



GOVERNMENT OF CHHATTISGARH

REVENUE & DISASTER MANAGEMENT DEPARTMENT

State Disaster Management Plan-(SDMP)
CHHATTISGARH
Year-2019

STATE DISASTER MANAGEMENT AUTHORITY
CHHATTISGARH

भूपेश बघेल
मुख्यमंत्री



छत्तीसगढ़ शासन,
मंत्रालय महानदी भवन
अटल नगर रायपुर
दिनांक



संदेश

जलवायु परिवर्तन और बदलती हुई पर्यावरणीय परिस्थितियों के कारण सम्पूर्ण विश्व में आकस्मिक आपदाओं में वृद्धि हुई है। आपदाएँ चाहे प्राकृतिक हो या मानव निर्मित, ये जन-धन हानि के साथ-साथ विकास प्रक्रिया को भी पीछे धकेल देती हैं। आपदाओं के कुशल और समन्वित प्रबंधन के लिए ऐसा विकसित और प्रभावी तंत्र महत्वपूर्ण भूमिका निभाते हैं, जिससे तुरंत राहत और कम से कम नुकसान हो। इस योजना में आपदा के कारणों और उनके प्रतिकूल प्रभावों के शमन की प्रभावी रणनीतियों का विस्तृत विश्लेषण शामिल है, जिसके सम्बन्ध में शासन के विभिन्न विभागों एवं समाज के विभिन्न वर्गों के बीच व्यापक जागरूकता तथा समन्वय की आवश्यकता है।

यह अत्यंत हर्ष की बात है कि राजस्व एवं आपदा प्रबंधन विभाग, सहायक विभागों के साथ मिलकर **राज्य आपदा प्रबंधन योजना** तैयार की है। इस योजना में राज्य के अतंगत आपदा के लगभग-लगभग सभी संभावित खतरों की जानकारी, उससे बचाव की रूपरेखा और अपदाओं को रोकने के दूरगामी उपायों के साथ-साथ अपदाओं के घटित हो जाने पर आकस्मिक सहायता, क्षमता संवर्धन, पुनर्वास कार्यक्रमों, सामान्य वातावरण की बहाली और पुनर्निर्माण कार्यों का विवरण इत्यादि को शामिल किया है। ऐसी उम्मीद है, अन्य विभाग भी इसी प्रकार अपने निर्धारित विभागीय दायित्वों के निर्वहन के लिए अपनी योजनायें शीघ्र ही प्रस्तुत करेंगे।

यह योजना व्यवहारिक उपायों और जन-भागीदारी के मजबूत इरादों के साथ राज्य को भयमुक्त, आपदामुक्त एवं असुरक्षा की भावना से मुक्त बनाने में सक्षम सिद्ध होगी।

प्रकाशन अपने उद्देश्यों में सफल हो, इसके लिए मेरी हार्दिक शुभकामनाएं।


(भूपेश बघेल)

जयसिंह अग्रवाल
मंत्री



छत्तीसगढ़ शासन,
राजस्व एवं आपदा प्रबंधन विभाग
मंत्रालय महानदी भवन
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राज्य आपदा प्रबंधन योजना, छ.ग. सरकार की एक नवीन पहल है। इस योजना का लक्ष्य राज्य में घटित होने वाली संभावित आपदाओं से होने वाले व्यापक हानि को कम करना है। यह योजना अपने दायरे में व्यापक है और यह प्रशासन के सभी वर्गों को विस्तृत निर्देश देता है।

पिछले कुछ वर्षों में आपदा जोखिम प्रबंधन सभी राज्यों व जिलों के लिए एक चुनौती बन गया है। किसी महाविनाशकारी स्थिति से निपटना एक कठिन कार्य है। जिसमें विभिन्न प्रकार से कार्य निष्पादन, जोखिम आंकलन, जागरूकता तथा प्रशिक्षण, पर्याप्त आधारभूत संरचना हेतु योजना एवं क्रियान्वयन, आपदा की तैयारी, प्राकृतिक संसाधनों का चिरस्थायी प्रबंधन तथा नीति बनाना अहम् कार्य है।

चूँकि राज्य आपदा प्रबंधन योजना एक स्थायी प्रक्रिया है तथा इस परिपेक्ष्य में राजस्व एवं आपदा प्रबंधन विभाग और सहायक विभागों द्वारा राज्य आपदा प्रबंधन योजना तैयार किया जाना राज्य को आपदाओं से सशक्त तौर पर निपटने के लिए अति महत्वपूर्ण कदम है।

मैं, विभाग के इस सराहनीय पहल का स्वागत करता हूँ मुझे विश्वास है कि यह योजना राज्य एवं जिलों के नागरिकों के लिये आपदाओं से बचाव तथा क्षमता में वृद्धि करने में सफल होगी।

जयसिंह अग्रवाल
(जयसिंह अग्रवाल)

आर.पी. मण्डल
मुख्य सचिव
R.P. Mandal
Chief Secretary



छत्तीसगढ़ शासन
Government of Chhattisgarh

नया रायपुर अटल नगर, दिनांक :

3 JAN 2020




:: संदेश ::

राज्य के सभी 27 जिले परम्परागत रूप से प्राकृतिक एवं मानव जनित आपदाओं तथा विभिन्न प्रकार की संवेदनशीलताओं एवं उनकी विशालता से प्रभावित रहे हैं। इन बढ़ती आपदाओं से प्रदेश के नागरिकों पर प्रतिकूल प्रभाव पड़ता है, जिसके कारण भौतिक, सामाजिक एवं आर्थिक गतिविधियाँ प्रभावित होती हैं।

आपदाओं के नुकसान को रोकने एवं कम करने के लिए आवश्यक है कि वैज्ञानिक, व्यावहारिक और लचीली योजनायें बनाई जायें जिनमें परिस्थिति के अनुरूप परिवर्तन किया जा सके और समय पर सभी सुरक्षात्मक उपाय अपनाये जा सकें। इस हेतु छत्तीसगढ़ शासन के राजस्व एवं आपदा प्रबंधन विभाग द्वारा तैयार की गई राज्य आपदा प्रबंधन योजना अत्यंत महत्वपूर्ण है।

मैं, राजस्व एवं आपदा प्रबंधन विभाग और सहायक विभागों द्वारा राज्य आपदा प्रबंधन योजना तैयार करने के सफल प्रयास की प्रशंसा करता हूँ तथा कामना करता हूँ कि, सभी विभागों के आपसी सहयोग से राज्य में बेहतर आपदा प्रबंधन द्वारा जोखिम न्यूनीकरण कर राज्य को एक आपदा प्रतिरोधी प्रदेश बनाने में सफल होंगे।


आर.पी. मण्डल 13.1.2020

सुबोध कुमार सिंह
सचिव



छत्तीसगढ़ शासन,
राजस्व एवं आपदा प्रबंधन विभाग
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आपदाएं प्रगति में बाधाएं उत्पन्न करती हैं और वर्षों से किये गए कार्यों को निरर्थक कर राज्य को पिछड़ा बनाती हैं, अतः आपदा पूर्व प्रयास जैसे- तैयार, प्रशिक्षण, क्षमता-वर्धन और पुनर्निर्माण से जान-माल के नुकसान को कम किया जा सकता है।

राज्य के नागरिकों के साथ-साथ अत्यंत संवेदनशील वर्ग जैसे- बच्चे, बुजुर्ग, महिलायें, दिव्यांगजन एवं मजदूर वर्ग पर आपदा के प्रभाव को कम करने हेतु जन भागीदारी, जन-जागरूकता, प्रतिक्रिया, समन्वय बढ़ाने के लिए राज्य आपदा प्रबंधन योजना तैयार की गई है। जो कि प्रशंसनीय है।

राज्य आपदा प्रबंधन योजना के माध्यम से राज्य में एक ऐसा तंत्र विकसित होगा जो भविष्य में राज्य में घटित होने वाली किसी भी आपदा से निपटने में सक्षम होंगे।


(सुबोध कुमार सिंह)

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Under the leadership of Hon'ble Chief Minister of Chhattisgarh and Hon'ble Minister, Government of Chhattisgarh Revenue and Disaster Management Department, Chief Secretary Government of Chhattisgarh and Relief Commissioner and Secretary of Revenue and Disaster Management Department, we express gratitude towards all those who have contributed to the preparation of State Disaster Management Plan. According to the guidelines of Disaster Management Act 2005, this scheme has been prepared for public utility.

Disaster Management Plan has been prepared with the aligned departments for the utmost benefit of the 'community'. The role of each of the department has been determined, to ensure coordination, preparation and appropriate action in the same manner before, during and after the disaster.

Mr M. D. Diwan, Joint Secretary, and Mr. A.K. Pillai Office superintendent Department of Revenue and Disaster Management, has given special cooperation for the preparation of Disaster Management Plan.

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Abbreviation:-

BSNL	Bharat Sanchar Nigam Limited	भारत संचार निगम लिमिटेड
CAF	Central Armed Forces	केन्द्रीय सुरक्षा बल
CBO	Community Based Organizations	सामुदायिक संगठन
CE	Chief Engineer	मुख्य अभियंता
CEO	Chief Executive Officer	मुख्य कार्यपालक पदाधिकारी
CMO	Chief Medical Officer	मुख्य चिकित्सा पदाधिकारी
CMRF	Chief Minister Relief Fund	मुख्य मंत्री राहत कोष
CSO	Civil Society Organization	नगर संस्था
DM-ACT	Disaster Management Act 2005	आपदा प्रबंधन अधिनियम 2005
DDMA	District Disaster Management Plan	जिला आपदा प्रबंधन प्राधिकरण
DDMP	District Disaster Management Plan	जिला आपदा प्रबंधन योजना
DDRF	District Disaster Response Force	जिला आपदा प्रत्युत्तर बल
DM	District Magistrate	जिला कलेक्टर
DMT	Disaster Management Team	आपदा प्रबंधन दल
DRR	Disaster Risk Reduction	आपदा जोखिम न्यूनीकरण
EOC	Emergency Operation Center	आपातकालीन परिचालन केन्द्र
ESF	Essential Service Functions	आवश्यक सेवा कार्य
EWS	Early Warning System	पूर्व चेतावनी प्रणाली
FRT	First Response Team	प्रथम प्रत्युत्तर टीम
GIS	Geographic Information System	भौगोलिक सूचना प्रणाली
GP	Gram Panchayat	ग्राम पंचायत
GPS	Global Position System	स्थिति निर्धारण वैश्विक प्रणाली
HFA	Hyogo Framework for Action	हयोगो कार्यवाही निर्णय
HRVCA	Hazard Risk Vulnerability Capacity Analysis	खतरा, जोखिम, सम्बेदनशीलता (भेद्यता) क्षमता विश्लेषण
HVCA	Hazard Vulnerability Capacity Analysis	खतरा, संवेदनशीलता (भेद्यता) क्षमता विश्लेषण
IAF	Indian Armed Force	भारतीय सशस्त्र बल
IAG	Inter-Agency Group	इन्टर एजेंसी ग्रुप
IAP	Immediate Action Plan	तात्कालिन कार्य योजना
ICDS	Integrated Child Development Services	समेकित बाल विकास सेवायें
IMD	Indian Metrological Department	भारतीय मौसम विज्ञान विभाग
IMT	Incident Management Teams	घटना (आपदा) प्रबंधन टीम
IRS	Incident Response System	घटना (आपदा)प्रत्युत्तर प्रणाली
IRT	Incident Response Team	घटना (आपदा)प्रत्युत्तर टीम
IYA	Indira Awas Yojna	इंदिरा आवास योजना
LSG	Lower Selection Grade	निम्न प्रवर कोटि
MGNREG S	Mahatma Gandhi National Rural Employment Guarantee Scheme	महात्मा गाँधी राष्ट्रीय ग्रामीण रोजगार गारंटी योजना

MI&CT	Ministry of Information & Communication Technology	सूचना एवं संचार प्रौद्योगिकी मंत्रालय
MLA	Member of Legislative Assembly	विधान सभा सदस्य
MNREGA	Mahatma Gandhi National Rural and Education Guarantee Action	महात्मा गाँधी राष्ट्रीय ग्रामीण रोजगार गारंटी अधिनियम
MoAFW	Ministry of Agriculture and Farmers Welfare	कृषि एवं किसान कल्याण मंत्रालय
MoCI	Ministry of Commerce and Industry	वाणिज्य एवं उद्योग मंत्रालय
MoEF&CC	Ministry of Environment forest Climet change	पर्यावरण वन व जलवायु परिवर्तन मंत्रालय
MoHFW	Ministry of Health & Family Welfare	स्वास्थ्य एवं परिवार कल्याण मंत्रालय
MHA	Ministry of Home Affairs	गृह मंत्रालय
MoHRD	Ministry of Human Resources Development	मानव संसाधन विकास मंत्रालय
MoL&E	Ministry of Labour & Employment	श्रम एवं रोजगार मंत्रालय
Mop	Ministry of Power	विद्युत मंत्रालय
MoPR	Ministry of Panchayati Raj	पंचायती राज मंत्रालय
MoRD	Ministry of Rural Development	ग्रामीण विकास मंत्रालय
MoRTH	Ministry of Road Transport and Highway	सड़क परिवहन और राजमार्ग मंत्रालय
MoWF	Ministry of Water Resources	जल संसाधन मंत्रालय
MoUD	Ministry of Urban Development	भाहरी विकास मंत्रालय
MP	Member of Parliament	संसद सदस्य
MPLADS	Member of Parliament Local Area Development Schemes	सांसद क्षेत्रीय विकास योजना
NABARD	National Bank for Agriculture and Rural Development	राष्ट्रीय कृषि एवं ग्रामीण विकास बैंक
NCC	National Cadet Corps	राष्ट्रीय छात्र सेना
NDMA	National Disaster Management Authority	राष्ट्रीय आपदा प्रबंधन प्राधिकरण
NDRF	National Disaster Response Force/ Relief Fund	राष्ट्रीय आपदा प्रत्युत्तर बल/राहत कोष
NIDM	National Institute of Disaster Management	राष्ट्रीय आपदा प्रबंधन संस्थान
NGOs	Non- Government Organizations	गैर-सरकारी संगठन
NRSC	National Remote Sensing Center	राष्ट्रीय सुदूर संवेदन केन्द्र
NREGA	National Rural Employment Guarantee Act	राष्ट्रीय ग्रामीण रोजगार गारंटी अधिनियम
NREGS	National Rural Employment Guarantee Scheme	राष्ट्रीय ग्रामीण रोजगार गारंटी योजना
NRHM	National Rural Health Mission	राष्ट्रीय ग्रामीण स्वास्थ्य मिशन
NSV	National Service Volunteer	राष्ट्रीय सेवा स्वयंसेवक
NYK	Nehru Yuva Kendra	नेहरू युवा केन्द्र
PDS	Public Distribution Shop	जनवितरण दूकानें
PHC	Primary Health Center	प्राथमिक स्वास्थ्य केन्द्र
PHED	Public Health Engineering Department	लोक स्वास्थ्य अभियंत्रण विभाग
PMRF	Prime Minister Relief Fund	प्रधानमंत्री राहत कोष
PWD	Public Works Department	लोक यांत्रिकी विभाग

Q&A	Quality and Accountability	गुणवत्ता एवं जवाबदारी
QRT	Quick Response Team	त्वरित प्रत्युत्तर टीम
SDMA	State Disaster Management Plan	राज्य आपदा प्रबंधन योजना
SDRF	State Disaster Response Force/ Relief Fund	राज्य आपदा प्रत्युत्तर बल/ राहत कोष
SHG	Self Help Group	लघु एवं मध्यम उद्योग/ उपक्रम
SME	Small and Medium Enterprise	लघु एवं मध्यम उद्योग/ उपक्रम
SOP	Standard Operating Procedure	मानक परिचालन पद्धति
SP	Superintendent of Police	पुलिस अधीक्षक
WRD	Water Resources Department	जल संसाधन विभाग
WHO	World Health Organisation	विश्व स्वास्थ्य संगठन

Introduction

The Disaster Management Act, 2005 (DM Act 2005) provides institutional and coordinating mechanisms for effective disaster management at national, state, district and local level. Essentially, the Government of India formulated a multi-level institutional system, in which National Disaster Management Authority (NDMA), headed by the Prime Minister, State Disaster Management Authority (SDMA) headed by Chief Minister and District Disaster Management Authority (DDMA) under the chairmanship of District Collectors and local bodies are chaired by co-chairing.

Disaster is the result of natural or man-made causes; this creates serious disruption in the functioning of a society, thereby causing massive harm to humans, physics or the environment. The social and economic protection procedures available to cope with are inadequate, resulting in a disaster.

All possible natural and manmade disasters have been included in the State Disaster Management Plan. The plan has been described for prevention and control of various disasters. This State Disaster Management Plan has been prepared as per the guidelines given by National Disaster Management Authority.

In State Disaster Management Plan, a brief introduction about disaster and its vision, scope, policy and objectives of the plan are mentioned. It further includes State Profile, Hazard, Vulnerability, Capacity and Risk analysis and disasters in the state like drought, floods, accidents, epidemics etc. have been shown. Under the institutional mechanism roles and responsibilities of NDMA, NEC, NIDM, NDRF, Agencies providing early information, state authority i.e., CSDMA, SDRF, Revenue and Disaster Management Department, DDMA and other Stakeholders roles are mentioned.

In prevention and Mitigation, based on the potential disaster in the State, structural and non structural mitigation measures are explained. Mainstreaming Disaster Risk Reduction into development planning has been a priority concern for the State government to ensure the safe development plans and programs. In preparedness and capacity building general preparedness measures, establishment of control room, updation of plan, communication system, training for members of disaster management team, community awareness on various disasters, As

well as in the case of immediate pre-disaster, during disaster and post disaster coordination mechanism of the State Disaster Management Authority has been included.

In this plan, Disaster Response and Relief includes trigger mechanism in case of early warning and without early warning, IRS, needs and function of EOC at State and District level, emergency support function, SDRF structure. Relief camp, compensation and post relief assessment are explained in it. Rehabilitation and Reconstruction includes detailed damage, need assessment, reconstruction strategy, rehabilitation (Build Back Better) and sources of funds for the disaster relief and response.

In financial resources availability of financial resources from centre and state, fund for capacity building, state fund, SDRF, State and District disaster mitigation fund, NCCF and other provision of the finance system are explained. Review and Updation of State Disaster Management Plan for further improving the capability to deal with future disasters.

In accordance with State Disaster Management Plan, in order to deal with the situation of any emergency, information related to various departments such as contact list, vehicle list, health centers, police stations, list of fire brigade, as well as areas in the disaster prone areas of the State Maps, etc. have been included. Coordination and coordinated mechanism has been mentioned.

This plan is useful in the form of guidance for better coordination, organizing and implementation of state administration, other stakeholders before disaster and after disaster. This plan guides the process mechanism operating in relief work and increases the community capacity to deal with the disaster. The State Disaster Management Plan has been conceived as a preparedness plan, which is activated only after getting information about the disaster and makes the reaction mechanism functioning without losing any time.

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Chapter 1

Introduction

1.1 Disaster

The UNISDR (2009) defines disaster as:

“A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope up using its own resources.”

UNISDR considers disaster to be a result of the combination of many factors such as the exposure to hazards, the conditions of vulnerability that are present, and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injuries, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

The DM Act-2005 uses the following definition for disaster:

"Disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.”

1.2 Vision

Making a resilient Chhattisgarh by minimizing the vulnerability and empowering the communities to better respond to any disaster with sense of urgency and in a planned way to minimize human, property and environmental loss.

1.3 Legal Mandate

As per Section 23 (1) of 'The Disaster Management Act, 2005' reads "There shall be a plan for disaster management for every State to be called the State Disaster Management Plan". Section 23 (5) of 'The Disaster Management Act, 2005' also reads "The State Plan shall be reviewed and updated annually". Apart from these statutory requirements, the hazard profile and disaster history of the State demands for a comprehensive State disaster management plan to be in place for coordinated and streamlined management of disaster in the State.

1.4 Scope

As per 'The Disaster Management Act, 2005'- the State Plan shall include:

- a. The vulnerability of different parts of the State to different forms of disasters;
- b. The measures to be adopted for prevention and mitigation of disasters;
- c. The manner in which the mitigation measures shall be integrated with development plans and projects;
- d. The capacity-building and preparedness measures to be taken;
- e. The roles and responsibilities of each Department of the Government of the State in relation to the measures specified in clauses (b), (c) and (d) above;
- f. The roles and responsibilities of different Department of the Government of the State in responding to any threatening disaster situation or disaster.

1.5 Policy

Saving human lives with utmost priority and ensuring minimum loss to property and environment.

1.6 Objectives of the Plan

The objectives of the SDMP are to:

- a. Promote a culture of prevention and preparedness by ensuring that DM receives the highest priority at all levels.
- b. Ensure that community is the most important stakeholder in the DM process.

- c. Encourage and promote mitigation measures based on state-of-the-art technology and environmental sustainability.
- d. Mainstreaming DM concerns into the developmental planning process.
- e. Develop and establish contemporary forecasting and early warning systems backed by responsive and safe communications and Information Technology (IT) support.
- f. Promote a productive partnership with the media for creating awareness and capacity development.
- g. Ensure efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society.
- h. Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat.
- i. Undertaking recovery to bring back the community to a better and safer level than the pre-disaster stage.

1.7 Sendai Framework of Actions for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third United Nations World Conference on Disaster Risk Reduction held in Sendai, Japan in March 2015.

To support the assessment of global progress in achieving the outcome and goal of this Framework, seven global targets have been agreed. These targets will be measured at the global level and will be complemented by work to develop appropriate indicators. National targets and indicators will contribute to the achievement of the outcome and goal of this Framework. The seven global targets are:

- a. Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015.
- b. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020-2030 compared to the period 2005-2015.
- c. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.

- d. Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- e. Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- f. Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- g. Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

Chapter 2

State Profile

Chhattisgarh was formed on 1st November, 2000 and known as twenty sixth State of country. With Uttar Pradesh to the north, Jharkhand to the north-east, Orissa to the east, Telangana, Andhra Pradesh to the south, Maharashtra to the southwest and Madhya Pradesh to the north and north-west form its boundaries.

According to the 2011 census, it has a total population of 2,55,40,196 (2.11% of the total population of India) out of which about 1,96,03,658 are rural population (76.76% of the State population) and 59,36,538 are urban population (23.24% of the State population).

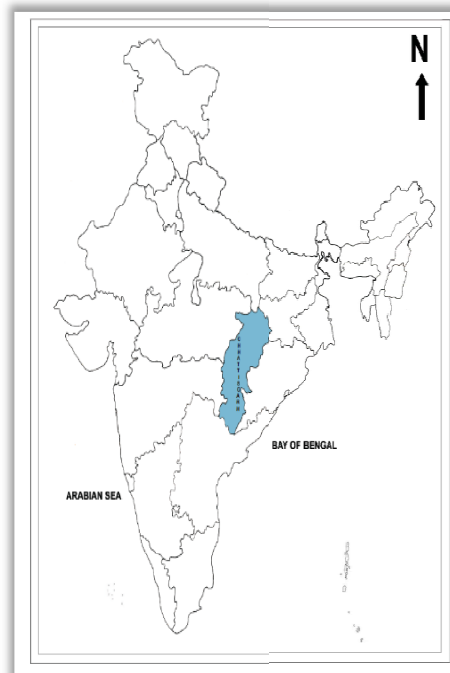


Figure-2.1: Chhattisgarh Location Map

2.1 Administrative Profile

<i>Administrative Unit</i>	Number
<i>Divisions</i>	05 (Raipur, Durg, Bilaspur, Surguja and Bastar)
<i>Districts</i>	27
<i>Municipal Corporations</i>	13 (Raipur, Birgaon, Bhilai, Durg, Bilaspur, Korba,
<i>Sub-divisions</i>	79
<i>Tehsils</i>	150

Patwarihalkas	5577
RI Circles	283
Villages	20,350

Table-2.1: Administrative Profile

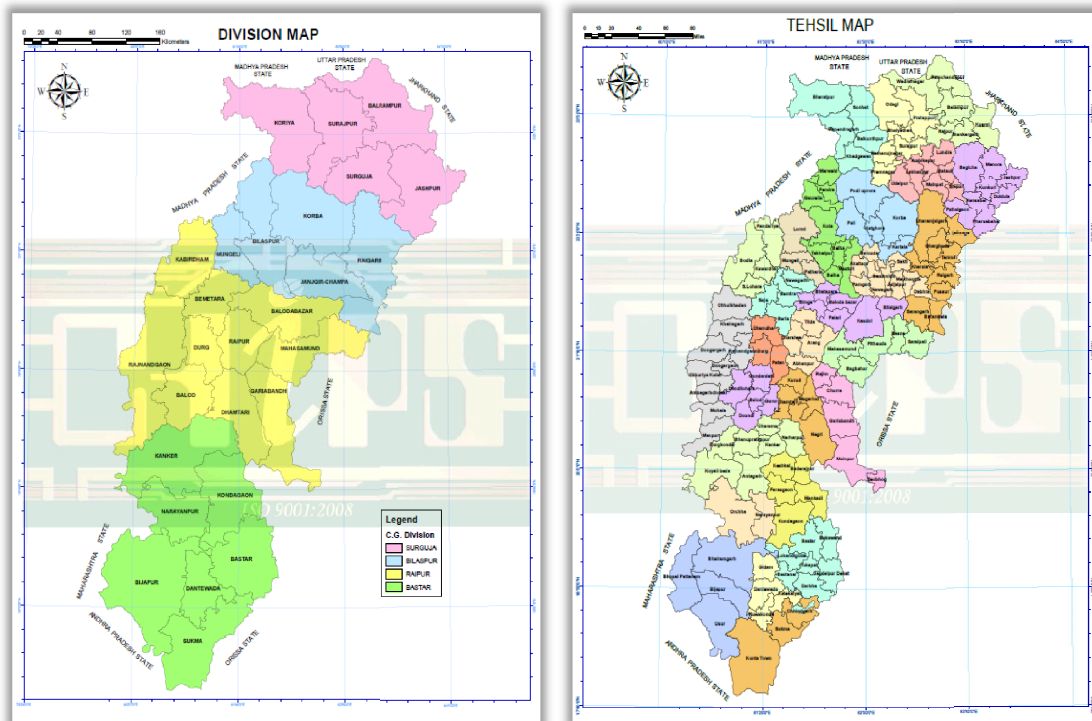


Figure-2.2 : Division and Tehsil Map of Chhattisgarh

2.2 Geographical Profile

Chhattisgarh extends over an area of 1,35,191 square km covering about 4.11% of the total area of India. It is located between 17°46' N–24°05' N latitude and 80°15' E–84°20' E longitude in Central India. About 44% of its total area is covered by forests. The State can be divided into three major parts:

a. Northern Hill Ranges

This belt comprises of almost northern portion of the State covering *Balrampur*, *Jashpur*, *Korea*, *Surajpur*, *Sarguja* and some part of *Bilaspur*, *Korba*, *Mungeli* and *Raigarh* districts. The forest area in this belt is about 47% of the total geographical area of this hilly region. The peak height in this region is about 1225 meters above Meter Sea Level (MSL).

b. Chhattisgarh Plain

This belt comprises of central area of the state. About 33% of its total geographical area of the plain is covered with forest.

c. Bastar Plateau

This belt comprises of almost southern part of the state covering *Bastar*, *Bijapur*, *Dantewada*, *Kanker*, *Kondagaon*, *Narayanpur* and *Sukma* districts. In this plateau, the land is undulating hills where peak height is about 1144 meters above Meter Sea Level (MSL). The forest area in this plateau contributes 62% of the total geographical area.

