the state. Indore, the most predominant city of Madhya Pradesh and the district headquarter of the district, is situated on the western part of the Malwa(historically known as Deccan Plateau) on the banks of two small rivers, the Khan and the Saraswati. Indore is 17th among the million plus cities of India enumerated in the 2001 census. The city is currently the most populated city of Madhya Pradesh with 16,37,461 population as per 2001 Census.

There are different urban development programme being implemented in Indore for eg JNNURM and MPUSP (project supported by the DFID). All these projects have resulted in lot of reforms being taken up at the Municipal corporation level. The latest being the preparation of Fire mitigation and Response plan, Indore 2010-15. This plan was prepared with the active participation of Municipal Corporation Indore, Police Agnishaman Sewa, Indore and expert from different field including social field.

The first stage was hazard identification and vulnerability analysis. The whole exercise was subjective and Indore was categories as moderate probability (moderate impact). The main goal of Indore is

"AVOID AND MINIMIZE THE INCIDENT OF FIRE FOR THE INDORE CITY BY THE SUPPORT OF INDORE COMMUNITY UNDER THE GUIDANCE OF MUNICIPAL CORPORATION, INDORE AND FIRE DEPT."

The objective of the plan is follows:

- Focus on preventive measure for reducing the incident of fire for protection of lives and property
- Proactive emergency services by strengthening the existing system
- Participatory and transparent process for making the whole system inclusive
- Partnership and networking
- Strong planning monitoring and evaluation system
- To devise appropriate guideline and strategy to utilize the existing scientific and technological knowledge.

Based on the goal and objective the mitigation strategy was decided which would have following components

(i) Existing and continuing the policy, plan and legal issues

(ii) Generating additional resources

(iii) Implementation of Mitigation Initiatives.

(a) Create awareness

(b) Use and up-gradation of existing technology

1. A review of the existing hydrant and identification of new location for hydrants

(c) Strengthening and proactive emergency system

(d) Permanent City Emergency Operations Center

(e) Institutional strengthening

Along with all the points a detail requirement is prepared as per the latest norm and based on that capital investment plan for the year 2010-2015 is prepared.

By Order and in the name of the Governor of Madhya Pradesh,
S. N. MISHRA, Secretary.

CAPITAL INVESTMENT PLAN (FIRE HAZARD RESPONSE & MITIGATION, INDORE 2010-15)

Indore fire fighting head quarters (Divisional level), calculation based on 6.09 divisions (for calculation it is 6 divisions) :

(Amount in Lac Rs.)

Sr.No	Equipment	Specification	Quantity as per norm for one DHQ	Total quantity required	Existing infrastructure	Gap	Unit rate	actual capital investment required
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Hydraulic Platform		1	6	1	5	500.00	2500.00
2	Hazmat van		1	6	0	6	500.00	3000.00
3	advance rescue/emergency tender		1	6	1	5	100.00	500.00
4	Water bouser		1	6	1	5	18.00	90.00
5	Hose laying tender		1	6	1	5	40.00	200.00
6	lighting van		1	6	1	5	15.00	75.00
7	High capacity pump		1	6	0	6	5.00	30.00
8	Water tender		2	12	10	2	18.00	36.00
9	Ambulance		1	6	1	5	9.00	45.00
10	Mini water tender		2	12	0	12	13.00	156.00
11	Motor cycle based party		6	36	0	36	3.75	135.00
12	Control post van		0.5	3	0	3	15.00	45.00
13	Canteen van		0.5	3	0	3	12.00	36.00
14	Mobile workshop for air application		0.5	3	0	3	15.00	45.00
15	Mobile workshop for telecommunication		0.5	3	1	2	15.00	30.00
16	Break down van		0.5	3	0	3	15.00	45.00
17	Disaster Mgt Equipment van		0.5	3	0	3	50.00	150.00
18	Training center cum control room		1	1	0	1	100.00	100.00
							Sub Total (1)	7218.00

Note :— As per census 2001, Indore 16.39 lacs of UA population so Number of division required shall be 6.09 (for calculation it is 6 divisions)

For Fire Station :

1	Water tender		2	98	14	84	18.00	1512.00
2	Rescue tender		1	49	7	42	60.00	2620.00
3	Ambulances		1	49	1	48	9.00	432.00
4	Mini water tender		1	49	0	49	13.00	637.00
5	Motor cycle based party		2	98	0	98	3.75	367.50
6	Water bouser		1	49	0	49	18.00	882.00
							Sub Total (2)	6350.50

Note :— As per census 2001, Indore 16.39 lacs of UA population so Number of division required shall be 4.70 and the requirement for 48.73 (i.e 49) fire station

Total capital investment	13568.50
3%A&OE	407.06
Capital investment plan grand total	13976.00

DETAIL OF FUTURE PLAN (INDORE 2010-15)

(Amount in Lac Rs.)

