

VOLUME-I

DISTRICT DISASTER MANAGEMENT PLAN-2021

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PREFACE

Khordha District has experienced many disasters like - Flood, Cyclone, Heat Wave & Lightning during past years causing widespread loss of life, livelihood and property. The district witnessed the devastation of Super cyclone in the year 1999, Phailin in 2013 causing suffering to the human and livestock. Similarly, Drought 2015 & 2017, Pest Attack-2017 and Unseasonal Cyclonic Rain -2017, Cyclone Titli - 2018 and recently ESCS Fani 2019 had adversely affected the district severely. COVID-19 pandemic in last two years i.e. 2020 - 2021 also added difficulties to the lives & livelihood of the individual as well as community at a large.

As per the DM Act 2005, the District Disaster Management Authority (DDMA) is the sole authority to prepare the District Disaster Management Plan (DDMP) and for dissemination of the same among all the stakeholders. The DDMP outlines the measures to be taken in the event of any Natural Calamity as well as manmade disaster for the current year 2021-22 taking into account the past experience and available resources with the authority. The plan has been prepared basing on different requirements for rescue and relief operation in event of any disaster and fulfilling requirements like providing medicines, shelter to vulnerable persons, positioning of boats at strategic points etc. DDMP will play a vital role in providing information of available resources for use during emergency situation and Standard Operating Procedures (SoPs). Instead of a relief centric response-oriented approach, the DDMA has adopted a pro-active and responsive multi-relief and rehabilitation approach to management of Disaster in the district. The plan is prepared keeping in view the objective, to help the District Administration to focus quickly on the essential and crucial aspects of both preparedness and response during occurrence of Disasters. Periodical updation of the DDMP will help to achieve the goal of preparedness by all stakeholders during Natural Calamity/Disaster to prevent loss of life and property to the minimum extent and for immediate response for restoration of essential services & administration of relief, to restore normalcy at the quickest possible time.

I would like to thank Officers and Staff of District Emergency Section for their untiring efforts in bringing up this document. My special thanks to all the officials of Line Departments, BDOs, Tahasildars and Executive Officer of ULBs of district who have cooperated with information for updating of DDMP. We will appreciate any positive suggestion for improvement of DDMP.

Date:

(Sanat Kumar Mohanty)
Collector-eum-Chairman
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ABBREVIATION

AABY	: Aam Aadmi Bima Yojana
AAO	: Assistant Agriculture Officer
ACSO	: Assistance Civil Supply Officer
ADM	: Additional District Magistrate
ADMO	: Additional District Medical Officer
ADVO	: Additional District Veterinary Officer
ANM	: Auxiliary Nurse Midwife
ARCS	: Assistant Registrar Co-operative Societies
ASHA	: Accredited Social Health Activist
ATMA	: Agriculture Technology Management Agency
AWW	: Angan Wadi Worker
AYUSH	: Ayurveda, Yoga, Unani and Naturopathy, Unani, Siddha, Homoeopathy
BDA	: Bhubaneswar Development Authority
BDO	: Block Development Officer
BEO	: Block Education Officer
BEO	: Block Education Officer
BEOC	: Block Emergency Operation Center
BKKY	: Biju Krushak Kalyan Yojana
BKSS	: Block Kala Sanskruti Sangathan
BKY	: Biju Krushak Yojana
BMC	: Bhubaneswar Municipal Corporation
BMS	: Bharatiya Mazdoor Sangh
BNV	: Bharat Nirman Volunteers
BPL	: Below Poverty Line
BRCC	: Block Resource Centre Coordinator
CDMO	: Chief District Medical Officer
CDVO	: Chief District Veterinary Officer
CE	: Capital Embankment
CII	: Confederation of Indian Industries
COVID	: Corona Virus Disease
CSMMC	: Cyclone Shelter Management & Maintenance Committee
CSO	: Civil Supply Officer
DAO / TO	: District Accounts Officer / Treasury Officer
DAO	: District Agriculture Officer
DCG	: District Crisis Group
DDA	: Deputy Director, Agriculture
DDMA	: District Disaster Management Authority
DDMP	: District Disaster Management Plan
DEO	: District Education Officer
DEOC	: District Emergency Operation Centre

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DLO	: District Labour Officer
DM	: District Magistrate
DPC (SSA)	: District Programme Coordinator, Sarva Shiksha Abhiyan
DPF	: Demarcated Reserve Forest
DPM	: District Programme Manager
DPO (OSDMA)	: District Project Officer
DPO (RMSA)	: District Programme Officer, Rashtriya Madhyamik Shiksha Abhiyan
DSWO	: District Social Welfare Officer
FSMMC	: Flood Shelter Management & Maintenance Committee
GHG	: Green House Gas
HRVA	: Hazard Risk and Vulnerability Analysis
IGNDP	: Indira Gandhi National Disable Pension
IGNOAP	: Indira Gandhi National Old Age Pension
IGNWP	: Indira Gandhi National Widow Pension
IPCC	: Innergovernmental Panel on Cilmate Change
LSI	: Life Stock Inspector
LI	: Labour Inspector
LULUCF	: Land Use Land Use Change Forestry
MBPY	: Madhu Babu Pension Yojana
MI	: Marketing Inspector
MO	: Medical Officer
MVI	: Motor Vehicle Inspector
NASP	: National Social Assistance Programme
NFBS	: National Family Benefit Scheme
NTFP	: Non-Timber Fire Produce
OAE	: Other Agricultural Embankment
PACS	: Primary Agriculture Cooperative Society
PD, DRDA	: Project Director, District Rural Development Agency
PMFBY	: Pradhan Mantri Suraksha Bima Yojana
PMJDY	: Prime Minister Jan Dhan Yojana
PMJJBY	: Pradhan Mantri Jeevan Jyoti Bima Yojana
PMRY	: Prime Minister Rojgar Yojana
PMSSY	: Pradhan Mantri Swasthya Surakshya Yojana
PRF	: Protected Reserve Forest
PRI	: Panchayat Raj Institutions
PTG	: Primitive Tribal Group
PVTG	: Primitive Vulnerable Tribal Group
RBSK	: Rashtriya Bal Swasthya Karyakram
RKVY	: Rashtriya Krishi Vikash Yojana
RMSA	: Rastriya Madhyamik Sikshya Abhiyan
RRBs	: Regional Rural Banks
RSBY	: Rashtriya Swasthya Bima Yojna

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RTO	: Regional Transport Officer
SAPCC	: State Action Plan on Climate Change
SCG	: State Crisis Group
SDMA	: State Disaster Management Authority
SDWO	: Sub-divisional Welfare Officer
SE	: Saline Embankment
SI	: Supply Inspector
TRE	: Test Relief Embankment
VAW	: Village Agriculture Worker
ZKSS	: Zilla Kala Sanskruti Sangathan

CHAPTER – I

INTRODUCTION

Overview:

The mounting threat of frequent natural disasters calls for a serious thinking and action on a range of important issues such as how to cope, how to save lives and livelihoods and how to sustain community-based disaster preparedness and response, enabling to cope with natural disasters on their own. This cannot happen unless awareness is raised on their nature and characteristics, understanding their vulnerability and risk, tools of disaster preparedness and their long-term mitigation measures. The State of Odisha is prone to multiple disasters like Flood, Cyclone, TSUNAMI, Earth Quake, Hail Storm, Heat Wave etc. Similarly, Khordha district is also prone to Cyclone, Flood, Earth Quake, Biological disasters, Heat Wave etc. and the possibility of industrial disasters cannot be ruled out. Planning is investable at all the level and DM Act 2005 suggests the formation of DDMA at the district level and DDMA to adopt planning, organising, coordinating and implementation of preventing measures to tackle the disastrous situation in the district. In this context **Sendai framework** aims at “The substantial reduction of disaster risk and losses in lives, livelihoods, health & the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.” Sendai Framework has four priority areas and 7 Global Targets. SFDRR priorities are understanding disaster risk, strengthening disaster risk Governance to manage disaster risk, investing in disaster risk reduction for resilience, enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction. SFDRR targets are to substantially reduce Disaster Mortality by 2030, reduce the number of affected people globally , reduce direct disaster economic loss in relation to gross domestic product , reduce disaster damage to critical infrastructure and disruption of basic services, increase the number of countries with national and local disaster risk reduction strategies, enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of present framework , increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030. The DDMP prepared by DDMA undoubtedly is one step towards the planning, preparedness and utilization of resources to minimize losses.

Year 2020 & 2021, will be remembered for the Pandemic COVID-19. The virus has affected **213 countries and territories** around the world and 2 international conveyances. Khordha district was also affected severely but due to the effort by Health Care Workers, Front Line Workers and NGOs, situation has come to normalcy in te year 2020. But once again the 2nd wave started in the year 2021 from the month end of March 2021 and it has continued till the preparation of this plan.

1.1 Aims and Objectives of DDMP:

The objective of the District Disaster Management Plan is to ensure Prevention, Response, Rehabilitation and Recovery and to facilitate Planning, Preparedness,

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Coordination and Community Participation in the shortest possible time in an effective manner. The main objectives are:

- To identify the areas vulnerable to major types of the hazards in the district.
- To adopt proactive measures at district level by all the Govt. Departments to prevent disaster and mitigate its effects.
- To develop a database helpful for decision making at District and block level.
- To mitigate impact of natural and man-made disasters through preparedness at District, Block, Panchayat and Village level.
- To provide effective support and resources to individuals and groups in disaster.
- To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- To assist the District Administration, Line Departments, Block Administration and community in developing technical skills for effective disaster management.
- To disseminate factual information in a timely, accurate and tactful manner while maintaining necessary confidentiality.
- To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.
- Increased participation in Preparedness, Prevention, Development, Relief, Rehabilitation and Reconstruction process.

The District Disaster Management Plan (DDMP) is the guide for achieving the objective i.e. mitigation, preparedness, response and recovery.

1.2 Evolution of DDMP in brief: Evolution, Procedure and Methodology to be followed for preparation of DDMP

As per DM Act, 2005 District Disaster Management Authority (DDMA) has the responsibility to prepare the District Disaster Management Plan (DDMP) by inviting information and departmental disaster management from different stakeholders.

Time line for DDMP:

Table – 1:

Activities	Timeline
Consultation with line department officials and important stakeholders at district level	Feb, 2021
Submission of base line data by all line departments	Mar, 2021
Submission of Base line data by all the line departments (Extended)	April, 2021
Compilation of information's and preparation DDMP. Sharing of draft with Chairperson, members of DDMA and other stakeholders	May, 2021
Necessary modification and finalization	May, 2021
Placing the final copy before DDMA, finalization and	May, 2021
Submission of DDMP to SDMA	May, 2021

1.3. Stakeholders and their responsibilities

The District Collector has the following duties:

- Lead the DM / Crisis management Teams in the district.
- Facilitate and coordinate with local Government bodies to ensure that pre- and post-disaster management activities in the district are carried out.

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- Function as a leader of the team and take appropriate actions to smoothen the response and relief activities to minimize the adverse impact of disaster.
- Recommend Special Relief Commissioner and State Government for declaration of disaster.

Local Authorities have the following duties:

- Provide assistance to the District Collector in disaster management activities.
- Ensure training of officials and employees
- Undertake capacity building measures and awareness and sensitization of the teachers, students & community.
- The Major Hazardous Units needs to prepare their onsite as well as off-site plans.

Private Sector:

- The private sector is encouraged to ensure their active participation in the pre-disaster activities in alignment with the overall plan developed by the DDMA or the Collector.
- Technical / Educational institutions available in the district to support the local administration for awareness activities, capacity building programmes and response activities by the DDMA.
- As a part of CSR, undertake DRR projects in consultation with district collector for enhancing districts' resilience.

Community Groups and Volunteer Agencies:

- INGOs / NGOs working in the area needs to inform the district administration about their work area, expertise, human resources so that their services can be utilized at the time of need.
- Local community groups and voluntary agencies including NGOs normally help in prevention and mitigation activities under the overall direction and supervision of the DDMA or the Collector.

Citizens:

- Different committees available in the area need to join their hands with the administration with available resources.
- Every citizen needs to assist the District Collector or such other person entrusted with or engaged in disaster management whenever demanded generally for the purpose of disaster management.

1.4. Plan for review and updating: Periodicity

As per the NDMA guideline the DDMP is to be prepared and shared with the concerned line departments as per the timeline given above. After the consultation with the DDMA members, the DDMP to be finalised with the additional inputs and shared with the higher quarter and all line departments for future reference. Also, annual updation to be done periodically i.e. in the 1st Quater every year.

CHAPTER-II **DISTRICT PROFILE**

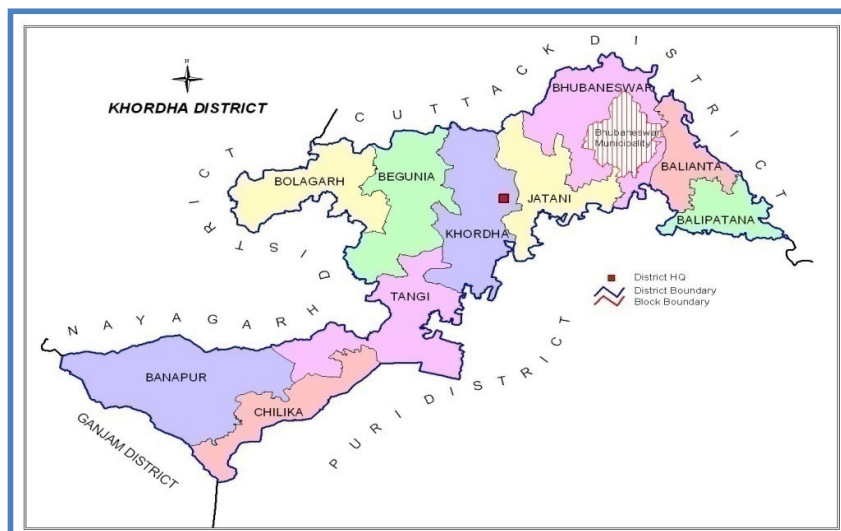
2.1 History & Location:

Khordha is one of the new districts carved out of the former Puri District on 1st April, 1993. The other new district carved out of Puri was Nayagarh. In the year 2000, the district's name was changed from Khurda to Khordha. The district headquarters is located in Khordha Town, formerly known as Jajarsingh or Kurada, (kurada means foul mouthed). The old milestones of the area had the word KURADA which have now been white washed and the word "Khurdha" is written on them. About the origin of the word Khurda (as earlier called) it is also told that the word is derived from two Odia words- "Khura" and "Dhara", meaning razor and edge, probably because the soldiers of Khurda were as sharp and dreadful as the edge of a razor. Neither of the two origins, however, can be called authentic.

It lies in between 84°55" to 86°5" East longitude and 19°40" to 20°25" North latitude covering geographical area of 2813 square kilometers which comprises 1.81 percent of the state area. It is one of the developed districts of the state and houses the state capital at Bhubaneswar. The district is bounded by Cuttack district in the north, Ganjam district in the south, Puri district in the east and Nayagarh district in the west.

2.2 Administrative Setup:

The District of Khordha is divided into two administrative Sub-Divisions namely (i) Bhubaneswar Sub-Division with head quarters at Bhubaneswar (ii) Khordha Sub-Division with head quarters at Khordha. Besides this the district is divided into 10 Tehsils, 10 CD blocks, 190 Gram



Map 1: Administrative Map

Panchayats, 1669 Revenue Villages, 13 Police stations. Out of the total village 212 are uninhabited village. The district Headquarter is located at Khordha Town. The Geographical area of the Dist. is 2813 Sq Kms Forest cover of the district is 50936.56 Hect. Further, the district consists of 2 nos of Parliamentary Constituencies such as

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18-Bhubaneswar, 17-Puri and 8 nos of Assembly Constituencies such as 111-Jaydev (SC), 112-Bhubaneswar (Madhya), 113-Bhubaneswar (Uttar), 114- Ekamra-Bhubaneswar, 115 – Jatani, 116 – Begunia, 117 – Khordha, 118 – Chilika.

Table – 2.1:

Sl. No.	Name of the Subdivision	Headquarters	Number of Blocks/ Tehsils	Name of ULBs
1	Bhubaneswar	Bhubaneswar	Balianta, Balipatna, Bhubaneswar, Jatni	Bhubaneswar Municipal Corporation, Jatani Municipality
2	Khordha	Khordha	Begunia, Khordha, Bolagarh, Banpur, Chilika, Tangi	Khordha Municipality, Banpur NAC, Balugaon NAC

2.3 Climate & Rain fall:

Climate:

The climate of the district is characterized by a tropical monsoon having three distinct seasons in a year i.e. winter, summer and Rainy season. The rainfall distribution is equal during the monsoon period. The summer is from March to May and during the month of May; temperature goes up to 41 - 47 °C in some parts of the district. The period from June to September is the rainy season and the district gets it from the southwest monsoon. The relative humidity varies from 48 to 85 % at Bhubaneswar. The wind speed is fairly strong during summer and monsoon months and the direction is between southwest and south.

Rainfall:

The monsoon generally breaks during the month of June and continues up to the end of September. The normal rainfall of the district is 1453.04 mm. The rainfall is uniform in all over the district. Storms and depression, which originate in the Bay of Bengal during monsoon, pass over the district during their southwest movement and cause heavy rains in the catchments area of the rivers in the district.

Table – 2.2:

Sl No.	Name of the Block	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Normal Rainfall	1408.4	1408.4	1408.4	1408.4	1408.4	1408.4	1443.00	1453.4	1453.4	1453.4	1453.4
1	Khordha	1569	1281	1862	2131	1509.5	1262	1063.9	1491.0	1999.0	1919.0	1311.5
2	Begunia	1105	801	1665	1673	1037	893	796.7	1092.1	1329.8	1600.8	1119.5
3	Bolagarh	1618	904	1013	2130	1466	638	1152.4	1216.2	1739.0	1844.0	1156.0
4	Tangi	1510.8	904	1252	2091	1308	1104	1096.2	1797.8	1607.4	1616.2	1114.6
5	Chilika	1725	1178	1271	1841	1631	1128	1203.9	1829.7	1862.8	1668.2	1296.0
6	Banpur	1504.7	964	1264	1723	1428	663	911.2	1008.5	1230.0	1601.0	1264.0
7	Bhubaneswar	1544.5	1561	1325	1754	1638	959	1181.2	1612.8	2003.1	1703.3	1681.5
8	Jatni	1686	1481	1961	2113	1424	1151	1210	1980.5	2086.0	1959.0	1361.0
9	Balianta	1711	1709	1462	2147	1659	1252	1809	1862.8	2197.0	2245.0	1874.5
10	Balipatna	921	963	763	1118.3	1037	957	1137.4	1409.2	2051.93	1872.0	1513.0
	Average	1489.5	1174.6	1356.8	1872.1	1413.8	1000.7	1156.19	1530.06	1810.6	1802.8	1369.1

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2.4 Topography:

The district as a whole is divided into two geographical regions viz. South Eastern Coastal Plains and North Eastern ghats. The former region has alluvial soils while the later has red laterite sandy soil and some patches of ideal alluvial soil. Except Baliana and Balipatna blocks which have got alluvial soil, other 8 blocks in the district have laterite sandy soils. While Baliana, Balipatna, Bhubaneswar and a small portion of Jatni Block are irrigated by canal systems of Mahanadi, Delta Stage II, Banapur Block is irrigated by Salia MIP, Tangi block by Malguni MIP.

2.5 Geography:

Land:

The District of Khordha has Geographical area of 2813 Sq.Kms. Based on the physiographic setup, the district may be broadly divided into four natural divisions, such as

- (a) Coastal sand dunes,
- (b) Alluvial plain,
- (c) Lateritic upland and
- (d) Hilly terrain.

2.6 Forests:

The Khordha Forest Division lies between 19° 40' 41" N to 20° 27' 33"N Latitude and 84° 01' 21" E to 86° 05' E in the Cuttack, Khordha, Nayagarh & Puri Districts of Odisha & extends over an area of 3514.694 sq km.

Table – 2.3:

<i>[Area in Sq. km]</i>					
Name of District	Geographical area	Very dense forest	Moderately dense forest	Other forest	Total
Khordha	2813	23	191	180	394

2.7 River System:

The district is drained by number of streams, which are mostly the tributaries and distributaries of Mahanadi River and a few other streams discharging into the Chilika Lake. The important distributaries and sub-distributaries of the river Mahanadi traversing the area are Kuakhai, Bhargavi, Kushabhadra and Daya having southernly, southeasterly and south-westerly courses. The tributaries of the river Mahanadi originating in the district are Rana and Kalijiri having almost northerly course. The streams which drain the southern part of the district and fall directly into Chilika Lake are Sulia, Kharia & Kusumi which flows towards east. Almost all the streams in the district are effluent in nature and drying up during summer months but causing frequent floods in the rainy season. The low-lying areas adjoining the Chilika Lake are inundated by the lake during monsoon as rivers discharge large volumes of water into it.

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The district is mainly covered by the following rivers.

Table – 2.4:

SI No.	Name of Rivers	Areas Covered
1	Kuakhai	Bhubaneswar Block
2	Bhargavi	Balianta & Balipatna Block
3	Budunai	Bhubaneswar Block
4	Daya	Bhubaneswar Block
5	Kushabhadra	Balianta Block
6	Malaguni	Khordha, Chilika & Tangi Block
7	Rana	Begunia & Khordha Block
8	Kusumi	Tangi Block

2.8 Demography:

Households and its distribution:

Table – 2.6: (2011 Census)

Sl. No	Total Number of Families / HH	Category		Category				Category	
		Rural	Urban	SC	ST	OBC	GEN	BPL	APL
1	494212	247304	246908	20501	10275	70718		121375	245984

2.9 Population and its composition:

As per 2011 Census, out of the total population of 2251673 (includes BMC population - 843402) in the district, 1167357 live in rural areas and 1084316 live in urban areas. In percentage terms it works out to 51.84 percent in case of rural areas and 48.16 percent in case of urban areas. Of the total rural population of 1167357 persons, 595809 (51.0 %) are males and 571548 (49.0 %) are females. In urban areas, of the total population of 1084316 persons, males are 571,328 (52.7 %) and females are 512,988 (47.3%).

Table 2.7:

Sl. No	Population			SC		ST		Others	
	T	M	F	M	F	M	F	M	F
1	2251673	1167137	1084536	151528	145984	115051	59094	491445	465640

- Population density of the district and decadal growth of population:
 - Population Density/Km² : 800
 - Growth : 19.94 %

2.10 Religion wise distribution of Population:

The district has a predominant Hindu population. The Census 2011 shows that of the total population, 2147632 or 95.38 percent are Hindus. The Muslims numbering 84060

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account for 3.73 percent and other religious groups together constitute only 19981 or 0.89 percent.

Table – 2.8:

[Source: DPMU, Khordha]

Sl. No.	Total Population	Category				
		Hindu	Muslim	Christian	Sikh	Others
1	2251673	2147632	84060	12527	1264	6910

2.11 Age Group:

As per census 2011, Child Sex Ratio is 916 compared to 926 of census 2001. In 2011, Children in the 0-6 age group form 10.54 percent of the population of Khordha district compared to 12.28 percent of 2001. There is net change of -1.74 percent in child population between the two censuses of 2001 and 2011.

Table – 2.9:

[Source: DPMU, Khordha, Census-2011]

Sl. No.	Total Population	0-5 years	6-14 years	15-59 years	60 years & above
1	2251673	164665	390183	1484875	211950

2.12 Sex Ratio:

With regard to Sex Ratio in Khordha, it stood at 929 per 1000 males in 2011 as compared to 902 in 2001. The average sex ratio at the all-Odisha level comes to 979 as per the Census, 2011. As per the 2011 Census, child sex ratio in the district is 916 girls per 1000 boys compared to the figure of 926 girls per 1000 boys for 2001. Between rural and urban areas there is a difference in child sex ratio. The child sex ratio in case of rural areas comes to 924 girls per 1000 boys while in case of urban areas it is 906 girls per 1000 boys.

Table – 2.10:

1	Sex Ratio (Females per 1000 males):	929
2	Child Sex Ratio (0-6 Years):	916

2.13 Literacy Rate:

Average literacy rate of Khordha in 2011 comes to 86.88% as compared to 72.9% for the state as a whole. Compared to literacy rate of 2001 Census (79.59%) it has gone up in 2011. If things are seen gender-wise, male and female literacy rates are 91.78% and 81.61% respectively.

Table – 2.11:

	Total	Male	Female
Literacy Rate	86.88	91.78	81.61

2.14 Socio-Economic profile:

2.14.1 Workforce participation:

The survival and subsistence of human society largely depends on the division of labour. Since some people have to work for production either for their own consumption or for social wealth, it is essential for some individuals of the society to indulge in some form of economic activity. There are 768268 nos of workers working in the district out of which 63625 nos are main workers and 135643 nos are marginal workers.

2.14.2 Workforce participation rate: [Male/ Female]

[Source: Statistical Abstract, 2012]

Total workforce participation rate in the district is 35.2% in which 34.2% in case of Rural and 36.2% in the case of urban scenario. Similarly Male participation overall rate is 55.3, where as 55.8% at the Rural and 54.8 at the Urban sector and Female participation overall rate is 13.5% and 11.7 % in case of Rural and 15.4% is in the case of Urban sector.

2.14.3 Land Holding Pattern:

Out of the total geographical area of the district (138321 ha.), 124650 ha. are available for cultivation during 2014-15. Forest covers 64867 ha. Land put to non-agricultural uses comes to 44250 ha. Net sown area works out to 124240 ha. As the district is having very meagre irrigation facility, double cropped area is limited. As such the cropping intensity remains lower (159%) as compared to the all-Odisha average of 167%.

2.14.4 Agriculture and Irrigation:

The cartographic location of Khordha district stands at 19⁰40' to 20⁰25' Latitude and 84⁰55' to 86⁰5' E Longitude. Its bio climatology is much influenced for short radial distance from the Bay of Bengal and presence of a gigantic water body like Chilika. This district enjoys normal annual rainfall 1408mm with maximum minimum temperature 45.2⁰ to 11.1⁰ respectively. The district is situated in the East and south-eastern coastal plain & agro climate blessed with sandy loam and clayey soil in varied agro-eco system on the basis of soil, climate, topography, geo-hydrology and other resources, Khordha district is divided into district sub-regions. Deltaic Alluvium sub-region, which comprises Balipatana, Baliana & Chilika block and the rest blocks of Bhubaneswar, Begunia, Bolagarh, Tangi, Banapur & Khordha belongs to Lateritic sub-region.

Major portion of Khordha district may be described as the land of nalas because of meagre irrigation potentiality.

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The total irrigation potential created in the district so far works out to 58175 ha. Out of 10 blocks of the district 6 blocks account for less than 20% irrigation in Rabi season and less than 35% in Kharif season. Canal irrigation being the major source of irrigation, covers 2 blocks i.e. Baliana and Balipatana. More than 90% of the cultivated area of these two blocks is under canal irrigation. In addition to the 7700 nos. of private lift points, 200 nos. of government lift points are operating in the district.

In the year 2017, the dist. had experienced three hazards due to which crop loss had occurred Details are:

SI No	Hazard	No of Blocks affected	No of GPs affected	No of Villages affected	Area affected (In Ha.)
1	Drought	1	5	10	23.0288
2	Pest Attack	6	24	60	442.60
3	Unseasonal Rain	10	172	1268	41829.27

Cyclone TITLI and FANI information:

In the year 2018, the district was affected by Cyclone Titli on 11.10.2018. 9 nos of blocks (80 GPs) and 2 NACs were affected. 3700 nos of persons evacuated and sheltered in 75 sheleters and 9 free kitchen centers were opened to provide them cooked food. In Titli, 1532 beneficiaries were allotted with house building assistance amounting to 67.277 lakhs.

Sl. No	Districts	Total Agriculture Area Affected [in Hect.]	Total Agriculture Area where crop loss is > 33%	Crop loss 33% & above		
				Irrigated [In hect.]	Rainfed {In hect.}	Perennial
1	Khordha	6930.79	5918.00	0	1012.74	0

In the year 2019, the Extremely Severely Cyclonic Storm "FANI" devastated crop areas which is given below:

Sl. No	Districts	Total Agriculture Area Affected [in Hect.]	Total Agriculture Area where crop loss is > 33%	Crop loss 33% & above		
				Irrigated [In hect.]	Rainfed {In hect.}	Perennial
1	Khordha	7817.8	6098.12	3449.42	2648.7	0

In **ESCS FANI**, 190 GPs, 1669 nos of Revenue Vilages and 5 nos of ULBs including Bhubaneswar Municipal Corporation was affected, 130198 houses damaged in 10 affected Blocks and 4 ULBs. 4 nos of persons died due to FANI in the district. 2502008 nos of population & 1126976 nos of Live stock were affected in FANI. 114495 persons

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were evacuated during Fani and 929 free kitchen centers were opened to provide cooked food to the evacuees.

In the Year, 2020, the **ESCS, AMPHAN** affected coastal Odisha like Jagatsinghpur, Kendrapada, Jajpur, Balasore etc. but in Khordha district only crop loss was reported in Bhubaneswar Block.

2.14.5 Employment and livelihood:

Agriculture is the main livelihood option of the district. Apart from agriculture, people also adopt various economic activities to sustain their life and livelihood. Basically, in Chilika, Banapur & Tangi blocks, people used to do fishing for their livelihood.

Similarly, under the MGNREGS Scheme 160690 nos of Job cards were issued and 32971 nos of HHs provided employment and 1137144 nos of man days generated to earn livelihood.

2.14.6 Industries and mining:

The district is divided into two industrial zones. Zone-I covers the Bhubaneswar urban area where as Zone-II covers the Khordha Rural Area. There are 25 nos of industries are available in Zone-I where as 45 nos of industries are available in Zone-II. The details are given in Volume – II.

The district is having the stone crushers as the major mineral based small industries. The building materials like stone and chips are produced from the hills of the district, particularly from Tapang, Narangarh, and Dadhimachhagadia. Apart from these, there are a number of stone carving units available in and around Narangarh and Bhogapur, in the district. There are only two mineral based industries i.e. Anuja Ceramics Pvt. Ltd. and M/s. Refcash Industries located at Mancheswar Industrial Estate which are engaged in manufacturing ceramic products i.e. salt glazed stone pipes and non-ferrous metal products.

2.14.7 Education & School Safety Policy:

Dist. Education Officer, Khordha has been declared as the nodal officer for implementation of School Safety Policy 2016 in all the schools. Schools are not only used for the educational purposes but also at the time of emergency it helps the community to shelter.

