



GOVERNMENT OF CHHATTISGARH

# **District Disaster Management Plan-(DDMP)**

## **RAIPUR**

**DISTRICT DISASTER MANAGEMENT AUTHORITY**  
**RAIPUR**

**REVENUE & DISASTER MANAGEMENT DEPARTMENT**  
**MAHANADI BHAWAN, MANTRALAYA, ATAL NAGAR, RAIPUR, CHHATTISGARH**

जयसिंह अग्रवाल  
मंत्री



छत्तीसगढ़ शासन,  
राजस्व एवं आपदा प्रबंधन विभाग  
मंत्रालय महानदी भवन  
अटल नगर रायपर



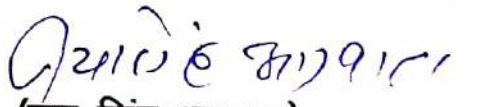
## संदेश (प्रारूप)

जिले की आपदा प्रबंधन योजना प्रदेश सरकार की एक नवीन पहल है। इस योजना का लक्ष्य जिले में घटने 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 बेहतर प्रबंधन तथा नीति बनाना अहम् कार्य है।

चूँकि आपदा प्रबंधन योजना एक स्थायी प्रक्रिया है तथा इस परिपेक्ष्य में राजस्व एवं आपदा प्रबंधन विभाग एवं सहयोगी द्वारा जिला आपदा प्रबंधन योजना तैयार किया जाना 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 जिले के नागरिकों की आपदाओं से बचाव तथा जिले की क्षमता में वृद्धि करने में सफल होगी।

  
(जय सिंह अग्रवाल)

सुनील कुमार कुजूर  
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दिनांक




## संदेश

प्रदेश के सभी 27 जिले परम्परागत रूप से प्राकृतिक एवं मानव जनित अपदाओं तथा विभिन्न प्रकार की संवेदशीलताओं और उनकी विशालता से प्रभावित रहें हैं। इन बढ़ती आपदाओं से जिलों के नागरिकों पर प्रतिकूल प्रभाव पड़े है, जिसके कारण भौतिक, सामाजिक एवं आर्थिक गतिविधियों पर भी प्रतिकूल प्रभाव पड़ता है।

आपदाओं के नुकसान को रोकने या कम करने के लिए आवश्यक है कि वैज्ञानिक, व्यावहारिक और लचीली योजनायें बनाई जाये ताकि स्थिति के अनुरूप उनमें परिवर्तन किया जा सके और समय पर सभी सुरक्षात्मक उपाय अपनाये जा सके। ऐसी परिस्थिति में छत्तीसगढ़ सरकार के राजस्व एवं आपदा प्रबंधन विभाग द्वारा जिलों की आपदा प्रबंधन योजना तैयार की गयी है।

राजस्व एवं आपदा प्रबंधन विभाग तथा उनके सहयोगी विभाग द्वारा जिले की आपदा प्रबंधन योजना तैयार करने के सफल प्रयास की प्रशंसा करता हूँ तथा कामना करता हूँ कि सभी विभागों के आपसी सहयोग से जिले में बेहतर आपदा प्रबंधन एवं आपदा जोखिम न्यूनीकरण कर जिले को एक आपदा प्रतिरोधी जिला व छत्तीसगढ़ को एक आपदा प्रतिरोधी राज्य बनाने में सफल होंगे।

  
(सुनील कुमार कुजूर)  
मुख्य सचिव



## संदेश

आपदाओं के कारण व्यापक रूप से जन-जीवन एवं विकास कार्य प्रभावित होता है। अतः आपदा पूर्व प्रयासों जैसे तैयारी, क्षमता-वर्धन, उचित ट्रेनिंग और पुनर्निर्माण से जान और माल के नुकसान को कम किया जा सकता है।

सम्पूर्ण जिले के नागरिकों के साथ ही अत्यधिक संवेदनशील वर्ग जैसे बच्चे, महिलायें, बुजुर्ग, दिव्यांग एवं मजदूर वर्ग पर आपदा के प्रभाव के न्यूनीकरण हेतु जन भागीदारी, जागरूकता, प्रतिक्रिया एवं समन्वय बढ़ाने के लिए आपदा प्रबंधन योजना तैयार की गयी है जो कि प्रशंसनीय है।

आपदा प्रबंधन योजना के माध्यम से प्रदेश एवं जिले में एक ऐसा तंत्र विकसित होगा जो भविष्य में घटित होने वाली किसी भी घटना/आपदा से निपटने में सहायक होगा।

सचिव

राजस्व एवं आपदा प्रबंधन विभाग  
छत्तीसगढ़ शासन



## **Acknowledgment**

Under the leadership of Chief Minister of Revenue and Disaster Management, Chhattisgarh, expresses gratitude towards all the participants who contributed to the preparation of District 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.

Mrs. Rita yadav, Deputy Secretary / Deputy Commissioner, Department of Revenue and Disaster Management, has given special cooperation for the preparation of Disaster Management Plan.

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District Nodal Officer of Revenue and Disaster Management Department and other officers of related departments have made full cooperation for the document preparation required for the plan.

## Abbreviation:-

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

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

<b>Q&amp;A</b>	Quality and Accountability	गुणवत्ता एवं जवाबदारी
<b>QRT</b>	Quick Response Team	त्वरित प्रत्युत्तर टीम
<b>SDMA</b>	State Disaster Management Plan	राज्य आपदा प्रबंधन योजना
<b>SDRF</b>	State Disaster Response Force/ Relief Fund	राज्य आपदा प्रत्युत्तर बल/ राहत कोष
<b>SHG</b>	Self Help Group	लघु एवं मध्यम उद्योग/ उपक्रम
<b>SME</b>	Small and Medium Enterprise	लघु एवं मध्यम उद्योग/ उपक्रम
<b>SOP</b>	Standard Operating Procedure	मानक परिचालन पद्धति
<b>SP</b>	Superintendent of Police	पुलिस अधीक्षक
<b>WRD</b>	Water Resources Department	जल संसाधन विभाग
<b>WHO</b>	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, so the dangerous distress is actually a disaster.

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

It is divided into 4 sections.

In **Section 01**, the background of the district, the sensitivity of the disaster in the district, the capacity and the risk assessment, with the planning requirements, objectives of the plan, the brief introduction of the district, identification of potential disasters of the district, risk analysis and disasters in the district like drought, floods, accidents, epidemics etc. have been shown. Under the institutional arrangements, the structure of disaster management, from the district level to the gram panchayat level, the formation process of the Disaster Management Committee and information of the District Emergency Operations Center is shown.

**Section 02** is divided into category of prevention, preparedness, training, structural and non-structural capacity building during the disaster In which general preparedness and mitigation plan, establishment of control room, renewal of plans, 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 District Disaster Management Authority has been included. Based on the potential disaster in the district, structural and non-structural prevention measures, disaster risk reduction plan, institutional capacity building, the role and responsibilities of each department are shown.

**Section 3** has included the standard operating procedure for the implementation of the Disaster Management Plan and various departments at the time of disaster. In this plan, pre disaster relief and rehabilitation, relief and rehabilitation during disaster and with the post disaster relief and response, the reconstruction and rehabilitation process has been shown. Financial resources for district disaster management scheme and other financial resources at the district level, inspection, evaluation and evaluation of district disaster management plan and coordination mechanism for organizing and implementing Mock Drill at district level has been mentioned.

In **Section 4**, in accordance with District 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 district 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 district 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 District 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.

# **Volume - 1**

# District Disaster Management Authority

## (Disaster Management Plan)

### List of Contents :

S.No.	Contents	Pg. No.
<b>1</b>	<b>Background</b>	<b>1-24</b>
1.1	District Disaster Management Plan	2
1.2	Need of the Plan	3
1.3	Objectives of the Plan	3-4
1.4	Scope of the Plan	4
1.5	Authority and Reference	4
1.6	Plan Development	5
1.7	Stakeholders and Their Responsibilities	5
1.8	Approval Mechanism of the Plan	5
1.9	District Profile	6-24
<b>2</b>	<b>District Hazard, Vulnerability, Capacity and Risk Assessment</b>	<b>25-49</b>
2.1	Identification of Potential Disasters	26-28
2.1.1	Six main disasters	27-28
2.2	History of Disasters	29-34
2.3	Hazard Profile	35-36
2.4	Risk Analysis	36
2.5	Vulnerability Analysis	36-38
2.6	Disasters in Raipur District	38-49
2.6.1	Drought	38-41
2.6.2	Flood	42-45
2.6.3	Accidents	46-48
2.6.4	Epidemic	48-49
<b>3</b>	<b>Disaster Management Amendment Act, 2005</b>	<b>50-59</b>
3.1	Institutional arrangements	50
3.2	District Disaster Management Authority	50-51
3.3	District Disaster Management Advisory Committee	51-52
3.4	Local self government authority	52
3.5	Urban area disaster management committee	52-53
3.6	Disaster Management Committee at Tehsil level	53
3.7	Village level disaster management committee	53-54
3.8	District Emergency Operations Center	54-55
3.9	Event (Incident) Response System (IRS)	55-57
3.10	District Control Center	57-59

## List of Tables :

<b>S.No.</b>	<b>Table</b>	<b>Pg. No.</b>
1	Table 1: District Profile	7
2	Table 2: Geography	8
3	Table 3:Reservoir	8
4	Table 4: Demography	11
5	Table 5: Average rainfall during the year 2009 to 2017	11
6	Table 6: Weather Information	12
7	Table 7: Moisture Information	12
8	Table 8: Humidity Information	12
9	Table 9: Cloudiness Information	12
10	Table 10: Wind Information	12
11	Table 11: Yearwise District Temperature	13
12	Table 12: Water Resources	13
13	Table 13: Economic Profile	13
14	Table 14: Main Crops	14
15	Table 15: Animal Husbandry	15
16	Table 16: Cultural Profile	15
17	Table 17: School Profile	16
18	Table 18: Other Infrastructure and Services	17
19	Table 19: Office Details	17
20	Table 20: Communication	17
21	Table 21: Public Health Center	18
22	Table 22: Industry	18
23	Table 23: Industrial details	19
24	Table 24: Industrial Accident	19
25	Table 25: Bank	19
26	Table 26: Public Distribution Shop in the District	20
27	Table 27: Road Network	20
28	Table 28: Historical and Cultural Places	23
29	Table 29: Mine and Minerals in the District	24
30	Table 30: Seasonality Calendar	28
31	Table 31: Assessment of the Disasters that Occurred in the last 10 years	34
32	Table 34: Monthly information of human life lost in the last 10 years	34
33	Table 33: Hazard Profile	35
34	Table 34: Risk Analysis	36
35	Table 35: Vulnerability Analysis	38
36	Table 36: Drought Affected Area in 2017-18 and its Loss	40
37	Table 37: List of Affected Areas by Drought	40
38	Table 38: Past Occurrence Of Drought Declared In The District	41

39	Table 39: Tehsil-wise villages Vulnerable to either flooding or water logging on Kharun and Mahanadi River	43
40	Table 40: Tehsil-wise villages Vulnerable to either flooding or water logging on Kolhan Nala	44
41	Table 41: Wards affected by Heavy Rainfall in Raipur Municipal Corporation in 2015-16 to 2017-18	45
42	Table 42: Identification of safe places in some villages during flood situation	45
43	Table 43: Road Accidents in the District	46
44	Table 44: Black Spot Areas of the Raipur District	48
45	Table 45: Epidemic in the district from 2008 to 2017	48
46	Table 46: Tehsil level Epidemic prone areas and vulnerable village	49
47	Table 47: Structure of DDMA	51
48	Table 48: Structure of Disaster Management Advisory Committee	52
49	Table 49: Urban area disaster management committee	53
50	Table 50: Structure of Disaster Management Committee at Tehsil level	53
51	Table 51: Village level disaster management committee	54
52	Table 52: Disaster Control Center	58
53	Table 53: Calamity calendar	60-72

### List of Figures :

S.No.	Figure	Pg. No.
1	Fig. 1: Disaster Management Cycle	2
2	Fig. 2: Tehsil Map	9
3	Fig. 3: Road map	21

### List of Graphs :

S.No.	Graph	Pg. No.
1	Graph 1: No. of Drought Affected Villages	41
2	Graph 2: Tehsil-wise villages Vulnerable to either flooding or water logging on Kharun and Mahanadi River	43
3	Graph 3: Tehsil-wise villages Vulnerable to either flooding or water logging on Kolhan Nala	44
4	Graph 4: No. of Road Accidents in the district	47
5	Graph 5: No. of vulnerable village to epidemics	49



## List of Flowcharts :

<b>S.No.</b>	<b>Flowchart</b>	<b>Pg. No.</b>
1	Flowchart 1: District Disaster Management Authority Flow Chart	51
2	Flowchart 2: Organizational Structure for Disaster Management	54
3	Flowchart 3: Incident Response System	55

# Introduction

## 1. Background

Disaster refers to a serious disruption to the functioning of a society, causing widespread human, material or environmental loss, which exceeds the ability of the affected society to cope using its own resources.

An effective and holistic District Disaster Management Plan (DDMP) with robust communication, efficient database, documented and rehearsed is necessary to be activated in the shortest possible time with user friendly procedures. This is to ensure active participation of government as well as community at all levels by making optimum utilization of the available resources to minimize loss of life and property. The vision of DDMP is to enable disaster resilient development in Raipur district and to ensure the continuity of services essential for life during disaster and non-disaster situations. The DDMP will guide the entire machinery engaged for relief operation and builds confidence among the community and stakeholders to face the disaster.

### **Categorization of Disasters:**

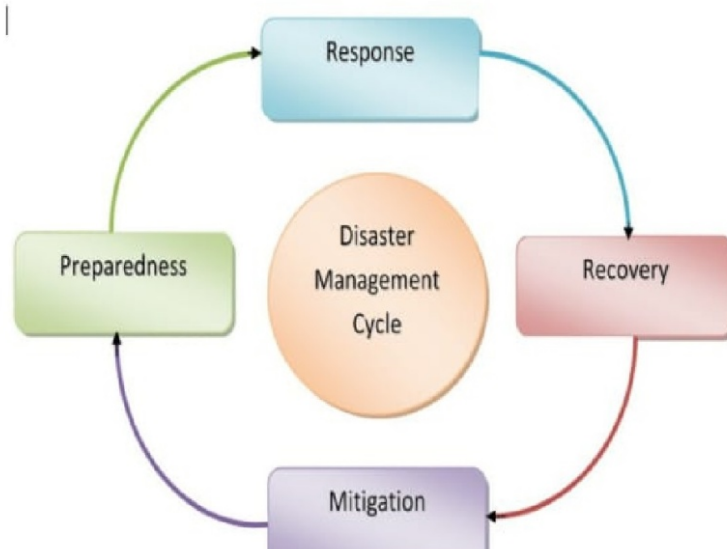
According to the origin, natural disasters can be seen as different types:

- **Climate Related:** floods, droughts, cyclones, cloud bursts, hot and cold winds, storms and lightning fall.
- **Geological:** earthquake, landslide, rupture of the dam, fire in mine.
- **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, collapse of main buildings.
- **Biological disasters -** epidemic, grasshopper invasion, animal pandemic, etc.

Under the same human-caused disasters, industrial accidents, environmental degradation, etc. can be included. With this, Chhattisgarh is also affected by Naxalite activities.

## **1.1 District Disaster Management Plan**

As per Section 31 of the Disaster Management Act 2005 (DM Act), there shall be a Disaster Management Plan (DMP) for every district of the State. The District Disaster Management Authority (DDMA) in each district is the nodal agency responsible for the preparation, functioning, review and updating of the DDMP in consultation with the local authorities in accordance with the National and State Plans. Further, it is mandatory on the part of DDMA to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedient for prevention and mitigation of disasters at the district level. For efficient execution of the DDMP, the plan has been organized in four stages as shown in Figure 1.



**Fig.1: Disaster Management Cycle**

- i. Preparedness :** To combat the disaster, implement the training and disaster management plan to keep the people safe.
- ii. Mitigation :** Mitigation refers to the structural and non-structural measures which reduces the effect of disasters.
- iii. Response :** Conduct relief operations during the disaster.
- iv. Recovery :** Improve the state/ condition of the affected life due to the disaster.

## **1.2 Need of the Plan**

According to the hazard profile of India, the country is prone to many multi-hazards such as earthquakes of moderate to high intensity floods, cyclones, tsunamis and landslides. The district of Balod in particular is vulnerable to drought and flood, other disasters like man animal conflict, epidemics, road accidents, lightning and storm have been reported. Keeping in view of these very possible hazards in the district that may cause major setback to lives, livelihood and property (both movable and immovable), it was deemed important to develop a plan that improves district's response to disasters while improving its ability to mitigate the disaster risks and increasing community's resilience by implementing the preparedness plan. The vision of DDMP is to enable disaster resilient development in the district and to ensure the continuity of services essential for life during disaster and non-disaster situations.

## **1.3 Objectives of the Plan**

- i. Identify the areas in the district vulnerable to natural and manmade hazards.
- ii. Develop a standardized mechanism to respond to the disaster situation to manage the disaster efficiently.
- iii. To prepare the framework for districts in accordance with the details, records and past history of disasters.
- iv. Adopt proactive measures by all the Government departments at the district level to prevent and mitigate the effects of disasters.
- v. Build awareness among different stakeholders by involving them in the process of DDMP; both during the pre-disaster and post-disaster phases.
- vi. Bridging DDMP as an effective managerial tool within the overall policy framework of Government of Chhattisgarh

Due to lack of proper planning, coordination during disasters leads to dangerous impact. Therefore, the pre-disaster management plan is necessary , in which the work point is as follows:

- a) Preparation of pre-planning in the correct order of response actions.
- b) To determine the responsibility of the link departments.

- c) Standardization of the manner of working of different departments employed.
- d) Preparation of list of available facilities and resources.
- e) Creating effective management of resources.
- f) To co-ordinate all assistance works.
- g) Coordination for assistance from state level control room.

## **1.4 Scope of the Plan**

The emergency planning process is very important for any district, considering the impact that a disaster would have on government, industries and agriculture. The scope of this plan shall be comprehensive and holistic in nature to address the following:

- The geographical areas which are vulnerable to hazards in the district.
- The roles and responsibilities of various government departments, agencies, private sector, NGOs and citizens.
- Suggest measures pertaining to different phases of disaster management such as Prevention, Preparedness, Mitigation, Response (including evacuation and temporary shelter) and Recovery. These contingencies can ultimately help save lives and reduce property loss.

## **1.5 Authority and Reference**

The requirement for district and subsidiary plans is set under the authority of the DM Act of 2005. The Act authorizes the District Collector to secure co-operation and assistance from other parties during efforts to avoid or reduce the impact of disasters. The Collector and Government authorities with support from SDMA, the Commissioner of Relief (CoR), and other public, private parties are responsible for managing hazards and disasters in the district. The roles, responsibilities and obligation of the Collector and other parties are set out in detail in the Act and are considered as a part of this plan.



## **1.6 Plan Development**

Various steps involved in planning include:

- i. **Data collection and planning** – Data collection from all line departments, data analysis (identifying and understanding hazards, vulnerabilities and risk in the district) and formation of a planning team.
- ii. **Development** – Identification of resources and information needs of all line departments, development and analysis of course of action plan.
- iii. **Preparation** – Preparing, reviewing, approval and dissemination of the plan.
- iv. **Implementation and Maintenance** – Implementation, evaluation, review and updation of the plan.

## **1.7 Stakeholders and Their Responsibilities**

**At State HQ level** – The SDMA, CoR and Revenue department are the major institutions in the state that deal with all the phases of disaster management. All the major line departments of the state government and the emergency support function (ESF) agencies converge into SEOC during disasters.

**At District level** – DDMA, with the District Collector designated as Response Officer (RO), and other line departments at district HQ are responsible to deal with all phases of disaster management within the district. It will be the responsibility of DDMA members to look after the district and sub district level institutionalization activities pertaining to the disaster management, including the periodic review of DDMP and its allied functions. Other technical institutions, community at large, local self-governments, NGOs are also stakeholders of the DDMP.

## **1.8 Approval Mechanism of the Plan**

Formation of District Disaster Management Authority for all the districts under notification number F8 (4) DM & R / DM / 023 dated 06.09.2007. According to DDMA, it is also responsible for ensuring compliance with all the departments on NDMA / SDMA / SEC guidelines related to prevention, mitigation at the district level.

## **1.9 District Profile**

Raipur district is important in historical and archaeological point of view. This district was once part of Southern Kosal and considered to be under Mourya Kingdom. Raipur city had been the capital of the Haihaya Kings, controlling the traditional forts of the Chhattisgarh for a long time. The town of Raipur has been in existence since the 9th century, the old site and ruins of the fort can be seen in the southern part of the city. Satawahana Kings ruled this part till the 2nd-3rd century AD.

In the 4th Century AD the king Samudragupta had conquered this region and established his domination till Fifth-Sixth Century AD when this part had come under the rule of Sarabhuri Kings. For some period in Fifth-Sixth Century A.D., Nala kings dominated this area. Later on Somavanshi kings had taken the control over this region and ruled with Sirpur (Sripur-The city of Wealth) as their capital city. Mahashivgupt Balarjun was the mightiest emperor of this Dynasty. His mother, the widow Queen of Harshgupta of the Somavanshi, Rani Vasata built the famous brick temple of Lakshman. The Kalchuri Kings of Tumman ruled this part for a long time making Ratanpur as capital. The old inscriptions of Ratanpur, Rajim and Khallari refer to the reign of Kalchuri kings. It is believed that the King Ramachandra of this dynasty established the city of Raipur and subsequently made it the capital of his kingdom.

Another story about Raipur is that King Ramachandra's son Brahmdeo Rai had established Raipur. His capital was Khalwatika (Now Khallari). The newly constructed city was named after Brahmdeo Rai as 'Raipur'. It was during his time in 1402 A.D. that Hajiraj Naik the temple of Hatkeshwar Mahadev was constructed in the banks of river Kharun. The decline of this dynasty's rule came with the death of king Amarsingh Deo. This region had become the domain of Bhosle kings after the Amarsinghdeo's death. With the death of Raghuji the III, the territory was assumed by the British Government from Bhonsla's of Nagpur and Chhattisgarh was declared a separate Commissionery with its Headquarters at Raipur in 1854. After independence Raipur district was included in Central Provinces And Berar.

<b>District Raipur</b>								
<b>Tehsil</b>	<b>Geographical Area (in Hectare)</b>	<b>No. of City</b>	<b>No. of Village</b>	<b>No. of Gram Panchayat</b>	<b>No. of Nagar Nigam</b>	<b>No. of Nagar Palika</b>	<b>No. of Nagar panchayat</b>	<b>No. of Janpad Panchayat</b>
Raipur	289198	05 (Raipur, Arang, Tilda, Abhanpur. Nayapara)	488	408	02	03	04	04
Arang								
Tilda								
Abhanpur								

**Table 1: District Profile**

There are 04 tehsils namely Raipur, Arang, Tilda, Abhanpur, 02 Nagar Nigam namely Raipur, Birgaon, 03 Nagar Palika namely Tilda- Nevra, Govranawapara, Arang, 04 Nagar Panchayat namely Kharora, Kurra, Mana, Abhanpur, 04 janpad panchayats namely Dharsiwa, Tilda, Arang, Abhanpur. There are 32 Police Stations, 07 Chaukies and 30 Revenue Inspector Circle, 263 Patwari Circle and 05 Raipur, Arang, Abhanpur, Nevra, Govranawapara Agriculture Produce Market in the district.

## **Geography and Topography**

Raipur being Geographically Located almost at the centre of the Chhattisgarh state, was made its capital. District Raipur Extends from latitude 21° 23" to longitude 81° 65".

**Area** – District Raipur was divided into three parts in the year 1998 resulting in the formation of Mahasamund and Dhamtari districts. Similarly, in the year 2011, Raipur was again divided forming two new districts namely Gariyaband and Balodabajar-Bhatapara. Raipur district includes Dharsiwa, Arang, Abhanpur and Tilda plains. Raipur district is situated at 350 meters above sea level. Total geographical area is 3257.331 ha., tree covered area is 1279.121 ha. and agricultural land is 166635 ha. and non- agricultural land is 51296 ha.

**Neighbouring Districts** – District Raipur is surrounded by six neighboring districts viz Durg, Bemetra, Balodabajar-Bhatapara, Mahasamund, Raipur and Dhamtari.

*District Disaster Management Plan, Raipur (C.G.)*

Latitude and Longitude	21.1797° N, 81.7787° E
Major rivers	Kharun, Mahanadi and Kolhan river
Neighboring District	North- Balodabajar South- Dhamtari East- Mahasamund West- Durg South-East - Gariyaband North-West- Bemetra

**Table 2: Geography**

Mahanadi is the principal river of this district. Its tributaries are Sendur, Paury, Sondur, Joan, Kharun and Shivnath. The fertility of lands of Raipur district can be attributed to the presence of these rivers.

<b>Reservoirs</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>Total</b>	150	02	00
<b>Drinking water (tube well and number of wells)</b>	15827, Handpump- 8083		
<b>Canal</b>	17 (120 km)		

**Table 3:Reservoir**

The climate of this district is characterised with hot and dry summer and good rainfall during rainy season. Winter lasts from December to February, which is followed by summer which starts from March and lasts till the second week of June. Season of southwest monsoon begins from middle of June and lasts till the end of September.

The maximum temperature during summer goes up to 44.3°C and minimum temperature in winter is 12.5°C. The average rainfall of the district is 1166.30 mm. The wind flows at medium speed but in summer and during south-west monsoon, the speed intensifies. After the monsoon and during winter winds blow from north and east. In March winds blow from different directions and from April, western and south-western winds start blowing and continue from May to September.

MAP OF RAIPUR DISTRICT

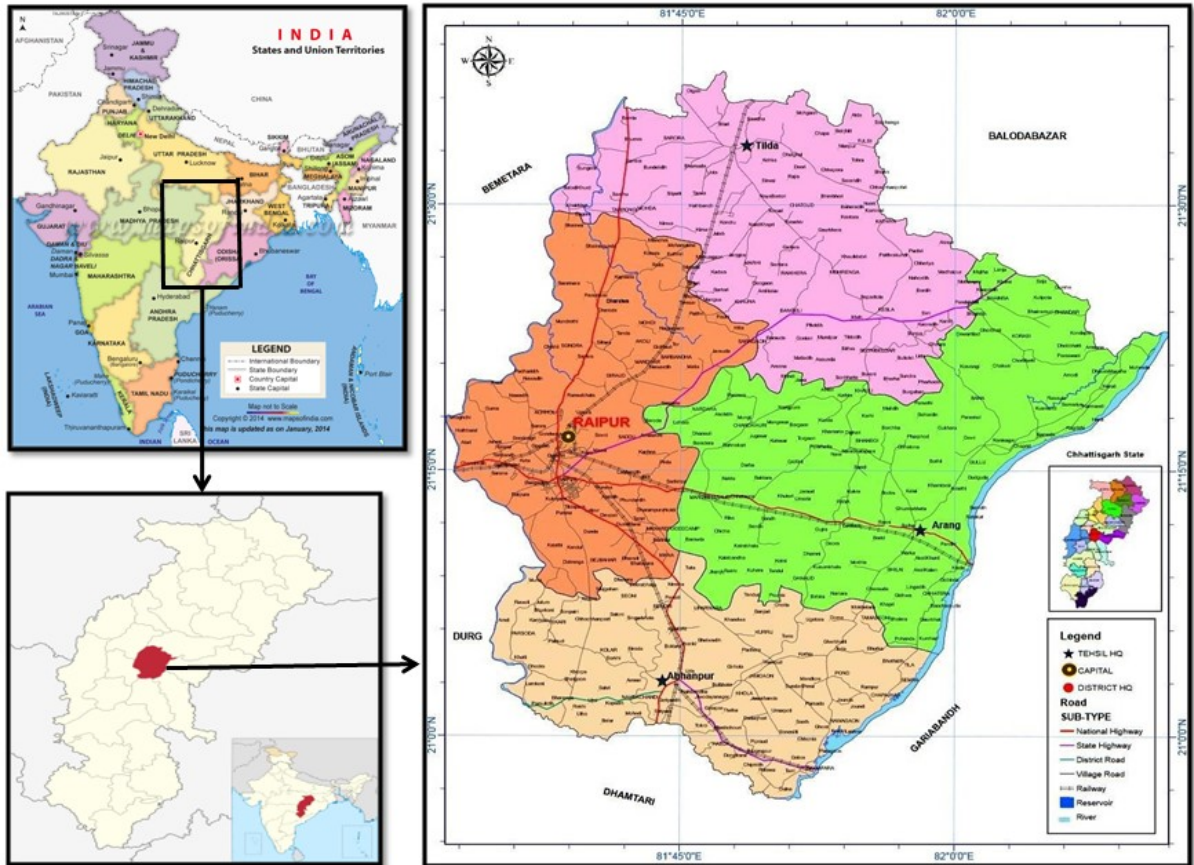


Fig. 2: Tehsil Map

## **Physical Aspect**

### **Area**

According to Census 2011, the total population of the district is 2160876 (Rural- 884224 Urban- 1276652) and population density is 698 per sq. km.

### **Soil**

Commonly found soil in the district are Matasi - 53%, Black soil - 41%, Bhata - 04%, Yellow soil - 05% and other - 0.5%.

## **Demography**

The total population of the district is 21.61 lakh. Different tribal communities live in this district. Languages spoken are Hindi and Chhattisgarh. Literacy rate is 80.52%. Decadal Growth rate of the district is 29.66%.

<b>Demography</b>		
1	Population	2160876
	Scheduled Caste	358674
	Scheduled Tribes	93010
	Rural	884224
	Male	444797
	Female	439427
	Urban	1276652
	Male	656064
	Female	620588
	Child(0-6 yrs)	304044
	Male	155199
	Female	148845
2	Population Density	698 per km <sup>2</sup>
3	Decadal Growth Rate	29.66%
	Rural	32.06%
	Urban	—

**District Disaster Management Plan, Raipur (C.G.)**

4	Sex Ratio (No. females per 1,000 males)	963
	Rural	988
	Urban	946
	Child (0-6 yrs)	959
4	Litracy Rate (as per Census 2011)	80.52%
	Male Litracy Rate	831882
	Female Litracy Rate	663263
	Rural	554039
	Urban	941106
5	Crude Birth Rate (Per 1000 population)	21.2 / 1000
6	Crude Death Rate (Per 1000 population)	6.1 / 1000
7	Infant Mortality Rate (Per 1000 live birth)	37 / 1000
8	Maternal Mortality Rate (Per 100000 live birth)	112 / 100000
9	Natural Growth Rate (Per 1000 population)	3.47% per year

**Table 4: Demography**

**Rainfall**

Annual average rainfall of Raipur district is 1166.30 mm.

**Average rainfall during the year 2009 to 2017**

S.No.	Tehsil	Normal Rainfall	Year 2009-10	Year 2010-11	Year 2011-12	Year 2012-13	Year 2013-14	Year 2014-15	Year 2015-16	Year 2016-17
1	Raipur	1323.30	1357.50	1246.60	1469.80	1408.60	1599.60	1094.00	1263.80	1422.20
2	Arang	1220.50	1206.00	1144.00	1336.60	1372.10	1959.00	1217.00	805.00	877.40
3	Abhanpur	1032.10	1028.00	995.70	1228.00	1224.40	1539.60	1179.20	627.00	937.00
4	Tilda	1089.30	869.90	1101.70	1235.80	963.60	1702.30	1293.30	1162.00	910.40
Average rainfall (on the basis of 10 years average rainfall)		1166.30	1115.40	1122.00	1327.60	1242.20	1700.00	1195.90	964.50	1036.8

**Table 5: Average rainfall during the year 2009 to 2017**

*District Disaster Management Plan, Raipur (C.G.)*

<b>Weather</b>			
	<b>Temperature</b>		
	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>Winter</b>	18.02	NA	30.7
<b>Summer</b>	26.01	NA	40
<b>Monsoon</b>	25.9	NA	33.2

**Table 6: Weather Information**

<b>Moisture</b>			
	<b>Temperature</b>		
	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>Winter</b>	NA	NA	NA
<b>Summer</b>	NA	NA	NA
<b>Monsoon</b>	NA	NA	NA

**Table 7: Moisture Information**

<b>Humidity</b>			
	<b>Temperature</b>		
	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>Winter</b>	9	NA	98
<b>Summer</b>	4	NA	94
<b>Monsoon</b>	2600	NA	100

**Table 8: Humidity Information**

<b>Cloudiness</b>			
	<b>Temperature</b>		
	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>Winter</b>	NA	2	3
<b>Summer</b>	NA	3	4
<b>Monsoon</b>	1	6	8

**Table 9: Cloudiness Information**

<b>Wind</b>			
	<b>Temperature</b>		
	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>Winter</b>	0	2	4
<b>Summer</b>	0	8	20
<b>Monsoon</b>	1	7	20

**Table 10: Wind Information**



<b>Yearwise District Temperature</b>													
<b>Year</b>	<b>-</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
2008	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2015	Max.	27.4	32.2	34.5	34.8	37.9	36.2	32	31.8	32.6	34.1	32.4	29.8
	Min.	18.9	17.7	19	21.8	24	26.4	25.6	25.3	25.3	23.2	19.4	17
2016	Max.	37.3	33.6	36.6	41.5	41.4	38.4	31.1	30.4	31.4	32.2	31.	29
	Min.	15.1	20.7	22.9	27.6	28.2	28.1	25.1	25.2	25.5	22.2	16.9	14.5
2017	Max.	29	33	35.8	41.6	42.6	37.4	31.1	31.7	32.7	32.8	32.2	29.3
	Min.	15.2	18	22.2	26.8	29.3	27.2	25.3	25.5	25.6	24.1	18.1	14.8

**Table 11: Yearwise District Temperature**

<b>Water Resources</b>	<b>Area (ha.)</b>
Irrigation Capacity	139570 ha.
Government	118843 ha.
Private	20727 ha.