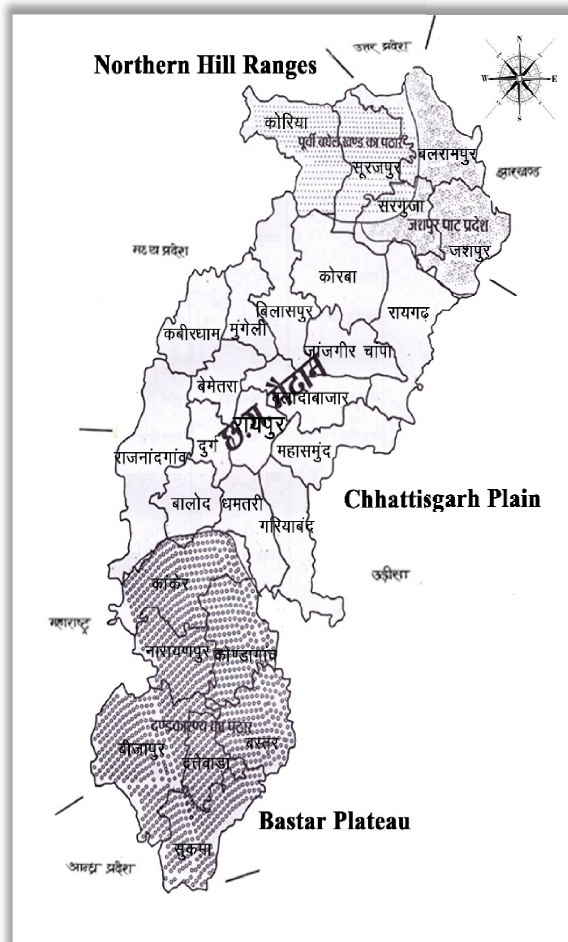


Figure-2.3: Geographical Profile of Chhattisgarh

2.3 Rivers

The Mahanadi is the principal river of the state. The other major rivers are Indravati, Godavari, Sheonath, Hasdeo, Mand, Pairi, Rihand, Kharun, Son, Sabari, Sondur, Kotri and so on. They drain almost part of the state along with their many tributaries. These rivers glide through the uneven topography of the state giving rise to gorgeous waterfalls.

a. Mahanadi River

It rises from Shrangli mount situated in Sihwa tehsil of Dhamtaridistrict of Chhattisgarh. The total length of this river is 851 km. in which 286 kmflows in Chhattisgarh state. Its main tributaries are Sheonath, Pairi, Jonk, Hasdeo,Mand etc.

b. Indravati River

It is 525 km long. It emerges from Dongar- Kala range in Orissa.The river flows 372 km in the state through *Bastar* district. The river has nearly 30 small tributaries.

c. Shivnath River

It originates near village *Panabaras* in the *Rajnandgaon* district.The river traverses a length of 380 Km. The main tributaries of Shivnath river areTandula, Kharun, Arpa, Agar and Maniyari rivers.

d. Hasdeo River

It is a tributary of Mahanadi river. It originates from about 910 metre altitude near *Sonhat* in *Korea* district. It joins Mahanadi river, near to *Bilaigarh*. The total length of this river is 333 km. The Gejriver is its main tributary.

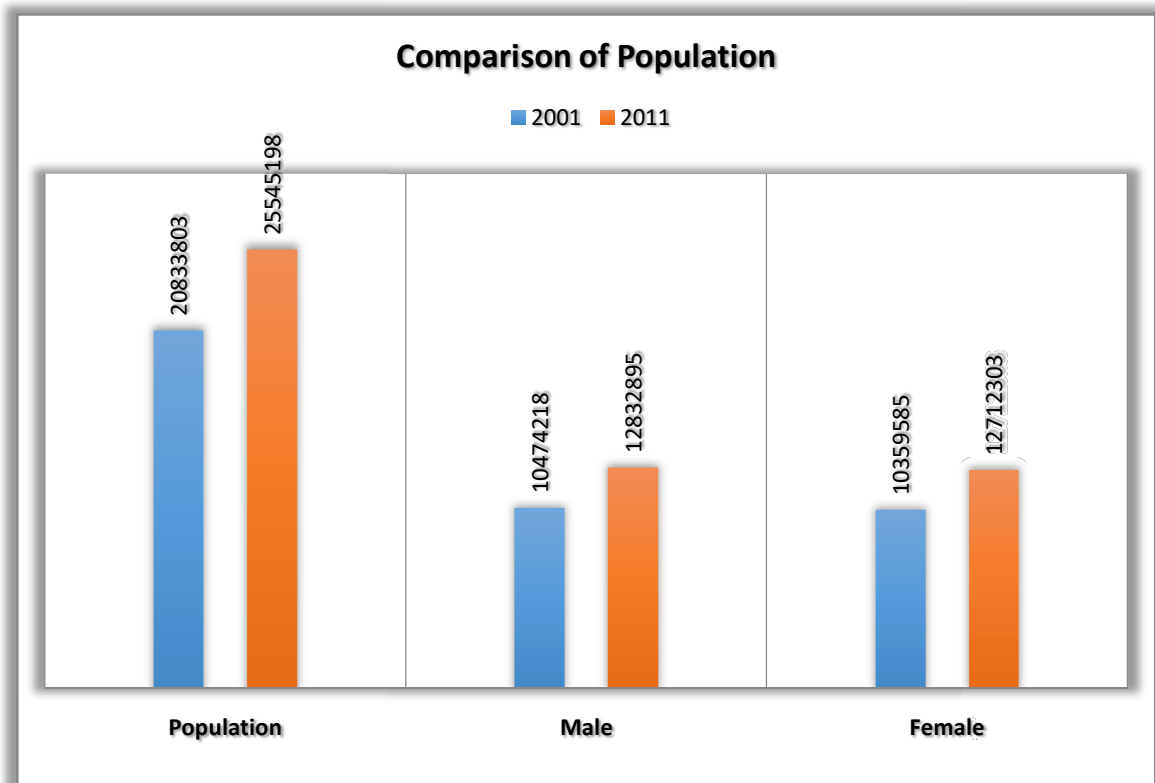
e. Rihand River

It is a tributary of Son river. It rises from Mainpat plateau. It flows north through central part of *Sarguja* district for 160 km.

2.5 Demography

As per details from Census 2011, Chhattisgarh has population of 2.56 Crores, an increase from figure of 2.08 Crore in 2001 census. Total population of Chhattisgarh as per 2011 census is 25,545,198 of which male and female are 12,832,895 and 12,712,303 respectively. In 2001, total population was 20,833,803 in which males were 10,474,218 while females were 10,359,585.

The total population growth in this decade was 22.61 % while in previous decade it was 18.06 %. The population of Chhattisgarh forms 2.11 % of India in 2011. In 2001, the figure was 2.03 %.



<https://www.census2011.co.in/census/state/chhattisgarh.html>

Graph-2.1 : Population Comparison

Description	2011	2001
Approximate Population	2.56 Crores	2.08 Crores
Actual Population	2,55,45,198	2,08,33,803
Male	12,832,895	10,474,218
Female	12,712,303	10,359,585
Population Growth	22.61%	18.06%
Percentage of total Population	2.11%	2.03%
Sex Ratio	991	989
Child Sex Ratio	969	975
Density/km2	189	154
Total Child Population (0-6 Age)	3,661,689	3,554,916
Male Population (0-6 Age)	1,859,935	1,800,413
Female Population (0-6 Age)	1,801,754	1,754,503
Literacy	70.28 %	64.66 %
Male Literacy	80.27 %	77.38 %
Female Literacy	60.24 %	51.85 %

Table-2.2 : Population Comparison

Urban/Rural Population 2011

Description	Rural	Urban
Population (%)	76.76 %	23.24 %
Total Population	19,607,961	5,937,237
Male Population	9,797,426	3,035,469
Female Population	9,810,535	2,901,768
Population Growth	17.78 %	41.84 %
Sex Ratio	1001	956
Child Sex Ratio (0-6)	977	937
Child Population (0-6)	2,924,941	736,748
Literacy	65.99 %	84.05 %
Male Literacy	76.98 %	90.58 %

Female Literacy	55.15 %	73.39 %
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Table-2.3 : Urban/Rural Population Comparison

2.6 Social Profile

a. Religion

Hinduism is majority religion in state of Chhattisgarh with 93.25 % followers. Islam is second most popular religion in state of Chhattisgarh with approximately 2.02 % following it. In Chhattisgarh state, Christianity is followed by 1.92 %, Jainism by 0.24 %, Sikhism by 0.27 % and Buddhism by 0.27 %. Around 1.94 % stated 'Other Religion', approximately 0.09 % stated 'No Particular Religion'.

Description	Population	Percentage
Hindu	23,819,789	93.25 %
Muslim	514,998	2.02 %
Other Religion	494,594	1.94 %
Christian	490,542	1.92 %
Buddhist	70,467	0.28 %
Sikh	70,036	0.27 %
Jain	61,510	0.24 %
Not Available	23,262	0.09

Table-2.4 : Religionwise Population

b. Caste and Tribes

As per Census 2011, the population of Scheduled Caste is 32.74 lakh and Scheduled Tribes in state is 78.23 lakh. With the exception of the hilly states of the north-east, Chhattisgarh has one of highest shares of Scheduled Tribe (ST) populations within a state, accounting for about 10 percent of the STs in India.

SCs and STs together constitute more than 50 percent of the state's population. The tribals are an important part of the state population and mainly inhabit the dense forests of Bastar and other districts of south Chhattisgarh.

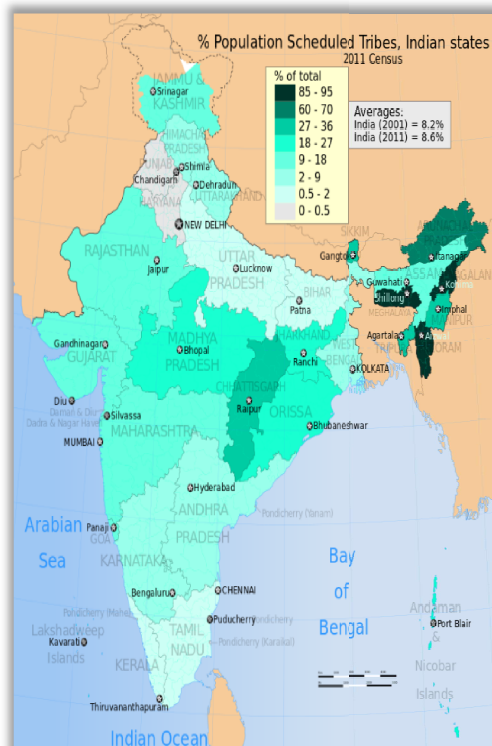


Figure-2.5: SC and ST Population

The Scheduled Caste (SC) population of Chhattisgarh is 2,418,722 as per 2001 census constituting 11.6 percent of the total population (20,833,803). The proportion of Scheduled Castes has increased from 11.6 percent in 2001 to 12.8% in 2011. The percentage increase in the population of the tribals during the 2001–2011 decade had been at the rate of 18.23 %. The share of the tribal population in the entire state had been 30.624% which was 31.76 % during 2001.

Particular	Scheduled Tribes			Scheduled Caste		
	Total	Rural	Urban	Total	Rural	Urban
Population	78,22,902	72,31,082	5,91,820	32,74,269	25,11,949	7,62,320
Sex Ratio	1020	1021	999	994	996	989

Percentage to Total population	30.624 %	36.878 %	9.968 %	12.818 %	12.811 %	12.840 %
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Table-2.5 : SC ans ST population of Chhattisgarh

2.7 Economic Profile

The Gross State Domestic product (GSDP) of Chhattisgarh grew by 6.7 % in 2017-18 over the previous year. Manufacturing has the maximum Contribution (48%) to GSDP in Chhattisgarh. Its key industry sectors are Iron, steel, cement and power sectors.

Chhattisgarh is also called the “Rice bowl of Central India”. Chhattisgarh produces rice, maize, kodo–kutki and other small millets and pulses, oil seeds such as ground nuts, Soybeans, Sunflowers etc.

2.8 Main Occupation

a. Agriculture

Agriculture is counted as the chief economic occupation of the state. According to a government estimate, net sown area of the state is 48.28 lakh hectares and the gross sown area is 57.88 lakh hectares. Horticulture and animal husbandry also engage a major share of the total population of the state. The main livelihood of the villagers is agriculture and agriculture-based small industry.

b. Power

Chhattisgarh is one of the few states of India where the power sector is effectively developed. Based on the current production of surplus electric power, the position of the State is comfortable and profitable. The Chhattisgarh State Electricity Board (CSEB) is in a strong position to meet the electricity requirement of the state and is in good financial health. Chhattisgarh provides electricity to several other states because of surplus production.

c. Industries

The steel industry is one of the biggest heavy industries of Chhattisgarh. Bhilai Steel Plant, Bhilai operated by SAIL, with a capacity of 5.4 million tonnes per year, is regarded as a significant growth indicator of the state. More than 100 steel rolling mills, 90 sponge Iron plants and ferro-alloy units are in Chhattisgarh. Along with Bhilai, Raipur, Bilaspur, Korba and Raigarh have become the steel hub of Chhattisgarh. Today, Raipur has become the centre of the steel sector, the biggest market for steel in India.

d. Crafts

Chhattisgarh is known for "Kosa silk" and "wax art". Besides saris and salwar suits, the fabric is used to create lehengas, stoles, shawls and menswear including jackets, shirts, achkans and sherwanis. Works done by the internationally renowned sculptor, Sushil Sakhuja's Dhokra Nandi, are available at government's Shabagcrafts emporiums, Raipur.

2.9 Climate

Chhattisgarh state experiences a tropical type of climate. The state is situated in central part of India. The geographical factors like distance from the Sea and altitude of the state have influenced the Chhattisgarh climate. The climate of Chhattisgarh is mainly tropical, humid, and sub-humid. The climate is hot because of its position on the Tropic of Cancer. May is the hottest month while December and January are the coldest ones. The climatic condition during summer is hot and gusts of dry wind blow over the state. During winter the temperature falls to some extent. The period from November to March is generally pleasant over the state except during a few spells when severe cold waves associated with western disturbances affect northern parts of the state in winter months. April and May months are hot, very dry and generally uncomfortable. Due to lower temperatures, some areas of plateau and Northern Hills regions are however comparatively less uncomfortable in summer. Weather tends to be oppressive during June due to high order of humidity and temperature. The next three months (July, August and September) are fairly comfortable due to reduced dry temperatures, although the humidity continues to be high.

The climate of the state varies from subtropical monsoon, mild and dry winter, hot summer over northern hilly areas and adjoining plains (Korea, Surajpur, Balrampur, Sarguja districts and

northern parts of Bilaspur, Korba and Jashpur districts) to tropical monsoon, hot and seasonally dry over central and southern parts of the state. Some part of Dantewada district only comes under the climate type tropical monsoon, hot and seasonally excessive rainfall.

a. Temperature:

Pre -monsoon season is the hottest season while winter is the coldest season. Day temperatures are more or less uniform over the plains except during winter when temperature increase south –wards.

May is the hottest month with mean maximum temperature of 39.4 degree Celsius. In the plains recording 1-3 degree Celsius higher while over plateau regions and elevated places recording 2-5 degree Celsius lower. In May, mean maximum temperature ranges from 31.8 degree Celsius to 42.6 degree Celsius over the state, the highest values are observed over central plain area. The highest maximum temperature ever recorded at any individual station was 49.3 degree Celsius at Bilaspur observatory on 22nd May 2017. On the same day 44.9 degree Celsius was recorded at Raipur.

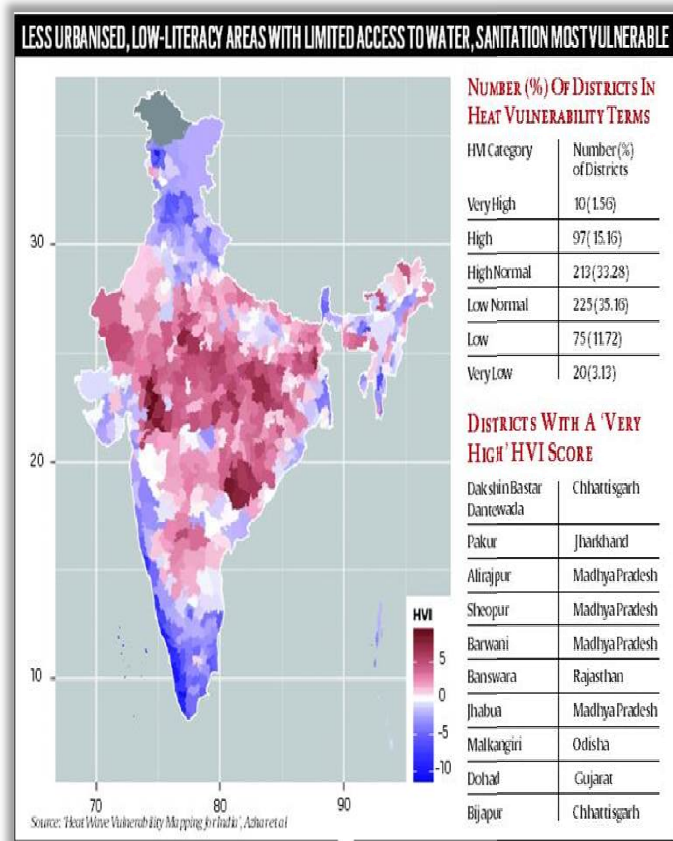


Figure-2.6 : Less Urbanised, Low-Literacy areas with Limited access to Water, Sanitation most Vulnerable

December and January are the coldest month when mean's in the north east to about 13.8 degree Celsius in the central plain minimum temperature for the state as a whole is 11.7 degree Celsius varying from 7.7 degree Celsius areas. During winter, much lower temperature may be experienced in the wake of western disturbances. On such occasions the lowest minimum temperature may fall down up to 0 degree Celsius at few stations in the northern region. The

lowest minimum temperature ever recorded at any individual station was -1.3 degree Celsius at Jashpur nagar on 7th December 1971.

b. Humidity:

Summer is the driest part of the year when relative humidity in the afternoon is generally ranges between 26 degree Celsius and 31 degree and morning relative humidity ranges between 44 degree and 49 degree. During southwest and post monsoon season relative humidity is generally high when morning humidity ranges between 68 degree and 87 degree Celsius and afternoon relative humidity ranges between 54 degree and 80 %. During winter season relative humidity is moderate and it ranges between 61 % and 69 % in the morning and between 39 % and 51 % in the afternoon.

c. Rainfall:

The total annual precipitation for the state as whole is about 1250-1300 mm. The precipitation in the state occurs in the form of rain. North eastern and Southern parts of the state receive more rain than Central part of the state with large variation due to topography variation in the state.

Bijapur district in the southern part of the state received the maximum amount of precipitation i.e. about 1945 mm, whereas Kabirdham district in the central part of the state received the minimum amount of precipitation i.e. about 640 mm in this year (Southwest monsoon 2018).

South west monsoon season is the main rainy season over the state. Of the total amount of rainfall, about 90 % is received in the southwest monsoon season (June to September), 2% is received in the winter season (December to February), 3 % in pre – monsoon season (March to May) and 5 % in post monsoon season (October to November).

S.No	Divisions	Districts	Rainfall
1	Raipur	Raipur, Mahasamund, Gariaband, Balodabazar, Dhamtari	1000-1300 mm
2	Durg	Durg, Balod, Bemetara, Rajnandgaon, Kabirdham	650-1200 mm

3	Bilaspur	Bilaspur, Korba, Mungeli, Janjgir, Raigarh	900-1250 mm
4	Sarguja	Sarguja, Jashpur, Surajpur, Balrampur, Korea	1100-1400 mm
5	Bastar	Bastar, Kanker, Kondgaon, Narayanpur, Dantewada, Bijapur, Sukma	1400-1900 mm

Table-2.6 : Rainfall Data

2.10 Cultural Profile

Chhattisgarh have a very ancient history and culture filled with traditions and customs. State have major population of tribal people mainly residing in Bastar division. The tribal people of Chhattisgarh mainly speak Chhattisgarhi and Hindi.

The culture of Chhattisgarh is a blend of literature, performing arts and crafts which is derived and nourished from daily life and observation of facts of people. Most of their decorative or the design pattern which is used in their art work is from their own religion, mythology, social and political events, nature and folklore. Other traditional crafts of the people include painting, woodcraving, bell metal craft, bamboo ware and tribal jewellery.

2.11 Language

Hindi is both the official and local language of the state. Chhattisgarhi, Halbi, Gondi, Bhathri, Baighani, Bhulia, Binjhawari, Kalanga, Kavardi, Khairagarhi, Sadri Korwa, and Surgujia Urav etc. are also spoken in the state.

Chhattisgarhi Language Day (Chhattisgarhi Diwas) is celebrated every year on November 28. This day is regulated by the State Government.

2.12 Customs

Customs and traditions play a major role in the life of Chhattisgarhi people. Depending on rural or urban area varied outfits are worn by people of Chhattisgarh.

Customs of the tribal class of people wear Dhotis and Headgears like cotton turbans. Gaudy costumes are one of the prime customs of tribal people while men and women living in urban area dress like all other people in the cities.

2.13 Food

Chhattisgarh has a rich tradition of food culture. The diet mainly consists of rice, flour, curd and a variety of green leafy vegetables like lalbhaaji, chowlaibhaaji, chechbhaji, kaandabhaaji, kheksi, kathal, kochaipatta, kohda and boharbhaji.

Badi and Bijori are optional food categories. One of the well known traditional dishes of Chhattisgarh is Iddhar; gulgula (bobra), bidiya, dhoodhfara, bafauli, kusli, balooshahi, singhara, tikhur, anarsa and khurmi fall in sweet categories. Tribal and village populations drink a brew made of the small, creamy white flower of a local tree called Mahuwa. In Bastar local drink Sulfi is famous among all.

2.14 Housing

In rural hut dwellings are made with Khaprail whereas urban houses are made up of cement, concrete. Wooden houses still exist with a rich heritage feel an ethnic living in tribal parts of Chhattisgarh.

2.15 Fairs and Festivals

Fairs and festivals in Chhattisgarh signify socio-cultural and even economic aspirations of the people of Chhattisgarh. Among the most festivals celebrated in state are Bastar Dusshera, Hareli, Pola, Madai, Cher-chera, Teeja-haritalika, Champaran mela, Narayanpur mela, Shivrinarayan mela, Rajim mela, Goncha, Bhoramdeo Festival, Mohara mela, Ghotul, Guru Ghasidas Jayanti etc..

Chakradhar samorah, Pali mahotsava are the other popular fairs in the state. Rajyotsava (State Festival) is also celebrated every year on the occasion of Chhattisgarh foundation day (from 1st November 2000) for a week.

Chapter 3

Hazard, Vulnerability, Capacity and Risk Analysis

Disasters adversely affect life and after the occurrence of disaster, destruction, plight, panic arises. It takes several decades for disaster affected people to come back to rehabilitation. Low level of livelihood and less awareness has not only increased the adverse effects of disasters, but also the serious consequence of interruption in economic development.

It is therefore necessary that the identification of the people who are living below the poverty line, identifying the potential occurrences of any district, risks arising from them, areas which come in its periphery, children, the elderly, women, the disabled, and those Identifying the economic, social and physical sensitivity of the people living in the area and assessing their potential should deal with the impact of the disaster. Demonstrations should be made so that the plans can be implemented to reduce the risk of disasters.

Natural Disasters –

Natural phenomena that pose a threat to people, structures or financial properties simultaneously contribute to human life. Mainly flood, earthquake, drought, volcano, fire, tsunami, landslide etc are the natural threats.

Manmade Disasters –

Disasters which are human induced or situations that leads to disastrous consequences to society, are called manmade disasters, which mainly includes industrial accident, explosion, environmental degradation, leakage of poisonous gas, war, accidents etc.

Due to increased risk of frequency vulnerability among people arises and by decreasing the ability of people increase the risk of increased risk.

$$\text{Risk} = \frac{\text{Hazard (H)} \times \text{Vulnerability (V)} \times \text{Exposure (E)}}{\text{Capacity to Cope (C)}}$$

Hazard - Hazard is a situation where there is a possibility of loss of life, health, environment or property. This can be natural or man-made incidents, which cannot be stopped. It causes heavy loss of life and property in the state and district.

Vulnerability - Due to the nature, construction and proximity to threatened areas or disaster prone areas, a community, structure, service or geographic area is likely to be damaged or interrupted by the effects of special danger.

Risk - Risks occur when there is an event of danger, the expected loss of any community. It may include loss of life, injury to individuals, loss of property and / or interruption in economic activities and livelihood.

Capacity - Using the skills and resources available to manage adverse conditions, risks or disasters is the ability to increase the eligibility of people, organization and system. In order to cope up with any situation, it is essential to develop awareness of the resources available during normal times as well as during the disasters or adverse conditions.

Exposure - The existence and the number of people, property, infrastructure, housing, production capabilities, livelihood, system and other elements located in hazardous areas are known as exposure.

3.1 Identifying Potential Disasters –

The disasters are mainly divided into five parts.