S. No	Name of the Block	Govt. Schools				Govt. Aided Schools	Private Schools
		Elementary		Secondary			
		Rural	Urban	Rural	Urban	Elementary/Secondary	Elementary/Secondary

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1	Balianta	79	–	11	–	10	29
2	Balipatna	92	–	10	–	14	27
3	Banapur	103		11	–	13	16
4	Begunia	97		19	–	19	22
5	Bhubaneswar	87		15	–	7	61
6	Bhubaneswar MC	–	81	–	46	23	391
7	Bolgarh	82		19	–	21	19
8	Chilika	79		9	–	8	20
9	Jatni	78		16	–	8	26
10	Khordha	93		21	–	17	23
11	Tangi	106		17	–	10	24
	Grand Total	896	81	148	46	150	658

2.14.8 Health:

There are 87 nos of CHC / PHCs / Other Hospitals & 202 nos of sub centers are functioning for the community to address the health issues. 48 nos of Ambulances are transporting the patients to different hospitals for treatment. 212 nos of doctors, 416 nos of paramedical staffs, 212 nos of ANMs and 1256 nos of ASHA workers are providing continuous service to the patients.

2.14.9 Housing:

Housing is one of the basic requirements for roofing the physique of the person but also is inevitable for shaping one's social identity. Owning a house provides significant social economic security and social status in society for shelter less person. Rural habitant is approximately half of Indian population. In India a substantial proportion of households either don't own house or have inadequate housing. Lower growth rate of rural housing is related to creation of wealth, productivity in rural sector & welfare too. The Indira Awaas Yojana (IAY) the biggest rural housing programme ever taken up in India started in the year 1985-86 and implementation started from 1.1.96. The scheme aims at providing a new house to a shelter less BPL household. Indira Awaas Yojana has been restructured into Pradhan Mantri Awaas Yojana (PMAY-G) w.e.f. 1st April, 2016 in India. As Government of India committed to provide "Housing for all" by 2022, the scheme aims to provide 1 Crore houses in rural areas in 3 years from 2016-17 to 2018-19. Similarly, Biju Pucca Ghar Yojana (BPGY) is the state sponsored scheme for rural housing in Odisha. Started in the year 2008-09 as Mo-Kudia Yojana but in the year 2014-15 it was restructured into Biju Pucca Ghar Yojana (BPGY). It aims at providing a new house to a shelter less households those genuine cases who could not be covered under Indira Awaas Yojana.

2.14.10 Electrification:

All 1553 nos of village in Khordha district have been electrified and 201427 nos of House Holds have been taken electricity connection.

2.14.11 Drinking water and sanitation:

In the district, 1358 nos of villages are having the safe drinking water facility where as 52 nos of villages are identified as water scarcity villages. There are 15762 nos of functional tube wells, 496 nos of Pipe Water Supply (PWS), 191 Overhead Tanks & 13098 nos of Stand posts are available in the district to provide drinking water.

2.14.12 Migration:

[Source: District Gazetteer, Khordha]

In 1936 Odisha became a separate province with Cuttack as its capital. After independence in 1947, the capital was moved from Cuttack to Bhubaneswar and the new capital was inaugurated on 13th April, 1948. Since then, number of migrant populations from different corners of Odisha as well as other states to the district and particularly to Bhubaneswar has been increasing. People from neighbouring states such as Andhra Pradesh, West Bengal and other districts of the state migrate to Bhubaneswar in search of job and better living. The most dominant feature of migrants to Bhubaneswar has been that they move with their family and settle down on vacant lands inside the city which in course of time have been converted into slums. We see a rise in slums in Khordha district over time. The statement below shows rise in slum population in different towns in the district:

Table- 2.13:

[Source: Census, 2011]

Urban Area	Total Population	Slum population	% of Slum Population to total Population
Bhubaneswar	8,85,363	3,08,614	34.86
Jatni Mplty	63,697	16,185	25.40
Khordha Mplty	46,205	11,741	25.41
Total	9,95,265	3,36,540	33.81

2.14.13 Food Security:

Under NFSA, 391544 nos of House Holds hve been covered and 352420 nos of PHH cards and 39124 nos of AAY cards, 845 SFS cards and 623 nos of Annapurna Ration cArds have been provided to the beneficiaries of Khordha district.

2.14.14 Social Security:

The National Social Assistance Programmes (NSAP) which came into effect from 15th August, 1995 represents a significant step towards the fulfilment of the Directive

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Principles in Article 41 of the Constitution. NSAP at present comprises of Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS) and Annapurna Yojna.

In khordha district the following beneficiaries are covered under the NSAP:

IGNOAP : 52088
IGNWP : 16980
IGNDP : 5400

In January 2008, State Government merged two old schemes, namely, Revised Old Age Pension Rules, 1989 Et Disability Pension Rules, 1985 and introduced the Madhu Babu Pension Yojana Rules, 2008. The no. of beneficiaries benefited under MBPY are as follows:

MBPY : 108183

Similarly, the district has 27 nos of Old Age Homes in which 475 nos of inmates are taking shelter and 13 nos of special schools are available in the district in which 1313 nos of inmates are staying.

2.15 Critical infrastructure:

2.15.1 Anganwadi Centers:

2554 nos (Both Rural and Urban) of Anganwadi Centers are available in the district to cater to the services related to Supplementary Nutrition programme, immunization, preschool education, nutrition & health education etc.

2.15.2 Schools and other Educational Institutions:

712 nos of Primary Schools, 417 nos of Upper Primary Schools and 193 nos of Higher Secondary Govt. Schools are available in the district. Similarly, 66 nos of Upper Primary & 99 nos of Higher Aided Schools are also contributing the educational needs of the district. Apart from this 468 nos of private educational institutions, 128 nos of Junior and 45 nos of Degree colleges are available in the district.

2.15.3 Hospitals and Health Centers:

To tackle the health issues at normal and emergency period the following health infrastructure are available in the district:

- HQ Hospital : 01 nos
- Community Health Centers : 12 nos
- Primary Health Centers : 44 nos
- Ayurvedic hospital and dispensaries : 21 nos
- Homeopathic Hospitals and dispensaries : 26 nos
- Private Hospitals : 208 nos

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- No of Sub-centers : 202 nos
- No of FRU : 4 nos
- No of ILR point: : 36 nos
- No of ASHA : 1198 (1191 available)

There are 48 nos of ambulances are available in different hospitals to provide necessary transportation service to the community. There are 5 nos of Blood Banks are available in the dist to provide emergency service.

2.15.4 Veterinary Hospitals:

20 nos of veterinary hospitals and 128 livestock aid centres to look after the live stocks of the, district.

2.15.5 Police and Fire Stations:

There are 10 nos of Police stations and 8 nos of Out Posts are available in Khordha & Balugaon Police Sub-Divisions to look after law-and-order situation in khordha rural. Similarly, 7 nos of fire stations available to cater services if any fire accidents happen in khordha rural.

2.15.6 Cooperative Societies:

142 nos of Cooperative societies are available in ARCS circle, BBSR and Khordha to provide agricultural loans and other related matters to the farmers of the district.

2.15.7 Banks and Post offices:

There are 321 nos of Post offices available in the district (both Rural and Urban area) which includes Head post offices, sub-post offices and branch post offices. 596 nos of commercial banks, 166 nos of Rural banks, 54 nos of semi urban banks and 376 nos of urban branches are available in the district to cater essential services to the community.

2.15.8 Road and Railway network:

Bhubaneswar the state capital and Khordha is the HQ district of Odisha & is well connected by Roads. The National Highway No.5 passes through the district. State Highway No 1 connecting Khordha and Nayagarh also passes through the district. All the blocks were connected by roads with the district headquarters. Howrah - Chennai Railway line of SE Railway passes through the district via the State capital. The major station in the district after Bhubaneswar is Khordha Junction.

The East Coast Railways head office is located at Chandrasekharpur, Bhubaneswar which controls three major divisions viz., Sambalpur, Khordha Road and Vishakhapatnam. The General Manager, is the overall in-charge of the head office of the East Coast Railways and thus looks into all the activities like planning, day to day operation and administrative control of the zone. The district is at presently served by Howrah-Chennai and Howrah – Puri railway lines of the East Coast Railways. Recently,

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a new railway line Khordha-Bolangir has been opened up with 27 kms being made functional between Khordha Road to Begunia. The total length of these railway lines in the district is 171.79 kms and these lines pass through 36 railway stations and passenger halts in the district and serve both the sub-divisions, viz., Bhubaneswar and Khordha. The railway network of the district contains 54.32 km single line, 138 kms of double line.

2.15.9 Cyclone and Flood Shelters:

To provide necessary shelter at the time of emergency Multi Purpose Cyclone Shelters and Flood Shelters were constructed at different vulnerable areas. Apart from the shelters the other infrastructures like schools, offices, private buildings are also used as the shelter places at the time of need. There are 50 nos of MCS & MFS, 1 Godown cum Shelter has been constructed in strategic places to provide accommodation by OSDMA.

2.15.10 Rain gauge and Automatic Weather Stations:

Rain Gauge stations are installed in all ten blocks of the District and the Head Clerks are in charge of recording the rain amount called as Rain Recording Officer. They are instructed to report DEOC by 8.30AM next Day.

Table 2.14:

SI No:	Name of the Block	Name of the Rain Recording Officer	Contact no.
1.	Bhubaneswar	Sanatan Behera, Cashier & I/C HC	7815010955
2.	Balipatana	Kamal Lochan Nayak, HC	
3.	Balianta	Swachhala Das, HC	9861886757
4.	Jatni	Naresh Rout	9437678081
5.	Khordha	Dambaru Dhara Behera, HC I/C	7978784678
6.	Bolagarh	Durga Prasad Samantaray, HC	9090148452
7.	Begunia	Lalita Singh, HC	8144714196
8.	Tangi	Jitendra Mishra	8093624543
9.	Chilika	Jhadeswar Nayak, HC	9178506947
10.	Banapur	R.K. Panda, HC	8763683604

CHAPTER- III

HAZARD, VULNERABILITY & RISK ASSESSMENT

The super cyclone of 1999 with a death toll of around ten thousand human was an eye-opener for the state machinery to assess its capability to deal with disasters of such intensity and to identify the vulnerable areas, especially in the coastal Odisha. The government of Odisha therefore initiated steps to provide necessary life infrastructures along with capacity building of the communities prone to frequent disasters.

Accordingly, the state government decided to survey the most vulnerable areas for identification of suitable sites for construction of infrastructures like cyclone shelters and assigned the job to the IIT, Kharagpur in December 1999. This survey suggested construction of cyclone shelters in a 10 km grid zone from the High Tide Line (HTL) in each vulnerable district.

Chilika is the biggest lagoon along the East-coast of India. It covers Khordha and Nayagarh districts and two other coastal districts i.e. Puri and Ganjam districts of Odisha. Khordha district is not only vulnerable to cyclonic storms of the highest intensity but also subject to high floods, due to back water on account of river systems not draining into the sea at high tidal levels. Similarly, in the year 2015, Khordha district was also affected by drought in Khordha sub-division.

As per the vulnerability atlas published by the Building Materials and Technology Council, Ministry of Urban Development, Government of India (1997), the Chilika coast of Khordha district has been assessed as a severely vulnerable district. In the past, during 1968 there was large scale flooding in Chilika coast and a number of villages were washed away. During 1972 and 1985 the wind velocities reached 132 km/hr in Chilika coast. An examination of the available literature shows that in severity the effects of storm and storm surge could be lesser in case of the areas surrounding Chilika lake. However, the danger from flood waters of the rivers, falling into Chilika could be as severe.

It has been observed that parts of three Blocks namely Tangi, Chilika and Banpur are coming under High-Risk Zone and most vulnerable for cyclone and flood.

During the super cyclone, almost all the mud walled and thatched houses collapsed due to high wind, continuous rain and flooding. No shelter was available for the villagers and many of them perished. In the super cyclone, there was a loss of human lives, live stock, crops, aquatic animals etc. with large scale damage to the environment. Those escaped became destitutes. Therefore, the state government decided to build elevated structures to withstand very high wind speeds, proof against

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flooding, and saline inundations. The list of hazards that affects Khordha District are given below:

- | | |
|-------------|-------------------|
| 1. Flood | 5. Hail Storm |
| 2. Cyclone | 6. Fire Accidents |
| 3. Drought | 7. Lightning |
| 4. Heatwave | |

A. Major Disasters/ Incidents during 2006-2020

A brief profile of major disasters/ incidents occurred in the district during last 15 years (2006 to 2020):

Table- 3.1: *The details are given in Volume – II (Table-61)*

The district was affected by Drought, Pest attack and Unseasonal Cyclonic rain in the year 2017. The details are given below:

SI No	Hazard	No of Blocks affected	Name of the Blocks	No of GPs affected	No of Villages affected	No of Farmers affected	Area affected (In Ha.)	Amount Disbursed (In Lakhs)
1	Drought	1	Bolagarh	5	10	173	23.0288	156598
2	Pest Attack	6	Bolagarh, Begunia, Khordha, BBSR, Chilika, Baliana	24	60	518	442.60	1870888
3	Unseasonal Cyclonic Rain	10	All 10 Blocks	172	1268	101493	41829.27	261897585
4	ESCS, FANI	10	All 10 Blocks	190	1669 (RV)		7809.65	101307101

Table- 3.2:

Sl. No.	Disaster / Incident	No. of incidents during 2019	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage to Infrastructure				Damage and loss of Crop Area (in Hectares)
							AWC/ School Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	
1	2	3	4	5	6	7	8	9	10	11	12
1	ESCS, FANI	1	4	2502008	1326853	113626	1367		267.52		7809.65

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B. Vulnerability and Risk Assessment related to disasters:

1. Cyclone:

The district is prone to Cyclone and in the year 1999, 2013, 2014 and 2019 the ESCS FANI affected the district. All the blocks of the district are prone to cyclone but the Baliana, Balipatna, Chilika, Tangi, Banapur & Khordha are more vulnerable. In the year 1999, all 10 blocks were severely affected along with all Municipalities and NACs. The statistics are given below:

Table – 3.3:

YEAR	1996-97	1999 – 00	2013-14	2014-15	2015-16	2017-18	2019-20
	CYCLONE						FANI
Families Affected	2	826353	2246341	Nil	Nil	Nil	190 (GPs)
Villages Affected	2	635	1652				1669
Human Casualities	2	106	2				4
Animal Lost	Nil	91931	Nil				1326853
No of House Damaged	2	134730	64092				113626
Value of property Lost (In Lakh)		8866.4201	124.058				55381.73

On 03.05.19, the Extremely Severe Cyclonic Storm FANI affected khordha district very badly. District Administration has proactively evacuated 1.14 lakh people from kutch houses in all 10 blocks due to which the death toll reduced to 4nos.

1.1 Electrical Infrastructure and cyclone Vulnerability:

Table – 3.4:

Sl. No.	Name of the Block/ ULB	No. of 33/11 KV Substations	No. of Distributing Transformers			Conductor/ Electrical lines-11 KV or less (length in Kms.)	No. of Poles	No. of High Tension Towers	High Tension lines above 11 KV (length in Kms.)
			11 KV or Less	11 KV < and <60KV	6o KV and above				
1.	Khordha	1	7	852	0	486.43	7584	435	85.72
2.	Begunia	1	3	670	0	360.35	5922	485	35.00
3.	Jatni	2	3	480	0	259.60	4176	515	75.50
4.	Bolagarh	0	1	418	0	318.26	4960	121	37.00
5.	Ranapur	0	1	73	0	55.80	896	131	4.00
6.	Tangi	0	3	444	0	241.27	3444	425	34.00
7.	BBSR	5	27	5074	0	1363.34	22700	707	129.10
8.	Chilika	1	2	730	0	264.00	3305	625	43.50
9.	Banapur	0	2	820	0	444.50	5556	206	25.00
10.	Baliana	0	3	352	0	155.00	2583	190	16.00

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1.2 Drinking water facility in the Cyclone prone areas:

Table- 3.5:

Sl No.	Name of the Block/ ULB	Total no. of Tube Wells	No. of Tube Wells with raised platforms	No. of Sanitary Wells	PWS Schemes			
					Total No.	Length in Mtrs.	No of Over Head Tanks	No. Of Stand Points
1	Baliana	1503	92	0	46	234344	10	1430
2	Balipatana	1607	42	0	44	234590	18	1200
3	BBSR	1451	0	2	40	152884	13	1010
4	Jatani	1389	76	1	42	157586	23	1150
5	Banapur	1594	0	4	51	120556	27	1100
6	Begunia	1806	6	19	63	232356	17	1410
7	Bolagarh	1790	0	41	58	179771	16	1439
8	Chilika	1395	4	16	40	166306	16	1009
9	Khordha	1791	0	11	62	275026	35	1500
10	Tangi	1436	0	22	50	266331	16	1850
Total		15762	220	116	496	2019750	191	13098

2. Flood:

Flood is a regular visitor to the district, but all the blocks are not equally affected in flood. Blocks like Baliana, Balipatna are more affected than other blocks. Sometimes heavy down pour also creates flood like situation in the area.

History of Flood in Khordha District:

Table – 3.6:

[Source: DDMP, 2018-2020]

YEAR	05-06	06-07	08-09	09-10	10-11	11-12	12-13	14-15	15-16	16-17	17-18	18-19	19-20 (Flood)	19-20 (H. Rain)
Families Affected	56476	131425	12219	138782	27175	5380	2246341	21263	0	0	0	0	250 (P)	1070 (p)
Villages Affected	193	1100	152	1166	236	342	1652	40	0	0	0	0	2	10
Human Casualties	0	2	2	0	1	2	2	3	0	0	0	0	0	0
Animal Lost	0	0	9	34	4	0	0	0	0	0	0	0	0	0
No of House Damaged	1075	1104	2278	34	635	390	64092	0	0	0	0	0	1786 (PIR)	0
Value of property Lost (In Lakhs)	30.35	73.122	1442	70	4.14	1.908	124.581	0	0	0	0	0	1847 Ha (Agr)	29.376 Ha (agr)

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2.1 Irrigation Division Wise Rivers and Length of Embankments: (within Khordha district)

Table – 3.7:

Irrigation Divisions	Khordha	Prachi	Nimapara	Puri (Pipili Irr.Sub-Dvn.)
Name of river Embankment	Hada Malaguni Kusumidhar Salia	Kuakhai Daya Kushbhadra	Kuakhai Kushbhadra Bhargavi	Daya left Bhargavi Sakhigopal Branch canal Kanas Branch Canal
Name of Sluices	-	Drainage Sluice at Tirumal (Daya Rt.) Drainage sluice at Budhanalla (Kuakhai Rt.)	Jogisahi (Kushabhadra Rt.) Achutapur (Bhargavi Lt.)	-
CE	-	74.60	55	10.1
OAE	64.90	2.70	7	-
TRE	4.00	-	-	-
SE	69.82	-	-	-
Total	138.72	77.30	62	10.1

3.2 Danger level at different Locations & its past maximum recorded gauge:

Table -3.8:

Name of river Embankment	Name of gauge stations	Zero value of gauge in the meter	Danger level	Irr. Dvn. / Maximum recorded gauge & year
Kushabhadra Right Embankment.	Jogisahi RD 4.0 Km. (Balipatana)	14.55 M	17.44 M	Nimapara
-do-	Sisumatha RD 15.0 Km (-do-)	10.81 M	15.08 M	-do-
Bhargavi left Embankment.	Achyutpur RD 8.5 Km (-do-)	10.92 M	13.26 M	-do-
Kusabhadra left Embankment.	Balianta	14.146 M	18.25 M	Prachi
-do-	Rama Chandrapur	14.306 M	17.28 M	-do-
-do-	Jalahata	11.08 M	13.45 M	-do-
Daya Right Embankment.	Daya Bridge to RD 00	11.13 M	16.34 M	-do-
Malaguni	Golabai (Railway Bridge No.702)	4.87 M	7.77 M	Khordha/ 9.070m In 1994 9.020m in 2001 9.120m in 2006 9.100m in 2008 7.470 M in 2011 9.720M in 2013 8.67 m in 2014 36.18 m in 2019
Kusumidhar	Road bridge at Satasankha at N.H. 5	8.95 M	12.74 M	13.820m in1981 10.400m in2001 9.950m in2006 10.150m in 2008 12.650m in 2009 10.750m in 2011 13.50 in 2013

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				11.35 in 2014
Chilika lake	Mangalajodi	0.70 M	1.98 M	2.920m in 1982 2.220m in 2001 1.560m in 2006 1.960m in 2008 2.000m in 2009 1.700m in 2011 2.10 in 2013 1.74 in 2015
Hada on Bridge	SH 1 Bridge	64.28 M	67.28 M	Khordha

These are the different locations where danger levels can be identified in the shortest possible time limits.

3.3 Vulnerable Points in the Embankments:

Table – 3.11:

VULNERABLE POINTS IN RIVER EMBANKMENT UNDER KHURDA IRRIGATION DIVISION, KHURDA.									
Sl No	Name of the River Embankment	Location	Block	Description of Vulnerable Points	Reason for Vulnerability	Name of the SDO	Tel No of the SDO	Name of the AE	Tel No of the AE
1	2	3	5	6	7	8	9	10	10
1	Rajua Right Embankment	Rajua Right Embankment near vilage Tirumal from RD 900m to 1000m	Jatni	No disigned top width	Over topping & embankment settled	Kamadev Biswal	9437191238	Pravas Chandra Pattanayak J.E. Khurda Irrigation Section	9040196319

There is no weak embankment under Prachi, Nimapara and Puri Irrigation Division.

3.4 List of Flood Prone GPs in the District:

Table -3.12:

Name of The Blocks	Sl. No.	Name of the G.Ps.	No of Villages	Name of Flood Causing River
Khordha	1	Brajamohanpur	5	Malaguni Rajua
	2	Golabai Sasan	7	
	3	Jankia	2	
	4	Orabarasingh	5	
	5	Pubusahi	6	
	6	Dhaulimuhan	5	
	7	Kanpur	5	
	8	Keranga	2	
	9	Naranagarh	11	
	10	Garh Haladia	7	
		Total	55	
Begunia	11	Tulasipur		Mandakini Gobara Rana
	12	Sarua	5	
	13	Simor	6	
	14	Baghamari	7	

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	15	Durgapur	14	
	16	Pangarasingh	8	
	17	Podadiha	11	
		Total	53	
Bolgarh	18	Arikama	9	Hada
	19	Asarala	8	
	20	Dhalapathar	4	
	21	Gediapalli	16	
	22	Manibandha	12	
	23	Bankoi Desa	17	
	24	Sagargaon	17	
	25	Badakumari	17	
		Total	100	
Tangi	26	Sarapari	7	Malaguni Kusumi Chilika
	27	Balipatpur	3	
	28	Bhusandpur	4	
	29	Chhanagiri	6	
	30	Lendo	13	
	31	Nirakarpur	9	
	32	Rameswar	13	
	33	Nuagarh	8	
	34	Kantalbai	7	
	35	Sundarpur	5	
		Total	75	
Chilika	36	Singipur		Chilika & Kansari River
	37	Chandeswar	9	
	38	Haripur	10	
	39	Jaripada	12	
	40	Sana Nairi	3	
	41	Nimikheta	11	
	42	Balugaon NAC		
	43	Barkul	10	
		Total	55	
Banpur	44	Kumaranga Sasan	16	Salia River
	45	Nandapur	20	
	46	Tumuraput	9	
	47	Banpur NAC		
		Total	45	
Jatni	48	Padhansahi	12	Daya, Rajua & other streams
	49	Jamukoli	6	
	50	Barakuda		
	51	Kantia	4	
	52	Chhanaghar	8	
	53	Benapanjari	7	
			Total	
Bhubaneswar	54	Barimunda	5	Kuakhai, Daya & Gangua
	55	Dhaulti	12	

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	56	Itipur	11	
	57	Raghunathpur	2	
	58	Sisupal	3	
	59	Basuaghai	5	
	60	Daruthenga	8	
	61	Kalyanpur	6	
	62	Mancheswar	BMC	
	63	Paikerapur	BMC	
	64	Patrapada	BMC	
		Total	52	
	65	Bentapur	4	Kuakhai Daya, Dhanua & other streams
	66	Benupur	1	
	67	Jaya Dev	3	
	68	Prataprudrapur	6	
	69	Satyabhamapur	7	
	70	Bainchua	7	
	71	Bhingarpur	3	
	72	Jagannathpur	6	
	73	Kakarudrapur	13	
	74	Puran Pradhan	10	
	75	Sarakana	10	
	76	Umadei Brahmapur	8	
	77	Balianta	10	
	78	Jhinti Sasan	4	
	79	Pratap Sasan	1	
		Total	93	
	80	Amanakuda	5	Kushabhadra Prachi Bhargavi
	81	Guapur	5	
	82	Marthapur	4	
	83	Bhakarsahi	2	
	84	Bhapur	2	
	85	Deulidharpur	5	
	86	Kurunjipur	15	
	87	Majjihara	3	
	88	Turintira	5	
	89	Garedi Panchan	4	
	90	Nariso	5	
	91	Pampalo	9	
	92	Rajas	2	
	93	Somana Sasan	7	
		Total	73	

3.5 Agriculture and Flood Vulnerability:

As per the information provided by Chief District Agriculture Officer, Khordha, 106050 Ha of cultivable area for paddy and 14100 Ha of non-paddy areas are available in the

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district out of which 7888 Ha of paddy areas are susceptible to flood. The block wise details are given below.

Table – 3.13:

Sl. No.	Name of the Block	Cultivable Area (Hectares)		Area susceptible to Flood (Hectares)	
		Paddy	Non-Paddy	Paddy	Non-Paddy
1.	Khordha	13073	1432	1800	--
2.	Begunia	14092	2443	1200	--
3.	Bolagarh	14477	1328	240	--
4.	Tangi	9829	2763	1078	--
5.	Chilika	9815	1781	0	--
6.	Banapur	10592	1948	0	--
7.	Bhubaneswar	8440	406	163	--
8.	Jatni	6827	450	360	--
9.	Balianta	9090	820	1485	--
10.	Balipatana	9815	729	1562	--
	Total	106050	14100	7888	--

3.6 Electrical Infrastructure in the Flood Prone Area:

Table – 3.14:

Sl. No.	Name of the Block/ ULB	No. of 33/11 KV Substations	No. of Distributing Transformers			Conductor/ Electrical lines-11 KV or less (length in Kms.)	No. of Poles	No. of High-Tension Towers	High Tension lines above 11 KV (length in Kms.)
			11 KV or Less	11 KV < and <60KV	60 KV and above				
1.	Khordha	1	7	852	0	486.43	7584	435	85.72
2.	Begunia	1	3	670	0	360.35	5922	485	35.00
3.	Banapur	0	2	820	0	444.50	5556	206	25.00
4.	Balianta	0	3	352	0	155.00	2583	190	16.00

3.7 Drinking water and Flood Vulnerability:

There are 15762 nos of Tube wells available in the district with 220 nos having raised paltforms for providng driking water in the distrct. Similarly, 496 nos of PWS schemes are available spreading over 2019750 mtrs along with 191 over head tanks are there to need the water demand of the people.

Plan for meeting **Water Crisis** during Summer season:

Status of Existing Water Supply Infrastructure of WATCO, Bhubaneswar:

- Bhubaneswar City (Bhubaneswar Municipal Corporation)

Population	1163000	
Wards	67	
No of House Holds	155718	
Nos of WS connction	137746	
Infrastructure		
UGR	193	

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ESR	44	
Production Well	268	
Stand Post	1036	
Tube Wells	2928	
WTP	7	
Pump Houses	131	
Distribution Pipe Lines	1508.4 KM	
Rising Main	190.49 Km	
Sewerage Network	538.09 Km	
DG Sets		
Fixed	31 nos	1500 KVA- 2, 1250 KVA-2 1010 KVA -1, 750 KVA – 2 650 KVA – 2, 500 KVA – 2 365 KVA – 1, 320 KVA – 2 250 KVA – 4, 200 KVA -2 180 KVA – 2, 140 KVA – 2 125 KVA- 5, 100 KVA – 1 15 KVA - 1
DG on Wheel	13 Nos	250 – 2, 125 -5, 82.5 – 3, 62.5 – 3
Water Tankers		
	Trunk Mounted Water Tanker	7
	Tractor Pulled Tanker	6
	Tractor for Placment of Halting Tanker	3 22
	Private Water Tanker	10 nos kept in contacted, to be deployed as per requirement
Water Supply Status		
	Demand	157.01 MLD
	Supply	257.48 MLD

- Khordha Municipality

Population	58000	
Wards	22	
No of House Holds	8564	
Nos of WS conncection	5452	
Infrastructure		
UGR	4	
ESR	1	
Production Well	27	
Stand Post	101	
Tube Wells	311	
WTP	0	
Pump Houses	4	
Distribution Pipe Lines	117.27 KM	
Rising Main	13.20 Km	
DG Sets		
DG on Wheel	1	125 - 1
Water Tankers		
	Private Water Tanker	1 no engaged
Water Supply Status		
	Demand	7.83 MLD
	Supply	9.27 MLD

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- Jatani Municipality

Population	70800	
Wards	23	
No of House Holds	7671	
Nos of WS connection	5042	
Infrastructure		
UGR	4	
ESR	0	
Production Well	21	
Stand Post	149	
Tube Wells	321	
WTP	0	
Pump Houses	18	
Distribution Pipe Lines	43.23 KM	
Rising Main	7.44 Km	
DG Sets		
DG on Wheel	2	200 KVA – 1, 62 KVA - 1
Water Tankers		
	Private Water Tanker	1 no engaged
Water Supply Status		
	Demand	9.56 MLD
	Supply	13.00 MLD

- Control Rooms under WATCO Division I & II are:
 - WATCO Division – I, Bhubaneswar – 0674-2542821
 - Watco Sub-Division, Nayapalli BBSR – 0674-2542821
 - Watco Sub-Division, Palasuni BBSR – 0674-2580092
 - Watco Sub-Division, Ghatikia BBSR – 0674-2977733
 - Watco Sub-Division, Chandrasekharapur BBSR – 0674-2747117
 - WATCO Division – II, Bhubaneswar – 0674-2390322
 - Watco sub-Division, High Level Tank, Unit-V, BBSR -0674-2390433
 - Watco sub-Division, Samantarapur, BBSR – 0674-2341887
 - Watco sub-Division, Pokhariput, BBSR – 0674-2955633
 - Watco sub-Division, Satyanagar, BBSR – 8763123878
 - Watco sub-Division, Khordha – 9861091801
 - Wacto Section, Jatni- 9437280839
- ❖ Status of Water Supply in Balugaon NAC:
 - Total No of Wards : 11
 - Total no of Tanker engaged : 1
 - Total no of PVC tank Installed : 4
 - Total Population : 19820
 - Total Demand : 2.68 MLD
 - Total Supply : 2.00 MLD
 - Total no of Functional Hand Pump : 150

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- Total no of Stand Post : 70
- Length of distribution pipe line : 31.02 Km
- Length of rising main : 16.50 km
- Total no of Consumers : 2636
- Storage facility : UGR – 3 (11 Lakhs ltrs), ESR – 1 (2.5 Lakhs ltrs)

❖ Status of Water Supply in Banapur NAC:

- Total No of Wards : 15
- Total no of Tanker engaged : 0
- Total no of PVC tank Installed : 4
- Total Population : 18319
- Total Demand : 2.83 MLD
- Total Supply : 1.50 MLD
- Total no of Functional Hand Pump : 159
- Total no of Stand Post : 41
- Length of distribution pipe line : 26.24 Km
- Length of rising main : 20.525 km
- Total no of Consumers : 1997
- Storage facility : UGR – 3 (5 Lakhs ltrs), ESR – 1 (2.5 Lakhs ltrs), WTP 10.5 MLD – 1, 3.5 MLD

Plan for mitigating Heat Wave condition during Summer:

1. Population:
 - a. BBSR (P) : 652450
 - b. Khordha : 45565
 - c. Jatni : 47235
 - d. Total : 745250
2. No of wards:
 - a. BBSR (P) – 36
 - b. Khordha – 22
 - c. Jatni – 23
3. No of Water Tankers available with type ad capacity:
 - a. Truck Mounted Water Tanker: 2 nos 8000ltrs/ each
 - b. Mini Truck with Water Tanker 2nos 5000ltrs/ each
 - c. Tractor Attahced with 4-wheel power tanker: 3 nos 5000ltrs/each
 - d. Tractor Attahced with 2-wheel power tanker: 3 nos 3000ltrs/each
 - e. Tractor for placement of Halting Tanker: 3 nos
 - f. Halting Tanker- 4 wheel 11 nos 4000ltrs/ each
 - g. Halting Tanker- 2 wheel 11 nos 2000ltrs/ each
4. Additional water tanker required on hiring: 10 nos
5. No of PVC tanks available with capacity: 40 nos

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6. No of Hand Pump tube wells functional: 1541
7. Source(s) of supply, qnty, per capita supply
 - a. Source; Daya, Kuakhai rivers /PW
 - b. Supply of Qnty: 121.26 MLD (88.08 + 32.86 (GS) MLD)
 - c. Percapita Supply: 212 MLD
8. 50 nos of PVC tanks are being kept in readiness for water supply water scarcity pockets.