**Table 12: Water Resources**

## **Economic Profile**

<b>Economic Profile</b>		
<b>Main Occupation</b>	<b>Numbers</b>	
Agriculture	Small and marginal farmer	Other large farmers
	44055	19534
Industries workers	-	
Business	Medium- 54, Large- 47	
Other	Cottage- 2134	

**Table 13: Economic Profile**

## Main Crops

<b>Agriculture</b>	
<b>Food Grains</b>	<b>Production (in thousand Ton)</b>
Rice	376459
Wheat	3754
Maize	244
Barley	—
Millet	—
Kodo Kutki	—
Other	—
<b>Pulse Productivity</b>	
Arhar	255
Urad dal	58
Chana	—
Mung dal	27
Masur Dal	602
Tivara	6090
Other	—
<b>Oil Seeds Productivity</b>	
Soyabean	123
Peanut	5
Linseed	7
Mustard	482
Sunflower	0.04
Other	—
<b>Productivity of main vegetables</b>	
Spices	535
Other	—

**Table 14: Main Crops**

## Animal Husbandry

Total number of Animals	Dairy Cattle	Dry Cattle
Cow	42673	42490
Buffalo	14528	10144
Sheep	6434	
Goat	48029	
Horse	NA	
Donkey	NA	
Pig	5571	
Milk Production	318.164 Ton	
Fish production	24230 Ton	
Poultry Farm	153	
Other	-	

**Table 15: Animal Husbandry**

<b>Cultural Profile</b>	
Local language	Hindi, Chhattisgarhi
Dress	Dhoti, Kurta, Pant, Shirt, Lungi, Saree, Lugra
Food	Rice, Bore basi, Cheela, Mota roti, Thetheri Khurmi
Market (Daily / Weekly / Other)	Urban- Daily, Rural- Weekly
Fairs and festivals (brief description of the main celebration)	Hareli, Teeja-Pola, Magh purnima, Chherchhera
House	
No. of Kaccha house	-
Roofing system	-
No. of Pakka house	-
Roofing system	-

**Table 16: Cultural Profile**

## Infrastructure and Services

### Education

S.No.	School Profile					
	Tehsil	Abhanpur	Arang	Raipur	Tilda	Total
1	Primary Schools	211	295	968	215	<b>1689</b>
2	Middle schools	142	173	709	130	<b>1154</b>
3	High Schools	41	40	275	29	<b>385</b>
4	High Secondary Schools	42	44	252	34	<b>372</b>
<b>Total</b>		<b>436</b>	<b>552</b>	<b>2204</b>	<b>408</b>	<b>3600</b>
5	Rural Schools	353	500	459	338	<b>1650</b>
6	Urban Schools	83	52	1745	70	<b>1950</b>
7	Risk Potential Schools	-	-	-	-	-
<b>Total</b>		<b>436</b>	<b>552</b>	<b>2204</b>	<b>408</b>	<b>3600</b>

**Table 17: School Profile**

### Others

Anganwadi	1886
Institute / College	128
University	Govt- 05, Pvt- 05, Total-10
<b>Other Infrastructure</b>	(In no.)
Dam	Medium- 02, Small- 41
Bridge	01
Garden	—
Open Field	—
High Building	NA
Community Building (capacity, location and number)	—
Number of Offices	—
Godown	—
Cold storage	—
Bus Stand	5
<b>Total Length of Road</b>	2354.1 km



## Health

In Raipur district, mainly 01 district hospital, 01 civil hospital, 36 primary health centers and 08 community health centers and 14 ambulance available.

### Public Health Center

S.No.	Types of Hospital	Numbers	Numbers of Bed/ Capacity
1	Allopathic Hospital	10	490
2	Ayurvedic Hospital	49	0
3	Primary Health Center	36	216
4	Sub Health Center	163	0
5	Community Health Center	08	240 Bed
6	Numbers of Ambulances	14	—
7	Other- Corpse vehicle	06	—

**Table 21: Public Health Center**

## Industry

Industry and Services		
S. No.	Detail	Number
1	Number of Registered Industries	75
2	Total Number of Industries	75
3	Number of Employees	949

**Table 22: Industry**

*District Disaster Management Plan, Raipur (C.G.)*

<b>Industrial details</b>				
<b>S. No.</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Remark</b>
1	2134	54	47	In 2017 perspective
2	<b>2134</b>	<b>54</b>	<b>47</b>	<b>In 2017 perspective</b>

**Table 23: Industrial details**

<b>Industrial Accident</b>				
<b>S. No.</b>	<b>Year</b>	<b>Detail</b>	<b>Injured</b>	<b>Death</b>
1	2015–16	—	5	9
2	2016–17	—	10	17
3	2017–18	—	5	3
<b>Total</b>		—	<b>20</b>	<b>29</b>

**Table 24: Industrial Accident**

**Bank**

<b>Bank</b>			
<b>S. No.</b>	<b>Bank</b>	<b>No. of Bank</b>	<b>No. of Branch</b>
1	Commercial Bank	392	—
2	Gramin Bank	116	—
3	Cooperative bank	04	19
4	Primary land development bank branches	01	—
<b>Total</b>		<b>513</b>	<b>19</b>

**Table 25: Bank**

### Public Distribution Shop in the District

Public Distribution Shop in the District		
S.No.	Tehsil	Number of Public Distribution Shop
1	Raipur	222
2	Abhanpur	103
3	Tilda	109
4	Arang	145
<b>Total</b>		<b>579</b>

**Table 26: Public Distribution Shop in the District**

### Road Network

Road Network									
Length of road under PWD till March 2018									
S.No.	Type of roads	Total length (7+10)	On the Surface				Unsurfable		
			WBM	BT	CC	Total (4+5+6)	Trafficable	Not Trafficable	Total (8+9)
1	2	3	4	5	6	7	8	9	10
1	National highway	144.4	—	—	—	—	Yes	Nil	—
2	State highway	58.3	—	—	—	—	Yes	Nil	—
3	Other PWD Roads	112.36	4.50	72.08	35.78	112.36	Yes	Nil	—
4	Major District Roads	218.51	—	203.32	15.19	218.51	Yes	Nil	—
<b>Total</b>		<b>533.57</b>	<b>4.50</b>	<b>275.40</b>	<b>50.97</b>	<b>330.87</b>	<b>—</b>	<b>—</b>	<b>—</b>

**Table 27: Road Network**



Road map of Raipur District :-

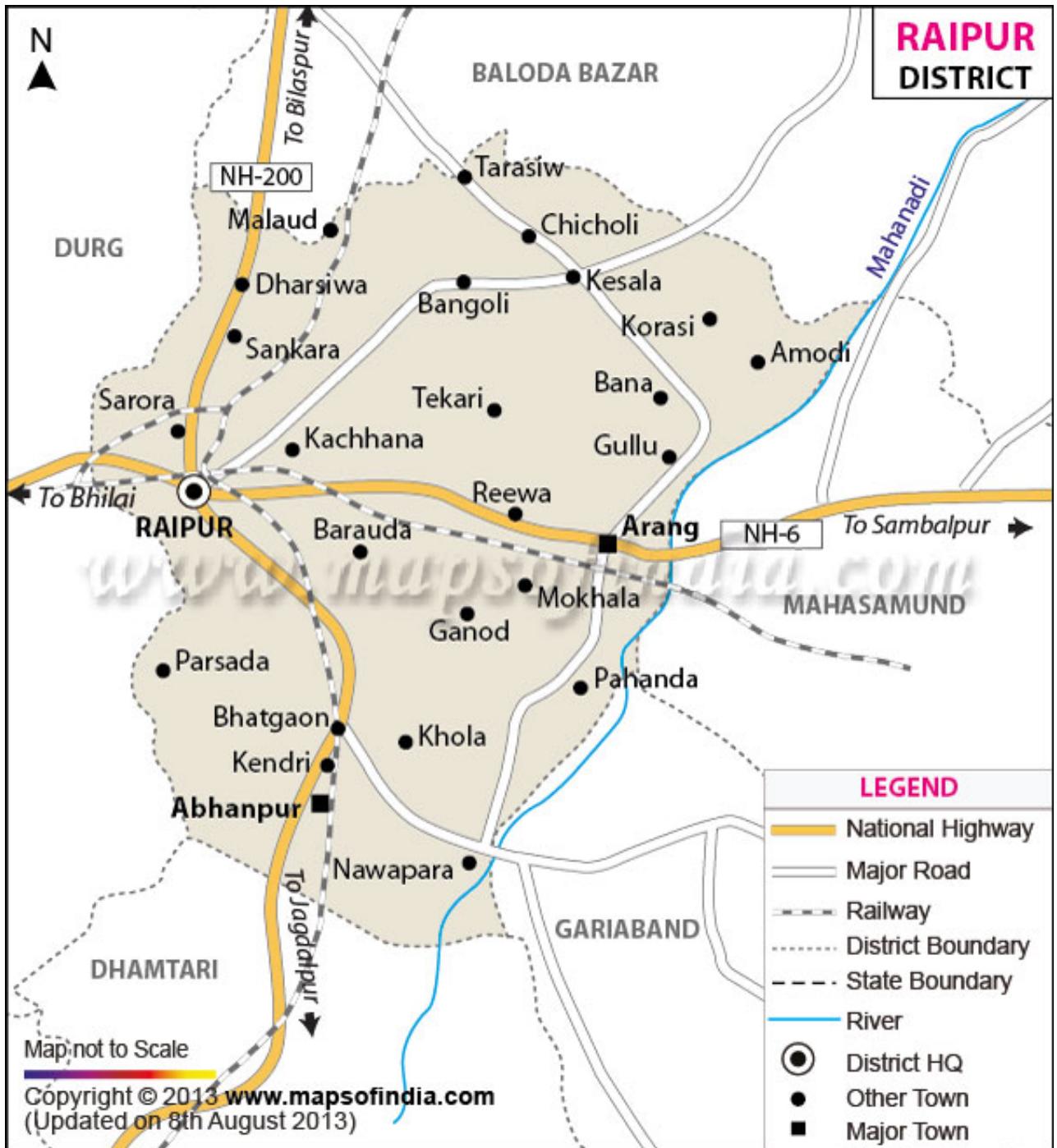


Fig. 3: Road map

## **Major Historical, Religious or Tourists Spot**

‘Chhattisgarhi’ is the local language that most of the people in this area love to converse in. Chhattisgarh culture in itself is very rich and interesting. ‘Baigas’ (traditional medical practitioners) apply their own methods (called Jhad phook) to cure diseases and snake bites etc. However, known for their modesty, kindness and adjustable nature people of this area are fond of variety in dressing, entertainment and way of living. This culture has unique styles of music and dance. Raut Nacha, Dewar Nacha, Panthi & Soowa, Padki and Pandwani are some of musical styles and dance dramas. Pandwani is a famous musical way of singing Mahabharata in this region. This particular music style has been brought into lime light by well-known Teejan Bai and young Ritu Verma. Colourful dresses and variety of ornaments are worn by women and men of this part of country.

Various decorative items used by women are Baandha, ‘suta’, ‘Phuli’, ‘Bali’ and Khunti, ‘Ainhi’, Patta, Choor, Kardhani on waist, Pouchhi a ring for upper arm and Bichhiya worn on toes. Men also decorate themselves with Koundhi and Kadhah for occasions like dances. Gouri-Goura, Surti, Hareli, Pola and Teeja are the main festivals of this area. Celebrated in the month of ‘Savan’ hareli is a mark of greenery. Farmers worship farm equipment and cows on this occasion. They place branches and leaves of ‘Bhelwa’ (a tree resembling cashew tree and found in the forests and villages of this district) in the fields and pray for good crop. People also hang small Neem branches at the main entrance of houses on this occasion to prevent occurrence of seasonal diseases.

Children play ‘GEDI’ (walking on bamboo) from the festival of hareli to Pola. They display various feats on GEDI and participate in GEDI race. Hareli is also beginning of festivals in this region. Pola and Teeja follow Hareli. People celebrate POLA by worshipping Bullocks. Bull race is also a major event of the festival. Children play with Nandia-Bail (Nandi the Vahan of Lord Shiva) idols made of clay and fitted with clay wheels. Teeja is the festival of women. All married women pray for the welfare of their husbands on this occasion. The custom is to perform this prayer at the parents’ place of the women. The feeling of togetherness and social harmony is filled in every festival and art of Chhattisgarh culture.

Raipur district has a rich cultural heritage which has good number of tourist places in the district. Major tourism places in the district i.e. Udanti & Sitamadi Sanctuary. There are three

monuments in Raipur and they are Shiva temples at Garodh & Chandhguri and old brick temple in Navagaon.

<b>Historical and Cultural Places</b>			
<b>S.No.</b>	<b>Place / Sites</b>	<b>Description</b>	<b>Hazard and Risk</b>
1	Mahant Guru Ghasidas Museum	This museum is operated by cultural dept., which has preserved sculptures, postures, other historical evidence related to Chattisgarh's archeology.	Nil
2	Mahadev Ghat	On the banks of Khaun river wharf and bridge have been constructed in Raipura village. Here the temples of various deities are established.	The danger of getting drowned when the visitors are being careless during floods. Thus, making it vulnerable.
3	Dughadhari Monastery	The ancient temple of 16th century is Lord Ramchandraji's temple. In which saints and students reside.	Nil
4	Purkhauti Mukangan	In the village Uparwara, new Raipur region, the area has been demonstrated through the vibrant, artifacts of the primitive culture of Chhattisgarh, which is a fully man-made artificial cultural center.	Nil
5	Jungle Safari	Jungle Safari is the largest forest safari in Asia in the new Raipur region. In which various types of wildlife are kept protected and safe.	Threat to viewers' inattentiveness
6	Other	Sadani Darbar, Nandangaon, Energy Park	—

**Table 28: Historical and Cultural Places**

**Minerals**

<b>Mine and Minerals in the District</b>						
<b>S.No.</b>	<b>Mine &amp; Minerals Name</b>	<b>Production (in tons)</b>	<b>Area where found</b>	<b>Number of Registered Employees</b>	<b>Govt/Private</b>	<b>Onsite &amp; Offsite plan</b>
1	Iron ore	—	—	—	—	—
2	Gold	—	—	—	—	—
3	Tin	—	—	—	—	—
4	Fluorite	—	—	—	—	—
5	Dolomite	—	—	—	—	—
6	Bauxite	—	—	—	—	—
7	Limestone	4225000 MT	Raipur, Arang, Tilda, Abhanpur	1200	Govt/Private	—
8	Black stone	—	—	—	—	—
9	Granite	—	—	—	—	—

**Table 29: Mine and Minerals in the District**

## **2. District Hazard, Vulnerability, Capacity and Risk Assessment**

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 and there is adverse effect on human life also. Mainly floods, earthquakes, droughts, volcanoes, fires, tsunamis, landslides etc are the natural threats.

### **Humanitarian Disasters –**

Disasters that occur due to human-caused causes and situations which can bring disastrous consequences to society, are called human calamities, mainly due to industrial accidents, explosions, environmental degradation, leakage of poisonous gases, war , accidents etc. have been included.

The risk of a disaster increases as the frequency or severity of hazard increases, people's vulnerability increases and people's capacity to cope up with the consequence is decreased.

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

**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 can not be stopped. It causes heavy losses 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 systems. In order to cope with any situation, it is essential to develop awareness of the resources and resources of the resources, 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, systems and other elements located in hazardous areas are known as exposures.

## **2.1 Identification of Potential Disasters**

The disasters are mainly divided into five parts –

- i. Climatic
- ii. Geologic
- iii. Chemical, industrial and nuclear related
- iv. Accidental related
- v. Biological disaster

### *District Disaster Management Plan, Raipur (C.G.)*

In order to assess the sensitivity of the disaster and risk of Raipur district, District officials, Public representatives, NGOs are involved in the meeting of the District Disaster Management Plan. With this to deal with the disasters assessed, the potential disasters in the district, people affected by them and the disasters in the district.

In districts, 12 potentially viable disasters were identified. Of these, it is to undertake general work plans for detailed and specific work plans and other disasters for the major seven disasters.

#### **2.1.1 Six main disasters are below mentioned**

1. Drought
2. Flood
3. Earthquake
4. Accident
5. Fire
6. Seasonal Diseases

Other 5 disasters are communal riots, hailstorm, dam burst, heatwave and cold wave, also Chhattisgarh is affected by Naxalism.

The district Raipur is vulnerable to various disasters which have varying degree of occurrence round the year, though most of the hazards are asymmetrical in pattern of incidence i.e., industrial accidents, road accidents, electrical fire, stampedes can occur any time during the year. Hazards such as flood, drought, lightning, heat waves usually occurs during seasonal months.

**Seasonality Calendar :-**

Hazard	Key Months of Occurrence											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Flood	—	—	—	—	—	—	—	✓	✓	—	—	—
Drought	—	—	—	—	—	—	—	—	—	✓	✓	—
Storm	—	—	—	—	✓	—	—	—	—	—	—	—
Water Logging	—	—	—	—	✓	—	—	—	✓	✓	✓	✓
Fire	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Road Accident	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Heat wave	—	—	✓	✓	✓	✓	—	—	—	—	—	—

**Table 30: Seasonality Calendar**



## 2.2 History of Disasters

Apart from natural calamities like drought and flood in Raipur district, other disasters such as epidemic, road accidents, lightning and storm are also there. The history of various disasters in the district are as follows –

<b>Hazard, vulnerability, capacity and Risk Assessment (HVCRA)</b>																					
<b>Assessment of the Disasters that Occurred in the last 10 years</b>																					
S.No.	Disaster	Event year	Event Place		Human loss									Animal loss			Property Loss	Crop Damage			
			Tehsil	Death	Death			Injured			Missing			Death	Injured	Missing		Irrigated	Non-Irrigated		
												Male	Female							Child	
1	<b>Flood</b>	2011-12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	127	—	—	
2	<b>Drought</b>	2015-16	Tilda	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1317	
		2017-18	Tilda	78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7381
3	<b>Fire</b>	2008-09	Raipur	—	6	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	
			Abhanpur	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2009-10	Raipur	—	6	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhanpur	1	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2010-11	Raipur	—	13	2	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhanpur	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Tilda	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2011-12	Raipur	—	8	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Abhanpur	1		3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		

*District Disaster Management Plan, Raipur (C.G.)*

		Tilda	3	—	2	1	—	—	—	—	—	—	—	—	—	—	19	—	—
		Arang	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2012-13	Raipur	—	6	5	6	—	—	—	—	—	—	—	—	—	—	—	—	—
		Abhan-pur	1	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
		Tilda	6	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Arang	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
	2013-14	Raipur	—	8	2	5	—	—	—	—	—	—	—	—	—	—	—	—	—
		Abhan-pur	1	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Tilda	4	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—
		Arang	—	3	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—
	2014-15	Raipur	—	8	5	13	—	—	—	—	—	—	—	—	—	—	—	—	—
		Abhan-pur	—	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Tilda	16	18	17	2	—	—	—	—	—	—	—	—	—	—	—	—	—
		Arang	—	3	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—
	2015-16	Raipur	—	13	8	9	—	—	—	—	—	—	—	—	—	—	—	—	—
		Abhan-pur	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Tilda	21	3	14	1	—	—	—	—	—	—	—	—	—	—	—	—	—
		Arang	—	5	8	5	—	—	—	—	—	—	—	—	—	—	—	—	—
	2016-17	Raipur	—	16	10	16	—	—	—	—	—	—	—	—	—	—	—	—	—
		Abhan-pur	1	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Tilda	7	1	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Arang	—	7	8	3	—	—	—	—	—	—	—	—	—	—	—	—	—
	2017-18	Raipur	—	17	3	24	—	—	—	—	—	—	—	—	—	—	—	—	

			Abhan-pur	1	6	1	2	—	—	—	—	—	—	—	—	—	—	—	—	
			Tilda	10	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	
			Arang	—	7	5	—	—	—	—	—	—	—	—	—	—	—	—	—	
4	<b>Lightning</b>	2008-09	Arang	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2010-11	Arang	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2011-12	Tilda	4	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2012-13	Tilda	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2013-14	Tilda	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	2	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—
		2014-15	Abhan-pur	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Tilda	4	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	2	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—
2015-16	Abhan-pur	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
2016-17	Tilda	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
2017-18	Abhan-pur	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
5	<b>Snake Bite/ Scorpion/ Honey Bee/ Guhera Bite</b>	2008-09	Raipur	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2009-10	Raipur	—	4	2	2	—	—	—	—	—	—	—	—	—	—	—	—	
			Abhan-pur	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2010-11	Raipur	—	13	2	6	—	—	—	—	—	—	—	—	—	—	—	—	
			Abhan-pur	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
			Tilda	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	
Arang	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			

*District Disaster Management Plan, Raipur (C.G.)*

		2011-12	Raipur	—	5	2	2	—	—	—	—	—	—	—	—	—	—	—	—	
			Abhan-pur	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Tilda	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		2012-13	Raipur	—	8	4	3	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Tilda	5	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	2	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—
		2013-14	Raipur	—	3	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Tilda	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
2014-15	Raipur	—	5	4	2	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Abhan-pur	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Tilda	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Arang	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—		
2015-16	Raipur	—	4	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Abhan-pur	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Tilda	4	1	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—		
2016-17	Raipur	—	2	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Abhan-pur	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Tilda	4	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Arang	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		

		2017-18	Raipur	—	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—		
			Abhan-pur	2	6	1	—	—	—	—	—	—	—	—	—	—	—	—	—		
			Tilda	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
			Arang	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
6	<b>Drowned</b>	2010-11	Raipur	—	5	1	4	—	—	—	—	—	—	—	—	—	—	—	—		
			Abhan-pur	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
			Arang	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2011-12	Raipur	—	18	7	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	7	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2012-13	Raipur	—	30	11	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	8	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2013-14	Raipur	—	15	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	7	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2014-15	Raipur	—	25	8	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	3	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2015-16	Raipur	—	20	7	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	—	5	6	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	7	1	5	—	—	—	—	—	—	—	—	—	—	—	—	—	
		2016-17	Raipur	—	15	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	

		2017-18	Abhan-pur	1	3	7	1	—	—	—	—	—	—	—	—	—	—	—	—	
			Arang	—	7	3	7	—	—	—	—	—	—	—	—	—	—	—	—	—
			Raipur	—	17	3	24	—	—	—	—	—	—	—	—	—	—	—	—	—
			Abhan-pur	1	8	6	3	—	—	—	—	—	—	—	—	—	—	—	—	—
			Arang	—	7	3	8	—	—	—	—	—	—	—	—	—	—	—	—	—

**Table 31: Assessment of the Disasters that Occurred in the last 10 years**

<b>Monthwise Disasters Occurred in 2017-2018</b>														
<b>S.No.</b>	<b>Human loss</b>	<b>Month</b>												<b>Total</b>
		<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>	
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	
1	Male	1	0	0	2	3	0	0	0	1	0	0	0	7
2	Female	0	1	1	1	4	0	0	2	0	0	0	0	9
3	Child	0	0	0	0	0	0	0	0	0	0	0	0	0
4	No. of People saved	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>

**Table 32: Monthwise Disasters Occurred in 2017-2018**

### 2.3 Hazard Profile

A hazard profile has been developed for each hazard identified in Raipur. A hazard profile includes following information about the hazard:

1. Frequency of occurrence – how often it is likely to occur.
2. Magnitude and potential intensity – how bad it can get.
3. Location – where it is likely to strike.
4. Duration – how long it can be expected.
5. Seasonal pattern – the time of year during which it is more likely to occur.
6. Speed of onset – how fast it is likely to occur.

<b>Hazard</b>	<b>Potential Magnitude (% of Community That Can Be Affected)</b>	<b>Frequency of Occurrence</b>	<b>Areas Likely to be Affected Most</b>	<b>Probable Duration</b>	<b>Probable Time of the Year</b>	<b>Potential Speed of Onset (Probable Amount of Warning Time)</b>
<b>Flood</b>	Limited	Likely	Entire District	1-3 week	Jun - Sep	More than 24 hours
<b>Drought</b>	Critical	Frequently	Entire District	1-3 months	Throughout the year	Minimal or no warning
<b>Fire</b>	Critical	Frequently	Entire District	Few hours	Throughout the year	Minimal or no warning
<b>Epidemics</b>	Limited	Frequently	Entire District	Few days	Throughout the year	Minimal or no warning
<b>Road Accidents</b>	Limited	Frequently	Entire District	Few seconds	Throughout the year	Minimal or no warning

**Table 33: Hazard Profile**

**Note: Potential magnitude** 1. Catastrophic: More than 50%. 2. Critical: 25-50%. 3. Limited: 10-25%. 4. Negligible: Less than 10%

**Frequency of occurrence** 1. Frequently: Near 100% possible in next year. 2. Likely: Between 10-100% probability in next year or at least one change in next year. 3. Occasional/Possible: Between 1-10% probability in next year or at least one change in next 100 years. 4. Unlikely: Less than 1% probability in next 100 years.

## 2.4 Risk Analysis

Risk is the predicted impact that a hazard would have on people, services, specific facilities and structures in the community. Quantifying risk enables district to focus on those hazards that pose higher threat to life, property and environment. Analyzing risks is helpful to develop the response priorities. Risk priority is assigned using qualitative ratings such as high, medium and low.

S.No.	Hazards	Geography	Infrastructure & Property	Demography
1	Flood	Medium	Medium	High
2	Drought	Medium	Low	High
3	Fires	Low	Medium	High
4	Epidemics	Low	Low	High

**Table 34: Risk Analysis**

## 2.5 Vulnerability Analysis

Based on the review and analysis of inputs/data the most important disaster risk with reference to the lowest administrative unit in the district is identified. Based on this, vulnerability analysis is done as shown in the Table 35.

S. No	Vulnerability Analysis	Answers
<b>Result of Hazard Analysis</b>		
1	What single or multiple hazards is the community faced with? Which are most significant? Referring to occurrence, frequency/return period, intensity and duration as well as exposure of affected families, how do these hazards compare?	The community is affected by the risks like flood, drought, fire and epidemic. Out of all the disasters, the drought is severely affecting the population in large numbers in 2015 and 2016.



	Is there evidence of changing trends in the hazards or new hazards emerging?	Epidemic cases were also there. No significant trend has been observed.
<b>Results of Vulnerability Analysis</b>		
2	What are the top vulnerability of the community?	Mahanadi, Kharun and Kolhan river due to the cause of floods and all tehsils due to drought.
	Explain the vulnerabilities in relation to the identified hazards affecting the community, and how these make the community susceptible to those hazards.	1. Flood: Due to the Mahanadi river entire district comes under the flood prone area. 2. Drought: The district is affected due to low rainfall and intermittent rainfall.
<b>Results of Capacity Analysis</b>		
3	What are the main capacities available in the community?	Hospitals, police stations, rescue equipment, relief camps, transport etc.  Drinking Water Supply Scheme, Prime Minister's Crop Insurance Scheme, Crop Contingency Plans etc.
	Explain their relationship and how they increase the resilience of the community.	<ul style="list-style-type: none"> <li>• Hospital: For immediate medical assistance.</li> <li>• Police Station: For rescue operation and withdrawal.</li> <li>• Rescue equipment: For rescue operations.</li> <li>• Relief camps: For temporary shelters and first aid.</li> <li>• Transport and communication system: It is well connected to neighboring districts through road and vehicular traffic.</li> <li>• Drinking Water Supply Scheme: Availability of potable water.</li> <li>• Prime Minister Crop Insurance</li> </ul>

		<p>Scheme: For Financial Assistance.</p> <ul style="list-style-type: none"> <li>• Crop contingency plans: delay in rainfall or intermittent rainfall, early breed crop etc.</li> </ul>
	Top four weakness	<ul style="list-style-type: none"> <li>• Farmers' negligence before the drought period.</li> <li>• Construction of raw houses in flood affected areas.</li> <li>• Insufficient number of fire stations.</li> <li>• There is no NGO working on disaster management awareness.</li> </ul>
<b>Recommendations to Mitigate, Prepare for and Respond to Disaster Impacts</b>		
4	Given the hazard vulnerability capacity assessments identify the most pressing assistance needed to reduce the vulnerabilities and increase the capacities of the community.	<ul style="list-style-type: none"> <li>• Preserving water during the rainfall months.</li> <li>• Construction of new check dams, ponds and wells.</li> <li>• Educating farmers to practice drought resistant crops and efficient water use.</li> <li>• Creating awareness to village people through NGOs about saving human lives and livelihood from animal conflicts, forest fires, etc.</li> </ul>

**Table 35: Vulnerability Analysis**

## **2.6 Disasters in Raipur District**

### **2.6.1 Drought**

Drought is cumulative effect of the lack of water. The effect of which results in the form of a natural disaster on agriculture, environment and related processes. If its effectiveness continues to increase, then the situation of famine(drought) arises. The Indian Meteorological Department has divided the drought into two parts - Drought and Intensive drought. Intensive drought has less than 50 percent rainfall, while the normal drought is 25 percent less than the average rainfall.

According to the definition of drought given by the irrigation commission, this is the situation in which the area has received 75 percent less rain than normal rainfall. If this deficiency is between 25 to 50 percent, it is defined as the status of severe drought and if the deficiency is more than 50 percent then it is considered as a condition of severe drought.

Dry is a gradual natural disaster that gives us a lot of time to deal with. Due to not having proper management of water, its effects also increase over time. The main cause of drought is the lack of rainfall.

Common indicators of drought -

- Lack of water in reservoirs
- Low rainfall or not on time or low water storage
- Low water level
- Wells drying
- Destruction of crops

### **Types of Drought**

- **Meteorological Drought** - Inadequate rainfall, irregularity, uneven distribution of water.
- **Hydrological drought** - Lack of water, lower ground water level, deprivation of water bodies, ponds, wells and reservoirs drying.
- **Agricultural drought** - Lack of crop or fodder, deficiency in soil moisture.

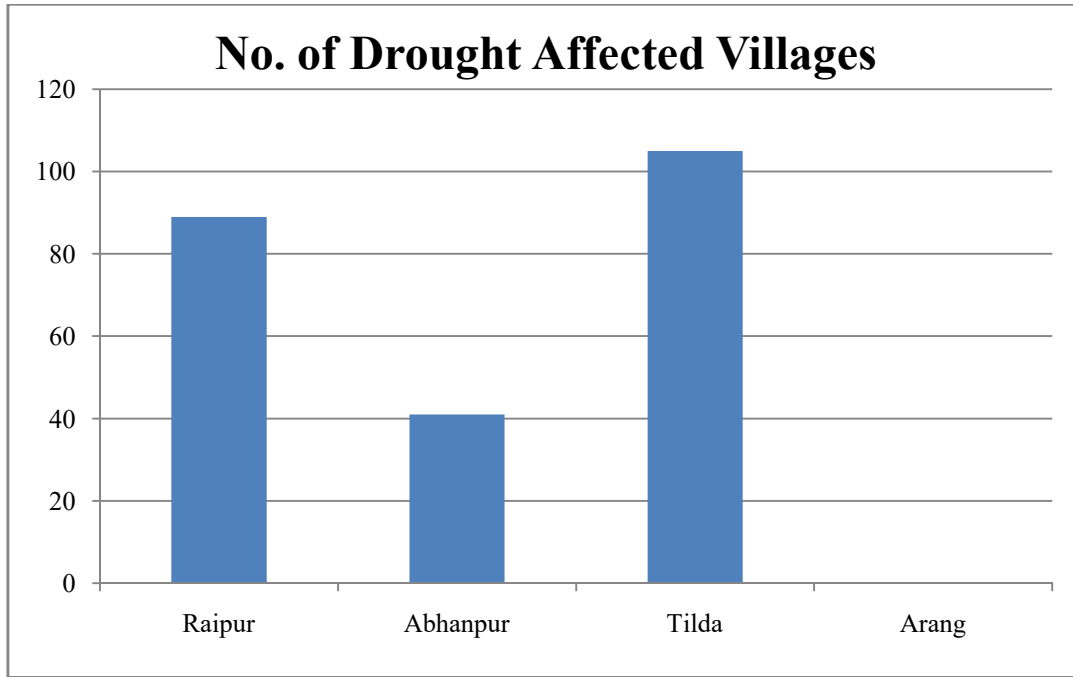
**Durg District Drought Information**

<b>Drought Affected Area in 2017-18 and its Loss</b>			
<b>S.no.</b>	<b>Particular</b>	<b>Area</b>	<b>Remarks</b>
1.	Affected area	Arang- 3879.129 ha.	—

**Table 36: Drought Affected Area in 2017-18 and its Loss**

<b>List of Affected Areas</b>						
<b>S.no.</b>	<b>District</b>	<b>Tehsil</b>	<b>No. of Village</b>	<b>Intensity</b>	<b>Number of Farmers Affected by Drought</b>	
					<b>Small &amp; Marginal Farmers</b>	<b>Other Large Farmers</b>
<b>1</b>	Raipur	Raipur	89	Moderate	4909	402
<b>2</b>		Abhanpur	41	Low	635	84
<b>3</b>		Tilda	105	High	12864	805
<b>4</b>		Arang	—	—	2971	205

**Table 37: List of Affected Areas by Drought**



**Graph 1: No. of Drought Affected Villages**

<b>Past Occurrence Of Drought Declared In The District</b>				
<b>S.No.</b>	<b>Year</b>	<b>State Name</b>	<b>District Name</b>	<b>Tehsil Name</b>
1	2015–16	Chhattisgarh	Raipur	Raipur, Arang, Tilda, Abhanpur
2	2017–18	Chhattisgarh	Raipur	Raipur, Arang, Tilda, Abhanpur

**Table 38: Past Occurrence Of Drought Declared In The District**

### **2.6.2 Flood**

Flood is one of the most devastating natural calamities, which has been causing extensive damage to life and property besides perpetrating tremendous sufferings. Since, flood is a natural phenomenon; it is usually difficult to predict a definite trend especially with regard to the time and place of its occurrence.

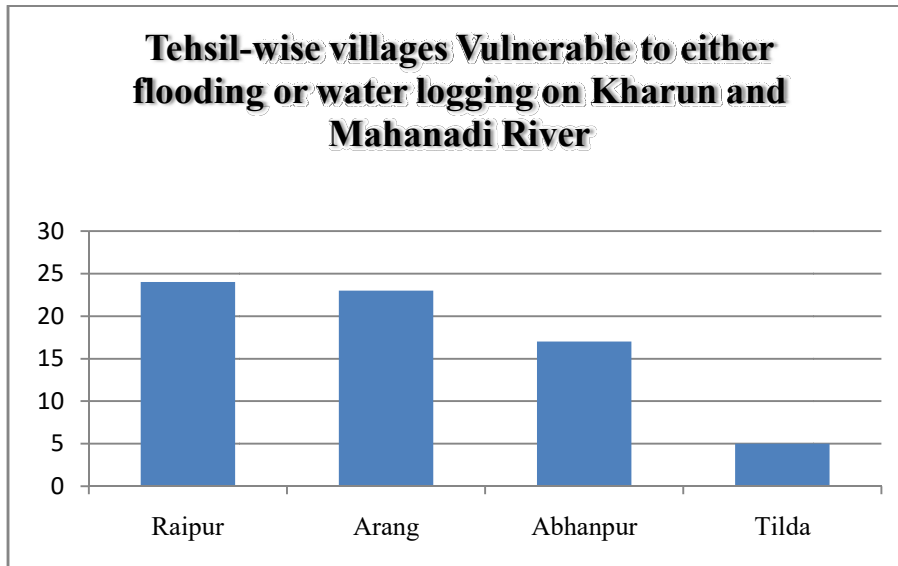
Flood is the primary hazard faced by Raipur district. Kharun and Mahanadi River passes through western and eastern side of Raipur district respectively. In addition to rivers Kolhan nala passes through district. Most of the flood and water logging affected areas are situated around these water bodies. There are two check dams namely Samoda Barrage and Nisada Barrage on Mahanadi River, which has potential to cause flood if their water capacity overwhelmed.