- **Climatic Related-** flood, drought, cyclone, cloud burst, hot and cold waves, storm and lightning.
- **Geologic Related-** earthquake, landslide, dam burst, fire in mines.

- **Chemical, industrial and nuclear related-** Chemical and industrial disaster and nuclear disaster.
- **Accidental Related-** Fire, bomb, explosion, air, road and rail accidents, flooding in mines, building collapse.
- **Biological Disaster-** Epidemic, pest attack, animal epidemic etc.

In order to assess disaster of Chhattisgarh state and sensitivity of the risk, state officials, public representatives, NGOs, assess the potential of the state in the meeting on the district disaster management plan, the people affected by them and the ability of the state to deal with the disasters.

3.2 Disasters in Chhattisgarh state –

3.2.1 Drought

Drought is a serious threat to the state. Based on the available data of last 17 years, it was seen that there is a variety of drought patterns in the state, sometimes affecting the whole state, sometimes to some areas, and sometimes to some districts.

However, four district have been identified as severe drought prone district, which includes Baloda Bazar, Bemetara, Mungeli, Kabirdham. which is drying up for a long period. On the basis of rainfall data, the districts have been classified as highly drought prone, medium drought prone and less drought prone.

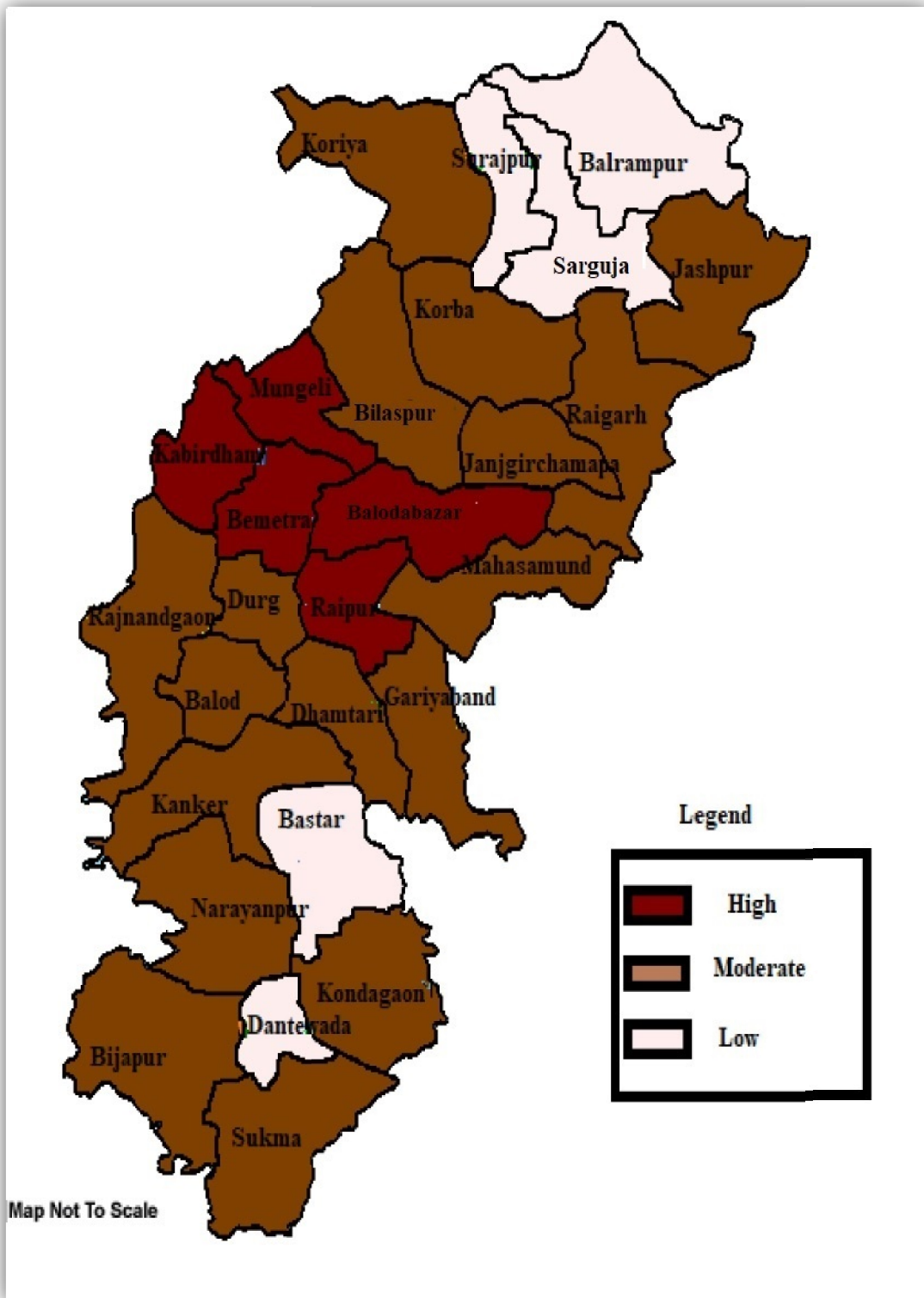


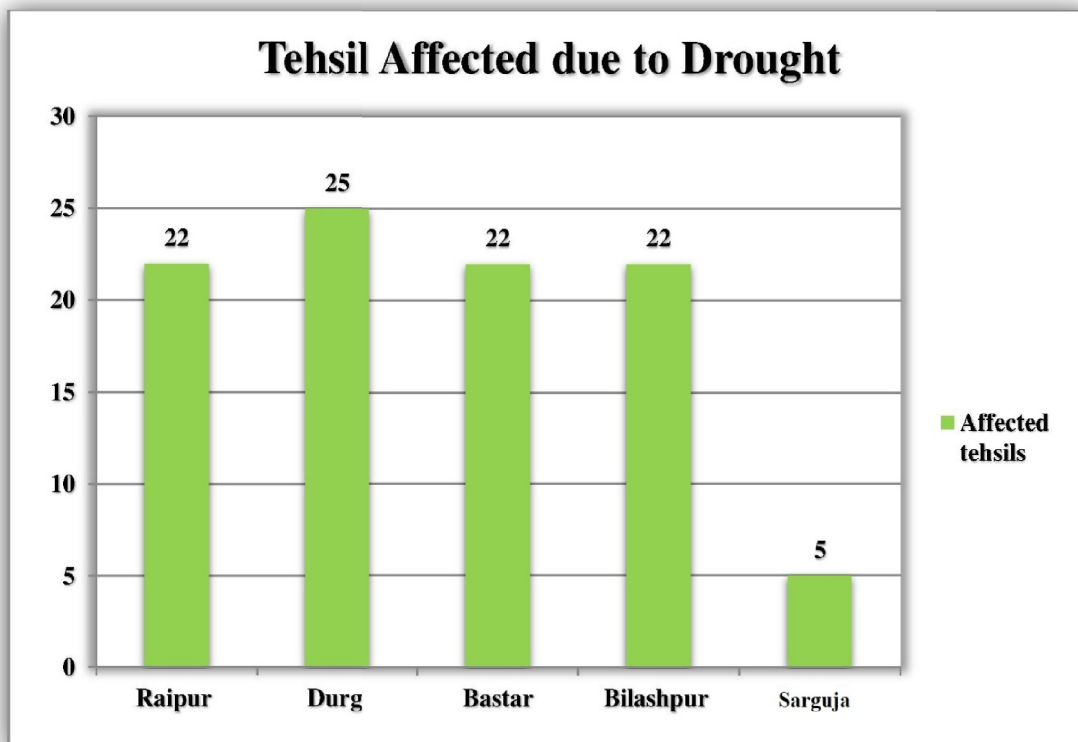
Figure - 3.1: Map of drought affected Districts

Drought			
Drought Affected Area in 2017-18 and its Loss			
S. No.	Particular	Area	Remarks
1	Affected 96 tehsils in 21 districts of the State	-	Affected Farmer 958411

Table-3.1 : Drought Affected Area in 2017-18 and its Loss

S. No.	Division Name	Remarks
1	Raipur	Total tehsil -24
		Affected Tehsil-22
2	Durg	Total tehsil -26
		Affected Tehsil-25
3	Bastar	Total tehsil -33
		Affected Tehsil-22
4	Bilaspur	Total tehsil -35
		Affected Tehsil-22
5	Surguja	Total tehsil -32
		Affected Tehsil-05
Total affected tehsil due to drought		96 (150)

Table-3.2: Drought-affected tehsils in 2017-18



Graph-3.1: Number of Drought-Affected Tehsils

3.2.2 Flood

Out of all the natural hazards, flood affects the state most and is one of the devastating natural disaster. In other words, danger of flood is very high in the state. According to the available data by department of Revenue and Disaster Management, the state has faced severe floods in 2005, 2007, and 2018. It was also observed that more than 80 percent of the annual rainfall is centered on the period of three months of monsoon.

This leads to poor discharge of heavy silt, flash flood and flood water, and for this reason the embankment is sometimes broken.

After analyzing the previous data related to floods, all 27 districts have now been classified into three categories of flood threat. Low, Medium, and High.

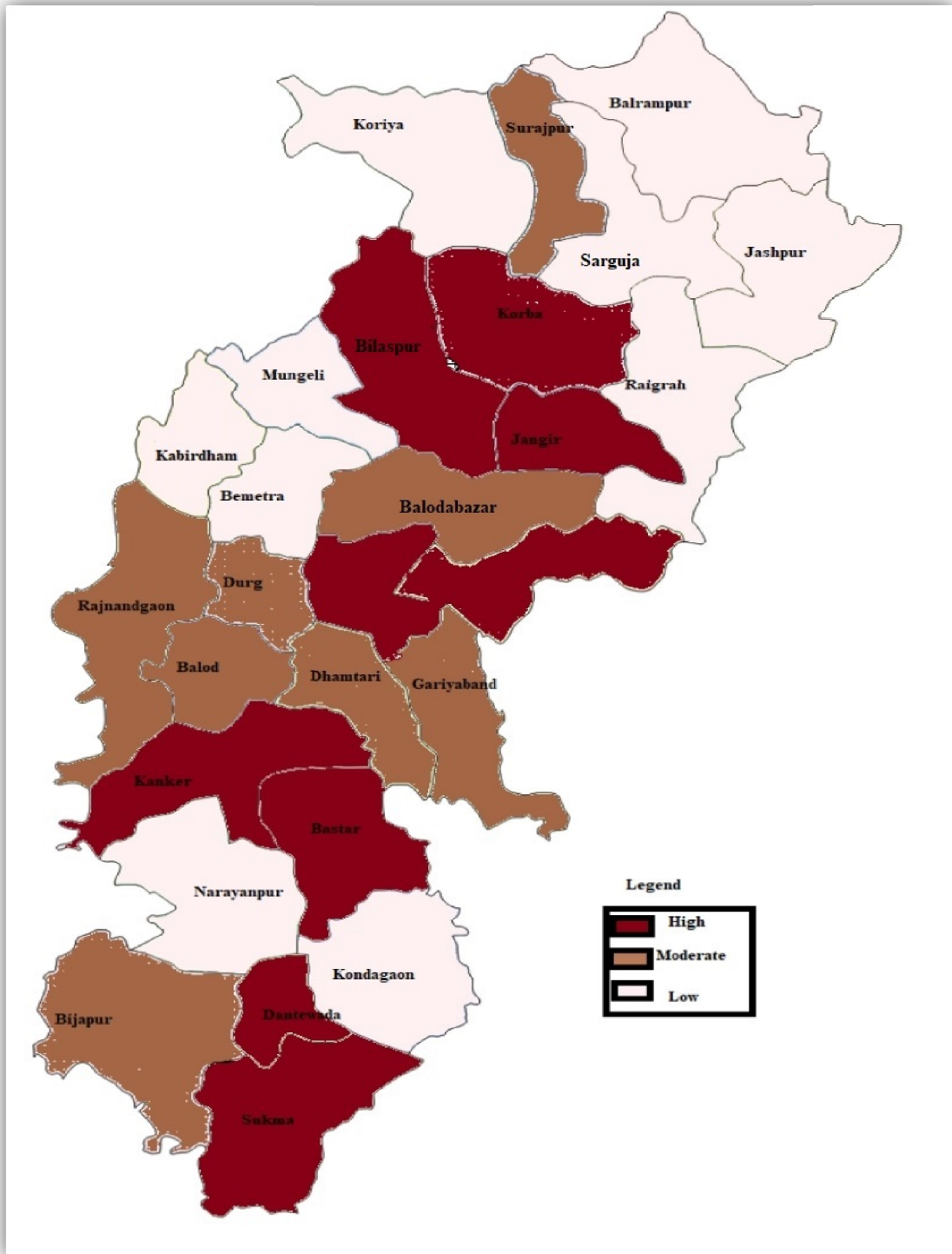
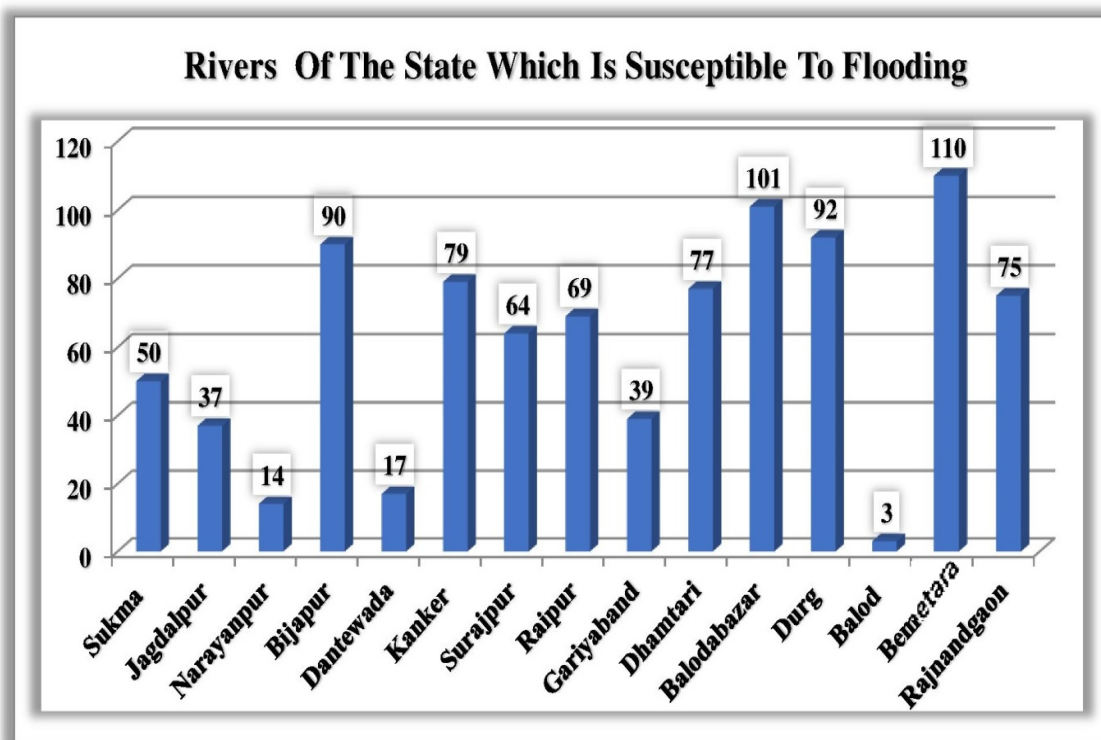


Figure-3.2: Map of the flood affected district

Flood				
Rivers of the state which is susceptible to flooding				
S.No.	District	Tehsil	River	Total No. of Village
1	Sukma	Sukma, Chhindgarh, Konta	Shabri river	50
2	Jagdalpur	Jagdalpur, Lohandhiguda, Bastar, Bakawand	Indrawati, Narangi river	37
3	Narayanpur	Narayanpur	Kukur river, Orchha river	14
4	Bijapur	Bijapur, Bhopalpatnam Bhairamgarh	Mingachal river, Irandravati river, Chintabagu river, Godavari river, Marahi river, Berudi river Talperu	90
5	Dantewada	Gidam, Dantewada	Indravati, Sankini, Dankini river	17
6	Kanker	Kanker, Narharpur, Charama, Bhanupratappur Pankhajur, Antagad, Durgukondal	Dudh River, Mahanadi, Khandi River, Kotari River, Mendhaki River	79
7	Surajpur	Premnagar, Surajpur Bhatgaon, Bhayathan, Pratappur, Odghi	Atem, Gej, Hasdeo, Rend River, Mahan River, Baanki River, Andhruva River	64
8	Raipur	Raipur, Arang, Abhanpur, Tilda	Kharun River, Mahanadi	69
9	Gariyaband	Gariyaband, Rajim, Chhura, Mainpur, Devbhog	Pairi River, Sondhur River, Mahanadi	39
10	Dhamtari	Dhamtari, Kurud Magarlod, Nagari	Mahanadi, Jonk River,	77
11	Balodabazar	Kasdol, Simga, Bilayigarh, Baloda bazaar, Palari, Bhatapara, Simga	Jonk river, Mahanadi, Shivnath river	101
12	Durg	Durg, Dhamdha, Patan	Shivnath river, Tandula reservoir, Amner river, Kharun river	92
13	Balod	Balod	Tandula river	3
14	Bemetara	Bemetara, Navagarh, Berla, Saza, Thankhamharia	Shivnath river, Haaf river, Kharun river	110
15	Rajnandgaon	Rajnandgaon, Ambagarh chowki, Khairagarh, Chhuria, Dongargaon, Mohala	Shivnath river, Bhanpuri river, Amner river, Muskaan river	75

Table-3.3: Rivers of the state which are Susceptible to Flooding



Graph-3.2: Rivers of the state which are susceptible to flooding

3.2.2.1 Urban Flood

Rapid urbanization has increased the concern of urban flood. In urban area, mostly water drainage failure, natural drainage channels, urban lakes, storm water drains contribute towards the flood. Apart from this, there is an outbreak of epidemic due to flood water and absence of sewerage management. Raipur, Dhamtari, Durg, Rajnandgaon, Bilaspur, Mungeli, Janjgir Champa, Raigarh, Bastar are influenced by urban flood.

S.No.	Name of District	Flood Affected Area	Flood Affected Ward
1	Raipur	Municipal Corporation Raipur	26, 27
		Municipal Corporation Birgaon	20, 21, 34, 36
2	Balodabazar	Municipality Balodabazar	10

		Nagar Panchayat Simga	1, 2, 15
3	Dhamtari	Nagar Panchayat Kurud	8, 10
4	Mahasamund	Nagar Panchayat Pithaura	3, 5, 8, 12
5	Durg	Municipal Corporation Durg	55 Phoolgaon, 36 Ganjpara, 54 Potiya
		Municipality Kumhari	16 Parsada, 13 Area on the banks of the Kharun River on the Ganganagar
6	Rajnandgaon	Municipal Corporation Rajnandgaon	47, Mohara and 50 Singdai
		Municipality Khairagarh	Ward 03 Ganji Para, 04 Raj Family, 05 Thakur Para, 09 Itavari Bazar, 16 Dau Chaira, 18 Ambedkar
7	Bilaspur	Municipal Corporation Bilaspur	9, 34, 35, 36, 43
		Municipality Takhatpur	4, 5, 9, 12, 13
		Nagar Panchayat Kota	5, 13
8	Mungeli	Municipality Mungeli	Tilak Ward, Androj Ward
		Nagar Panchayat Lorami	4, 6, 14, 15
9	Janjgir-Champa	Municipality Champa	1, 2, 39, 10
		Nagar Panchayat Kharaud	1, 3, 4, 9, 15,
		Nagar Panchayat Shivrinarayan	1, 2, 3, 4, 9, 12, 13, 14, 15

		Nagar Panchayat Chandrapur	1, 2, 3, 4, 5, 14, 15
10	Raigarh	Municipal Corporation Raigarh	4, 5, 6, 19, 24, 25
11	Bastar	Municipal Corporation Jagdalpur	Praveer 01, Vijay 02, Shiv Temple 03, Bhairamdev 04, Veerasavarkar 05, Bhagat Singh 06, Chandrashekhkar Azad 41, Shyamaprasad Mukherjee 39, Vallabh Bhai Patel 46, Lal Bahadur Shastri 08
12	Kondagaon	Nagar Panchayat Farsagaon	Netaji Subhash Chandra Bose 13, Maa Telinsati 14
13	Narayanpur	Municipality Narayanpur	Ward number 14 Sakaribeda
14	Kanker	Municipality Kanker	Bhandaripara 10, Mahadev ward no. 11, Subhash 13, MG 15, Rajpara 21
		Nagar Panchayat Antagarh	Maharani Laxmi bai 09, Devni Dokari 12, Chandra Shekhar 14, Indira Gandhi 15
		Nagar Panchayat Pakhanjur	Subhash Chandra Bose 07, Dr. Bhim Rao Ambedkar 15
		Nagar Panchayat Charama	Mahatma Gandhi 13 Pt. Jawaharlal Nehru 01

15	Sukma	Municipality Sukma	Subhash Chandra Bose 01, Chhatrapati Shivaji 03, Sardar Vallabh Bhai Patel 06, Gayatri Mata 11, Shabri Nagar 12, Chandrashekhar 13, Pandit Deendayal 14, Rangaraj 15
		Nagar Panchayat Konta	Mahatma Gandhi 15 Alluri Sitaram Raju 14 Pt. Jawaharlal Nehru 06 Chhatrapati Shivaji 05
		Nagar Panchayat Dornapal	Shitlamata 04 Shabarinagar 05 Deendayal 06
16	South Bastar (Dantewada)	Municipality Dantewada	Dr. Ambedkar 01 Mahatma Gandhi 02 Rajiv Nagar 03 Jawaharlal 04 Maa Danteeshvari 05
17	Bijapur	Nagar Panchayat Bhopal pattanam	9

Table-3.4: State's Urban Flood Affected Areas

3.2.3 Lightning

This is a natural disaster, in the context of Chhattisgarh state, most of the lightning incidents occur in monsoon season, apart from this, due to sudden changes in weather, the possibility of lightning also arises. As a result, there is huge loss of animal as well as public money takes place at large scale.

Adverse affects of lightning are seen in Korba, Raigarh, Mahasamund, Bastar districts.

Between 2011-2015, 1058 people died due to lightning in the state.

LIGHTNING VULNERABILITY ZONES OF CHHATTISGARH

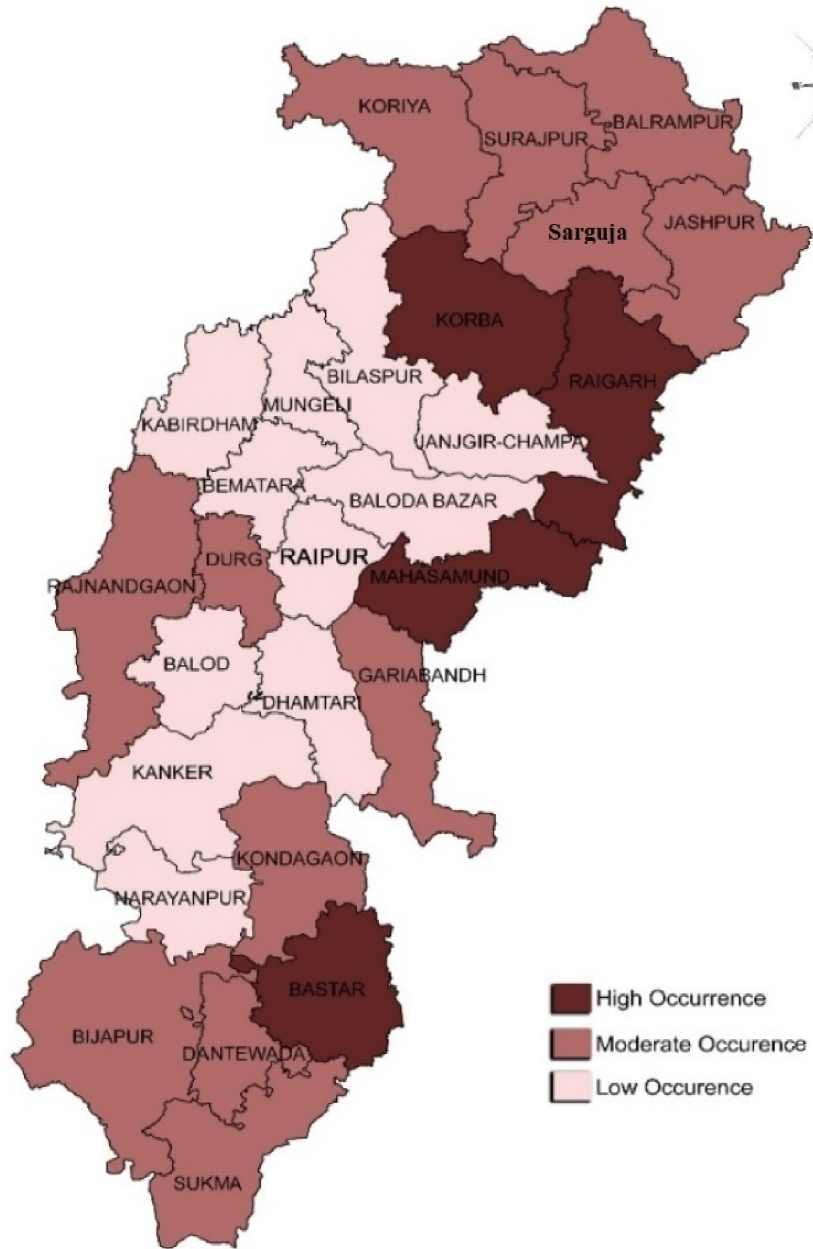
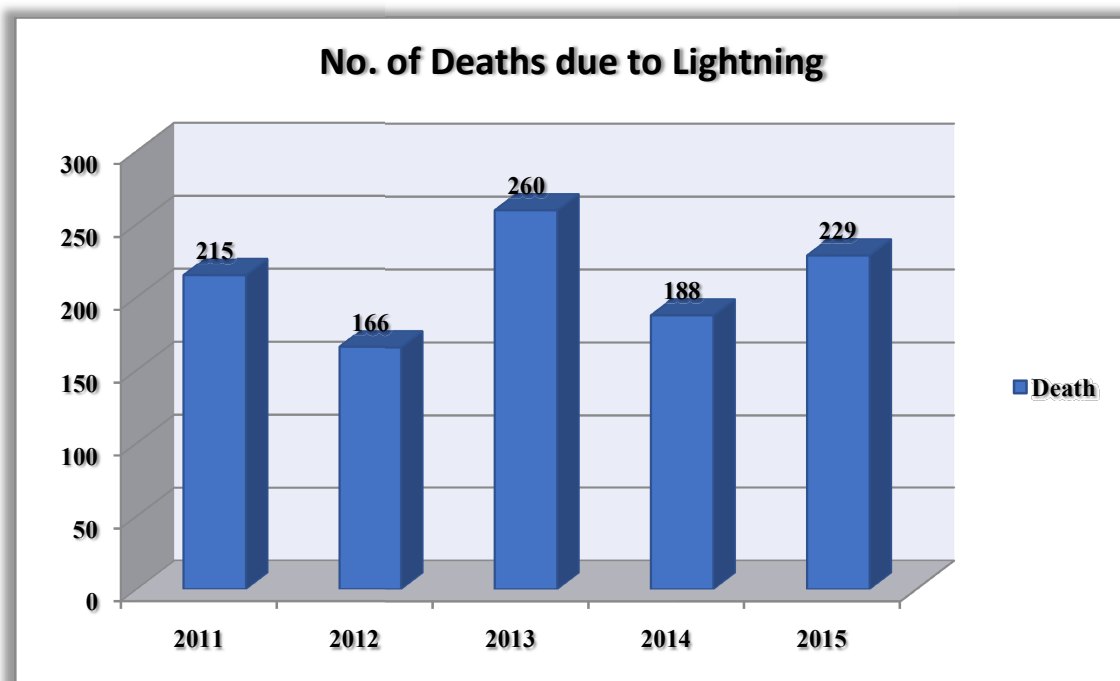


Figure-3.3: Map of Lightning Affected Districts

Death due to Lightning		
S. No.	Year	Death
1	2011	215
2	2012	166
3	2013	260
4	2014	188
5	2015	229

Table-3.5: No. of Deaths due to Lightning



Graph-3.3: No. of Deaths in the state by lightning

3.2.4 Earthquake

Earthquake is a natural disaster which is also concerned as a big threat to the state. In major parts of the state, earthquake is moderately high. In particular, in recent times, some incidents triggered the whole state. After this earthquake is being taken here very seriously. However, according to the India's vulnerability Atlas 2007 Korba, Korea, Raigarh, Sarguja, Bijapur district comes under Zone-3, and Sukma, Dantewada, Raipur, Mahasamund districts under Zone-2. Therefore, on the basis of India's vulnerability atlas, and recent earthquake studies, the districts have been classified into medium and low risk prone areas.