3. Land Slide Vulnerability:

The district is not vulnerable to Landslide. Till date there are no instances of landslide noticed in the area.

4. Lightning:

As Lighting detahs are increasing day by in different parts of the state, Distirct administraton has created massive Awareness campaigns have been made through posters in schools, familirisation exercises in different villages by ODRAF, Fire Service & NDRF to reduce the lightning detaths in the district. In the year 2019-20, 7 nos, 2020-2021, 6 nos and 2021-2022, 6 nos of Lightning Deaths occurred in Khordha District.

5. Drought:

Table – 3.15:

(Source: CDAO, Khordha)

Sl. No.	Name of the Block	Average Annual Rain Fall	Ground Water Level	Cultivated Area (In Hectares)			
				Paddy		Non- Paddy	
				Rain fed Area	Irrigated area	Rain fed Area	Irrigated area
1.	Khordha	1408	0.044	11641	1432	159	1273
2.	Begunia	1408	0.0339	10908	3184	2390	53
3.	Bolagarh	1408	0.0437	10883	3594	302	1026
4.	Tangi	1408	0.0596	4858	4971	2284	479
5.	Chilika	1408	0.0386	7669	2146	1243	538
6.	Banapur	1408	0.054	2648	7944	1668	280
7.	Bhubaneswar	1408	0.0681	101	8339	163	243
8.	Jatni	1408	0.031	4160	2667	60	390
9.	Balianta	1408	0.0666	665	8425	85	735
10.	Balipatana	1408	0.0369	125	9690	49	680
11.	District	1408	0.4764 (Avg.)	53658	52392	8403	5697

9.1 Drought Vulnerability:

Some part of the district is prone to drought. Sometimes unprecedented rainfall, less rain from actual rain fall creates drought like situation in the district. In the year 2014, 5 GPs and 15 Villages were affected in drought where as in the year 2015, 104 GPs, 1 ULB and 925 nos of villages were affected in drought.

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Table- 3.16:

Name of the Block	Year – 2014				Year-2015				Year- 2017			
	No. of GPs experienced drought	No. of Villages	Agricultural Crop Area lost (in Hectares)		No. of GPs experienced drought	No. of Villages	Agricultural Crop Area lost (in Hectares)		No. of GPs experienced drought	No. of Villages	Agricultural Crop Area lost (in Hectares)	
			Paddy	Non-Paddy			Paddy	Non-Paddy			Pad dy	Non - Pad dy
Khordha	3	8	350	0	20	103	9250	0				
Begunia	2	7	290	0	21	161	11154	0				
Bolagarh	0	0	0	0	19	198	12720	0	5	10		23.0288
Tangi	0	0	0	0	20	190	8161	0				
Chilika	0	0	0	0	14 + 1	134	8434	0				
Banapur	0	0	0	0	10	139	0	0				
BBSR	0	0	0	0	0	0	0	0				
Jatni	0	0	0	0	0	0	0	0				
Balianta	0	0	0	0	0	0	0	0				
Balipatana	0	0	0	0	0	0	0	0				
Total	5	15	640	0	104-1UB	925	60750	0	0	0	0	0

Similarly, in the year 2017 district had also experienced pest attack and unseasonal rain due to which massive crop loss had occurred. In pest attack 6 nos of blocks were affected where as due to unseasonal cyclonic rain all 10 nos of blocks were affected.

CONTINGENT CROP PLANNING FOR KHARIF, 2021

Odisha experiences drought and / or flood very often, thus mostly considered as the disaster capital of India. It is irony that our state receives nearly 1451.2 mm of rainfall annually of which about 79% is received in a span of 4 months (June-September) which is quantitatively enough for most of the crop needs. Though there was not much more of variation in quantum of rainfall receipt in the recent past, yet the number of intermittent dry spells and intense rainy days has increased to a greater extent. The aberration in temporal and spatial distribution makes the crop vulnerable to drought as well as flood. Such adverse effects on crops can be combated in two ways: (I) preventive measures and (II) contingent measures / ameliorative measures.

Drought

I. Drought Preventive Measures

Forecast Based on the Operational Statistical Ensemble Forecasting System for 2018 monsoon indicates almost normal rainfall ($97 \pm 5\%$). According to the India Meteorological Department (IMD), India may receive a normal rainfall this year due to the weakening of EI Nino phenomenon during June, July and August. The actual status of the overall rainfall in India depends on the future status of EI Nino and Indian Ocean Dipole (IOD) activities. The pattern suggests that a moderate EI Nino and a negative IOD may result in deficit rainfall, towards October, said the IMD officials. It is, too early to ascertain the progress of monsoon 2018. However, thrust should be given on action plan in case for terminal drought, mid-season drought and early season drought if occurs.

Among the different *Kharif* crops the upland rice gets affected the most by drought. Therefore, diversified land use with low duty non-paddy crops is the

best option in these lands. In real sense the technology available to mitigate drought are mostly preventive in nature and requires early planning. The age-old adage "Prevention is better than cure" thus holds good in drought management. Therefore, it's imperative to have a long-term policy and planning at the beginning of the season for judicious use of water, land and crops in particular locality for best results. The major thrust in drought mitigation in rainfed areas should be on rainwater management through in-situ conservation and water harvesting through on-farm reservoirs/capturing runoff from local catchments/ flash flood water from local streams to recycle at the time of need. Some of the important preventive measures that can be adopted early in the season to mitigate the impact of drought and augment sustainable drought production are elaborated below.

II. General Contingent Measures

- i. Data base of the farmers should be maintained at the Govt. level for the selection of beneficiaries for real time supply / distribution of seed and fertilizer at the time of need.
- ii. Positioning of seed, fertilizer and other inputs should be regularly monitored online for effective supply to the farmers at the time of need.
- iii. Raising fodder crops in upland and the drought may be considered as an opportunity for accelerating livestock production.
- iv. Scientists of SAU, KVKS, and Central Govt. and Agriculture Officers from State Govt. may be involved in regular inspection, monitoring and managing the drought situation with each one given responsibility for an area (Block/GP).
- v. Application of FYM / compost (rural) and soil ameliorant (Lime for acid soil and gypsum for saline and alkali soil) in upland and medium land should be encouraged to conserve more moisture in the root zone.

For Irrigated Area:

- i. All the lift irrigation points should be repaired to working conditions.
- ii. Mobile services for repairing of the LI points should be facilitated.
- iii. Discharge of canal water should be done at the right time to protect the crop from drought.
- iv. Command area must be increased by rational distribution. Adopt SRI method of transplanting which requires less water which facilitate increasing of acreage with the same amount of water, less seedlings if seed availability is less, and the nursery raising of seedlings for this method also requires less time of only 10-12 days.
- v. Pani Panchayat should be active and consensus for the rational distribution of canal water with special emphasis on the provision of field channels to each plot
- vi. Tail and farmers should avoid growing of rice.

A. Upland

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1. Select efficient crops and cropping systems matching the length of growing season. Some of the promising non-rice crops for rainfed uplands are maize, cowpea, arhar, black gram, rice bean, groundnut, sesame, castor, pumpkin, sweet potato, elephant foot yam, yam, tapioca, yam bean, arrowroot, colocassia.
2. Choose short duration varieties like Heera, Dhala Heera, Sneha Kalinga-III which possess faster rate of growth, deep and penetrating root system and ability to escape drought.
3. Grow upland rice varieties like Jaldi Dhan 6 (80 days), Sahabhagi Dhan (100 days), Vandana (90 days), Mandakini (100 days) and Jyotirmayee (95 days), Sidhanta, Jogesh, Khandagiri, Parijat.
4. Store rainwater to use as life saving irrigation. On-farm water harvesting structures (farm pond) lined with 6:1 soil: cement mortar of 6cm thickness in 10% land area helps to harvest the rainwater for providing protective irrigation.
5. Perform off season ploughing (summer ploughing) of inversion type to conserve moisture, reduce pest and weed problem and to facilitate early sowing.
6. Plough and sow the crop across the slope to develop a ridge and furrow type of land configuration for effective soil moisture conservation to overcome drought for longer period.
7. Follow partial mechanization to ensure timeliness and precise of operations (desired depth and tilth) to utilize land, rainfall and other natural resources effectively.
8. Apply Lime (Paper Mill Sludge/Calcium Silicate) @ 0.1LR for monocot crops and @0.2LR for dicot crops as per soil test basis or 500 kg lime / ha as blanket dose mixed with FYM @ 5.0 t/ha in furrows at the time of sowing in acid soils. Legume seeds to be treated with sodium molybdate @ 10g 25kg⁻¹ seed after treatment. Seed inoculation with Rhizobium and molybdenum treatment can be done simultaneously in acid soils. Use *Azotobacter* + *Azospirillum* + PSM in 1:1:1 ratio, 3kg each per ha. Inoculated to prelimed (5%) vermicompost in 1:25 ratio, incubate it for 7 days at 30 % moisture and then apply as basal. Inoculate legume seeds with proper Rhizobium @ 25g/kg seed, and apply PSM @ 6kg/ha mixed with FYM in furrows.
9. Adopt intercropping / mixed cropping system in recurrent drought prone areas as mentioned below.

B. Medium / low land

- ❖ Go for direct sowing of rice as soon as monsoon touches Kerala i.e. before onset of monsoon in Odisha. Green manuring with Dhanicha may be practiced with liming of soils if the soil is acidic @ 500kg PMS/Calcium Silicate ha⁻¹.

- ❖ Under late sown condition, choose rice varieties maturing relatively 10 days less than the recommended varieties.
- ❖ Rainwater management in medium and low hands is crucial for mitigation of drought and improvement in production. A technology for storing excess rain water in refuges in medium/low land has been standardized by devoting 10% of the cultivable area. The objective is to minimize runoff by encouraging its entry into the soil (in-situ water conservation) and capturing that which cannot get into the soil. In the first step, the field bund is strengthened by raising the dyke height to 45 cm with the provision of weir at 20 cm height for spilling over excess water to runoff collection tank (refuge). The refuge is constructed at the lower reach of the plot with top width 3.0m, bottom width 2.0m and depth 1.8m. The length of the refuge is equal to the width of the plot this technology is based on the principle that out of total annual rainfall (1500 mm) nearly 50% of the rainfall comes from a few intense showers resulting in higher runoff. On the other hand, in certain years there is a break in rainfall at a stretch for 10-12 days during crop growth period. This long stretch of dry period affects the rice crop adversely. The excess runoff discharged over the weir height during intense showers in the early season if collected in the refuge can provide protective irrigation to mitigate the intermittent drought in rice crop.

III. Drought Amellorative Measures / Contingent Measures

It is difficult to define the exact crop and weather scenario during an anticipated drought or dry spell. Hence, it is really a difficult task to delineate rigid contingent measures well in advance of the cropping season applicable to all the situations. However, there are three distinct periods of Kharif season relating to crop growth stage and associated farm practices. Depending on the rainfall onset and pattern of distribution, seven types of scenarios have been projected and required contingent measures have been suggested below:

- a) Early season drought (June 10 to July 31)
 - Scenario 1: Early onset and sudden stoppage of monsoon
 - Scenario 2: Late onset, uplands not covered till mid-July
- b) Mid season drought (August 1 to September 15)
 - Scenario 3: Non-paddy crops in uplands affected
 - Scenario 4: Beushaning of rice delayed
 - Scenario 5: Transplanting of rice delayed/seedlings Over aged
 - Scenario 6: Beushaned/transplanted rice affected at early vegetative stage
- c) Late season drought (September 16 to October 31)
 - Scenario 7: Medium and low land rice affected at vegetative / reproductive

stage.

A. EARLY SEASON DROUGHT (June 10 to July 31)

Scenario 1: Early onset and sudden stoppage of monsoon

Under such a situation there is more likelihood of mortality of sprouts and seedlings and difficulties in sowing.

a) Upland

- Grow drought tolerant rice variety like Sahabhazi Dhan to resist intermittent drought spell. When there is more than 50 % mortality, resow the crop up to July after receipt of sufficient rain water. Resowing of groundnut is not advisable under such situation. It is always wise to raise low water requiring non-paddy crops like ragi (Bhairabi, Subhra, Chilika, with other varieties like Godavari and Champabati), green gram (Sujata, Durga, Kamdev, TARM 1, IPM 02-14, IPM 02-3), black gram (Prasad, Ujala, PU-31, IPU 02-43, Mahuri with other varieties like PU-19 and PU-30), cowpea (SEB-2, Pusa Barsati, Utkal Manik), sesame (Nirmala, Prachi, Amrit, Subhra, Smarak), rice bean (RBL-6, RBL-35, BRB-1), castor (Jyoti, Kranti, Harita). If mortality is less than 50%, the crops may be gap filled.
- Cultivate vegetables – cowpea, guar, radish, runner bean, okra, early cauliflower, brinjal, early tomato wherever possible with *rhizobium* inoculation for legumes (@20 g kg⁻¹ seed) and *Azotobacter*, *Azospirillum* and PSM for non-legume crops (@ 10kg consortium BF ha⁻¹).
- Niger (Deomali, Alasi-1, Utkal Niger 150) and horse gram (urmi) to be sown in August.
- In wide as well as closed spaced line sown crops complete hoeing, weeding followed by ridging to the base of the crop rows at 20 days after sowing for in-situ moisture conservation. Dust mulch by hoeing reduce evaporation loss from soil.

b) Medium and low land

- If rice plant production is less than 50%, resow the crop. Select rice varieties maturing at least 10-15 days earlier than the recommended varieties. Pregerminated seeds may be directly seeded or fresh seedling of early varieties may be raised for transplanting. The pregerminated seeds can be sown in the lines by seed drill / drum seeder.
- If rice plant population is more than 50% carry out weeding and adjust the plant population by *Khelua* (removing and redistribution the hills) and clonal propagation.
- Raise community nursery of rice for transplanting at a reliable water source to save time for further delay.

- Sow the seeds at 5-6 cm depth by punji method (6-8 seeds at one point) at a spacing of 20cm x 10cm and cover it with a mixture of FYM: SSP (10:1) to avoid seedling mortality due to moisture stress in lowland. Use a seed rate of 100 to 120 kg per ha to maintain 400-600 plants/m².
- In saline soil use FYM/green leaf manure, Blue green algae @ 15Kg ha⁻¹ use aged seedlings for transplanting, gap fill the crop by clonal propagation.

Scenario 2: Late onset, uplands not covered till mid- July

- ❖ Sow drought tolerant non-paddy crops like (Bhairabi, Champabati), little millet (Sabara and Kolab), green gram (Durga, Kamdev, K851, Sujata, TARM 1, IPM 02-14, IPM 02-3), black gram (Prasad, Ujala, PU-31, IPU 02-43, with other varieties like PU-19 and PU-30), cowpea, guar, sesame, castor in place of upland rice.
- ❖ Maize, cowpea maybe grown in the first week of August to meet fodder crisis inoculated with proper biofertilizer sources (*Azotobacter*+*Azospirillum*+ PMS for maize and *Rhizobium* and PSM for cowpea).
- ❖ Niger (Deomali, Utkal Nier-150, Alasi-1) and horsegram (Urmi) are to be sown in August with the use of biofertilizers.
- ❖ Grow sweet potato varieties like Gouri, Shankar, Samrat, Shree Nandini, Shree Bhadra, Shree Ratna in the ridges and allow the furrows to conserve rain water.
- ❖ Grow vegetables like tomato, cauliflower, knol-khol, radish, brinjal, runner bean in the inland hilly districts and cowpea, guar, lady's finger and chilli in the coastal plains.
- ❖ Apply full P, K and 20% N of the soil test best recommended dose as basal along with well decomposed organic manure mixed with suitable biofertilizers for early seeding vigour.
- ❖ Major emphasis should be given on *in-situ* rain water conservation, harvesting excess runoff for its recycling to make provision for life saving irrigation.

B. Mid-season drought (August 1 to September 15)

Scenario 3: Non-paddy crops in uplands affected.

- ❖ Complete hoeing and weeding in non paddy field to provide dust mulch.
- ❖ Weeding groundnut after 45 days of sowing disturbs the pegging process. Under such a situation prune the weeds with the help of sickle. Apply post emergence spray of quizalofop ethyl 5% EC @ 0.05Kg/ha in 500 litres of water (2ml / litre of water) at 20-25 day after sowing to control grassy weeds in groundnut/jute.
- ❖ Spray 0.5% KCL or 0.5% KH₂PO₄ + 0.3% borax to legumes to overcome drought situation.

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- ❖ Foliar application of 2% urea at pre flowering (25 days after sowing) and flowering stage of green gram and black gram is helpful to mitigate drought.
- ❖ Spray 1% urea in brinjal. Take up spraying of profenophos 50% EC @ 400ml/ac against mealy bug and propargite 57% EC/ fenazaquin @ 400ml/ac against mite which are more prevalent in dry weather in all crops.
- ❖ Withhold top dressing of nitrogen. Resume top dressing after receipt of rain.
- ❖ Remove the borer affected tillers/late formed tillers / dried leaves in sugarcane and follow wrapping and propping in chains. Stripe out the lower 4-5 leaves.
- ❖ Spray planofix or celmone 10ppm (2ml in 9 litre of water) at 45days and 20 ppm (4ml in 9 litre of water) 10days later to prevent boil shedding in cotton.
- ❖ Spray 2% late planted jute to encourage growth.
- ❖ Use Diazotrophs (*Azotobacter*+ *Azospirillum*) and PSM in 1:1:1 ratio, 3kg each/ha inoculated to prelimed (5%) FYM/Vermicompost in 1:25 ratio, incubate it under 30% moisture for 7 days and apply as basal.
- ❖ Top dress nitrogen to ginger and turmeric @ 60 and 30 Kg/ha, respectively after receipt of rainfall followed by mulching.
- ❖ Micro and secondary nutrient deficiencies need to be rectified after soil testing. Sulphur @ 15-30 Kg/ha (100-200 kg gypsum ha⁻¹), Boron as borax @ 5 kg/ha and two spraying of 0.2% borax one before flowering and another after flowering. Similarly, Zn as ZnSO₄ @ 12.5 kg/ha as basal and twice spray with ZnSO₄.7H₂O @ 0.2% spray one before flowering and another after flowering.
- ❖ Practice mulching with organics to extend the period of moisture availability.
- ❖ Thin out to the extent of 25% and use the removed plants as mulch/feed.
- ❖ Remove basal 3-4 leaves of the crop at later stage to check transpiration loss of water.
- ❖ Close the drainage holes and check the seepage loss in direct sown medium land rice regularly.

Scenario 4: Beushaning of rice delayed

- ❖ Do not practice beushaning (blind cultivation) in rice, if the crop is more than 45days old weed out the field without waiting for rainfall.\
- ❖ Go for gap filling using seedling of same age or clonal tillers to have a uniform distribution of plant.
- ❖ Strengthen the field bunds and close the holes to check seepage loss.
- ❖ Withhold N fertilizer application up to receipt of rainfall.

Scenario 5: Transplanting of rice delayed/seedlings

Generally, in this case rice seedlings are over aged

- ❖ Seedlings up to 45 and 60-70 days old can be transplanted in case of medium and late duration rice varieties, respectively without much reduction in yield.
- ❖ Remove the weeds and follow plant protection measures against blast in the nursery.
- ❖ Pulverize the main rice field in dry conditions, if it is not ploughed earlier to save time in final puddling.
- ❖ Use tractor / power tiller / tractor mounted rotavator for speedy land preparation/puddling to cover more area with less time.
- ❖ Follow close transplanting using 5-7 seedling/ hill.
- ❖ Apply 50% recommended nitrogen at the time of transplanting with other nutrients based on soil test.
- ❖ Apply life saving irrigation to maintain the nursery seedling in good health.
- ❖ Do not top dress nitrogen in nursery.

Scenario 6: Beushaned /transplanted rice affected at early vegetative stage

- ❖ Provide protective irrigation through recycling of harvested rain water.
- ❖ Remove the weeds and follow plant protection measures against blast in the nursery if existing.
- ❖ Withhold N fertilizer application up to receipt of rainfall.
- ❖ Apply Potash and other nutrients wherever soil moisture allows or wait up to receipt of rainfall.
- ❖ Strengthen the field bunds and close the holes to check seepage loss.

C. Late season drought (September 16 to October 31)

Scenario 7: Upland Non-paddy crops at reproductive / maturity stage.

- ❖ Provide protection irrigation through recycling of harvested rain water at critical stages such as flowering and grain filling in alternate furrows in wide spaced crops.
- ❖ Late sown crops like cowpea, maize, green gram, black gram may be harvested for fodder purpose.
- ❖ When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures to soften the soil.
- ❖ Under situation of complete failure of Kharif crop dismantle it. In such situation or where land is remaining fallow, sow the pre-rabi crops like horse gram, niger, sesame, black gram and green gram.

Scenario 8: Medium and low land rice affected at vegetative / reproductive stage.

It occurs as a result of early cessation of monsoon rains. The management practices are as follows:

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- Provide protective irrigation through recycling harvested rain water mainly at critical growth stages such as flowering, grain filling, etc.
- The ideal pre-rabi crops with residual moisture condition are horse gram, castor, niger, black gram, rice bean and sesame.
- Pre-position inputs, particularly seeds and fertilizers for the rabi crops.
- Apply fertilizers based on soil test including use of secondary and micro nutrients, also go for soil amelioration measure (Lime in acid soil).

1. DEFICIT RAINFALL IN JULY (JULY 15 AND AUGUST LAST)

- **Weather condition-** periodic rainfall may occur but not heavy rainfall of 100mm in a week to start transplanting at full speed.
- **Crop situation-** low crop coverage in both paddy and non-paddy crops, rice seedlings not yet ready for transplanting.
 1. Continue sowing of paddy and non-paddy crops in all land situations.
 2. Continue rice nursery raising in medium land.
 3. Go for line sowing of rice instead of transplanting, if nursery raising not yet done.
 4. In some cases, one may go for transplanting rice seedling in a weed free softened plot without puddling, if rainfall is not adequate.
 5. In uplands do not go for rice at all. Sow pulses, oilseed, cotton, etc.
 6. Prepare to go for transplanting of rice seedling of 15 days old onwards wherever good rainfall occurs.
 7. Pre-position fertilizers. Give emphasis to use phosphorus and potassic fertilizers to minimize risk due to soil moisture stress.
 8. Be ready for mealy bug and stem borer incidence, which is likely to be maximum under deficit rainfall.
 9. Harvest rain water in part of a land, village tank, etc. give life saving irrigation wherever needed, particularly to save rice seedling.
 10. Keep your pump sets ready for life saving irrigation.
 11. Go for crop insurance, whether loanee or non-loanee farmers.
 12. Keep in touch with crop weather advisory released on even Thursday and Friday from QUAT.

2. Deficit Rainfall in June, July & August with Periodic Rainfall:

- a. **Weather Condition:** Deficit Rainfall in June, July & August with Periodic Rainfall.

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- b. Crop Condition: Rice: Transplanting and beushaning of rice in withheld / slow progress.
- c. Non-Paddy: Satisfactory

Contingent Measures:

- a) In area where rainfall is not adequate for transplanting and beushaning of Rice:
 - Wait till the wet spell for transplanting. Plant more seedlings per hill & more hills per square meter. Apply 25% more fertilizer.
 - Take care of nursery. Apply life -saving irrigation.
 - Do weeding, khelua followed by 25% more fertilizers if water is not adequate for beushaning of direct seeded rice.
 - In the coastal area, sow sprouted rice seeds of short duration varieties on the puddled field or in the furrows.
 - In the upland, do not transplant rice anymore. Sow pulses, oil seeds and vegetables.
 - Maize can be sown also in coastal and adjoining areas.
 - Spray Planofix @10ppm o cotton to prevent boil shedding in cotton.
 - Apply 25% fertilizers in case of delayed sowing.
 - b) In area where rice transplanting / beushaning is done but crops suffer from water stress:
 - Provide life-saving irrigation
 - Spray 2% urea in paddy and non-paddy crops at vegetative stage
 - Spray Planofix @10 ppm to cotton to prevent boil shedding in cotton
 - Spray 0.5% KCI or KH_2PO_4 +0.3 % Borax to legumes
 - Apply Potassic fertilizers at Panicle initiation stage of rice
 - Make sure for hoeing and weeding non-paddy crops
 - In the upland, do not transplant rice anymore. Sow pulses, oil seeds and vegetables.
 - Maize can be sown also.
3. Wet spell or heavy rainfall during last week of August
- a. Weather Status
Deficit rainfall during July & August with severely deficient
 - b. Crop Status
Rice seedlings have been over-aged and water stressed. The direct seeded rice became stunted without tillering and infested with weed as Beushaning could not be done.
Non-paddy crop condition is, however satisfactory.

Agricultural Advisory:

In areas of low rainfall (July Onwards) with rainfed crops, following measures be taken.

I. Rainfall of the wet spell is adequate for rice Transplanting:

- a. Plant more seedlings per hill as follows:

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Maturity Group	Upper Limit of over -aged seedlings	No of Seedlings per hill			
		3-week-old (Normal)	6-week-old	8-week-old	10-week-old
Medium (125 Days)	50 Days	2-3	4-5	5-6	
Late (145 Days)	60 Days	2-3	3-4	5-6	
Very Late (160 Days)	70 Days	2-3	3-4	4-5	5-6

b. Alternatively, decrease the row spacing while planting, depending upon seedling age.

Maturity Group	Normal Spacing	Spacing under delayed transplanting (cm)	Plant population increase
Medium (125 Days)	20X10	15X10	Increase by 33%
Late (145 Days)	20X15	20X10	Increase by 33%
Very Late (160 Days)	20X20	20X15	Increase by 33%

c. Apply NPKS and micronutrient as per soil test.

II. Rainfall of the last wet spell is barely adequate for rice Transplanting.

If the rainfall is just sufficient for soil saturation, do not wait for more rainfall. Clean the field from weeds and transplant young seedlings, preferably, 15 days old. Use a stick. Use weedicides three days after sowing. Apply basal fertilizers in lines followed by planking and then planting. Over aged seedlings are not suitable.

III. Rainfall of the last wet spell is inadequate for rice transplanting.

If the rainfall is not adequate, wait for more rain. Transplanting can be done up to the end of august. But take care of nursery.

- If required, use pumps for irrigation. But do not keep it always saturated, as mild water stress is good for aged seedling.
- Do not apply fertilizer in the nursery.
- Control pests in the nursery since it would be crowded and microclimate will favour pest attack.
- Keep the main field ready to avoid time delay in land preparation when rain comes. Go now for weedicides to make the amin filed weed free.

IV. Rainfall of the last wet spell is barely adequate for beushaning of direct seeded rice.

If rainfall is not adequate but the field is saturated, first you go for weeding. Gap fill from crowded hills through clonal propagation. Ten apply fertilizers, including Phosphorus and Potassium, if not applied at sowing. After that go for planting.

V. Fallow upland

Go for sowing of Mung, Biri, Til, Ragi, Niger and Sweet Potato. Even maize can be sown now in the typical upland.

VI. General Advisory:

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- Control BLB
- Watch for Stem borer and mealy bug. Go for prophylactic spray.
- Prepare for good rabi crop.

Insects Pest Management:

The following insect / pests and diseases appear more frequently under drought situation for which it requires constant vigilance to take up timely control measures.