Below is a list of villages / habitations inhabited in the lower area which are affected by flood situation -

<b>Tehsil-wise villages Vulnerable to either flooding or water logging on Kharun and Mahanadi River</b>				
<b>S.No.</b>	<b>Tehsil</b>	<b>River</b>	<b>Total Village</b>	<b>Village Name</b>
1	Raipur	Kharun	24	Baratnara, Changorabata, Muraithi, Bahesar, Kumhari, Patharidih, Bendri, Kara, Bana, Gomchi, Hanthband, Bhura, Bhairwa, Chandnidih, Raipura, Sarona, Bhathagaon, Kathadiah, Attari, Guma, Sondra, Parastarai, Murra, Khairkhunt
2	Arang	Mahanadi	19	Mohmela, Kutail, Kurud, Karmandi, Hardidih, Chikhli, Kagdehi, Samouda, Chaprid, Gullu, Gurguda, Benidih, Rankatar, Kumhari, Gaurbath, Bancharoda, Chhatera, Gohra, Khatti
		Kharun	4	Mudra, Aamdi, Khatti, Raveli

3	Abhanpur	Mahanadi	17	Paragaon, Lakhana, Dulna, Tarra, Bagdehi, Nawapara, Koliyari, Champajhar, Semra, Tila, Parsada, Jawdi, Lamkeni, Parsulidih, Todra, Balari Khurd, Sugera,
4	Tilda	Kharun	5	Khairghat, Sugera, Balodikhurd, Saguni, Lakhana
<b>Total</b>			<b>69</b>	

**Table 39: Tehsil-wise villages Vulnerable to either flooding or water logging on Kharun and Mahanadi River**

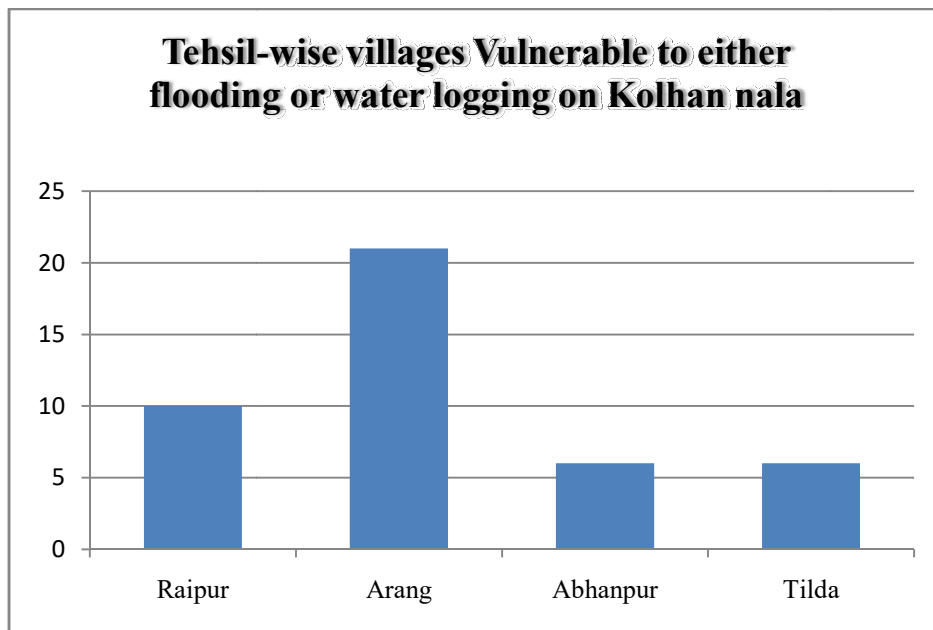


**Graph 2: Tehsil-wise villages Vulnerable to either flooding or water logging on Kharun and Mahanadi River**

<b>Tehsil-wise villages Vulnerable to either flooding or water logging on Kolhan Nala</b>				
S.No.	Tehsil	Nala	Total Village	Village Name
1	Raipur	Kolhan	10	Jarod, Nagargaon, Mohadi A, Godhi 02, Kapsada, Bhaismuda, Pathri, Bherwa, Raita, Akoli

2	Arang	Kolhan	21	Pauta, Tandul, Dhamni, Parsada-03, Umaria, Jaroda 2, Sivni 01, Piparhattha, Todgaon, Badgaon, Nagpura, Chataud, Ganoud, Birbira, Gujra, Nara, Khamhariya, Kunda, Sankari 02
3	Abhanpur	Kolhan	6	Urla 2, Pacheda 02, Kurru, Cheriya, Thelakabhatha, Tarra 02
4	Tilda	Kolhan	6	Sungera, Saddhu, Saguni, Baloudi, Mohad 02

**Table 40: Tehsil-wise villages Vulnerable to either flooding or water logging on Kolhan Nala**



**Graph 3: Tehsil-wise villages Vulnerable to either flooding or water logging on Kolhan Nala**

<b>Wards affected by Heavy Rainfall in Raipur Municipal Corporation in 2015-16 to 2017-18</b>			
<b>Year</b>	<b>2015—16</b>	<b>2016—17</b>	<b>2017—18</b>
<b>Ward Name</b>	Danvir, Bamashah (Gudhiyari)	Balgangadhar Tilak (Gudhiyari)	Hemu Kalyani Ward, Pandit Ravi Shankar Shukla Ward, Thakkar Bapa, Shaheed



			Brigadier Usman Ward, Vipin Bihari Sur Ward
<b>Place Name</b>	Friday Market Jyotisha nagar Kundarapara	Adarsh Nagar Ashok Nagar Ambedkar Nagar	Shaheed Smarak Bhawan, Rajatalab Shiv Temple Area, Tulsi Nagar, Lodhi Para, Dharamnagar Pachpedi Naka, Professor Colony Ring Road Radhaswamy Nagar

**Table 41: Wards affected by Heavy Rainfall in Raipur Municipal Corporation in 2015-16 to 2017-18**

<b>Identification of safe places in some villages during flood situation</b>				
<b>S.No.</b>	<b>Tehsil</b>	<b>River</b>	<b>Total Village</b>	<b>Villages</b>
1	Raipur	Kharun	18	Baratnara, Changorabata, Muraithi, Bahesar, Kumhari, Patharidih, Bendri, Kara, Bana, Gomchi, Hanthband, Bhura, Bhairwa, Chandnidih, Raipura, Sarona, Bhathagaon, Kathadih,
2	Arang	Mahanadi	20	Mohmela, Kutail, Kurud, Karmandi, Hardidih, Chikhli, Kagdehi, Samouda, Chaprid, Gullu, Gurguda, Benidih, Rankatar
3	Abhanpur	Kharun, Mahanadi	18	Mudra, Aamdi, Khatti, Raveli, Paragaon, Lakhana, Dulna, Tarra, Bagdehi, Nawapara, Koliyari, Champajhar, Semra, Tila, Parsada, Jawdi, Lamkeni, Parsulidih, Todra
4	Tilda	Kharun	05	Khairghat, Sugera, Balodikhurd, Saguni, Lakhana
<b>Total</b>			<b>61</b>	—

**Table 42: Identification of safe places in some villages during flood situation**

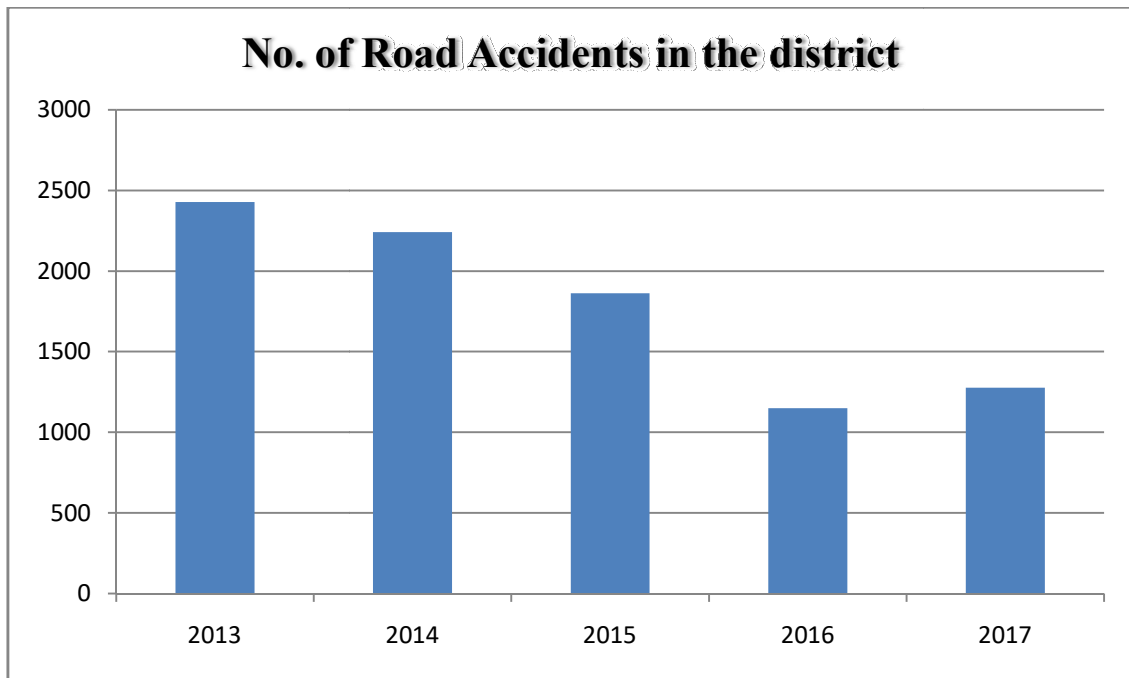
### 2.6.3 Accidents

#### Road accidents

Science and technological advances have made human life soothing, which has resulted in the distances being counted in hours today. But the number of accidents is increasing day by day due to inadequacy and technical failure due to non-compliance of the rules of traffic. About 37 percent of all deaths due to accidents in India die only due to road accidents. The fate of the situation can be assumed by the fact that 10 people die every day, every hour, from road accidents and four times more than that, 40 persons are injured, many of whom are crippled for ages. On the basis of the proportion of the number of motor vehicles, the number of road accidents in India is much higher than the developed countries, accidents increase by about 4 percent annually. Today it is necessary that we should reduce road accidents so that data will remain in control.

<b>Road Accidents in the District</b>				
<b>S.No.</b>	<b>Year</b>	<b>Number of Accidents</b>	<b>Death</b>	<b>Injured</b>
1	2013	2429	428	2501
2	2014	2242	394	1315
3	2015	1863	382	1213
4	2016	1150	221	775
5	2017	1276	226	776
<b>Total</b>		<b>3958</b>	<b>8960</b>	<b>1651</b>

**Table 43: Road Accidents in the District**



**Graph 4: No. of Road Accidents in the district**

The main reason for road accidents -

- Negligence in driving
- Disobey of traffic rules
- Bad roads
- Over crowded roads with vehicles and humans
- Improper maintenance of vehicles

**Black Spot Areas of the District –**

<b>Black Spot Areas of the Raipur District</b>	
<b>NH-53</b>	1. New rajendranagar chowk to hotel highway in bar ring road 1 2. Bhatagao chowk to old win shop ring road 1 3. Ashok leyland showroom to kushalpur chowk ring road 1 4. Sarona tiraha to tatibandh chowk ring road 1 5. Tatibandh chowk

	6. Tatibandh chowk to chandnidih 7. Agriculture college to jora over bridge 8. Bhansali perol pump to serikhedi overbridge 9. Jindal mod to ring road 3 10. Hora transport to bus stand chowk 11. Chhatouna village to rit college 12. Mayur school umariya to sonali dhaba
<b>NH-30</b>	13. Dhaneli nala (Raipur-bilaspur highway ) 14. Gadariya nala Bemta village 15. Kamal vihar gate to bjp office (Raiur –dhamtari highway) 16. Bjp office to railway crossing mana (Raipur dhamtari highway)

**Table 44: Black Spot Areas of the Raipur District**

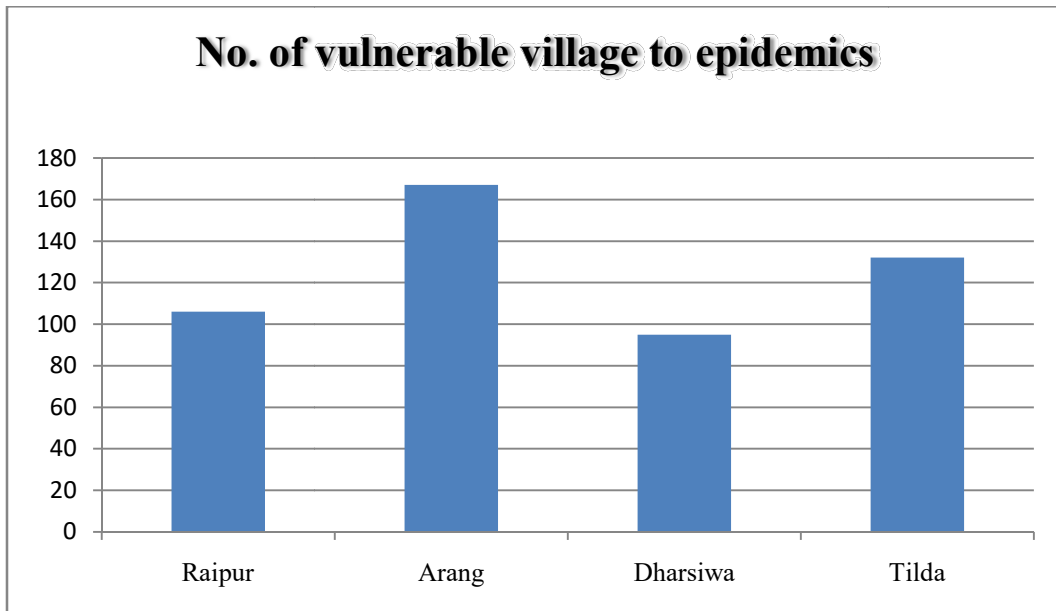
**2.6.4 Epidemic**

<b>Epidemic in the district from 2008 to 2017</b>					
<b>S. No.</b>	<b>Year</b>	<b>Tehsil/Block</b>	<b>Epidemic</b>	<b>No. of epidemics</b>	<b>No. of affected people</b>
<b>1</b>	2011	Abhanpur, Dharsiwa	Vomiting, Diarrhoea, Jaundice	08	386
<b>2</b>	2012	Abhanpur, Dharsiwa	Vomiting, Diarrhoea, Jaundice	06	—
<b>3</b>	2013	Tilda, Dharsiwa	Vomiting, Diarrhoea, Jaundice	—	—

**Table 45: Epidemic in the district from 2008 to 2017**

<b>Tehsil level Epidemic prone areas and vulnerable village</b>				
<b>S.No.</b>	<b>No. of Villages</b>	<b>Tehsil</b>	<b>No. of vulnerable village (vulnerable) to epidemics</b>	<b>Inaccessible areas</b>
1	106	Raipur	9	—
2	167	Arang	5	—
3	95	Dharsiwa	4	—
4	132	Tilda	13	—
<b>Total</b>	<b>500</b>	<b>—</b>	<b>31</b>	<b>—</b>

**Table 46: Tehsil level Epidemic prone areas and vulnerable village**



**Graph 5: No. of vulnerable village to epidemics**

### **3. Disaster Management Amendment Act, 2005**

#### **3.1 Institutional arrangements**

Disaster management is more effective if it is in institutional framework. For this purpose, it has been directed to constitute a Disaster Management Authority at the district level under DM Act 2005. It will provide guidance on the district level to effectively give immediate response to any disaster situation according to the disaster plan.

Institutional mechanism for disaster management at the district level, as it is included in the National Plan, is given below:

- District disaster management authority
- District Disaster Management Advisory Committee
- Local self government authority
- District Emergency Operation Center

#### **3.2 District Disaster Management Authority**

According to DDMA, planning, coordination and implementation of disaster management, and guidelines set by the National and State Authorities, all the measures are taken for the purpose of disaster management in the district. And it ensures that the guidelines for the prevention of disasters, minimum effect, preparation and response measures are being followed by the district level and local authorities in all the departments of the government. In the District Authority the number of Chairman and other members shall not exceed seven, and the Collector / DM will be the Chairman of the District Authority.

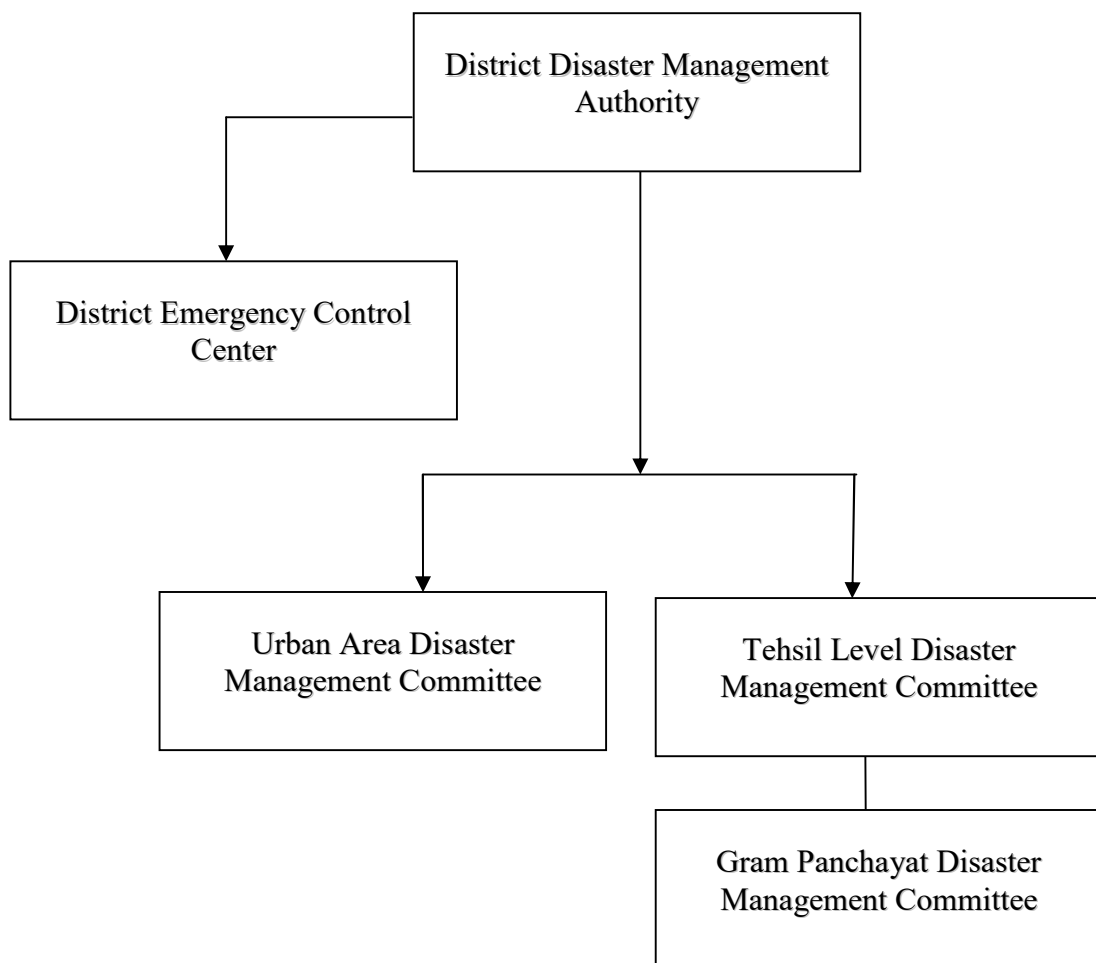
##### **District Disaster Management Authority**

<b>S.No.</b>	<b>Official position</b>	<b>Position in authority</b>
1	District Collector/District Magistrate (District Disaster Management Authority)	Chairperson
2	Chief Executive Officer (CEO), Zila Panchayat	Member
3	Superintendent of Police	Member
4	Chief Medical & Health Officer	Member

5	Executive Engineer, PWD Department	Member
6	Executive Engineer, Irrigation Department	Member
7	Additional Collector	Member
8	District Commandant, Home Guard	Member

**Table 47: Structure of DDMA**

The District Disaster Management Committee is a foremost planning committee, it plays a major role for volatility and mitigation. At the district level the response is coordinated under the guidance of the District Collector, who works as District Disaster Manager.



**Flowchart 1: District Disaster Management Authority Flow Chart**

### **3.3 District Disaster Management Advisory Committee**

One and more Disaster Management Advisory Committees have been formed for discharging the work of District Disaster Management Authority. The members of this committee are

appointed by the chairman of the District Disaster Management Authority, in which the members of the district panchayat, various departments, NGOs etc. are included.

<b>S. No</b>	<b>Designation</b>	<b>Position</b>
1	District Collector	Chairman
2	Superintendent of Police	Vice President
3	Deputy Collector	Member
4	Chief Medical & Health Officer	Member
5	Chief Executive Officer (CEO), Zila Panchayat	Member
6	District Forest Officer	Member
7	District Food Officer	Member
8	District Education Officer	Member
9	Deputy Director, Agriculture	Member
10	R.T.O.	Member
11	District level NGOs Representative	Member

**Table 48: Structure of Disaster Management Advisory Committee**

### **3.4 Local self government authority**

For the purpose of this policy, Local Authority Panchayati Raj Institutions (RI), Municipalities, District and Cantonment Board and Municipal Planning Authorities are included which governs and operates civil services. These bodies will ensure the capacity building of their officers and employees to deal with disasters, will undertake relief rehabilitation and reconstruction activities in the affected areas and the National Disaster Management Authority, State Disaster Management.

### **3.5 Urban area disaster management committee**

A Disaster Management Committee will be set up at the senior level to conduct disaster management activities in all urban areas of the district office. Proposed infrastructure for the formation of Urban Disaster Management Committee.



S. No.	Designation	Position
1	Nagar Palika Chairman	Chairman
2	Chief Executive Officer	Co-Chairman
3	Sub Divisional Magistrate	Member
4	Block Medical Officer	Member
5	EE, PWD	Member
6	EE, Electricity	Member
7	Forest Officer	Member

**Table 49: Urban area disaster management committee**

### **3.6 Disaster Management Committee at Tehsil level**

Management committee will be constituted at Tehsil level for smooth operation of disaster management activities in Tehsil.

S. No.	Designation	Position
1	Tehsildar	Chair Person
2	T.I Police	Member
3	Chair Person, Panchayat Samiti	Member
4	AE, Irrigation & Public Health	Member
5	AE, Electricity Dept.	Member
6	AE, PWD	Member
7	Medical Officer	Member
8	NGO (non-governmental)	Member

**Table 50: Structure of Disaster Management Committee at Tehsil level**

### **3.7 Village level disaster management committee**

The Village level disaster management committee should be constituted at all Gram Panchayat of the district to handle the disaster management activities at the respective village level. The recommended structure for Village Level Disaster Management Committee is as follows -

S. No.	Designation	Position
1	Gram Panchayat Sarpanch	Chair Person

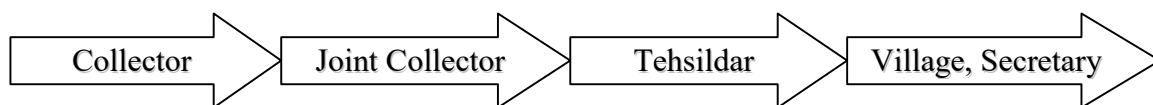
2	Secretary Gram Panchayat	Member
3	ANM (Health Dept.)	Member
4	Teacher (Education Department)	Member
5	Soldiers (Home guard)	Member
6	Kotwar	Member

**Table 51: Village level disaster management committee**

### **3.8 District Emergency Operations Center**

DEOC is located at District Collector’s office. It is also the focal point for information gathering, processing and decision making to combat the disaster. Most of the strategic decisions are taken in this control room with regard to the management of disaster, based on the information gathered and processed. It works throughout the year and order various departments to work as per the directions during disaster. The Incident Commander takes charge at the District Control Room and commands the emergency operations. All the task force leaders shall take position in the District Control Room along with Incident Commander to enable one point of coordination for decision-making process. The Organizational Structure for Disaster Management is given below in Flowchart 2.

The flow of information during disaster begins with the District Collector (DC) and is passed on to the Joint District Collector who communicates the same with MPDOs and Tehsildars, who in turn, ensure that the early warning information is disseminated to the communities through the Village Secretaries.



**Flowchart 2: Organizational Structure for Disaster Management**

#### **Facilities at District Control Rooms**

The District Control Room shall be equipped with but not limited to the following items –

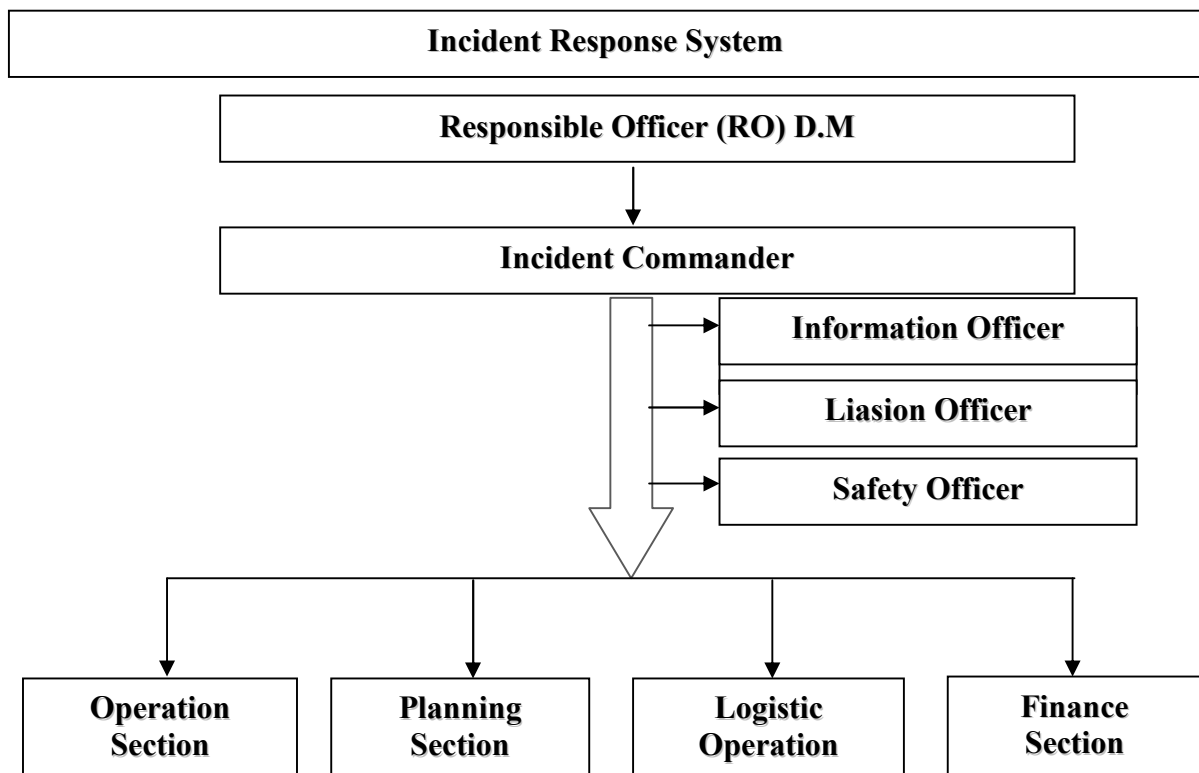
- Hot line directly connected to State EOC/control room
- Telephones, Satellite Telephone
- A copy of Disaster Management Plan

- Wireless set
- Conference Room
- Walkie Talkie
- One PC with e-mail, internet, web site facilities
- Other essentials

### **3.9 Event (Incident) Response System (IRS)**

IRS organization works through field response response team. District Collector, DDMA, is the highest office bearer and accountant in the event response management. District collector can assign his assignment to any other accountable officer as necessary. If the disaster occurs in more than one district then the collector of that district acts as an incident commander, where the severity of the disaster is highest.

As well as the active response of the event response system, a working operations section plays a role from a planning section and a finance section with immediate effect in their respective officers and employees. The only officer who has the right to appoint the in-charge of these sections is to the incumbent commander. All related liability lies in the safety of the suspects till reaching the logistics support to the victims.



**Flowchart 3: Incident Response System**

The following are the common tasks of the Incident Commander -

- Developing mechanisms for uninterrupted communication flow during the Emergency and its integration.
- Provide facility for its protocol and work process of various ESFs (emergency support function) of the district, state and central government.
- To keep the communication system in such a way that all the information that can be received at the time of the disaster can be retained, can be kept in record and the acceptance letter of exchange of information.
- Managing the distribution of relief material available to the ISF in emergency.
- Apart from these above normal tasks, the incident commander has to perform several following specific tasks such as –
  - Estimate the situation
  - Estimate the risk of human life
  - Determine the immediate objectives (tasks)
  - Deciding the availability of adequate resources in the disaster area / ordering for availability
  - Setting an immediate action plan
  - Creating an initial improvised organization

**Main functions of the operation Section In charge -**

- Responsible for managing all types of direct tasks to fulfill the primary objective.
- To make the requirements and request related departments for additional resources.
- To review the list of available resources and recommend for the distribution of resources.
- To report all special activities and events to the incident commander.

**Main functions of the Planning Section Incharge -**

- Collection, evaluation, dissemination and use of information in connection with any assistance, information about the updated status.
- To create a flexible plan and control all the tasks.
- To inspect the urgent action plan creation.

- Deliver new tasks to any officer working in the disaster area as necessary.
- Decide the need for a specific resource for the event response.

**Main functions of the Logistics Section Incharge -**

- To establish the necessary information and reporting mechanism for the resource for the planning section.
- Compile and display information about the incident status of the accident.
- To monitor the preparation and implementation of the event appropriation plan.
- To review the traffic, medical, safe areas and communication etc. in the plans.
- Provide information to the media on the updated status and resource availability, setting goals, setting the work area limits, creating the work, creating groups, setting strategies and security guidelines for each department.
- Assign responsibility of the work area to the employees
- Identify the services and needs required for pre-employed and future work for their work.
- To initiate process requests for additional resources and coordinate for it.

**Main functions of the Finance Section Incharge –**

Finance section is basically for administration and finance management. Incident command post, Aadhaar office area, management of the Aadhaar and camps are under the main functions of the finance section.

The following functions are done under Finance section:

- To take care of the availability and needs of resources, proper management,
- Give IC's accountability for planning, resource utilization and acceptance of resources for contingency.

**3.10 District Control Center**

The District Control Center will work in a primary center under the control of the District Collector. The purpose of its formation are -

- To monitor

***District Disaster Management Plan, Raipur (C.G.)***

- To coordinate
- To apply Disaster Management's Action

The district control center functions throughout the year and issues instructions to various departments to take action during disaster. The District Disaster Committee is as follows –

S. No.	Disaster Control Center		Officer	Telephone/Mobile
1	State Level		Shri N.R.Sahu, Rev. Dept (Disaster Management Mantralaya, Raipur)	0771–2223471
			Smt Heena Animesh Netam, Disaster Management Mantralaya, Raipur	9993116811
2	District level		Shri K.S. Patle, Child labor project director, Raipur	0771–2413233 / 9926615200
3	Tehsil Level	Raipur	Shri Umesh Sahu, Tehsildar	0771–2224163 / 83053.77283
		Tilda	Shri. Yogendra Verma, Prabhari Tehsildar	0771–233601 / 9828211112
		Arang	Shri Anubhav Sharma	0771–258545 / 9826140500
		Abhanpur	Smt Parvati Patel	0771–2774204 / 9617237611
4	Nagar Nigam		Shri B.L. Chandrakar, Asth. Engineer, Fire Brigade Department	0771–2274101 / 9301953236
	Nagar Nigam, Birgaon		Shri Arjun Singh Pawar, Sanitary Inspector	9109803128
5	Medical Department		Dr. R.K.Chandrawanshi, CMHO	0771–2535304 / 9425261843
6	District Commandant, Homeguard		Shri Sanjay Mishra, Home Guard	0771–2426823 / 9826118056
7	Police Control Room, Civil Lines		-	100, 4287100
8	Indian Army		Major Moh. Altamas	9596488755

**Table 52: Disaster Control Center**

### **Alternative Control Room**

An emergency control center has been established at the district level to deal with any kind of disaster. But with the Emergency Control Center, alternative emergency control rooms are also set up in district homeguard, police department for smooth operation of the disaster.

### **Police force and fire services**

The police force and the fire services will take immediate action during disaster. Police forces are trained to achieve multi-risk rescue capability.

### **Civil Defence and Home Guards**

Civil defence and home guards play an effective role in the field of disaster management. They have a huge contribution in community preparation and public awareness. Immediate proper action is taken by them when a disaster arrives.

### **Information and Warning Agency**

There is an urgent need to establish, upgrade and modernize prediction and early warning systems for all kinds of disasters. Nodal agencies, responsible for monitoring and monitoring specific natural disasters, will identify technological differences and project projects for their upgradation so that they can be completed in a timely manner.