Sr. No	Year	Division		Fire Station		Rs. in Lacs	3% A&OE	Total expenditure on establishment of new division, new fire station and 3% A&OE	% of expenditure of fire department with respect to funds allocated (as per the total CIP Financial outlet
		No. of new opening	Unit cost	No. of new opening	Unit cost				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	2010-2011	0	1203.00	1	129.60	129.60	3.89	133.49	0.96
2	2011-2012	1	1203.00	12	129.60	2758.22	82.75	2840.97	20.33
3	2012-2013	2	1203.00	18	129.60	4738.84	142.17	4881.00	34.93
4	2013-2014	2	1203.00	14	129.60	4220.43	126.61	4347.04	31.10
5	2014-2015	1	1203.00	4	129.60	1721.41	51.64	1773.05	12.68
					Total :	13568.50	407.06	13975.55	100.00

By Order and in the name of the Governor of Madhya Pradesh,
S. N. MISHRA, Secretary.

निर्देशक, शासकीय मुद्रण तथा लेखन सामग्री, मध्यप्रदेश द्वारा शासकीय केन्द्रीय मुद्रणालय, भोपाल से मुद्रित तथा प्रकाशित—2011.

15.3 Standard Relief as per Revenue Book Circular (RBC)

विषय :– वर्ष 2002 एवं वर्ष 2012 की स्थिति में प्राकृतिक आपदाओं में दी जाने वाली सहायता दरों में हुई वृद्धि का तुलनातमक विवरण।

राशि रूपये में

क्रमांक	राहत सहायता की मदे	वर्ष 2002 की स्थिति में राहत सहायता दरें	वर्ष 2012 की स्थिति में राहत सहायता दरें
1.	फसल क्षति प्रति हे॰, **लघु कृषक**, क्षति 50 प्रतिशत से कम	1,000	वर्षा आधारित– 3,000 सिंचित फसल– 5,000 बारहमाही (6 माह से कम)–5,000 बारहमाही (6 माह से अधिक)–8,500
2.	फसल क्षति प्रति हे॰, **लघु कृषक**, क्षति 50 प्रतिशत से अधिक	2,000	वर्षा आधारित– 4,500 सिंचित फसल– 8,500 बारहमाही (6 माह से कम)–8,000 बारहमाही (6 माह से अधिक)–11,000
3.	फसल क्षति प्रति हे॰, **बड़े कृषक**, क्षति 50 प्रतिशत से कम	कुछ नहीं	वर्षा आधारित– 2,250 सिंचित फसल– 3,750 बारहमाही (6 माह से कम)–3,750 बारहमाही (6 माह से अधिक)–6,400
4.	फसल क्षति प्रति हे॰, **बड़े कृषक**, क्षति 50 प्रतिशत से अधिक	1,000	वर्षा आधारित– 3,400 सिंचित फसल– 6,000 बारहमाही (6 माह से कम)–8,000 बारहमाही (6 माह से अधिक)–8,300
5.	पान बरेजा क्षति प्रति हे॰ क्षति 50 प्रतिशत से कम	2,000 तक तथा अधिकतम 100 बॉस	प्रति पारी– 350 या प्रति हे॰–14,000
6.	पान बरेजा क्षति प्रति हे॰ क्षति 50 प्रतिशत से अधिक	4,000 तक तथा अधिकतम 100 बॉस	प्रति पारी– 550 या प्रति हे॰–22,000
7.	फलदार पेड़	प्रति पेड़ 200	क्षति 50 प्रतिशत से कम प्रति पेड़ 250 क्षति 50 प्रतिशत से अधिक प्रति पेड़ 250
8.	आम, संतरा, नींबू	प्रति पेड़ 200 अधिकतम रूपये 12,000	क्षति 50 प्रतिशत से कम प्रति हे॰ 5,000 क्षति 50 प्रतिशत से अधिक प्रति हे॰ 7,000
9.	पपीता, केला, अंगूर, अनार	प्रति हे॰ 4,000 अधिकतम रूपये 12,000	क्षति 50 प्रतिशत से कम प्रति हे॰ 5,000 क्षति 50 प्रतिशत से अधिक प्रति हे॰ 7,000

1

R.B.C.

क्रमांक	राहत सहायता की मदे	वर्ष 2002 की स्थिति में राहत सहायता दरें	वर्ष 2012 की स्थिति में राहत सहायता दरें
10.	फसल क्षति अधिकतम सहायता	12,000	40,000
11.	अफलन के लिये राहत सहायता	कुछ नहीं	फसल क्षति के लिये निर्धारित सहायता राशि के बराबर
12.	नैसर्गिक अपदाओं से जनहानि	50,000	1,50,000
13.	नाव दुर्घटना/बस खड्ड में गिरने से मृत्यु	25,000	50,000
14.	बैल/घोड़ा	4,125	15,000
15.	भैस	4,125	16,400
16.	गाय	2,100	16,400
17.	बकरी/भेड़	625	1,650
18.	ऊंट	3,125	दुधारू 16,400 गेरदुधारू 15,000
19.	गधा	1,200	10,000
20.	सुअर	1,200	1,500
21.	बच्चा–भैंस, घोड़ा, गाय, ऊंट	700	10,000
22.	पूर्ण नष्ट पक्का मकान	अधिकतम 10,000 भूमिहीन 12,000	35,000
23.	पूर्ण नष्ट कच्चा मकान	अधिकतम 6,000 भूमिहीन 7,200	20,000
24.	पूर्ण नष्ट झुग्गी/झोपड़ी	कुछ नहीं	6,000
25.	गम्भीर रूप से क्षतिग्रस्त पक्का मकान	अधिकतम 2,000 भूमिहीन 2,400	6,300
26.	गम्भीर रूप से क्षतिग्रस्त कच्चा मकान	अधिकतम 1,200 भूमिहीन 1,500	3,200
27.	आंशिक रूप से क्षतिग्रस्त पक्का मकान	अधिकतम 800 भूमिहीन 1,000	2,500
28.	आंशिक रूप से क्षतिग्रस्त कच्चा मकान	अधिकतम 800 भूमिहीन 1,000	1,900
29.	गम्भीर क्षतिग्रस्त झुग्गी/झोपड़ी	कुछ नहीं	2,500
30.	आंशिक क्षतिग्रस्त झुग्गी/झोपड़ी	कुछ नहीं	2,500