Moderate earthquake prone districts are those which fall under moderate high risk Zone-3, and the low earthquake prone districts are those which fall under Zone-2 with low damage risk.

3.2.5 Storm

Storms are a natural disaster, which causes loss of public money at a large-scale. Neighbouring states of Chhattisgarh, like Odisha, Andhra Pradesh and Telangana are engaged in the sea side areas, these states are experiencing large scale storms. The effect of which has been seen on the districts of Chhattisgarh state like Sukma, Raigarh, Bastar, Bijapur.

3.2.6 Heat wave

During summer, maximum temperature often reaches to 45 degrees Celsius leading to severe heat wave conditions. This results in loss of life of many people particularly, homeless, gardeners, daily wanderers who work under direct sun, auto drivers, etc.

In May, 2017 a temperature of 49 degree Celsius is recorded in Bilaspur district.

The districts of Chhattisgarh state have been divided into maximum and minimum temperature areas.

The districts with **maximum temperature** are mainly **Jangjir Champa, Durg, Baloda Bazar, Raipur, Bilaspur.**

The districts with **minimum temperature** are mainly **Korea, Surajpur, Balrampur, Sarguja, Jashpur.**

3.2.7 Accident

Chhattisgarh is one of the states, where more people die in road accidents, as compared to other disasters. The figures of road accidents and casualties indicate rising trend in the state. In 2015 the casualties recorded around 11044, in 2016 it crossed 9613, in 2017 the figure reached nearly 9619.

From the year 2015 to 2017, the total number of deaths in road accidents in the state was 9647 which is quite high.

After the preliminary analysis, it was found that with the stagnation of growth of railways and neglected network of other modes of transportation in the state, road transportation acts as the principal mode of transportation, which has become evident during past 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 the case of more than 700 deaths from January 2015 to June 2017, due to road accidents, the district has been classified into a High category.

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

Whereas during the same period, if death occurs in road accidents are between 0 to 500, then the district falls under the category of Low risk. The Road Accident table -

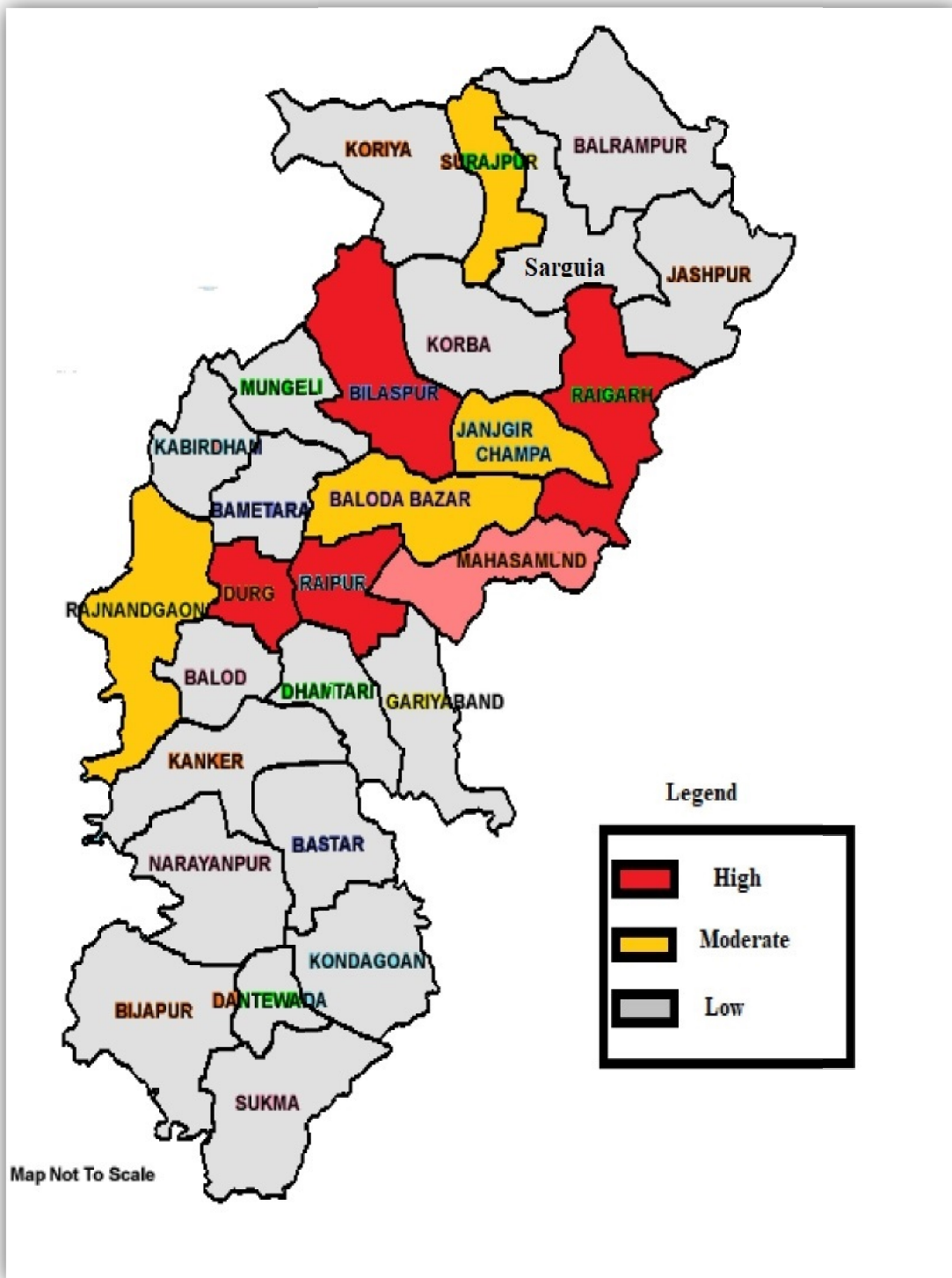
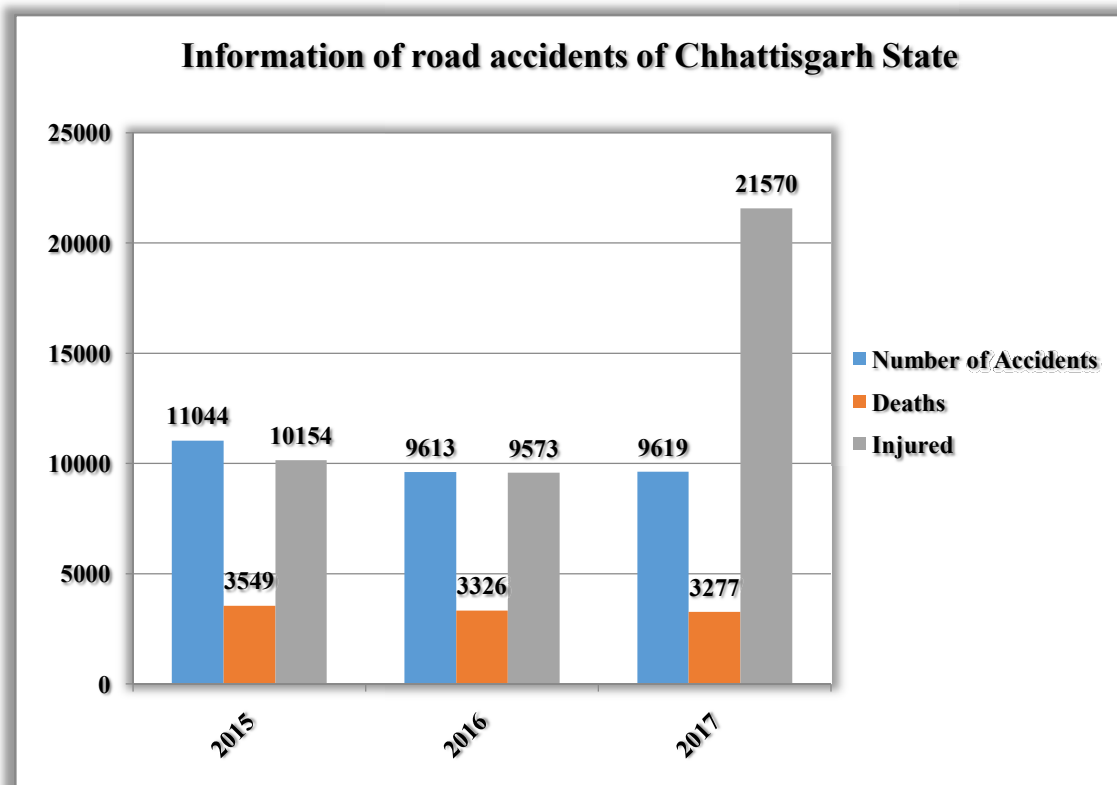


Figure-3.4: Accident affected districts Map

Information of road accidents of state				
S. No.	Year	Number of Accidents	Deaths	Injured
1	2015	11044	3549	10154
2	2016	9613	3326	9573
3	2017	9619	3277	21570
Total		30276	10152	41297

Table-3.6: Information of road accidents of state



Graph-3.4: information of road accidents

3.2.8 Epidemics

Although Chhattisgarh has history of outbreaks like cholera, hepatitis in past. The state of Chhattisgarh is particularly prone to acute diarrheic, infectious hepatitis, Japanese fever, poliomyelitis, typhoid, malaria, H1N1 etc. The epidemic outbreaks have been observed in Surajpur, Raigarh, Janjgir Champa, Kondagaon, Sukma, Bijapur, Bilaspur, Korba, Durg, Bemetara, Balod, Kabirdham, Baloda Bazar, Mahasamund, Dhamtari.

3.2.9 Fire

Urban and Rural Fire

Fire can occur due to explosions, electrical malfunctioning, LPG cylinders, crackers and various other causes. The State will undertake detailed evaluation of the dangers of fire such as preparation, toxic, map of places of storage of hazardous substances, evaluation, hydrant of fire fighting equipment, provision and regular maintenance, identification of clearance routes, unsuccessful design and operation process, inputs, Planning for transportation corridors etc.

Forest Fires

Forest are the most important renewable natural resources and play an important role in human life and environment. Due to increasing human intervention in the environment for long time and due to dry weather, the incidence of fire in the forest is increasing. Reconstruction of the incidents of fire decreases the reincarnation of the forests

In Chhattisgarh Forest fires are common in areas like Bijapur, Korba, Surguja, Surajpur, Balrampur and Korea that are highly vulnerable to forest fires. Forest fires severely affect wildlife and environment badly. Many tribal communities living in and around forest areas are also unsafe. In summers, there is an increase in incidence of fire in the forest due to velocity of strong wind, increase in temperature and many other causes. However, there is no history of major casualties in such incidents.

3.2.10 Stampede

There are many places of religious importance in Chhattisgarh such as the world famous Dusshera is held every year in Bastar district, similarly Rajim Kumbh Mela, Chakradhar Festival Raigarh, Bhoram Dev Mela etc. where millions of people gather for the fair at a particular time of year. There is always danger of panic and chaos if there is no proper management at these places.

3.2.11 Cold Wave

The effect of cold wave in the state of Chhattisgarh remains from December to January, In the districts of Ambikapur, Korea, Jashpur, Surajpur, the highest cold wave occurs, there has not been any major loss due to the cold wave.

3.2.12 Man-animal conflict

In the state, the situation of human-animal conflict has been created due to rapid urbanization, due to human intervention and forest reduction. In addition to forest, humans-wildlife conflicts also affect most in the agricultural sector within the range of wild areas.

In Chhattisgarh, incidents of human-animal conflict have occurred in the districts of Raigarh, Ambikapur, Jashpur, Raipur, Mahasamund Korea etc., Resulted in large amounts of life and property loss.

3.2.13 Industrial Hazards

Over the years, there is substantial increase in the industrial activities in the state. Many industries in the state handle and process large quantities of 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 Chhattisgarh, many industrial accidents have been occurred so far, Including the fall of the Chimni of Balco Industries in the year 2008, the event of a fire in the Bhilai Steel Plant, 2018 Mega Disaster.

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 Chhattisgarh,

There are 75 MAH units, spreading across the 27 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.

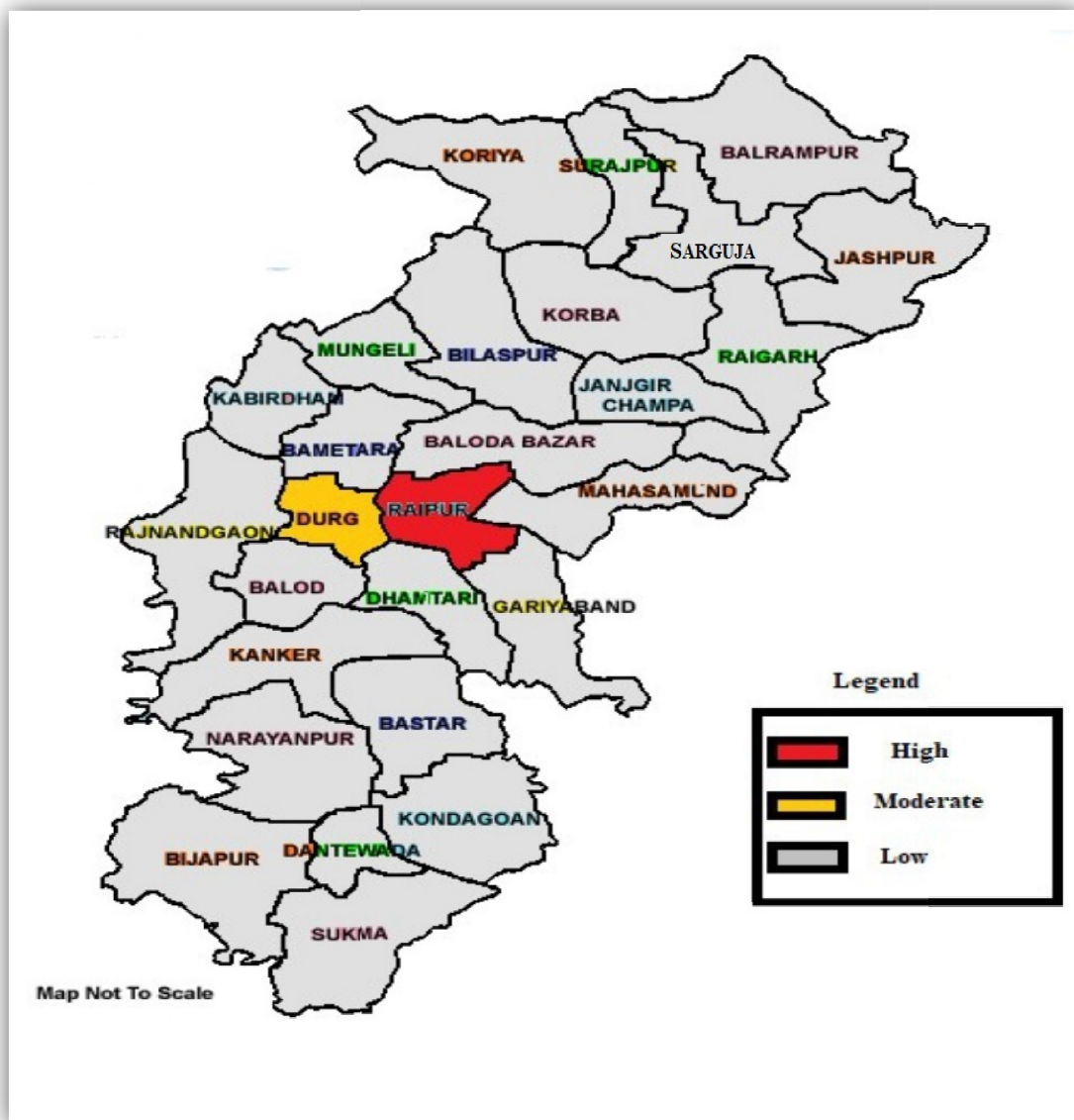


Figure-3.5: Map of industrial hazard

3.2.14 Land Slide

The Occurrence of landslides is due to geological, topographical and climate conditions and deforestation, such as human factors, non-scientific road construction (explosion for road cutting), construction of dams or reservoirs, housing schemes, roads and agricultural practices.

In Chhattisgarh state, incidents of landslide have occurred in Kondagaon, Kanker, Dantewada, Sarguja, Kabirdham.

3.3 History of Disaster

As discussed above, Chhattisgarh is prone to large number of natural and human made disasters. From 2000 to 2018, information about the disasters that occurred-

History of disaster			
S. No.	Year	Disaster	Damage & loss
1	2000-01	Drought	12 districts of Chhattisgarh have been declared drought
2	2001-02	Drought	1082 villages of which 16 districts have been declared drought
3	2003-04	Drought	1141 villages of which 16 districts have been declared drought
4	2005	Flooding	Due to flooding in 2005, 496241 people were affected, in which 37 people died and 21733 houses wear damaged.
5	2006-07	Drought	Due to drought, 2292 villages in 8 districts has been declared drought affected.
6	2007-8	Drought	777 villages of 3 districts (Korea, Bilaspur, Kabirdham) declared drought affected
7	2008	Flood	31,0006 thousand affected of 18 districts
8	2008-09	Drought	In 2008-09, 5 districts (Mahasamund, Bilaspur, Kabirdham, Raipur, Kanker, Bijapur) declared has been declared drought
9	2009	Chimney collapse (industrial accident)	On September 23, 2009 the fireplace collapsed in Korba city, where 45 people died, 7 wear injured
10	2014	Hud-hud storm	82831 people were affected due to Hud Hud storm in Chhattisgarh

11	2015-16	Drought	117 tehsils of 25 districts were severely affected and the number of affected farmers was 2418011.
12	2016	Acute Diarrhea disease	303 cases and 3 deaths
13	2016	heavy rain	Due to the hailstorm in the state, 329 villages and 4682 population of 10 districts were affected.
14	2017-18	Drought	96 tehsils of 21 districts were severely affected and the number of affected farmers was 958411.
15	2018	Dengue	More than 31 people lost their lives according to (health department report).
16	18-Aug	Flooding	In the month of August, 12,000 people were affected in 7 districts due to heavy rains.
17	09/10/2018	Fire accident	09/ 10/ 2018 a huge fire with a blast at BSP-Durg, in coke oven battery, 14 workers lost their lives, in which 9 labourers were injured.

Table-3.7: History of Disaster

3.4 Seasonality of Hazards

By understanding the estimated event of hazard, can activate the concerned departments and be prepared for the related threats. On the basis of that, the table below is only an indication of event origin.

Incident Month													
Risk	January	February	March	April	May	June	July	August	September	October	November	December	
Flood													
Urban Flood													
Drought													
Lightning													
Rail/Road Accident													
Industrial Disaster													
Epidemic													
Forest Fire													
Fire													
Heat wave													
Cold wave													
Snake Bite													
Animal Conflict													
Storm													
Stampede													
Earthquake													
Land Slide													
Legend	High Occurance					Moderate Occurance			Low Occurance				

Table-3.8: Seasonality of Hazards

District wise Hazard Analysis Summary of Chhattisgarh

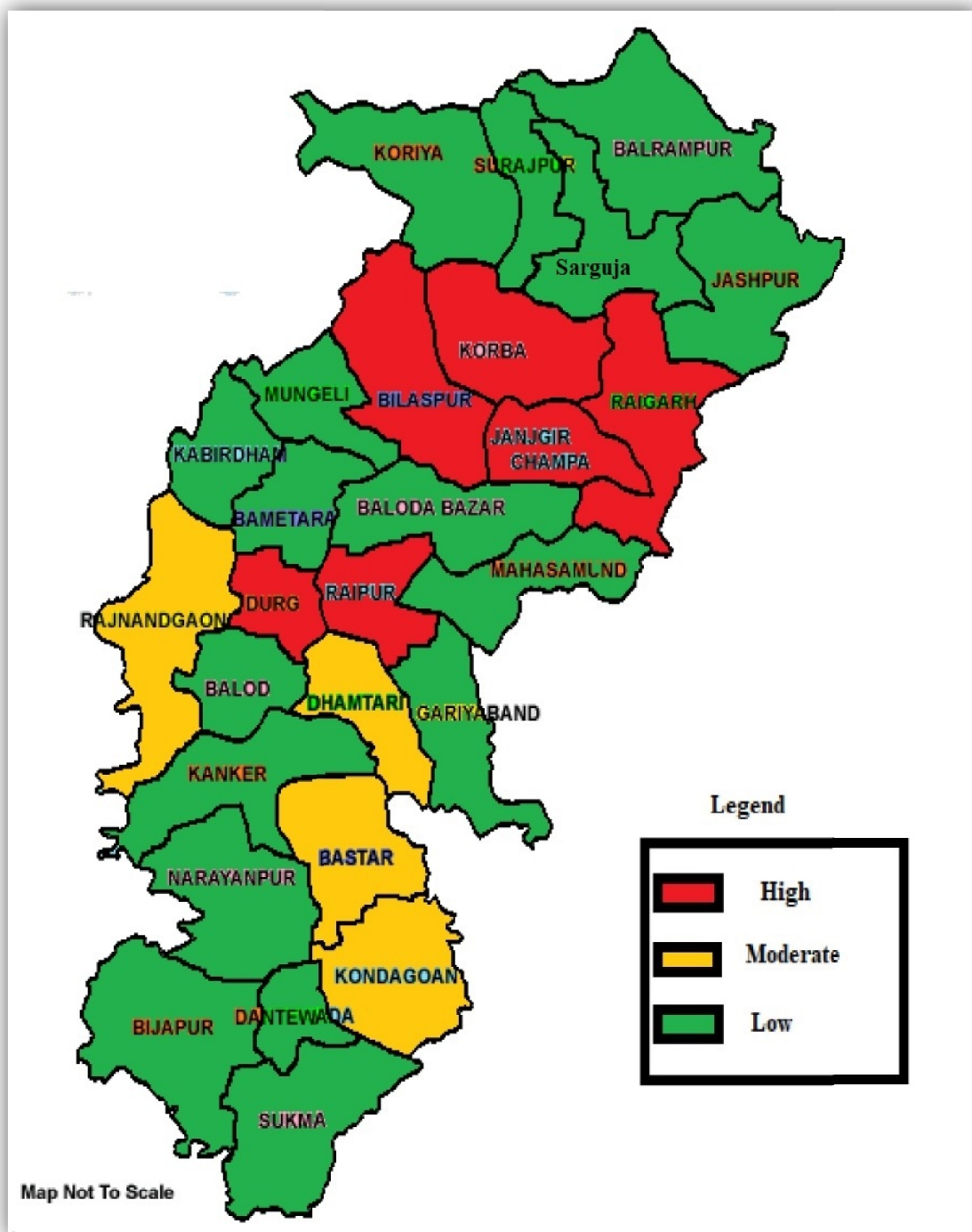


Figure-3.6: District Wise Hazard Analysis Summary Of Chhattisgarh

District wise Hazard Analysis Summary of Chhattisgarh							
S.No.	District Name	Flood	Drought	Lightning	MAH Units(industrial)	Accident	Over all Hazards
1	Raipur	High	Moderate	Low	High	High	High
2	Dhamatri	High	Moderate	Low	Low	Low	Moderate
3	Durg	Moderate	Moderate	Moderate	Moderate	High	High
4	Rajnanadgaon	High	Moderate	Moderate	Low	Moderate	Moderate
5	Mahasamund	Low	Moderate	High	Low	Low	Low
6	Balod	Moderate	Moderate	Low	Low	Low	Low
7	Baloda bazar	Moderate	High	Low	Low	Moderate	Low
8	Sukma	High	Moderate	Moderate	Low	Low	Low
9	Dantewada	Moderate	Low	Moderate	Low	Low	Low
10	Narayanpur	Low	Moderate	Low	Low	Low	Low
11	Kondagaon	Low	Moderate	Low	Low	Low	Moderate
12	Kanker	Moderate	Moderate	High	Low	Low	Low
13	Jagdalpur	High	Low	High	Low	Low	Moderate
14	Bijapur	Moderate	Moderate	Moderate	Low	Low	Low
15	Kabirdham	Low	High	Low	Low	Low	Low
16	Bilaspur	Low	Moderate	Low	Low	High	High
17	Korba	High	Moderate	High	Low	Low	High
18	Janjgir-Champa	Moderate	Moderate	Low	Low	Moderate	High
19	Jashpur	Low	Moderate	Moderate	Low	Low	Low
20	Sarguja	Low	Low	Moderate	Low	Low	Low
21	Korea	Low	Moderate	Moderate	Low	Low	Low
22	Surajapur	Moderate	Low	Moderate	Low	Moderate	Low
23	Balrampur	Low	Low	Moderate	Low	Low	Low
24	Raigarh	Low	Moderate	High	Low	High	High
25	Mungeli	Low	High	Low	Low	Low	Low
26	Gariyaband	Moderate	Moderate	Moderate	Low	Low	Low
27	Bemetara	Moderate	High	Low	Low	Low	Low

Table-3.9 : District wise Hazard Analysis Summary of Chhattisgarh

3.5 Criteria for the allocation of selected hazards and ratings

1. Flood Hazard

High (H) - Flood occurred above 5 times since 2000

Moderate (M) - Flood occurred 3 to 5 times since 2000

Low (L) - Flood occurred for 0 to 3 times since 2000

2. Drought Hazard

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. Lightning Hazard

High (H) - More than 200 deaths in the district, from January 2012 to 2017

Moderate (M) - More than 101 to 200 deaths in the district, from January 2012 to 2017.