S. No.	Disaster	Likely Period of Disasters	Districts likely to be affected	Severity Level	Preparedness/ Monitoring Measures	Time Line	Stakeholders
1	Cold Wave	December-January	Surguja, Koriya, Jashpur, Surajpur	High	Preparedness Workshop/Meeting	First Week of November	<b>Central Agencies:</b> IMD, NDMA, NIDM, WHO, MoHRD, MoHFW, MoUD, MoPR, MoRD, MoAFW.
					Issuance of Advisory	Second Week of November	
			Balrampur, Raipur, Durg, Bastar, Sukma, Bijapur, Dantewada, Narayanpur, Kondagaon, Kanker.	Medium	Print & Electronic Media Awareness Campaign	Second Week of November	<b>State Agencies:</b>
					Social Media Awareness Campaign	Second Week of November	
			Other Districts	Low	Review of Preparedness through Video Conference	First Week of December	IMD, SDMA, Health Department, Education Department, Municipal Corporations, Women and Child Development, Agriculture, Horticulture, Animal and Husbandry, Labour, Forest and Food department etc.
					Regular Video Conference	Every Fortnight	
Mid Term Review	First Week of January						
2	Heat Wave/ Heat Stroke	April - June	Bilaspur, Baloda Bazar, Raipur, Janjgir-Champa, Durg, Kabirdham and	High	Preparedness Workshop/Meeting	Second Week of March	<b>Central Agencies:</b>



**District Disaster Management Plan, Raipur (C.G.)**

			Kanker.		Issuance of Advisory	Third Week of March	IMD, NDMA, NIDM, , MoHFW, WHO, MoHRD, MoWR, MoUD, MoPR, MoRD, MoL&E, DRM (Railway)
					Print & Electronic Media Awareness Campaign	Third Week of March	
			Dhamtari, Rajnandgaon, Raigarh, Korba, Sukma and Dantewada.	Medium	Social Media Awareness Campaign	Last Week of March	<b>State Agencies</b>
					Review of Preparedness through Video Conference	First Week of April	SDMA, SDRF, Health Department, PHED, Municipal Corporations, Education, Labour, PR Department, Home, Rural & Urban
			Other Districts	Low	Regular Video Conference	Every Fortnight	Development Women and Child Development, Horticulture, Animal and Husbandry
					Mid Term Review	Second Week of May	
3	<b>Forest Fire</b>	April - June	Bijapur, Korba, Surguja, Surajpur, Balrampur and Koriya	High	Preparedness Workshop/Meeting	Second Week of March	<b>Central Agencies:</b>
					Issuance of Advisory	Third Week of March	MoEF&CC, MHA, NRSC, MoRD, MoRTH
					Print & Electronic Media Awareness Campaign	Third Week of March	
			Bastar, Jashpur, Gariyaband, Kondagaon	Medium	Social Media Awareness Campaign	Last Week of March	<b>State Agencies:</b>

			and Dhamtari		Review of Preparedness through Video Conference	First Week of April	Forest, SDRF, SDMA, PHED, PWD, Agriculture, Horticulture, Animal and Husbandry Department	
			Narayanpur, Kanker, Mungeli and Raigarh	Low	Regular Video Conference	Every Fortnight		
					Mid Term Review	Second Week of May		
4	Lightning	June - September	Korba, Raigarh, Mahasamund, Bastar, Koriya, Surajpur, Balrampur, Surguja and Jashpur	High	Preparedness Workshop/Meeting	Third Week of April	<b>Central Agencies:</b>	
					Issuance of Advisory	First Week of May	IMD, MHA, NDMA, NDRF, NRSC, MoH&FW, MoUD, MoRD, Ministry of Railway, MoRTH, MoP, MI&CT, Ministry of Petroleum and Natural Gas, Ministry of Food Processing Industries.	
			Gariyaband, Durg, Rajnandgaon, Kondagoan, Bijapur, Dantewada and Sukma	Medium	Print & Electronic Media Awareness Campaign	First Week of May		
					Social Media Awareness Campaign	Second Week of May		<b>State Agencies:</b>
					Review of Preparedness through Video Conference	First Week of June		SDMA, WRD, PHED, PWD, Health Department, Municipal Corporations, Electricity Department, Industrial Deptt., Animal and Husbandry Department and Education.
			Other Districts	Low	Regular Video Conference	Every Fortnight		
Mid Term Review	Second Week of July							

5	Flood	June-September	Bastar, Bilaspur, Mahasamund, Raipur, Korba, Jashpur, Surguja, Sukma, Dantewada, Kanker, Jangir champa and Raigarh	High	Preparedness Workshop/Meeting	Third Week of April	<b>Central Agencies:</b>
					Issuance of Advisory	First Week of May	IMD, MHA, NDMA, NDRF, NRSC, MoH&FW, MoUD, MoRD, Ministry of Railway, MoRTH, Ministry of Power, Ministry of Information and Communication Technology, Ministry of Petroleum and Natural Gas, Ministry of Food Processing Industries
					Print & Electronic Media Awareness Campaign	First Week of May	
			Surajpur, Kondagoan Gariyaband, Balod, Durg, Baloda bazar, Bijapur, Narayanpur, Dhamtari and Rajnandgaon	Medium	Social Media Awareness Campaign	Second Week of May	<b>State Agencies:</b>
					Review of Preparedness through Video Conference	First Week of June	SDMA, SDRF, WRD, PHED, PWD, Home, Health Department, Agriculture, Municipal Corporations, Electricity Department, Department of Education, Women and Child Development, Horticulture, Animal and Husbandry, Food, Forest, Labour deptt, PRD, PR Deptt.
			Other Districts	Low	Regular Video Conference	Every Fortnight	
Mid Term Review	Second Week of July						

6	Urban Flood	June - September	Raipur, Dhamtari, Durg, Bilaspur, Raigarh, Bastar and Kanker	High	Preparedness Workshop/Meeting	Third Week of April	<b>Central Agencies:</b>	
			Janjgir Champa, Mungeli and Korba	Medium	Issuance of Advisory	First Week of May	IMD, MHA, NDMA, NDRF, NRSC, MoH&FW, MoUD, MoRD, Ministry of Railway, MoRTH, Ministry of Power, Ministry of Information and Communication Technology, Ministry of Petroleum and Natural Gas, Ministry of Food Processing Industries	
					Print & Electronic Media Awareness Campaign	First Week of May		
					Social Media Awareness Campaign	Second Week of May		<b>State Agencies:</b>
					Review of Preparedness through Video Conference	First Week of June		SDMA, WRD, PHED, PWD, Health Department, Municipal Corporations, Electricity Department, Public Relation, Education Department
Other Districts	Low	Regular Video Conference	Every Fortnight					
		Mid Term Review	Second Week of July					
7	Landslide/ Mudslide	June- September	Kondagaon, Kanker, Dantewada and Surguja	High	Preparedness Workshop/Meeting	Third Week of April	<b>Central Agencies:</b>	
					Issuance of Advisory	First Week of May	MoM, NDMA, NIDM, MoRD, NDRF, MoUD,	

*District Disaster Management Plan, Raipur (C.G.)*

			Kabirdham, Jashpur, Bijapur, Narayanpur	Medium	Print & Electronic Media Awareness Campaign	First Week of May	IITs, BRO, MoHRD
					Social Media Awareness Campaign	Second Week of May	<b>State Agencies:</b>
			Other Districts	Low	Review of Preparedness through Video Conference	First Week of June	SDMA, SDRF, Home, PHED, Health Department, Municipal Corporations, Electricity Department, Public Relation Department.
					Regular Video Conference	Every Fortnight	
					Mid Term Review	Second Week of July	
8	<b>Drought</b>	July - October	Bemetara, Raigarh, Mahasamund, Raipur, Baloda Bazar, Jangir-champa, Korba, Mungeli, Durg, Rajnandgaon, Narayanpur, Kanker, Kondagaon, Dhamtari and Kabirdham	High	Preparedness Workshop/Meeting	First Week of May	<b>Central Agencies:</b>
					Issuance of Advisory	Regularly (Every Month)	Ministry of Agriculture & Farmers Welfare, IMD, MNCFC, CRIDA, MoWR, RD & GR, ISRO, SRSACs
			Koriya, Surajpur, Balrampur, Dantewada,	Medium	Print & Electronic Media Awareness Campaign	Round the Year (Every Month)	
					Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>
Sarguja, Sukma, Bastar	Low	Review of Preparedness through Video Conference	First Week of November	SDMA, Relief Commissioner, Agriculture			

*District Disaster Management Plan, Raipur (C.G.)*

					Regular Video Conference	Regularly (Every Month)	Department , Irrigation Department, PHED, Health Department,
					Mid Term Review	First Week of November	Municipal Corporations, Electricity Department, Department of Education
9	Road Accident	Round the Year	Raigrah, Jangir champa, Balrampur, Korba, Raipur, Jaspur, Bastar, Kanker, Rajnandgaon, Durg, Mungeli, Kondagaon, Sarguja, Bilashpur, Surajpur,	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b>  MoRTH, MoUD, NDMA, NIDM
					Issuance of Advisory	Regularly (Every Month)	
					Print & Electronic Media Awareness Campaign	Round the Year (Every Month)	
			Baloda bazar, Mahasamund, Dhamtari, Balod, Sukma, Kabirdham	Medium	Social Media Awareness Campaign	Round the Year	<b>State Agencies</b>  SDMA, Transport Department, PWD, Health Department, Municipal Corporations, Electricity Department, Department of Education
					Review of Preparedness through Video Conference	First Week of Every Month	
					Narayanpur, Dantewada, Bijapur, Gariyaband, Bemetara, Koriya	Low	
Mid Term Review	First Week of Every Month						

**District Disaster Management Plan, Raipur (C.G.)**

10	<b>Fire Accidents</b>	Round the Year	Bilaspur, Jangir champa, Raipur, Durg, Korba, Rajnandgaon, Mungeli	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b>
					Issuance of Advisory	Regularly (Every Month)	MoEF&CC, NRSC, MoRD, MoRMHA, NDMA, NIDM
					Print & Electronic Media Awareness Campaign	Round the Year (Every Month)	
			Bastar, Raigarh, Baloda bazar, Mahasamund, Dhamtari, Balod, Kanker	Medium	Social Media Awareness Campaign	Round the Year	
					Review of Preparedness through Video Conference	Frist Week of (Every Month)	Fire Services, Relief Commissioner, SDMA, PHED, PWD, Municipal Corporation
	Low	Regular Video Conference	Regularly (Every Month)				
		Sukma, Bijapur, Narayanpur, Dantewada, Jashpur, Kabirdham, Gariyaband, Kondagaon		Mid Term Review	Frist Week of (Every Month)		
11	<b>Earthquake</b>	Round the Year	Raigarh, Bilaspur, Korba, Korla, Sarguja and Surajpur	Zone III	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b>
					Issuance of Advisory	Every Month	IMD, MHA, NDMA, NDRF, NRSC,

**District Disaster Management Plan, Raipur (C.G.)**

					Print & Electronic Media Awareness Campaign	Regularly (Every Month)	MoH&FW, MoUD, MoRD, Ministry of Railway, MoRTH, Ministry of Power, Ministry of Information and Communication Technology, Ministry of Petroleum and Natural Gas, Ministry of Food Processing Industries
					Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>
			Other Districts	Zone II	Review of Preparedness through Video Conference	Frist Week of Every Month	SDMA, SDRF, Home Departmenet PHED, Health Department, Municipal Corporations, Electricity Department, Department of Education, PWD
					Regular Video Conference	Regularly (Every Month)	
					Mid Term Review	Frist Week of Every Month	
12	Snake Bite	Round the Year	Bastar, Surajpur, Rajnandgaon, Balarampur, Sarguja, Jashpur, Raigarh, Bilaspur, Korba, Kanker, Kabirdham, Jashpur, Koriya	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b> NIDM, MoHRD, MoHFW, WHO
					Issuance of Advisory	Regularly (Every Month)	



			Kondagaon, Sukma, Bijapur, Mungeli, Raipur, Dhamtari, Durg, Mungeli Mahasamund, Gariyaband	Medium	Print & Electronic Media Awareness Campaign	Round the Year (Every Month)			
					Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>		
			Narayanpur, Bemetara, Balod	Low	Review of Preparedness through Video Conference	First Week of Every Month	SDMA, Health Department, Municipal Corporations, Department of Education, Forest, Animal Husbandry, Women and Child Department		
					Regular Video Conference	Regularly (Every Month)			
					Mid Term Review	First Week of Every Month			
13	Naxalite Attacks	Round the Year	Sukma, Bijapur, Narayanpur, Dantewada, Jashpur, , Kondagaon, Bastar, Kanker	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b> MHA, Central Armed Forces		
					Issuance of Advisory	Regularly (Every Month)			
					Print & Electronic Media Awareness Campaign	Round the Year (Every Month)			
					Rajnandgaon, Dhamtari, Jashpur, Mahasamund, Gariyaband, Balod, Koriya, Sarguja, Balrampur	Medium	Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>
							Review of Preparedness through Video Conferencing	Frist Week of (Every Month)	State Police, Home Department, Department of Education
				Regular Video Conference	Regularly (Every Month)				

			Other District	Low	Mid Term Review	Frist Week of (Every Month)		
14	Epidemics	Round the Year	Surajpur, Raigarh, Janjgir Champa, Kondagaon, Sukma, Bijapur, Bilaspur, Korba, Durg, Bemetara, Balod, Kabirdham, Baloda bazar, Mahasamund, Dhamtari	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b> NDMA, NIDM, MoHRD, MoHFW WHO, MoUD, MoRD	
					Issuance of Advisory	Regularly (Every Month)		
			Raipur, Gariyaband, Mungeli, Surguja, Jashpur	Medium	Print & Electronic Media Awareness Campaign	Round the Year (Every Month)		<b>State Agencies:</b>
					Social Media Awareness Campaign	Round the Year		
			Balrampur, Kanker, Narayanpur, Dhamtari, Rajnandgaon	Low	Review of Preparedness through Video Conference	First Week of Every Month	SDMA, , PHED, Health Department, Municipal Corporations, Electricity Department, WRD, Department of Animal Husbandry, Food and Education Department	
					Regular Video Conference	Regularly (Every Month)		
Mid Term Review	First Week of Every Month							
15	Animal Conflict	Round the Year	Sarguja, Jashpur, Balod , Dhamtari	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b> MoEF, MoPR, MoAFW	
					Issuance of Advisory	Regularly (Every		

						Month)	
			Kondagaon, Bastar, Rajnandgaon, Raipur, Sukma, Bijapur	Medium	Print & Electronic Media Awareness Campaign	Round the Year (Every Month)	
					Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>
			Other Districts	Low	Review of Preparedness through Video Conference	First Week of (Every Month)	SDMA, Forest Department ,SDRF, Home Department PHED, Health Department, Municipal Corporations,
					Regular Video Conference	Regularly (Every Month)	
					Mid Term Review	First Week of Every Month	
16	<b>Crowd Management</b>	Round the Year	Raipur, Durg, Rajnandgaon, Dantewada, Bastar, Jangir champa, Korba, Raigarh, Bilaspur, Mungeli	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b>
					Issuance of Advisory	Regularly (Every Month)	
			Sukma, Bemetara, Narayanpur, Kondagaon, Bijapur, Balod Bazar	Medium	Print & Electronic Media Awareness Campaign	Round the Year (Every Month)	
					Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>
Other Districts	Low	Review of Preparedness through Video Confrencing	First Week of Every Month	SDMA, Relief Commissioner,SDRF, Home Department,			

					Regular Video Conference	Regularly (Every Month)	Health Department, Municipal Corporations,	
					Mid Term Review	First Week of (Every Month)	Department of Education, Department of Transport	
17	<b>Chemical (Industrial) Disaster</b>	Round the Year	Raigarh, Raipur, Bilaspur, Janjgir Champa, Mungeli, Bastar, Dantewada, Durg, Korba, Rajnandgaon	High	Preparedness Workshop/Meeting	Every Month	<b>Central Agencies:</b>	
					Issuance of Advisory	Regularly (Every Month)		NIDM, NDMA, NDRF, MoEFCC, MoCI, MoSME
					Print & Electronic Media Awareness Campaign	Round the Year (Every Month)		
			Surguja, Mahasamund, Dhamtari, Kabirdham	Medium	Social Media Awareness Campaign	Round the Year	<b>State Agencies:</b>	
					Review of Preparedness through Video Conference	First Week of Every Month		SDMA, Relief Commissioner, SDRF, State Police, Health
					Regular Video Conference	Regularly (Every Month)		Department, Municipal Corporations, Department of Education, DoCI
Other Districts	Low	Regular Video Conference	Regularly (Every Month)					
		Mid Term Review	First Week of Every Month					

**Table 53: Calamity calendar**

# **Volume - 2**

## List of Contents :

<b>S.No.</b>	<b>Contents</b>	<b>Pg. No.</b>
<b>1</b>	<b>Preparedness Measures</b>	<b>1-17</b>
1.1	General Preparedness Measures	1-4
1.1.1	Control Room Establishment	1-2
1.1.2	Plan Updation	2
1.1.3	Communication System	3
1.1.4	Training for Disaster Management Team Members	3
1.1.5	Organization of Mock Drills	3
1.1.6	Community Awareness on Various Disasters	3-4
1.2	Coordination Mechanism of DDMA in Pre Disaster Situation	4-5
1.3	Coordination Mechanism of DDMA in Immediate Pre Disaster Situation (Immediately after Early Warning Received)	5-7
1.4	Coordination Mechanism of DDMA during Disaster (Relief Distribution Mechanism)	7
1.5	Coordination Mechanism of DDMA in Post Disaster Situation	7-8
1.6	General Preparedness Checklist	8-9
1.7	Department Wise Preparedness Checklist	9-17
<b>2</b>	<b>Prevention and Mitigation Measure</b>	<b>18-26</b>
2.1	Hazard wise Structural and Non- structural Mitigation Measures	18-25
2.1.1	Hazard: Flood	19-21
2.1.2	Hazard: Drought	21-22
2.1.3	Hazard: Road Accidents	22-23
2.1.4	Hazard: Epidemics	23-24
2.1.5	Hazard: Fire	25
2.1.6	Hazard: Heat Wave	26
<b>3</b>	<b>Disaster Risk Reduction Plan</b>	<b>27-40</b>
3.1	Capacity Building	27
3.2	Recommendations for Disaster Risk Reduction	28-33
3.3	Mainstreaming DRR in Development National Flagship Schemes	33-36
3.4	Mainstreaming DRR in Development State level Flagship Schemes	36-40
<b>4</b>	<b>Climate Change Actions</b>	<b>41-47</b>
<b>5</b>	<b>Capacity Building and Training Measures</b>	<b>48-53</b>
5.1	Capacity Building	48
5.2	Institutional Capacity Building	48-49
5.3	India Disaster Resource Network (IDRN)	49
5.4	Department wise Roles and Responsibilities of HODs	50-51
5.5	Community Based Disaster Management	52-53

## List of Tables :

S.No.	Table	Pg. No.
1	Table 1: Coordination Mechanism of DDMA in Pre Disaster Situation	5
2	Table 2: Coordination Mechanism of DDMA in Immediate Pre Disaster Situation (Immediately after Early Warning Received)	7
3	Table: 3 Coordination Mechanism of DDMA during Disaster (Relief Distribution Mechanism)	7
4	Table 4: Coordination Mechanism of DDMA in Post Disaster Situation	8
5	Table 5: Department Wise Preparedness Checklist	17
6	Table 6: Structural Mitigation Measures for Flood	20
7	Table 7: Non-Structural Mitigation Measures for Flood	21
8	Table 8: Structural Mitigation Measures for Drought	21
9	Table 9: Non-Structural Mitigation Measures for Drought	22
10	Table 10: Structural Mitigation Measures for Road Accidents	23
11	Table 11: Non-Structural Mitigation Measures for Road Accidents	23
12	Table 12: Structural Mitigation Measures for Epidemics	24
13	Table 13: Non-Structural Mitigation Measures for Epidemics	24
14	Table 14: Structural Mitigation Measures for Fire	25
15	Table 15: Non-Structural Mitigation Measures for Fire	25
16	Table 16: Structural Mitigation Measures for Heat Wave	26
17	Table 17: Non-Structural Mitigation Measures for Heat Wave	26
18	Table 18: DRR Initiatives that need attention	33
19	Table 19: Mainstreaming DRR in Development National Flagship Schemes	36
20	Table 20: Mainstreaming DRR in Development State level Flagship Schemes	40
21	Table 21: Sector Specific Activities for Climate Change	46
22	Table 22: Initiatives for Mitigating Climate Change	47
23	Table 23: Department wise Roles and Responsibilities of HODs	51
24	Table 24: Community Based Disaster Management	53

## List of Flowcharts :

S.No.	Flowchart	Pg. No.
1	Flowchart 1: Control Room	2

## **1. Preparedness Measures**

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.

Disaster preparedness activities involve forecasting and taking precautionary measures prior to an imminent threat when advance warnings are possible. During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations. This includes emergency exercises/training, warning systems, emergency communications systems, evacuations plans and training, resource inventories, emergency personnel/contact lists, mutual aid agreements and public information/education.

Preparedness planning improves the response to a disaster in terms of timely and effective rescue and relief operations. Every line department has played an important role in mapping the vulnerability, hazards and capacities of the community and the vulnerable groups and prioritizing Preparedness activities during emergencies. The District Disaster Management plan of Raipur is prepared with the help of the communities and different stakeholder's.

### **1.1 General Preparedness Measures**

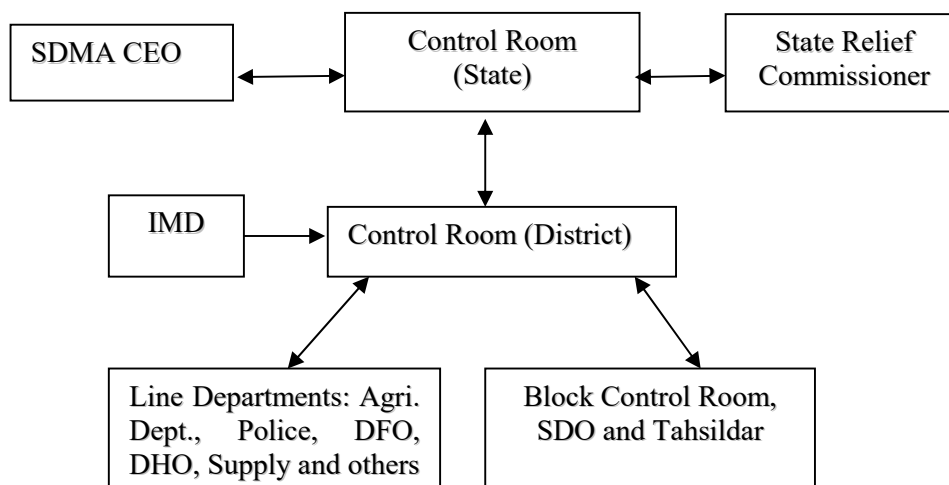
#### **1.1.1 Control Rooms Establishment:**

##### **➤ Preparedness of Control Room:-**

- Preparation of disaster management plans.
- Proper dissemination of vital information about district 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 District 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.
- Receive information on a routine and regular basis from the departments on the vulnerability of the various Gram panchayats and Villages to disaster



**Flowchart 1: Control Room**

### **1.1.2 Plan Updation:-**

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

### **1.1.3 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.

### **1.1.4 Training for Disaster Management Team Members:-**

To enhance the capacity of disaster management committees, trainings and development of skills is important. DMT consist of a group of members, which includes women and men volunteers. Training should be a regular process for disaster risk reduction and mitigation planning. DMT assigned with a special task to Search and Rescue and First Aid Teams in disaster situation at district level.

### **1.1.5 Organization of Mock Drills:-**

In coordination with vulnerable areas, responsible authority took the initiative of conducting mock drills on various types of natural and manmade disasters. This has also helped to inculcating a culture of preparedness and generated awareness. Institutionalizing the DM plan and regular mock drills should also be conducted in schools and colleges.

### **1.1.6 Community Awareness on Various Disasters:-**

Community awareness program helps the community to prepare for disaster at all levels right from the household to the district levels to minimize the impact of Disasters. The district management committee cannot reach out immediately to each and every Household and village at the time of disaster. The community is the first responder to any disaster and develops some traditional coping mechanisms to reduce their risk and vulnerabilities.

Communities living in a common territory comprise of youths, women, men, students, teachers and various stakeholders. In addition, areas such as BPL households, villages, wards, slums where people from diverse social and economic background live together. Community based Disaster awareness can make community responsible for their peace, protection and prosperity. The involvement of the community is the key factor in any disaster preparedness and awareness.

## **1.2 Coordination Mechanism of DDMA in Pre Disaster Situation**

The emergency plan for Disaster Management is based on past experiences as well as suggestions and inputs given by the District Magistrate of the district. The strategy has been developed keeping in view the pre and post disaster experiences. The district consists of sub - divisions and senior level officers of the district who will work as zone officers. They are responsible for rescue and relief operation, and monitor and evaluation of the daily basis situation under the direct command of the District Magistrate.

<b>Preparation</b>	<b>Objectives</b>	<b>Actions Initiated by</b>
Co-ordination of District Level Committee	<ul style="list-style-type: none"><li>• To Provide relief and response</li><li>• Precautionary measures for warehouse and food storage.</li></ul>	<ul style="list-style-type: none"><li>• District Emergency Operation Center</li></ul>
Mapping of vulnerable points	<ul style="list-style-type: none"><li>• Regular mapping of vulnerable spots</li><li>• Planning and implementation of preventive measures.</li><li>• Early warning</li></ul>	<ul style="list-style-type: none"><li>• Deputy collector</li><li>• CEOs (Janpad Panchayat),</li><li>• BDOs, Executive engineers</li></ul>
Essential commodities	<ul style="list-style-type: none"><li>• Stock of food grains, Kerosene, fuel in Gram Panchayat.</li></ul>	<ul style="list-style-type: none"><li>• CEOs (Janpad Panchayat)</li><li>• BDOs</li></ul>
Selecting Shelters	<ul style="list-style-type: none"><li>• Arranging safe shelter during period of</li></ul>	<ul style="list-style-type: none"><li>• Additional collectors</li><li>• CEOs (Janpad</li></ul>

	emergency.	Panchayat) <ul style="list-style-type: none"> <li>• BDOs through</li> <li>• PRIs and local people</li> </ul>
Medicines, Establishment of mobile teams, Identification of epidemic prone areas	<ul style="list-style-type: none"> <li>• Keeping a stock of medicines</li> <li>• Delegation of personnel.</li> </ul>	<ul style="list-style-type: none"> <li>• DCMO</li> <li>• Civil surgeon</li> </ul>
Arranging food and fodder for the cattle	<ul style="list-style-type: none"> <li>• Maintaining stocks</li> </ul>	<ul style="list-style-type: none"> <li>• Veterinary Assistance surgeon (VAS), (Animal Husbandry)</li> </ul>
Organizing Mock drills	<ul style="list-style-type: none"> <li>• Generating awareness</li> <li>• Preparedness training</li> </ul>	<ul style="list-style-type: none"> <li>• District level officers</li> </ul>

**Table 1: Coordination Mechanism of DDMA in Pre Disaster Situation**

### **1.3 Coordination Mechanism of DDMA in Immediate Pre Disaster Situation (Immediately after Early Warning Received)**

<b>Preparation</b>	<b>Objectives</b>	<b>Actions Initiated by</b>
Collection of Information	<ul style="list-style-type: none"> <li>• From IMD/SRC control room/DEOC</li> </ul>	<ul style="list-style-type: none"> <li>• DEOC</li> </ul>
Information dissemination	<ul style="list-style-type: none"> <li>• From DEOC to all C/BDOs/line depts.</li> </ul>	<ul style="list-style-type: none"> <li>• DEOC</li> <li>• Head of line depts.</li> <li>• Sub collectors</li> <li>• BDOs</li> <li>• COs</li> </ul>
Immediate setting and functioning of control room, Rescue and evacuation	<ul style="list-style-type: none"> <li>• Evacuation</li> <li>• Identified shelters</li> <li>• logistic Supply</li> </ul>	<ul style="list-style-type: none"> <li>• Civil Defence unit</li> <li>• Police Department armed forces</li> <li>• Fire officers,</li> <li>• Fire Offices</li> <li>• Red-cross team ready with rescue kits which are to be</li> </ul>

*District Disaster Management Plan, Raipur (C.G.)*

		made available to them through the DEOC
Arrangement of kitchen	<ul style="list-style-type: none"> <li>• Provision of immediate feeding to the evacuated people</li> </ul>	<ul style="list-style-type: none"> <li>• BDOs/CDPOs/NGOs</li> </ul>
Sanitation and medicines	<ul style="list-style-type: none"> <li>• Prevention of epidemics and infections</li> </ul>	<ul style="list-style-type: none"> <li>• Executive engineer of PHE Department</li> <li>• Civil Surgeon</li> </ul>
Ensuring transportation of relief materials to affected areas	<ul style="list-style-type: none"> <li>• Ensuring timely reach of relief materials to the affected people</li> </ul>	<ul style="list-style-type: none"> <li>• DSO/ SDM/ BSOs/ DTO</li> </ul>
Ensuring safety of life and properties	<ul style="list-style-type: none"> <li>• Preventing anti-social activities</li> </ul>	<ul style="list-style-type: none"> <li>• SP/DSP/Inspector</li> <li>• SI of the affected block</li> <li>• NGOs</li> </ul>
Ensuring availability of safe drinking water and health facilities	<ul style="list-style-type: none"> <li>• Checking the inception of epidemics</li> </ul>	<ul style="list-style-type: none"> <li>• CS/Executive engineers of PHED</li> </ul>
Meeting of field level officers every 24 hours for reviewing the situation	<ul style="list-style-type: none"> <li>• Better coordination</li> </ul>	<ul style="list-style-type: none"> <li>• DM</li> <li>• DDC at district level</li> <li>• SDM at sub-divisional level</li> </ul>
Collection of information by the core group of the EOC and daily reporting to concerned officers	<ul style="list-style-type: none"> <li>• Triangular linkage between field, district and state control room</li> </ul>	<ul style="list-style-type: none"> <li>• Core group of EOC/ Officers of line departments</li> </ul>
Estimating number of vehicles-Light/ Medium/ Heavy	<ul style="list-style-type: none"> <li>• Ensuring smooth transportation for relief works</li> </ul>	<ul style="list-style-type: none"> <li>• DTO</li> </ul>
Arranging road cleaners/ power saw and other essential equipment's	<ul style="list-style-type: none"> <li>• Cleaning the roads</li> <li>• Removing the fallen trees</li> <li>• Clearing the debris etc.</li> </ul>	<ul style="list-style-type: none"> <li>• DTO</li> <li>• Executive Engineer</li> <li>• Executive Officer – Nagar Panchayat</li> </ul>
Arranging trucks loaded	<ul style="list-style-type: none"> <li>• Moving to the field</li> </ul>	<ul style="list-style-type: none"> <li>• DTO</li> </ul>

with generators	immediately after the disaster is over	
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**Table 2: Coordination Mechanism of DDMA in Immediate Pre Disaster Situation  
(Immediately after Early Warning Received)**

### **1.4 Coordination Mechanism of DDMA during Disaster (Relief Distribution Mechanism)**

<b>Preparation</b>	<b>Objectives</b>	<b>Actions Initiated by</b>
Readiness and Inclination to get ready in action, immediately after the disaster	<ul style="list-style-type: none"> <li>• To save the trapped and wounded persons</li> </ul>	<ul style="list-style-type: none"> <li>• All line department and stakeholders</li> </ul>
Control room activated 24 hours	<ul style="list-style-type: none"> <li>• To mitigate the effects of the disaster</li> </ul>	<ul style="list-style-type: none"> <li>• District control room</li> <li>• All line depts., BDOs, CEO's</li> </ul>
Distribution of relief as per provisions	<ul style="list-style-type: none"> <li>• To provide food and other essential commodities for survival</li> </ul>	<ul style="list-style-type: none"> <li>• SDM</li> <li>• BDOs</li> <li>• CEOs</li> <li>• NGOs</li> </ul>

**Table: 3 Coordination Mechanism of DDMA during Disaster (Relief Distribution Mechanism)**

### **1.5 Coordination Mechanism of DDMA in Post Disaster Situation**

<b>Preparation</b>	<b>Objectives</b>	<b>Actions Initiated by</b>
Distributing relief as per provisions	<ul style="list-style-type: none"> <li>• Provision food and other essential commodities for survival</li> </ul>	<ul style="list-style-type: none"> <li>• SDM</li> <li>• BDOs</li> <li>• COs</li> <li>• NGOs</li> </ul>
Damage Assessment	<ul style="list-style-type: none"> <li>• Reporting actual loss to the government</li> </ul>	<ul style="list-style-type: none"> <li>• All line depts.</li> <li>• COs</li> <li>• BDOs</li> </ul>

		<ul style="list-style-type: none"> <li>• Executive engineers</li> <li>• Sub Collectors</li> </ul>
Monitoring and evaluation of relief operations by external agencies.	<ul style="list-style-type: none"> <li>• Maintaining consistency of relief administration</li> </ul>	<ul style="list-style-type: none"> <li>• DM</li> <li>• SDM</li> </ul>
Restoring of Roads and Railway networks	<ul style="list-style-type: none"> <li>• Timely and Prompt delivery</li> <li>• Transportation of relief articles</li> <li>• Deployment of rescue teams</li> </ul>	<ul style="list-style-type: none"> <li>• Executive engineers of concerned depts.</li> <li>• Military and paramilitary forces</li> <li>• police</li> </ul>
Restoring electronic communication system	<ul style="list-style-type: none"> <li>• Ensuring proper coordination linkage</li> </ul>	<ul style="list-style-type: none"> <li>• BSNL, Technocrats of police signals</li> </ul>
Immediate arrangement of free kitchen for the effected people	<ul style="list-style-type: none"> <li>• Avoiding starvation</li> </ul>	<ul style="list-style-type: none"> <li>• Sub collectors</li> <li>• BDO's</li> <li>• Line depts.</li> <li>• PSUs</li> </ul>
Documentation of the entire event-Written, Audio, Video	<ul style="list-style-type: none"> <li>• For reporting purposes and institutional memory</li> </ul>	<ul style="list-style-type: none"> <li>• SDM</li> <li>• BDO</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>• To review the relief works and remove the bottlenecks</li> </ul>	<ul style="list-style-type: none"> <li>• DM</li> <li>• DDC</li> <li>• ADC</li> </ul>

**Table 4: Coordination Mechanism of DDMA in Post Disaster Situation**

## **1.6 General Preparedness Checklist**

- i. Collector, the chairperson of DDMA shall ensure that preparedness checklist is duly followed by each front line departments and status of the same is discussed in monthly meetings.
- ii. Head of the department of each frontline department shall ensure that the departments are prepared to meet the challenges of any emergency/disaster by duly following the preparedness checklists.

- iii. Nodal officers of each of the frontline departments shall ensure that the district disaster management resource inventory is maintained and updated on quarterly basis and submission of the same to the district revenue officer, by
  - a. Adding any changes in the human resources of their department along with their updated contact numbers, if any.
  - b. Adding to the equipment list, relevant resources for response activities from both the government and private sectors.
- iv. DRO shall ensure that the same has been updated and uploaded on the website of district administration and India Disaster Resource Network (IDRN) on quarterly basis with the help of District Information Officer (DIO).
- v. Nodal officers of each of the frontline departments shall also report to head of the department and/or collector about requisition of any relevant resource/equipment, not available with the government and/or private sector, for disaster management activity.
- vi. DDMA shall ensure the establishment of emergency operation centre with the following facilities:
  - a. Adequate space for planning and logistics section chief and staff.
  - b. Enough space for control room with adequate communication equipment including landline telephones, mobile phones, satellite phones, walkie-talkie, ham radio, computer/ laptop with printer facility, email facility, fax machine, television, etc.
  - c. Ensure proper space for meeting, conference, media briefing along with LCD, computer and video conferencing facilities.
  - d. Availability of district disaster management resource inventory and also a note of the neighboring districts (Dhamtari, Durg, Balodabazar, Mahasamund, Bemetra, Gariyaband) disaster management resource inventory of the state and other critical national resources.
  - e. Availability of DDMP.