क्रमांक	राहत सहायता की मदे	वर्ष 2002 की स्थिति में राहत सहायता दरें	वर्ष 2012 की स्थिति में राहत सहायता दरें
31.	घरेलू सामान कपड़ा, बर्तन आदि	1,000	2,000 तथा अतिरिक्त 50 किलो खादयान एवं 5 लीटर केरोसिन
32.	कुम्हार के भट्टे ईट, खपरे	2,250	3,000
33.	बुनकर/हस्तशिल्पियों को सहायता	कुछ नहीं	3,000
34.	मछुवारों को सहायता	नाव – 10,000 जाल/डोगी– 3,000 अन्य सामान मरम्मत– 1,500	नाव– 12,000 जाल/डोगी– 4,000 अन्य सामान मरम्मत– 2,000
35.	मछली फार्म की क्षति	कुछ नहीं	प्रति हे॰– 6,000
36.	मछली बीज नष्ट होने पर	कुछ नहीं	प्रति हे॰– 4,000
37.	कुएं या नलकूंप क्षति पर	अधिकतम 4,400	अधिकतम 6,000
38.	बैलगाड़ी या अन्य कृषि उपकरण नष्ट होने पर	अधिकतम 3,100	अधिकतम 4,000

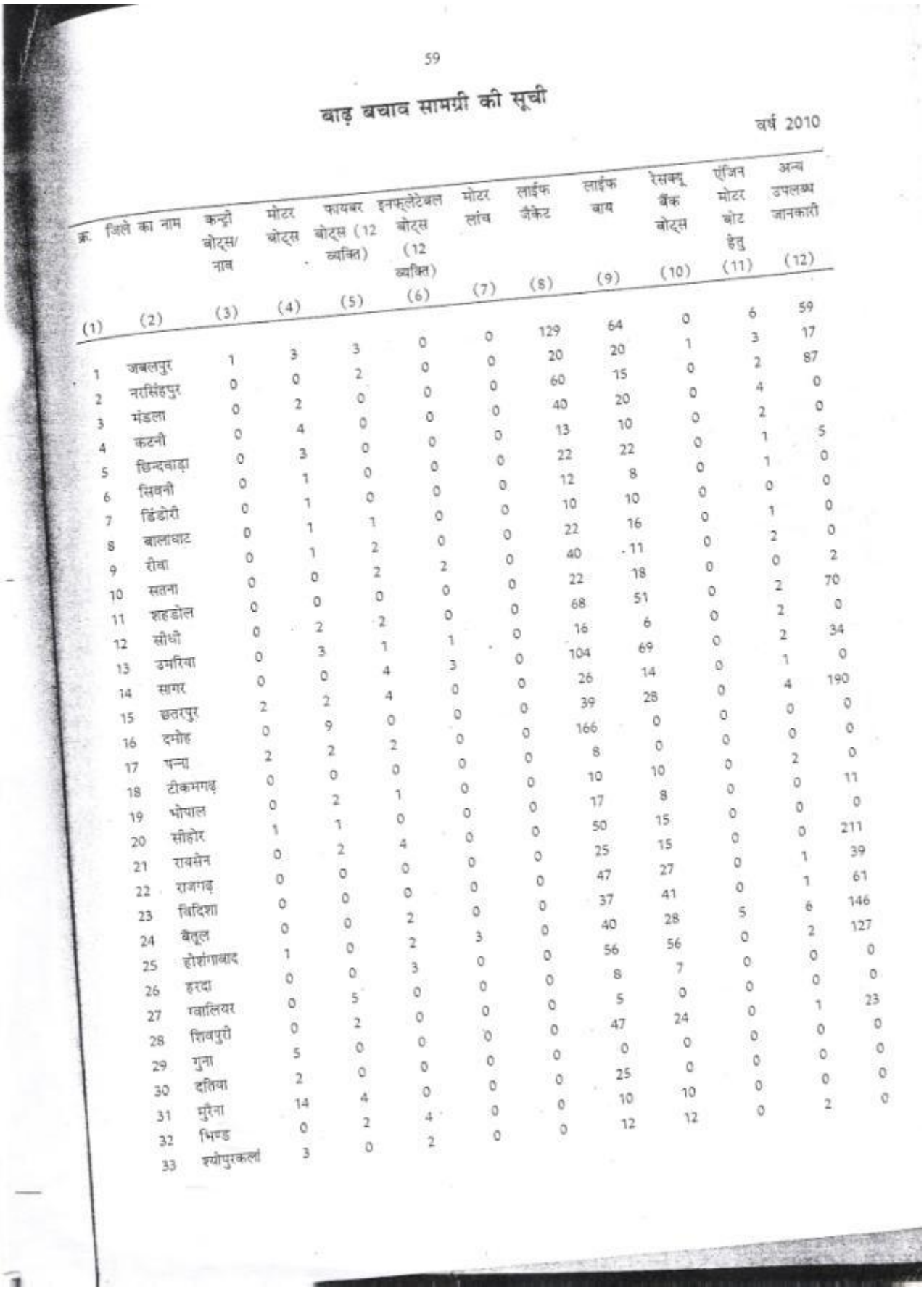
15.4 Emergency Telephone Directory of all nodal entities/key persons