Rice:

- ❖ In rice the mealy bug attack will be more. Thus, the plants will look yellow, stunted and whitish. Mealy bugs are seen when the leaf sheath is detached. The pest can be controlled by spraying with profenophos 50EC @ 1 Lit/Ha or Thiamethoxam 25WG @ 125g/HA in 500 Lit of water.
- ❖ The problem of termites will be in rice, maize and other standing cereal crops which can be tackled by soil drenching with chlorpyrifos 20EC @ 5 ml/Litre of water or by adding chlorpyrifos 1.5% dust @ 20-25Kg/Ha before final land preparation.
- ❖ Grasshopper menace is also seen in rice. The pest can be tackled by dusting chlorpyrifos 1.5% dust @ 25kg/Ha on the crop and field bunds.
- ❖ The problem of sheath rot may arise in rice. Two foliar spraying first at boot leaf stage and second after 10 days with any of the following chemical i.e. Thiophanate methyl @ 0.15% or Hexaconazole @ 0.2% or Propiconazole @ 0.1% or Carbendazim + Mancozeb 0.2%.

Pulses:

- ❖ In arhar termite attack will be noticed. The pest attack can be reduced as suggested in case of rice.
- ❖ In Greengram, blackgram, cowpea, country bean, the spread of YMV by insect vector (Bemisia tabaci) may increase. Greengram or PDM 139 should not be grown as it is highly susceptible to the vector. Regular surveillance in the fields is essential. Manage the crop from insect vectors by spraying of dimethoate 30EC @ 1lit/HA or imidacloprid 17.8% SL @ 125ml/Ha at 10-15 days interval / spray neem oil (0.15%) @ 3 ml/lit of water 20 days after sowing and 15 days after first spraying, alternatively with imidacloprid. But, fixing of yellow sticky traps @ 25nos/Ha must be done at 4 leaf stage of the crop.
- ❖ Spray with neem oil (0.15%) @ 3ml/lit on appearance of the pest and subsequently 2-3 times at 15 days intervals or Bt Formulation @ 1.0 Kg/Ha against Spodoptera litura, Helicoverpa armigera and leaf eating caterpillars. If failed to control, then spray with Chlorpyrifos 50% EC + Cypermethrin 5% EC or Triazophos 40% EC or profenophos 50% EC @ 400ml/Ac.
- ❖ Grow sorghum as border crop around pulses to encourage natural enemies.

Vegetables:

- ❖ In vegetable crops the incidence of mites is expected to increase under drought situation. The pest menace can be brought down by spraying of dicofol 18.5EC

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@1lit/Ac or propargite57EC @400ml/Ac or fenazaquin or fenpyroximate10EC@200-400ml/Ac in 200 liters of water.

Disaster Management:

- ❖ Drought condition during the month of August-Sept onwards shall result in severe incidence of foliar blast and brown spot diseases in rice. It is advised to spray the crop with tricyclazole (Beam/Team) @ 0.06% or Isoprothiolane @ 0.15% or Kasugamycin @ 0.15% to 0.2 % at 10-12 days intervals during drought period.
- ❖ Early drought result in late transplanting of rice which makes the crop vulnerable to sheath rot and sheath blight diseases. Maintenance or field sanitation followed by two spray at 10 days interval with validamycin (0.2%) or propiconazole (till 0.15%) or carbendazim (0.15%) are advised.
- ❖ Bacterial wilt in most of the vegetables and other crops may occur in severe form during drought and period following drought. Basal soil drenching twice with streptomycin (0.15%) or plantomycin (0.15%) or bactrinol (0.15%) at 5-7 days interval during dry period.
- ❖ Alternaria and Cercospora blight: There is every chance of occurrence of Alternaria and /or Cercospora blight in oil seeds, vegetables and cucurbits during the period from Sept to December. Protective spray with mancozeb @ 0.3% or carbendazim + mancozeb combined fungicide @0.2 % may be done or Chlorothalonil @0.2% may be also sprayed.
- ❖ There is every chance of pod rot of groundnut cultivated after rice crop. For this, the groundnut seeds should be treated with carbendazim 50% WP @ 2g/kg of seed or kasugamycin @1ml/kg of seed. The soil should be inoculated with bio-control agent like Trichoderma viride @ 5 kg along with decomposed FYM @ 60.0 Kg/Ha during earthing up.
- ❖ There is every possibility of occurrence of downy mildew disease in cucurbits during Oct to December. Give two sprays with Thiophanate Methyl (Topsin M) @0.15% or metalaxyl 8% + Mancozeb 64% (Ridomil – MZ) @ 0.2% at 12 days interval.

Excess Rainfall:

Upland

Non-paddy crops like row spaced vegetables, ginger and turmeric should be grown in broad bed of width 1.0m alternated with furrow of 30 cm to a depth of 15 cm for easy disposal of excess water.

Flood:

Early Flood (up to mid-August)

Medium / Low land

- ❖ Select rice varieties like Ramachandi, Durga, Uphar, Sarala, Varshadhan for semi-deep low lands. Swarna Sunb-1 is suggested for flash flood situation.
- ❖ If damage is more than 50% re-transplant rice crop of medium duration group.

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- ❖ In partially damaged fields, allow the rice plants to stand upright. Do not go for beushaning as it may further reduce the plant population.
- ❖ Weed out the rice field, make gap filling and top dress N and K to boost the growth if situation permits.

Late Flood (Sept):

If flood occurs during mid-August to early Sept.

- ❖ Transplant 40-65 days old seedlings after flood water recedes, if seedlings available in nursery bed.
- ❖ Make up plant population by transplanting clonal tillers detaching from the old clumps, wherever possible.
- ❖ Broadcasting / line sowing of sprouted seeds of relatively short duration rice varieties in soft puddle after flood water recedes.
- ❖ Apply moderate dose of fertilizer (40-20-40 kg N-P₂O₅-K₂O/Ha) or based on soil test correcting deficient nutrients.
- ❖ Particularly in up-medium land, where there is no scope for revival of rice, go for pre-rabi crops like blackgram, Greengram, hosegram, sesame and cucurbits inoculating with bio fertilizer.
- ❖ Wash out the mud from the paddy leaves by spraying water just after receding of flood water.

Contingency Seed Technology Measures under Flood Prone Situation:

1. Growing of rice varieties possessing seed dormancy.
Presence of seed dormancy prevents field sprouting of grains in case of unseasonal rains or occurrence of late season (Oct-Nov) flood. A number of rice varieties viz. Surendra, Swarna, Padmini, Lunishree, Mahanadi, Sabita, Paridhan, Makina, CR-1014, CR-1018 and CR-1030 are found to possess considerable degree of seed dormancy, which may be preferred for cultivation in the flood prone areas.
2. Enhancing storability of seeds:
Farmers should possess sufficient seeds for re-sowing of crops in case of complete crop damage due to early season flood. Since the environmental conditions prevailing in the coastal regions of the state is unsuitable for long term storage of seeds, special care is needed for this purpose. Experimental results of the RKVY project conducted in the Department of seed Science & Technology indicated that storage life of paddy and groundnut seeds could be further enhanced by 3-4 months by storing the thoroughly dried seeds in gunny plus sealed polythene bags (700 Gauge) with or without desiccant (silica gel) at a proportion of 10.1 (w/w).

Plant Population:

- ❖ Raise nursery by Dapog method to transplant wherever possible.
- ❖ Maintain a buffer nursery in the backyard / highland area to ensure adequate plant population in the field after flood damage.

Fertilizer Application:

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- ❖ Reduce nitrogen application and apply recommended dose of P, K, S and micro nutrient as basal to increase flood resistance.
- ❖ Apply moderate dose of NPK and S at beushaning, if not applied earlier.
- ❖ Top dress N and K in flood affected areas if situation permits.

Insect pest management:

Rice:

- ❖ Generally, the pests like swarming caterpillar, *Spodoptera mauritia* appear after a long dry spell followed by heavy rainfall. The pest also occurs after the receding of the flood. The recommendation to control the pest is as follows.
- ❖ Regular surveillance to locate appearance of swarming caterpillars.
- ❖ When they cross the ETL viz. one Larva / hill the pest menace can be brought under control by spraying the crop with chlorpyrifos 20 EX @5ml/lit of water or quinalphos 25EC@4ml/lit or triazophos 40EC @ 2ml.lit or dichlorvos 76% SL @ 12.5 ml/10lit of water.
- ❖ To prevent migration of larva from one field to other, the bunds of the field should be dusted heavily with chlorpyrifos 1.5% D @ 25kg/Ha.
- ❖ Insecticides should be applied in the afternoon hours preferably.

Sugarcane:

In the flood situation, the early shoot borer and white fly will attack the crop. Wherever possible, the drainage of excess water from the field may be undertaken. After drainage, spray the crop with Profenphos 50% EC @2ml/lit of water or fipronil 5SC @2ml/lit or Indoxacarb 14.5 SC @ 1 ml/lit of water. To manage the internode and top shoot borer, release the parasitoid, *Trichogramma Chilonis*@50000 adults/Ha, 5-6 times at 7-10 days interval at evening hour. Detrashing of older leaves may be done to reduce stalk borer and mealybug infestation.

Disaster Management:

- ❖ Cloudy weather intermittent drizzling during kharif may result in severe occurrence of bacterial leaf streak and bacterial blight in rice. It is advised to spray the crop immediately after each rain storm with streptomycin (0.15%) or plantomycin (0.1%) or bactrinol (0.15%), streptomycin 0.15% + copper oxychloride 0.25% spray.
- ❖ Post flood affected areas where vegetable is grown are likely to be affected by bacterial wilt disease. Therefore, total package of practices starting from planting need to be followed as given below:
 - Mix the soil with stable bleaching powder @25 kg/Ha at the time of final land preparation and transplant seedling after 5-7 days.
 - Seeding root dip for 30 minutes in 0.015% streptomycin or 0.15 plantomycin.

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- Perform soil drenching to the base of the plants with a solution of carbendazim (0.2%) and streptocycline (0.015%) at 10 days after planting (DAP), 25 DAP and 40 DAP coinciding with intercultural operations.
- ❖ Spray Metalaxyl 8% + Mancozeb 64% (Ridomil MZ) @ 0.2 % against downy mildew diseases of cucurbit crops.
- ❖ A protective spray with mancozeb @0.3% may be given to pulse crops (Greengram and blackgram) against Cercospora blight disease.

CYCLONE:

There has been occurrence of cyclonic events like Hudhud, Phailin, Haiyan, Leher, Helen in recent times at different locations causing widespread damage to crops, various type of infrastructures and displacement of human and livestock. The cyclonic storm accompanied by low pressure rains in the month of Sept / Oct is common phenomenon in Odisha. This type of aberrant situation occurring in recent successions can be averted by suitable crop planning viz, (i) adjusting the varietal duration along with their sowing / planting time, so as to avoid coincidence of vulnerable crop stages with occurrence of cyclone (ii) planting of tuber crops like elephant foot am / tapiocal / arrow root, Colocasia etc. which are less affected by cyclone. Besides, alternative enterprises viz. Poultry, mushroom etc. may be promoted to provide livelihood opportunities. The specific contingent measures that were prepared in two broad outlines as mentioned below may serve as a guideline for future. The details are as follows:

INTERVENTION & CARE IN EXISTING CROPS:

- ❖ Drain out excess water from the rice field
- ❖ Completely drain out water from non-paddy crop fields
- ❖ Straight up the lodged crops like cotton, brinjal, chilli, when soil is soft, by putting wet soil on the base of the plant.

6. Drinking Water Crisis:

Table – 3.17:

Sl. No.	Name of the Block/ ULB	Villages/ Wards without proper source of drinking water		Villages/ Wards having crisis of drinking water during summer season		Others Arsenic/ Saline/ Iron If any
		No. of Villages/ Wards	Population	No. of Villages/ Wards	Population	
1.	Balianta	0	0	0	0	0
2.	Balipatana	0	0	0	0	0
3.	BBSR	0	0	3	889	0
4.	Jatni	0	0	10	2660	0
5.	Banapur	0	0	5	619	0
6.	Begunia	0	0	2	1502	0
7.	Bolagarh	0	0	9	5384	0
8.	Chilika	0	0	1	56	15
9.	Khordha	0	0	11	8240	3
10.	Tangi	0	0	11	12974	17
11.	Total	0	0	52	32324	35

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7. Events/ Festivals/ Functions organized in the district where mass gathering occurs:

Table- 3.18:

Sl. No.	Name of the Event/ Festival/ Function	Name of the Village	Place (Block & Gram Panchayat)	Duration of the event (in No. of days)	Month (as per English Calendar)	Strength of population gathering (Approx.)
1.	Makar Sankranti Being Organised by Makar Mahostab Committee at Atri	Baghmari	Begunia	15	Jan	30000
2.	Raja Festival at Ugra Tara Temple	Muljihara	Tangi	3	June	20000
3.	Dola Purnima	Bhushandpur	Tangi		Mar	5000
4.	Dola Festival (Panchu Dola)	Rameswar	Tangi		Mar	4000
5.	Dola Festival (Panchu Dola)	Chhangiri	Tangi		Mar	3000
6.	Mohasivaratri (Jagar Yatra)	Aranga	Tangi		Feb	2000
7.	Dola Festival (Bara Dola)	Olasingh	Tangi		Mar	4000
8.	Dola Festival (Dayanchori)	Tankol	Tangi		Mar	5000
9.	Dola Festival (Panchu Dola)	Haripur	Tangi		Mar	5000
10.	Dola Festival (Panchu Dola)	Badapokharia	Tangi		Mar	3000
11.	Ashokastami Car Festival	Dia	Tangi		April	6000
12.	Dola Festival (Phula Dola)	Lendo	Tangi		Mar	3000
13.	Dola Festival (Phula Dola)	Tangi	Tangi		Mar	6000
14.	Makar Sankranti	Mangarajpur	Banapur		Jan	3000
15.	Mahasivaratri	Banapur	Banapur		Feb	3000
16.	Dola Purnima	Banapur	Banapur		Mar	2500
17.	Panchudola	Banapur	Banapur	5	Mar	20000
18.	Danda Melan	Banapur	Banapur		Apr	50000
19.	Mahabisuba Sankranti	Banapur	Banapur		Apr	2000
20.	Ashoka Astami	Banapur	Banapur		Apr	7000
21.	Raja	Banapur	Banapur		June	2500
22.	Ratha Yatra	Banapur	Banapur		June	10000
23.	Bheta Amabasya	Banapur	Banapur		Oct	10000
24.	Dashahara	Banapur	Banapur		Oct	2000
25.	Vivekandanda Jayanti	Khordha	Khordha		Jan	3000
26.	Sai Jayanti	Khordha	Khordha		Jan	3000
27.	Shivaratri Utsav	Sanapalla	Khordha		Feb	3000
28.	Shivaratri Utsav Nilakantheswar	Olasingh	Khordha		Feb	3000
29.	Paschimeswar Thakura-jagar	Panichhatra	Khordha		Feb	3000
30.	Panchudola Ustav	Makundaprasad	Khordha		Mar	4000
31.	Panchudola Ustav	Gurujang	Khordha		Mar	5000
32.	Panchudola Yatra	Saradhapur	Khordha		Mar	4000
33.	Panchudola	Haladiapada	Khordha		Mar	3000
34.	Maa Bhagabati Thakurani Mela	Mota	Khordha		Mar	1000
35.	Chaitra Melana	Mallipur	Khordha		Mar	4000
36.	Dola Purnima	Hadapada	Khordha		Mar	10000
37.	Dasadola	Golabai	Khordha		Mar	5000
38.	Meru Yatra,	Nalipada arjunpur	Khordha		Apr	3000
39.	Sarva Dharma Santi Sammilani	Aranga	Khordha		Apr	15000
40.	Balunkeswar Melana	Binkudia	Khordha		Apr	10000
41.	Sapneswar Mandir Utsav	Kumbhilo	Khordha		May	4000
42.	Ratha Yatra	Jagulipatna	Khordha		June	10000
43.	Durga Puja	Narangarh	Khordha		Sept	3000
44.	Palli Utsav	Kanpur	Khordha		Oct	2500
45.	Khordha Zilla Loka Utsav	Gurujang	Khordha	7	Nov	8000
46.	Badaosha Parba	Gurujang	Khordha	3	Nov	6000
47.	Khordha Mahotsav	Khordha	Khordha	7	Dec	10000
48.	Pandardola (15 dola)	Bolagarh	Bolagarh	3	Mar	10000
49.	Bhuiani Yatra	Bolagarh	Bolagarh	3	Dec	10000
50.	Bolagarh Mahotshav	Bolagarh	Bolagarh	7	Dec	10000
51.	Maha Shivaratri	Budhanath Temple, Garedipanchan	Balipatana		Feb	2000
52.	Rathayatra	Balipatna	Balipatana		July	2000
53.	Dola Purnima	Balipatna	Balipatana		Mar	3000
54.	Durga Puja	Banamalipur, Majjihara	Balipatana		Sept	2000

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55.	Sishu Ananta Utsav	Balipatna	Balipatana		Dec	700
56.	Chousathi Yogini Mahtsav	Hirpur	Balianta		Dec	1200
57.	Dola Festival	Pratapsasan, Balakati Bazar	Balianta	1	Mar	2200
58.	Magha Ekadasi Mela	Ankula	Chilika	3	Feb	8000
59.	Dahi Jata	Injanpur	Chilika	1	Mar	7000
60.	Dola Purnima	Badakul	Chilika	1	Mar	5000
61.	Kartika Purnima	Balugaon	Chilika	1	Nov	15000
62.	Pana Sankranti	Rampur	Chilika	1	Apr	6000
63.	Dasadola	Sananairi, Baulabandha	Chilika	1	Mar	20000
64.	Sata Dola	Brahman, Kusadihi	Chilika	1	Mar	10000
65.	Bhaunri	Dadhibamanpur	Chilika	1	May	10000
66.	Raja Jatra	Soran	Chilika	3	June	20000
67.	Kartika Purnima	Chandeswar	Chilika	1	Nov	8000
68.	Dolapurnima	Jatni	Jatni	1	Mar	5000
69.	Panchudola	Jatni	Jatni	1	Mar	5000
70.	Ganesh puja	Jatni	Jatni	1	Sept	30000
71.	Durga Puja	Jatni	Jatni	10	Oct	10000
72.	Laxmi Puja	Jatni	Jatni	7	Oct	10000
73.	Magha Saptami (Khandagiri Mela)	Bhubaneswar	Bhubaneswar	7	Feb	6000
74.	Jagara Mela of Lord Lingaraj	Bhubaneswar	Bhubaneswar	1	Feb	10000
75.	Ashokastami (Car Festival of Lord Lingaraj)	Bhubaneswar	Bhubaneswar	1	April	15000

8. Boat operation points:

Table -3.19:

Sl. No.	Name of the Block & GP	No of Boats	Name of the Ghat/ boat operation point	Name of the water body	No. of Panchayat/ villages connected	Daily to and fro movement of people in Nos. (Approx.)	Type of boats operating in Nos.	
							Mechanised	Non-Mechanised
1	Khordha, Orabarsingh	1	Panchamukhi Balapur	Rajua	Hirimul, Dihakhala, Durgapur, Orabarsingh, Lekhanpur	500	Y	
2	Khordha, Narangarh	0	Panchamukhi Balapur	Rajua	Orami, Balapur, Dhabalpur	500	Y	
3	Khordha, Garh Haladia	0	Kuapat Patana	Rajua	Kuapat	200	Y	
4	Jatni, Benapanjari	1	Pandiabili	Kuakhai Daya Dhanua	Pandiabili, Budhapada	300	Y	
5	Balianta	2					Y	
6	Balipatna	3					Y	
7	Chilika	210	Balugaon, Badakul	Chilika Lake	5	260	148	52
8	Begunia		Baghamari	Rana	3	250	Y	

- There are 3 mechanised Boats at Balipatana placed at Block office premises and during the flood emergency it is used to be shifted to the required location for rescue and relief operation.
- Khordha Block is provided with two nos of Govt. boats and the same is used for the rescue and relief purpose from different ghats as mentioned above as per the need.

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Table -3.20- A: List of Boat Drivers and Khalasi placed in Different Blocks:

Sl. No	Name & Address	Name of Post	Place of Posting
1	Arta Bhanjan Behera S/o – Krushna Ch. Behera At- Nuadokanda, Po-Kanas, Dist- Puri, Ph-9937226902	Driver	Khordha Block
2	Khirod Kumar Behera S/o – Gunanidhi Behera At/Po-Gopinathpur, Via-Kendupatna, Dist – Cuttack, Ph-9583435803	Driver	Balianta Block
3	Ashok Kumar Parida S/o.- Dhuleswar Parida At – Manikunda, PO-Uradiha, Dist-Cuttack, Ph- 9438794780	Driver	Balianta Block
4	Lahari Behera S/o.Laxmidhar Behera, At.Gopinathpur,PO.Brajamohanpur Dist.Khordha,Ph-7873308454	Driver	Jatni Block
5	Loknath Behera S/o.Padma Charan Behera, At. Nua Dokanda, PO/PS.Kanas, Dist. Puri, Ph-9937055545	Driver	Balipatana Block
6	Krushna Mohan Behera S/o.Sinkuli Behera, At. Bankia Palli, PO- Ankulachati, Dist. –Khordha, Ph-9337710409	Driver	Balipatana Block
7	Nrusingha Charan Sahoo S/o Mochiram Sahoo At/Po- Ankulachati, Dist. –Khordha, Ph-9853022877	Driver	Balipatana Block
8	Sanjay Kumar Malick S/o-Sadhu Charan Malick , At.Jajasingh. dama sahi.Po/Dist –Khordha, Ph-9348435703	Khalasi	Khordha Block
9	Madhab Behera S/o Gokula Behera At/PO. Kanas, Dist-Puri, Ph-7894466104	Khalasi	Balipatana Block
10	Rabindra Dihudi S/O Manguli Dihudi At-Beruan PO-Kalyanpur Dist-Khordha, Ph-9556775181	Khalasi	Balianta Block
11	Prasant Kumar Pratihari S/o – Braja KishorePratihari At – Jakara, PO-Gudum, Dist-Khordha, Ph-937448796	Khalasi	Balipatna Block
12	Fakir Charana Behera S/o – Udyanath Behera At – Gopinathpur, PO-Brajamohanpur, Dist-Khordha, Ph-9937781535	Khalasi	Balianta Block
13	Sanjay Behera S/O Birabhadra Behera At-Gopinathpur Dist-Khordha, Ph-9778573634	Khalasi	Jatani Block
14	Narayan Sahu S/O- Late Krushna Ch. Sahu At-Kanata Sahi, PS-Balipatna Dist.-Khordha, Ph-9937810828	Khalasi	Balipatana Block
15	Debiprasad Rath, S/o Manoranjan Rath At-Athantara, Aitalanga, P.S. Balipatna, Khordha Ph: 6370915415	Khalasi	Jatni Block

9. Major Industrial Establishments/ Chemical & Other hazardous material storage points:

Placed in Volume – II.

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10. Railway Line Exposed to Different Hazards:

The railway track of the district contains 54.32 km single line, 138 kms of double line and 36 stations but it does not come under flood, land slide, storm surge and Tsunami hit areas. If cyclone comes then the overall track comes under cyclone zone.

Table – 3.21:

Sl. No.	Hazard	Length of Railway line exposed (in Km.)	Location
1	Flood	Nil	--
2	Land Slide	Nil	--
3	Storm Surge	Nil	--
4	Tsunami	Nil	--

11. Road Accidents:

As the NH 16 is passing through the district and connecting Bhubaneswar to Berhampur, the district is prone to road accidents. The frequencies of accidents are more on NH and side by villages. Even some times the domestic animals are of road side villages are obstructing the vehicles and accidents occur.

Table – 3.22:

Sl. No.	Stretch of Road (From – to)	Length in Kms.	No. of Traffic Congestion Areas	Name of Accident-Prone Areas	Name of villages/habitations adjacent to accident prone areas
1.	NH-16 from Pitapali to Totapada Chhak, under Model PS, Khordha	4	3	5	6
2.	NH-57 from Khordha to Jaya Mangal under Model PS, Khordha	10	6	6	6
3.	NH-16 from Daleiput to Tapanga under Sadar PS	7	7	5	6
4.	NH -16 from Ugratara Chhak to Malipada under Jankia PS	15	8	10	30
5.	NH-16 from Tangi Bypass to Kuhudi under Tangi PS	9	3	3	5
6.	1. NH 16 from Pranadeipur to Dhuaanla 2. Saranai to Naval OP under Balugaon PS	11	4	4	6
7.	Saralasingh Road to Badakul under Balugaon PS	10	2	2	10
8.	NH-16 from Bishnudiha to Saranai Bridge and Saralasingh to Haripur Chhak under Banapur PS	15	6	8	15
9.	NH-57 from Begunia to Pichukuli under Begunia PS	10	3	4	11
10.	NH-57 from Sunakhala to Bijipur Check Gate under Bolagarh PS	15	3	4	4

12. Population Requiring Special Care

Table – 3.23:

[Source: DSWO, Khordha]

Special Care Required during Natural Calamity: By DSWO													
Sl. No.	Block/ ULB	No. of HHs headed by Women	No. of HHs headed by PWD	No. of Persons With Disability		No. of Widow	No. of Children		No. of Orphans		No. of Aged Persons (60 and above)		No. of Pregnant and lactating mothers
				M	F		0-5 Yrs	6-14 Yrs	M	F	M	F	
1.	BBSR (R)	3900	487	1037	912	5059	9633	12165	112	100	6582	7155	1816

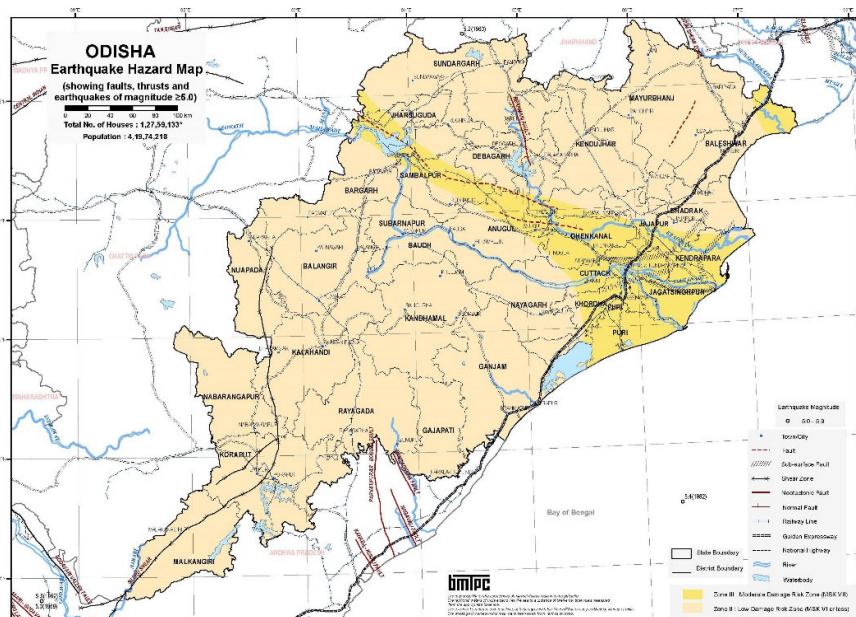
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2.	Begunia	3782	740	1222	850	5459	8837	15075	76	74	9232	8810	1746
3.	Baliatna	3764	483	880	642	4484	7797	12782	122	128	8561	8325	1468
4.	Balipatna	3318	543	995	659	4594	7495	12512	34	37	8169	7575	1382
5.	Bolgarh	3490	770	1467	1138	5327	9113	14551	15	19	15	19	1746
6.	Jatni	5362	477	1136	651	5738	10890	15085	177	146	8796	8087	1884
7.	Tangi	6681	614	695	568	6292	12011	15994	21	11	10204	10450	2234
8.	Banapur	4609	377	967	578	5897	12579	19335	361	298	9749	9329	2331
9.	Khordha	6186	710	1310	743	7520	13550	18055	231	207	12555	11883	2443
10.	Chilika	3038	581	1248	702	4097	10236	15688	29	33	7190	7048	1831
11.	BMC I	3448	240	482	317	3552	12768	10709	91	92	4494	4311	2500
12.	BMC II	4486	261	330	214	2054	8610	5804	58	51	2488	2398	1852
13.	BMC III	3885	263	495	303	3627	13799	13574	399	503	4203	3933	2544
	Total	55949	6546	12264	8277	63700	137318	181329	1726	1699	92238	89323	25777

1. Earthquake Vulnerability:

As per Earthquake Hazard Zoning Atlas-2016 issued by the National Disaster Management Authority (NDMA) and Building Materials and Technology Promotion Council (BMTPC)

Khordha District is coming under both Zone-II & Zone – III as per BMTPC. The Khordha (P), Banapur, Begunia (P), Bolgada, Tangi (P), Chilika blocks comes under Zone –II (Low damage risk zone) and Khordha (P), Begunia (P), Tangi (P) and Chilika Block comes Zone –III (Moderate damage risk zone).