## **1.7 Department Wise Preparedness Checklist**

<b>Departments</b>	<b>Preparedness Checklist</b>
<b>DDMA</b>	<ul style="list-style-type: none"><li>• Regularly monitoring rain gauge at all tehsils and updating database for distribution and variation in rainfall.</li><li>• Preparing flood control order by 31<sup>st</sup> May every year and ensure proper</li></ul>



	<p>mechanism for early warning at village level through Tehsildars, Sarpanch, Patwaris, etc.</p> <ul style="list-style-type: none"> <li>• Ensure proper functioning of DEOC along with availability of fully functional resources and rescue equipment.</li> <li>• Preparation of a database of critical and lifesaving infrastructure, safe locations for evacuation and updated list of relief camps in the district annually.</li> <li>• Identify competent persons/experts from various required fields for carrying out damage and need assessment of post disaster scenario.</li> <li>• Keep interacting with the voluntary organizations in the district and prepare proper mechanism for disbursement of compensation to victims or families of deceased.</li> </ul>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>• Preparation of agriculture contingency plans and identify vulnerable areas prone to pest infestation, droughts, floods and other hazards</li> <li>• 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.</li> <li>• Imparting training to the farmers to adopt new agriculture practices, alternate cropping practices, proper storage of seeds and use of modern technology.</li> <li>• Ensure availability of adequate stock of seeds, stock for immediate replacement of broken/non-functioning gadgets/equipment and other agro inputs particularly for areas vulnerable to hazards.</li> <li>• Prepare trained and equipped team for assessing damage caused to soil, crop, plantation, drainage, embankment, other water bodies and storage facilities that might impact agricultural activities.</li> <li>• Assist farmers in providing timely information regarding crop insurance, compensation, repair of agro equipment and restoring of agricultural activities at the earliest.</li> <li>• Identify sources of feed and fodder.</li> </ul>
<b>Animal Husbandry</b>	<ul style="list-style-type: none"> <li>• Isolating/ separating sick and healthy animals and make arrangements for feeding and watering animals suffering from contagious diseases.</li> </ul>

	<p>Sensitize farmers/ owners for the above problems.</p> <ul style="list-style-type: none"> <li>• Ensure proper disinfection of space, vehicle and manpower involved in transportation of sick/ infected and dead animals from contagious diseases and activating a fully functional mobile veterinary unit at disposal.</li> <li>• Prepare a database of veterinary hospitals/ clinics and agencies working for animal care, so that it could be used at the emergency situations.</li> <li>• To check the availability of stock of mineral and feed supplements, lifesaving drugs, electrolytes, vaccines, etc., along with filling feed banks before the scarcity period.</li> <li>• Sensitizing farmers about protection of their feed and fodder prior to the onset of monsoon.</li> <li>• Prepare the feed of poultry birds for drought situation and also locate feed and fodder banks in view of submergence situation during the monsoon.</li> <li>• Identify source for procurement of fodder and the safe locations for fodder depot and cattle camps within the district and provide source of water for drinking and growing fodder.</li> <li>• Use of tarpaulin sheets to cover the sheds during heat and cold waves.</li> <li>• Taking special care of productive and lactating animals; also supplement them with additional fodder and other requirements.</li> <li>• Ensure proper administration of de-worming and vaccinations for cattle, sheep and goats, pigs and take other relevant measures for disease management.</li> <li>• Identify space for burial of dead animals and ensure proper disposal of carcass.</li> </ul>
<p><b>Education</b></p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Conduct hygiene promotion activities as per direction issued by the health department on a regular basis.</li> <li>• Preparation of first aid and disaster management kit in each school and college.</li> <li>• Identify such schools and colleges within that area that serve as relief</li> </ul>

	shelters in case of any emergency.
<b>CSEB</b>	<ul style="list-style-type: none"> <li>• Prepare a database of critical infrastructure in the district and prepare for providing uninterrupted power supply to them.</li> <li>• Make provisions for continuous power supply to the affected areas and for prompt replacement/recommissioning of affected power supply system.</li> <li>• Providing electrical connections and systems at short notice in affected areas for the purpose of pumping flood water and illumination.</li> <li>• Ensure availability of adequate stock of important equipment like transformers, poles, conductors, cables, insulators, etc. for prompt action whenever required.</li> </ul>
<b>Fire Services</b>	<ul style="list-style-type: none"> <li>• To ensure that the firefighting equipment, appliances and respiratory equipments are in place and functional.</li> <li>• Ensure the availability of clear and proper sketched maps and marked evacuation routes with glowing sign in all important buildings like schools, hospitals, apartments, amusement areas, malls, theatres and organize for regular evacuation drills as per evacuation plans etc.</li> <li>• Make a database of existing firefighting services and facilities provided with private agencies.</li> </ul>
<b>Food &amp; Supplies</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Prepare for out-movement of food grains to a pre-decided safer location, if required.</li> <li>• 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.</li> <li>• Prepare a database of kerosene depots, petrol pumps, gas agencies, etc. and update the same in DDMRI.</li> <li>• Maintain a database of private retailers, wholesalers of edible food items, providers of catering service and providers of refrigerated vehicles for transportation of perishable food items.</li> <li>• Prepare a database of private providers of tents, tarpaulin sheets, poles, cooking utensils, polythene bags, shrouds and other essential items that</li> </ul>

	could be used for community kitchen and cremation and burial purposes.
<b>Forest</b>	<ul style="list-style-type: none"> <li>• Ensure proper functioning of fire rescue equipment and vehicles.</li> <li>• To check that there should be no trespassing in the restricted forest areas.</li> <li>• Prepare an evacuation plan for animals in case of forest fires.</li> <li>• Maintain a database of aara machine holders and carpenters.</li> <li>• Prepare team for catching wild animals to prevent them entering in habituated areas, relief camps, etc.</li> </ul>
<b>RTO</b>	<ul style="list-style-type: none"> <li>• Ensure proper functioning of filling station, vehicles and equipment including fire extinguishers, first aid kits, etc.</li> <li>• Prepare mechanical team for prompt repair of equipment and vehicles; check the availability of trained drivers and conductors in first aid and basic life saving techniques.</li> <li>• Identify vehicles for rescue operations and prepare for prompt deployment of vehicles at short notice for various purposes like mass evacuation, transportation of response teams, relief items, victims, etc.</li> <li>• Familiarizing drivers with routes of potential hazardous installations and follow incident traffic plan.</li> <li>• Make a database of private vehicles available with schools, colleges and other private agencies, so that it can be used for evacuation purpose, if required.</li> </ul>
<b>Health</b>	<ul style="list-style-type: none"> <li>• Prepare a team of paramedics, trained mobile medical teams at emergency sites and keeping materials ready if required for healthcare and hygiene.</li> <li>• Develop dos and don'ts plan for health and hygiene in general and in situations of disaster in particular.</li> <li>• Organize awareness camps with help of CHC/ PHCs and Panchayats for hygiene promotion and public health issues.</li> <li>• Prepare psychological and psychosocial care teams.</li> <li>• Ensure availability of adequate space for storage of medicines; availability of stock of medicines, lifesaving equipment and portable supplies including portable oxygen cylinders, portable X -ray machine, portable ultrasound machines, triage tags, etc.</li> <li>• Prepare a database of doctors registered with Indian Medical Association</li> </ul>

	<p>(IMA), private hospitals and nursing homes with services and facilities available and keep updating it annually.</p> <ul style="list-style-type: none"> <li>• Prepare a database of available ambulance services from government, private agencies and district Rotary/ Lions Club, if any.</li> <li>• Maintain a database of blood donors in the district and update the same in DDMRI and check the availability of adequate supply of blood units.</li> <li>• Train drivers and attendants of ambulance and mobile medical units in first aid and basic life saving techniques.</li> <li>• Prepare for prompt establishment of temporary hospitals, mobile surgical units, etc. at short notice near the affected area.</li> <li>• Ensure proper and safe mechanism for medical waste disposal.</li> <li>• Prepare for proper disease surveillance system.</li> <li>• Make proper arrangement and mechanism for mass casualty management.</li> </ul>
<b>Irrigation</b>	<ul style="list-style-type: none"> <li>• Ensure proper early warning mechanism in place for flood by monitoring water level of surface water bodies.</li> <li>• Inspection of conditions of bunds, siphons, regulators, embankments, inlet and outlets of lakes and reservoirs, etc.</li> <li>• Timely de-silting and dredging of rivers and canals and prompt repair of channels.</li> <li>• Ensure proper functioning of all equipment including dewatering pumps.</li> <li>• Prepare for the arrangements of clean drinking water for affected livestock and poultry.</li> </ul>
<b>Nagar Palika</b>	<ul style="list-style-type: none"> <li>• Prepare for sanitation operations in view of post flood situations within jurisdiction of the area.</li> <li>• Cleaning of drains before the monsoon season.</li> <li>• Prepare mechanism for proper solid waste management and disposal of waste in shelter and relief camps, feeding centers and affected area.</li> <li>• Check the availability of tractor, trolleys and other required equipments for the same.</li> <li>• Plan to provide building/ guest house at different locations to establish control room, first aid and medical post or shelters during emergency.</li> </ul>
<b>Police</b>	<ul style="list-style-type: none"> <li>• To develop a mechanism for early warning of different hazards through</li> </ul>

	<p>police stations and police posts.</p> <ul style="list-style-type: none"> <li>• Check the availability of guards at tourist places, annual exhibitions and fairs and festival where there is a possibility of stampede.</li> <li>• Arrange for public address system and siren.</li> <li>• Installation of temporary wireless systems between district and tehsils in case of any damage to existing wireless system with the department.</li> <li>• Train the communication wing of police in setting up control room at short notice at a required site.</li> <li>• Prepare contingency plans in response to riots, stampede and other law and order emergencies.</li> <li>• Prepare deployment plan of home guards and other volunteers for protection of property of affected community.</li> <li>• Prepare for proper arrangement for custody of recovered belongings and property from dead bodies and affected sites.</li> <li>• Police personal and staff of PCR vans should keep basic first aid box and ensure proper functioning of available equipment.</li> <li>• Train police personnel and staff of PCR vans in first aid and basic life saving techniques.</li> <li>• Protection of dead bodies to avoid their theft and false claims.</li> <li>• Prepare for safety and security of food and other commodities.</li> <li>• Protection against hoarding, black marketing of relief material.</li> <li>• Arrange for safety and security arrangements in the evacuated/affected areas, transit camps, relief camps, hospitals, medical centers, cattle camps and feeding centers.</li> <li>• Keep updated the telephone numbers and database of reserved battalions of police, BDS and Dog Squads in police control room.</li> <li>• Prepare teams trained in search and rescue, first aid, firefighting, etc.</li> <li>• Maintain a database of volunteers and equipment and update the same in DDMRI.</li> </ul>
<b>PCB</b>	<ul style="list-style-type: none"> <li>• Prepare a database of hazardous chemicals and pollutants in the districts and their probable adverse effects on environment.</li> <li>• Prepare for methods and techniques of decontamination of the same</li> </ul>

<p><b>PHED</b></p>	<ul style="list-style-type: none"> <li>• Check the availability and functioning of all available equipments and vehicles.</li> <li>• Prepare for arrangement of safe drinking water supply, water purifying tablets, bleaching powder and chlorination of public water resources, for community in the affected areas and also in relief camps and shelters and maintains a database of suppliers and distributors of packaged drinking water.</li> <li>• Prepare for prompt repair of pipelines supplying potable water, sewerage systems and water works.</li> <li>• Make standby arrangements of generators for running the water pumps.</li> <li>• Ensure installations of tube wells, if needed, before the monsoon to provide underground water to the livestock during flood period.</li> <li>• Ensure availability of adequate number of water tankers, drums, jerry cans or identify their private suppliers to prepare for supply of water, in scarcity period and in emergency.</li> <li>• Ensure availability of water supplies/ filling points for fire tenders, water cannons, hospitals and other necessary lifesaving infrastructure.</li> <li>• Prepare for prompt provision of temporary toilets/ trench latrines in the affected area and relief camps.</li> <li>• Restoration of ponds, lakes in the district in coordination with Irrigation Department.</li> </ul>
<p><b>Public Relations</b></p>	<ul style="list-style-type: none"> <li>• Ensure distribution of Information, Education and Communication (IEC) material to community for awareness generation.</li> <li>• Prepare for proper public address system ensuring rumor control.</li> <li>• Managing media for release of information to public from time to time, giving emergency contact departments/ personnel/ numbers, without creating any chaos among the public.</li> <li>• Maintain database of dos and don'ts of all possible hazards in the district.</li> <li>• Publicize the information through booklets, pamphlets, radio, television, film shows, newspapers, documentary films, door to door campaign, meetings, etc.</li> </ul>
<p><b>PWD</b></p>	<p>Prepare for:</p>

	<ul style="list-style-type: none"><li>• A data base of availability and functioning of heavy equipment like cranes, JCBs.</li><li>• Prompt clearance of debris, repairing of damaged roads, culverts, bridges and flyovers.</li><li>• Construction of new temporary roads for diverting traffic from the affected area, temporary facilities like that of medical post, temporary shelters, etc. at short notice.</li><li>• Prompt establishment of helipad near the affected site for VVIP visits. Prepare for restoration of government buildings damaged during disaster.</li></ul>
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**Table 5: Department Wise Preparedness Checklist**



## **2. Prevention and Mitigation Measure**

Prevention and mitigation measures play vital role in reducing the risk of the disaster. The type of intervention for prevention and mitigation defines whether the measure is structural or non-structural. The measures carried out in infrastructures and services come under the head of structural mitigation measures whereas measures carried out in informative and policy-making way come under the head of non-structural mitigation measures. There are two mitigation measures, Firstly structural mitigation measures deals with the physical vulnerabilities and Secondly non-structural mitigation measures deals with social vulnerabilities. Development schemes and disaster mitigation measures, both, certainly work for lowering the vulnerabilities directly or indirectly. Both are complementary to each other and hence the developmental schemes like MNREGS, Sarv Shiksha Abhiyan, and National Rural Health Mission can be used to incorporate various mitigation measures. Merging the mitigation measures with development schemes can result into optimum benefit out of it, following are some attributes, which can be accomplished by doing it.

- Capacity building.
- Short term as well as long term sustainable development planning.
- More enhanced preparedness.
- Disaster risk reduction.

### **2.1 Hazard wise Structural and Non- structural Mitigation Measures**

#### **Structural Mitigation**

Structural Mitigation involves retrofitting of a building's structural elements to reduce or eliminate earthquake damage. As stated previously, the structural elements of a building act as a skeleton that supports the rest of the building, and include the foundation, load-bearing walls, beams, columns, floor system, and roof system as well as the connections between these elements. A failure of one or more of these structural elements can lead to a collapse of the entire building. Structural mitigation measures may also be applied to non-building structures, such as bridges, dams, and utility system elements.

## **Non-Structural Mitigation**

Non-Structural Mitigation involves retrofitting a building's non-structural elements. The nonstructural elements of a building are those elements that will not cause a building to collapse if they fail, and include exterior elements, interior elements, building electrical, mechanical and plumbing systems, and contents.

### **2.1.1 Hazard: Flood**

#### **Structural Mitigation Measures for Flood**

<b>Probable Mitigation Measures</b>	<b>Implementing Departments</b>	<b>Convergence with Scheme/ Program</b>	<b>Time Frame</b>
Desalting and deepening of water channel	<ul style="list-style-type: none"> <li>• Irrigation and Rural Development</li> </ul>	<ul style="list-style-type: none"> <li>• Departmental program &amp; MNREGAS</li> </ul>	Regularly
Construction of embankments/ protection wall	<ul style="list-style-type: none"> <li>• Rural Development</li> <li>• Forest department</li> </ul>	<ul style="list-style-type: none"> <li>• Departmental program</li> <li>• MGNREGS</li> <li>• watershed</li> <li>• Integrated coastal zone management programme</li> </ul>	0 to 5 years
Departmental program & MGNREGS, watershed, Integrated coastal zone management programme	<ul style="list-style-type: none"> <li>• Rural Development</li> </ul>	<ul style="list-style-type: none"> <li>• Departmental program</li> <li>• MGNREGS</li> </ul>	Regularly
Repair and maintenance of Flood Channels, canals, natural drainage, storm water lines	<ul style="list-style-type: none"> <li>• Irrigation department</li> </ul>	<ul style="list-style-type: none"> <li>• Departmental or special plan</li> </ul>	0-1 years
Construction of Safe Shelters (new construction through different housing	<ul style="list-style-type: none"> <li>• District Panchayat</li> </ul>		Regularly

schemes.			
Protection wall and bamboo and vegetative cover against river level intrusion and land erosion	<ul style="list-style-type: none"> <li>• Forest and Rural development,</li> <li>Agriculture department</li> </ul>	<ul style="list-style-type: none"> <li>• Department schemes</li> <li>• MGNREGS,</li> </ul>	0-6 months
Desalting of water bodies like river and ponds	<ul style="list-style-type: none"> <li>• Irrigation</li> <li>• Rural Development</li> </ul>	<ul style="list-style-type: none"> <li>• MGNREGA</li> <li>• Land Development</li> </ul>	Regularly

**Table 6: Structural Mitigation Measures for Flood**

**Non-Structural Mitigation Measures for Flood**

<b>Probable Mitigation Measures</b>	<b>Implementing Departments</b>	<b>Convergence with Scheme/ Program</b>	<b>Time Frame</b>
Safety audit of existing and proposed department	Education department, health department, PWD, Rural development	<ul style="list-style-type: none"> <li>• Pradhan Mantri Aawas Yojana</li> <li>• Other Housing schemes</li> </ul>	Regularly
Promotion of Traditional, local and innovative practices like bamboo, Rafts.	<ul style="list-style-type: none"> <li>• DDMA</li> <li>• DRDA</li> <li>• Panchayat</li> <li>• Recreational spaces</li> <li>• Self-help groups</li> <li>• Youth groups</li> <li>• Social workers</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Training and capacity building plan for disaster management at all level</li> </ul>	Regularly
Capacity building of volunteers and technicians	<ul style="list-style-type: none"> <li>• DDMA</li> </ul>	<ul style="list-style-type: none"> <li>• Training and capacity building plan for disaster management at all level</li> </ul>	Regularly
Awareness generation on	<ul style="list-style-type: none"> <li>• Veterinary officer</li> </ul>	<ul style="list-style-type: none"> <li>• Departmental Scheme</li> </ul>	Regularly

health and safety of livestock	<ul style="list-style-type: none"> <li>• Rural development</li> </ul>		
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**Table 7: Non-Structural Mitigation Measures for Flood**

### 2.1.2 Hazard: Drought

#### Structural Mitigation Measures for Drought

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

**Table 8: Structural Mitigation Measures for Drought**

### **Non-Structural Mitigation Measures for Drought**

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

**Table 9: Non-Structural Mitigation Measures for Drought**

### **2.1.3 Hazard: Road Accidents**

#### **Structural Mitigation Measures for Road Accidents:**

<b>Structural Mitigation Measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/ scheme</b>	<b>Time frame</b>
Construction of Dividers on overcrowded road.	PWD		
Setup and maintenance of the traffic signals in squares	PWD, Police Department		
Construction of bypass road for highways passing through cities	PWD		
Retrofitting and maintenance of roads,			

dividers, road safety symbols and speed breakers			
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**Table 10: Structural Mitigation Measures for Road Accidents**

**Non-Structural Mitigation Measures for Road Accidents:**

<b>Non-Structural Mitigation Measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/ scheme</b>	<b>Time frame</b>
Set up of high way safety patrolling	<ul style="list-style-type: none"> <li>• Police department</li> </ul>		Every day
Fully trained fire brigade personnel	<ul style="list-style-type: none"> <li>• City Fire brigade office</li> </ul>		Monthly training
Awareness by road safety symbols, and through wall paintings.	<ul style="list-style-type: none"> <li>• Traffic control department.</li> <li>• RTO</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle insurance</li> </ul>	
Up gradation of facilities in hospitals nearby highway.	<ul style="list-style-type: none"> <li>• Private hospitals</li> <li>• Government hospitals</li> <li>• District Health department.</li> </ul>	<ul style="list-style-type: none"> <li>• Health insurance</li> </ul>	

**Table 11: Non-Structural Mitigation Measures for Road Accidents**

**2.1.4 Hazard: Epidemics**

**Structural Mitigation Measures for Epidemics**

<b>Structural Mitigation Measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/ scheme</b>	<b>Time frame</b>
Setup of monitoring centres for surveillance	<ul style="list-style-type: none"> <li>• District health department.</li> </ul>	<ul style="list-style-type: none"> <li>• District Development Plan</li> </ul>	Every month

Set up of health centres in the vicinity of people	<ul style="list-style-type: none"> <li>• District health department.</li> </ul>	<ul style="list-style-type: none"> <li>• District Development Plan</li> </ul>	Regularly
Up gradation of rural hospitals with facilities like blood bank, surgical facilities and pathology.	<ul style="list-style-type: none"> <li>• Ministry of Health</li> </ul>	<ul style="list-style-type: none"> <li>• District Development Plan</li> </ul>	Regularly

**Table 12: Structural Mitigation Measures for Epidemics**

**Non- Structural Mitigation for Epidemics**

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

**Table 13: Non-Structural Mitigation Measures for Epidemics**

### 2.1.5 Hazard: Fire

#### Structural Mitigation Measures for Fire

<b>Structural mitigation measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/scheme</b>	<b>Time frame</b>
Installation of sprinklers, fire extinguisher, sand buckets	District fire department, PWD		Once
Installation of fire/ smoke alarms	District fire department, PWD		Once
Provision of proper and wide fire exit with direction signs	District fire department, PWD		Once
Use of fire-proof materials in construction	PWD		Once

**Table 14: Structural Mitigation Measures for Fire**

#### Non-Structural Mitigation Measures for Fire

<b>Non-Structural Mitigation Measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/ scheme</b>	<b>Time frame</b>
Preparation of emergency plan	District fire department	District development plan.	Yearly
Preparation of evacuation plans	District fire department	District development plan	Yearly
Fire safety trainings/education	District fire department, District education department.	Sarv Shiksha Abhiyan	Regularly

**Table 15: Non-Structural Mitigation Measures for Fire**



### 2.1.6 Hazard: Heat Wave

#### Structural Mitigation Measures for Heat Wave

<b>Structural mitigation measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/ scheme</b>	<b>Time frame</b>
Provision of temporary shelters for homeless people	District Administration, District health department		Yearly
Provision of cotton clothes, trampoline sheets, medicine, ORS.	District Administration, DDMA, District health department		Yearly

**Table 16: Structural Mitigation Measures for Heat Wave**

#### Non-Structural Mitigation Measures for Heat Wave

<b>Non-Structural Mitigation Measures</b>	<b>Implementation agency</b>	<b>Convergence with programme/scheme</b>	<b>Time frame</b>
Provision of alert mechanism to warn people about heat wave	District administration, DDMA,	National health mission	Yearly (particularly summer )
Programmes to aware people for preventive measures.	District administration, DDMA, District health department	National health mission	Yearly (particularly summer )

**Table 17: Non-Structural Mitigation Measures for Heat Wave**

### **3. Disaster Risk Reduction Plan**

*“Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development”.*

The Disaster Risk Reduction Plan (DRR) of district comprised of activities and measures that, if performed and supported the district will tend towards reducing the risks of disasters including those associated to climate-induced hazards. The plan prepared is based on consultations conducted with the communities, key line departments and on field assessment performed in vulnerable villages. Thus, it recommends building upon the gaps observed in the process of disaster management in the district. Moreover, this plan also lists the major developmental schemes and programmes, which can be lined up with DRR and disaster recovery with in the district. DRR Planning is a long - term strategy and links disaster management with developments and it requires involvement of multiple stakeholders for its effective planning.

The disaster risk reduction actions in this roadmap will amplify the district in building its Resilient. It is based on five building blocks keeping in mind the two distinct demographic profiles of rural and urban area.

- Resilient Villages
- Resilient Livelihoods
- Resilient Critical infrastructure
- Resilient Basic Services
- Resilient Cities

#### **3.1 Capacity Building**

Capacity building serves as an integral component of disaster risk reduction. Lack of adequate capacities amongst all the concerned stakeholders proves to be a major hurdle in successful implementation of disaster mitigation and recovery programmes. Capacity building can be seen as a by-product effective learning and training. Capacity is the combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk or the effects of a disaster.

### **3.2 Recommendations for Disaster Risk Reduction**

- One of the important measures to be undertaken by the DDMA towards DRR is to establish and strengthen District Emergency Operation Centre (DEOC) and Flood Control Room need to be to its par excellence.
- The District Crisis Management Group (DCMG) is not formally organized at district level. It is recommended that the CMG be created and their members should get regular trainings.
- There is a need to form and document the list of stakeholders for disaster response which is not readily available within the district administration. This is a critical element when it comes to preparedness.
- Therefore, it is strongly recommended that the district administration should prepare and fill all the contact details, which will help as quick reference during emergencies. Regular meetings should be organized with these stakeholders in order to improve the coordination between them.
- All the Disaster response mechanisms and Incident Command System should be placed and awareness about them should be spread. Disaster response equipment need to be monitored and regular stock should be maintained. All the Loss and Damage Assessment and First-hand Information should be regularly documented.
- There is no early warning system placed at panchayat and at district levels. Most of the warnings are given only by the India Meteorological Department (IMD) and other central institutes/organizations.
- In this regard, the district administration should revise the mechanism currently adopted for early warning and ensure that every concerned stakeholder is included and communicated in a timely manner as per the block-wise hazards.
- Human resources are less in many departments, schools and Anganwadis, which is hampering the lives of the women and children who are the strength of the communities.
- Department wise trainings about disaster management should be set on monthly basis to ensure skilled workforce. Moreover mock-Drills and Emergency Management Exercise have to be planned and conducted on regular basis.
- Key buildings such as schools, Anganwadi, panchayats, community halls requiring retrofit or repair, were identified need immediate attention.

- Accountable and transparent Panchayati Raj Institutions PRI's and governance are essential for integrating risk issues into a sustainable DRR process.
- Inclusive of all genders and marginalized communities must be there in community consultations, decision making and implementation to move from policies to practices.
- Policies for each disaster such as drought, floods, fire, accidents, epidemics, man animal conflicts need to establish a clear set of principles or operating guidelines to govern the management of disasters and its impacts, as well as the development of a preparedness plan that lays out a strategy to achieve these objectives.
- Proper monitoring of risk assessment and identification of appropriate risk reduction measures should be done on regular basis, which are the core components of any policy and plan.
- Policy mechanisms to ensure that drought and floods risk reduction strategies are carried out and enforced regularly.
- New approach undertaking pro-active initiatives to involve techno-social-cultural-economic-environmental-governance initiatives. The emergence of smart phones and its wide range of users cannot be ignored as a resource which can be used for multiple purposes like imparting training programmes, updates and basic Do's and Don'ts of different disaster events. Social factors including education, awareness and social capital will determine to a large extent the success and failure of these strategies.
- The ideas of economic disparity and the brutality of market forces and logistic and supply chain of products were recorded during post disaster needs planning for its smooth functioning of sustainable livelihood practices.

**DRR Initiatives that need attention**

<b>Priorities</b>	<b>Programs</b>	<b>Main concerns</b>
<b>Policies/Schemes/Programs</b>	<b>Village level:</b> <ul style="list-style-type: none"> <li>• Mukhya Mantri Baans Baadi Yojana</li> <li>• Mahatari Jatan Yojana- Nutrition diet for pregnant women</li> <li>• Mukhya Mantri Amrit Yojana-</li> </ul>	Regular monitoring and evaluation

	<p>Nutrition diet to Children</p> <ul style="list-style-type: none"><li>• Mukhya Mantri Amrit Yojana to eradicating malnutrition in Chhattisgarh</li><li>• Mukhya Mantri Khadya or Poshan Suraksha Yojana</li><li>• Mukhya Mantri Bal Sandarbh Yojana healthcare scheme</li><li>• Pradhan Mantri Fasal Bima Yojana</li><li>• Mukhya Mantri Awas Yojana</li><li>• Dindayal Upadhyay Gram Jyoti Yojana</li><li>• Pradhan Mantri Gram Sadak Yojana</li><li>• Van Bhumi Adhikar patta</li><li>• Pradhan Mantri Tirth Yatra Yojana Suchna Kranti Yojana</li><li>• Mukhya Mantri Paduka yojana</li><li>• Jananni Suraksha Yojana</li></ul> <p><b>State level:</b></p> <ul style="list-style-type: none"><li>• Mahatma Gandhi National Rural</li><li>• Employment Guarantee Schemes</li><li>• Pradhan Mantri Aawas Yojana in Naya Raipur</li><li>• Pradhan Mantri Ujwala Yojna</li><li>• Pradhanmantri Krishi Shinchai Yojana</li><li>• Pradhanmantri Mudra Yojna</li><li>• Sanjeevni Express</li><li>• Swatch Bharat mission</li></ul>	
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*District Disaster Management Plan, Raipur (C.G.)*

	<ul style="list-style-type: none"> <li>• Dindayal Upadhay Gram Jyoti Yojana</li> <li>• Pradhan Mantri Jan Dhan Yojana</li> <li>• Pradhanmantri Suraksha Bima Yojana</li> <li>• Mukhya Mantri Kanya Vivah Yojana</li> <li>• Swaraswati Cycle yojana</li> <li>• Mission Smart City Raipur <ul style="list-style-type: none"> <li>➤ Make in India</li> <li>➤ Standup India</li> <li>➤ Digital India</li> <li>➤ Startup India</li> </ul> </li> </ul>	
<b>Institutions</b>	<ul style="list-style-type: none"> <li>• Indian Meteorological department</li> <li>• Krishi Vigyan Kendra</li> <li>• Public Health Centers</li> <li>• Government Hospitals</li> <li>• Gram Panchayats</li> <li>• Schools</li> <li>• College</li> <li>• Anganwadi</li> <li>• Fire stations</li> <li>• Collectorate</li> </ul>	Regular evaluation and plannig
<b>Plans, Sop's and Financial Management</b>	Planning for triangular linkage between field, district and state control room	Yearly basis
<b>Infrastructure, materials and equipment</b>	<b>School and Anganwadi:</b> <ul style="list-style-type: none"> <li>• Emergency and first aid kits</li> <li>• Toilets</li> <li>• Grain Storage trunks</li> </ul>	Every six Month

	<ul style="list-style-type: none"> <li>• LPG Connections</li> <li>• Water taps</li> <li>• Playgrounds</li> <li>• Fire Extinguisher</li> </ul> <p><b>Gram panchayats:</b></p> <ul style="list-style-type: none"> <li>• Flood rescue equipment's</li> <li>• Fire rescue equipment's</li> <li>• Warning alarms</li> </ul> <p><b>Village level:</b></p> <ul style="list-style-type: none"> <li>• Warning alarms on dams and rivers</li> <li>• Bridges on rivers, Roads ill fields and rivers</li> <li>• Community halls</li> <li>• Safe shelters</li> <li>• Fencing of forests areas</li> <li>• Warehouse</li> <li>• PHC's</li> <li>• Medicine shops</li> </ul>	
<b>Capacity Building</b>	<ul style="list-style-type: none"> <li>• Stocking of the sand bags, alerting people near highly vulnerable pockets.</li> <li>• Stocking of food grains and other essential things in Gram panchayats or ware house.</li> <li>• Village tanks</li> <li>• Emergency facilities 108, 100, 102 Mehtari Express.</li> <li>• Pradhan Mantri Kaushal Vikas Yojana</li> </ul>	Need to Strengthen
<b>Public Awareness and Education</b>	Wash and Sanitation	Regularly
<b>Risk Assessments</b>	Establish warning systems between	Regularly

	the local to district level with media.	
<b>DRR Programs and Schemes</b>	Swachh Bharat Abhiyan. Providing relief in case of casualty due to natural calamities under Revenue Book Circular 6(4). As per the revised provisions.	Regularly

**Table 18: DRR Initiatives that need attention**

Ongoing efforts will be towards capacity building, strengthening the functioning of district level institutions like District Disaster Management Authorities and public awareness campaigns.

### **3.3 Mainstreaming DRR in Development National Flagship Schemes**

<b>S.No.</b>	<b>Name Of Schemes</b>	<b>Eligibility</b>	<b>Benefits</b>	<b>DRR Integration</b>
1	Mahatma Gandhi National Rural Employment Guarantee Schemes	Any Adult who wants 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	PradhanMantri Aawas Yojana	Economical Weaker Section Household	Chhattisgarh Housing Board will construct homes for EWS and LIG categories	Provide affordable housing to Economical Weaker



*District Disaster Management Plan, Raipur (C.G.)*

			under the PM Awas Yojana	Section will allow them to invest in other productive capital
3	PradhaMantri Gram Sadak Yojana	Unconnected Habitations with a population of 250 persons and above (census 2001)	Rural road connectivity would promote access to economic and productive employment oppurtunities	Improved road networks would enhance the capacity of rural communities
4	PradhanMantri 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	Pradhanmantri Krishi Shinchai 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	Dindayal Upadhay Gram	Rural Population	Rural electrification: Providing round the clock	Separation of agriculture and non-

*District Disaster Management Plan, Raipur (C.G.)*

	Jyoti Yojana		power to rural households and adequate power to agricultural consumers.	agriculture feeders would facilitate judicious rostering of supply to agricultural and non-agricultural consumers in the rural areas.
7	Pradhanmantri Mudra Yojna	Person who want initiate Micro enterprise	It would develop micro enterprise sector in the country by extending various support including financia; support in the form of refinance.	Employment 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 insure access to various financial services like availability of basic savings bank acoount, access to need based credit, remittances facility, insurance amd 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	It would stabilise the income of farmers to ensure their continuance in farming.

			natural calamities, pests and diseases.	
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 development of information systems.	Spread awareness related to agriculture, climatic conditions and early warnings.

**Table 19: Mainstreaming DRR in Development National Flagship Schemes**

### **3.4 Mainstreaming DRR in Development State level Flagship Schemes**

<b>S.No.</b>	<b>Name Of Schemes</b>	<b>Eligibility</b>	<b>Benefits</b>	<b>DRR Integration</b>
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

*District Disaster Management Plan, Raipur (C.G.)*

				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 atleast rice and wheat through ration shops at cheap prices. Meet the requirement of sustainable development goal of zero hunger.
6	Mukhya Mantri	Children	Provide health check-up	Increasing life

*District Disaster Management Plan, Raipur (C.G.)*

	Bal Sandarbh Yojana- Healthcare scheme		and medical counselling facility to children suffering from severe malnutrition and other crisis.	expectancy and 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

*District Disaster Management Plan, Raipur (C.G.)*

				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 enrolment of girls (BPL, SC and ST) who have passed class VIII and to ensure their retention up to the class XII. To improve the girl's enrolment, attendance and retention upto class XII, continuation of education till 12 <sup>th</sup> standard. To ensure that the girl's students continue their education beyond the level of primary.	Girls are the agents of change their priorities and 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

*District Disaster Management Plan, Raipur (C.G.)*

				and become self dependent.
13	Mission Smart City	Civilians	To provide the civilians with high quality modern and efficient Municipal services, sustainable development and sound environmental management.	Infrastructural development and better construction enhance resilient structure which incorporates indigenous knowledge and modern techniques.
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.