Contact details of District collectors of MP

S.N.	Division/District	Code Office	Phone No.	Fax No.	E- mail
1.	Alirajpur	07394	234400	234222	ddma.alirajpur@gmail.com
2.	Anuppur	07659	222400	222401	ddma.anuppur@gmail.com
3.	Ashok Nagar	07543	222800	225501	ddma.ashoknagar@gmail.com
4.	Badwani	07290	222712	222800	ddma.badwani@gmail.com
5.	Balaghat	07632	240150	240250	ddma.balaghat@gmail.com
6.	Betul	07141	230034	230219	ddma.betul@gmail.com
7.	Bhind	07534	234200	230511	ddma.bhind@gmail.com
8.	Bhopal	0755	2540843 2540494	2546733	ddma.bhopal@gmail.com
9.	Burhanpur	07325	241000	242043	ddma.burhanpur@gmail.com
10.	Chhatarpur	07682	241500	245231 241704	ddma.chhatarpur@gmail.com
11.	Chhindwara	07162	242302	244467	ddma.chhindwara@gmail.com
12.	Damoh	07812	222345	222376	ddma.damoh@gmail.com
13.	Datia	07522	234100	233017	ddma.datia@gmail.com
14.	Dewas	07272	252111	252444	ddma.dewas@gmail.com
15.	Dhar	07292	234702	234711	ddma.dhar@gmail.com
16.	Dindori	07644	304174	304166	ddma.dindori@gmail.com
17.	Guna	07542	255626	255408	ddma.guna@gmail.com
18.	Gwalior	0751	2446200	2323301	ddma.gwalior@gmail.com
19.	Harda	07577	225006	225011	ddma.harda@gmail.com
20.	Hoshangabad	07574	252800 232318	254466	ddma.hoshangabad@gmail.com
21.	Indore	0731	2449112 2449111	2449114	indoreddma@gmail.com
22.	Jabalpur	0761	2624100	2624200	ddma.jabalpur@gmail.com
23.	Jhabua	07392	243401	243330	ddma.jhabua@gmail.com
24.	Katni	07622	220009	222266 252009	ddma.katni@gmail.com
25.	Khandwa	07332	224153	226265	ddma.khandwa@gmail.com
26.	Khargone	07282	232363	234117	ddma.khargone@gmail.com
27.	Mandla	07642	250600	250411	ddma.mandla@gmail.com
28.	Mandsaur	07422	235260	235307	ddma.mandsaur@gmail.com
29.	Morena	07532	223500	226780 231476	ddma.morena@gmail.com
30.	Narsinghpur	07792	230900 231178	230915	ddma.narsinghpur@gmail.com
31.	Neemuch	07423	223063	228500 225633	ddma.neemach@gmail.com
32.	Panna	07732	252003	252002	ddma.panna@gmail.com
33.	Raisen	07482	223243	223243	ddma.raisen@gmail.com
34.	Rajgarh	07372	255025	255025	ddma.rajgarh@gmail.com

35.	Ratlam	07412	270400	270401	ddma.ratlam@gmail.com
36.	Rewa	07662	241635	242806	ddma.rewa@gmail.com
37.	Sagar	07582	221900 222070	222070	ddma.sagar@gmail.com
38.	Satna	07672	222911	224688	ddma.satna@gmail.com
39.	Sehore	07562	226855 227766	226822	ddma.sehore@gmail.com
40.	Seoni	07692	220444 220365	220990 2446631	ddma.seoni@gmail.com
41.	Shahdol	07652	241700	245330	ddma.shahdol@gmail.com
42.	Shajapur	07364	226500	227378	ddma.shajapur@gmail.com
43.	Sheopur	07530	220058	220015	ddma.sheopur@gmail.com
44.	Shivpuri	07492	233700	233274	ddma.shivpuri@gmail.com
45.	Sidhi	07822	252204	252306	ddma.sidhi@gmail.com
46.	Singrauli	07805	234540	-	ddma.singroli@gmail.com
47.	Tikamgarh	07683	242850 242250	242700	ddma.tikamgarh@gmail.com
48.	Ujjain	0734	2513161 2514000	2510878	ddma.ujjain@gmail.com
49.	Umaria	07653	222600	222600	ddma.umaria@gmail.com
50.	Vidisha	07592	234520	237854	ddma.vidisha@gmail.com