Low (L) - More than 0 to 100 deaths in the district, from January 2012 to 2017

4. Industrial Hazard

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,

5. Road Accidents

High (H) - More than 700 deaths in district, since Jan 2015 to 2017

Moderate (M) - 500 to 700 deaths in the district, since Jan 2015 to 2017

Low (L) - 0 to 500 deaths in the district, since Jan 2015 to 2017

6. Overall Hazard: It was evaluated after assigning weights to High, Medium, and Low

High Hazard - In which districts the score of the hazards is high.

Moderate Hazard – In districts where the number of threats is medium.

Low Hazard – In districts where the number of threats is low.

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.

3.6 Vulnerability Analysis

3.6.1 Social Vulnerability

The state comprises of 3274269 schedule caste People with a total of 7822902 tribal populations as per Census 2011. Four of these tribal groups are specially identified.

Primitive Tribe Name	Name of the Districts
Gond	Jagdalpur, Sukma, Dantewada, Narayanpur, Bijapur, Kondagaon, Sarguja, Jashpur, Korba
Abuj Maria	Narayanpur, Bijapur
Muriya	Kanker, Korea, Balod, Bemetra
Halbi	Jagdalpur, Sukma, Dantewada, Narayanpur, Bijapur, Kondagaon

Table-3.10: Weak Tribal Groups In Chhattisgarh State

Structural Vulnerability

According to the 2011 census, housing in Chhattisgarh has the following status:

Residence			
Total	Good	Livable	Dilapidated
54,27,503	25,11,887	26,98,655	2,16,961
42,38,816	17,52,032	23,01,909	1,84,875
11,88,687	7,59,855	3,96,746	32,086

Table-3.11: Residence

Residence-cum-other use			
Total	Good	Livable	Dilapidated
1,95,347	1,06,007	85,402	3,938
1,45,296	70,157	71,798	3,341
50,051	35,850	13,604	597

Table-3.12: Residence-cum-other use

Economical Vulnerability

Chhattisgarh has many economically vulnerable groups. They have limited resources for daily basic needs. The structures in which they live are not safe or not enough to face hazards. They have limited resources are highly prone to loss and damage in case of any disaster.

These groups include BPL and Antoadhya households. According to Census 2011, Chhattisgarh has a total of 5714798 lakh workers.

Chhattisgarh being developed and industrialized is a hub of important business, factories, corporate, etc. Manufacturing sector contributes significantly to the state GDP. Many fuel pipelines also cross the state. Regarding the state's profile, any significant damage to the infrastructure can be a major economic cause for the state and it will take many years to be re-established.

Different sectors of economy are also vulnerable due to hazard profile of the State. Thus any damage to related sector or any part of supply chain can have serious impact on economy of the State.

Environmental Vulnerability

Chhattisgarh is one of the most industrialized states. Around **19607961** of its population lives in towns. The State has a decade growth rate of urban population as **22-61** % (2001-2011). Urbanization leading to deforestation, pollution caused by chemical and pharmaceuticals companies to rivers and air, loss of biodiversity, damage to mangroves and coastlines, etc. severely affects local communities and wider ecological systems. Such environmentally degraded area compromises a community's ability to respond to and recover from a hazard event.

Capacity Analysis

The capacity includes all human resources, equipment, infrastructure, etc. which help in any phase of disaster management. A comprehensive database of disaster management related inventory is essential for an organized response. Due to the lack of proper and adequate information, there is a delay in response to the disaster.

In the state of Chhattisgarh, information regarding trained resources like trained human resources, fire protection equipment, search-rescue equipment, etc. is available on District wise IDRN and State Disaster Management Authority, one to help in dealing with Disaster and providing prompt assistance to the community. State Disaster Management Network Portal will also be prepared.

Human Resources

Employees and officials of various line departments play important roles for various important tasks in the pre and post-disaster phase. List of various emergency contacts and contact of various line departments are mentioned in plan.

Trainings are regularly conducted at state level by CGSDMA, Chhattisgarh Academy of Administration and NDMA. Trainings are also conducted at district level under Disaster Risk Management Programme. These trainings include trainings on search and rescue, first responders, EOC management, architect and engineer's training for safe construction, flood rescue and many other training of trainers also. This has created a large trained human resource both in district and at state level.

Equipment

Over the years CGSDMA has provided various fire fighting, search & rescue and other emergency equipment to District Collectorate, Municipal Corporations, ERCs and Municipalities, etc. The detail of same is mentioned in this plan.

Chapter 4

Institutional Mechanism & Other Stakeholders

Disaster management structure is in place right from the national to local level. This institutional mechanism plays a crucial role in all activities from policy making to implementation across the entire disaster management cycle. Disaster management would involve many layers of participating organization. The three focal levels would be State, District and the Site of the disaster.

4.1 National Level

The Disaster Management Act, 2005 came into force from 1st of August 2007. The Disaster Management Act 2005 lays down a three tier institutional structure for disaster management at the National, State and District levels in the form of NDMA, SDMA and DDMA. National Policy on Disaster Management (NPDM) has further specified the roles and responsibilities of various organizations for disaster response.

Agencies	Roles & Responsibilities
National Disaster Management Authority (NDMA)	<ul style="list-style-type: none">• Apex body in GoI for Disaster Management• Lays down policies, plans and guidelines for disaster management• Coordinates their enforcement and implementation• Takes measures for the prevention, mitigation, preparedness, capacity building or for dealing with a disaster• Oversees the provision and application of funds for mitigation and preparedness measures.• Provides support to other countries in times of disasters• States keeps in touch with the NDMA for implementing various centrally funded projects / schemes• States appraises the NDMA about the action taken by the State Government regarding preparation of DM plans and implementation

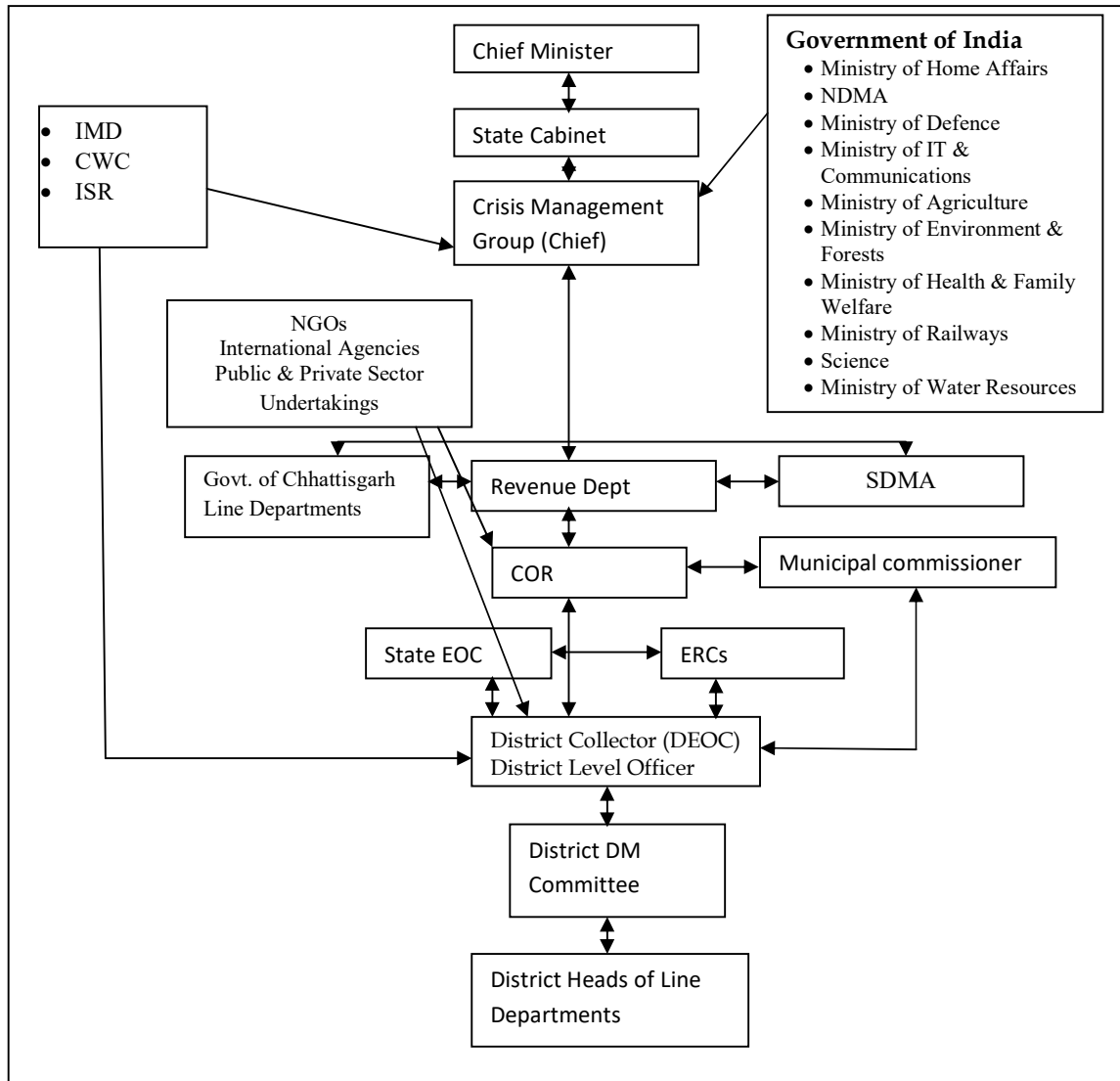
	of guidelines issued by NDMA for various hazards from time to time.
Executive Committee (NEC)	<ul style="list-style-type: none"> • Executive committee of the NDMA • Assists the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Government • Coordinates the response in the event of any threatening disaster situation or disaster. • Monitors the implementation of guidelines issued by NDMA
National Institute of Disaster Management (NIDM)	<ul style="list-style-type: none"> • Develops and builds capacity through training, research, documentation • Develops national level information base • Functions within the broad policies and guidelines laid down by the NDMA
Disaster Response Force (NDRF)	<ul style="list-style-type: none"> • Provides specialized response and emergency search & rescue to a threatening disaster situation • The general superintendence, direction and control of this force is vested in and exercised by the NDMA • Command and supervision of the force is vested in the Director General of Civil Defence and National Disaster Response Force • Comprises 10 battalions and 4 battalions are equipped and trained to respond to situations arising out of CBRN emergencies • Imparts basic training to all the stakeholders identified by the state governments in their respective locations
Agencies providing Early Warning Information	<p>I. Central Water Commission (CWC)</p> <ul style="list-style-type: none"> • Under Ministry of Water Resources, GoI • Forecasts flood • Initiates, coordinates and in consultation of the State Governments concerned, furthers schemes for control, conservation and utilization of water resources for purpose of flood control, irrigation, navigation, drinking water supply and water power development <p>II. Indian Meteorological Department (IMD)</p> <ul style="list-style-type: none"> • Monitors weather of Indian subcontinent and provides forecasting and other weather services

	<ul style="list-style-type: none"> • During the cyclone and flood seasons, the State Government keeps close contact with the IMD
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Table 4.1- : Institutional Mechanism at National Level

4.2 State Level

The DM structure in the State is as per the Disaster Management Act, 2005. National Disaster Management Act, 2005 resembles the State Act with only a few provisions which are not a part of the State Act but are there in the Central Act.



Flow chart-4.1 : Institutional Mechanism at State Level

Agencies	Roles & Responsibilities
Chhattisgarh State Disaster Management Authority (CSDMA)	<ul style="list-style-type: none"> • Promotes an integrated and coordinated system of disaster management including prevention or mitigation of disaster by the State, local authorities, stakeholders and communities. • Collect/cause to be collected data on all aspects of disasters and disaster management and analyze it and further cause and conduct research and study relating to the potential effects of events that may result in disasters. • Acts as a repository of information concerning disasters and disaster management. • Lays down the policies and plans for disaster management in the State. • Promotes or causes to promote awareness and preparedness, advices and trains the community and stakeholders.
State Fire & Emergency Services	<ul style="list-style-type: none"> • Provides crucial immediate response during any disaster. • Provides regular training to the fire staff in using and maintaining the equipment.
State Crisis Group	<ul style="list-style-type: none"> • Apex body in the state to deal with major accidents or any other disasters and to provide expert guidance for the same. • Review all district off-site emergency plans in the State with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals, Rules and forward a report to the Central Crisis Group once in three months. • Assist the State Government in the planning, preparedness and mitigation of major chemical accidents in state. • Continuously monitor the post accident situation arising out of a major accidents or disasters in the State and forward a report to the Central Crisis Group.

State Disaster Response Force (SDRF)	In the State, State Disaster Response force was set up in the year 2016 with 07 team. 05 team posted in Divisional headquarters and 02 team Posted in Training centre Raipur and Training centre Parsada Bilaspur. State Disaster Response Force (SDRF), a specialized multi skilled, humanitarian force of the State has been playing a vital role in Disaster Management and Community awareness for Disaster Risk Reduction (DRR) in the State.
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Table-4.2 : Institutional Mechanism at State Level

4.2.1 Revenue and Disaster Management Department

The Department shoulders the responsibility of providing immediate relief to the people affected by various calamities such as floods, droughts, cyclones, hailstorms, earthquakes, fire accidents, etc. It also takes initiatives for relief, rescue, rehabilitation and restoration work. The Department is headed by the Principal Secretary/Addl. Chief Secretary, Revenue and Disaster Management Department who exercises all administrative and financial powers of Department. Special Relief Commissioner, who is ex-officio Special Secretary to Government, Revenue & Disaster Management Department, is assisted by a group of experienced officers and staff.

4.2.2 State Disaster Management Authority (SDMA)

“State Authority” means the State Disaster Management Authority established under sub-section (1) of section 14 and includes the Disaster Management Authority for the Union territory appointed by the President under article 239 of the Constitution.

A State Authority shall consist of the Chairperson and such number of other members, not exceeding nine, as may be prescribed by the State Government and, unless the rules otherwise provide, the State Authority shall consist of the following members, namely-

- a) The Chief Minister of Chhattisgarh, who shall be Chairperson, ex officio;
- b) Other members, not exceeding eight, to be nominated by the Chairperson of the State Authority;
- c) The Chairperson of the State Executive Committee, ex officio.

STATE DISASTER MANAGEMENT AUTHORITY

The State Disaster Management Authority (SDMA) has been constituted by in exercise of the powers conferred by Section 14 read with section 78 of the Disaster Management Act 2005 (No.53 of 2005) and the provisions of Sub Rule 3 of Disaster Management rule 2006, the State Government hereby constitutes of the Chhattisgarh State Disaster management Authority Executive Committee as below:

Designation	Position
Hon'ble Chief Minister	Chairperson Ex-Officio
Hon'ble Revenue and DM Minister	Member Ex-Officio
Member of parliament	Member
Member of Assembly	Member
Chief Secretary	Ex-Officio Member
Eminent citizen having experience in the field of Disaster Management Secretary, Revenue and DM Department	Member
Principal Secretary, Home Department	Member
Secretary, Panchayat and Rural development	Member
Relief Commissioner/Secretary Revenue and Disaster management	Member Secretary

Table-4.3 : State Disaster Management Committee

STATE EXECUTIVE COMMITTEE

The State Executive Committee (SEC) has been constituted by in exercise of the powers conferred by Section 20 read with section 78 of the Disaster Management Act 2005 (No.53 of 2005) and the provisions of Sub Rule 8 of Disaster Management rule 2006, the State Government hereby constitutes of the Chhattisgarh State Executive Committee as below:

Designation	Position
Chief secretary	Chairperson , Ex- Officio
Secretary, Dept.of Health and Family welfare	Ex-Officio Member
Secretary, Home department	Ex- Officio Member
Secretary, Finance department	Ex- Officio Member
Secretary, Revenue and DM Department	Ex- Officio Member

Table-4.4 : State Executive Committee

State Executive Committee shall have the responsibility for implementing the National Plan and the State Plan and act as coordinating and monitoring body for management of disasters in the State and will be in charge of the State Disaster Response Fund.

4.3 Natural Calmities and Flood disaster High power committee

Designation	Position
Chief secretary	Chairperson
Additional Chief Secretary , Home department	Member
Additional Chief Secretary, Agriculture , and Vetenary department	Member
Additional Chief Secretary Secretary, , Finance department	Member
Principial Secretary, Panchayat and Rural development	Member
Secretary Health and Family welfare	Member
Secretary Public Work Department	Member
Secretary Food and Civil Supplies	Member
Secretary Water resources	Member
Secretary Public health and engineering	Member
Secretary Energy	Member

Secretary Revenue and Disaster Management	Member secretary
Director general of police	Member
Director general Homeguard	Member
Air Command Central Commander Headquarter IAF Bamroly Allahabad	Member
Commander Army Headquarter Chhatisgarh and Orrisa Subdivison	Member
Station commander Army headquarter Jabalpur M.P	Member
Divisonal railway Manager South East Central railway Raipur/Bilaspur	Member
Director Akashvani Raipur	Member
Director Doordhasan Raipur	Member
Director Indian Metrological Centre Raipur	Member
General Manager BSNL Raipur	Member
Commondant 3 rd BN NDRF Cuttack	Member
Secretary Red Cross Society Chhattisgarh Raipur	Member

Table-4.5 : Natural Calmities and Flood disaster High power committee

4.4 State Drought Monitoring Committee

Designation	Position
Relief Commissioner /Secretary Revenue and Disaster Management Dept.	Chairperson
Secretary Agriculture	Member
Secretary Panchayat and Rural Development	Member
Director Health and Family welfare	Member
Director Food and Civil Supplies	Member
Director Urban administration	Member
Director Agriculture	Member
Director Women and Child development	Member
Engineer-In- Chief, Public Health and Engineering	Member

Engineer-In- Chief Water resources	Member
Engineer-In- Chief CSDPCL	Member
Vice Chancellor Indira Gandhi Krishi Vishwavidalya	Member secretary
Director IMD	Member
Chief Executive Engineer Central water Commission	Member
Engineer Central ground water survey of India	Member
Joint secretary Revenue and Disaster Management	Member secretary

Table-4.6 : State Drought Monitoring Committee

4.5 District and Local Level

There are District and Local Crisis Group in the district and at local level.

Crisis Group	Functions
District Crisis Group	<ul style="list-style-type: none"> • Apex body in district to deal with major accidents and disasters provide expert guidance. • Assists in the preparation of the district off-site emergency plan. • Reviews all the on-site emergency plans prepared by the occupier of Major Accident Hazards installation. • Assists the district administration in the management of disasters and accidents within the district. • Ensures continuous information flow from the district to the Centre and State Crisis Group regarding accident situation and mitigation efforts. • Conducts at least one full scale mock-drill of a possible accident at a site each year and forward a report of the strength and the weakness of the plan to the State Crisis Group.
Local Crisis Group	<ul style="list-style-type: none"> • A body in the industrial pocket to deal with different accidents. • Coordinates efforts in planning preparedness and mitigation of disasters and accidents reduction. • Prepares local emergency plan.

Table-4.5 : Functions of District & Local Crisis Group

4.5.1 District Disaster Management Authority (DDMA):

District Disaster Management Authorities (DDMAs) have been constituted in all districts by the State Government under the sub-section (1) of section 14 of Disaster Management Act 2005 to oversee Disaster Management activities at District level. The Collector is the Chairperson of DDMA where as the elected representative of the local authority who shall be the Co-Chairperson, ex officio.

Designation	Position
Collector and District Magistrate	Chairperson
Chairman, Zilla Parishad	Co-Chairperson
Superintendent of Police	Member
Chief District Medical Officer	Member
Executive Engineer, Rural Development Department	Member
Dy. Director, Agriculture	Member

Table - 4.6: District Disaster Management Committee

4.6 Other Stakeholders in Disaster Management

There are various agencies, organizations, departments and authorities that constitute a core network for implementing various disaster management related functions and activities. It also includes academic, scientific and technical organizations, media, community, etc. which play important role in various facets of disaster management.

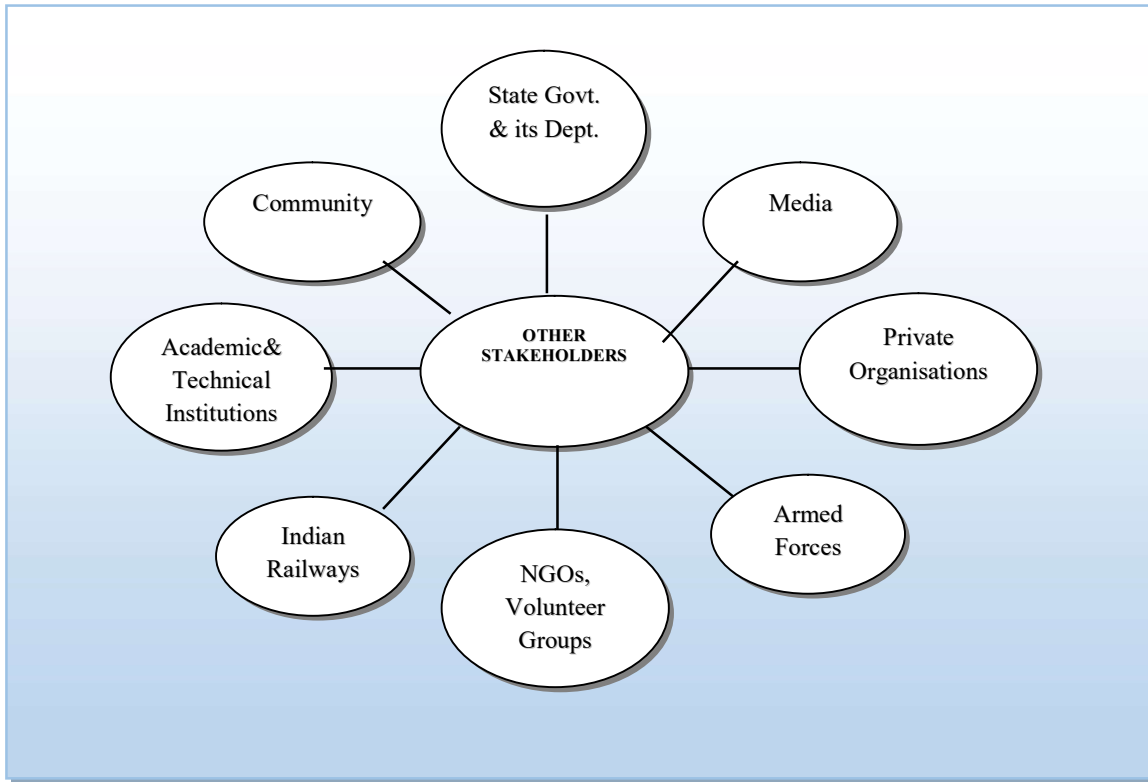


Figure- 4.1 :Other Stakeholders in Disaster Management

Chapter 5

Prevention and Mitigation measures

First of all for the term prevention and mitigation measures we need to know the difference between them. To prevent a disaster means to stop the disaster from occurring.

To mitigate means to control or reduce the effects of a disaster.

Chhattisgarh is vulnerable to Cold Wave, Heat Wave/ Heat Stroke, Forest Fire, Lightning, Flood, Urban Flood, Landslide/ Mudslide, Drought, Road Accident, Fire Accidents, Earthquake, Snake Bite, Naxalism, Epidemics, Animal Conflict, Crowd Management, Chemical (Industrial) Disaster types of hazards. Apart from hazard by Chhattisgarh, state has high impact of Naxalism conflict which needs to be addressed as hazard.

Disaster mitigation measures may be structural (e.g. flood) or non-structural (e.g. land uses zoning). Mitigation activities should incorporate the measurement and assessment of the evolving risk environment. Activities may include the creation of comprehensive, pro-active tools that help decide where to focus funding and efforts in risk reduction.

Other examples of mitigation measures include:

- Hazard mapping
- Adoption and enforcement of land use and zoning practices
- Implementing and enforcing building codes
- Flood plain mapping
- Raising of homes in flood-prone areas
- Disaster mitigation public awareness programs
- Insurance programs.

5.1 Structural mitigation measures

Structural mitigation measures generally refer to capital investment on physical constructions or other development works.

No buildings can be made 100% safe against earthquake forces. Instead buildings and infrastructures can be made earthquake resistant to certain extent depending upon serviceability requirements. Earthquake resistant design of buildings depends upon providing the building with strength, stiffness and inelastic deformation capacity which are great enough to withstand a given level of earthquake-generated force. This is generally accomplished through the selection of an appropriate structural configuration and the careful detailing of structural members, such as beams and columns, and the connections between them. There are several different experimental techniques that can be used to test the response of structures to verify their seismic performance, one of which is the use of an earthquake shaking table (a shaking table, or simply shake table). This is a device for shaking structural models or building components with a wide range of simulated ground motions, including reproductions of recorded earthquakes time histories. Structural mitigation measures generally refer to capital investment on physical constructions or other development works. Fencing village with strong rooted trees that function like speed-breakers for the winds and protect the settlements.

5.2 Non-structural mitigation measures

For getting the structural measures implemented with due earnestness, honesty of purpose and sense of compulsion host of non-structural measures in the form of policies guidelines and training have to be provided.