**Table 20: Mainstreaming DRR in Development State level Flagship Schemes**

## **4. Climate Change Actions**

Climate change has increased the intensity and frequency of disaster events around the world resulting in massive destruction with regard to loss of human lives, livelihoods, infrastructure, environment etc thereby disrupting the social, economic and cultural setup. Risks related to change of climate have become a major concern regarding the sustainability of livelihood options, infrastructure, ecosystem services and the local economy especially for the South Asian nations. An increase has been witnessed in the magnitude and frequency of precipitation related hazards such as floods, droughts, landslides, typhoons, cyclones and so on.

India has also been a witness to natural and climate induced devastations. The unique geo-climatic, socio-economic conditions and developmental indicators make the nation even more vulnerable to a kaleidoscope of hazardous events such as droughts, floods, cyclones, landslides, forest fires and so on. Events such as the Chennai floods, Thane Cyclone, Uttarakhand cloud burst, Assam floods etc- have resulted in emerging of serious concerns regarding disaster response, preparedness and mitigation at various levels. About Chhattisgarh, a study was done by the Human Development Institute, New Delhi, in which several drought-hit districts have been identified. This includes Bastar, Bilaspur, Janjgir-Champa, Dantewada, Dhamtari, Durg, Jashpur, Kanker, Korba, Kabirdham, Mahasamund, Raigarh, Korea, Raipur, Rajnandgaon and Sarguja etc.

### **Sector Specific Activities for Climate Change**

<b>Sector</b>	<b>Invention Type</b>	<b>Activities</b>
<b>Agriculture</b>	Improved practices	<ul style="list-style-type: none"> <li>• Developing and deploying resources for adoption of multi-cropping as a practice.</li> <li>• Developing cold storage facilities at the district level for safe storage perishable horticulture, forest and food products.</li> <li>• Crop diversification to cope with increasing climatic variability.</li> <li>• Introduction of sprinkler and drip irrigation systems and better drainage network.</li> <li>• Construction and strengthening of flood walls or</li> </ul>



		embankments along the rivers.
	Planning	<ul style="list-style-type: none"> <li>• Mapping the potential for growth of agro and forest based industries in each district.</li> <li>• Proper implementation of insurance based measures for transfer of risks incurred from loss of harvest, from farmer to government.</li> </ul>
	Conservation of water and soil	<ul style="list-style-type: none"> <li>• Implementation of steps for minimizing losses incurred through water and soil such as agro-forestry, integrated watershed management, water harvesting through check dams, renovation of existing ponds as agriculture is primarily rain-fed.</li> <li>• Renovation of traditional water management systems.</li> </ul>
	Forecasting and early warning systems	<ul style="list-style-type: none"> <li>• Strengthening of early warning systems and weather services through advanced agro-systems.</li> </ul>
	Integrated nutrient and pest management	<ul style="list-style-type: none"> <li>• Research and education on integrated nutrition and management of pests along with promotion and integration of conservation agriculture.</li> <li>• Applying fertilizers based on soil quality, thereby increasing the efficiency of fertilizers and decrease in pollution of ground water and soil.</li> </ul>
<b>Disaster Management</b>	Research and Capacity building	<ul style="list-style-type: none"> <li>• Community based disaster risk management activities, establishing search and rescue teams in every village.</li> <li>• Integration of indigenous techniques with better scientific management.</li> <li>• Encouragement of traditional practices and indigenous knowledge for mitigating risks.</li> </ul>
	Awareness	<ul style="list-style-type: none"> <li>• Mock drills and first aid training in schools and colleges.</li> <li>• Training village authorities in hazard and vulnerability mapping activities in coordination with community members or representatives.</li> <li>• Preparedness of emergency response plans and safety evacuation plans in various public buildings.</li> </ul>

	<p>Vulnerability and Risk Management</p>	<ul style="list-style-type: none"> <li>• Assessment of vulnerable structures in urban as well as rural areas.</li> <li>• Relocation and resettlement of most vulnerable groups and structures to safer and better locations.</li> </ul>
	<p>Monitoring and evaluation</p>	<ul style="list-style-type: none"> <li>• Monitoring the variations in various climatic parameters through establishment of automated weather stations and satellite signals.</li> <li>• Monitoring training of concerned authorities according to their requirements and for enhancement of their potentials for mitigating future disaster risks; alongwith periodic evaluation and valuable feedbacks.</li> <li>• Preparing regular audit reports of various departments highlighting their progress and drawbacks with regard to disaster risk reduction and mitigation.</li> <li>• Establishing close coordination and sharing of information regarding plans of various line departments.</li> </ul>
<p><b>Water resources and Sanitation</b></p>		<ul style="list-style-type: none"> <li>• Regular review and feedback sessions of the functional hydrological stations, automated weather and rain gauge stations.</li> <li>• Developing curriculums of educational institutions, especially in rural areas for mass awareness regarding relevance of water conservation and proper sanitation measures.</li> <li>• Developing and deploying capacity building initiatives for professionals of various departments as well as among various Panchayats and municipal wards, so that they can pass it on to other people in their areas.</li> <li>• Promoting the disadvantages of open defecation and significance of various initiatives such as ‘Gramin Seat’ through intensive social communication, street plays, banners and so on.</li> <li>• Improving drainage networks and periodic evaluation of drinking water sources present in village.</li> </ul>

		<ul style="list-style-type: none"> <li>• Regular testing and treatment of water sources in rural and urban areas for preventing eutrophication and loss of aquatic flora and fauna.</li> </ul>
<b>Forests and Biodiversity</b>	Conservation of biodiversity	<ul style="list-style-type: none"> <li>• Identification and documentation on amount of remaining green cover and its exposure to various anthropogenic risks.</li> <li>• Preventing diversion of forest lands for non-forest purposes.</li> <li>• Preventing the spread of invasive species and encouraging growth of indigenous species of flora.</li> <li>• Conservation of existing ground water sources and promotion of sustainable livelihoods through institutional development initiatives such as Joint Forest Management (JFM), SHG's and so on.</li> <li>• Wetland conservation.</li> </ul>
	Intervention in forest and non-forest areas	<ul style="list-style-type: none"> <li>• Clear demarcation of areas accessible to people, especially to communities dependent on forest for meeting their daily requirements.</li> </ul>
	Awareness and Research	<ul style="list-style-type: none"> <li>• Studies on traditional and religious beliefs of tribals that tally with conservation of biodiversity.</li> <li>• Awareness on ecosystem services, eco-friendly and green technologies for maintaining equilibrium between development and conservation of biodiversity.</li> </ul>
	Fire Management	<ul style="list-style-type: none"> <li>• Adopting appropriate measures for preventing spread of forest fires, especially during the dry season.</li> </ul>
<b>Urban Development</b>	Management of solid waste and waste water	<ul style="list-style-type: none"> <li>• A comprehensive and sustainable approach for managing solid waste and waste water from households, taking into consideration the availability of dumping sites and their proximity to human habitation.</li> </ul>
	Adoption of renewable	<ul style="list-style-type: none"> <li>• Developing strategic plans for improving energy efficiency of households, including plans for bringing in the use of alternative and renewable sources of energy.</li> </ul>

*District Disaster Management Plan, Raipur (C.G.)*

		<ul style="list-style-type: none"> <li>• Encouraging innovation and competitiveness in renewable energy sources for mitigating and adapting to climate change.</li> </ul>
	Improving resilience	<ul style="list-style-type: none"> <li>• Increasing community based disaster risk management and advance earning systems for improving the adaptive capacity of habitats and households to climate change.</li> <li>• Establishing a committee for looking after the conservation of urban water bodies, green and open spaces and treatment of waste water.</li> <li>• Maintenance of peri urban spaces especially in busy locations in urban areas.</li> <li>• Promotion and adoption of energy efficient codes for urban housing projects and various other programmes.</li> </ul>
<b>Transport</b>	Transport infrastructure, planning and management	<ul style="list-style-type: none"> <li>• Promoting and ensuring the availability and use of cleaner energy sources for fuel.</li> <li>• Car pooling can be used as an alternative.</li> <li>• Ensuring pollution certificates for all the vehicles and confirming that the emitted pollution levels are within the permitted amount.</li> </ul>
<b>Energy</b>	Conservation and improvement in energy efficiency	<ul style="list-style-type: none"> <li>• Promoting the use of solar powered lights, heaters, pumps and other such renewable sourced energy products.</li> <li>• Introducing smart grid metering systems in households and public buildings.</li> </ul>
<b>Industries</b>		<ul style="list-style-type: none"> <li>• Regular check on pollutants released by industries in air as well as water bodies.</li> <li>• Promoting use of pollution control mechanisms and filters.</li> <li>• Building awareness regarding adoption of GHG mitigation measures, energy audits, benefits of fuel switching and so on.</li> </ul>
<b>Human Health</b>		<ul style="list-style-type: none"> <li>• Constitution of a Climate Change Cell in the health department as well as various sub-cells within the district</li> </ul>

		<p>level.</p> <ul style="list-style-type: none"><li>• Developing emergency response plans and conducting mock drills in PHC's and CHC's.</li><li>• Spreading awareness on adoption of Sphere Standards while conducting emergency response during and after disasters.</li><li>• Training and sensitization programmes with proper feedbacks for department personnel as well as community members.</li><li>• Development, training and deployment of disaster management teams in every PHC and CHC for responding to impact of extreme climatic variations.</li></ul>
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**Table 21: Sector Specific Activities for Climate Change**

## **Initiatives for Mitigating Climate Change**

<b>Initiatives to mitigate disasters (intensified by climate change)</b>	<b>Initiatives to mitigate climate change</b>
Development and deployment of strategies and action plans for reducing vulnerability to disasters.	Promotion of renewable energy sources including an increase in the share and utilization of alternative fuels.
Improvement coordination among various line departments and agencies for improving management of risks and response to disasters.	Promoting energy efficient technology, especially in buildings, transportation, industrial set ups and household appliances.
Upgrading and retrofitting of important infrastructural set-ups in hazardous areas according to recommended building codes.	Total implementation of Green India Mission and other such initiatives.
Improving access to information regarding specific hazard and vulnerabilities as well as communication campaigns through infotainment, especially in high risk zones	Reduction in the amount of emissions especially from the transport and industrial sector.
Periodic HRVC activities in close coordination with community members or representatives for making disaster friendly plans, including those induced by anthropogenic factors.	Reduction in emissions from solid waste and waste water from households

**Table 22: Initiatives for Mitigating Climate Change**

## **5. Capacity Building and Training Measures**

### **5.1 Capacity Building**

As per the DM Act (2005), capacity-building includes:

1. Identification of existing resources and resources to be acquired or created;
2. Acquiring or creating resources identified under sub-clause (i)
3. Organization and training of personnel and coordination of such trainings for effective management of disasters.

The primary purpose of capacity-building in disaster management is to reduce risk and thus make communities safer. This can be done by increasing resilience and enhancing coping capacities. Effective capacity-building requires the active participation of all those who are tasked with it. It must, therefore, include maintaining a comprehensive and up-to-date district disaster management resource inventory, awareness generation, education and systematized training.

The district collector should ensure the following activities of the entire district, and the various heads of departments should ensure capacity-building of their respective departments. Furthermore, the nodal officers should, in coordination with the HODs, procure relevant equipments for disaster management activities.

### **5.2 Institutional Capacity Building**

Institutional capacity-building will be structured upon a level-system that will be designed to bring officials and professionals from multiple fields and skill-sets at the district level. The DDMA will utilize the abilities and expertise of representatives from following areas, structured in the form of levels on the basis of priority.

Chhattisgarh Academy of Administration (CGAA) holds responsibility at the State level for conducting training programs on Disaster Management in all the districts of Chhattisgarh. The trainings take place for three to five days and involve district officials from various departments, as per the specificities of the training being conducted. It is incumbent upon these officials to attend the trainings for which they have been nominated. The officials in charge of updating the DDMP are also responsible for keeping track of all trainings

conducted and at the time of updating the plan, they shall include the names and contact details of all officials from district who have attended any disaster management related training in the past six- months. This will ensure the availability of trained human resources capable of dealing with disasters at the district level.

The various stakeholders to be trained are NGOs, community-based organizations (CBOs), social workers, youth organizations, National Cadet Corps (NCC), National Service Scheme (NSS), school teachers and school children. Training is the most important, essential and central activity of all capacity development.

Training is the most important, essential and central activity of all capacity development programmes. Trained personnel respond much better to different disasters in time and appreciate the need for preventive measures. Systems, measures and initiatives would be taken to ensure intensive training for building up of human resources, especially to improve disaster awareness, safety and enhance capabilities of disaster managers at various levels.

### **5.3 India Disaster Resource Network (IDRN)**

IDRN is a web based information system, which is a list of devices, efficient human resources and critical supply management for emergency response. The primary focus is to make decision makers able to find answers to the availability of the necessary tools and human resources to deal with any emergencies. This database will enable them to assess the level of preparation for specific vulnerabilities.

Each user of all the districts of the state has been given a unique username and password through which they can update data entry and data in IDRN for available resources in their district.

The IDRN network has the functionality to generate several question choices on the basis of important supplies, with specific tools, skilled human resources and their location along with the contact details.



## 5.4 Department wise Roles and Responsibilities of HODs

<b>Departments</b>	<b>Roles and Responsibilities of HODs</b>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>• Formation and training of weather watch group for the purpose of monitoring crops in the district.</li> <li>• Keeping in place disaster management protocols for the hazards of drought, flood, hailstorm, etc.</li> <li>• Formation of rapid damage assessment teams for assessing the condition of soil, fields, irrigation systems and any other damage to crops in post-disaster situations.</li> </ul>
<b>Animal Husbandry</b>	<ul style="list-style-type: none"> <li>• Ensure the formation of rapid damage assessment teams capable of examining and assessing damage caused to livestock, feed and fodder, and other things within the domain of animal husbandry.</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Formation and training of damage and needs assessment teams within the department.</li> <li>• Provision of trainings in first aid and basic survival skills for teachers and students in the district.</li> <li>• To ensure education and awareness programs are in the curriculum.</li> <li>• Capacity-building at the institutional level should be enhanced by carrying out various activities under the School Safety Programme (SSP).</li> </ul>
<b>CSEB</b>	<ul style="list-style-type: none"> <li>• Ensure the timely purchase of electric equipments necessary for maintaining a state of adequate preparedness and for speedy and efficient disaster response, through the appropriate channels of the district administration.</li> </ul>
<b>Fire Services</b>	<p>Conducting :</p> <ul style="list-style-type: none"> <li>• Fire-safety trainings for all district officials.</li> <li>• Safety audits of various government and civilian buildings in order to check whether they are compliant with fire-safety norms.</li> <li>• Regular mock-drills should for fire-fighting and evacuation procedures.</li> <li>• Training programs on disaster management by CDM, CGAA from time to time.</li> </ul>
<b>Civil Defense &amp; Home Guards</b>	<ul style="list-style-type: none"> <li>• Provision of trainings for volunteers in Search and Rescue (SAR), first aid, traffic management, dead body management, evacuation, shelter and</li> </ul>

	<p>camp management, mass care and crowd management.</p> <ul style="list-style-type: none"> <li>• Arrange for the purchase of SAR equipments through appropriate channels of the district administration.</li> </ul>
<b>Forest</b>	<ul style="list-style-type: none"> <li>• Ensure the formation and training of teams within the department for catching wild/escaped animals which pose a threat to human safety.</li> </ul>
<b>RTO</b>	<ul style="list-style-type: none"> <li>• Provision of training to drivers, conductors and staff in first aid and basic life saving techniques.</li> <li>• Adequate stocking/replenishing of first aid kits and maintenance of fire extinguishers in all vehicles and depots in the district.</li> </ul>
<b>Health</b>	<ul style="list-style-type: none"> <li>• Formation and training of damage and need assessment teams within the department.</li> <li>• Provision of trainings for Quick Response Medical teams (QRMTs) of paramedics, mobile medical teams, psychological first aid teams and psycho-social care teams.</li> <li>• Arrange for timely procurement/purchase of portable equipments for field and hospital diagnosis, triage, etc.</li> <li>• Provision of trainings for health attendants and ambulance staff in first aid and life- saving techniques.</li> <li>• Provision of training to members of local communities in health and hygiene practices.</li> <li>• Enhancing capacity building at the institutional level by carrying out various activities related to Capacity Building and Training measures.</li> </ul>
<b>Irrigation</b>	<ul style="list-style-type: none"> <li>• Provision of trainings to all human resources with regard to early-warning for flood.</li> <li>• Arrange for timely purchase of early warning and communication equipments through appropriate channels of the district administration.</li> </ul>
<b>Police</b>	<ul style="list-style-type: none"> <li>• Deployment of trained police personnel within the district in disaster management.</li> <li>• Conduct trainings for the police personnel to deal with various situations, an important aspect of capacity-building in the district.</li> <li>• Preparing for prevention of human trafficking and other activities in the aftermath of disasters.</li> </ul>

**Table 23: Department wise Roles and Responsibilities of HODs**

## **5.5 Community Based Disaster Management**

Community Based Disaster Management would ensure community members take appropriate action for disaster risk management thereby ensuring a “culture of prevention” and creation of safer communities. The concept of risk reduction through community based disaster management will help in:

- Institutionalization of community based disaster risk management in policy, planning and implementation.
- Intensive work with the community for information dissemination and awareness generation.

This would enable community groups and other stakeholders including the government to identify potential risks and vulnerabilities, assess capacities, and plan for preparedness, prevention, and mitigation to overcome the ill effects of disasters through a coordinated effort.

<b>Work</b>	<b>Responsibility</b>	<b>Department</b>
Community Preparedness	<ul style="list-style-type: none"> <li>• Selection of weak community and the most vulnerable groups in danger.</li> <li>• Broadcast information about vulnerability and exposure to the community.</li> <li>• Promote local level disaster risk management plan through participation approach. Provide advice and guidelines wherever necessary for community disaster prevention, mitigation and preparation through local resources and participation approach.</li> <li>• Provide necessary resources and support for disaster risk reduction at the community level.</li> <li>• Review the preparation at the community level; take appropriate action to increase the capacity of the community.</li> </ul>	<ul style="list-style-type: none"> <li>• District Collector</li> <li>• Revenue Dept</li> <li>• Weather Dept</li> <li>• Finance Dept</li> <li>• Nagar Nigam Commissioner</li> <li>• Rural and Urban Development Dept</li> <li>• Panchayati Raj</li> </ul>

	<ul style="list-style-type: none"><li>• Promote community education, awareness and training.</li><li>• Make sure to safeguard the community to predict the coming calamity and to spread the warnings timely.</li><li>• Broadcast instant information at the community level in any disaster situation.</li></ul>	
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**Table 24: Community Based Disaster Management**

# **Volume - 3**

## List of Contents :

S.No.	Contents	Pg. No.
<b>1</b>	<b>Response and Relief Measures</b>	<b>1-8</b>
1.1	Stages of Response and Relief	1
1.2	Pre-Disaster Relief and Response	2-3
1.3	During Disaster Relief and Response	4
1.4	Execution of Phase II of Relief and Response in the context of Raipur District	4
1.5	Activation of State government/ District administration	4-6
1.6	Post Disaster Relief and Response	7
1.7	Reconstruction	7-8
<b>2</b>	<b>Measures for Reconstruction and Rehabilitation</b>	<b>9-14</b>
2.1	Reconstruction and Rehabilitation	9
2.2	Recovery Activities	10-14
2.2.1	Short Term Recovery	10
2.2.2	Long Term Recovery	10-11
2.2.3	Assessment of Loss and Policy Determination	11-12
2.2.4	Reorganization (Rectification)	12-14
<b>3</b>	<b>Financial resources for the District Disaster Management Plan</b>	<b>15-17</b>
3.1	Availability of financial resources from Centre and State	15
3.1.1	Fund for capacity Building	15
3.2	Other funding by state	16
3.2.1	External funding systems	16
3.2.2	Financial provisions	16
3.2.3	Disaster relief fund	16
3.3	National Calamity Contingency fund	16
3.4	State Disaster Relief Fund	16
3.5	Chhattisgarh relief fund	17
3.6	Other provisions of the finance system	17
3.7	District Financial Resources	17
3.8	Other Financial Resources at District Level	17
<b>4</b>	<b>Monitoring, Evaluation and Updation of District Disaster Management Plan</b>	<b>18-21</b>
4.1	Evaluation of DDMP	18
4.2	Authority for Maintaining and Reviewing DDMP	19
4.3	Post Disaster Evaluation Mechanism	19
4.4	Disaster Evaluation Mechanism	19-20
4.5	Media Management	20-21
4.6	Conducting Mock Drills at District Level	21
4.6.1	Following are the responsible institution for Mock Drill	21

<b>5</b>	<b>Coordination Mechanism for Implementation of DDMP</b>	<b>22-28</b>
5.1	Coordination with the Centre and the State	23
5.1.1	National Disaster Management Authority	23
5.1.2	National Executive Committee	23
5.1.3	National Institute of Disaster Management (NIDM)	23
5.1.4	National Disaster Management Force (NDRF)	23
5.2	State Disaster Management Authority (SDMA)	23-24
5.2.1	State Executive Committee (SEC)	24
5.3	District Disaster Management Authority (DDMA)	24
5.4	State Disaster Response Force (SDRF)	24
5.5	Disaster Management Center	24
5.6	Nodal Department	25
5.7	Coordination at District Level	25
5.8	Coordination at Local Level	26
5.9	Coordination with Private Institutions and Social Service Organizations	27
5.10	Coordination with Neighbour Districts	27
5.11	Coordination with SDMP	28
<b>6</b>	<b>Standard Operating Procedures and Checklist</b>	<b>29-37</b>
6.1	Standard Operating Procedure	29-30
6.2	Preparedness for Flood	30-32
6.2.1	Precautions	30-31
6.2.2	Emergency Response Resources	31-32
6.3	Preparedness for Drought	32-33
6.3.1	Precautions	32-33
6.3.2	Information Utilization for Drought Management	33
6.4	Preparedness Measures for Stampede	33
6.5	General SOPs for all other Disaster	34-35
6.6	Assistance from the Central / State Government	35-36
6.7	Human Relief and Assistance	36-37

### List of Tables :

<b>S.No.</b>	<b>Table</b>	<b>Pg. No.</b>
1	Table 1: Stages of Response and Relief	1
2	Table 2: Steps of IRTF	6
3	Table 3: Nodal Departments/ Officer for Reconstruction and Reorganization	13
4	Table 4: Other Financial Resources at District Level	17
5	Table 5: Format for DDMP Review Panel	19
6	Table 6: Nearest district and state as per Tehsil for assistance	27

7	Table 7: Action plan to deal with flood situation	32
8	Table 8: Assistance from the Central / State Government	36
9	Table 9: Human relief and assistance	37

### List of Figures :

S.No.	Figure	Pg. No.
1	Fig. 1: The Proposed Disaster Pre-Warning System of the District	2
2	Fig. 2: Incident Response Team framework (IRTF)	6
3	Fig. 3: Sources of funds for the Disaster Relief and Response	8
4	Fig.4: Key points of Policy Making	12
5	Fig. 5: Tactical system of monitoring and updating of DDMP	20

### List of Flowcharts :

S.No.	Flowchart	Pg. No.
1	Flowchart 1: Diagrammatic representation of Relief and Response	1
2	Flowchart 2: Flowchart of Events for Major Emergency Response	3
3	Flowchart 3: Stepwise Of Administrative Response System	5
4	Flowchart 4: Incident Response Team framework	5
5	Flowchart 5: Reconstruction and Repair Work	9
6	Flow Chart 6: Coordinated mechanism for implementing DDMP	22
7	Flowchart 7: Horizontal and vertical coordinated mechanism at the district level	25
8	Flowchart 8: Horizontal and vertical coordinated mechanisms at the local level	26
9	Flowchart 9 : District Disaster Management Plan	28



# 1. Response and Relief Measures

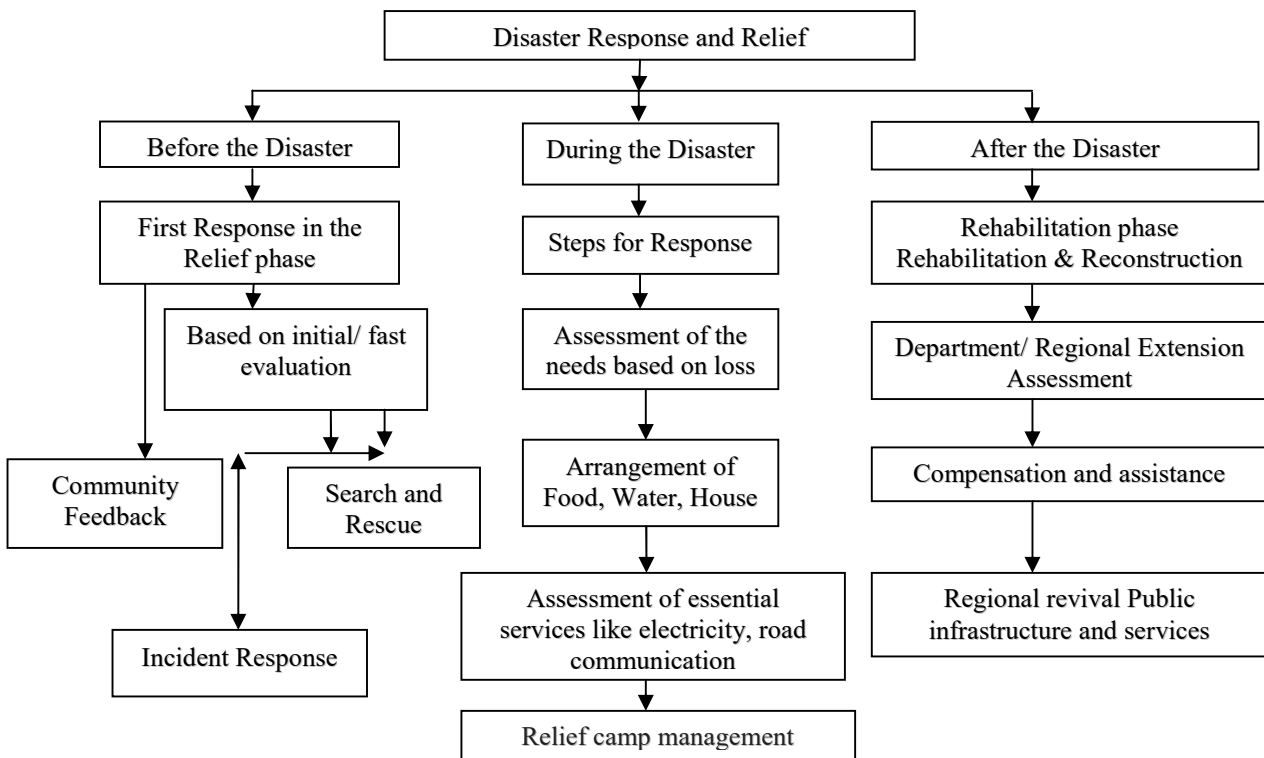
All disasters, incidental events and crisis events are extremely dynamic whereby physical, mental and emotional disorders can also arise. Relief and response are the measures that are used immediately after the disaster. Their purpose is to protect the lives of the people before the disaster and the post-disaster situation, to remove their troubles, to safeguard the property and to deal with the disaster losses. Relief and response measures are generally implemented in extreme conditions. These campaigns require a large number of human resources, equipments and other resources, so it is difficult to succeed in these campaigns without adequate planning, management, training and feedback team. The extent and effectiveness of action in response to disaster can be reduced to the extent of loss and risk.

## 1.1 Stages of Response and Relief

Before Disaster	Warnings, Necessary Preparedness
During Disaster	First Response- Relief
After Disaster	Relief-Rectification

**Table 1: Stages of Response and Relief**

It involves essential work before, during, and after the disaster. Therefore it is categorized in three steps. Diagrammatic representation of relief and response are as follows-



**Flowchart 1: Diagrammatic representation of Relief and Response**

## 1.2 Pre-Disaster Relief and Response

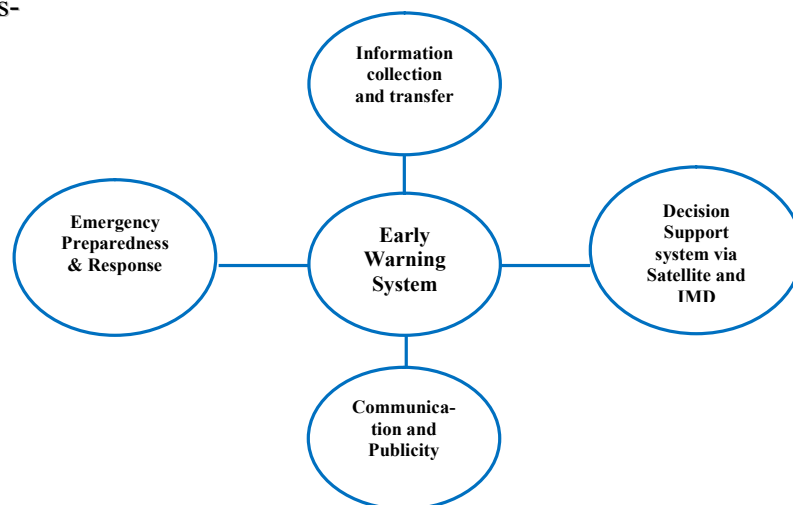
**Disasters can be divided into two parts based on early warnings and prediction -**

**The first** type of disaster are those whose early warnings and prediction are possible.

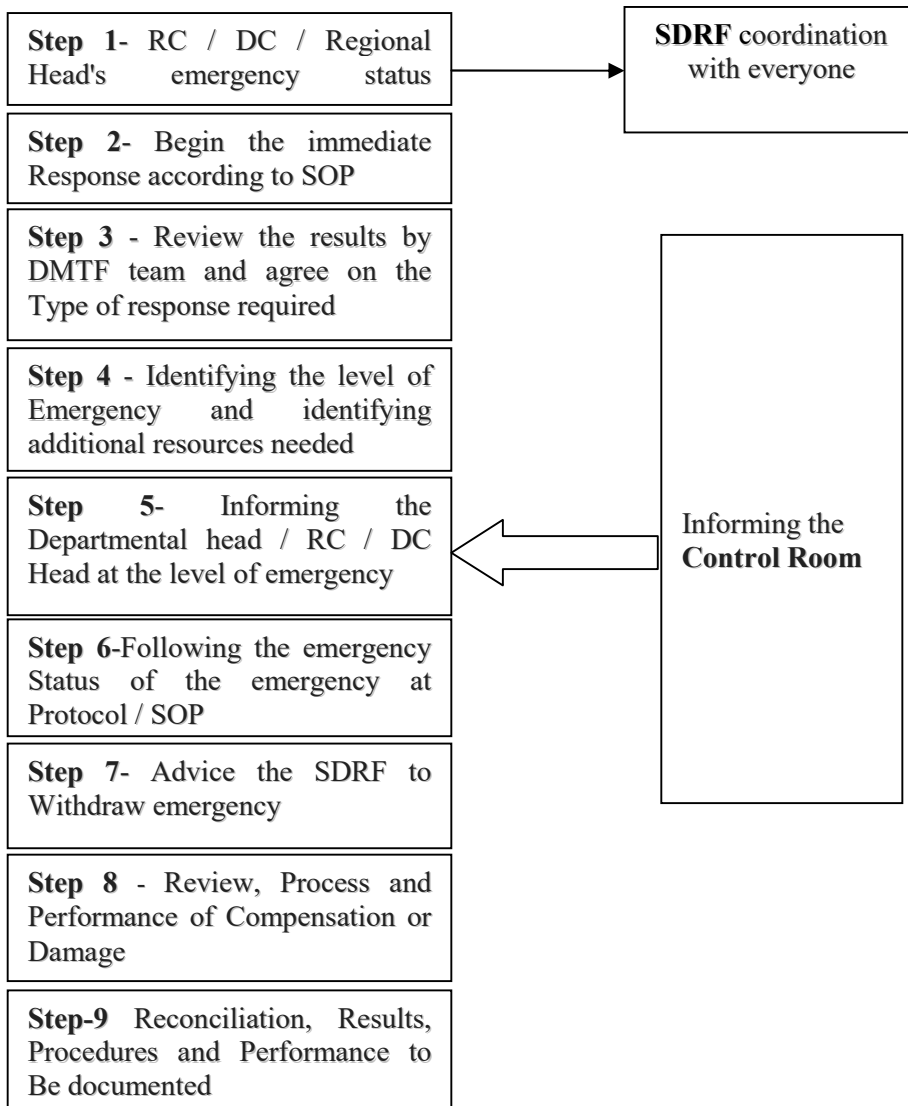
**The second** type of disasters which happens accidentally, whose prediction or early warning is not possible. The pre-disaster relief and response activities are implemented for both of the above disasters. The measures taken before the occurrence of a disaster is known as disaster preparedness. The following elements are included in the pre-disaster relief and response –

- Early Warning System
- Collection of disaster related data
- Shelter Identification
- Availability of disaster related equipment at one place
- Mockdrill
- Correcting the Communication system
- High alert should be notified to the Concern Department
- High alert should be notified to the First Response Unit
- Evacuate the houses from the High Risk zone
- Accumulation of food, water, medicine etc

Flood and Drought are the major natural disaster of the Raipur district whose early warning and forecasting are possible. Fire, Road and Industrial Accident are that disaster whose early warning is not possible. It is necessary to strengthen the warning system in the district for the forecasting and warning of different types of disasters. It is proposed to amend the communication/ early warning system by the district administration. This system will work in the following steps-



**Fig.1: The Proposed Disaster Pre-Warning System of the District**



**Flowchart 2: Flowchart of Events for Major Emergency Response**

The following institutions work at the State and National level for pre warning related to disasters –

- 1. State Disaster Management Authority**
- 2. IMD**
- 3. State Economic and Statical Department**
- 4. Remote Sensing Department and Geographical Information System**

### **1.3 During Disaster Relief and Response**

In the event of disaster, people are mostly affected by its adverse effect. During this phase, relief and response is required. Quick and efficient action taken in response to the disaster will result in lesser damage to the human lives and property. During disaster, the district administration will follow the steps given below for relief and response &

- 1. Formation of First Response Group**
- 2. Activation of State government and District administration**
- 3. Search and Rescue Team**
- 4. Immediate reinstatement of necessary services**
- 5. Transportation of the victims in the Shelter and Hospital**
- 6. Maintaining peace**
- 7. Acquisition of cranes, bulldozers and other resources as needed**
- 8. Establishment of temporary relief camps**
- 9. Supply of relief material**
- 10. Assessment of damage after disaster**
- 11. Immediate relief to the disaster victims**

### **1.4 Execution of Phase II of Relief and Response in the context of Raipur District**

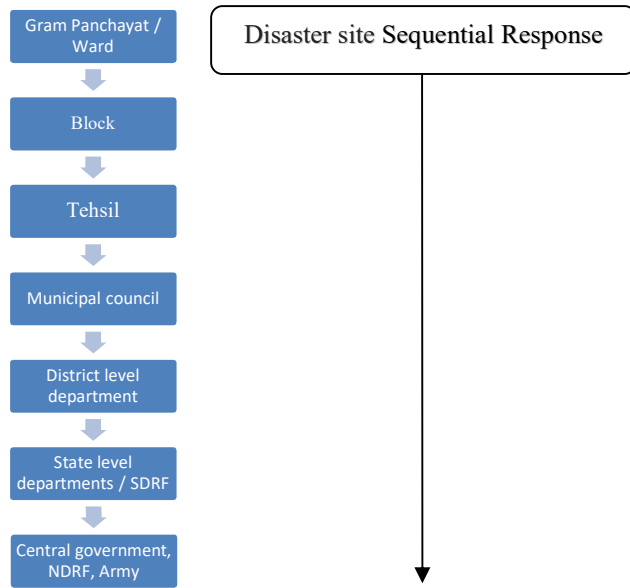
#### **First Response Group**

After sudden disaster, it takes about 12 to 24 hours to get help, so local public / community work as a first-responder. In Raipur district, it is necessary for the people living in and around the surrounding areas to work as the first responder at the time of disaster. For this, their Training and Capacity Building are necessary.