15.5 Key resource inventory list



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बाढ़ बचाव सामग्री की सूची

वर्ष 2010

क्र.	जिले का नाम	कन्ट्री बोट्स/ नाव	मोटर बोट्स	फायबर बोट्स (12 व्यक्ति)	इनफ्लेटेबल बोट्स (12 व्यक्ति)	मोटर सांच	लाईफ जैकेट	लाईफ बाय	रेसक्यू बैक बोट्स	एंजिन मोटर बोट हेतु	अन्य उपलब्ध जानकारी
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	जबलपुर	1	3	3	0	0	129	64	0	6	59
2	नरसिंहपुर	0	0	2	0	0	20	20	1	3	17
3	मंडला	0	2	0	0	0	60	15	0	2	87
4	कटनी	0	4	0	0	0	40	20	0	4	0
5	छिन्दवाड़ा	0	3	0	0	0	13	10	0	2	0
6	सिवनी	0	1	0	0	0	22	22	0	1	5
7	डिंडोरी	0	1	0	0	0	12	8	0	1	0
8	बालाघाट	0	1	1	0	0	10	10	0	0	0
9	रीवा	0	1	2	0	0	22	16	0	1	0
10	सतना	0	0	2	2	0	40	11	0	2	0
11	शहडोल	0	0	0	0	0	22	18	0	0	2
12	सीधी	0	2	2	0	0	68	51	0	2	70
13	उमरिया	0	3	1	1	0	16	6	0	2	0
14	सागर	0	0	4	3	0	104	69	0	2	34
15	छतरपुर	2	2	4	0	0	26	14	0	1	0
16	दमोह	0	9	0	0	0	39	28	0	4	190
17	पन्ना	2	2	2	0	0	166	0	0	0	0
18	टीकमगढ़	0	0	0	0	0	8	0	0	0	0
19	भोपाल	0	2	1	0	0	10	10	0	2	0
20	सीहोर	1	1	0	0	0	17	8	0	0	11
21	रायसेन	0	2	4	0	0	50	15	0	0	0
22	राजगढ़	0	0	0	0	0	25	15	0	0	211
23	विदिशा	0	0	0	0	0	47	27	0	1	39
24	बैतूल	0	0	2	0	0	37	41	0	1	61
25	होशंगाबाद	1	0	2	0	0	40	28	5	6	146
26	हरदा	0	0	3	0	0	56	56	0	2	127
27	ग्वालियर	0	5	0	0	0	8	7	0	0	0
28	शिवपुरी	0	2	0	0	0	5	0	0	0	0
29	गुना	5	0	0	0	0	47	24	0	1	23
30	दतिया	2	0	0	0	0	0	0	0	0	0
31	मुरैना	14	4	0	0	0	25	0	0	0	0
32	भिण्ड	0	2	4	0	0	10	10	0	0	0
33	श्योपुरकलां	3	0	2	0	0	12	12	0	2	0

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
34	उज्जैन	0	0	0	3	0	13	9	0	3	104
35	देवास	0	4	0	0	2	30	30	0	4	0
36	मंदसौर	0	7	0	0	0	20	20	0	0	24
37	शाजापुर	0	0	0	0	0	0	0	0	0	0
38	रतलाम	0	0	1	0	0	17	22	0	1	39
39	नीमच	0	0	0	0	0	37	31	0	0	21
40	इन्दौर	0	0	0	3	0	34	7	0	3	0
41	खण्डवा	0	1	0	2	0	32	13	0	0	48
42	खरगोन	0	2	2	2	0	0	0	0	0	0
43	बड़वानी	0	0	0	0	0	105	65	0	0	0
44	झाबुआ	0	0	0	0	0	0	0	0	0	18
45	धार	0	2	4	0	0	40	0	0	2	0
46	अनूपपुर	0	0	0	0	0	0	0	0	0	0
47	बुरहानपुर	0	0	0	0	0	5	0	0	0	0
48	अशोकनगर	0	0	0	0	0	12	11	0	0	0
49	सिंगरौली	0	0	0	0	0	0	0	0	0	0
50	अलीराजपुर	0	0	0	0	0	0	0	0	0	0
	योग . .	31	68	48	19	2	1551	843	6	61	1336

नोट.—दिनांक 7 जून 2010 तक संकलित जानकारी के आधार पर.

15.6List of Disaster Management based Training / Technical Institutions in Madhya Pradesh

Sr. No.	Name of institution/ agency	Contact details
1.	Disaster Management Institute, Bhopal	Disaster Management Institute, Prayavaran Parisar, E-5, Arera Colony, PB No. 563 Bhopal-462016, MP (India) Tel:+91-755-2466715, 2461538, 2461348, 293592, Fax: +91-755-2466653, E-mail: dmi@dmibhopal.nic.in
2.	Emergency Response Centre, MPPCB, Bhopal	Emergency Response Centre, Madhya Pradesh Pollution Control Board Tel: +91-755-2469180, 2464428 E-mail: ercmppcb@nic.in
3.	DIHS, Indore	Directorate Industrial Health & Safety(DIHS), M.G.Road, Moti Bunglow Indore Tel: +91-731-533482, 544264 Fax: +91-731-536600