Policy decisions about construction of structures with due approval from specified authorities have to be taken. The building codes etc have to be suitably formulated/ amended and appropriately detailed and legal implications properly stated.

Guidelines both for earthquake-resistant constructions as well as for retrofitting have to be formulated with specifications about site selection, foundation, construction, materials and workmanship making involvement of specialist architects, trained engineer and masons mandatory. The guidelines have to be formulated for the concerned authorities about land use

planning, monitoring of construction work and controlling of settlements in hazard prone areas to avoid fatalities and loss of property.

5.3 Hazard: Flood

Structural Mitigation Measures for Flood

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Water channel should be desalted and deepened	<ul style="list-style-type: none"> Irrigation and Rural Development 	<ul style="list-style-type: none"> Departmental program and MGNREGA 	Regularly
Protection of wall and construction of embankments	<ul style="list-style-type: none"> Rural Development Forest department 	<ul style="list-style-type: none"> Departmental program MGNREGA watershed Integrated coastal zone management programme 	0 to 5 years
Department wise programs watershed, Integrated coastal zone management programme & MGNREGA,	<ul style="list-style-type: none"> Rural Development 	<ul style="list-style-type: none"> Departmental program MGNREGA 	Regularly
Flood Channels, canals, natural drainage, storm water lines should be repaired and maintenance timely	<ul style="list-style-type: none"> Irrigation department 	<ul style="list-style-type: none"> Departmental or special plan 	0-1 years
Safe Shelters should be constructed, Implementation of different housing schemes.	<ul style="list-style-type: none"> Panchayat 		Regularly
Bamboo, protection wall vegetative cover against river level intrusion and land erosion	<ul style="list-style-type: none"> Forest and Rural development, Agriculture department 	<ul style="list-style-type: none"> Department schemes MGNREGA, 	0-6 months

Water bodies desalting like river and ponds	<ul style="list-style-type: none"> • Irrigation • Rural Development 	<ul style="list-style-type: none"> • MGNREGA • Land Development 	Regularly
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Table- 5.1: Structural Mitigation Measures for Flood

Non-Structural Mitigation Measures for Flood

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Audit of existing and proposed departments with safety	Education department, health department, PWD, Rural development	<ul style="list-style-type: none"> • Pradhan Mantri Aawas Yojana • Other Housing schemes 	Regularly
Traditional, local and innovative practices like bamboo, rafts should be rafted	<ul style="list-style-type: none"> • SDMA • DDMA • DRDA • Panchayat • Recreational spaces • Self-help groups • Youth groups • Social workers • NGOs 	<ul style="list-style-type: none"> • Training and capacity building plan for disaster management a all level 	Regularly
Volunteers and technicians Capacity building.	<ul style="list-style-type: none"> • SDMA • DDMA 	<ul style="list-style-type: none"> • Training and capacity building plan for disaster management a all level 	Regularly
Health and safety of livestock with awareness	<ul style="list-style-type: none"> • Veterinary officer • Rural development 	<ul style="list-style-type: none"> • Departmental Scheme 	Regularly

Table-5.2 : Non-Structural Mitigation Measures for Flood

5.4 Hazard: Drought

Structural Mitigation Measures for Drought

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
In common property Development of Pasture land, seed farms and trust land	<ul style="list-style-type: none"> • SDMA • DDMA • DRDA • Rural Development • Panchayats 	<ul style="list-style-type: none"> • Departmental Scheme • MGNREGA 	0-3 years
Storage tanks at household level and public buildings Rain Water Harvesting	<ul style="list-style-type: none"> • SDMA • DDMA • DRDA 	<ul style="list-style-type: none"> • MGNREGA 	0-3 years
Maintainence of wells, ponds, check dams, farm ponds Structures for water harvesting.	<ul style="list-style-type: none"> • PWD • DDC • Rural development • Irrigation and water resource department. 	<ul style="list-style-type: none"> • MGNREGA • Watershed programs • Departmental schemes 	0-3 years
Fodder plots/ banks development	<ul style="list-style-type: none"> • SDMA • DDMA • Agriculture department. • Animal husbandry department 	<ul style="list-style-type: none"> • DDMP • Development plan 	Regularly
Desilting of water sources, check dams, hand pumps Repair and maintenance.	<ul style="list-style-type: none"> • Irrigation • Rural Development • water resources 	<ul style="list-style-type: none"> • MGNREGA • Watershed 	0-3 years

Table- 5.3: Structural Mitigation Measures for Drought

Non-Structural Mitigation Measures for Drought

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Identification of potential sites of water bodies. Listing/ developing shelf of work for drought proofing/ scarcity works including	<ul style="list-style-type: none"> • SDMA • Rural Development • DDMA 	<ul style="list-style-type: none"> • MGNREGA 	Regularly
Educating farmers to practice drought resistant crops and efficient water use	<ul style="list-style-type: none"> • Agriculture and horticulture department 	<ul style="list-style-type: none"> • Departmental schemes 	Regularly
Control mechanism for regulated water use (ponds, small dams, check dams) on the early onset.	<ul style="list-style-type: none"> • Panchayats 		Regularly

Table-5.4 : Non-Structural Mitigation Measures for Drought

5.5 Hazard: Road Accidents

Structural Mitigation Measures for Road Accidents

Structural Mitigation Measures	Implementation agency	Convergence with programme/ scheme	Time frame
Dividers on overcrowded road Should be constructed.	PWD		
Maintenance of the traffic signals in squares	PWD, Police Department		
Constructing bypass road for highways passing through cities	PWD		
Maintenance of roads, dividers, road safety symbols and speed breakers ,retrofitting			

Table-5.5 : Structural Mitigation Measures for Road Accidents

Non-Structural Mitigation Measures for Road Accidents:

Non-Structural Mitigation Measures	Implementation agency	Convergence with programme/ scheme	Time frame
High way safety patrolling need to be setup	<ul style="list-style-type: none"> • Police department 		Every day
Fire brigade personnel Should be trained	<ul style="list-style-type: none"> • City Fire brigade office 		Monthly training
Creating Awareness by road safety symbols, and through wall paintings.	<ul style="list-style-type: none"> • Traffic control department. • RTO 	<ul style="list-style-type: none"> • Vehicle insurance 	
Up gradating facilities in hospitals nearby highway.	<ul style="list-style-type: none"> • Private hospitals • Government hospitals • District Health department. 	<ul style="list-style-type: none"> • Health insurance 	

Table-5.6 : Non-Structural Mitigation Measures for Road Accidents

5.6 Hazard: Epidemics

Structural Mitigation Measures for Epidemics

Structural Mitigation Measures	Implementation agency	Convergence with programme/ scheme	Time frame
Monitoring centres for surveillance need to be setup	<ul style="list-style-type: none"> • State health department • District health department. 	<ul style="list-style-type: none"> • State development Plan • District Development Plan 	Every month
Health centres Need to be increased more in the vicinity of people	<ul style="list-style-type: none"> • State health department • District health 	<ul style="list-style-type: none"> • State development Plan • District 	Regularly

	department.	Development Plan	
Rural hospitals with facilities like blood bank, surgical facilities and pathology Should be upgraded	<ul style="list-style-type: none"> Ministry of Health 	<ul style="list-style-type: none"> State development Plan District Development Plan 	Regularly

Table-5.7 : Structural Mitigation Measures for Epidemics

Non- Structural Mitigation for Epidemics

Non-Structural Mitigation Measures	Implementation agency	Convergence with programme/ scheme	Time frame
Contingency plan preparation in lieu of response for vulnerable regions	<ul style="list-style-type: none"> State Health department District health department PRIs. 	<ul style="list-style-type: none"> State Development plan District development plan. 	Yearly
Health centres, inventories of drugs & vaccines, laboratory set up, no. of doctors and staff mapping	<ul style="list-style-type: none"> State Health department District health department 		Regularly
Public health awareness programmes , First aid training, hand wash awareness etc.	<ul style="list-style-type: none"> Education department State Health department District health department 	<ul style="list-style-type: none"> Sarva Shiksha Abhiyan National Rural Health Mission 	Regularly

Table-5.8 : Non-Structural Mitigation Measures for Epidemic

5.7 Hazard: Fire

Structural Mitigation Measures for Fire

Structural mitigation measures	Implementation agency	Convergence with programme/scheme	Time frame
Sprinklers, fire extinguisher, sand buckets should be installed	State fire department, District fire department, PWD		Once
Fire/ smoke alarms Should need to be installed more in numbers	State fire department, District fire department, PWD		Once
Direction signs with Provision of proper and wide fire exit	State fire department District fire department, PWD		Once
In construction use of fire-proof materials	PWD		Once

Table-5.9: Structural Mitigation Measures for Fire

Non-Structural Mitigation Measures for Fire

Non-Structural Mitigation Measures	Implementation agency	Convergence with programme/ scheme	Time frame
Emergency plan Preparation	State fire department District fire department	State development plan District development plan.	Yearly
Evacuation plans Preparation	State fire department District fire department	State development plan District development plan	Yearly
Education of Fire safety trainings	State fire department District fire department, State education department, District education department.	Sarv Shiksha Abhiyan	Regularly

Table-5.10 : Non-Structural Mitigation Measures for Fire

5.8 Hazard: Heat Wave

Structural Mitigation Measures for Heat Wave

Structural mitigation measures	Implementation agency	Convergence with programme/ scheme	Time frame
For homeless people Provision of temporary shelters	State Administration, District Administration, State health department District health department		Yearly
Cotton clothes, trampoline sheets, medicine, ORS, Provision	State Administration, District Administration, SDMP, DDMA, State health department District health department		Yearly

Table-5.11 : Structural Mitigation Measures for Heat Wave

Non-Structural Mitigation Measures for Heat Wave

Non-Structural Mitigation Measures	Implementation agency	Convergence with programme/scheme	Time frame
Alert mechanism to warn people about heat wave.	State Administration District administration, SDMP,DDMA,	National health mission	Yearly (Particularly summer)
Aware people for Programmes regarding preventive measures.	State Administration District administration, SDMA, State health department,District health department	National health mission	Yearly (Particularly summer)

Table-5.12 : Non-Structural Mitigation Measures for Heat Wave

5.9 Hazard: Industrial/ Chemical Disasters

Mitigation Measures	Implementation agency
Ensure safety of chemical storage vessels	State Administration, District administration, Industry department, Fire agency
Enforce safety provisions for isolated storages	
Ensure overall chemical safety of the unit including process safety, PPE, staff training, etc.	
Ensure no or minimal environmental impact owing to operations and possible accidents at the site ,Plan sheltering in place and/ or evacuation programs with proper public warning systems	
Ensure safe electrical conditions and that electrical hazards will not trigger chemical accidents	
Eliminate/ reduce the use of toxic materials and /or use alternative non- toxic materials at each source	
Reduce use of toxics through minimizing use and/or storage volumes	
Implement risk management programs and install passive and active mitigation systems	
Implement land-use restrictions to provide minimum safe distances from hazardous sources to public and sensitive receptors, Prepare emergency response plans for transport of HAZCHEM	

Table-5.13 : Measures for Industries/ Chemical Disaster

Chapter 6

Mainstreaming DRR in Development

Mainstreaming Disaster Risk Reduction into development planning has been a priority concern for the State government. It should ensure that development plans and programs do not create new forms of vulnerability.

DRR refers to the measures used to reduce direct, indirect and intangible disaster losses. The measures may be technical, economical or social. DRR encompasses the two aspects of a disaster reduction strategy: 'mitigation' and 'preparedness'. Mitigation refers to measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation, whereas, preparedness refers to the measures undertaken to ensure the readiness and ability of a society to forecast and take precautionary measures in advance of imminent threat, and respond and cope with the effects of a disaster by organizing and delivering timely and effective rescue, relief and other post-disaster assistance. 'Mainstreaming DRR' describes a process to fully incorporate the concerns of disaster preparedness, prevention and mitigation into development and post disaster recovery policy and practice. It means completely institutionalizing DRR within the development and recovery agenda. Accordingly, the following broad objectives of mainstreaming DRR into Development will be encouraged:

- Ongoing schemes and projects of the Ministries and Departments of GoI and State Governments, as well as of all Government agencies and Institutions, including Public Sector Undertakings, will be selectively audited by designated government agencies for ensuring that they have addressed the disaster risk and vulnerability profiles of the local areas where such schemes and activities are being undertaken.
- At conceptualization or funding stage itself, the developments schemes will be designed with consideration of any potential hazardous impact associated with it and incorporate measures for mitigation of the same.
- All the development schemes will be pragmatic, incorporating the awareness of local disaster risk and vulnerability, and ensuring that the schemes have addressed these concerns and included specific provisions for mitigating such disaster concerns; and

- DDMA will ensure that all the disaster relief and recovery programmes and projects that originate from or are funded by any agency satisfy developmental aims and reduce future disaster risks.

6.1 Mainstreaming DRR in Development National Flagship Schemes

S. No.	Name of Schemes	Eligibility	Benefits	DRR Integration
1	Mahatma Gandhi National Rural Employment Guarantee Schemes	Any Adult who does manual work.	The scheme provides a legal right to employment for adult members of rural households. At least one-third beneficiaries have to be women. Wages must be paid according to the wages specified for agricultural labourers in the state under the Minimum Wages Act, 1948, unless the central government notifies a wage rate (this should not be less than Rs.60 per day).	Increasing the wage rate in rural areas and strengthening the rural economy through the creation of infrastructure assets.
2	Pradhan Mantri Aawas Yojana	Economical Weaker Section Household	Chhattisgarh Housing Board will construct homes for EWS and LIG categories under the PM Awas Yojana	Provide affordable housing to Economical Weaker Section will allow them to invest in other productive capital
3	Pradha Mantri Gram Sadak Yojana	Unconnected Habitations with a population of 250 persons and	Rural road connectivity would promote access to economic and productive employment opportunities	Improved road networks would enhance the capacity of rural

		above (census 2001)		communities
4	Pradhan Mantri Ujwala Yojna	BPL households	Replacing the unclean cooking fuels mostly used in the rural India with the clean and more efficient LPG (Liquified Petroleum Gas)	Clean fuel will help BPL families ensure healthy and smoke free environment within house. It will minimise the burden of women to fetch wooden fuel.
5	Pradhan Mantri Krishi Shichayi Yojana	Farmers	Expand cultivable area under assured irrigation, improve on farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (more crops per drop), and introduce sustainable water conservation practices.	Improved irrigation facility lead to increase in the productivity of farmer. Drought prone areas become resilient to water scarcity.
6	Dindyal Upadhay Gram Jyoti Yojana	Rural Population	Rural electrification: Providing round the clock power to rural households and adequate power to agricultural consumers.	Separation of agriculture and non-agriculture feeders would facilitate judicious roster of supply to agricultural and non-agricultural consumers in the rural areas.
7	Pradhan Mantri	Person who	It would develop micro	Employment

	Mudra Yojna	want initiate Micro enterprise	enterprise sector in the country by extending various support including financial support in the form of refinance.	generation and increase in economic activity.
8	Swacch Bharat mission	All people	Elimination of Open defecation and Eradication of Manual Scavenging.	Improve Sanitation will limit the diseases caused due to open defecation.
9	Pradhan Mantri Jan Dhan Yojana	All people	It will ensure access to various financial services like availability of basic savings bank account, access to need based credit, remittances facility, insurance and pension to the excluded sections i.e. weaker sections and low income groups.	Financial inclusion of the marginalised people
10	Pradhan Mantri Fasal Bima Yojana	Farmers	Scheme provides insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests and diseases.	It would stabilise the income of farmers to ensure their continuance in farming.
11	Make in India	Companies, Labour Force	Encourage national, as well as multinational companies to manufacture their products in India.	Build Economic Capital.
12	Digital India	All people	E-governance initiative, major projects such as railway computerization, land record computerization, etc which focused mainly on the	Spread awareness related to agriculture, climatic conditions and early warnings.

			development of information systems.	
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Table-6.1 : Mainstreaming DRR in Development National Flagship Schemes

6.2 Mainstreaming DRR in Development State level Flagship Schemes

S.No.	Name of Schemes	Eligibility	Benefits	DRR Integration
1	Mukhya Mantri Baans baadi Yojana	Villagers from the poor family	Poor people will be given high quality bamboo plants to grow it free of cost. It can be grown in the backyard of the house required small space. Fulfil the economic need of the poor and also the future demand of Bamboo.	Will help to fulfil the economic need of the poor and marginalize during the time of emergency situations.
2	Mahatari Jatan Yojana-Nutrition diet for pregnant women	Pregnant women at Aganwadi centers	Provide nutritious diet and ready to eat food to pregnant women.	Provide nutrition and protein to weaker section unable to afford nutritional food, during disasters.
3	Mukhya Mantri Amrit Yojana - Nutrition diet to children	Children at Aganwadi centers	The scheme is to provide nutritious diet to children at Aganwadi centers.	Provide nutrition and protein to children, for families unable to afford

				supplementary food, especially rural areas farmers in economic losses due to floods and droughts.
4	Mukhya Mantri Amrit Yojana to eradicate malnutrition in Chhattisgarh	Children aged between 6 to 9 years once every week	Special drive of eradicating malnutrition, nutritious milk will be distributed.	Reduce mortality rate and children at high risk.
5	Mukhya Mantri Khadya or Poshan Suraksha Yojana	All ration card holders	Ration will be distributed to existing beneficiaries holding ration cards after taking affidavit given by nodal officer.	Ensure weaker sections that lack purchasing power to buy enough food to quench their hunger are able to purchase at least rice and wheat through ration shops at cheap prices. Meet the requirement of sustainable development goal of zero hunger.
6	Mukhya Mantri Bal Sandarbh	Children	Provide health check-up and medical counselling	Increasing life expectancy and

	Yojana- Healthcare scheme		facility to children suffering from severe malnutrition and other crisis.	reducing some of the common killers associated with child and maternal mortality.
7	Mukhya Mantri Awas Yojana	EWS and LPG applicants	Provide a financial assistance to the eligible EWS and LIG applicants, the housing schemes under EWS and LIG homes will be constructed.	Provide save shelters to people who cannot afford to build houses. Helps people to build resilience.
8	Dindayal Upadhyay Gram Jyoti Yojana	Rural areas	To provide continuous power supply to rural India.	Help farmers in irrigation facilities.
9	Suchna Kranti Yojana	Youth	Provide free smart phones to the youth in the state. The state government has announced the scheme to promote digitization in the state for making the youth digitally literate.	Help to spread awareness related to agricultural, rainfall and early warning.
10	Sanjeevani Express	People of Chhattisgarh	108 Sanjeevani Express Ambulance service	Ambulance service is one of the integral components of health care to pregnant women, children during

				emergencies. The transport component is known to contribute to accelerate the achievement of various Millennium Development goals, including reducing maternal and infant mortalities.
11	Mukhya Mantri Kanya Vivah Yojana	Daughters	To relieve poor families from expenses of organizing marriage ceremonies, to encourage mass marriage, to curb social evil of dowry system, and to refrain from unnecessary expenses on marriage ceremonies.	The scheme reduces stress of poor farmers who fall in debt or take loans for their daughters marriages, and unable to pay due to failure of crops or less productivity or drought.
12	Saraswati Cycle Yojana	Girls of IX standard	To ensure the cent percent enrollment of girls (BPL, SC and ST) who have passed class	Girls are the agents of change their priorities and

			<p>VIII and to ensure their retention up to the class XII. To improve the girl's enrolment, attendance and retention up to class XII, continuation of education till 12th standard. To ensure that the girl's students continue their education beyond the level of primary.</p>	<p>needs have been taken into account. In rural areas girls are forced into house hold work, fetch water or look after their siblings and was unaware of the sanitation and hygiene conditions. By providing cycles it motivates them to continue education and become self dependent.</p>
13	Mission Smart City	Civilians	<p>To provide the civilians with high quality modern and efficient Municipal services, sustainable development and sound environmental management.</p>	<p>Infrastructural development and better construction enhance resilient structure which incorporates indigenous knowledge and modern techniques.</p>

14	Suchita Yojana	Government Schools	To encourage girls about their personal and menstrual hygiene. Helping pupils in overcoming hesitation, they face while buying sanitary napkins from the markets.	Helps to maintain sanitation and hygiene and prevent girls from diseases.
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Table-6.2 : Mainstreaming DRR in Development State level Flagship Schemes

Chapter 7

Preparedness & Capacity Building

7.1 Preparedness

The goal of preparedness programs is to achieve a level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials.

Preparedness for any probable disaster is an essential and proactive step to deal with any emergency. It is a peacetime phase and provides opportunity to develop and build capacity of the system and society. Disaster preparedness is disaster mitigation from the people side. Each stakeholder needs to develop and enhance his/her skills and resources so as to be able to perform the respective role and responsibility at the onset of the disaster.

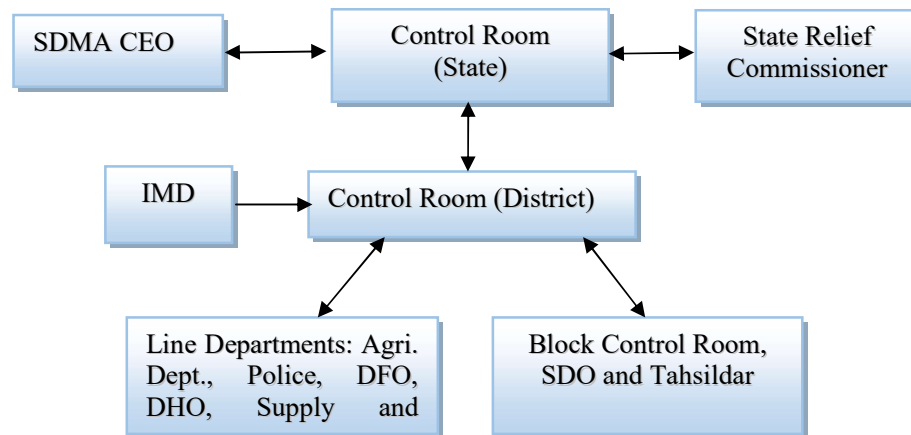
7.2 General Preparedness Measures

7.2.1 Control Room Establishment:

➤ Preparedness of Control Room:-

- Preparation of disaster management plans.
- Proper dissemination of vital information about state control.
- Weather tracking and timely warning to minimize the effect of a disasters.
- Avoid or prohibit major development in flood prone area.
- Maintaining contact details of all public institutions, NGOs/Private Sector Organizations, which can be assign the task of community-level preparedness which will be used during emergencies.
- The use of modern technology like GIS and RS in the preparation of plans.

- Keeping records of vulnerable areas, monitoring of rescue and relief operations deciding response and managing the database etc.
- Up gradation and updating of State control room system according to the situation in district, and maintain an inventory of resources.
- Record of Maps with data inputs of climatological, frequency of flood, wind speed and history of past disasters.
- Training of the various functionaries and spread of effective public awareness in schools education and communities to ensure that the plans disseminated to the lowest levels.



Flow Chart-7.1 : Control Room

7.2.2 Plan Updation:-

The SDMP should be updated every year, by considering the suggestions for improvement of the response document SDMP from various stakeholders, NGOs / Private Sector Organizations, communities.

7.2.3 Communication System:-

In case of Sub-Division the Tehsil or Block, the respective heads, i.e. Sub divisional Officer (SDO), Tahsildar, Block Development Officer (BDO) will function as the Incident Commander (IC) in their respective Incident Response Team (IRTs) and the Operations Section Chief (OSC) will be selected as per nature of the disasters in the district. The district

collector ensures that IRTs are formed at District, Sub-Division, Tehsil or Block levels and IRS is also integrated in the District DM Plan as per Section 31 of the DM Act, 2005. This may ensure free emergency numbers of existing Police, Fire and Medical support systems which are linked to the Emergency Operations Centre (EOC) for response, command and control.

7.2.4 Training:-

Training is one of the essential processes to build and enhance capacity to deal with disasters. Training the community ensures skilled and trained first responders during any emergency without panic. Secondly, training the officials and responders ensures rapid and appropriate response from various stakeholders, thus minimizing the loss.

Training	Responsibility
1. Training to civil defense personal in various aspect of disaster management. 2. Training to Home Guards personal in various aspect of disaster management including search and rescue	<ul style="list-style-type: none"> • Home Dept. • Commandant General Home Guards • Director Civil Defense • CSDMA
3. Training to NCC and NSS personal in various aspect of disaster management	<ul style="list-style-type: none"> • Education Dep. • Director NCC
4. Training to educational and training institutions personal in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • CSDMA
5. Training to civil society, CBOs and corporate entities in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • CSDMA • NGOs
6. Training to fire and emergency service personal in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • Municipal Corporation • CSDMA
7. Training to police and traffic personal in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • CSDMA • Home Dept. • Police training Institute

8. Training to State Disaster Response Force (SDRF) Teams in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM/NDRF • Home Dept. • Addl. DGP (Training) • CSDMA
9. Training to media in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • Information Dept. • Information Training Centre • CSDMA
10. Training to govt. officials in various aspect of disaster management	<ul style="list-style-type: none"> • NIDM • CSDMA • Departmental Training Institutes
11. Training to engineers, architects, structural engineers, builders in various aspect of disaster management	<ul style="list-style-type: none"> • Training Institutes • NIDM • CSDMA
12. Training at local and regional level for undertaking rapid damage and need assessment	<ul style="list-style-type: none"> • CSDMA

Table-7.1 : Training for Various Stakeholders

7.2.5 Community Awareness on Various Disasters:-

Awareness in the masses regarding dos and don'ts, vulnerable areas and emergency numbers empower them to do the needful proactively as and when the situation arises. Having aware community also reduces the chances of chaos and panic.

CSDMA regularly undertakes media campaigns through radio, television and newspapers. These include audio- visual campaigns through jingles, pamphlets, videos, etc. The campaigns cover probable hazards and other safety measures as per seasonality of hazards in the State like heat wave, Flood, Lightning, Diwali safety, etc.

Similarly, following measures can be taken by respective department towards generating awareness:

- i. Create mass awareness through advertisement, hording, booklets, leaflets, banners, etc.
- ii. Organize awareness camps for children and make use of folk dance and music, plays,

- painting competition, debate competition, etc. to disseminate the information.
- iii. Organize disaster management exhibition and use scientific tools like shake-table demonstration, etc to disseminate awareness about various hazards and ways to deal with them.
 - iv. Arrange for TV, radio spot visual, audio-visual and documentary, etc. to reach out to masses at large.
 - v. Media can play a vital role in public awareness and preparedness through educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, helping relief organizations and the public towards specific needs; and even in facilitating discussions about disaster preparedness and response.