2. Dam Burst:

1. Dam- Burst Scenario: Salia Dam

Sl. No.	Name of the Dam	Location & Water body	Type (Major/ Medium/ Minor)	Storage Capacity	Dam Break Model / Risk Map for Dam break developed (Yes/No)	Pre and Post Monsoon Inspection of Structural Measures done (Yes/ No)	No. of Villages to be affected/ needs to be evacuated in case of a possible scenario (District & Block Wise)
1	Salia Dam Project	Latitude 150-48'-8" E and 850-5'-8" N, Salkia River	Medium	6000 Ham	No	Yes	Banapur – 99 Chilika - 41

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CONTINGENCY PLANNING FOR DAM BURSTS SCENARIO

99 nos of villages under Banapur Block and 41nos of villages under Chilika Block are likely to be affected if Salia Dam Brusts. The Details of villages and population likely to be affected are given below:

1. For Dam – A

Sl. No.	District	Block	Name of the Village	Evacuation Route for the village/s	No. of HHs	Population
1	2	3	4	5	6	7
1	Khordha	Banapur	Panasadihi	Via Dam Road to Angargaon	88	349
2	Khordha	Banapur	Gurupada	Via Dam Road to Angargaon	155	556
3	Khordha	Banapur	Nuagaon	Via Dam Road to Angargaon	18	69
4	Khordha	Banapur	Hatimunda	Via Banapur to National Highway		
5	Khordha	Banapur	Achyutrajpur	Via Banapur to National Highway		
6	Khordha	Banapur	Tumuraput	Via Banapur to National Highway	128	641
7	Khordha	Banapur	Kumaranga	Via Banapur to National Highway	165	692
8	Khordha	Banapur	Jagannathpur	Via Banapur to National Highway	49	239
9	Khordha	Banapur	Banapur NAC	Via Banapur to National Highway		
10	Khordha	Banapur	Ranipada	Via Banapur to National Highway	629	3004
11	Khordha	Banapur	Ekadalia	Via Banapur to National Highway	217	1000
12	Khordha	Banapur	Gobindapur	Via Banapur to National Highway	312	1600
13	Khordha	Banapur	Gopalpur	Via Banapur to National Highway		
14	Khordha	Banapur	Patapur	Via Banapur to National Highway		
15	Khordha	Banapur	Sunakera	Via Banapur to National Highway	245	1253
16	Khordha	Banapur	Galua	Via Banapur to National Highway	955	4718
17	Khordha	Banapur	Bhimpur	Via Banapur to National Highway		
18	Khordha	Banapur	Sana Hantuad	Via Banapur to National Highway	275	1363
19	Khordha	Banapur	Nandapur	Via Banapur to National Highway	429	2015
20	Khordha	Banapur	Bishnudihi	Via Banapur to National Highway	279	1223
21	Khordha	Banapur	Balidihi	Via Banapur to National Highway	155	691
22	Khordha	Banapur	Ranasinghprasad	Via Banapur to National Highway		
23	Khordha	Banapur	Manikpur	Via Banapur to National Highway	260	1152
24	Khordha	Banapur	Bengarajpur	Via Banapur to National Highway	255	1460
25	Khordha	Banapur	Muktadeipur	Via Banapur to National Highway		
26	Khordha	Banapur	Kotapur	Via Banapur to National Highway		
27	Khordha	Banapur	Pandiripadar	Via Banapur to National Highway		
28	Khordha	Banapur	Dulani	Via Banapur to National Highway		
29	Khordha	Banapur	Bisarapatana	Via Banapur to National Highway		
30	Khordha	Banapur	Bheseri	Via Banapur to National Highway	108	502
31	Khordha	Banapur	Dhuanla	Via Banapur to National Highway	48	216
32	Khordha	Banapur	Khanata	Via Banapur to National Highway	217	894
33	Khordha	Banapur	Dixitpada	Via Banapur to National Highway	148	682
34	Khordha	Banapur	Sarubaripadar	Via Banapur to National Highway		
35	Khordha	Banapur	Kimbhiripada	Via Banapur to National Highway		
36	Khordha	Banapur	Ambapada	Via Banapur to National Highway		
37	Khordha	Banapur	Kapileswarpur	Via Banapur to National Highway		
38	Khordha	Banapur	Matiapokhari	Via Banapur to National Highway	168	835
39	Khordha	Banapur	Naraharipur sasan	Via Banapur to National Highway	76	300
40	Khordha	Banapur	Samatarapur	Via Banapur to National Highway		
41	Khordha	Banapur	Shyamasundarpur	Via Banapur to National Highway	61	238
42	Khordha	Banapur	Borigaon	Via Banapur to National Highway	214	1205
43	Khordha	Banapur	Banloi	Via Banapur to National Highway	292	1486
44	Khordha	Banapur	Bheteswar	Via Banapur to National Highway	427	2034
45	Khordha	Banapur	Bhapur	Via Banapur to National Highway	153	567
46	Khordha	Banapur	Baunsamula	Via Banapur to National Highway	0	0
47	Khordha	Banapur	Brundabanpur	Via Banapur to National Highway	210	1019
48	Khordha	Banapur	Sanasiripur	Via Banapur to National Highway	89	410

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49	Khordha	Banapur	Kurunjipur	Via Banapur to National Highway	128	658
50	Khordha	Banapur	Totapada	Via Banapur to National Highway	0	0
51	Khordha	Banapur	Betuli	Via Banapur to National Highway	147	629
52	Khordha	Banapur	Das Nuagaon	Via Banapur to National Highway	0	0
53	Khordha	Banapur	Haripur	Via Banapur to National Highway	25	136
54	Khordha	Banapur	Raghunathpur	Via Banapur to National Highway	0	0
55	Khordha	Banapur	Padanpur	Via National Highway	212	513
56	Khordha	Banapur	Parinuagoan	Via National Highway	21	117
57	Khordha	Banapur	Bandhamundei	Via National Highway	156	675
58	Khordha	Banapur	Dolamudei	Via National Highway	116	635
59	Khordha	Banapur	Manatri	Via National Highway	42	235
60	Khordha	Banapur	Kuankalipatana	Via National Highway	44	245
61	Khordha	Banapur	Kuanrpur	Via National Highway	17	82
62	Khordha	Banapur	Saranai	Via National Highway	124	580
63	Khordha	Banapur	Gopinathpur	Via National Highway	287	1376
64	Khordha	Banapur	Khanata	Via National Highway	211	894
65	Khordha	Banapur	Kotari	Via National Highway	189	895
66	Khordha	Banapur	Manipur	Via National Highway	36	167
67	Khordha	Banapur	Tenulidhi	Via National Highway	109	498
68	Khordha	Banapur	Basudeipur	Via National Highway	121	555
69	Khordha	Banapur	Ghodasalia	Via National Highway	7	28
70	Khordha	Banapur	Jarigada	Via National Highway	1	6
71	Khordha	Banapur	Kiajhari	Via National Highway	24	105
72	Khordha	Banapur	Lathipada	Via National Highway		
73	Khordha	Banapur	Dandigadia	Via National Highway		
74	Khordha	Banapur	Haripur	Via National Highway	25	136
75	Khordha	Banapur	Khuntapalli	Via National Highway	80	423
76	Khordha	Banapur	Jhintikapalli	Via National Highway	116	542
77	Khordha	Banapur	Punjama Sasan	Via National Highway	147	608
78	Khordha	Banapur	Kandha Chingudia	Via National Highway	0	0
79	Khordha	Banapur	Birakeshpur	Via National Highway	138	687
80	Khordha	Banapur	Keshpur	Via National Highway	71	341
81	Khordha	Banapur	Dulani sasan	Via National Highway	177	871
82	Khordha	Banapur	Kandhadulani	Via National Highway	30	157
83	Khordha	Banapur	Kandha Punjama	Via National Highway	29	121
84	Khordha	Banapur	Lodhabhuin	Via Banapur to National Highway	51	218
85	Khordha	Banapur	Bhabanipur	Via Banapur to National Highway	246	1283
86	Khordha	Banapur	Bahadakhola	Via Banapur to National Highway	4	22
87	Khordha	Banapur	Gadadharpur	Via Banapur to National Highway	46	252
88	Khordha	Banapur	Goteswarpur	Via Banapur to National Highway	56	314
89	Khordha	Banapur	Ghantasila	Via Banapur to National Highway	5	19
90	Khordha	Banapur	Laxmiprasad	Via Banapur to National Highway	114	541
91	Khordha	Banapur	Sahaspur	Via Banapur to National Highway	199	898
92	Khordha	Banapur	Naranpur	Via Banapur to National Highway	57	268
93	Khordha	Banapur	Parimanikpur	Via Banapur to National Highway	0	0
94	Khordha	Banapur	Bidharapur patina	Via Banapur to National Highway		
95	Khordha	Banapur	Godipadar Patana	Via Banapur to National Highway		
96	Khordha	Banapur	Surekhadeipur	Via Banapur to National Highway	14	62
97	Khordha	Banapur	Pendrapalli	Via Banapur to National Highway	102	504
98	Khordha	Banapur	Gamei	Via Banapur to National Highway	75	378
99	Khordha	Banapur	Bhuskapada	Via Banapur to National Highway	147	657
100	Khordha	Chilika	Balugaon	Via National Highway		
101	Khordha	Chilika	Banamalipur	Via National Highway	0	0
102	Khordha	Chilika	Belapada	Via National Highway	102	401
103	Khordha	Chilika	Bidharpur	Via National Highway	110	473
104	Khordha	Chilika	Damodarpur	Via National Highway	12	46
105	Khordha	Chilika	Gabapadara	Via National Highway	211	954
106	Khordha	Chilika	Gundiripur	Via National Highway		
107	Khordha	Chilika	Injanpur	Via National Highway	74	374
108	Khordha	Chilika	Kulakundhei	Via National Highway		
109	Khordha	Chilika	Nimiketa	Via National Highway	220	1058

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110	Khordha	Chilika	Ranasinghprasad	Via National Highway	70	297
111	Khordha	Chilika	Ranchoda	Via National Highway	15	66
112	Khordha	Chilika	Rampur	Via National Highway		
113	Khordha	Chilika	Saralapadar	Via National Highway		
114	Khordha	Chilika	Dhuanla	Via National Highway	217	952
115	Khordha	Chilika	Ambapada	Via National Highway	86	372
116	Khordha	Chilika	Mangalpur Sasan	Via National Highway	186	905
117	Khordha	Chilika	Birpatana	Via National Highway	39	146
118	Khordha	Chilika	Rajapalla	Via National Highway	65	262
119	Khordha	Chilika	Dibyasinghpur	Via National Highway	127	681
120	Khordha	Chilika	Chungudia	Via National Highway	11	57
121	Khordha	Chilika	Ostapalli	Via National Highway	103	433
122	Khordha	Chilika	Ankula	Via National Highway	125	546
123	Khordha	Chilika	Nimaimalla	Via National Highway	231	921
124	Khordha	Chilika	Khadikapalli	Via National Highway	92	429
125	Khordha	Chilika	Raigharpur	Via National Highway		
126	Khordha	Chilika	Aswari	Via National Highway	299	1422
127	Khordha	Chilika	Atharbatia	Via National Highway	478	2174
128	Khordha	Chilika	Akhupakhara	Via National Highway	70	264
129	Khordha	Chilika	Boriasahi	Via National Highway	76	384
130	Khordha	Chilika	Hatibari	Via National Highway	55	245
131	Khordha	Chilika	Barkul	Via National Highway	318	1448
132	Khordha	Chilika	Rautarapalli	Via National Highway	116	594
133	Khordha	Chilika	Rayagurupur	Via National Highway	69	314
134	Khordha	Chilika	Totapada	Via National Highway	114	498
135	Khordha	Chilika	Kharibandha	Via National Highway	147	720
136	Khordha	Chilika	Nuagada	Via National Highway	372	1685
137	Khordha	Chilika	Chasangara	Via National Highway	165	645
138	Khordha	Chilika	Gobardhanpur	Via National Highway	320	1435
139	Khordha	Chilika	Chandraput	Via National Highway		
140	Khordha	Chilika	Enginpur	Via National Highway		

2. Formation and Subsequent Bursting of Landslide Dams:

Sl. No.	Land Slide Area/ Location Vulnerable for formation of land slide Dams	No. of Villages likely to be affected	Population to be affected
1	2	3	4
	Nil	Nil	Nil

CHAPTER- IV **FOREST FIRE MANAGEMENT**

1. Name of the Division: Khordha Forest Division

The Khordha Forest Division lies between 19° 40' 41" N to 20° 27' 33"N Latitude and 84° 01' 21" E to 86° 05' E in the Cuttack, Khordha, Nayagarh & Puri Districts of Odisha & extends over an area of 3514.694 sq km.

FOREST TYPE: -

The Forest types of Khordha Forest Division are classified into following categories: -

- a. Northern Tropical Semi-Evergreen Forests.
- b. Tropical Moist Deciduous Forests (Also known as Monsoon Forests).
- c. Tropical Dry Deciduous Forests.

CLIMATE: -

The climate round the year is highly humid because of the presence of sea. Mainly three seasons are felt: -

- | | | |
|------|----------------|----------------------|
| i) | Cold weather - | November to February |
| ii) | Hot weather - | March to June |
| iii) | Rainy season - | July to October |

The rains are well distributed during the rainy season. Recently droughts and floods are occurring due to climatic changes.

TOPOGRAPHY:

South western portion locally known as Banpur Forests comprising of the Rajin, Tamana, Katwal, Bankad, Aranga, Mala, Dhani and Maninag blocks etc. the scattered isolated patches forming the remainder of the Forest Blocks locally known under various names comprising of Jayamangal, Panchagarh, Barunei, Kuhudi and Sulia Blocks. Most of these hills are less than 100 mtr. The South-Western portion comprises of high hills. These hills are steep and often precipitous with deep valleys containing a few perennial streams. At places bare rocks are found over which no vegetation can withstands. The eastern slopes, owing to the westward dip of the under-laying rock.

DESCRIPTION OF AREA:

Khordha Forest Division have comprised of 22 RFs of 39675.88 ha. of 31 nos. DPFs of 16602.59 ha., 05 PRFs of 527.28 ha and 142 VFs of 924.62 ha. The boundary limit of Khordha Forest Division is described below.

North-	The river Mahanadi, Athgarh division, Chandaka (WL) Division
South-	Chilika Wildlife Division & Berhampur Division.
East-	City Forest Division and Puri Wildlife Division.
West-	Nayagarh Forest Division, Ghumsar South Forest Division.

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WATER RESOURCES: -

This Division has well network of 27 seasonal nullah, 5 reservoirs out of which 2 are perennial, 60 manmade game tanks spreading over the forests in this division.

2. Name of the Range:

Khordha Range:	Barunei RF, Nagapalli RF, Panchagarh RF, Jayamangal RF, Duburi DPF, Brahmanidevi DPF.
Tangi Range:	Patia RF, Kuhudi RF, Dhani (S) RF, Sulia RF, Kunjari DPF, Jalvar DPF, Bhusandpur DPF, Rameswar DPF.
Balugaon Range:	Aranga RF, bankad RF, Katwal RF, Tamana RF, Rajini RF, Sandhamal DPF, Solari DPF.
Ranpur Range:	Campagarh RF, Dhani (N) RF, Mal RF, Maninag RF, Satabhaya RF, Sulia (B) RF.
Delang Range:	Kumuka PRF, Jamuna Jharpada PRF, Beguniapada PRF.
Balipatna Range:	Bhanra PRF.

3. Total notified Forest areas (area in sq Km) Range wise area of Khordha Forest Division.

Range	Reserve Forest		D.P.F. (in ha.)		P.R.F. (in ha.)		Village Forest (in ha.)		Total (in ha.)	
	(in ha.)	(in sqkm)	(in ha.)	(in sqkm)	(in ha.)	(in sqkm)	(in ha.)	(in sqkm)	(in ha.)	(in sqkm)
1	2	3	4	5	6	7	8	9	10	11
Khurda	2403.6	24.036	2472.59	24.726	0	0	690.79	69.07	5566.98	55.669
Ranpur	15667.8	156.678	0	0	0	0	74.672	7.467	15742.47	157.424
Balugaon	14983.88	149.839	7975.2	79.752	0	0	75.305	7.531	23034.39	230.344
Tangi	6620.6	66.206	6154.8	61.548	0	0	83.85	8.385	12859.25	128.593
Delang	0	0	0	0	430	4.3	0	0	430	4.3
Balipatna	0	0	0	0	97.28	9.728	0	0	97.28	9.728
Total	39675.88	396.759	16602.59	166.026	527.28	52.728	924.617	92.462	57730.37	577.304

4. Zonation of Forest Area (Red, Green and Orange zones in sq km.

(i) In case of Reserve forests area i.e. in sq km 396.759 is red zone.

(ii) In case of demarcated protected forest area i.e in sq km 166.026 is red zone.

(iii) In case of protected reserved forest area i.e. in sq km 52.728 is red zone.

Total: - 615.513 sq km (red

zone)

(iv) In case of village forest area i.e. in sq km 92.462 is orange zone.

ROAD NETWORK: -

This Division has a good network of earthen road over 226.91 KM. The roads are :-

Sl. No.	Name of Dist.	Name of forest road	Length of forest road in Kms.
1	2	3	4
1	Khordha	Salia-Balikania	5
2	-do-	Balikania - Baguda	4
3	-do-	Balikania - Ankula	4
4	-do-	Ankula - Rajini	10
5	-do-	Baguda - Bainsigotha	12
6	-do-	Rajini-Kriamba	13

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7	-do-	Baguda - Rajin	13
8	-do-	Ankula - Baguda	6
9	-do-	Ankula - Dhuanali	11
10	-do-	Dhuanali - Ayatpur	8
11	-do-	Dhuanali - Raipada	5
12	-do-	Aranga- Bainsigotha	16
13	-do-	Salia Dam - Berbera	7
14	-do-	Nachuni-Gachhapatra	14
15	-do-	Sulia - Pitajhola	5
16	-do-	Kuhudi - Pitajhola	6
17	Nayagarh	Nakithana - Patia	10
18	-do-	Patia - Sankhajhodi	15
19	-do-	Patia - Gachhapatra	10
20	-do-	Sankhajodi - Raipada	9
21	-do-	Betuli - Gachhapatra	6
22	-do-	Sankhajodi - Betuli	9
23	-do-	Jasodapur - Sankhajodi	14
24	-do-	Ranpur - Karadapalla	9
25	-do-	Jamuganda – Raipada, via - Saktasal	5.91
T O T A L			226.91

5. The name of the villages along with population details under different forest risk:

Sl. No.	Name of the Division	Name of the Village	Name of the Block/ Tahasil	Population	Adjacent to the Forest
1	2	3	4	5	6
1	Khordha	Garhkhordha	Khordha	4500	Barunei RF
2		Taraboi	Jatani	2355	
3		Sialia	Khordha	816	
4		Benapanjari	Khordha	11067	
5		Badatoda	Jatani	2387	
6		Kholadwar	Jatani	1154	
7		Khudupur	Jatani	1115	
8		Jodapada	Bolagarh	512	Nagapalli RF
9		Krushnapur	Bolagarh	206	
10		Patabandha	Bolagarh	538	
11		Benagadia	Bolagarh	514	
12		Madhupan	Bolagarh	15	
13		Kusupalla	Begunia	2383	Panchagarh RF
14	Dighiri	Begunia	523		
15	Kotapalla	Begunia	635		
16	Mardapadi	Begunia	877		
17	Godi	Begunia	468	Jayamangal RF	
18	Keranga	Khordha	10203		
19	Kathakhuntia	Khordha	595		
20	Barasahi	Khordha	1068		
21	Chandapur	Khordha	530		
22	Pubusahi	Khordha	3472		
23	Sarua	Khordha	5026		
24	Nandapalli	Begunia	547	Duburi DPF	
25	Gopaliapada	Begunia	335		
26	Mardapadi	Begunia	877		
27	Siariapalli	Begunia	287		
28	Jamusahi	Begunia	411	Brahmaridevi DPF	
29	Patabandha	Khordha	538		
30	Madhuban	Khordha	155		
31	Brundaban	Khordha	15		

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32		Benagadia	Khordha	453		
33		Haripur	Khordha	400		
34		Patia	Tangi	2589	Patia RF	
35		Randa	Tangi	52		
36		Mundila	Tangi	25		
37		Naramanbi	Tangi	121		
38		Girinda	Tangi	22		
39		Kendua	Tangi	95		
40		Godasahi	Tangi	32		
41		Kusupalla	Tangi	868		
42		Kuhudi	Tangi	8972		Kuhudi RF
43		Dikhitipada	Tangi	1852		
44		Kunjuri	Tangi	6596		
45		Naramanbi	Tangi	538		
46		Parioda	Tangi	90		
47		Akashapalli	Tangi	4149		
48		Barapalli	Tangi	438	Dhani(S) RF	
49		Panasapur	Tangi	239		
50		Kiapalla	Tangi	171		
51		Raipada	Tangi	1092		
52		Mundila	Tangi	18	Sulia RF	
53		Chandanapada	Tangi	0		
54		Kunjuri	Tangi	232		
55		Khairapali	Tangi	0		
56		Suliapali	Tangi	115	Kunjuri RF	
57		Kunjuri	Tangi	232		
58		Ambabili	Tangi	198		
59		Harinadihi	Tangi	98		
60		Khairapali	Tangi	121	Jalva DPF	
61		Siko	Ranpur	6922		
62		Chima	Ranpur	708		
63		Lakhapada	Ranpur	229		
64		Belapada	Ranpur	401		
65		Nidhipur	Ranpur	1503		
66		Indipur	Ranpur	539		
67		Gaudiapada	Ranpur	345		
68		Naradoda	Ranpur	789		
69		Champagarh	Tangi	538	Bhusandapur DPF	
70		Cuttack sahar	Tangi	832		
71		Bhusandapur	Tangi	7644		
72		Patrapada	Tangi	7457		
73		Mudhijhar	Tangi	429		
74		Khajuripada	Tangi	2395	Rameswar DPF	
75		Ichhabati	Tangi	14		
76		Chitmakuta	Tangi	95		
77		Patajoshipur	Tangi	160		
78		Dhuanali	Banapur	216	Aranga RF	
79		Arang	Banapur	1008		
80		Patrapur	Banapur	399		
81		Beladihi	Banapur	210		
82		Baramulia	Banapur	75		
83		Nilapalli	Banapur	152	Bankada RF	
84		Raipada	Banapur	123		
85		Jhuliamba	Banapur	98		
86		Ragadisima	Banapur	251		

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87		Punjama	Banapur	608	
88		Bhaliapada	Banapur	265	
89		Katuala	Banapur	123	Katoala RF
90		Baladiabari	Banapur	250	
91		Nuagaon	Banapur	142	
92		Brahmapada	Banapur	58	
93		Banikata	Banapur	142	
94		Jiripada	Banapur	254	
95		Krushnatara	Banapur	201	
96		Dumudumi	Banapur	200	
97		Silinpada	Banapur	927	
98		Mahulia	Banapur	450	Rajini RF
99		Daniamala	Banapur	320	
100		Baguda	Banapur	750	
101		Landur	Banapur	157	
102		Madhur	Banapur	27	
103		Sibida	Banapur	89	Sandhamala RF
104		Beruabadi	Banapur	103	
105		Sandhamala	Banapur	355	
106		Gopinathpur	Banapur	927	
107		Patajoshipur sasan	Banapur	1100	
108		Bhapada	Banapur	253	
109		Arjunpur	Banapur	510	
110		Baratangi	Banapur	305	
111		Sadashibapur	Banapur	253	
112		Jankia		1157	Champagarh DPF
113		Muktapur		698	
114		Ostapur		563	
115		Ekta		1052	
116		Upendrapur		220	
117		Bhetabara		543	Dhani (N) RF
118		Karadapala		1254	
119		Nathapur		956	
120		Nuapalli		256	
121		Laxminarayanpur		435	
122		Odapala		259	
123		Rautarapur		1458	
124		Bankaralia		226	
125		Manpur		315	
126		Nikithana		426	
127		Magajhar		631	
128		Raipada		410	Mal RF
129		Ranla		97	
130		Betuli		136	
131		Chakundajhara		251	
132		Nelipada		99	
133		Jamuganda		987	
134		Sugadi		325	
135		Dimiribadi		82	
136		Bandhamunda		118	
137		Malamatia		210	
138		Srikrushnapur		120	
139		Akhupadar		89	
140		Dhamada		154	

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141		Karadapala		236	
142		Nathapur		256	
143		Surukabadi		245	
144		Hatibadi		230	Satabhaiya RF
145		Nelibadi		140	
146		Masajhari		178	
147		Derabaj		239	
148		Surukabadi		138	
149		Barapalli		256	
150		Kotapokhari		248	Sulia"B" PRF
151		Kendupalli		256	
152		Damadorpur		142	

FOREST FIRE: -

“Forest Fire” means a fire burning uncontrolled on lands covered wholly or in part by timber, brushwood, grass, grain or other flammable vegetation. Forest fire is common hazards which possess a threat to forest wealth causing loss to fauna & flora seriously disturbing entire eco-system of a region. 90 % forest fire generally caused due to man-made reasons.

IMPACT OF FOREST FIRE: -

Forest Fire causes loss to local as well as national economy having impact on environment, society & human wealth. It also damages to houses, cattle, population. It causes wide ranging adverse ecological, economic & social impacts like. Main cases of forest fire are:-

1. Agricultural activities like burning grass- stuff or stubble.
2. Throwing of burning cigarettes end or matches.
3. Lighting of fires in restricted areas.
4. Burning of wastes and garbage at non-authorized landfill sites.
5. Hunting activities.
6. Residential activities like the use of electrical tools that cause sparks and burn of wastes.
7. Arson.
8. Short- circuit of power line.
9. Lightning’s.
10. Seasonal cultivation.

Many Forest Fires are repeated at a site over twice or thrice in a calendar year, which is generally caused due to grass & leaf litter layer. Forest fire has following impact on flora & fauna.

1. Loss of valuable timber resources and depletion of carbon sinks.
2. Degradation of water catchment areas resulting in loss of water.
3. Loss of biodiversity and extinction of plants and animals.
4. Loss of Wild life habitat and depletion of Wild life.
5. Loss of natural regeneration and reduction in forest cover and production.
6. Global warming resulting in rising temperature.
7. Loss of carbon sink resource and increase in percentage of CO₂ in the atmosphere.
8. Change in micro climate of the area making it unhealthy living conditions.
9. Soil erosion affecting productivity of soils and production.
10. Ozone layer depletion.
11. Health problems leading to diseases.

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12. Indirect affect on agricultural production: Loss of livelihood for the tribal's as approximately 65 million people are classified as tribal's who directly depend upon collection of non timber forest products from the forest areas for their livelihood.

IDENTIFICATION OF FIRE PRONE ZONE:

Basing of past occurrence of fire and the present as well as the fire vulnerability, the following area of different ranges of this Division have been identified as Fire Prone Zones.

Khordha Range:	Barunei RF, Nagapalli RF, Panchagarh RF, Jayamangal RF, Duburi DPF, Brahmanidevi DPF.
Tangi Range:	Patia RF, Kuhudi RF, Dhani (S) RF, Sulia RF, Kunjari DPF, Jalvar DPF, Bhusandpur DPF, Rameswar DPF.
Balugaon Range:	Aranga RF, bankad RF, Katwal RF, Tamana RF, Rajini RF, Sandhamal DPF, Solari DPF.
Ranpur Range:	Campagarh RF, Dhani (N) RF, Mal RF, Maninag RF, Satabhaya RF, Sulia (B) RF.
Delang Range:	Kumuka PRF, Jamuna Jharpada PRF, Beguniapada PRF.
Balipatna Range:	Bhanra PRF.

There are two different ways to control the fire as follows: -

A. PREVENTIVE METHOD: -

- a) Fire Breaks a Fire Line: - Creation of fire breaks will slow down the spreading of fire thus enabling the ground fire fighting force to reach the head end of the fire.
- b) Forest Roads: - Forest roads are generally used as fire breaks which is extremely important for fire management.
- c) Watch Tower: - These are located in forest areas at various stations are manned by permanent & semi permanent staff.
- d) Silvicultural Treatment: - Timely silvicultural operation like Subsidiary Silvicultural Operation (SSO) as prescribed in Working Plan will reduce a lot of forest fire. Weeding on both sides of the roads inside the forest also reduces incidences of fire.
- e) Co-ordination with personnel & fire service Department & Training.

B. CURATIVE METHOD: -

To distinguish forest fire is very difficult & dangerous work which requires specialized knowledge to suppress a potential fire.

- a) Fire fighting equipments: - To procure Rockers, Shored, Binoculars, Blowers, water jet, water pump, power generator to extinguish the fire. Hired vehicles should be engaged for the purpose.
- b) Fire Stations: - The Range wise fire stations would be established in following locations to prevent the fire. In view of past incidence of forest fire in the division

SI No.	Name of the Range	Name of the station	Remarks.
1	Khordha	Barunei, Brahmidevi	One squad at each place
2	Ranpur	Bhetabar, Sankhajodi, Betuli	-do-

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3	Tangi	Patia	-do-
4	Balugaon	Mainsigotha, Mahulia, Dhuanali, Bhatapada	-do-

- c) Functioning of VHF Network & Mobile Phones: - It is required for co-ordination among the staff to control the fire.
- d) Record keeping: - Record keeping on daily basis at Range level & Division level must be ensured.

PEOPLE PARTICIPATION TO CONTROL FOREST FIRE: -

Awareness meetings in different VSS for no fire and seeking their help to combat forest fire after incidence is being made. All the 109 nos. VSS existing in this Division have been sensitized for participating on control of forest fire.

PUBLICITY, MOTIVATION AND CAPACITY BUILDING: -

A training programme for creating awareness through staffs, VSS members, Press & Electronic Media etc. regarding consequences of putting fire to forests deliberately and carelessness handling inside forest area will be held at Division level. Motivating the people through capacity building to increase their aptitude for self involvement and to involve others to save forests from unrecoverable damage. This training programme will be impacted by resource person with deliberation of valuable technique for extinguishing forest fire and publicity on fire protection rule etc. More over sharing of experiences among the VSS members, staffs and other participants to get a better way to prevent/ to protect/ to reduce forest fire. So, also it is proposed to conduct awareness training programme at each range level to strengthen the capacity of all field staffs, VSS members, voluntary organization and Villagers. Fire pamphlets, hoarding, electronic awareness programme and sign board will be included in publicity activity. There will be provision for incentive for individual/ VSS members/ Voluntary Organization for assisting and supplying information to forest staffs about fire hazards.

ROLE OF OTHER DEPARTMENT: -

The co-operation of other departments and PRI members play a vital role in forest fighting measures. So, the co-ordination meeting is taken up to get their help.

- | | |
|---------------------------------|-------------------------|
| i) Revenue | v) Panchayats |
| ii) Police | vi) Paramilitary Forces |
| iii) Hospital/ Medical Services | vii) Any others. |
| iv) Fire Department | |

The co-operation of other departments sometimes plays a vital role in forest fighting measures and their help is needed as and when enquired. Hence, a co-ordination meeting is taken up every year for their assistance and awareness regarding forest fire.

BUDGETARY PROVISION: -

For coming fire season, it will be provided for 5 months i.e. from 15th February to 15th July, which will be utilized from CAMPA APO 2020-21.