15.7 Madhya Pradesh Housing Vulnerability (Source – Vulnerability Atlas of India 2007, by BMTPC)

Distribution of Houses by Predominant Materials of Roof and Wall and Level of Damage Risk

MADHYA PRADESH

Wall / Roof		Census Houses		Level of Risk under								
		No. of Houses	%	EQ Zone				Wind Velocity m/s				Flood Prone Area in %
				V	IV	III	II	55 & 50	47	44 & 39	33	
				Area in %					Area in %			
State - MADHYA PRADESH 23						33.4	66.6		35.6	64.4		
WALL												
A1 - Mud & Unburnt Brick Wall	Rural	6,155,046	43.9									
	Urban	807,763	5.8									
	Total	***6,962,809***	***49.7***			*M*	*L*		*H*	*M*		
A2 - Stone Wall	Rural	789,261	5.6									
	Urban	137,290	1.0									
	Total	***926,551***	***6.6***			*M*	*L*		*M*	*L*		
Total - Category - A		***7,889,360***	***56.3***									
B - Burnt Bricks Wall	Rural	2,709,677	19.3									
	Urban	2,466,197	17.6									
	Total	***5,175,874***	***36.9***			*L*	*VL*		*M*	*L*		
Total - Category - B		***5,175,874***	***36.9***									
C1 - Concrete Wall	Rural	30,533	0.2									
	Urban	72,010	0.5									
	Total	***102,543***	***0.7***			*VL*	*VL*		*VL*	*VL*		
C2 - Wood wall	Rural	164,466	1.2									
	Urban	34,361	0.2									
	Total	***198,827***	***1.4***			*VL*	*VL*		*H*	*M*		
Total - Category - C		***301,370***	***2.1***									
X - Other Materials	Rural	543,554	3.9									
	Urban	109,188	0.8									
	Total	***652,742***	***4.7***			*VL*	*VL*		*H*	*M*		
Total - Category - X		***652,742***	***4.7***									
TOTAL BUILDINGS		**14,019,346**										

ROOF												
R1 - Light Weight Sloping Roof	Rural	1,056,659	7.5									
	Urban	698,622	5.0									
	Total	***1,755,281***	***12.5***			*L*	*VL*		*VH*	*H*		
R2 - Heavy Weight Sloping Roof	Rural	7,680,783	54.8									
	Urban	858,379	6.1									
	Total	***8,539,162***	***60.9***			*L*	*VL*		*M*	*L*		
R3 - Flat Roof	Rural	1,655,095	11.8									
	Urban	2,069,808	14.8									
	Total	***3,724,903***	***26.6***	*Damage Risk as per that for the Wall supporting it*								
TOTAL BUILDINGS		**14,019,346**										

Housing Category : Wall Types

Category - A : Buildings in field-stone, rural structures, unburnt brick houses, clay houses

Category - B : Ordinary brick building; buildings of the large block & prefabricated type, half-timbered structures, building in natural hewn stone

Category - C : Reinforced building, well built wooden structures

Category - X : Other materials not covered in A,B,C. These are generally light.

Notes : *1. Flood prone area includes that protected area which may have more severe damage under failure of protection works. In some other areas the local damage may be severe under heavy rains and chocked drainage.*

2. Damage Risk for wall types is indicated assuming heavy flat roof in categories A, B and C (Reinforced Concrete) building

3. Source of Housing Data : Census of Housing, GOI, 2001

Housing Category : Roof Type

Category - R1 - Light Weight (Grass, Thatch, Bamboo, Wood, Mud, Plastic, Polythene, GI Metal, Asbestos Sheets, Other Materials)

Category - R2 - Heavy Weight (Tiles, Slate)

Category - R3 - Flat Roof (Brick, Stone, Concrete)

EQ Zone V : Very High Damage Risk Zone (MSK > IX)

EQ Zone IV : High Damage Risk Zone (MSK VIII)

EQ Zone III : Moderate Damage Risk Zone (MSK VII)

EQ Zone II : Low Damage Risk Zone (MSK < VI)

Level of Risk : VH = Very High; H = High; M = Moderate; L = Low; VL = Very Low

bmtpc **Building Materials & Technology Promotion Council** **Peer Group, MoH&UPA, GOI**