7.3 Preparedness of State Government

The key stakeholders at state level and the respective preparedness measures to be undertaken are discussed below:-

- i. Ensure that appropriate policies and guidelines are developed.
- ii. Ensure that the State Administration and local authorities take into consideration the guidelines laid down by CSDMA while planning its activities.
- iii. Ensure that State Government, CSDMA, Heads of Government Departments, District Collectors and local authorities take necessary steps to be prepared for all probable disasters.
- iv. Facilitate timely procurement related to disaster management of materials, equipment and services in connection with the disaster management and ensure their quality.
- v. Ensure preparation, implementation timely updating of disaster management plans by respective state departments, local authorities, communities and stakeholders.

7.3.1 Departments of the State Government

a) Revenue Department

- i. Revenue Department is the nodal department for controlling, monitoring and directing measures for organizing rescue, relief and rehabilitation. All other concerned line departments should extend full cooperation in all matters pertaining to the response

management of the disaster whenever it occurs.

- ii. Develop relief norms and packages.

b) Agriculture & Cooperation Department

- i. Preparation of agriculture contingency plans and identify vulnerable areas prone to pest infestation, droughts, floods and other hazards
- ii. Constitute a crop weather watch group at district level (as per 'A Model Manual for Drought Management', GoI) with representatives from concerned departments dealing with agricultural inputs, credit extension, etc.
- iii. Spread awareness among farmers regarding various crop diseases, prescribed use of fertilizers and pesticides, crop insurance, alternate cropping pattern in disaster prone areas, proper seed and fodder management, etc.
- iv. Formulate a trained team for assessing damage to crops, soil and other agricultural damage.
- v. Ensure a proper mechanism for communicating early warning to farmers regarding rainfall, flood, droughts etc.

c) Animal Husbandry Department

- i. Isolating/ separating sick and healthy animals and make arrangements for feeding and watering animals suffering from contagious diseases. Sensitize farmers/ owners for the above problems.
- ii. Prepare a database of veterinary hospitals, clinics and agencies working for animals.
- iii. Prepare the feed of poultry birds for drought situation and also locate feed and fodder banks in view of submergence situation during the monsoon.
- iv. Identify safe locations for cattle camps.
- v. Ensure proper administration of de- worming and vaccinations for cattle, sheep and goats, pigs and other relevant measures for disease management.
- vi. Ensure proper transportation facilities for sick or critically injured animals.

- vii. Identify space for burial of dead animals and ensure proper disposal of carcass.

d) Education Department

- i. Organize awareness generation programs in schools and colleges for students, teachers, administrative staff and other helpers. These programs should focus on do's and don'ts for various hazards and safe evacuation in case of any emergency.
- ii. Ensure preparation of disaster management plans and first aid kits in all schools and colleges.
- iii. Identify safe schools and colleges which can be used as relief shelters for short duration of time in aftermath of any disaster.

e) Fire & Emergency Services

- i. Ensure proper maintenance and functioning of all fire fighting equipments and personal protection equipments.
- ii. Prepare a database of private fire fighting agencies and their resources.
- iii. Keep monitoring regarding MAH units and other hazardous installations in the state and prepare for possible emergency situation.

f) Food & Civil Supplies Department

- i. Prepare a database of godowns and cold storage facilities in the district and safety measures taken against inundation, water logging, fire and other possible hazards.
- ii. Prepare for out movement of stored food grains to a pre- identified safer location.
- iii. Ensure availability of adequate food grains storage in godowns in view of the scarcity or emergency period and also check for adequate stock of gas cylinders, kerosene petrol pumps, diesel depots, LPG agencies, etc..
- iv. Enlist godowns/ warehouses and cold storage facilities, refrigerated transportation vehicles present in the state along with their storage capacities and facilities available.
- v. Enlist private retailers and wholesale dealers of food items and packaged drinking water.

g) Health & Family Welfare Department

- i. Organize awareness camps for hygiene and other public health issue.
- ii. Develop dos and don'ts plan for health and hygiene in general and in situations of disaster in particular.
- iii. Prepare a database of registered private hospitals, clinics, diagnostic labs, blood banks, etc. along with their capacities and facilities provided.
- iv. Establish statewide medical emergency access number.
- v. Ensure authentic medical database enlisting public and private facilities available in the state. This includes details of manpower, logistics, medical equipments, medicines, antidotes, personal protective equipments, disinfectant, portable x-ray machines, triage tags, etc.
- vi. Standardize and license ambulance services.
- vii. Ensure availability of adequate supply of life saving equipment and drugs, portable supplies like portable oxygen cylinders.
- viii. Formulate trained medical first responder, QRMT, stationary and mobile decontamination facilities, identification of poison centers, mobile hospital, antidotes plan and crisis management plan at hospitals for chemical disaster preparedness.
- ix. Prepare trained psychological and psychosocial care teams.
- x. Make proper arrangement and mechanism for mass casualty management.
- xi. Ensure proper and safe management of medical waste.

h) Industrial Safety

- i. Create awareness for health & safety for workers and factory management.
- ii. Conduct health & hygiene survey and inspection in various industrial sectors.
- iii. Make a database of MAH units and hazardous installations in the state and their safety officers.
- iv. Ensure preparation of onsite emergency management plan by all industrial units.
- v. Prepare a database of suppliers/ manufactures of antidotes for hazardous chemicals.

i) Information Department

- i. Display verified Information Education and Communication (IEC) materials for mass dissemination and awareness among the public.

- ii. Prepare a database of popular media channels and media persons (both print and electronic).
- iii. Ensure proper mechanism/ channels for addressing public so as to avoid and manage rumours with help of various media.

j) Police Department

- i. Ensure proper functioning of all equipment and vehicles.
- ii. To develop a mechanism for early warning of different hazards through police stations and police posts.
- iii. Prepare for quick deployment of Home Guards and volunteers for providing safety to affected population and evacuated structures/ houses.
- iv. Prepare contingency plans in response to riots, stampede naxali attack, bomb blast and other law and order emergencies.
- v. Train police personnel and staff of PCR van in first aid and basic life support.
- vi. Prepare communication plan for uninterrupted communication to all police posts and various control room and emergency centers across the state.

k) Port & Transport Department

- i. Ensure proper functioning of filling station, vehicles and equipment.
- ii. Prepare for prompt deployment of vehicles at short notice for various purposes like mass evacuation, transportation of response teams, relief items, victims, etc.
- iii. Prepare mechanical team for prompt repair of equipment and vehicles.
- iv. Train drivers, conductors, crew members, port officials in first aid and basic life saving techniques.

l) Women & Child Development Department

- i. Prepare a database of authentic NGOs working for women and children empowerment/ rights.
- ii. Prepare for prompt action in aftermath of any disaster so as to prevent human trafficking particularly that of women, girls and children.
- iii. Ensure women and children in vulnerable circumstances are well covered under various government schemes targeted to them.

m) Tribal Development Department

- i. Prepare a database of tribal groups in the state, their population and habitats.
- ii. Ensure they are well covered under all government schemes targeted to them with special focus on the five Particularly Vulnerable Tribal Groups.

7.4 Chhattisgarh State Disaster Management Authority (CSDMA)

- Assist the State Government in formulation of policy for relief, rehabilitation, reconstruction and recovery.
- Monitor preparation, updating and implementation of disaster management plans.
- Promote awareness and preparedness among all stakeholders regarding potential disasters.
- Assist in development of methodologies for reduction of vulnerability of disasters.
- Publish various guidelines to be followed for various phases of disaster management.
- Inspect existing development plans made by various authorities and recommend measures to be incorporated for disaster management.
- Develop database of key experts, consultants, organizations, agencies, etc working in the field of disaster management.

7.4.1 The State Relief Commissioner (COR)

- Prepare, review and update State level emergency plans and guidelines and ensure that the district level plans are prepared, revised and updated.
- Develop an appropriate relief implementation strategy for the State in consultation with the Authority, taking into account the unique circumstances of each district and deficiency in institutional capacity and resources of the State.

7.4.2 Collectors/ Municipal Commissioners

- Ensure an updated database of critical resources (equipments, life saving facilities, trained personnel, etc.) available in the District/ Corporation is in place.
- Ensure that all critical life saving equipments is maintained and ready to use.
- Ensure that District/ blocks Disaster Management Plans are prepared and are timely updated.

- Ensure that local authorities in the District/ Corporation are involved in developing their own mitigation plans.
- Ensure that disaster management drills are carried out periodically.
- Ensure that District Emergency Operation Centre or Control Room is fully functional and communication systems are in order.
- Ensure that open and safe places for mass evacuation are identified.
- Ensure that safe buildings are identified for purpose of relief camps.
- Ensure that site for helipad is identified at key locations.

7.5 Community and local level preparedness:

The plan recognizes the fact that in the event of disaster communities are the first responders and hence there is no better alternative to community and local level capacities for disaster response. In order to enhance communities' capacity to take action to help themselves in the absence of necessary outside response for days the plan envisages creating necessary awareness about hazards, risks and response. Areas which would be specifically addressed for community preparedness are-

- i. Medical first aid
- ii. Search and rescue extrication from damaged buildings
- iii. Road clearance
- iv. Fire fighting

Plan also envisages equipping community at Panchayat level by ensuring the provision of medical supply, communication such as radio, TVs, extrication equipment. Panchayat will be encouraged to establish local early warning systems in higher vulnerable areas and for holding community level disaster response drills. Development of response capacity at Panchayat level for first response would help in avoiding desperate situation. Creation of Sub-division level stock pile for relief and warehouses would be ensured.

Local Authority

- Provide assistance to CSDMA and Collector in disaster management activities.
- Ensure training of its officers and employees and maintenance of resources so as to be

readily available for use in the event of a disaster.

- Ensure that all construction projects under it conform to the standards and specifications lay down.
- Each department of the Government in a district shall prepare a disaster management plan for the district. Carry out relief, rehabilitation and reconstruction activities in the affected area within its jurisdiction.
- Select vulnerable community and most vulnerable groups at risk.
- Advice and issue direction wherever necessary for community disaster prevention, mitigation and preparedness through local resources and participatory approach.
- Take appropriate actions to enhance community preparedness.

7.6 Capacity Building Measures

Various stakeholders should engage in building their respective capacities by conducting regular trainings to upgrade their skills, by developing techno- legal regime to better deal with different aspects of disaster management and by taking other proactive measures for the same.

State Disaster Response Force (SDRF):

State would create response capabilities from within their existing resources. In the first phase the police department would be equipping and training one battalion equivalent police force including women members for looking after the needs of women and children. NDRF battalions and their training institutions will be used for capacity development. The Police department has included DM training in-service courses for officers.

Department of Home in Consultation with SDMA shall be primarily responsible for taking preparedness measures and building response capacity as per their vulnerability to various natural disasters and constitute State Disaster Response Forces on the pattern of NDRF.

7.7 Developing Technical and Computer Aided Databases

- I. Update the vulnerability atlas based on new districts created and any change in vulnerability profile of population over the years.
- II. Develop GIS based information system for different sectors viz. medical and health,

civil supply, fire and emergency services, etc.

- III. Develop Flood Disaster Management Information System- develop software, collect and feed basic data, train the user and ensure regular updating of real- time data.
- IV. Create and disseminate database of contact details, resources, response agencies, NGOs, trained personnel, most vulnerable groups, evacuation routes, available shelters, relief centres, critical infrastructures, storage godowns, etc.

Chapter 8

Disaster Response and Relief

Major natural disasters like drought, flood and cyclonic disturbances occur almost every year. Heat wave is also a regular phenomenon. Taking into account the seasonal pattern of these disasters, standing preparedness activities are undertaken by the State Government at different levels to meet the eventualities and minimize the impact of these disasters. During the occurrence of the calamity, activities like rescue, evacuation, sheltering, provision of food, water, first-aid are undertaken followed by various relief measures during post-disaster period. Activities during these three phases of disaster for different disasters although identical in some respects are different in other respects.

Providing initial response in the event of sudden disaster is not only difficult but challenging as well. Normally when a crisis situation develops the picture is often unclear and chaotic and would become further complicated when disaster happens during night time or during winter season and collapse of communication and transport network takes place. The first reaction is to act spontaneously.

8.1 Level of Disasters

L concept has been developed to define different levels of disasters in order to facilitate the responses and assistances to states and districts.

Level	Description	Activities
L0	Normal time	Prevention, preparation and capacity building activities like trainings, preparation and updation of plans, mock drills, procurements of equipments, etc
L1	Can be managed at district level	State and Centre remain ready to assist if need arises
L2	Beyond the capacity	Require active participation and

		mobilization of resources from State Government
L3	Resources of District and State Government have been overwhelmed	Require Central Government for reinstating the State and District machinery as well as for rescue, relief, and other response and recovery measures

Table-8.1 : Levels of Disasters

8.2 Response

Immediate on receiving information about the disaster that strikes any area the trigger mechanism is activated either from 'TOP' or from the 'BOTTOM' depending upon the situations the following actions will be initiated:

- Generation of event scenario report to be sent as per the trigger mechanism.
- Preparation of current status on life line facilities and infrastructure.
- Rapid visual assessment of damage to buildings.
- Assessment of Casualities.
- Assessment of Transport requirements
- Assessment of requirement of shelters
- Status of search and rescue operations.
- Details and listing of missing persons.
- Assessment of type and extent of medical support for undertaking emergency operation.
- Status of identification of stakeholders and role players for providing supporting response and recovery operations.
- Status of activating call center for providing multiple pieces of information to callers and relatives of victims.

Primary tasks during this phase would be:

- a) Proper need assessment through village response.
- b) Deployment of resources to all affected selections in an equitable manner.
- c) Besides food, cloth and shelter facilities such as public health and sanitation is to be

provided in shelters or camps.

- d) Ensuring total transparency in distribution of relief material.
- e) Putting in place an objective method of assessing damage.

8.2.1 Trigger Mechanism

The response mechanism shall be put into action considering the situation prevailing at a given point of time. 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 is triggered on receiving any early warning or at occurrence of disaster as the case may be.

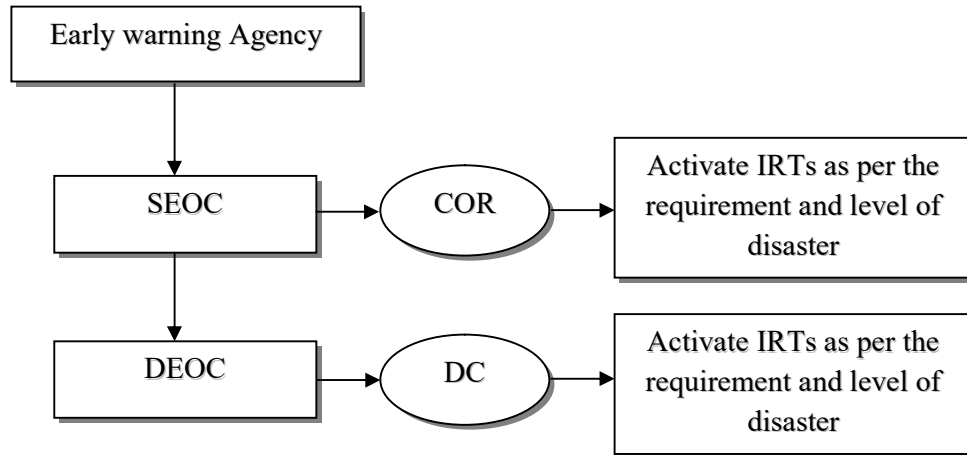
On receipt of alert/ early warning or information about onset of disaster, District Collector or Relief Commissioner assume the role of the Incident Commander (IC) for L1 or L2 level disaster respectively, as the case may be. Immediate access to the disaster site through various means of communications such as mobiles, VSAT, wireless communication and hotline contact is also made. Depending on level of disaster, the required and relevant Incident Response Teams (IRTs) shall be activated.

The EOCs and ERCs will be put on full alert and will continue to operate as long as the need for emergency relief and operations continue and the longer term plans for rehabilitation are finalised.

Disaster	Agencies
Earthquakes	IMD, ISR
Floods	IMD, Irrigation Dept.
Cyclones	IMD
Tsunami	IMD, ISR, INCOIS
Drought	Agriculture Dept.
Epidemics	Health and Family Welfare Dept.
Industrial and Chemical Accidents	Industry, Labour and Employment Dept.
Fire	Fire and Emergency Services

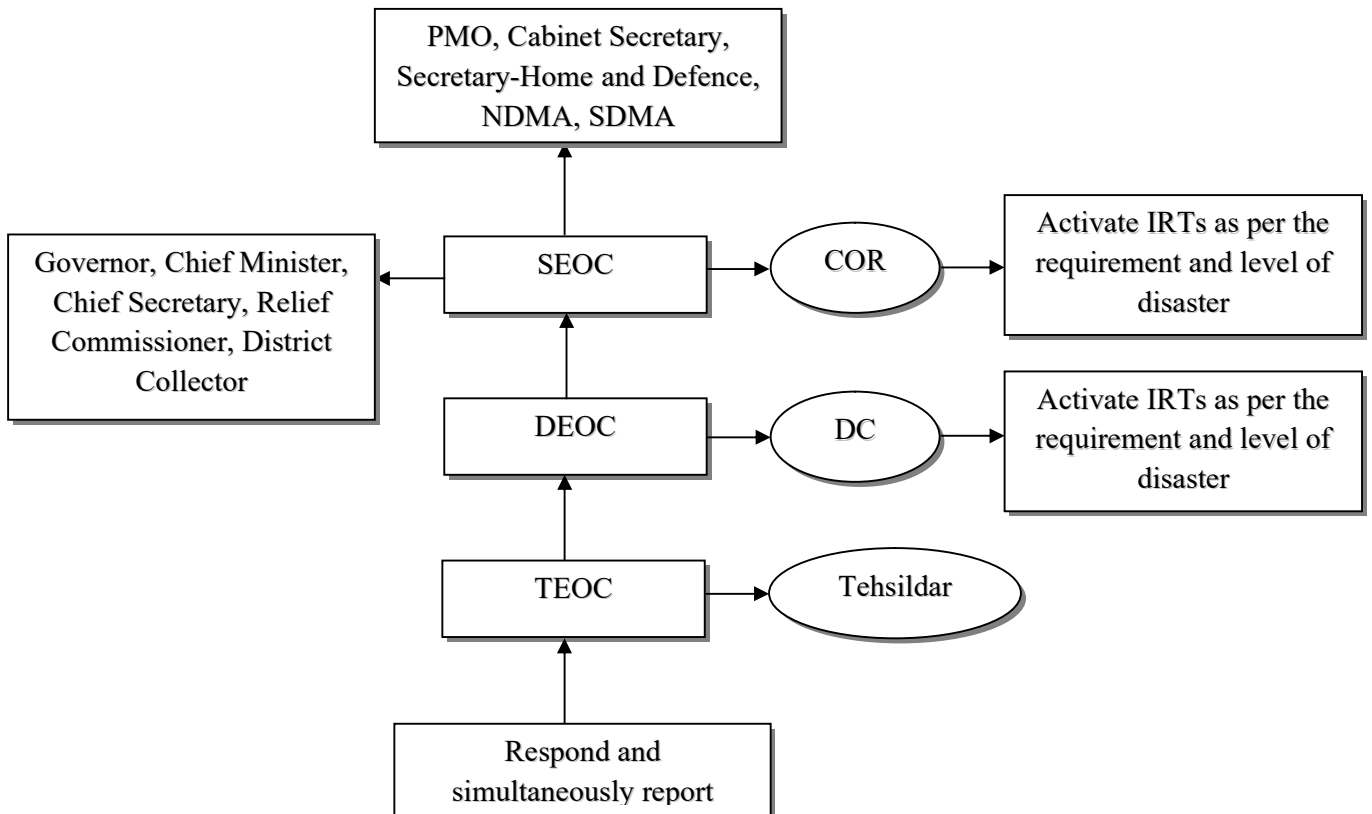
Table-8.2 : Agencies Competent for Issuing Disaster Specific Early Warning

In case of Early Warning



Flowchart-8.1 : Trigger Mechanism in case of Early Warning

Without Early Warning



Flowchart-8.2 : Trigger Mechanism without Early Warning

8.2.2 Incident Response System

Incident Response System (IRS) is one of the crucial tools for coordinated response. The system envisages that the roles and duties are laid down in advance, the personnel earmarked and trained in their respective roles and duties. It fixes accountability of the earmarked personnel and also avoids duplication of efforts by clearly demarcating the area specific task force teams.

It provides a participatory, well structured, safe, multi disciplinary, multi-departmental and systematic approach to guide administrative mechanisms at all levels of the government. It also provides scope for private sector, NGOs, CBOs, PRIs and communities to work seamlessly in the response activities.

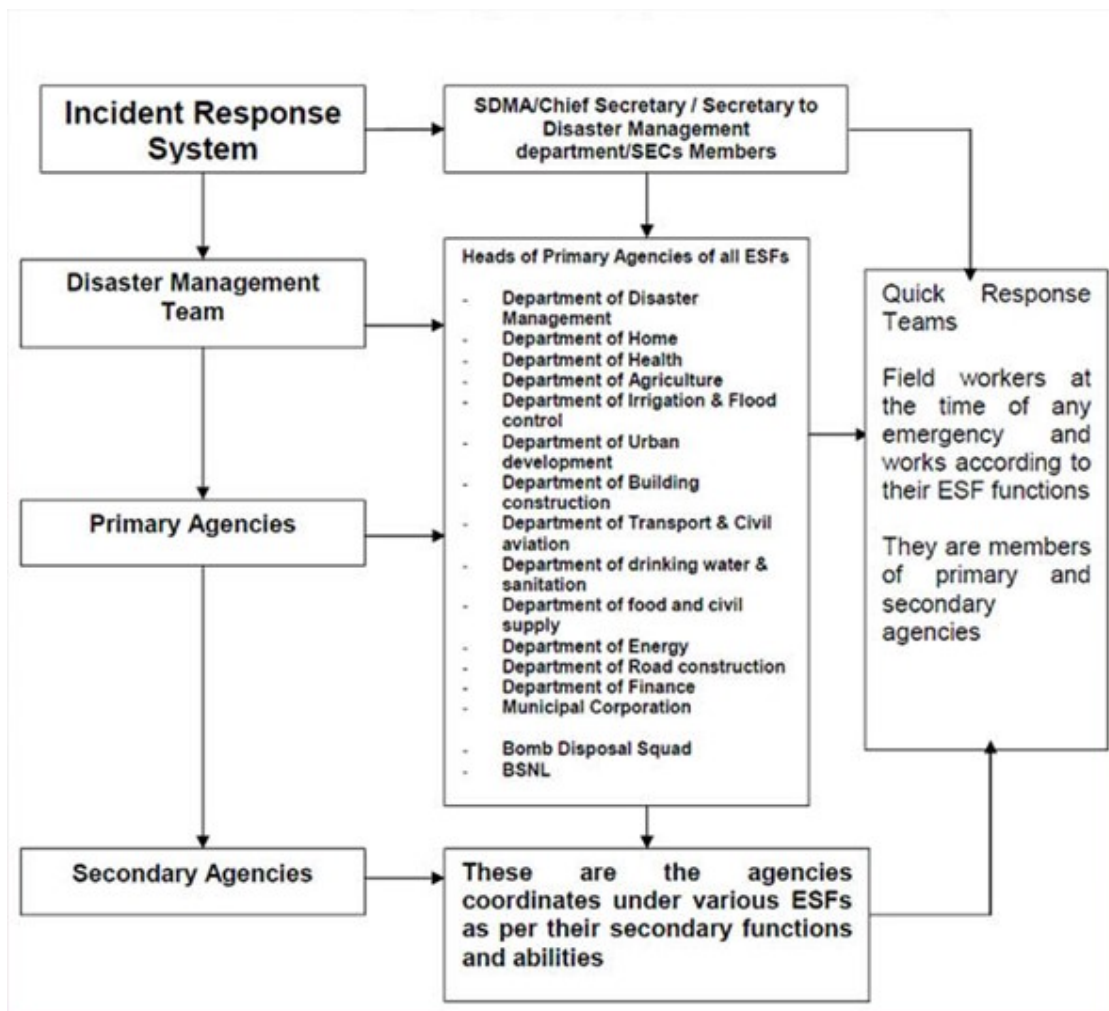
The State Government/ CS will designate various officers of line departments for the corresponding IRS positions to perform their duties. Being the administrative head of the State as well as the CEO of SDMA, the CS is designated as the RO of the State. She/he may delegate some of his functions to the Secretary, DM of the State, for the day to day supervision and management of the incident. She/he will however remain fully briefed by SEOC and IC and be aware of all developments and progress of response activities at all times. In case an incident is beyond the control of a District administration or a number of Districts are affected, the RO of the State will consider setting up of an Area Command and designate an Area Commander (AC). He may consider the Divisional Commissioner to act as AC or may deploy appropriate/suitable officer irrespective of seniority. The RO may also deploy some supporting staff to assist him and the roles and responsibilities are as follows:

- Ensure that IRTs are formed at District, Sub-Division, Tehsil/ Block levels and IRS is integrated in the District DM Plan as per Section 31 of the DM Act, 2005. This will be achieved by issuing a Standing Order by the RO to all SDMs and Tehsildars/ BDOs;
- Ensure web based/ on line Decision Support System (DSS) is in place in DEOC and connected with Sub-Division and Tehsil/ Block level IRTs for support;
- Ensure that toll free emergency numbers existing for Police, Fire and Medical support etc. are linked to the DEOC for response, command and control;
- Obtain funds from State Government as recommended by the 13th FC and ensure that a training calendar for IRTs of District is prepared and members of IRTs are trained

through TIs and other training institutions of the District;

- Delegate authorities to the IC;
- Activate IRTs at District headquarter, Sub-Division, Tehsil/ Block levels, as and when required;
- Appoint/ deploy, terminate and demobilize IC and IRT(s) as and when required;
- Decide overall incident objectives, priorities and ensure that various objectives do not conflict with each other;
- Ensure that IAP is prepared by the IC and implemented;
- Remains fully briefed on the IAP and its implementation;
- Coordinates all response activities;
- Give directions for the release and use of resources available with any department of the Government, Local Authority, private sector etc. in the District;
- Ensure that local Armed Forces Commanders are involved in the planning process and their resources are appropriately dovetailed, if required;
- Ensure that local Armed Forces Commanders are involved in the planning process and their resources are appropriately dovetailed, if required;
- Appoint a nodal officer at the District level to organize Air Operations in coordination with the State and Central Government NO. Also ensure that all ICs of IRTs of the District are aware of it;
- Ensure that the NGOs carry out their activities in an equitable and non- discriminatory manner;
- Deploy the District Headquarter IRTs at the incident site, in case of need;
- Ensure that effective communications are in place;
- Ensure that telephone directory of all ESF is prepared and available with EOC and members of IRTs;
- Ensure provision for accountability of personnel and a safe operating environment;
- In case the situation deteriorates; the RO may assume the role of the IC and may seek support from the State level RO;

- Mobilize experts and consultants in the relevant fields to advise and assist as he may deem necessary;
- Procure exclusive or preferential use of amenities from any authority or person;
- Conduct post response review on performance of IRTs and take appropriate steps to improve performance; and
- Take other necessary action as the situation demand.