Sl. No.	Activities	Unit	Physical target	Financial target
1.	Fire Fighting Squad	No.	7	3234000
2.	Fire line creation / maintenance	Kms.	370	1139600
3.	Engagement of Fire Vehicle	No.	7	1470000
4.	Logistic to Fire Squad	No.	7	595000

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5.	Incentive to VSSs	No.	15	30000
6.	Research & Survey	LS	-	13700
7.	Monitoring & Evaluation	LS	-	9100
8.	Training & Awareness Programme	LS	-	75000
Total				6566400

Forest Fire

a. Forest Fire Incidents:

Sl. No.	Year	Name of the Division	Range	No. of Fire Incidents Reported during last 2 years	Area Affected in Ha.	Loss of life/ property if any
1	2017	Khordha	Balugaon	95	227	--
2	2017	Khordha	Khordha	3	12	--
3	2017	Khordha	Ranapur	18	40	--
4	2017	Khordha	Tangi	1	0.32	--
5	2018 upto April 18	Khordha	Balugaon	57	23.1	--
6		Khordha	Ranapur	18	15.76	--
7		Khordha	Tangi	6	4.3	--

a.1. Details of forest area Affected:

Sl No	Year	Name for the Range	Name of the Forest Block	Area Affected (In Ha)
1	2014	Ranapur	Mal RF & Sulia " B"	45
		Balugaon	Ranjini RF	5
		Tangi	Tamana RF	5
			Total	55
2	2015	Ranapur	Mal RF	25
		Balugaon	Ranjini RF	15
			Total	40
3	2016	Ranapur	Mal RF	21.5
		Balugaon	Ranjini RF	3
		Balugaon	Tamana RF	1
		Balugaon	Katwal RF	2
		Ranapur	Sulia B	2.5
			Total	30
4	2017	Balugaon	Aranga RF	23
		Khordha	Barunei RF	10
		Balugaon	Jharan DPF	25
		Balugaon	Katwal RF	20
		Ranapur	Maninag RF	13
		Balugaon	Rajini RF	157
		Balugaon	Tamana RF	37
		Balugaon	Badasirepur RL (Economic Plantation)	7
		Tangi	Bagheiput DPF	0.32
		Balugaon	Bhatapada DPF	7
		Balugaon	Culjihinka DPF	26
		Ranapur	Mal RF	31
		Khordha	Panchagarh RF	7
		Balugaon	Revenue Land	2
Balugaon	Sandhamal DPF	1		
	Total	366.32		

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5	2018 upto 9.4.18	Balugaon	Jharan DPF	2.8
		Ranpur	Mal RF	10.56
		Ranpur	Maninag RF	0.7
		Ranpur	NF	2.5
		Tangi	Patia RF	4.3
		Balugaon	Rajin RF	19
		Balugaon	Tamana RF	19
		Balugaon	Chakadapathar DPF	0.5
		Balipatana	Inside Urban Plantation	1
			Total	60.36
			Grand Total	551.68

CHAPTER – V **INSTITUTIONAL ARRANGEMENT**

5.1 National Disaster Management Authority (NDMA)

The National Disaster Management Authority (NDMA) was constituted under the Sub-section (1) of Section (3) of National Disaster Management Act 2005. NDMA is the apex body for Disaster Management in the country headed by the Hon'ble Prime Minister of India to lay down policies, plans and guidelines to manage disaster and coordinating their enforcement and implementation for ensuring timely and effective response to disaster.

The Chairperson of the NDMA is the Hon'ble Prime Minister of India (*ex-officio*) and other members not exceeding nine nominated by him. The Chairperson may designate one of the members to be the Vice-Chairperson.

5.2 National Executive Committee (NEC)

The central government has constituted a National Executive Committee (NEC) under sub-section (1) of Section (8) of DM Act-2005 to assist the National Disaster Management Authority in the discharge of its function and also ensure compliance of the directions issued by the central government.

The Union Home Secretary is the Chairpersons (*ex-officio*) of NEC. The Secretaries to the Government of India in the ministries/departments having administrative control of the agriculture, defense, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, science and technology, space, telecommunication, urban development, water resources and chief of the integrated defense staff of the chief of staffs are other members of NEC.

[Please refer ANNEXURE - I]

5.3 State Disaster Management Authority (SDMA)

The State Disaster Management Authorities (SDMA) has to be constituted by every State Government under the sub-section (1) & (2) of section 14 of Disaster Management Act 2005. The Hon'ble Chief Minister of the state is the Chairperson (*ex - Officio*) of SDMA and other members not exceeding than eight nominated by the Chairperson. The Chairman of the State Executive Committee (SEC), Chief Secretary of the State is a member and Chief Executive Officer (*ex-officio*) of SDMA.

The State Disaster Management Authority shall:-

- a) Lay down policies and plans for disaster management in the State.
- b) Approves the State Plan in accordance with the guidelines laid down by the NDMA,
- c) Coordinates the implementation of the State Plan, recommend provision of funds for or mitigation and preparedness measures.

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- d) Review the developmental plans of different departments of the State to ensure the integration of prevention, preparedness and mitigation measures.
- e) Lay down guidelines to be followed by the departments of the State Government for the purpose of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance thereof.
- f) Review the measures being taken for mitigation, capacity building and preparedness by the departments of the Government & issue such guidelines as may be necessary.
- g) Lay down detailed guidelines for providing standards of relief (Not less than the minimum standard of relief in the guidelines of NDMA) to persons affected by disaster in the State.

[Please refer ANNEXURE - I]

5.4 State Executive Committee (SEC)

The State Executive Committee (SEC) has been constituted by the State Governments under sub-section (1) & (2) of section (20) to assist the State Disaster Management Authority (SDMA) in the performance of its function and to coordinate action in accordance with the guidelines laid down by the SDMA and ensure the compliances of directions issued by the State Government under the DM act. The Chief Secretaries of the States are the Chairman of SEC (ex-officio). Four Secretaries of State Government are the other member's ex-officio. The Chairperson of SEC use powers delegated by SDMA and state Governments.

The State Executive Committee shall:-

- a) Coordinate and monitor the implementation of the National Policy, National Plan and State Plan.
- b) Examine the vulnerability of different parts of the State to different forms of disaster and specify measures to be taken for their prevention and mitigation.
- c) Lay down guidelines for preparation of disaster management plans by the departments of the Government of the State and the District authorities and monitor the implementation of the plans.
- d) Evaluate preparedness at all government and non-government levels to respond to any threatening disaster situation or disaster and give all directions where necessary for enhancing such preparedness.

[Please refer ANNEXURE - I]

5.5 Revenue and Disaster Management Department:

The Revenue and Disaster Management Department is responsible for providing immediate relief to the people affected by various calamities like floods, droughts, cyclones, hailstorms, earthquakes, fire accidents, etc. It also takes initiatives for relief, rescue, rehabilitation and restoration work. The Department is headed by the Principal Secretary/Addl. Chief Secretary, Revenue and Disaster Management Department who exercises all administrative and financial powers.

5.6 Special Relief Organization:

The Special Relief Organisation was established under the Board of Revenue in 1965-66 for carrying out relief and rescue operation during and after various disasters. Since its inception, the scope of Relief Organisation has been diversified. Now it deals with disaster management i.e. response, relief and rehabilitation. It coordinates with districts/departments for quick relief and rescue operation, reconstruction and rehabilitation work. It also promotes disaster preparedness at all levels in the State with the assistance of Odisha State Disaster Management Authority (OSDMA). Quick response in the natural calamities is the hall-mark of Special Relief Organisation.

5.7 Odisha State Disaster Management Authority (OSDMA):

Odisha State Disaster Mitigation Authority (OSDMA) was established by the Government of Odisha as an autonomous organization vide Finance Department Resolution No. IFC- 74/99-51779/F dated the 28th December 1999 (in the intermediate aftermath of the Super-cyclone in 1999). It was registered under the Societies Registration Act, 1860 on 29.12.1999 as a non-profit making & charitable institution for the interest of the people of Odisha, with its headquarters at Bhubaneswar and jurisdiction over the whole State. The Department of Revenue is the administrative department of OSDMA vide Revenue Department Resolution No.39373/R dated 26th August 2000. Subsequently, the name of the Authority was changed from *Odisha State Disaster Mitigation Authority* to *Odisha State Disaster Management Authority* vide Revenue & Disaster Management Department Resolution No. 42317/R&DM dated 27th September, 2008.

The Authority has the mandate not only to take up the mitigation activities but also the relief, restoration, reconstruction and other measures. These activities cover the entire gamut of disaster management including preparedness activities and also include:

- Coordination with the line departments involved in reconstruction,
- Coordination with bilateral and multi-lateral aid agencies,
- Coordination with UN Agencies, International, National and State-level NGOs,
- Networking with similar and relevant organizations for disaster management.

5.8 State Level Committee on Natural Calamity (SLCNC)

A State Level Committee on Natural Calamity (SLCNC) has been constituted under the Chairmanship of the Hon'ble Chief Minister to oversee disaster preparedness and response activities.

The Function of the SLCNC is -:

- a) To advise the State Government regarding precautionary measures to be taken in respect of flood, drought and other natural calamities.
- b) To assess the situations arising out of the calamities.
- c) To recommend to Government the nature and quantum of relief; and
- d) To recommend to Government the Policy to be adopted in giving such relief in areas affected by such calamities.

[Please refer ANNEXURE - I]

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5.9 District Disaster Management Authority (DDMA)

Under the sub-section (1) of section 14 of DM act 2005. District Disaster Management Authority has been constituted by the State Government.

The District Disaster Management Authority (DDMA) consists of the Chairperson and such number of the other members, not exceeding seven, as may be prescribed by the State Government, and unless the rules otherwise provide, it shall consist of the following namely:-

- a) The Collector or District Magistrate or Deputy Commissioner of the District is the Chairperson (*ex-officio*) of DDMA.
- b) The elected representative of local authority is the Co-chairperson (*ex-officio*) of DDMA.

Provided that in the Tribal Areas, as referred to in the Sixth Schedule to the Constitutions, the Chief Executive Member of the district council of autonomous district, shall be the co-Chairperson, *ex officio*

- c) The Chief Executive of the District Authority, *ex officio*;
- d) The Superintendent of Police, *ex officio*;
- e) The Chief Medical Officer of the district, *ex officio*;
- f) Not exceeding two other district level officers, to be appointed by the State Government

The State Government appoints an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner, as the case may be of the District to be Chief Executive Officer of DDMA.

[Please refer ANNEXURE - I]

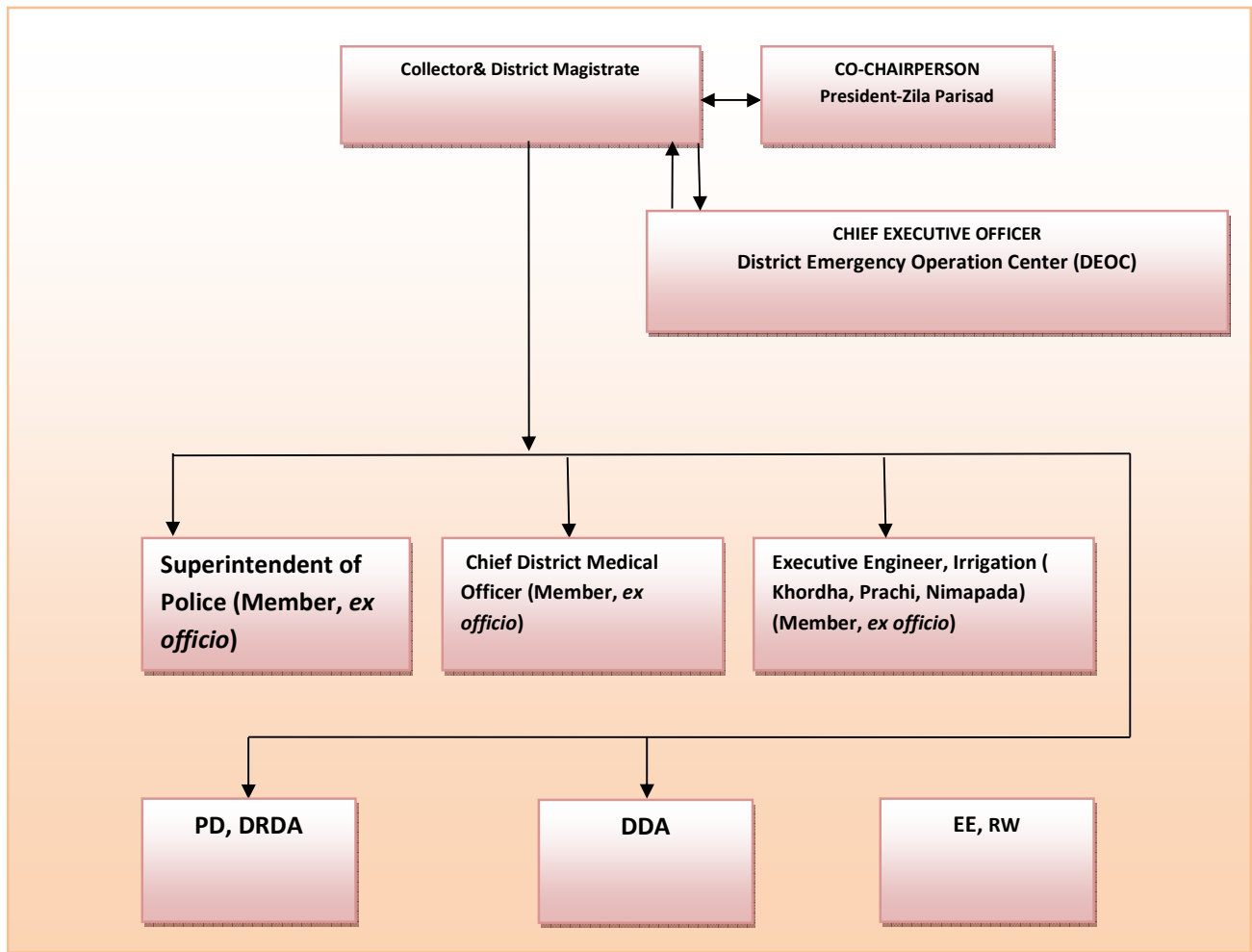
Structure of District Disaster Management Authority (DDMA)

Table – 5.1:

SI No.	Designation	Position in DDMA
1.	Collector & District Magistrate	Chairperson, EX-Officio
2.	Chairman, Zilla Parishad	Co-Chairperson, Ex-Officio
3.	Superintendent of Police	Member, EX-Officio
4.	Project Director, DRDA	Member
5.	Additional District Magistrate	Chief Executive Officer, EX-Officio
6.	Chief District Medical Officer	Member, EX-Officio
7.	Executive Engineer, Irrigation, Khordha	Member, EX-Officio
8.	Executive Engineer, Irrigation, Prachi Division	Member, EX-Officio
9.	Executive Engineer, Irrigation, Nimapada Division	Member, EX-Officio
10.	Executive Engineer, Rural Works	Member
11.	Deputy Director, Agriculture	Member

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Figure 4.1: Organogram of District Disaster Management Authority



The DDMA acts as the district planning; coordinating and implementing body for disaster management and take all measures for the purpose of disaster management in the district in accordance with the guidelines laid down by the NDMA and SDMA.

The District Disaster Management Authority (DDMA) shall:-

- a) Prepare Disaster Management Plan including District Response Plan of the District.
- b) Coordinate and monitor the implementation of the National DM Policy, State DM Policy, State DM Plan and District DM Plan.
- c) Ensure that vulnerable areas of the districts are identified and prevention and mitigation measures are being undertaken by the departments of the Government both at district level and at local level.
- d) Ensure that guidelines for Prevention and Mitigation measures, Preparedness and Response as laid down by NDMA and SDMA are being followed by all departments of Government both at district and local level.
- e) Monitor the implementation of Disaster Management Plan prepared by the departments of the Government at the district levels.

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- f) Lay down guidelines to be followed by different Government departments both at district level and local level for integrating disaster prevention and mitigation measures in their development plans and projects and provide necessary technical assistance thereof.
- g) Review the state of capability for responding to any disaster or threatening disaster like situation in the district and give directions to the relevant departments or authorities at the district level for their up gradation.
- h) Review the preparedness measures and give directions to the concerned departments at the district level for bringing the preparedness measures to the levels required for responding effectively to any disaster.
- i) Organize, coordinate and facilitate specialized training programmes and awareness programmes for different level of officers, employees, voluntary rescue workers and community members for prevention and mitigation of disaster with support of governmental and non-governmental organization and local authorities.
- j) Set up, maintain, review and upgrade mechanism for early warning and dissemination of proper information to public.
- k) Review development plans prepared by the departments of the government at the district level, statutory authorities with a view to make necessary provisions therein for prevention of disaster mitigation.
- l) Examine construction in any area in the district and ensure standards for prevention of disaster or mitigation laid down for such construction to be followed by the concerned departments and authorities.
- m) Identify buildings and places which could be used as relief centers or camps in the event of any disaster or disaster like situation and make arrangements for water supply and sanitation in such buildings and places.
- n) Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at short notice;
- o) Encourage the involvement of Non-Government Organization and Voluntary social –welfare institutions working at the grass root level in the district for disaster management.
- p) Ensure communication systems are in order and disaster management drills are carried out periodically.
- q) Perform such other functions as the State Government or State Authority may assign to.

Task assigned to members of DDMA by the Chairperson, DDMA

Collector and District Magistrate:

- Overall supervision of preparedness and response activities
- Monitoring the activities at different level and departments

Superintended of Police:

- Ensure 24*7 Control Room Operation
- Ensure the law-and-order situation in the district at the time of emergency.
- Ensure necessary protection for the supply of relief materials.

Project Director, DRDA:

- Ensure 24*7 control room operation at different blocks
- Ensure all the block staff will be in readiness

District Disaster Management Plan - 2021

- Ensure timely preparedness and response activities at the block level
- Ensure and monitor timely evacuation if required from the low-lying areas

CDMO:

- CDMO to ensure the necessary medical arrangement at the Dist. / PHC / CHC level.
- Ensure that necessary medicines with anti snake venoms are piled at different health units.
- Mobile health unit needs to be in readiness.

Executive Engineer, Irrigation (Khordha, Nimapada, Prachi):

- Ensure the status of weak embankments and safe guarding of the same
- Liaison with the Deputy Collector and report the status of the embankments
- Stock piling of the flood fighting materials
- Preparation of flood contingency plan
- Monitoring the control room and close watch on the situation

Deputy Director, DDA:

- Flood contingency planning and monitoring
- Drought management planning
- Capacity building of the farmers as and when required for alternative cropping

Executive Engineer, RW:

- Ensure safe drinking water supply at the water scarcity areas
- Ensure development works in rural areas
- Ensure restoration of roads aftermath of the flood in the flood prone areas

5.10 District Level Committee on Natural Calamity (DLCNC)

The provision of Odisha Relief Code envisages the constitution of **District Level Committee on Natural Calamity (DLCNC)** which is the apex committee at the district to monitor preparedness and suggests improvement in the response mechanism and finalizes the district disaster management plans. The members of DLCNC are as follows:

Structure of District Level Committee on Natural Calamity

Table – 5.2:

SI No.	Designation	SI No.	Designation
1.	Collector, Khordha	11.	MLA, Ekamra
2.	MP, Puri	12.	President, Zilla Parishad
3.	MP, BBSR	13.	SP, Khordha
4.	MLA, Khordha	14.	ADM, Khordha
5.	MLA, Chilika	15.	ADM, BBSR
6.	MLA, Jatni	16.	PD, DRDA, Khordha
7.	MLA, Begunia	17.	Sub-Collector, Khordha
8.	MLA, BBSR (Central)	18.	Sub-Collector, BBSR
9.	MLA, Jayadev	19.	CDMO, Khordha
10.	MLA, BBSR (North)	20.	CDVO, Khordha

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Sl No.	Designation
21.	CDAO (DDA), Khordha
22.	DLO, Khordha
23.	Deputy Director Planning, Khordha
24.	Asst. Director Horticulture, Bhubaneswar
25.	Asst. Director Horticulture, Khordha
26.	Tahasildar, Baliana
27.	Tahasildar, Balipatna
28.	Tahasildar, BBSR
29.	Tahasildar, Jatni
30.	Tahasildar, Khordha
31.	Tahasildar, Begunia
32.	Tahasildar, Bolagarh
33.	Tahasildar, Tangi
34.	Tahasildar, Chilika
35.	Tahasildar, Banpur
36.	BDO, Baliana
37.	BDO, Balipatna
38.	BDO, BBSR
39.	BDO, Jatni
40.	BDO, Khordha
41.	BDO, Begunia
42.	BDO, Bolagarh
43.	BDO, Tangi
44.	BDO, Chilika

Sl No.	Designation
45.	BDO, Banpur
46.	DIPRO, Khordha
47.	DIPRO, BBSR
48.	EE, Khordha Irrigation, Khordha
49.	EE, Nimapada Irrigation Division, Nimapada
50.	EE, Prachi Irrigation Division, Prachi
51.	EE, MI, Division, Khordha
52.	EE, RW, Division, BBSR
53.	EE, CESU, Khordha
54.	EE, CESU, Balugaon
55.	EE, CESU, Nimapara
56.	EE, PHD-I, BBSR
57.	EE, PHD-II, BBSR (Watco)
58.	EE, PHD-III, BBSR (Watco)
59.	Project Director, Watershed, BBSR
60.	EE, Drainage Division, Khordha
61.	EE, L.I. Division, BBSR
62.	EE, RWSS, BBSR
63.	EO, Khordha Municipality, Khordha
64.	EO, Jatni Municipality, Jatni
65.	EO, Balugaon NAC
66.	EO, Banpur, NAC
67.	DSWO, Khordha

District Level Committee on Natural Calamities sit once in a year to review the preparedness activities taken up at different level by different line departments under the chairmanship of the Collector and District Magistrate. In the DLCNC forum different department present their preparedness level, status of stock, alertness at grass root level, planning and the required budget to face any sort of natural exigencies. All the members raise area specific issues or gaps if any in the house so that adequate attention could be given to those issues.

The usual agenda for the DLCNC meeting is:

- Preparation of flood contingency plan of all line Departments.
- Control Room functioning
- Rain Recording and timely reporting
- Joint verification of weak embankments and repairing of the same
- Identification of cyclone and flood shelters
- Deployment of boats at different vulnerable places
- Functioning of telephone lines
- Cleaning of drainage to avoid water logging
- Stock piling of medicines and dry foods inaccessible pockets
- Steps taken in flood areas for agriculture
- Health measures
- Veterinary measures

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- Deputation of higher officials at the flood circles
- Coordination among the offices
- Cooperation of NGOs
- Deployment of NDRF / ODRAF Teams

Department wise discussion points are given below:

Table – 5.3:

SI No:	Departments / Offices	Point of Discussion
1.	Chief District Medical Officer	<ul style="list-style-type: none"> • Control Room operation • Stock piling of Medicines at different PHCs & CHCs • Positioning of Staff at the below level • Medical Health centers at different places with the officer in-charge • Provision of Halogen tabs, ORS etc. with the health workers
2.	Chief District Veterinary Officer	<ul style="list-style-type: none"> • stock of the Cattle feed available • make indent to procure if required
3.	Civil Supplies officer	<ul style="list-style-type: none"> • Identification of mills for necessary Rice / Chuda Procurement • Stock piling of Rice, Chuda, K.oil at inaccessible points
4.	Deputy Director Agriculture	<ul style="list-style-type: none"> • Drought contingency plan • Details of seed procurement and distribution • Alternative cropping mechanism
5.	Executive Engineer, Irrigation	<ul style="list-style-type: none"> • Stock piling of flood fighting materials • Identification of weak embankments and engaging the officials for close watch on the weak embankments
6.	Executive Engineer, RWSS	<ul style="list-style-type: none"> • Provision of safe drinking water at vulnerable rural pockets • Provision of water tankers in the shelters where people take shelter at the time of emergency
7.	Executive Engineer, PHED	<ul style="list-style-type: none"> • Provision of safe drinking water at vulnerable urban pockets
8.	Executive Engineer, R&B	<ul style="list-style-type: none"> • Identification of vulnerable roads in vulnerable pockets • Immediate restoration of cut off roads
9.	Executive Engineer, CESU	<ul style="list-style-type: none"> • Immediate restoration of power supply in case of destruction
10.	Block Development Officers	<ul style="list-style-type: none"> • Control Room • Deployment of boats at vulnerable pockets • Opening of free kitchens at strategic places
11.	Tahasildars	<ul style="list-style-type: none"> • Control Room • Assessment of damages
12.	Fire Officer	<ul style="list-style-type: none"> • Clearing of the roads

The above review cum discussion aware all the departments about everyone's preparedness level to minimize the losses due to upcoming cyclone and flood.

5.11 Any other existing committees for Disaster Management at District/ Block/Panchayat and Village level may be incorporated in tables:

District Crisis Group:

In accordance with Rule – 8 of Chemical Accidents (Emergency Planning, Preparedness and Response) Rule 1996, the District Crisis Group (DCG) has been formed in Khordha district. The District Crisis Group is the apex body in the district to deal with measures to prevent Chemical Accidents.

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The members of DCG are given below:

Sl No.	Members	Position
1	Collector, Khordha	Chairperson
2	Assistance Director of Factories and Boilers, BBSR Zone-II	Member Secretary
3	District Emergency Officer, Khordha	Member
4	District Fire Officer, Khordha /Deputy Fire Officer, Khordha	Member
5	District Information and Public Relation Officer, Khordha	Member
6	Deputy Controller of Civil Defence, BBSR	Member
7	Controller of Explosives	Member
8	Deputy Superintendent of Police, Khordha	Member
9	Commandant National Disaster Response Force	Member
10	Chief District Medical Officer, Khordha	Member
11	Executive Officer, Jatni Municipality	Member
12	Executive Officer, Khordha Municipality	Member
13	Executive Engineer, (RWSS), BBSR	Member
14	Regional Officer, Odisha State Pollution Control Board, Khordha	Member
15	District Agriculture Officer, Khordha	Member
16	Representative of Oil Industry Safety Directorate	Member
17	Director of Factories and Boilers, Odisha	Member
18	Secretary, National Safety Council Odisha Chapter	Member
19	Professor H.C Das, Associate Dean Sikshya O Anusandhan University	Member
20	Regional Transport Officer, Khordha	Member
21	Sub-Collector, Khordha (Chairperson local Crisis Group)	Member
22	District Civil Supply Officer, Khordha	Member
23	Head of LPG Bottling Plant, Bharat Petroleum Corporation Limited Est. Khordha	Member
24	Head of LPG Bottling Plant, Hindustan Petroleum Corporation Limited Jatni. Khordha	Member

Role & Responsibility:

- Responsible to provide guidance for handling the Chemical Accidents.
- Prepare and update the Dist. Off-Site Emergency Plan
- Review all the on-site Emergency plans prepared by MAH installations for the preparation of the district off-site Plan.
- Assist the District Administration in the management of Chemical accidents.
- Monitor every chemical accident.
- Ensure continuous information flow from the Dist. to State and Central Crisis Group regarding accident situation and mitigation efforts as and when required.
- Forward report of the Chemical accident within 15 days to the SCG.
- Conduct at least one full scale mock drill of a chemical accident as a site each year and forward a report on the strength and weakness of the plan to the SCG.
- Educate the population likely to be affected in a chemical accident about the remedies and existing preparedness on the subject.
- Respond to all the public enquires on the subject.

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District Drought Monitoring Cell:

A District Drought Monitoring Cell (DDMC) has been formed in the district with the following members to keep close watch on drought situation in the district.

DDMC members:

1. Collector & Dist. Magistrate
2. PD, Watershed, Khordha
3. Deputy Director Agriculture, Khordha
4. District Horticulture Officer, Khordha
5. District Horticulture Office, Bhubaneswar
6. Chief District Veterinary Officer, Khordha
7. Senior Scientist & Head, KVK, Khordha
8. Executive Engineer, Khordha Irrigation Division, Khordha
9. Executive Engineer, Prachi Irrigation Division, Bhubaneswar
10. Executive Engineer, Nimapada Irrigation Division, Nimapada
11. Deputy Collector, Emergency, Khordha

District Task Force, CDMO (Heat wave)

Table – 5.4:

SI No	Name and Designation	Contact No
1.	Dr. Prasanta Ku Dash, DPHO, Khordha	9439994502
2.	Dr. Nandita Gupta, ADPHO (DC), Khordha	9438173260
3.	Dr. Prafula Ku Panda, Epidemiologist- IDSP, Khordha	9439997446
4.	Rabindra Kumar sahu, MPHS (M)	9437304687
5.	Arunav PAttajoshi, MPHS(M)	9937164662
6.	Bishnu Datta Mahapatra, MPHS(M)	9437612699
7.	Debaraj Samantaray, driver, vehicle No: OR-02-L 4853	8895077735

The District Health Task Force is solely responsible to attend the emergency heat stress disorder patients as and when required. Similarly, the following are the control rooms opened at the Block CHCs to tackle the heat wave situation at the block level:

Table – 5.5:

Sl. No.	Office / Institution	Name & Designation	Mobile No.	Office Phone No.
1	Banpur	Dr. D. Mohapatra	9439997200	06756-253379
2	Balugaon	Dr. S.K Daspattnaik	9439997366	9439997370
3	Bankoi	Dr. D.P Jena	9439994656	9439994630
4	Botalama	Dr. Debasis Acharya	9439997272	9439997280
5	Balakati	Dr. T.K Tripathy	9439997038	0674-2464181
6	Haladia	Dr. Paresh Kumar Acharya	9439994692	06755-224160
7	Jatani	Dr. J.K Panda	9439997467	0674-2492033
8	Mendhasal	Dr. M. Hembram	9439997293	9439997293
9	Tangi	Dr. J. K Sahoo	9439997040	06756-254219
10	Balipatna	Dr. M. Hati	9439997403	0674-2462110

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District Rapid Response Team:

An emergency Rapid Response Team kept in readiness to meet any eventuality.

5.12 National Disaster Response Force (NDRF)

The Disaster Management Act 2005 has made the statutory provisions for the constitution of the National Disaster Response Force (NDRF) for the purpose of specialized response to natural and man-made disasters. The NDRF comprises of 12 units of Central Paramilitary Forces (CPMF) that includes 3 units each from Central Reserve Police Forces (CRPF) and Boarder Security Forces (BSF) and 2 Unit each from Central Industrial Security Forces (CISF), Indo- Tibetan Border Police (ITBP) and Sahastra Seema Bal (SSB). Each battalion has 18 self-contained specialists Search and Rescue teams of 45 personnel. The NDRF team includes Chemical, Biological and Radiological Disaster (CBRN) emergency responders, S&A element, engineers, technicians, electricians, dog squads and paramedics. The NDRF battalions are strategically located at 8 different locations in the country based on the vulnerability profile to cut down response time for their deployment. During emergency proactive deployment of NDRF is being carried out by NDMA in consultation with the State Governments.

Location of NDRF in Odisha

Table – 5.6:

Name	Designation	Address	Telephone No.	Fax No.	Mobile No.	Unit Control Room No.	E-Mail
SH. JACOB KISPOTTA	Commandant	3rd BN NDRF, PO-Mundali, Cuttack - Odisha Pin - 754013	0671-2879710	0671-2879711	9437964571/ 7989525740	0671-2879711 09437581614	ori03-ndrf@nic.in
NDRF Help Line: +91-9711077372							

5.13 Odisha Disaster Rapid Action Force (ODRAF)

The Government of Odisha formed Odisha Disaster Rapid Action Force (ODRAF) vide notification no.939/CD dated 07.06.2001. ODRAF is a multi-disciplinary, multi-skilled, high-tech force for all types of disasters.