### **1.5 Activation of State government/ District administration**

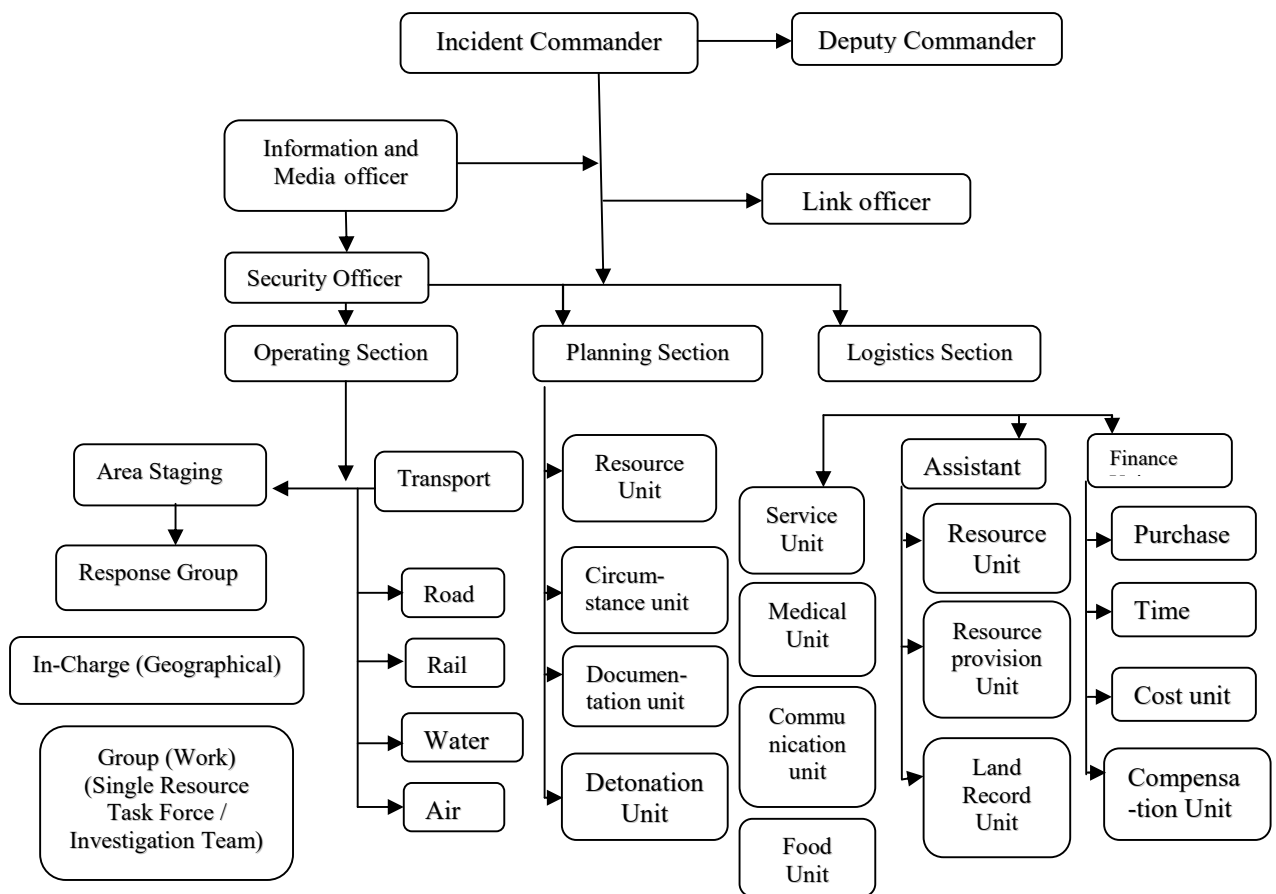
After First Responder Group it is the responsibility of Gram Panchayat, Block, Tehsil and Municipality / Council to respond towards disaster. If required help from State or Central can also be taken. The different steps of administrative response system are as follows-

**District Disaster Management, Raipur (C.G.)**



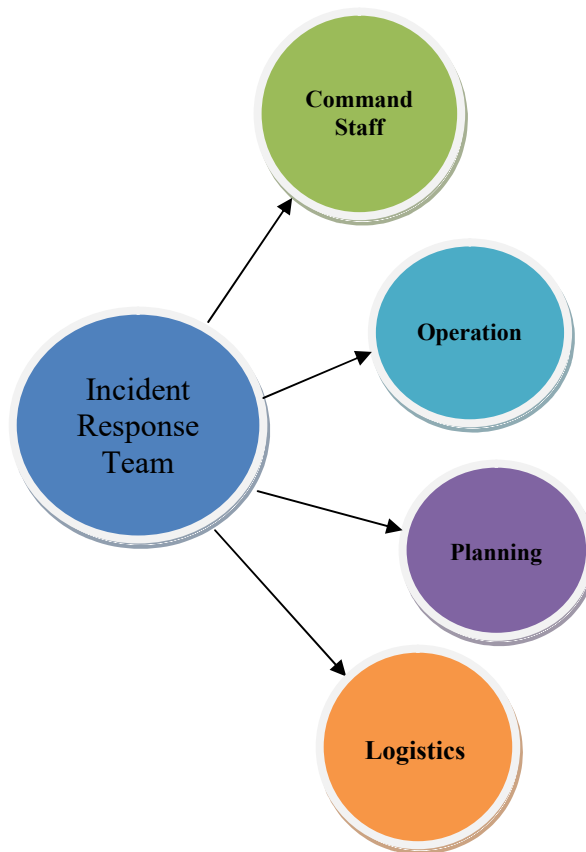
**Flowchart 3: Stepwise Of Administrative Response System**

In order to provide quick response to the disaster, the district will need an emergency Response Team (Quick Workforce) and an Incident Response System, which can immediately control the situation by getting itself operational at the time of the disaster. The framework of the district Raipur Incident Response Team will be as follows &



**Flowchart 4: Incident Response Team framework**

Thus, the district's Incident Response Team framework will have four main sections. What is the procedure to activate the incident response team framework and what is to be done are the responsibility of the Command staff. The district collector (DM) will be the chief. This framework will be the spine of disaster relief and response. The head office of the incident response team will be the district office, which will work with the coordination of the Emergency Operation Centre (EOC). During the disaster, various steps and components of IRTF will be activated in a phased manner which are as follows –



**Fig.2: Incident Response Team framework (IRTF)**

L – 0	This is the normal level of disaster of preparedness.
L – 1	This will be the level of disaster that can be managed at the district level.
L – 2	This will be the level of disaster that can be managed only with state-level cooperation.
L – 3	This will be the level of disaster in which the central government and the national and international cooperation will be required.

**Table 2: Steps of IRTF**

## **1.6 Post Disaster Relief and Response**

It is a quick response situation against disaster. In this situation, the intensity and risk of disaster are almost diminished, but the work of relief and response continues. In this state the priorities of relief and response are changed. The main function of this stage is rehabilitation and resettlement. The post disaster relief and response phase in Raipur district are as follows-

- Assessment of detailed loss will be done by the district administration on the losses due to disaster by the local level secretary, Patwari, Kotwar, Sarpanch. This will help to assess the financial need for the rehabilitation of the affected people and the restoration of the infrastructure. Along with the losses, reasons and deficiencies in disaster management will also be kept by the department of disaster management for the betterment in the future.
- Rehabilitation of affected people.
- The major problem is rehabilitation after the disaster. People living in relief camps want to return to their homes, for this, the following measures can be taken by the district administration-
  - To provided adequate finanacial assistant from the state government to the affected people.
  - Allocation of land and financial assistance will be done as per the requirement of the affected people.
  - The district administration and the state government will ensure the basic needs like electricity, drinking water, education, medicine.

## **1.7 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.

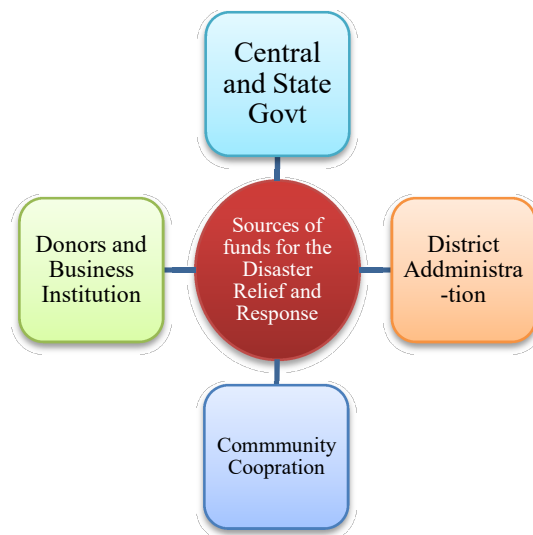
- **Regeneration of livelihood**

The major problem by the disaster affected families will be of livelihood. For this, the following efforts have been suggested -

1. Rehabilitation of the structures of shops, commercial buildings etc, so that the employment of affected people can be resumed.
2. Those who have lost livelihood resources will be provided alternative employment or financial assistance will be given to start their own employment.
3. New livelihood resources will be developed as per local requirement. In this sequence, special attention will be taken of women and weaker sections.

- **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.



**Fig.3: Sources of funds for the Disaster Relief and Response**



## **2. Measures for Reconstruction and Rehabilitation**

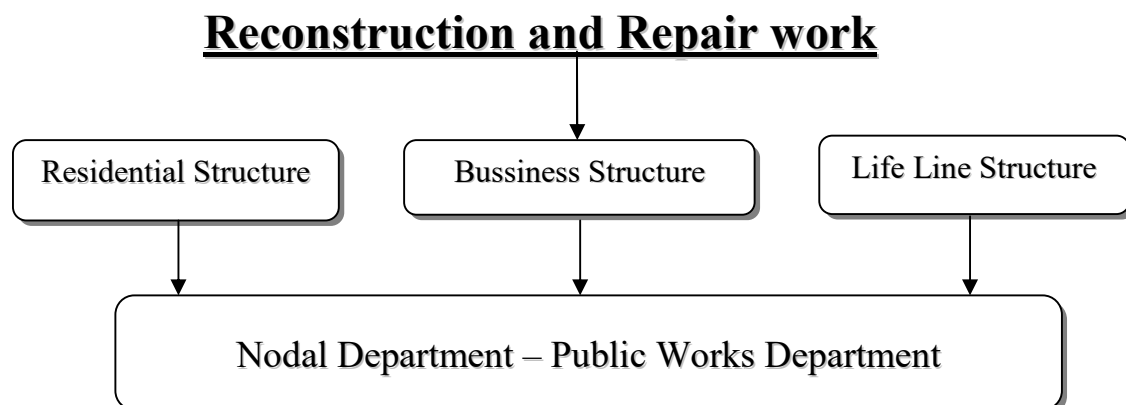
### **2.1 Reconstruction and Rehabilitation**

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

It is natural to have damage to residential buildings and administrative and other buildings at the time of disaster. Therefore, after the disaster, reconstruction and repair work is required. This work has three parts-



**Flowchart 5: Reconstruction and Repair Work**

## **2.2 Recovery Activities**

### **2.2.1 Short Term Recovery**

Short term recovery phase starts during the first hours and days after an emergency event. The principal objectives are to restore the necessary structural and non-structural facilities. The short-term recovery with urgent measures to be undertaken includes the following -

- Communication networks
- Rehabilitation
- Drinking water supply
- Health care facilities
- Food and Clothes
- Debris removal and disposal of corpse and carcass
- Mass care/sheltering and housing
- Roads and bridges
- Electricity supply
- Drainage and sewage
- Reconstruction and recovery of lifeline buildings

### **2.2.2 Long Term Recovery**

Long term recovery efforts must focus on redeveloping and restoring the socio-economic viability of the disaster areas. The reconstruction phase requires a substantial commitment of time and resources by government and non-governmental organizations. The activities involved would most often be the result of a catastrophic event that has caused substantial, long term damage over a very large area. However, there has been no history of catastrophic events in Raipur. In case of any future catastrophic disaster, the following efforts shall be made-

- Long term reconstruction of public infrastructures and social services damaged by the disaster.
- Re-establishment of adequate housing to replace that which has been destroyed.
- Restoration of jobs which were lost.

- Restoration of the economic base of the disaster areas.

**In the district disaster management plan, the following programs will be included in quick or short term programs-**

- Reinstatement of most essential services
- Reconstruction of infrastructure
- Rebuilding
- Subsidies
- Rehabilitation of affected people

**In the long term rehabilitation scheme of the district, the following objectives are to be obtained in the long run-**

- Reforming the lives of affected people.
- Availability of mental therapist, counselling in the affected areas, so that people can forget the bad experiences.
- Continuous efforts to improve the quality of life of the people.
- Long term efforts like life insurance for providing economic protection to the people.
- Problem Solution Camp in Affected Areas on Fixed Terminal
- Establishment of parks, cinema houses, malls etc. in affected areas, so that people can spend their time in recreation.

### **2.2.3 Assessment of Loss and Policy Determination**

District collector will be in charge of assessing the damage from the disaster who will instruct for the formation of a local level committee. This committee will submit the report to the District Collector after detailed assessment. The District Collector will determine the level of disaster and accordingly decide at what level rehabilitation program is needed.

- **Policy formulation**

There will be three major steps for the Resettlement, Reconstruction and Rehabilitation policy-

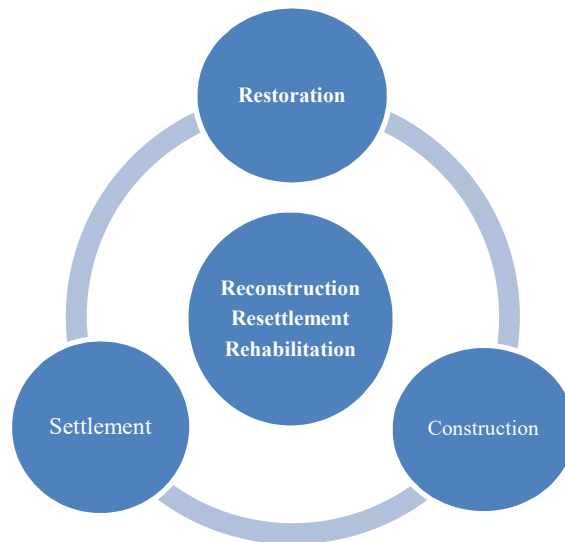
1. Restoration
2. Construction
3. Settlement

- **Restoration**

This will be the first phase required, due to the disaster, the urgent needs will be restored. At the time of disaster, services like electricity, communication, drinking water, sewerage, medical, education etc. are the most likely to be effected. Therefore, in the policy making, effective proposals will be made for the restoration of these essential services.

- **Construction**

During the disaster the infrastructure is completely destroyed. In the disaster like earthquake, flood, fire, tsunami etc. residential buildings, administrative buildings, railway stations, bus stands, commercial buildings, roads, tracks etc. are damaged, so the second stage of the policy making will be rebuilt, which includes reconstruction of damaged and destroyed infrastructure.



**Fig.4: Key points of Policy Making**

- **Settlement**

Settlement and rehabilitation is essential for homeless and physically-mentally effected people from the disaster.

#### **2.2.4 Reorganization (Rectification)**

District Collector will assess the losses and provide necessary and appropriate directions to the in-charge departments and the responsible person. Different departments will function in the nodal department for the purpose of reconstruction and reorganization.

S. No.	Item	Nodal Department
1	Transformers, Electric poles etc.	CSEB
2	Water supply, Drainage and Sewage	DWS, Municipalities
3	Roads, buildings, bridges etc.	PWD, CPWD
4	Transportation	RTO
5	Health and hygiene	Health
6	Animal care	Animal Husbandry
7	Removal of fallen trees	Forest, PWD
8	Removal of debris, corpse and carcass	Municipalities, SDRF, PWD
9	Communication	BSNL, Mobile service provider
10	Hospitals, Schools	PWD

**Table 3: Nodal Departments/ Officer for Reconstruction and Reorganization**

Required services are included under the reorganization or reconstruction which can be divided into two parts-

- **Basic Services** – Basic services include water supply, sanitation, solid waste management, sewerage etc. These services should be made available as soon as possible. This work is possible with the help of related departments and special agencies and NGOs. To ensure water supply in Raipur district, water supply from water tankers and construction of temporary tanks etc. will be done along with the cleanliness. Temporary toilets, walk-in toilets and bathrooms will be provided in the affected areas for sanitation and sewerage, so that the problem of sanitation and sewerage can be solved at those places. After the disaster, the assistance of city councils and private agencies will be taken for JCBs and tractors etc. to remove debris.
- **Essential Services** – Restoration of lifelines services like electricity, communication, transport etc. are very important because the relief and response depends on these facilities. Normally, the social system depends on how fast the basic essential services are restored, because of its failure; the situation of chaos, riot, and migrations arises. On the order of district collector, the power distribution corporation, the department of telecommunication and the department of transportation will become nodal department for the establishment of electricity, communication and transport, respectively who will work in coordination with other related departments.

The reconstruction of residential structure includes design, planning and reconstruction of all the damaged houses of urban and rural areas. The public works department will be the nodal department for this work in the district. Two measures can be taken for this –

1. Provide financial support to the people for housing.
2. Determining the appropriate location, providing housing to the needy people.

Financial support will be given to partially damaged residential or commercial structures for reconstruction. Reconstruction of fully destroyed residential and commercial structures are necessary. After the selection of appropriate construction site, large number of building materials are also required. Assistance of experienced engineers will be taken in this district. On this basis temporary and permanent houses will be built for the affected people. Participation process can be adopted in the design of houses, etc. to ensure the acceptance of reconstruction of building.

### **3. Financial resources for the District Disaster Management Plan**

#### **3.1 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.

##### **3.1.1 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 and radio, printing, electronic media on Public awareness training and IEC material production and dissemination as mentioned in Chapter 6.

## **3.2 Other 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.

### **3.2.1 External funding systems**

So far, there is a provision to raise fund for some projects from United Nation agencies as external sources.

### **3.2.2 Financial provisions**

Budgetary funds are provided to the disaster affected people by center and state government for providing assistance.

### **3.2.3 Disaster relief fund**

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 center and 25% is of state, the center has issued detailed guidelines for the use of Disaster Relief Fund.

## **3.3 National Calamity Contingency fund**

If the disaster goes beyond the capacity of state government/ disaster relief fund then the center 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.

## **3.4 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. In the State Disaster Relief Fund, 75% is of the center and 25 % contribution is from the state. This fund will be utilized as per the prescribed criteria during the calamities for immediate help etc.



### **3.5 Chhattisgarh relief fund**

Chhattisgarh Relief Fund has been set up to provide relief / expenditure to such natural calamities in which State Disaster Relief Fund cannot be used. It has a budget provision of 25 lakhs per annum. Apart from this, the amount can also be collected through public cooperation. A state level committee has been constituted for its operation / management at the state level.

### **3.6 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.

### **3.7 District Financial Resources**

Although financial assistance is required on a very large scale during disaster, which is generally not possible at the district level. However, for immediate help, its arrangement is necessary at the district level.

### **3.8 Other Financial Resources at District Level**

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

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

**Table 4: Other Financial Resources at District Level**

## **4. Monitoring, Evaluation and Updation of District Disaster Management Plan**

### **4.1 Evaluation of DDMP**

Evaluating the effectiveness of plans involves a combination of training events, exercises, post disaster questionnaire etc. to determine whether the goals, objectives, decisions, actions and timing outlined in the plan will result in an effective response. Indicative guidelines for monitoring and evaluation of the plan are given below -

- Regularly reviewing the implementation of the plan.
- Checking the efficiency of the plan after any major disaster/emergency in the district to identify the things that did and didn't work and further making amendments to the plan accordingly.
- Keeping Indian Disaster Resource Network (IDRN) updated and connected with the plan.
- Updating coordinates of responsible personnel and their roles/responsibility half- yearly/ annually or whenever a change happens. Names and contact details of the officers/officials who are the nodal officers or the in-charge of resources to be updated on regular basis.
- Plan should be circulated to all stakeholder departments, agencies and organizations so that they know their role and responsibilities and also prepare their own plans.
- Regular drills /exercises should be conducted to test the efficacy of the plan and checking the level of preparedness of various departments and other stakeholders. It would ensure that all parties understand their roles and responsibilities clearly and understand the population size and needs of vulnerable groups.
- Regular training and orientation of the officers/officials responsible to implement the plan should be done so that it becomes useful document to the district administration.
- Army, NDRF, SDRF and other agencies should be integrated into the plan and exercise regularly.
- DDMA should hold regular interaction and meetings with the army or any other central government agencies for strengthening coordination during disasters.

## **4.2 Authority for Maintaining and Reviewing DDMP**

The task for updating of DDMP lies with the District Disaster Management Authority (DDMA). The plan will be updated annually. The following officers of the authority are responsible for maintaining and reviewing the DDMP.

<b>S.No</b>	<b>Details of Officers</b>	<b>Designation</b>	<b>Office</b>	<b>Mobile</b>
1	Collector	Chairman		
2	Elected Representative of Local Authority	Co - Chairman		
3	CEO, Zila Panchayat	Member		
4	Superintendent of Police	Member		
5	CMHO	Member		
6	EE, Water Resource Department	Member		
7	Deputy Director, Agriculture Department	Member		

**Table 5: Format for DDMP Review Panel**

## **4.3 Post Disaster Evaluation Mechanism**

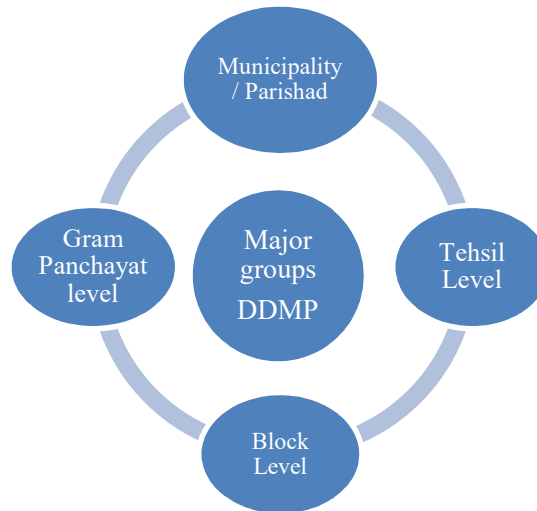
As a part of post-disaster evaluation mechanism, a meeting of the DDMA will be held within 2 weeks of disaster in the district where the team leaders/ nodal officers of each participating department/ agency shall remain present. Schedule for updation of DDMP will be in the month of April/ May on the basis of information/data received from various agencies.

## **4.4 Disaster Evaluation Mechanism**

The implementation of the DDMP depends on how the system mentioned in the plan is being used at the ground level. There will be different levels of evaluation and updation of DDMP.

A district disaster management authority will be constituted first at the district level presided by the District Collector. This Authority will include the Disaster Management Authority in charge, Chief Executive Officer, District Panchayat, Superintendent of Police, Chief Medical

and Health Officer, Executive Engineer of Electricity Department, Executive Engineer Public Works Department and Subject Specialist. It will be a 8-10 member team and it will be the right of the district collector to determine the number.



**Fig.5: Tactical system of monitoring and updating of DDMP**

Such a District Disaster Management Authority, committee should also be formed at the level of Municipality, Tehsil, block level and Gram Panchayat. Each committee of each level will work according to the instructions given in ddmp. The Committee of each level will prepare annual report of the necessities in their respective areas of disasters, their impact, available financial resources and relief and response. This report will be presented to the District Committee at the end of the year or on the necessity. According to which District Disaster Management Authority Committee make the necessary updates in DDMP.

#### **4.5 Media Management**

Media management is one of the core issues related to disaster management. Usually, in case of disaster, media correspondents reach the site even before the outside disaster management agencies and they assess the situation. The report they release on air is contradicting and creates panic. In order to control the situation certain arrangements shall be made by the district. As a disaster is noticed the Incident Commander shall do the following measures to control the media -

- Along with information dissemination to the vertical and horizontal agencies, press people shall be called and given preliminary data based on assessment. This shall reduce the spread of rumors.
- Only the state owned electronic, print media should be taken to the site.
- In every one hour or so, the Incident commander shall give press release in order to control false information to the outside world.
- No media shall be allowed to air or print pictures of dead bodies with worst condition.

In a disaster situation, only PR office in district level will communicate with the media and provide brief, no other parallel agency or ESF or voluntary agency involved in the disaster management shall give any sort of press briefings.

#### **4.6 Conducting Mock Drills at District Level**

The district level mock drill shall be conducted every year before the disaster phase in the disaster prone areas. The concerned departments shall take part in the mock drill to show their preparedness in evacuation, search & rescue, health & first-aid, drinking facilities and relief camps set-up. Evaluation of performance is to be made by the DEOC, the responsible organizing committee.

##### **4.6.1 Following are the responsible institution for MockDrill -**

- Those institutions that are related to the disaster, whose MockDrill is being done. Municipal councils and fire brigade for the Mock Drill of Fire Accident.
- The administration of that area is being proposed for Mock-Drill. Like the Mock-Drill in Raipur district, the Home Guard (Nagar Sena) will be a local administrative organization.

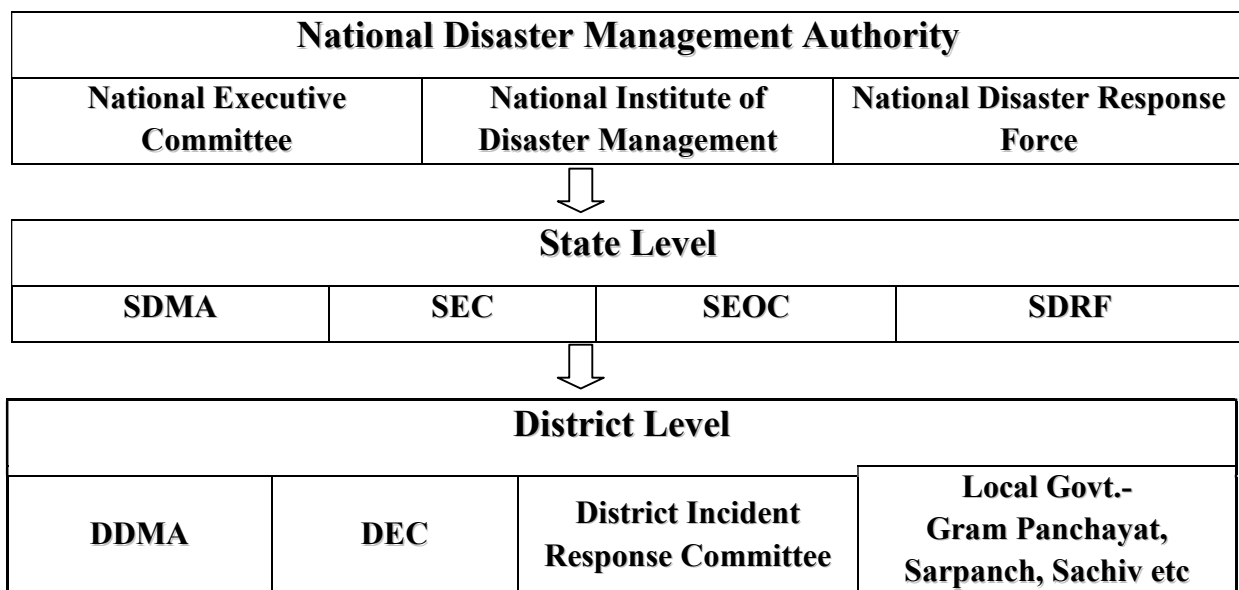
Thus, making the disaster special and local administration a responsible institution would make MockDrill more effective, where as financial resources will be obtained from the district administration and the State Disaster Management Fund.

## **5. Coordination Mechanism for Implementation of DDMP**

After the implementation of the Disaster Management Act 2005, institutional infrastructure has developed at national, state and district level for disaster management. All these organizations are responsible for working for disaster management with mutual co-ordination. Better coordination between all departments will serve as a strong base for achieving effective management and mitigation objectives of disasters. All government departments and other participants need active participation in coordination at the state and district level. In case of any disaster, emergency response is first of all. Local people also help in this. Many other agencies and organizations are also involved in this work.

Emergency services are always in active state, so that they can immediately respond and the administration can alert other services. Different emergency services are compulsory but to deal better with disasters, Some other useful services also support. All institutions are different; their authority is different; the hierarchy is different. To improve the rescue operations, it is necessary to work with all the departments and agencies in better coordination. It is also important to understand the abilities, limitations and obligations of each other.

At the time of disaster in Raipur district, required efforts will be made between all departments and agencies to better coordination. by the district, Coordination will be maintained at the center level and at the state level which is important. The coordinated implementation of DDMP from center to local level is as follows -



**Flowchart 6: Coordinated mechanism for implementing DDMP**

## **5.1 Coordination with the Center and the State**

### **5.1.1 National Disaster Management Authority**

National Disaster Management Authority constituted under the chairmanship of the Prime Minister. NDMA is responsible for managing policies, plans and guidelines for disaster management and at the time of the disaster, effective action and coordination during implementation.

### **5.1.2 National Executive Committee**

The “National Executive Committee”, constituted under the Chairmanship of the Union Home Secretary, assists the National Disaster Management Authority in discharging its duties and also ensures compliance with the guidelines issued by the Central Government.

### **5.1.3 National Institute of Disaster Management (NIDM)**

"National Institute of Disaster Management" is the top institution for disaster management. It organise the disaster management training for disaster management officers and other stakeholders. At the same time, it also acts as a study, research and publication related to disaster management.

### **5.1.4 National Disaster Management Force (NDRF)**

National Disaster Response Force has been set up to conduct search and rescue operations in a challenging disaster situation. It will be available for the states when called in the event of disaster. It will be available to states if needed in case of disaster.

## **5.2 State Disaster Management Authority (SDMA)**

State Disaster Management Authority is constituted under the chairmanship of Chief Minister for disaster management in the state. . It is the top body for determining disaster management policies and schemes in the state. Its work is to approve state disaster planning, coordinate implementation for state disaster planning, provision for prevention, mitigation, preparation measures and monitoring disaster related development plans of different departments of the state.

### **5.2.1 State Executive Committee (SEC)**

State Executive Committee has been constituted under the chairmanship of Chief Secretary to assist in the work of State Disaster Management Authority. This committee will work to coordinate and monitor the implementation of national and state policy and plans.

### **5.3 District Disaster Management Authority (DDMA)**

District Disaster Management Authority has been constituted under the chairmanship of District Collector for disaster management in each district. This system will make plans for disaster management at the district level and will ensure that the guidelines issued by the National Disaster Management Authority, State Disaster Management Authority and the State Executive Committee for prevention, mitigation, preparation and response to all the departments at the district level and Follow by the authorities.

### **5.4 State Disaster Response Force (SDRF)**

On the basis of Center, a state disaster response force has also been formed in the state. Members of this force will be provided special training for disaster management. It will be equipped with modern equipment to deal with the disaster. Under this, special teams will be formed for flood, earthquake, chemical and molecular disasters. Women members will also be included in this special care for women and children. It will be expanded as per requirement.

### **5.5 Disaster Management Center**

For the purpose of promoting the capacity of all the stakeholders for disaster management in the state, the Disaster Management Training Center is working in Chhattisgarh administration academy, Nimora, Raipur. This organization organizes training programs for disaster management, preparing promotional material for disaster management, working for knowledge management and research for disaster management. In future, a separate independent existence of the Disaster Management Center will be developed. Apart from this, Police Training School is located in Raipur, which is working for capacity building.

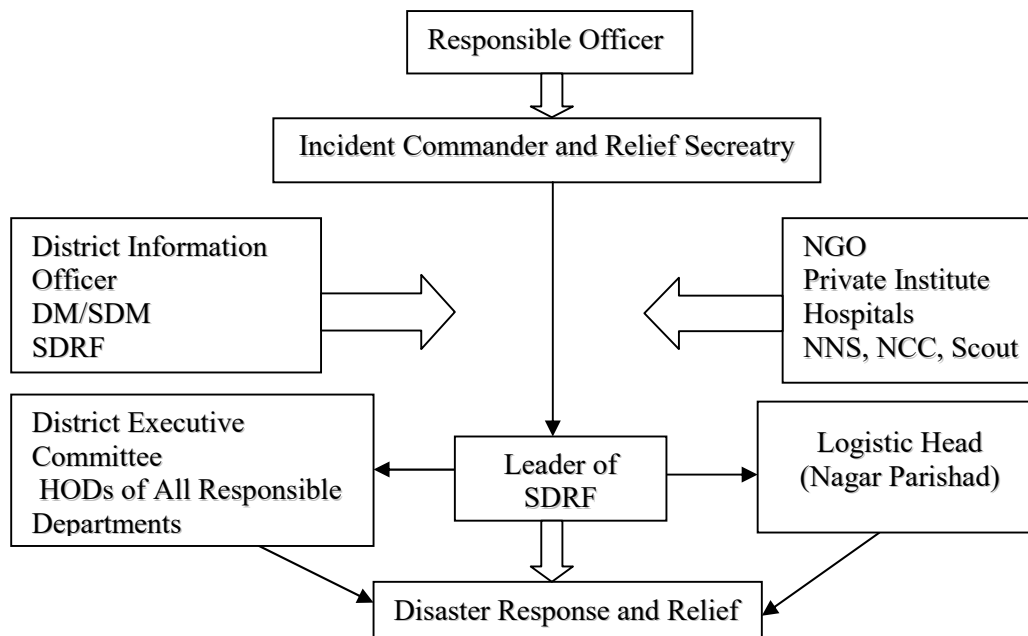


## 5.6 Nodal Department

Based on the nature of the disasters by the state government, their nodal departments have been set up. It will be amended from time to time with the approval of the State Disaster Management Authority. It is a duty of these nodal departments to make necessary plans for prevention, mitigation and preparation of the disaster related disaster.