15.8 List of hazardous industries/ MAH units in the state

LIST OF MAJOR ACCIDENT HAZARD INDUSTRIES OF MADHYA PRADESH

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
1. Indore	Raukhedi	1. Hindustan Petroleum Corporation Ltd Bottling Plant.	L.P.G	15.0	900.0	300.0	
	Mangaliya	2. Bharat Petroleum Corporation Ltd, Depot	Petrol (Gasoline)	1000.0	1400.0	1400.0	
		3. Hindustan Petroleum Corporation Ltd, Depot	Petrol (Gasoline)	1000.0	2220.0	2220.0	
		4. Indian Oil Corporation Ltd, Depot.	Petrol (Gasoline)	1000.0	3051.0	3051.0	
		5. Bharat Petroleum Corporation	Petrol (Gasoline), HSD, SKO.	1000.0	26880.0, 54560.0, 12900.0.	26880.0, 54560.0, 12900.0.	
	Assrawad	6. Diamond Crystal Pvt, Ltd.	L.P.G	15.0	20.0	20.0	
2. Dhar	Pithampur Industrial Area.	7. B.C.M. Organics & Chemicals, (Indore) Pvt Ltd.	Chlorine	10.0	25.0	25.0	
		8. Bharat Petroleum Corporation Ltd, Bottling Plant.	L.P.G	15.0	450.0	300.0	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
		9. Gagan Gases Ltd (Unit No 2)	L.P.G	15.0	90.0	50.0	
		10. Green Cross Agro Chemicals Pvt Ltd.	Methyl Parathion	0.100	0.250	0.250	
		11. Hindustan Motors Ltd Unit No 2 (R.T.V Plant)	Propane	15.0	57.90	25000	
		12. Millennium Chemicals India Limited (Pagariya Polymers Ltd)	Chlorine	10.0	20.0	20.0	
		13. Eicher Motors Ltd	L.P.G	15.0	20.0	20.0	
		14. AVTECH Limited.	L.P.G	15.0	40.0	40.0	
		15. Metal men Industries Limited.	L.P.G	15.0	20.0	20.0	
		16. Prakash Industries Limited. (Picturetube Division)	L.P.G	15.0	130.0	130.0	
		17. Tata Steel Limited	L.P.G	15.0	30.0	30.0	
	GhataBilloud	18. National Steel & Agro Industries Ltd	Propane	15.0	120.0	120.0	
		19. Shree Klorates Unit of Zenith Electochem Pvt Limited.	Sodium Chlorate	25.0	100.0	100.0	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
3. Ujjain	Nagda	20. RChem Catalyst Industries Limited.	Chlorine	10.0	20.70	20.70	
		21. Grasim Industries Limited (Caustic Soda Membrane Cell Unit No 1	Chlorine	10.0	740.0	740.0	
		22. Grasim Industries Limited (Caustic Soda Membrane Cell Unit No 2	Chlorine	10.0	680.0	680.0	
		23. Grasim Industries Limited (Steple Fibre Division)	Carbon disulphide	20.0	1057.0	1057.0	
		24. Gwalior Chemicals Ind Ltd.	Chlorine, Sulphur trioxide.	10.0, 30.0.	16.2, 30.0	16.2	
	Ghatia	25. Indian Oil Corporation Limited Bottling Plant.	L.P.G	15.0	1850.0	1850.0	
4. Shajapur	Lodia	26. Sidhart Tube Limited (C.R.M. Division)	Propane	15.0	120.0	120.0	
5. Dewas		27. H & R Johnson Ind Limited.	L.P.G, Propane	15.0 15.0	70.0 50.0	35.0 35.0	
		28. Bhandari Files Pvt Limited.	Propane	15.0	35.0	35.0	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
		29. Parryware Cora Pvt Ltd.	Propane	15.0	50.0	50.0	
		30. Gajara Differential Gears Pvt Ltd.	L.P.G Propane	15.0 15.0	20.0 20.0	20.0 20.0	
6. Sehore	Dodi	31. Hemkut Petroeum Ltd.	L.P.G	15.0	50.0	50.0	
		32. Wardhman Fabrics	Propane	15.0	168.0	168.0	
7. Bhopal	Piplani	33. Bharat Heavy Electricals Ltd.	L.P.G	15.0	168.0	168.0	
	Bairagarh	34. Indian Oil Corporation Ltd Bottling Plant.	L.P.G	15.0	8200.0	8200.0	
	Huzur	35. Reliance Industries Ltd Bhopal Terminal.	Petrol H.S.D	1000.0 1000.0	4150.0 5410.0	4150.0 5410.0	
	Govindpura	36. Kilpest Pvt Limited	Methyl Parathion	.100	.200	.200	
	Nishatpura	37. Indian Oil Corporation Ltd Depot.	Petrol	1000.0	1736.0	1736.0	
8. Raisen	Dewanganj	38. K.M.N. Fertilizers & Chemicals Ltd (Pesticides Division).	Forate Carbofuran	0.100 0.100	27.6 30.0	27.6 30.0	
		39. Insulator & Electricals Company Unit No 2	Propane	15.0	60.0	60.0	
9. Vidisha	Ind State	40. Sourabh Agro Ind Ltd	Forate	0.100	0.250	0.250	
		41. Med Chemicals	Methyl Parathion, Forate.	0.100 0.100	0.450 0.960	0.450 .0960	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
		42. Agro & Pestivcides	Methyl Parathion, Forate	0.100 0.100	0.200 0.200	0.200 0.200	
		43. Pest Chem & Allied Industry.	Methyl Parathion	0.100	0.200	0.200	
		44. Shinne Metals Industry.	Methyl Parathion, Forate	0.100 0.100	0.200 0.200	0.200 0.200	
		45. Unical Pesticides Pvt Limited	Methyl Parathion, Forate	0.100 0.100	0.950 0.950	0.950 0.950	
		46. New Med Chemicals	Methyl Parathion, Forate	0.100 0.100	0.200 0.200	0.200 0.200	
10. Ratlam	Dosigaon	47. Kataria Ind Pvt Limited.	Propane	15.0	20.0	20.0	
11. Jabalpur	Bhitowni	48. Bharat Petroleum Corporation L.P.G Bottling Plant.	L.P.G	15.0	2900.0	2900.0	
		49. Indian Oil Corporation Ltd, Depot.	Petrol	1000.0	1177.0	1177.0	
		50. Bharat Petroleum Corporation Ltd.	Petrol	1000.0	1872.0	1872.0	
		51. Hindustan Petroleum Corporation Ltd Depot.	Petrol (Gaasoline)	1000.0	2220.0	2220.0	
		52. Confidence Cylinder & Petrochem Pvt Ltd.	L.P.G	15.0	100.0	100.0	
	Richai	53. Balaji Edible Oil Pvt Limited.	L.P.G	15.0	40.0	40.0	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
	Khamriya	54. Ordinance Factory	Trinitro Toluene	50.0	50.0	50.0	
12. Chindwara	Saunsar	55. Bhansali Engineering Polymers Limited.	Acrylonitrile	20.0	125.0	125.0	
	Khunagarh	56. Confidence Cylinder & Petrochem Pvt Ltd.	L.P.G	15.0	60.0		
13. Mandla	Maneri	57. Hindustan Petroleum Corporation Ltd, Bottling Plant.	L.P.G	15.0	450.0	450.0	
14. Gwalior	Sithowli	58. Rail Spring Karkhana, Central Railway.	L.P.G	15.0	140.0	80.0	
	Rairu	59. Indian Oil Corporation, Depot.	Petrol (Gasoline)	1000.0	1058.0	800.0	
15. Guna	Vijaypur	60. GAIL India Ltd L.P.G Project.	L.P.G Propane	15.0 15.0	8000.0 2700.0	5000.0 1500.0	
		61. National Fertilizers Limited.	Ammonia Chlorine	50.0 10.0	15000.0 20.0	9000.0 15.0	
	Dongar	62. Indian Oil Corporation Ltd Bottling Plant.	L.P.G	15.0	900.0	500.0	
16. Bhind	Malanpur Industrial State	63. Pashpati Plasti Sizers & Chemicals Ltd	Chlorine	10.0	35.0	20.0	
		64. Seasons Chemicals Pvt Limited	Chlorine	10.0	35.0	20.0	