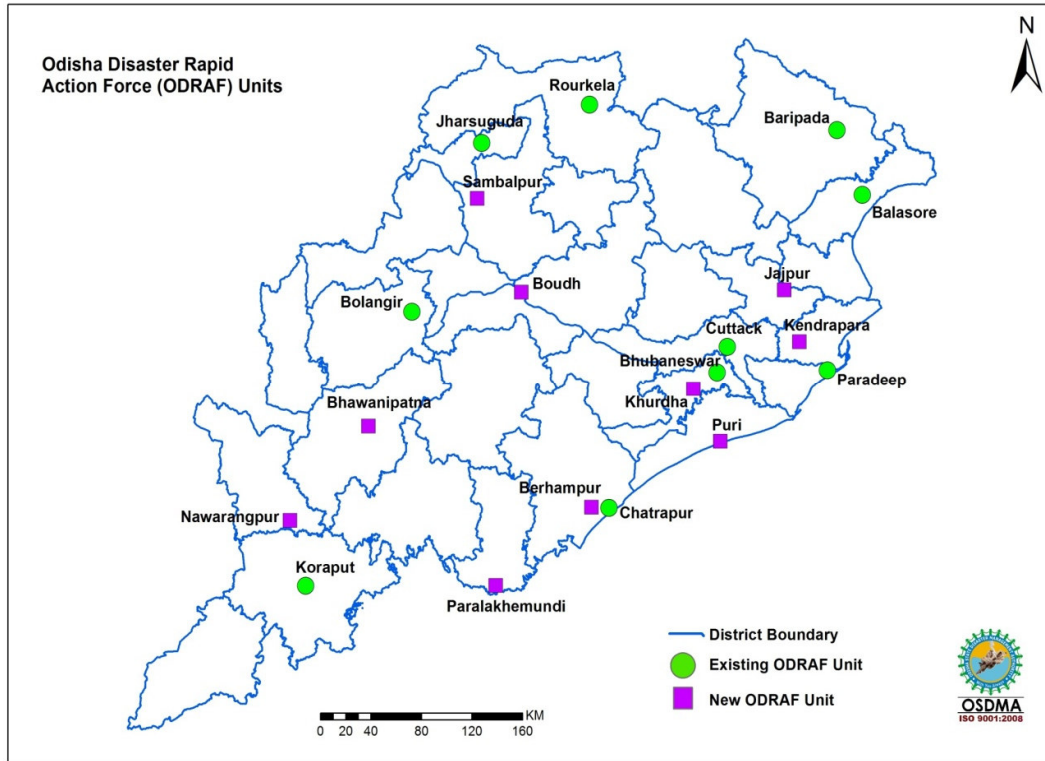
Location of ODRAF

Table – 5.7:

Sl. No.	ODRAF Bn.	Name & Designation	Location	No. of Persons in each Bn.	Contact Details (Commandant)
1	OSAP 7 th Battalion, Bhubaneswar	Sj. Bijay Kumar Sahoo, OPS-I, DCP(Armed)	BBSR	44	Cell No:9437123691 Phone: 0674-2301055 (O) - 2303426 ® Fax: 0674 -2301055 comdt7thbn.orpol@nic.in
2	6 th IRBN, Khordha, Arjunpur	Sri Narayan Dora, OAPS (S)	Khordha		Cell no: 9437905270 / 8598811007 Email: comdt6thirbn.odpol@nic.in
3	6 th IRBN, Khordha, Arjunpur	Sri Kujendra Melaka	Khordha		Cell no: 9438326451 / 6370557041

District Disaster Management Plan - 2021

Map 5.1: Location of ODRAF Units



5.14 Other Disaster Response Teams in the district

List of other Disaster Response Teams in the District

Table – 5.8:

Sl. No.	Name of the Institutions	Name of the Chief Coordinator of the Organization	Designation	Contact Number	Alternate Contact Number	Number of Volunteers
1.	Civil Defense	Mr. Babaji Charan Lenka	Deputy Controller, Civil Defense I/C	9861189979	civildefencebbsr@gmail.com	150
2.	Home Guards	SP cum Commandant Home Guards Contact person: Sj Nagesh Jena RI - 8917268962	Superintendent of Police cum Commandant Home Guards, Khordha	06755-220535 9437905270	spkda.orpol@nic.in	Sanctioned: 187 Presnt: 187
3.	National Service Scheme (NSS)	Mr. Sarita Patel	Regional Director, NSS	8917518987	nssbbsr@gmail.com	7400
4.	NCC	Col. Raju Ranjan (9450745996)	Deputy Director	06742432051	nccdteorissa@yahoo.co.in	
5.	Nehru Yuva Kendra (NYK)	Mr. Vipin Kumar	District Youth Officer	6354148665 / 9869720295	0674-2955821 nykbbsr@gmail.com	300 (DM)

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Sl. No.	Name of the Institutions	Name of the Chief Coordinator of the Organization	Designation	Contact Number	Alternate Contact Number	Number of Volunteers
6.	District Red Cross	Padmaja Das	Secretary District Red Cross Branch	7381927068		

5.15 Emergency Communication System

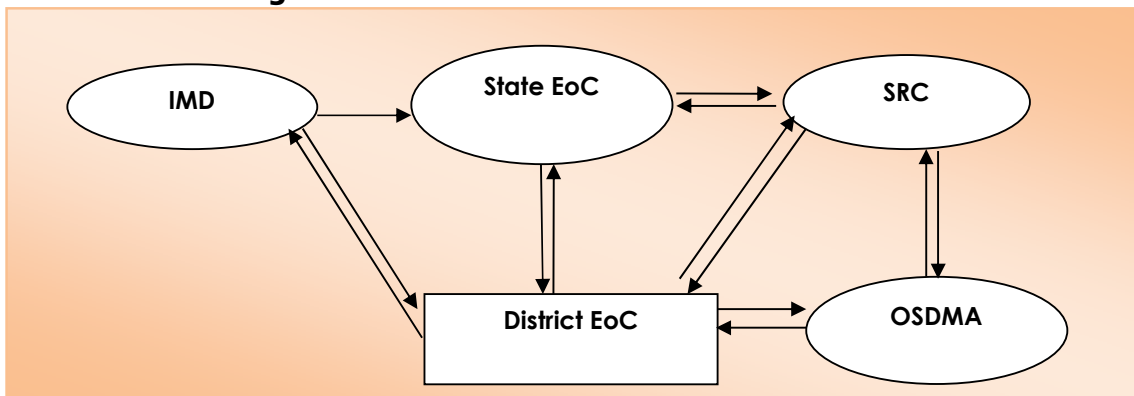
The district machinery used to follow the following methodology to communicate the down line.

- SRC / IMD provide the warning message to the District Administration / DEOC from the SEOC.
- DEOC immediately pass it to the all-line departments / BDOs / Tahasildars via cell phone, email, Whats app or incase required through police VHF message.
- BDOs / Tahasildars used to disseminate the message through their local channel such as VLWs, VAWs, RIs, PRIs etc.
- Sometimes Public Address System used to reach the last mile i.e. community at risk.
- Local News channels also used to disseminate the warning depending upon gravity of the calamity.

5.15.1 State Emergency Operation Center (SEOC)

The State Emergency Operation Centre has been made operational at Rajiv Bhawan, Bhubaneswar with state of art communication net-work. The State EOC functions round the clock throughout the year. The Organisation is headed by the Special Relief Commissioner (SRC) who exercises all administrative and financial powers. He is assisted by a group of experienced officers and staff. During any natural disaster, the office functions round the clock in an emergency mode.

Figure 5.2: Information flow chart from SEOC to Districts



District Disaster Management Plan - 2021

5.15.2 District Emergency Operation Center (DEOC)

STANDARD OPERATING PROCEDURE (SOP)
DISTRICT EMERGENCY OPERATION CENTER (DEOC), KHORDHA
TEL: 06755- 220002/220003, 1077
Email id: khordhaemergency@gmail.com, sddma.khordha@gmail.com
LOCATION: New Collectorate Building, Khordha.

The primary functions of DEOC are:

- Coordination
- Analytical decision making
- Policy-making
- Operations management
- Information gathering and record keeping
- Public information – receipt and dissemination
- Reporting to higher quarter
- Resource management

PRE-DISASTER

Officer in charge of DEOC: The DEOC shall be in overall charge of Collector & District Magistrate. In the absence of Collector, ADM, Khordha / ADM, Bhubaneswar, PD, DRDA, Khordha will be in-charge and Assistant Collector; Emergency shall be the focal point for the DEOC. The officer in charge of District Emergency Operation Center (DEOC) shall be personally responsible for implementing the SOP. She/he shall take all decisions as outlined below and sign for the Collector on all reports mentioned below. She/he shall not wait for orders from anybody. The existing staffing pattern of the DEOC:

Smt. Sanghamitra Behera, OAS (JB) Deputy Collector Emergency, Cell no: 9437652225 Email Id: khordhaemergency@gmail.com	Sri Sachidananda Pati, District Project Officer, DDMA - OSDMA Cell no: 9437087642 (what's app) Email Id: sddma.khordha@gmail.com , sachidanandapati@gmail.com
Sri Kuladeep Palatasingh, Senior Revenue Asst., Cell no: 9348299297	Sri Anil Kumar Ray, Data Entry Operator, DEOC Cell no: 7008751432 Mail Id: kinganil98@gmail.com
Miss. Rameswari Priyadarshini, Junior Revenue Asst. Cell: 9938482696 E-Mail: rameswaripriyadarshini91@gmail.com	

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DURING DISASTER

1. **Assembly in District EOC:** Following staff and officers shall assemble in the DEOC on getting any information from any reliable source about any upcoming emergency / urgency. Apart from this, any other officer or staffs who get the information from any source will reach the DEOC. Control Room duty staff must be present during the duty period.
 - 1.1. Collector, ADMs, PD, DRDA, Sub-Collector, Khordha, DSWO, DSSO, DCPO, CDMO / AMDO (PH), DEO, CSO, DIPRO, District Education Officer, DPC, SSA and ARTO.
 - 1.2. All staffs of Emergency Section.
2. Getting the DEOC ready: DEOC need to be kept in readiness from all aspects during normal period and the following preparatory steps needs to be taken up for keeping the DEOC functional during emergency.
 - Telephone & Internet Connections
 - Electrical Installations
 - Gensets / inverters for Back Up Power Supply
 - District Disaster Management Plan (DDMP)
 - Communication Equipments like Satellite phone, cell phones
 - Information and allied equipments
 - Warning Procedures Check List.
 - Different reporting formats
3. Alert message to be given to field officers like BDOs, Tahasildars, MOs, VAS, Police, Fire stations, Industries, Telephone, Agriculture, RWSS, RD, R&B, DSWO / ICDS, Irrigation, CESU, KED, National Highways, PHD, Municipality / ULBs, DEO, Station Director, All India Radio, through VHF / Telephone / e-mail / if required local print and electronic media shall be used.
4. Civil Supplies Officer (CSO) shall ensure availability of food stuff (*Rice, Chuda & Gur*) and kerosene oil at block headquarters, with storage agents and other inaccessible pockets will be carried out by CSO, Khordha and report compliance to the Chairman, DDMA. The food stuff placed in different inaccessible pockets should be done in consultation with BDOs concern.
5. Health sector: CDMO will take stock of the following items through Health Emergency Operation Center.
 - 5.1. Medicines, bleaching powder, and halogen/chlorine tablets.
 - 5.2. Movement of medicines, bleaching powder, etc. to PHCs/CHCs if not done early.
 - 5.3. Ensure Medical officers are in place at the PHCs and CHCs through police stations, blocks and Tahasildars.
 - 5.4. CDMO shall decide the locations of camps.
6. District Social Welfare Officer (DSWO) to ensure that all CDPOs shall be teamed up with the MO of PHC / CHC with their vehicles and supervisors.

District Disaster Management Plan - 2021

7. District Social Security Officer (DSSO) to ensure that all PWDs under his/her jurisdiction will be shifted to safe shelters.
8. Veterinary measures: CDVO will take stock of Cattle feeds and will contact immediately to MD, OMFED after verifying the stocks within the district.
9. Boats: Requisition of boats within district through the Tahasildar Chilika and Tangi along with the Asst. Engineer, IWT, Balugaon.
10. Make a thorough assessment of relief items available in stock at different places.
11. Functional distribution of work: Following functional distribution of works shall be done. Each team will have staff and resources. The team leader will have full powers to take decisions
 - 11.1. Transportation team
 - 11.2. Stock and store team
 - 11.3. Finance team
 - 11.4. Information and office documentation team
 - 11.5. Food and other relief items team
 - 11.6. Civil Society and International Organisations co-ordination team
12. ORDAF, NDRF & Fire Service shall be in close contact to assist the administration in clearing the relief lines.
 - 12.1. **NDRF:** Jacob Kispota, Commandant, 3rd Battalion NDRF, Mundali, Cuttack, Fax: 0671-2879710 / 11, 9437964571/ 798952574, Email id: ori03-ndrf@nic.in
 - 12.2. **ODRAF:** Sj Bijay Kumar Sahoo, DCP (Armed), Commandant, 9437123691 (M), 0674 - 2301055 (O) - 2303426 (R), Fax: 0674 - 2301055, comdt7thbn.orpol@nic.in
 - 12.3. **Fire Station, Khordha:** Sj Sanatan Mohapatra, 7008513096, Email: khurdafirestation101@gmail.com
 - 12.4. **Fire Station, Bhubaneswar:** Sj Susanta Kumar Biswal, Asst. Fire Officer, 8895945108, Email: afobhubaneswarfirestation@gmail.com
13. Civil Society Organisations: Get in touch with civil society Organisations. Allot them areas or functions. Get them introduced to the field functionaries. Ask them to prepare a list of volunteers. Make a quick inventory of their resources. Contact UN agencies & other international relief agencies (if possible). Make a quick assessment of district needs and expectations from different agencies.
14. Press briefings: Press briefings if required will be carried out by the competent authority, decided by the Collector. DIPRO to handle the press related issues. Message to public over local cable or alternative networks.
15. Regularly contact required with R.D.C., S.R.C., OSDMA, IMD, Water Resources Deptt. & Dam Safety Divisions for updates.
16. Orders for identifying places for starting free kitchens with the BDOs and Local PRIs. Issue of instruction by looking into the severity of the hazardous event and damage.
17. Regularly checking up the following website:
www.imd.gov.in, Indian Meteorological Deptt.

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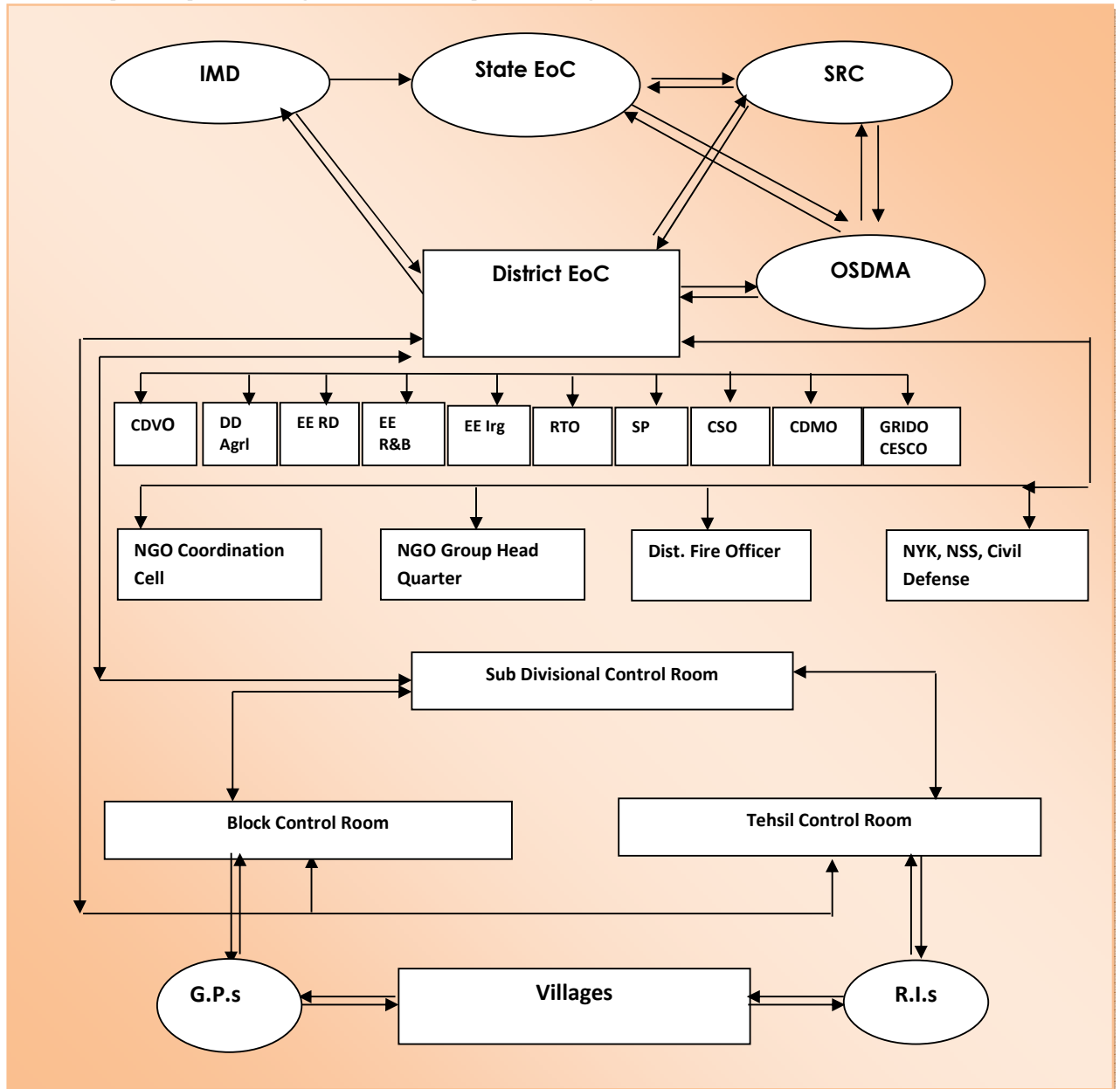
18. www.idrn.nidm.gov.in may be referred for resource mobilization.
19. Keep spare copies of district maps. Jurisdiction maps of all irrigation divisions shall be kept ready in good numbers.
20. Requisition of School/ College for army/ police forces staying and movements.
21. Looking at the onset of emergency and after making quick preparations, convene Emergency meeting of important official and non-official agencies. Give them clear instructions.

Tentative Assignment of Senior Officials to supervise the emergency situation:

Table – A:

SI No:	Name of the Senior Officers	Blocks Assigned
1.	Sj. Diganta Routray, OAS (S), PD, DRDA Cell: 9937087890	Overall, In-charge of all blocks
2.	Sj. Anuj Kumar Das Pattnaik, OAS (SAG) ADM (Revenue), Khordha Cell: 9438542354	Chilika, Banapur
3.	Sj. Manoj Kumar Padhy, OAS (SAG), ADM, Khordha Cell: 9437216322	Khordha, Begunia
4.	Sj. Prafulla Kumar Swain, OAS (SAG) ADM, Bhubaneswar Cell: 9937975446	Bhubaneswar, Balipatana
5.	Sj. Gaurav Isalwar, IAS Sub-Collector, Khordha, Cell: 9420451838	Tangi, Bolagarh
6.	Sj Debabrata Sahoo, OAS (S) Sub-Collector, Bhubaneswar, Cell: 9437300696	Balianta, Jatni

Figure 5.3: Information flow chart from District Emergency Operation Center (DEoC) to Villages with early warning



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Important Line Departments at the District

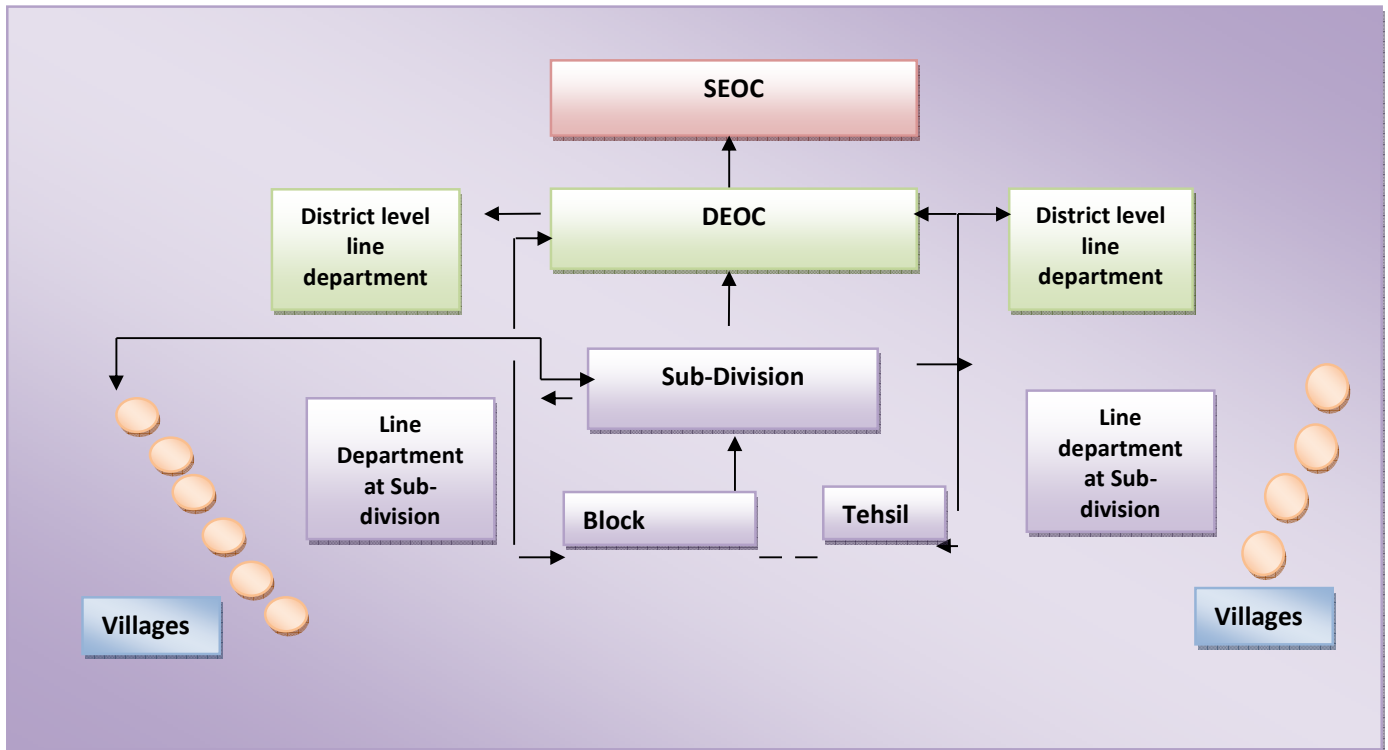
Table – 5.11:

SI No.	Department	Head of the Department at District	Name of the Nodal Officer	Contact No.
1.	Revenue and Disaster Management	Collector & District Magistrate	Sj. Sanat Kumar Mohanty, OAS (SAG)	9438320007
2.	PR Department	Project Director, DRDA	Sj. Diganta Routray, OAS (S)	9937087890
3.	Home Department	Superintendent of Police	Sj. Raj Kishore Dora	7008042675 9438916263
4.	Health & Family Welfare Department	Chief District Medical Officer	Dr. Vishwa Ranjan Pati	9439994500 / 06755-221419
5.	Fisheries & Animal Resource Dev. Deptt.	Chief District Veterinary Officer	Dr. Asish Satapathy	9337805208 9861044550
6.	Agriculture & Farmers Empowerment Department	Deputy Director, Agriculture	Sj Ganesh Prasad Das	9438621929
7.	Water Resources	Executive Engineer, Irrigation, Khordha Division	Er. Subrat Kumar Das	9861492846
8.	Water Resources	Executive Engineer, Irrigation, Prachi Division	Er. Bihghnaraj Purohit	8895296277
9.	Water Resources	Executive Engineer, Irrigation, Nimapada Division	Er. Sashi Bhushan Mishra	9439641630
10.	Fisheries & Animal Resource Development Department	District Fishery Officer	Mr. Jagadish Panda	9437269613 06755-221015
11.	Chemical (Industrial) Disaster Management (Directorate of Factories and Boilers)	Asst. Director, Factories & Boilers	Sj Biswajit Panigrahi	9861543982
12.	SC & ST Development	District Welfare Officer	Mr. Manoj Kumar Nayak	9937374524
13.	Works Department	Executive Engineer, PWD (R&B)	Mr. Deepak Panigrahi	9439070007
14.	Works Department	Executive Engineer, Drainage	Sj Raghunath Swain	9439189021
15.	Cooperative Society	DRCS	Mrs. Rosalyn Senapati	9437365757
16.	Cooperative Society	ARCS, BBSR Circle	Smt Snigdharani Satpathy	9437106443
17.	Cooperative Society	ARCS, BBSR Circle	Sri Umasaknar Das	06755220518/ 8249003930
18.	Industries Department	GM, DIC	Mr. Gagan Bihari Nayak	9437276724 / 8249032038
19.	Finance Department	LDM	Mr. Dillip Kumar Bhuyan	9437095624 7008170220
20.	Energy Department	Executive Engineer, TPCODL, Khordha	Mr. Manoj Kumar Das	9438362932
21.	Energy Department	Executive Engineer, TPCODL, Balugaon Division	Mr. Siba Prasad Baliarsingh	9437094259

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SI No.	Department	Head of the Department at District	Name of the Nodal Officer	Contact No.
22.	Energy Department	Executive Engineer, TPCODL, Nimapada Division	Mr. Durga Prasad Das	9437094249
23.	Information Technology Department	District Informatics Officer, NIC	Mr. Ajay Kumar Sahu	9439849431
24.	Rural Development	Executive Engineer, RD	Er. Santosh Kumar Mishra	9437255338
25.	Textiles, Handloom & Handicrafts Department	Asst. Director, Textiles, Handloom & Handicrafts	Mr. P.K. Tosh	9438157755
26.	Women & Child Development Department	District Social Welfare Officer	Smt. Arati Rath	9437370216
27.	Food supplies & Consumer Welfare Department	Civil Supplies Officer	Mr. Anata Ch Swain	9437153478
28.	School & Mass Education Department	District Education Officer	Smt Bandana Mohapatra	7809448888
29.	Forest & Environment Department	Divisional Forest Officer, Khordha	Ms Poornima Pandian, IFS	9437000935
30.	Culture Department	DIPRO	Mr. Manas Ranjan Biswal	8895785568
31.	Tourism Department	Tourist Officer	Smt. Mirabai Behera	7809247626
32.	Home Department	Asst. Fire Officer, Khordha	Sj Sanatan Mohapatra	7008513096
33.	Agriculture & Farmers Empowerment Department	Project Director, Watershed	Sj Narayan Patra	9437021538
34.	Agriculture & Farmers Empowerment Department	Asst. Director, Horticulture, Khordha	Smt.Smita Mohanty	9437196900
35.	Agriculture & Farmers Empowerment Department	Asst. Director, Horticulture, BBSR	Smt.Smita Mohanty	9437196900
36.	Rural Development	Executive Engineer, RWSS	Mr. Bijayananda Sahu	9438420171
37.	Rural Development	General Manager, WATCO – I	Sj Bishnu Charan Padhi	9437671001
38.	Rural Development	General Manager, WATCO – II	Sj Guru Charan Das	9437200025

Figure 5.4: Information flow chart from Villages to District Emergency Operation Center (DEoC) without early warning



5.15.3 Block Emergency Operation Center (BEoC)

As per the standing instruction of Dist. Administration the Control rooms at Block Office shall operate from the month of April and continued up-to November. Control room operates from April & May for Heat wave condition where as from June to November for Flood like situation. The staff assigned for the control room duty to look after the situation and report compliance if required. Similarly control room operates in Tahasil offices too. There is no institutional arrangement for BEOC at the block level, only control room and report return done by the existing staff of the Blocks.