## 5.7 Coordination at District Level

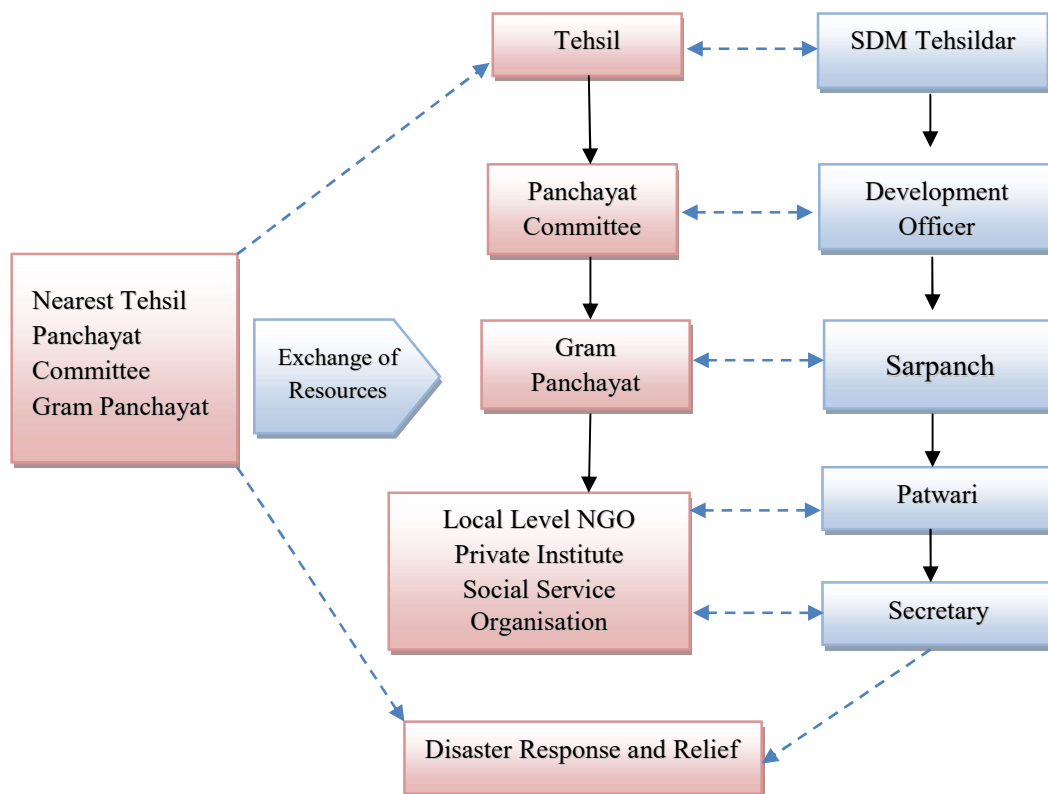
First Responders are local administrators and people at the time of the disaster. After that, the district has to take responsibility. DDMP in the district is at the highest level. After this the District's responsible officer will be the District Collector. After this, the Chief Secretary of the District Disaster Management Authority will act as Commander. With this, the District Information Officer, SDM or Tehsildar (of related place) will work. One officer of the SDRF will be for coordination. After this the team will be divided into three parts. (1) Head of all responsible departments (2) Leader of SDRF (3) Logistics Head. This integrated structure will be as follows –



**Flowchart 7: Horizontal and vertical coordinated mechanism at the district level**

## 5.8 Coordination at Local Level

At the time of any disaster, local administration and local people are primary response factors. They have to bear the first effect of disaster and they also have to do the counter attack. Therefore local administration Tehsil Panchayat Samiti, Gram Panchayat is a major response factor. In this view, local administration will be strengthened in Raipur district and by providing training and necessary equipment, they will be empowered to counter attack in the disaster potential village. For this, the Gram Panchayat will be formed at the village level, a Quick Disaster Response Team. It will include Sarpanch, Patwari, Secretary, Kotwar, Mitnin, medical officer and social worker of the village. Similarly, nearby Tehsil, Panchayat Samiti and Gram Panchayat can also be as useful as the first response. At the local level, Patwari, Secretary, Sarpanch Secretary, Kotwar are the basis of the entire system, which works during the disaster. At the time of disaster, local people / employees can give correct information about the remote location information, communication of information, assessment of the level of disaster, surveillance of disaster damage.



**Flowchart 8: Horizontal and vertical coordinated mechanisms at the local level**

## **5.9 Coordination with Private Institutions and Social Service Organizations**

Various NGOs, Self Help Groups and Social Services are such factors that work effectively as well as in the time of disaster. This is an institution which has been working in this area for a long time. Similarly, the private school private hospital also becomes an integral part of the coordinated system at the time of disaster. All private and government schools and private hospitals in the Raipur district can be encouraged to provide shelter and necessary medical facilities

## **5.10 Coordination with Neighbour Districts**

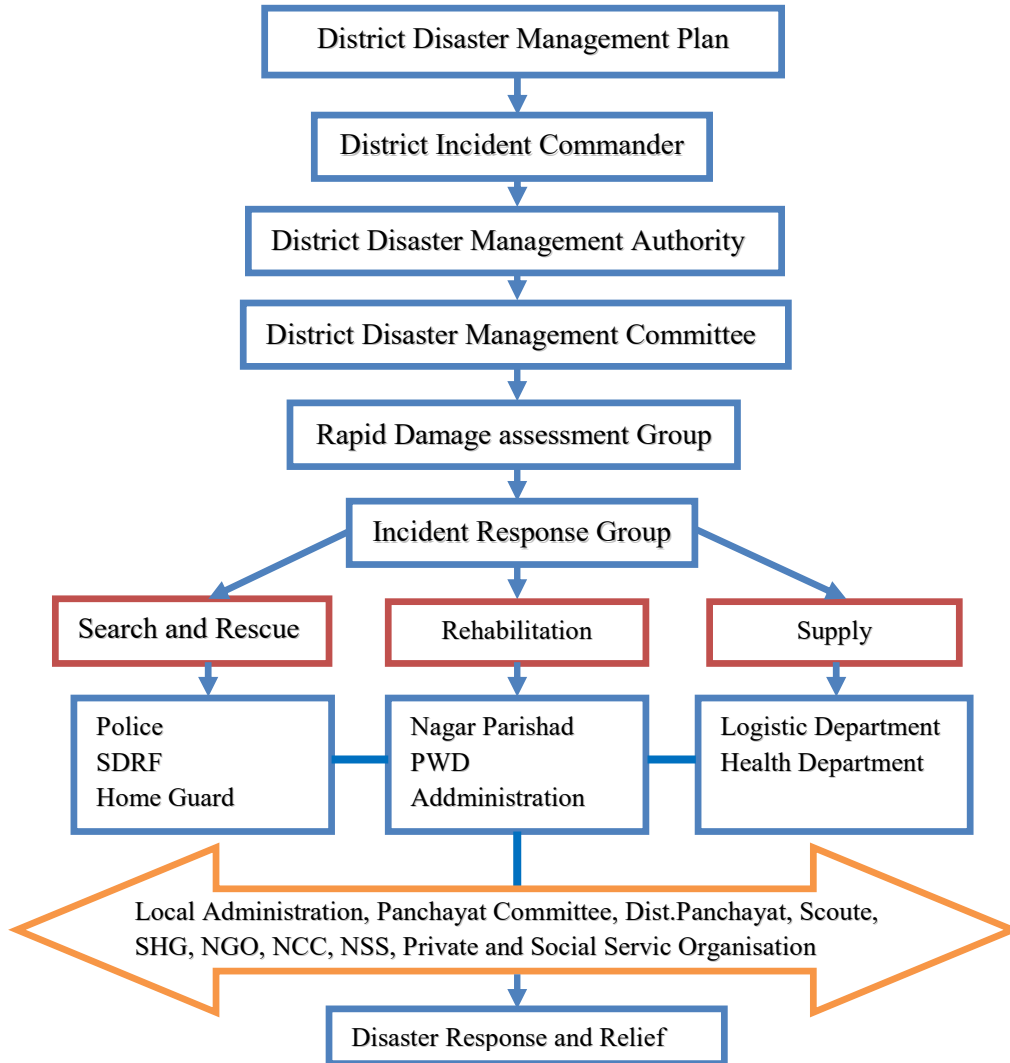
Every district, in the context of disaster management, is not equipped from all resources and capable. There is a need for external assistance at every moment during the disaster. For this, list of available resources in nearest districts and tehsils in such inaccessible/ Vulnerable areas will be kept at District Headquarters of Raipur. So that help can be taken when needed. Here the list of such districts and states is being given, Which are near and immediate assistance can be taken at the time of disaster.

<b>Area</b>	<b>Nearest State, District, Tehsil</b>
Raipur	West- Durg
	North-West- Bemetra
	East- Mahasamund
	North- Balodabajar
	South- Dhamtari
	South-East- Gariyaband

**Table 6: Nearest district and state as per Tehsil for assistance**

### 5.11 Coordination with SDMP

SDMP will be the ideal level and standard for all districts. All districts will improve their implementation mechanisms and coordination mechanisms according to SDMP.



**Flowchart 9 : District Disaster Management Plan**

## **6. Standard Operating Procedures and Checklist**

This chapter includes -

1. SOP for Flood, Drought and Stampede
2. Emergency evacuation plan for Fire accidents, Natural Disasters

### **6.1 Standard Operating Procedure**

As per the risk analysis, it is identified that flood is the major natural disaster. Drought is also a hazard of concern in Raipur, however, it being a slow occurring process and does not require immediate aid compared to flood. The district is prone to other general disasters like road accidents, forest fires, epidemics, etc. Since huge gathering occurs at the fairs organize in the district, there are chances of mismanagement, as a result natural calamities like stampede, fire accidents can occur during the festival. SOPs are proposed for Fire accidents and Natural Disasters to ensure safety and increase in disaster risk reduction.

#### **i. Precautionary Measures for Fire Accidents**

To increase the level of safety in hospitals, colleges, government offices, commercial buildings etc., installation of smoke alarms or automatic fire detection /alarm systems will be proposed as an early warning of fire to the occupants. To prevent fire mishaps and to manage the emergency situation during fire following activities and precautions are proposed.

- Emergency evacuation plans or building evacuation plans are important for all residential buildings, and the same will be prepared as per Fire & Safety rules.
- Regular mock drills will be carried out to create awareness on procedures to be followed in times of evacuation.
- It will be advised to keep fire extinguishers, medical kits and masks to prevent smoke inhalation especially for those with respiratory disorders.

#### **ii. Precautionary Measures for Natural Disaster**

The following steps should be adopted by any individual during the times of disaster -

- During an earthquake, remember to crouch under some heavy furniture or stand under the doorframe for cover.
- In case of a fire in the building, leave the building by the stairs. Do not use a lift

- If the house is flooded, then climb up to the roof.
- Do not use the telephone, except to call for help, so as to leave telephone lines free for the organization of response.
- Listen to the messages broadcast by radio and the various media so as to keep updated with the latest information.
- Carry out the official instructions given over the radio or by loudspeaker.
- Keep a family emergency kit ready. In all the different types of emergency, it is better to be prepared than to get ready, to get information so as to get organized, to wait rather than act too hastily.
- During floods turn off electricity to reduce the risk of electrocution.
- As soon as flood begins, take vulnerable people (old, children, sick, etc.) to upper floor.
- Beware of water contamination, wait until the water is declared safe before drinking or boil the water before drinking.
- Clean and disinfect the room that is flooded.
- During storms and hurricanes do not go out in a car or a boat once the storm has been announced.
- If caught outside in a storm, take refuge as quickly as possible in shelter (never under a tree), if there is no shelter, lie down flat in a ditch.
- In a thunderstorm keep away from doors, windows, and electrical conductors, unplug electrical appliances and television aerials. Do not use any electrical appliances or the telephone.

## **6.2 Preparedness for Flood**

### **6.2.1 Precautions**

- All the tube wells, sanitary wells should be checked before the onset of monsoon and out of order hand pumps have to be repaired.
- Disinfection of all wells and other sources of drinking have to be made and preventive and control measures should be adopted for the areas affected by diarrhoea.
- Search and rescue teams to be kept in standby for any emergency rescue operations.
- Emergency coordination team to monitor the situation.
- Ensure that drainage channels / nallas are de-silted and bunds are periodically maintained.

- The Tehsildars and BDOs will take necessary steps to conduct meeting at their level and form relief parties involving field staff/ PRI/ NGO/ local volunteers.
- Present hourly report to the District Collector during the disaster.

### **6.2.2 Emergency Response Resources**

#### **A. Specialist Resources**

- Search and rescue teams (divers/swimmers, emergency medical)
- Specialized equipment- like boats, life jackets, helicopters, etc.

#### **B. Manpower**

- Support Personnel

#### **C. Medical Support**

- Ambulances (complete with emergency medication)
- Doctors
- Nurses
- Stretcher Bearers
- Oral Rehydration Sachets (ORS)

#### **D. Law & Order Agencies**

- Police
- SDRF/ NDRF
- Army/ Air Force (if needed)

#### **E. Other Essentials**

- Water storage tanks
- Chlorine tablets
- Temporary shelters with sanitation facilities
- Temporary common kitchen or food packets

The incident action plan for any flood like situation is given below-

<b>Task/ Function /Activity</b>	<b>Department/ Responsible Officer</b>
Raise alarm /Mass messaging/ Community syren system	District Emergency Operation Center
Look out for regular updates from Indian	DEOC

Meteorological Department (IMD) and Central Water Commission (CWC) for forecast and follow up action.	
Alert all IRT to start working on their role	Incident Commander
Assess situation, make evacuation plan and move community to safer zones	Incident Response Team
Activate special resources Search and rescue (divers / swimmers, boats, life jackets, searchlights, nylon ropes) Specialized equipment (helicopters, sandbags, crowbars, spades, portable motor pumps)	IC
Establish unified command (for liaison with responding agencies)	IRT
Close / cordon flooded roads and areas from entry	IRT
Assess situation hour to hour in close contact with IMD/CWC and other agencies	IRT
Conduct damage assessment	DDMA
Only after thorough check-up and formal clearance, community can be permitted to return to their habitation	IRT

**Table 7: Action plan to deal with flood situation**

## **6.3 Preparedness for Drought**

### **6.3.1 Precautions**

- Preparation of Agriculture Contingency Plans for districts and sub-districts levels, especially in vulnerable districts.
- Identification of drought prone areas preferably at the sub district level.
- Prepositioning of inputs like drought resilient variety seeds at strategic locations.
- Repair and maintenance of water bodies/ tanks/ wells etc. to help critical irrigation during dry spells.



- Develop protocols for various departments to initiate contingency measures with clear allocations of responsibilities.
- Creating awareness among the farmers on management practices like intercropping, mulching, weed control, etc.
- Encouraging farmers to have crop insurance.
- Intensification of water conservation measures like rainwater harvesting and watershed management in the villages.

### **6.3.2 Information Utilization for Drought Management**

- Using frontier technologies like remote sensing and GIS for providing information.
- Database to be created and updated regularly on weather, crop condition, market information etc.
- Getting information regularly from National Informatics Centre (NIC), village resources centers established by ISRO, ICAR, State agricultural universities, etc.

### **6.4 Preparedness Measures for Stampede**

- The first step is to regulate traffic in areas surrounding the pandals and shelter grounds.
- Route maps for the reaching the prime locations and exit routes to be put up at strategic points.
- Barricading at the entrance to ensure the movement of people in a queue to control a burgeoning crowd.
- CCTV cameras and police presence to reduce risk of snatching and other petty crimes.
- Professional swimmers as a part of rescue team are deployed around certain depth of water to prevent children and elders from drowning.
- An ambulance and health care professionals on stand-by.
- Unplanned and unauthorized electrical wirings, LPG cylinders at food stalls to be checked during the event.
- Prepare a list of nearby hospitals and clinics.

## **6.5 General SOPs for all other Disaster**

### **i. Fire**

#### **Call the fire rescue department:**

During fire in building/apartment, leave the premises by nearest available exit. Call fire department and do not assume anyone else has called the fire department. Never use lift for leaving the premises or apartment during emergency. If your cloth catches fire, do not get panic or run, stop, drop and roll.

#### **Cover your nose and mouth with a wet clean cloth:**

Stay calm cover your nose and mouth with a wet, clean cloth to prevent smoke inhalation injury and choking. Never jump off or attempt to climb down the side of a tall building as it will mean certain death.

#### **Do not run:**

During a fire, smoke containing poisonous gases such as carbon monoxide (CO) tends to rise up. When you run in a smoke filled room, you tend to inhale the smoke faster. CO dulls the senses and prevents clear thinking, leading to panic. To prevent being asphyxiated, dip tissues or cloth in water and cover your nose with it.

### **ii. Natural Disaster**

Disaster occur without notice. Most of the disasters are natural such as earthquake, flood, hurricane, sandstorm, landslide, tsunami and volcanos. We have no way of stopping them, but we can learn to deal with the difficult situation that arise due to them. During disasters like flood, fire, earth quake, landslide, rescue begins at home. Even before external help arrives, people affected by the disaster help each other.

The government and many voluntary organization send teams of worker trained in rescue operations to disaster-affected areas. These teams join hands with the local community helpers such as doctors, nurses, social workers and policemen.

Temporary shelters are built for displaced people. Doctor and nurse provide medical aid. They treat the wounded and work to control epidemics. Social workers collect food and cloth from all over the country for the disaster-affected people. The police maintain law

and order. Media –person help in spreading news about the victims and their conditions. They also post advertisements that urge people to donate for victims.

In extreme conditions, the Army and Air force organize rescue operation. They clear roads, send medical teams and help to move people to safer place. The air force drops food, water and clothes in the affected areas. Organization like UN helps in providing aid during massive disasters.

## **6.6 Assistance from the Central / State Government**

<b>S.No</b>	<b>Function</b>	<b>Departments</b>	<b>Standard Relief Level and Rehabilitation</b>
1	<b>Vacate (residential and commercial building)</b>	<b>Police, Nagar Parishad</b>	<ul style="list-style-type: none"><li>• Empty risk full buildings, immediately.</li><li>• Transportation of persons and essential items at safe places.</li><li>• Provision of temporary safe accommodation for displaced people.</li></ul>
2	<b>Search and Rescue</b>	<b>Police, NGOs, Scout, NSS,NCC, SDRF</b>	<ul style="list-style-type: none"><li>• Save the people trapped in the crisis and escort them to a safer place</li><li>• Protecting the Endangered Animals</li><li>• Search for missing persons</li></ul>
3	<b>Security of affected area</b>	<b>Police, Home gaurd, SDRF</b>	<ul style="list-style-type: none"><li>• Security to avoid untoward at the affected site so that the crowd can be kept away from the disaster site.</li></ul>
4	<b>Traffic control</b>	<b>Traffic Police NGOs</b>	<ul style="list-style-type: none"><li>• Do not allow vehicles to come near the affected area.</li><li>• Arrangements for fast transport of vehicles engaged in relief work.</li><li>• Arrangement of vehicles when needed.</li></ul>
5	<b>Law and order</b>	<b>Police, SDRF</b>	<ul style="list-style-type: none"><li>• The arrangement to stop the stampede at the time of the disaster.</li><li>• Stop rumors</li><li>• Prevent riots and looting.</li><li>• Protection of life and property to affected</li></ul>

6	<b>Decay of dead bodies</b>	<b>Police, Health Department, Nagar Parishad</b>	<ul style="list-style-type: none"> <li>• Immediate displacement of dead bodies to avoid epidemic and pollution.</li> <li>• The arrangement for the funeral of dead bodies</li> </ul>
			<ul style="list-style-type: none"> <li>• Arrangement of post mortem of dead bodies in case of chemical or biological or epidemic.</li> <li>• Inform to relatives of the deceased.</li> </ul>
7	<b>Debris disposal</b>	<b>Police, Nagar Parishad, SDRF</b>	<ul style="list-style-type: none"> <li>• Removal of debris for the re-installation of urgent services.</li> <li>• Put in the proper place of debris.</li> <li>• Careful deletion of debris, which does not damage valuable items and dead bodies.</li> </ul>

**Table 8: Assistance from the Central / State Government**

## **6.7 Human Relief and Assistance**

Under the relief and rehabilitation, there are various types of humanitarian needs, which is essential for normal human life. The following criteria will be available to provide the necessary facilities -

<b>S. No.</b>	<b>Essential human facilities</b>	<b>Standard level work</b>
1	Food	<ul style="list-style-type: none"> <li>• Distribution of milk, bread, milk powder etc.</li> </ul>
		<ul style="list-style-type: none"> <li>• Food packets from donors, collecting from home, logistics department.</li> </ul>
		<ul style="list-style-type: none"> <li>• Distribution of fruits etc.</li> </ul>
2	Drinking Water	<ul style="list-style-type: none"> <li>• Providing Drinking Water Tanker by the Nagar parishad.</li> </ul>
		<ul style="list-style-type: none"> <li>• Clean drinking water by the Public Health Department</li> </ul>
		<ul style="list-style-type: none"> <li>• Cleanliness of existing water sources.</li> </ul>
		<ul style="list-style-type: none"> <li>• Restore drinking water supply immediately</li> </ul>

3	Medicine	• Essential medicines by government hospital- Distribute medicine of fever, diarrhea etc
		• Ensuring adequate stock in medical
4	Cloth	• Distribution of blankets and textiles by District Administration and donors
		• Collection of old textiles by NGOs,NSS, NCC and distributions in needy.
6	Temporary Shelters	• Arrangement of temporary accommodation (school, college, government building)
		• Tarpaulin distribution for rain protection
		• Temporary Tents
7	Helpline	• Establishment of control room at the site.
		• Establishment of helpline number immediately on the control room of the site.
8	VIP Touring	• Inspection arrangements for Leaders, administrative officials, ministers of the government.
		• Transportation and control of the crowd.
9	Support from Private Institute	• Private school as temporary accommodation
		• Use of resources of private hospitals
		• Taking help of JCB, tractor trolley, dumper etc. from private builders.

**Table 9: Human relief and assistance**

A SOP (Standard Operating Procedure) has been set up for the implementation of Disaster Management Action Plan in the district. Disaster and disaster levels will be defined through the District Disaster Management Plan.

According to the level of disaster and the requirement, obtaining external assistance will be considered. There will be special arrangements for sending information from the disaster site to the district headquarters.

Management of communication media, support, resource and various standard levels of relief has been mentioned in DDMP.

# **Volume - 4**

क्र०	आपदा नियंत्रण कक्ष	अधिकारी	दूरभाष / मोबाईल
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2	जिला स्तर	श्री के०एस०पटले, बालश्रम परियोजना निदेशक, रायपुर	0771-2413233 / 9926615200
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		तिल्दा	श्री योगेन्द्र वर्मा प्रभारी तहसीलदार 0771-233601 / 9828211112
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रायपुर जिले के अधिकारियों के नाम, विभाग एवं दूरभाष के संबंध में जानकारी संशोधित 2018

क्र.	अधिकारी गण	पद नाम	दूरभाष	मोबाइल
1	श्री बी.आर. चुरेन्द्र	आयुक्त रायपुर संभाग रायपुर	253660	
2	श्री बसव राजू	कलेक्टर रायपुर	2426024, 2882450	
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12	श्री टी.आर.महेश्वरी	तहसीलदार तिल्दा	233601	9165506006
13	श्री शशिकांत कुरे	तहसीलदार अभनपुर	2774204	9691053879
14	श्री संजय मिश्रा	जिला सैनानी नगर सेना रायपुर	2426823	9826118056
15	श्रीमती कृष्णा खटिक	जोन आयुक्त न.पा.नि. रायपुर जोन क. 1	2236295	9301953270
16	श्री के.डी. चंद्राकर	जोन आयुक्त न.पा.नि. रायपुर जोन क. 2		9893302018
17	श्री रमेश जायसवाल	जोन आयुक्त न.पा.नि. रायपुर जोन क. 3	2236295	93019 53205
18	श्री आर.के.डोंगरे	जोन आयुक्त न.पा.नि. रायपुर जोन क. 4	2229016	9301953221
19	श्री हेमंत शर्मा	जोन आयुक्त न.पा.नि. रायपुर जोन क. 5		93019 53212
20	श्री जी.एस.क्षत्रिय	जोन आयुक्त न.पा.नि. रायपुर जोन क. 6	2273284	93019 53204
21	श्री संतोष पाण्डेय	जोन आयुक्त न.पा.नि. रायपुर जोन क. 7	2593648	9425203000
22	श्री राकेश गुप्ता	जोन आयुक्त न.पा.नि. रायपुर जोन क. 8	2886088	9329102500
23	श्रीमती नोविता सिन्हा	नायब तहसीलदार	9827104946	9981121206
24	कु. उमंग जैन	नायब तहसीलदार		704927006
25	श्री सृजन सोनकर	नायब तहसीलदार		7000258095
26	श्री जी.एस.राठौर	खादय नियंत्रक	2426979	9424266467
27	श्री एस.एल.कुंवर	संयुक्त संचालक समाज कल्याण	2536017	9424231812



क्रम	बाढ नियंत्रण कक्ष	प्रभारी अधिकारी	दूरभाष नं.	मोबाइल नं.
1	राज्य स्तरीय	श्रीमती हिना अनिमेष नेताम उपायुक्त क्षेत्रीय उपायुक्त भू अभिलेख रायपुर	0771-2223471	
2	जिला स्तरीय	श्री के.एस.पटले बाल श्रम परि.अधिकारी रायपुर	0771-2413233	99266 15200
3	तहसील रायपुर	श्री हरिओम द्विवेदी तहसीलदार रायपुर	2224163	9406005966
4	तहसील अमनपुर	श्री शशिकांत कुर्रे तहसीलदार अमनपुर	2774204	9691053879
5	तहसील आरंग	श्री मूलचंद चौपडा तहसीलदार आरंग	07720 258545	7587761361
6	तहसील तिल्दा	श्री टी.आर.महेश्वरी तहसीलदार तिल्दा	07721 233601	9165506006
7	नगर पालिक निगम रायपुर	श्री बी.एल.चंद्राकर सहा.अभि. अग्नि शमन विभाग नगर निगम	0771 2274101	93019 53236
8	जिला सेनानी नगर सेना रायपुर	श्री संजय मिश्रा कमांडेंट	2426823	9826118056
9	श्री उपेन्द्र किन्डो	अधीक्षक भू-अभिलेख		
10	डॉ.रविन्द्र कुमार चंद्रवंशी महामारी नियंत्रक प्रभारी	जिला चिकित्सालय रायपुर	0771 4044108	97548 60328
11	श्री अर्जन सिंह पवार स्वच्छता निरीक्षक	नगर पालिक निगम बीरगांव		9109803128
<b>विकास खण्ड स्तरीय नियंत्रक कक्ष एवं महामारी नियंत्रक प्रभारी</b>				
12	डॉ.निवेदिता लकडा बी.एम.ओ.	सामुदायिक स्वास्थ्य केन्द्र धरसीवा		94252 27608
13	डॉ. ए.के. सिन्हा बी.एम.ओ.	सामुदायिक स्वास्थ्य केन्द्र तिल्दा		97537 82300
14	डा.के.एस. राय बी.एम.ओ.	सामुदायिक स्वास्थ्य केन्द्र आरंग	07720 258702	94242 10361
15	डा. अमित बी.एम.ओ.	सामुदायिक स्वास्थ्य केन्द्र अमनपुर	0771 2774914	94079 22150
<b>पशु चिकित्सक</b>				
16	डा.शैलेन्द्र खरे	धरसीवा		
17	डा.एच.आर. ओगरे	अमनपुर		93000 72205
18	डा.एस.के.द्विवेदी	आरंग		88895 71715
19	डा.राजीव देवरस	तिल्दा		94255 20029
				94255 72409

राज्य आपदा मोचन बल (एस.डी.आर.एफ.)			
20	श्री एल.पी.वर्मा जवानों की संख्या 34	संभागीय सेनानी रायपुर	0771 24266825 94252 60168
21	श्री आर.के. पाण्डेय जवानों की संख्या 34	संभागीय सेनानी जगदलपुर	07782 264006 94255 42251
22	श्री एस. के. ठाकुर जवानों की संख्या 34	संभागीय सेनानी बिलासपुर	07752 235570 98261 91508
23	श्री एल.पी.वर्मा जवानों की संख्या 34	संभागीय सेनानी दुर्ग	0771 24266825 94252 60168
24	श्री एस.के.ठाकुर जवानों की संख्या 34	प्रशिक्षण केन्द्र परसदा जिला बिलासपुर	07774 2412290 98261 91508
25	श्री ए.के.सिंह	केन्द्री प्रशिक्षण केन्द्र माना कैम्प	94255 19992

बाढ बचाव पार्टी नं. 01 प्रभारी हवलदार श्री श्यामलाल

क्रमांक	सैनिक क्रमांक	पद	नाम
1	2	3	4
1	89	हवलदार	श्यामलाल
2	191	नायक	राजेश कुमार
3	63	सैनिक	उमेश कुमार
4	590	सैनिक	अजय साहू
5	452	सैनिक	उदेश्याम
6	360	सैनिक	अमृतलाल
7	249	सैनिक	रामस्वरूप
8	277	सैनिक	अजय शर्मा
9	34	सैनिक	जितेन्द्र कुमार
10	677	सैनिक	नन्दलाल
11	211	सैनिक	मुकेश कुमार



राज्य आपदा मोचन बल रायपुर संभाग रायपुर में उपलब्ध बाढ़ बचाव सामग्री की सूची

क्रम	सामग्री का नाम	संख्या
1	2	3
1	लाईफ बाय	130 नग
2	लाईफ जैकेट	65 नग
3	सर्व लाइट	06 नग
4	रोप लाइविंग गन	01 नग
5	यामहा इंजन 25 एच.पी	04 नग
6	यामहा इंजन 40 एच.पी.	02 नग
7	रबर बोट	01 नग
8	एल्युमिनियम बोट	01 नग
9	पाल फुनर	02 नग
10	चैन सा 160/180	03 नग
11	चैन सा 360	01 नग
12	मेगाफोन	02 नग
13	वाकीटाकी	02 नग
14	पर्सनल लाइटिंग सिस्टम	04 नग
15	डिविंग सूट विथ कम्पलीट	02 सेट
16	डिविंग सूट	01 सेट
17	अण्डर वाटर टार्च	02 नग
18	पोर्टेबल जनरेटर 10 केवीए एवं टली	01 नग
19	पोर्टेबल इफ्लोटेबल एम जेसी	01 नग
20	अंडर वाटर कम्यु सेट	01सेट
21	पोर्टेबल शेल्टर छोटा	01 नग
22	पोर्टेबल शेल्टर बड़ा	01 नग
23	ईमर्जेसी पोर्टेबल लाइट ( आशका)	03 नग
24	रोप 1.5 एम.एम	04 नग
25	स्टेचर ( फोल्डिंग)	02 नग







पिछले 10 वर्षों में घटित आपदाओं का आंकलन

क्र.	आपदा	घटना वर्ष		घटना स्थल		जन हानि						पशु हानि			संपत्ति हानि	
		घटना वर्ष	तहसील	गाँव	मृतक			घायल			मृतक	घायल	लापता	संपत्ति हानि	फसल क्षति	
					पुरुष	महिला	बच्चे	पुरुष	महिला	बच्चे						पुरुष
1	बाढ़															
2	सूखा															
3	आग	2010-11	रायपुर				13	2	6							
			अमनपुर	1			1									
			तिल्दा	2			2									
			आरंग													
4	आकस्मिक बिजलीघाज		आरंग				2									
5	लू															
6	सप्टेंबर 2010 में मधुमक्खी/धहिरा दंश		रायपुर				2	1	5							1
			अमनपुर	1			1	2								
			तिल्दा	2			2									
			आरंग				1									
7	बाँध का टूटना															
2	इमारत पतन															
	पानी		रायपुर				5	1	4							
			अमनपुर	1			2	1								
			तिल्दा													
			आरंग					2	2							

पिछले 10 वर्षों में घटित आपदाओं का आंकलन

क्र.	आपदा	घटना वर्ष	घटना स्थल		जन हानि						पशु हानि			संपत्ति हानि		फसल क्षति	
			तहसील	गाँव	मृतक		घायल		लापता		मृतक	घायल	लापता	संपत्ति हानि	सिंचित	असिंचित	
					पुरुष	महिला	बच्चे	पुरुष	महिला	बच्चे							पुरुष
1	बाढ़																
2	सूखा																
3	आग	2011-12	रायपुर														
			अमनपुर	1		4											
			तिल्दा	3		2		1									
			आरंग			1											
4	आकशीय बिजलीघाज																
			तिल्दा	4		3		1									
			आरंग			2		3									
6	सर्पदंशबिच्छे मधुमक्खी/हिरा दंश		रायपुर			5		2									
			अमनपुर	1		1		2									
			तिल्दा	2		2											
			आरंग			2		2									
7	बाँध का टूटना																
12	इमारत पतन पानी		रायपुर			18		7		25							
			अमनपुर	1		2		1		1							
			तिल्दा														
			आरंग			7		3		2							

पिछले 10 वर्षों में घटित आपदाओं का आंकलन





पिछले 10 वर्षों में घटित आपदाओं का आंकलन

क्र.	आपदा	घटना स्थल		जन हानि						पशु हानि			संपत्ति हानि			
		घटना वर्ष	तहसील	गाँव	मृतक		घायल		लापता		मृतक	घायल	लापता	संपत्ति हानि	फसल क्षति	
					पुरुष	महिला	बच्चे	पुरुष	महिला	बच्चे					पुरुष	महिला
1	बाढ़															
2	सूखा															
3	आग	2013-14	रायपुर						8	2	5					
			अमनपुर	1					5	2						
			तिल्वा	4					3	3	1					
			आरंग						3	3	1					
4	आकशीय विजलीघाज		तिल्वा	1						1						
			आरंग						2	2	1					
6	सपेंदशहिच्छू मधुमकखीहिरा दंश		रायपुर						3	5	2					
			अमनपुर	1					1	1						
			तिल्वा	2					1	1						
			आरंग						1		1					
7	बाँध का टूटना															
12	इमारत पतन															
	पानी		रायपुर						15		10					
			अमनपुर	1					7	1						
			तिल्वा													
			आरंग						7	2	3					