DISTRICT	PLACE	INDUSTRY	HAZARDOUS CHEMICAL	Threshold Limit for Storing Hazardous Chemical (M.T)	Inventory Stored (M.T)		
					Storing Capacity	Licensed Quantity	
		65. Surya Roshni Ltd.	Propane L.P.G	15.0 15.0	100.0 94.0	60.0 50.0	
		66. Chloroparafin & Chemical India Company.	Chlorine	10.0	70.0	70.0	
17. Anuppur	Amlai	67. H.J.I. Pro Jimco Limited (Hukumchand Jute Ind Ltd).	Chlorine	10.0	248.0	248.0	
18. Sehdol		68. Orient Paper Mill.	Chlorine	10.0	169.0	40.0	
19. Pannna	Puraina	69. Shivtech Industries.	Chlorine	10.0	15.0	15.0	
		70. Shiva Axim Enterprises.	Chlorine	10.0	15.30	15.0	
20. Sidhi	Vindhyanagar	71. Vindhyachal Super Thermal Power Plant.	Chlorine	10.0	25.0	25.0	

15.9 Glossary

Acceptable risk: The level of loss a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Biological hazard: Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Building codes: Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to insure human safety and welfare. Building codes include both technical and functional standards.

Capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.

Capacity building: Efforts aimed to develop human skills or societal infrastructures within a community or organization needed to reduce the level of risk.

Climate change: The climate of a place or region is changed if over an extended period (typically decades or longer) there is a statistically significant change in measurements of either the mean state or variability of the climate for that place or region.

Coping capacity: The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

Disaster risk management: The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster risk reduction (DRR): The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Early warning: The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.

Emergency management: The organization and management of resources and responsibilities for dealing with all aspects of

Geological hazard: Natural earth processes or phenomena that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazard: A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazard analysis: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

Hydrometeorological hazards: Natural processes or phenomena of atmospheric, hydrological or oceanographic nature, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Land-use planning: Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilized, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Natural hazards: Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified by origin namely: geological, hydrometeorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

Preparedness: Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters.

Public awareness: The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster.

Recovery: Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk.

Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

Rehabilitation: It refers to the activities that are undertaken to support the victims, in order to return to normal life.

Reconstruction: It includes the replacement of buildings, houses, infrastructure and lifeline facilities so that long-term development prospects are enhanced.

Relief / response: The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.

Resilience / resilient: The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

Retrofitting (or upgrading): Reinforcement of structures to become more resistant and resilient to the forces of natural hazards.

Risk: The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions. *Conventionally risk is expressed by the notation* Risk = *Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.*

Risk assessment/analysis: A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

Structural measures: Structural measures refer to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure.

Non-structural measures: It refer to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk and related impacts.

Technological hazards: Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Vulnerability: The conditions determined by Physical, Social, Economic, and Environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Wild land fire: Any fire occurring in vegetation areas regardless of ignition sources, damages or benefits.