Flowchart-8.3 : Incident Response System

8.2.3 Emergency Operations Centre

EOC is an offsite facility which functions from the State/ District/ Taluka headquarters. It includes the space, facilities and protection necessary for communication, collaboration, coordination and emergency information management. It is a combination of various line departments of Government and other agencies whose services are generally required during incident response.

➤ Activation of EOC

The EOC is a nodal point for the overall coordination and control of relief work. In case of an L1 Disaster the DEOC will be activated, in case of an L2 disaster SEOC will be activated along with the DEOC. Working of EOC can further be understood by following states:

- i. Normalcy (Steady State)-** When full activation of the EOC is not warranted
- ii. Emergency Alerts-** When the EOC is brought into full or partial activation to preemptively reduce the impact of impending incidents and respond to the impact of the incident when it transpires
- iii. Emergency-** When an incident occurs with or without prior warning requiring full activation of the EOC in response to the incident

➤ Command and Control of EOCs

The EOC, its system and procedures are designed in such a way that information can be promptly assessed and relayed to concerned parties. Immediate dissemination of information contributes to quick response and effective decision- making during emergency. Being the main coordination and control point for all disaster specific efforts, the EOC is the place of decision-making, under a unified command.

The EOC in normal circumstances works under the supervision of Relief Commissioner at the State level and under the District Collector at the district level. It is the nerve centre to support, co-ordinate and monitor the disaster management activities at the district level. In a disaster situation, the EOC will come under the direct control of Chief Secretary or any other person designated by the Chief Secretary as Chief of Operations.

➤ **Functions of EOC**

- i. Receive, monitor, and assess disaster information.
- ii. Monitor, assess, and track response units and resource requests.
- iii. Manage resource deployment for optimal usage.
- iv. Make policy decisions and proclaim local emergencies as needed.
- v. Provide direction and management for EOC operations through set priorities and establish strategies.
- vi. Coordinate operations of all responding units, including law enforcement, fire, medical, logistics etc.
- vii. Augment comprehensive emergency communication from EOC to any field operation when needed or appropriate.
- viii. Maintain EOC security and access control.
- ix. Keep senior, subordinate and tenant officials informed.
- x. Keep local jurisdictions (Village/town/City, district and State) informed.
- xi. Operate a message center to log and post all key disaster information.
- xii. Develop and disseminate public information warnings and instructions.

8.2.3.1 State EOC

Getting early warning and alerts are critical to mount timely and appropriate response. The unified SEOC located in the secretariat will handle information related to disaster management. The state EOC would provide necessary information and coordination to all nodal departments and ESF. The SEOC with robust communication system will be handled by concerned nodal departments by deploying their specialist at the time of crisis.

➤ **Sequence of Action at the State Level:**

- **SEOC**

On receipt of information either from NEOC from DEOC or from early warning agencies at national or state level or from any other reliable source the following action will be taken:

- i) SEOC shall bring the information to the notice of SEC.
- ii) Issue alerts / warnings to all DDMA's / Nodal Departments ESF and all other designated Departments in the State.

- iii) Through public information directorate release the information for public through AIR, television and Press.
- iv) Establish contact and provide status report to NEOC, MHA.
- v) Collect collate and synthesize information for consideration of SEC and SDMA.
- vi) Provide regular appraisal and status reports to all designated authorities in the State.
- vii) Arrange meetings of SEC.
- viii) Activate Emergency Support Function (ESF) if situation warrants.

- **State Disaster Management Authority (SDMA)**

- i. Meeting of SDMA shall be convened on the direction of chairperson.
- ii. SDMA will take stock of the situation.
- iii. SDMA shall assess level of disaster and outside assistance and cooperation required.

- **State Executive Committee (SEC)**

- i. Department of Revenue shall convene the meeting of SEC.
- ii. SEC shall assess the situation and level of disaster.
- iii. Based on the assessments SEC shall give directions for handling the situation and measures to be taken by role players in response to any specific situation or disaster.
- iv. SEC shall review and coordinate response from all departments.
- v. SEC shall call for NDRF, ARMY, AIRFORCE or any other outside support warranted for handling the situation.
- vi. SEC may depute team for on the spot situation assessment and need assessment.
- vii. SEC shall mobilize resources and dispatch them to concerned districts.
- viii. SEC shall review the situation regularly as per demand of the situation.
- ix. SEC shall maintain close liaison and contact with NDMA/MHA and keep them abreast of the situation.
- x. SEC shall constantly evaluate their own capabilities to handle the situation and project the anticipated requirements central resources.
- xi. SEC will take necessary steps to pool the resources for better management of crisis situation.

- **Role of Key Departments:**

- i) At the time disaster and on activation of State ESF plan all the departments shall deploy nodal officers to SEOC for coordination measures.
- ii) All concerned departments shall coordinate with their national counterparts and mobilize specialist resources and assistance as per requirement.
- iii) All departments and organization of the state shall place the resources at the disposal of DDMA's during disaster situation.

8.2.3.2 District Emergency Operation Centre (DEOC)

District Emergency Operation Centre located in the office of deputy commissioner shall discharge the following functions:

- On receipt of information from SEOC/SEC or from any field office or Panchayat or from any other reliable source, DEOC will bring this in the notice of DDMA.
- DEOC shall issue necessary alerts to all authorities in the district or at state level depending on the situation.
- DEOC will send regular status and appraisal reports to SEOC.
- DEOC shall maintain all records.
- DEOC shall collate and synthesize information for consideration of DDMA.

➤ District Disaster Management Authority

- DDMA shall assess the situation and give directions to the concerned department heads in the district for better handling of the situation.
- DDMA shall assess the situation by taking into consideration reports from all formal and informal sources and decide upon the level of the disaster.
- Issue necessary direction for handling the response, relief and restoration measures.
- Call for outside support if necessary.
- Keep the SDMA /SEC informed about the situation.
- Raise demands for support and assistance.
- Assess the resource availability and issue necessary direction for pooling resources for speeding an effective response.
- Process requests for NDRF/Army or any other specialized help.

- Coordinate with Power projects developers NGS's, civil society for supplementing the efforts of Govt.
- Monitoring and reviewing the situation on a regular basis.

➤ **First Response**

In disaster situation when disaster is sudden and no early warning signals are available community members and specially the village disaster response team comprising the Panchayat Pradhan, Panchayat Secretary and village Patwari and ward members shall be the first responder. The other first responder include the police from nearest police station, fire and medical services, civil defence, NCC, NSS, NYKS and Ex-servicemen volunteers available in each village.

➤ **First information report**

District Emergency Operation Centre shall prepare and send first information report to SEOC/summarizing the following:

- Severity of the disaster
- Action being taken
- District resources available and coping capacity.
- Need assessment for relief along with quantities.
- Logistics for delivering relief.
- Assessment on future development including new risks.
- FIR should be sent within 24 hours of occurrence of calamity as per the standard format.

8.2.4 Emergency Support Functions

Emergency Support Functions (ESF) is critical services which are performed in post disaster scenario to minimize life loss and address various issues in a post disaster situation.

ESF	Aim	Primary Department/ Agency	Secondary Department/ Agency
Early Warning	To warn and alert all stakeholders about an imminent disaster	<ul style="list-style-type: none"> • Central Water Commission- Flood • Indian Meteorological Department - Flood and Cyclones • Indian National Centre for Ocean Information Services - Tsunami 	<ul style="list-style-type: none"> • District Emergency Operations • SDMA
Evacuation	To ensure that people at threat are moved to a safe location	Revenue Department	<ul style="list-style-type: none"> • District Administration
Fire fighting	To control and manage fire incidences	Fire and Emergency Services	<ul style="list-style-type: none"> • Home Guard, Nagar Sena • Nagar nigam
Oil and Hazardous Material Response	To provide expert and technical support in case of release of any hazardous material	Industrial Safety and Health	<ul style="list-style-type: none"> • Home Guard, Nagar Sena • Nagar nigam • Industrial Safety Dept. • RTO
Search and Rescue	To provide life saving assistance in aftermath of natural or human made disaster	Police	<ul style="list-style-type: none"> • Home Guard • Health
Medical Services	To provide emergency medical and mental health assistance	Health	<ul style="list-style-type: none"> • CMHO/ CS

Dead Body Management	To identify and properly record the dead bodies and facilitate the appropriate cremation/ burial	Police	<ul style="list-style-type: none"> • Revenue • Health • Local Authorities • Municipal Commissioner
Food	To address the food needs of the affected population and responding agencies	Food and Civil Supplies	<ul style="list-style-type: none"> • Revenue • Food dept. • Women and Child Development
Communications	To provide safe communication and last mile connectivity	Department of Science and Technology	<ul style="list-style-type: none"> • Revenue Dept. • COR • SDMA • NIC • District Administration • Local authorities • Municipal Commissioner
Transportation	To provide transport support to responding stakeholders and for various purpose as and when required	Transport Department	<ul style="list-style-type: none"> • RTO
Temporary Shelter/ Camp Management	To address all basic needs of the affected population in the relief camps and ensure	Revenue	<ul style="list-style-type: none"> • District Administration • Food Dept. • Health • Police

			<ul style="list-style-type: none"> • PHE • CSEB
Public Works Engineering	To provide technical support and expertise for repair, restoration and reconstruction of public infrastructure	Roads and Building Department	<ul style="list-style-type: none"> • PWD
Energy	To ensure rapid restoration of power to affected areas particularly to critical facilities on the priority	Energy and Petrochemicals Dept.	<ul style="list-style-type: none"> • CSEB
Public Safety and Security	To ensure safety and security of affected population, their property and responding agencies	Police Department	<ul style="list-style-type: none"> • Home Guard • Women and Child Development
Media Management	To ensure precise and accurate incident briefing to public and ensure proper rumor and panic management	Information Department	<ul style="list-style-type: none"> • PRO

Table-8.3 : Emergency Support Functions

8.3 State Disaster Response Force

Formation / Establishment of SDRF in the state

State Disaster Response Force (SDRF) has been constituted in the state in the year 2016 to overcome with various disasters, in which there are 7 Teams. In each team, there shall be 01 Platoon Commander, 01 Hawaldar, 03 Naik, 03 Lance Naik, 02 Vehicle Driver, 02 Cooks and 24 Sainiks thus there shall be total 36 members. The above said 7 Teams have been trained to deal with various disasters/emergencies activities. 98 Soldiers of the team were given Diving Training in Bay of Bengal. The posting of SDRF has been made as under:-

- Raipur
- Bilaspur
- Jagdalpur
- Ambikapur
- Durg
- SDRF Training centre Parsada, District-Bilaspur
- Central Training Institute, Home Guard, Mana Camp, Raipur

State Disaster Response Force (SDRF) Structure:

S.No.	Post
1	Platoon commander / sub-inspector
2	vehicle driver
3	Cook
4	Havaldars (volunteers)
5	Naik
6	Lance naik
7	Soldier

Table-8.4 : State Disaster Response Force Structure

8.4 Relief Camp

The following steps shall be taken for setting up relief camps in the affected areas:

- i. Adequate numbers of buildings or open space shall be available where relief camps

- can be set up during emergency.
- ii. The use of premises of educational institutions for setting up relief camps shall be bare minimum.
 - iii. One member of the Incident Command Team from the district trained pool will manage the relief camps.
 - iv. The requirements for operation of relief camps will be worked out in detail by each DDMA.
 - v. Agencies to supply the necessary stores will be short listed in the pre-disaster phase.
 - vi. The temporary relief sites will have adequate provision of water for drinking and bathing, sanitation and essential health-care facilities.
 - vii. Adequate security arrangements shall be made by the local police
 - viii. Adequate lighting arrangements shall be made in the Camp Area including at water points, toilets and other common areas.
 - ix. Special task forces from amongst the disaster affected families will be constituted for managing community kitchens.
 - x. The victims will be issued identification cards and if required bank accounts for cash transfers etc.

8.5 Compensation

Based on various damage and needs assessments, relief packages shall be planned for affected population. Relief packages would include details relating to collection, allocation and disbursement of funds to the affected people. Relief would be provided to all the affected families without any discrimination of caste, creed, religion, community etc.

In Chhattisgarh state, relief or compensation is given to the disaster victims as per the rules and eligibility mentioned in RBC 6-4.

8.6 Post-relief Assessment

SDMA, with assistance from Government departments, district administration and local authorities shall document learning from the relief experience and incorporate the same for relief or rehabilitation and reconstruction plans.

Chapter 9

Rehabilitation & Reconstruction

Reconstruction refers to the full restoration of all services, local infrastructure, replacement of damaged physical structures, the revitalization of economy and restoration of social and cultural life. Reconstruction must be fully integrated into long-term development plans, taking into account future disaster risks and possibilities to reduce such risks by incorporating appropriate measures.

Rehabilitation refers to the actions taken in the aftermath of a disaster to enable basic services to resume functioning, assist victim's self-help efforts to repair physical damage and community facilities, revive economic activities and provide support for the psychological and social well-being of the survivors. It focuses on enabling the affected population to resume more or less normal patterns of life. Following sectors will require rehabilitation and reconstruction inputs-

- Buildings and houses in villages prone to flooding.
- Infrastructure like roads, bridges etc.
- Economic assets (including commercial and agricultural activities etc.)
- Healthcare facilities
- All other lifeline buildings

Activities relating to rehabilitation and reconstruction are primarily carried out by the local bodies (Gram Panchayats, District, Taluka, Municipal Corporations, Municipalities, etc.) and various Government departments and boards. However, their activities in this phase shall be in accordance with the reconstruction and rehabilitation plans framed by CSDMA, in conjunction with implementing authorities.

The reconstruction and rehabilitation plan is designed specifically for worst case scenario. The key activities in this phase are discussed below:

9.1 Detailed Damage and Need Assessment

While a preliminary damage assessment is carried out during disaster phase, a detailed assessment must be conducted before commencing reconstruction and rehabilitation activities. The primary objective of any post-disaster damage assessment and need analysis is to provide a clear, concise picture of post disaster situation, to identify damage caused to different sector and to develop strategies for rehabilitation, reconstruction and recovery. The relevant Government departments and local authorities shall initiate detailed assessment at their respective level for damages sustained in their respective departments and jurisdiction in the affected regions.

For assessing the damage and need of the affected community, the damage and need assessment team should be a composite representation of all the different communities and groups in the affected area. An ideal team would include expert in the related field, government official and representatives from majority and minority communities, females, Scheduled Caste and Tribes, panchayat member or nagarpalika member, etc.

9.2 Reconstruction Strategy

Depending on the type of damage and population affected, following measures can be initiated as comprehensive recovery strategy. While the short term reconstruction strategy includes repair, restoration and strengthening of affected structures, long term strategy includes reconstruction and relocation.

➤ Reconstruction

Reconstruction process at the district level will be done in such a way that it replaces adverse conditions and results in a better construction which would be a lengthy process. A dedicated work group will be constituted for this purpose. The work will be monitored at the higher level, giving high priority by the PWD. CSDMA shall oversee reconstruction and rehabilitation work and ensure that it takes into account the overall development plans for the state.

➤ **Repair and Restoration**

Respective departments should carry out timely repair and restoration of the related infrastructure, facilities, services, etc. This shall aid in quickly resuming the essential services they provide. State Govt. shall coordinate with national and international NGOs, donor agencies and other government bodies to priorities restoration of critical infrastructure like health institutions, temporary housing, lifesaving facilities, critical government infrastructure, etc.

9.3 Rehabilitation

In the aftermath of disasters the affected people must be looked after for their safety, security and the well being and provided food, water, shelter, clothing, medical care etc. so as to ensure that the affected people live with dignity.

Guiding Principle of this phase would be “To build back better”

The Department of Revenue through SEOC will coordinate the recovery and rehabilitation activities in the disaster affected areas by undertaking the following activities.

- Declaration of end of Disaster Situation by the SEC under the directions of SDMA.
- Submission of the recovery and rehabilitation plan by the SEC as per the disaster specific emergent situational needs, to SDMA.
- Declaration of Compensation, which will be done by Department Of Revenue under the directions of the State Government as per relief manual.
- Declaration of Rehabilitation Schemes by the SDMA under the directions of the State Government.
- Coordination with respective departments for implementation of rehabilitation programme
- Pooling of resources including external loans and funds if required.
- Implementation of the recovery and rehabilitation activities in the affected villages through existing mechanism and lesson learnt under the administration control DDMA.
- Documentation of the disaster based on experiences and lesson learnt of all the involved departments/agencies by DDMA and submission of the report to the SEC for review and revision of the State Disaster Management Plans based on the report findings.

➤ **Socio-economic Rehabilitation**

Socio-economic rehabilitation is aimed at revamping the social and economic fabric to the pre-disaster or a better situation. It also addresses issues like that of livelihood restoration and generation. This is done by providing required training, skill, tools and equipment to restart the previous or new livelihood options.

Care should also be taken to address the needs of various socially and economically vulnerable groups like that of women, adolescent girls, old age persons, differently able persons, children, destitute, below poverty line population, scheduled castes, scheduled tribes, particularly vulnerable tribal groups, etc.

➤ **Psychological Rehabilitation**

Disasters often lead to long time stress and trauma due to loss of near and dear ones, injuries, loss of limbs, loss of housing and related property, trauma generated by facing the disaster and fearful sites, fear of repetition of the disaster, etc. If not addressed appropriately, it may lead to lifelong psychological fear and disorders, thus it is necessary to provide psycho-social first and psychological care to the affected population.

➤ **Environmental Rehabilitation**

Environmental impacts of natural disasters can result in serious risk to life and livelihoods if not addressed. Environmental emergencies like uncontrolled, unplanned or accidental release of a substance into the environment not only impact human life in many ways but also damage environment to great extent which may be impossible or may take years to restore to original.

Without proper consideration of the environment, pre-existing vulnerabilities may be re-created or exacerbated. Thus GoC along with other concerned department should ensure measures to decontaminate the affected elements like air, river, water bodies, forests, etc.

9.4 Information, Education and Communication

Communication activities are necessary to convey to the larger community the scope and nature of the proposed reconstruction and rehabilitation effort so as to increase the stakeholder awareness and buy-in for the ongoing activities. Hence, CSDMA and relevant Government departments, district administration and local authorities shall undertake:

- Ongoing media management/ Public Relations: To ensure accurate communication of the reconstruction and rehabilitation measures being taken to various stakeholders;
- Community management: This includes communicating to the affected communities with a view to appraising them of efforts being made for their relocation/ rehabilitation/ reconstruction;
- Feedback mechanisms: Using the communication network to get feedback on reconstruction and rehabilitation measures.

9.5 Fund Allocation and Audit

After spending the money in disaster relief and reimbursement received from central government, state government, district administration, donors, industrial establishments and people's co-operation, its audit will be proposed, so that the money received can not be misused.

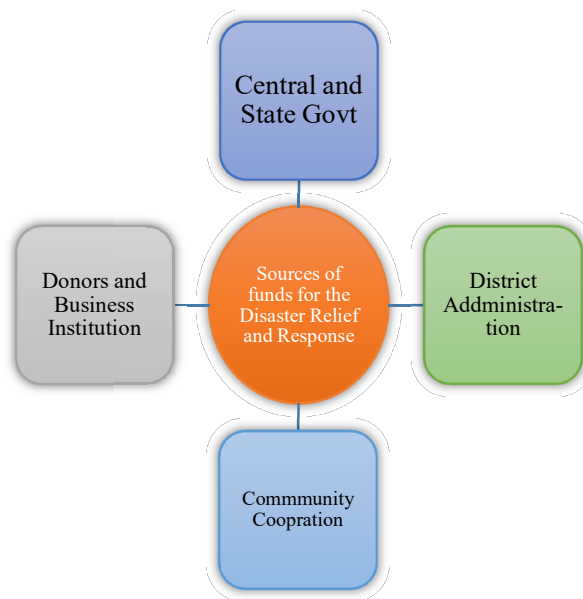


Figure 9.1: Sources of funds for the Disaster Relief and Response

Chapter 10

Financial resources

10.1 Availability of financial resources from Centre and State

Policy and Funding procedures are included in plan to assist disaster victims. The Finance commission appointed by the Government of India reviews it in every 5 years. On the recommendation of finance commission, a state-owned Calamity Relief Fund (CRF) has been set up in each state, the structure of the calamity fund is determined by the finance commission, 75 percent contribution is contributed by the central government and 25 percent is contributed by the state government. Relief assistance is provided to victims of natural disaster from CRF. If disaster occurred on a large scale for which additional funds are required, then fund is given in the National Calamity Contingency Fund (NCCF) which is established by the Central Government. This is approved by a high level committee. Institutional arrangements for funding for relief and response related programs in the country have been made, which are very strong and effective, though there is a need to reconsider the list of disaster and demand and this work should be done according to the geographical location of the state.

According to the 13th Finance Commission recommendation's and National Disaster Management Act (2005), the name of Calamity Relief Fund has been named State Disaster Resource Fund (SDRF) and National Disaster Resource Fund (NDRF) in 2010-11, and the State Disaster Mitigation Fund (SDMF)) has also been arranged. The main agency, which assesses the loss, is the district administration and in this work, employees of various departments such as Revenue, Home, Medical, Animal husbandry, Forest, Water supply (PHE), Public works (PWD), Health, Women and child welfare etc. are also involved.

10.1.1 Fund for Capacity Building

The Central Government has made a provision of giving 4 crore (financial year 2010-11 to 2014-15) for 5 years (up to 5 years) for capacity building of the administrative system in

disaster management. This fund will be spent through programs, radio, printing, electronic media on Public awareness training, IEC material production and dissemination.

10.2 Funding by State

In addition to the above provisions, the state has also set up a fund called Chhattisgarh Relief Fund, for which initially there is a provision of Rs. 6 Crores and in the upcoming years 25 lakh rupees will be added annually in this fund. This fund will be used for rescue and relief of the victims by accidents.

As Stated in the section (48) of the DM Act 2005, the State Government shall establish for the purposes of the Act the following funds:

10.2.1 State Disaster relief fund

To recommend the 13th Finance Commission and to follow the Disaster Management Act State Disaster Relief Fund has been created in the State. The assistance amount under the Disaster Relief Fund is given by the central government since 21.12.2010 for providing assistance during the natural calamities notified under the recommendations of the commission. Wherein 75% is of centre and 25% is of state, the centre has issued detailed guidelines for the use of Disaster Relief Fund. This fund will be utilized as per the prescribed criteria during the calamities for immediate help etc.

10.2.2 State Disaster Mitigation Fund

This fund will be constituted and made available to the SEC for meeting the expenses on mitigation activities.

10.2.3 District Disaster Mitigation Fund

This fund will be constituted and made available to the District Disaster Management Authority for meeting the expenses on mitigation activities.

10.3 National Calamity Contingency fund

As per the provisions of Disaster Management Act, 2005 and recommendation of the 13th Finance Commission, the National Disaster Response Fund (NDRF) has been constituted at the Government of India level replacing the National Calamity Contingency Fund (NCCF). The NDRF is administered by the National Executive Committee.

If the disaster goes beyond the capacity of state government/ disaster relief fund then the centre funds the same via National Disaster Contingency Fund. For this, a detailed advertisement is sent by the state to the central government which is further assessed by a central team. On the basis of the report of the central team, the amount of National Calamity Contingency Fund is approved by the central government.

10.4 Other provisions of the finance system

For prevention, preparedness, rehabilitation and reconstruction under disaster management in the state, the finance will be arranged department wise under the planned scheme. For the preparedness, the state government will make provision for disaster management in the departmental budget every year.

Apart from this, financial resources such as risk insurance under disaster management will also be encouraged and schemes such as Crop Insurance Scheme, Self Help Group will be developed. In the industrial and commercial units, the responsibility of disaster prevention and disaster damages will be the responsibility of the concerned unit.

10.5 Other Financial Resources at State Level

Other financial resources at state level are given below from where financial assistance can be taken during of disaster –

Professional Resources	The prestigious Commercial Institutes of the State, showrooms, hotels etc.
Industrial Institute	Rice mill etc,
NGO	Various Social Service Institutes and Donors
Public Cooperation	Various Social Workers
Government Employee	Donation of one day salary

Table-10.1: Other Financial Resources at State Level

Chapter 11

Review and Updation of Plan

The State Disaster Management Plan is a “living document” and the SEC will update it every year taking into consideration:

- The resource requirements.
- Updates on human resources.
- Technology to be used.
- Coordination issues.
- Mock Drills and rehearsals.
- Recommendations from all departments in their Annual DM Report.
- Lessons learnt from any disaster event in other states and countries.
- Directions from Ministry of Home Affairs, National Disaster Management Authority, Government of India, etc.

While updating the plan the following aspects need to be considered every year:

1. Critical analysis of the outcome of exercises and mock drills as part of plan testing.
2. Incorporation of lessons learnt in the updated plan as an outcome of mock exercises through identification of gaps and measures to fill them.

SDMA and all other concerned departments should encourage formal and informal interaction with various stakeholders at different levels to learn and document their experiences, so that such experiences can contribute constructively towards updation of State Disaster Management Plan for further improving the capability to deal with future disasters.

Copies of the received updated plans from the districts will be given to the State-level Technical committees, for review and suggestions. The updated plan will be placed before SDMA for approval. Copies of the amendments made and approved by the SDMA will be circulated to all the concerned government departments and agencies. All the disaster

management nodal/ liaison officials in every department/ agency will ensure that all plan-holders are notified of changes as soon as possible.