Important Line Departments at the Block

Table – 5.12:

SI No.	Department	Head of the Department at Block	Name of the Nodal Officer	Contact No.
1.	PR Deptt.	BDO- Khordha	Rumana Jafri	8018114649
2.	PR Deptt.	BDO- Bolagarh	Sj. Dhobei Nayak	9437517825 / 8917441679
3.	PR Deptt.	BDO- Begunia	Smt Rashmi Rekha Das	8895127297
4.	PR Deptt.	BDO- Banapur	Sj Pradymuna Nayak	9439266251
5.	PR Deptt.	BDO- Chilika	Smt Susama Barik	9437977416 / 8280405222
6.	PR Deptt.	BDO- Tangi	Sm Aishwarya Samataray	8280056658
7.	PR Deptt.	BDO- Bhubaneswar	Sj. Ramesh ch Sethi	8763166161 / 8280405220
8.	PR Deptt.	BDO- Jatni	Sj Saroj Kumar Rout	779900046 / 8280405223

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SI No.	Department	Head of the Department at Block	Name of the Nodal Officer	Contact No.
9.	PR Deptt.	BDO- Baliana	Sj Jayadev Das	8249960997
10.	PR Deptt.	BDO- Balipatna	Sj Adikanda Behera	7682035355
11.	R&DM	Tahasildar- Khordha	Sj Padma Charan Sahoo	9438629455
12.	R&DM	Tahasildar- Bolargh	Sj Hemendra N Mohanty	9338833300
13.	R&DM	Tahasildar- Begunia	Sj. Prithwiraj Mandal	9439667668
14.	R&DM	Tahasildar- Banapur	Sj Pramod Kumar Padhi	7978781858
15.	R&DM	Tahasildar- Chilika	Smt Poonam Mohapatra	7381960777
16.	R&DM	Tahasildar- Tangi	Sj Sarat Kumar Dehuri I/C	9438912307
17.	R&DM	Tahasildar- BBSR	Sj Pradeep Kumar Sahoo	9438773866
18.	R&DM	Tahasildar- Jatni	Sj. Tapan Kumar Mohapatra	9853239784
19.	R&DM	Tahasildar- Baliana	Sj Saroj Kumar Panda	9437214032
20.	R&DM	Tahasildar- Balipatna	Dr. Sunita Jena	7077868048
21.	H& FW	Banpur	Dr. D Mohapatra	9439997200
22.	H& FW	Balugaon	Dr. Soumya Kanta Das Pattnaik	7978279961 9439997366
23.	H& FW	Bankoi	Dr. D.P. Jena	9439994656
24.	H& FW	Botalama	Dr. Debasish Acharya	9439997272
25.	H& FW	Balakati	Dr. Tanmay Ku. Tripathy	9439997038
26.	H& FW	Haladia	Dr. Pares Ku Acharya	9439994692
27.	H& FW	Jatani	Dr. Jitendra Ku. Panda	9439997467
28.	H& FW	Mendhasal	Dr. M Hembram	9439997293
29.	H& FW	Tangi	Dr. J.K. Sahoo	9439997040
30.	H& FW	Balipatna	Dr. Manoranjan Hati	9439997403
31.	SME	Baliana	Sj Himanshu Bhushan Ojha	9439250121
32.	SME	Balipatna	Smt Sailadhirajtanaja Satapathy	8895494113
33.	SME	BBSR/BMC	Prajna Paramita Jena	7008155825
34.	SME	Jatni	Rashmibala Parida	7978676217
35.	SME	Khordha	Sandhyarani Rout	9439255588
36.	SME	Begunia	Bishnu Prasad Mishra	9437800956
37.	SME	Bolgarh	Rashmibala Parida	7978676217
38.	SME	Banpur	Sandhyarani Rout	9439255588
39.	SME	Chilika	Nilakantha Mohanty	0437357382
40.	SME	Tangi	Sanatn Jali	9937941623

5.15.4 Any other Alternative Emergency Operation Center in the district

Irrigation Control Room:

A flood control room starts functioning at Khurda, Nimapara and Prachi Irrigation Division Offices, round the clock from **1st of June** and continues up to **31st October**. The Telephone No of the control room is **Khurda: 06755-296075, Prachi: 0674-256427, Nimapara- 06758-250240 and Puri- 06752251397**. The information relating to gauge of the river with respect to time used to sent to the control Rooms functioning at Office of the Engineer-In-Chief, Water Resources, Bhubaneswar, respective District Collectors, Sub-Collectors & other destinations as and when required.

Besides this, information about River gauge & flood relating to River Malaguni and Chilika to be available at the section office at Jankia and Tangi respectively. The Reservoir Level and Discharge through Spillway of Salia Reservoir to be available at the Office of the Sub-Divisional Officer, Salia Dam Sub-Division, Banapur. Telephone No: **220352**. The list of Telephone nos are given below:

District Disaster Management Plan - 2021

Table – 5.13: TELEPHONE NOS OF CONTROL ROOMS

SI No.	Name of Officer & Division.	Location	Telephone Nos.	Particulars of Information
1	Er. Subrat Kmuar Das, Khurda Irrigation Division.	Khurda.	06755-220729 (Office) 986142846 (EE)	River Gauge, Flood fighting arrangement & Damage Reports.
2	Jankia Irrigation Section.	Jankia.	9437191238 (AEE) 9556169491(AE)	Malaguni River Gauge, Flood fighting arrangements & Damage Reports.
3	Tangi Irrigation Section.	Tangi	9437191238 (AEE) 9556169491(AE)	Gauge of Chilika, flood fighting arrangement & Damage Reports.
4	Salia Dam Sub-Division.	Banapur	06756-220352 (off) 9437620971 (AEE) 9437324374 (AE) 9668156828(AE)	Salia Reservoir Level, Rainfall & Damage Reports.
5	Hirakud Control Room, Burla	Burla	0663-2432592/ 2430292	Gauge, Inflow, Outflow & Gate Opening of Hirakud reservoir
6	S.D.O, Mundali	Mundali, Cuttack	0671 – 2879549	Gauge, Inflow, Outflow of Mahanadi at Mundali
7	Flood Cell at E.I.C. Office, BBSR	BBSR	0674 – 2391474 / 2395953(F)	All information
8	Flood Cell at SE, C.I.C., BBSR	BBSR	0674 – 2560236/ 2560625	All information
9	Er. Bighnaraj Purohit, Executive Engineer, Prachi Irrigation Division	BBSR	0674-2562427 8895296277	All information
10	Er. Sashi Bhushan Mishra, Executive Engineer, Nimapada Irrigation Division	Nimapada	06758-250240 9439641630	
11	Er. Prasant Kumar Das, Executive Engineer, Puri Irrigation Division	Puri	06752-251397 9439800882	

Health Control Room: [Heat Wave & Flood]

The district level control room functions in the office of ADMO (PH) with the telephone no-06755-223178, Khordha from 1.3.21 to 15.6.21 to have a close watch on the heat wave condition. Staff deployed at the control room on a rotation basis. Similarly, at the CHCs control rooms operate under the MO concerned.

Further, Flood control rooms starts from the 16th June and continues till the month of Nov at CDMO as well as at the CHC level.

Control Room: CDVO

The Control Room for Flood, Cyclone & other Natural Calamity has been constituted with the following staff working in the Office of the C.D.V. O Khordha which functions round the clock with w.e.f. 01.06.2021. The Control Room Telephone No. is **06755-**

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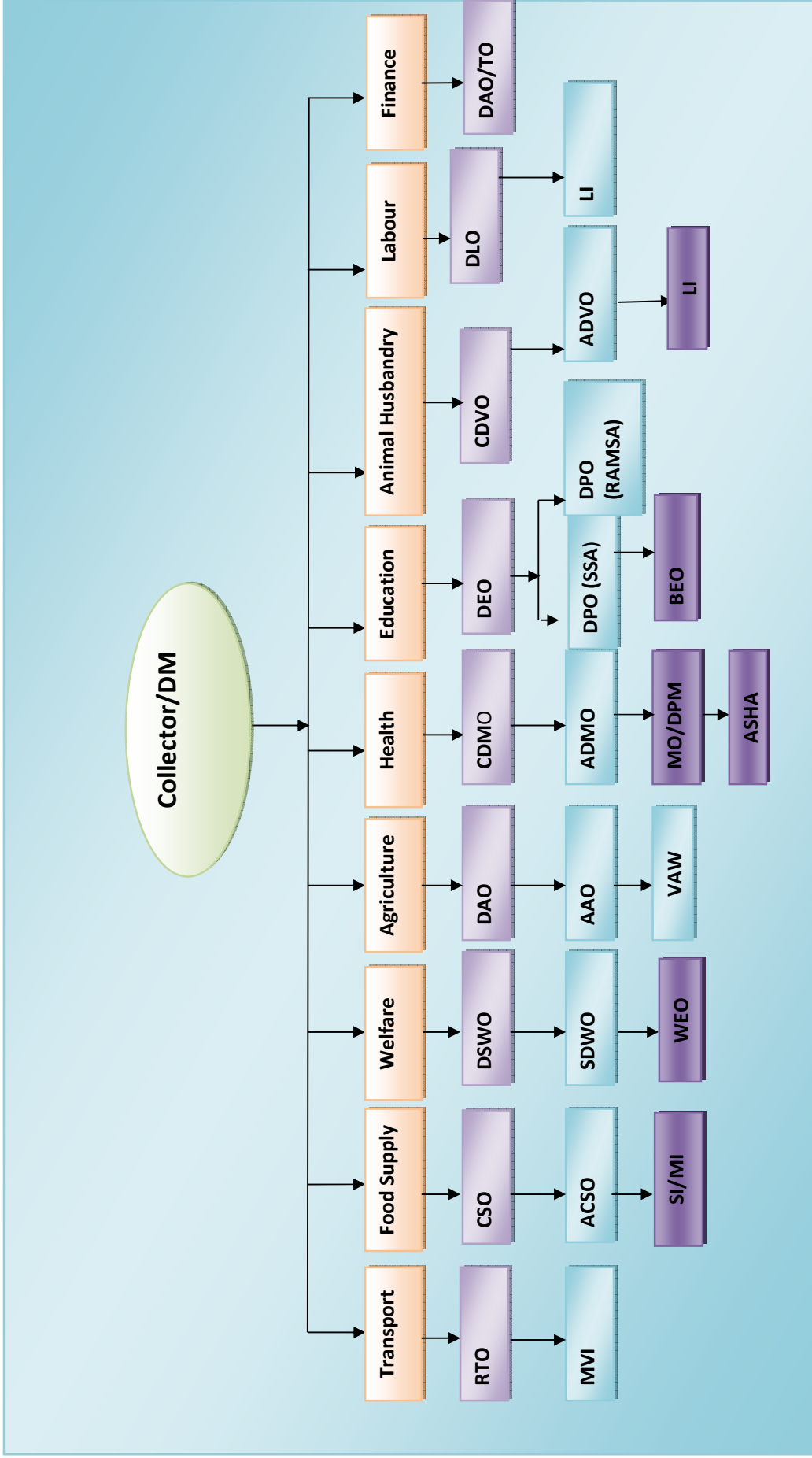
223067. Similar arrangements have been made at all veterinary dispensaries head quarter to function as control room w.e.f. 01.06.2021.

Another control room would be functional in the office of the Sub- Divisional Veterinary Officer, Bhubaneswar with telephone No: **0674- 2540425.**

Control Room: Chief District Agriculture Officer (Previously DDA)

The control room starts functioning from June 1st to till the end of November and will remain open from 8AM to 8PM. One officer at district level will remain in over all charge of the control room. The control room Telephone **No: 06755-223955.** Crop whether watch group will be constituted at district level. Rainfall and crop coverage will be assessed regularly. AAOs at block level and DAOs at DAO level has been advised to open control room similarly to collect information and report to the district authority.

Fig 5.5: Coordination structure at the District level and down the line



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5.16 GO-NGO Coordination before and after disaster in the district

NGO Co-ordination Committee (DLNCC) in respect of Khordha district is has been formed under the DDMA, Khordha. The DLNCC consists of the following members:

1. Collector & Dist. Magistrate-	Chairman
2. PD, DRDA, Khordha	Member
3. SP, Khordha	Member
4. ADM, Khordha	Member
5. Dist. Emergency Officer, Khordha	Member Convenor
6. Chief Dist. Agriculture Officer, Khordha	Member
7. Chief Dist. Medical Officer, Khordha	Member
8. Chief Dist. veterinary Officer, Khordha	Member
9. DSWO, Khordha	Member
10. DSSO, Khordha	Member
11. DWO, Khordha	Member
12. CSO, Khordha	Member
13. LDM, Khordha	Member
14. Exe. Engg. RWSS, Bhubaneswar	Member
15. DCPO, Khordha	Member
16. CYSD, Bhubaneswar (Nodal NGO)	Member
17. PECUC, Bhubaneswar	Member
18. World Vision, Bhubaneswar	Member
19. Darbar Sahitya Sansad, Bhubaneswar	Member
20. People for Animal Student Wing	Member
21. Aurosikha, Bhubaneswar	Member
22. SAHAYOG, Bhubaneswar	Member
23. Niyatee Foundation, Bhubaneswar	Member
24. CARD, Bhubaneswar	Member
25. Neheru Seva Sangha	Member
26. ISWHRD, Nirakarpur	Member
27. The Humanity, Bhubaneswar	Member

5.17 Role of Corporate Sector in the district relating to Disaster Management

The recent major disasters have clearly indicated that there is a need for interweaving of disaster risk reduction and management concerns in order to minimize the losse of life, livelihood and properties. This emphasizes the necessity of involvement of all stakeholders, from the Government, corporate sector and NGOs.

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Role of Corporate Sector in Disaster Management:

- As the Disasters being unforeseen events that cause great damage, destruction and human suffering require immediate coordinated and effective response by Govt. / Organisations / UN Agencies, Other Agencies, including Private and Corporate Sector.
- As per the DM Act, 2005, Disaster Management is a continuous and integrated process of planning, organising, coordinating and implementing measures for — prevention of damage or threat of any disaster — mitigation or reduction of risk — capacity building — preparedness — prompt response — evacuation, rescue and relief — rehabilitation and reconstruction.
- As per Companies Act, 2013, large profit-making corporate bodies have to earmark at least two percent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy and make projects and programmes accordingly.
- The contribution of the Corporate Sector has been notable especially in the aftermath of the devastating Super Cyclone Odisha in 1999, Bhuj Earthquake in 2001 and Tsunami in 2004.

Role of corporate sector in Disaster Preparedness/ Prevention:

Corporate sectors can be a part of the following:

- Awareness generation among the stakeholders like, Community, PRIs, Students, Teachers, SHGs, Youth Clubs etc.
 - Capacity building training programmes for the first responders
 - Mock drills (both on-site & off-Site) /
 - Demonstration of rescue techniques in periphery villages with the local available resources
 - Development of on-site and off-site DM plans
 - Preparation of inventory of resources
 - Sensitization programmes in periphery villages or adopted villages
 - Organisation of annual events to aware the local community on various aspects of disaster management
 - Promotion of Alternative livelihood programmes for the affected populace
 - Working in collaboration with the government and community to develop skills and give effective response to the disasters in both short term and long term.
 - Join hands with government, NGOS, other small and large organizations in the area for response and reconstruction initiatives and have preventive measures in place ahead of time.
- In addition to the above, Corporate Sector can play a pivotal role in development and enforcement of an appropriate techno legal regime which involves examining and reviewing the existing building by-laws and codes / rules. Further Corporate Sector can support a techno-financial regime whereby financial institutions insist on adoption of disaster resistant construction as a pre-condition for providing loans/ grants.

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Role of corporate sector in Rehabilitation/Reconstruction:

- Donation of cash, food, medicines and other resources
- Support the administration with skilled HR
- Participation in the recovery activity
- Using the technical and managerial expertise for coordination, recovery and logistical support in the aftermath of disasters.
- Participation in the rehabilitation of affected individuals, employees and society as a whole.

5.18 Public Private Partnership: Public & Private Emergency service facilities available in the district.

Khordha Municipality is in partnership with the local companies like Cocacola (7894104494), SMS (7894042868), Gupta Cables (9337223265) and United Beverage Pvt. Ltd. (9238009028) to provide safe drinking water in water scarcity pockets of municipality area. Similarly, Health services are managing 4 nos of Mobile Health Teams with coordination with NGOs which are running at Bhubaneswar under the public and private partnership. The details are given below:

NAME OF THE UMHU	COVERED WARD NUMBER	COVERED UCHC ZONE	NAME OF THE MANAGED NGOS IN PPP MODE
UMHU-I	67, 59, 61, 58, 60, 54, 45, 55, 56, 57, 42, 32, 43, 44, 46, 52, 53, 62	UCHC BMC, ZONE-I	GJS
UMHU-II	9, 3, 12, 19, 31, 33, 18, 4, 5, 10, 11, 1, 2, 6, 7, 13, 14	UCH CPATIA, ZONE-II	Orissa Voluntary Health Association
UMHU-III	63, 50, 24, 51, 22, 23, 15, 38, 39, 47, 48, 49, 64, 65, 66	UCHC DUMUDUMA, ZONE-III	GJS
UMHU-IV	25, 27, 37, 28, 36, 40, 41, 8, 30, 34, 35, 29, 17, 16, 20, 21, 26	UCHC UNIT-IV, ZONE-IV	Vishwa Jeevan Seva Sangh (VJSS), Orissa

Some private emergency service providers are given below:

Contact Details of Private emergency services

Table – 5.14:

Sl. No.	Name of the Contact Person	Contact No.
1	Kalinga Hospital Ambulance Service, Chandrasekharpur, Bhubaneswar	0674-2300570 0674-2300726
2	Sumitra Ambulance service, Unit 6, Ganganagar, Bhubaneswar	9937255912
3	Mamata Hospital, Chandrasekharpur, Bhubaneswar	0674-2302779
4	Care Hospital, Prachi Enclave, Chandrasekharpur, Bhubaneswar	0674-3021999 9937299112
5	Sparsh Hospital, Behind Metro Tower, Bhubaneswar	0674-6626666
6	Jay Durga Ambulance service, Mahatab Road, Bhubaneswar	9861067826 9439337826
7	Basanti Trust Ambulance service, Board Colony, Bhubaneswar (Free of Cost)	9437164399
8	Marwari Yuva Morcha Ambulance Service, Laxmi Sagar, Bhubaneswar	9861093200

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Sl. No.	Name of the Contact Person	Contact No.
9	AMRI Hospital, Kolathia, Bhubaneswar	0674-6666666
10	Durga light & sound, Old Fire Station, Khordha	9861505706
11	Maa Kali Tent House, Gurujang, Khordha	9437185332

5.19 Multi Purpose Cyclone Shelters (MCS) in the district

a) Details of Cyclone Shelter Management and Maintenance Committee (CSMMC): The completed Multipurpose Flood Shelters constructed by OSDMA has been handed over to the community-based Cyclone Shelter Management and Maintenance Committees (CSMMC). The CSMMC was constituted in a Special Meeting convened by the local Sarpanch/Executive Officer in the shelter village including served villages. The CSMMC consists of around 21-25 members as given below. The Sarpanch of the concerned Gram Panchayat/Executive Officer of concerned ULB functions as the **President** of the CSMMC. One representative of the vulnerable community, selected by General Body or in case of urgency nominated by the President, functions as the **Secretary** of the CSMMC.

Table – 5.15:

Official Members		
1.	Sarpanch/Executive Officer	President
2.	Local Tahasildar	Member
3.	Local Medical Officer (CHC/PHC)	Member
4.	Asst. Engineer/Jr. Engineer of Local Block and/or Engineer/Jr. Engineer of RD dept	Member(s)
5.	Local Revenue Inspector	Member
6.	Executive officer of the Gram Panchayat / Councilor (Ward Member) of ULB	Member
7.	Headmaster/Principal of the school/college closer to which the MCS has been constructed	Member
8.	Local ANM	Member
9.	Local Anganwadi worker	Member
PRI representatives		
10.	Concerned ward member of the MCS village	Member
11.	Concerned ward members of hamlets of served villages which the MCS serves	Member (1-3)
Community representatives		
12.	One community volunteer to be selected as	Secretary
13.	Representative of Local N.G.O./village club	Member
14.	Women representative	Member
15.	SC/ST representative	Member
16.	Shelter village/ hamlet representatives	Member (1-4)
17.	Representative of Persons with Disability	Member

Details of MCS

Table – 5.16:

Sl No.	Name of the Block	No of MCS
1	Balipatna	1
2	Banapur	7
3	Chilika	12
4	Tangi	15
	Total	35

*[Detailed List of MCS is attached in **ANNEXURE- VI**]*

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Details of equipments provided to MCS

Detailed List of MCS is attached in **ANNEXURE- VI**

5.20 Flood Shelters (FS) in the district

a) Details of Flood Shelter Management and Maintenance Committee (FSMMC):

The procedure followed for formation of Flood Shelter Management & Maintenance Committee (FSMMC) in Flood Shelters are very much similar to the process of formation of CSMMC.

Details of MFS

Table – 5.17:

SI No.	Name of the Block	Name of the FS
1	Balipatna	3
2	Balianta	4
3	Khordha	2
4	Jatni	2+1 (Godown)
5	Begunia	2
6	Banapur	2
	Total	16

*[Detailed List of MFS is attached in **ANNEXURE- VI**]*

b) Equipments provided to the FS

Details of equipments provided to FS

Detailed List of MFS is attached in **ANNEXURE- VI**.

5.21 Other identified Safe temporary shelters in the district

There are 197 nos of High Schools available in the district which can be used for safe shelters. Apart from High schools, there are 1129 nos of Pry & ME schools are also available in the district which can be used as safe shelters at the time of emergency. The data provided by the SSA shows that in almost every village there are schools to be used as safe shelters and there are 51 multipurpose flood and cyclone shelters constructed by OSDMA in vulnerable villages to provide necessary shelter.

Identified Safe temporary shelters

Table – 518:

SI No.	Block	No of High Schools
1.	Balianta	11
2.	Balipatna	10
3.	Balugaon nac	2
4.	Banapur	8
5.	Banapur nac	3
6.	Begunia	18
7.	Bhubaneswar	15
8.	Bhubaneswar mc	46
9.	Bolgarh	19
10.	Chilika	7

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11.	Jatni	11
12.	Jatni mpl	5
13.	Khordha	21
14.	Khordha mpl	3
15.	Tangi	18
	Total	197

List of Identified shelters at ULB level:

Table – 5.19:

Ward No:	School / Shelter Available	Population of the ward / capacity	Location
1	Chachara Saar Sahi UP School	1801/200	Mukundaprasad
2	Mukundaprasad UGME school	1247/500	Mukundaprasad
3	Jemadei UP / Jayee Rajguru UP / Jemadei Badha Sabarsahi Pry. Sch / PN College	1898/3000	Jemadei, Barunei Road side, Mukundaprasad
4	Garh Khordha UP School	2010/300	Garhkhordha
5	Block REO UP Sch	1567/300	Near Collectorate, Khordha
6	Smatarapur UP School / Women's College	3222/1000	Samantarapur
7	Upper Sahi UP School	1697/200	Upper sahi
8	Kamanabar UP School	2004/100	Near Harijan Sahi
9	Bhaliabadi UGME School / Bhaliabadi Bauri Sahi Pry. school	1728/500	Bhaliabadi
10	TLC Colony School	1571/300	TLC colony
11	BDA Colony UP Sch / Forest Colony Pry. Sch	1946/400	BDA Colony Chhak
12	Practising UGME School	1947/1000	Nayagarh Road
13	Town UP School / Jajarsingh Primary School	1345/600	Talasaahi, Jajarsingh
14	Khordha UP School	1516/300	Near Municipality Office
15	BJB High School	1549/3000	Telephone Exchange
16	Maa Jenamani Pry school / Housing board colony Gurujanga / Gurujanga UGME School	1974/600	Gurunjanga
17	Gurunjanga pry. / Gurunjanga High school	1351/800	Gurunjanga
18	Dhableswar UP School / Gurunjanga ME School	2154/600	Gurunjanga
19	Jagannath Bidyapitha, Khordha	1527/400	Gurunjanga
20	Khordha Town Center pry. School / Tahaisl Pry. School	1694/500	Talasaahi
21	Mukundaprasad Urdu Maktab Pry. School	1405/200	Mukundaprasad
22	Mukundaprasad UGME School	1901/500	Mukundaprasad

5.22 Other Safe Sites for temporary shelter for Flood etc.

Table – 5.20:

Sl. No.	Block Name	GP Name	No. of Mounds	No. of High Bridges
1.	Bhubaneswar	Andharua	1 (Padmapada Mundia)	
2.	Bhubaneswar	Barimunda	--	1 (Kuakhai Bridge)
3.	Bhubaneswar	Basuaghai	--	1 (Tankapani Bridge)
4.	Bhubaneswar	Chandaka	1 (Jogisahi Mundia)	--
5.	Bhubaneswar	Dadha	1 (Nandankanan)	--
6.	Bhubaneswar	Daruthenga	1 (Chudanga Gada)	--

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7.	Bhubaneswar	Dhauri	1 (Dhauri Pahada)	1 (Daya Bridge)
8.	Bhubaneswar	Itipur	--	--
9.	Bhubaneswar	Kalaranhanga	--	--
10.	Bhubaneswar	Kalyanpur	--	--
11.	Bhubaneswar	Kantabada	2 (Jhumuka / Deras)	--
12.	Bhubaneswar	Lingipur	--	1 (Daya Bridge)
13.	Bhubaneswar	Mendhasal	--	--
14.	Bhubaneswar	Nanput	--	--
15.	Bhubaneswar	Malipada	1 (Phata Mundia)	--
16.	Bhubaneswar	Ranasinghpur	--	--
17.	Bhubaneswar	Raghunathpur	1 (Nandankanan)	--
18.	Bhubaneswar	Sisupalgarh	--	1 (Daya Bridge)
19.	Bhubaneswar	Tamando	--	--
20.	Bhubaneswar	Tikarpada	--	1 (Daya Bridge)
21.	Khordha	Orabarasingh	4	0
22.	Khordha	Brajamohanpur	1	0
23.	Khordha	Naranagarh	1	0
24.	Chilika	Kumandolpatana	1	1
25.	Chilika	Ankula	1	1
26.	Chilika	Badakul	1	1
27.	Chilika	Nimikheta	1	1
28.	Chilika	Singeswar	1	
29.	Chilika	Chandeswar		1
30.	Balianta	Bhingarpur	--	1 Bridge over Kusabhadra river.
31.	Balianta	Umadeibrahmapur	--	1 Bridge over Kuakhai river.
32.	Balianta	Pratapsasan	--	1 Bridge over Bhargabi river.
33.	Jatni	Benapanjari	Budhangar & Pandiabili	1

Odisha State Legal Services Authority (SALSA):

Odisha State Legal Services Authority is a Statutory Body established under the Legal Services Authorities Act, 1987. Hon'ble Chief Justice of High Court of Odisha is the Patron-in-Chief of the Odisha Legal Services Authority and the Sr. Judge of the High Court of Orissa is the Executive Chairman of the Odisha Legal Services Authority. To look after the legal services pertaining to the High Court, there is High Court Legal Services Committee, which is chaired by a sitting Judge of the High Court and the Registrar (Judicial), Orissa High Court is functioning as the Secretary of High Court Legal Services Committee. The State Legal Services Authority monitors and guides the District Legal Services Authorities and Taluk Legal Services Committees in achieving the aims and objectives of the Act. There are 30 District Legal Services Authorities in the State of Odisha and 81 Taluk Legal Services Committees functioning under them. The District Legal Services Authorities are headed by District & Sessions Judges. An officer in the cadre of Senior Civil Judge functions as the Secretary of the District Legal Services Authority. The Taluk Legal Services Committees are headed by the senior most judicial officer posted at the station as the Chairman.

The general public who needs any legal help / legal aid can directly contact the concerned Taluk Legal Services Committee / District Legal Services Authority, the High Court Legal Services Committee and the State Legal Services Authority, as the case may be, for their legal needs. Added to it, Front Offices have also been

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established in the premises of the District Legal Services Authority and Taluk Legal Services Committee manned by advocate retainers to offer legal advice to the beneficiaries and the general public as well and also to assist them in different Legal Services Activities.

The State Legal Services Authority has 15 Members which include the Hon'ble Chairman of High Court Legal Services Committee, Principal Secretaries in the Depts. of Law and Finance, Director-General and Inspector-General of Police, Advocate General, District Judges of Cuttack and Khurda at Bhubaneswar. Apart from that the State Authority has 5 nominated Members namely Hon'ble Minister, Law, Orissa, a Senior Advocate of Orissa High Court, an M.P., an M.L.A., and an eminent social worker who have experience in the field of Law, Finance, Social Service or Administration and who are engaged in the upliftment of the weaker sections of the society, including Schedule Castes, Schedule Tribes, Women, Children, rural and Urban Labour and who are interested in the implementation of the Legal Service Schemes.

CHAPTER - VI

PREVENTION & MITIGATION MEASURES

6.1 Ways & Means to prevent or reduce the impact of various disasters:

Prevention is better than cure. Community is the first responder to the disasters. For facing any kind of disaster community needs proper planning and preparedness to tackle the situation till the Govt. machinery reaches to them. For that it is very much essential to take steps towards different measures both structurally as well as non-structurally. Structural measures can be:

1. Strengthening the embankments
2. Developing the infrastructures in flood / cyclone prone areas
3. Strengthening the relief lines
4. Retrofitting of existing critical infrastructures

Similarly, the non-structural measures can be:

1. Capacity Building of Govt. Officials
2. Capacity building of PRIs
3. Capacity building of Para medical staffs, Anganwadi workers, teachers, students, community, NGOs, Youth clubs, Self Help Groups, Farmers Groups etc.
4. Planning at all levels (village to District)
5. Safety plan for hospitals
6. Safety plans for schools
7. Training of Engineers and Masons on EQ resilient housing
8. Community awareness on different probable hazards they are exposing to
9. Hazard Risk Vulnerability Capacity assessment of the vulnerable areas

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6.2 Structural Measures:

Table – 6.1:

Sl. No.	Name of the Department/ Office	Activity/ Project	Starting Date	Date of completion	Cost	Funding source
1.	Khurda Irrigation Division	Restoration to Salia river right embankment near Palasahi including construction of drainage out let with sluice		Completed	31.16	State Plan (Flood Control)-R.E.
2.		Restoration to Salia river right embankment near Saranai including construction of bathing ghat		Completed	25.81	State Plan (Flood Control)-R.E.
3.		Restoration to Salia river right embankment near Hatimunda, Achyutrajpur Sason, Gosala & Srinibaspur Sason including Drainage outlet		Completed	16.91	State Plan (Flood Control)-R.E.
4.		Restoration to Malaguni right bank Between RD 500m to RD 1600m		Completed	37.93	State Plan (Restoration)
5.		Protection to Malaguni left bank from cyclone shelter to Tentulimula		Completed	34.00	State Plan (Restoration)
6.		Protection to Malaguni left embankment near Golabai escape		Completed	13.85	State Plan (Restoration)
7.		Protection to Hadapada-Saradhapur embankment near Saradhapur		In progress	30.91	Critical Lump - River embankment

6.3 Non-structural Measures:

Table – 6.2:

Sl. No.	Name of the Department/ Office	Activity/ Project	Starting Date	Date of Completion	Cost	Funding Source
1	2	3	4	5	6	7
1.	Khurda Irrigation Division	Restoration to Kathilagotha left embankment near Balipatapur		Completed	20.92	State Plan (Flood Control)-R.E.(Saline)
2.		Restoration to Kathilatotha left embankment near Kathilagotha Colony		Completed	18.97	State Plan (Restoration)
3.		Restoration to Mangalajodi Saline gherry near village Mangalajodi from RD 6.6. to 7.3km		Completed	23.49	State Plan (Restoration)
4.		Restoration to Sapua river right embankment at Back side of Gopalpur ME school.		Completed	15.23	State Plan (Restoration)

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Sl. No.	Name of the Department/ Office	Activity/ Project	Starting Date	Date of Completion	Cost	Funding Source
5.		Restoration to Sapua river right embankment from Bhagabati temple VRB to Ganesh Temple VRB under Banpur NAC.		Completed	16.92	State Plan (Restoration)
6.		Restoration to Salia river left and Right embankment near D/S of Tatia Sankha (Gobindapur Village) in Banapur NAC.		In progress	12.73	Critical Lump - River embankment
7.		Restoration to Sapua river left embankment near Kapileswar temple street.		In progress	12.91	Critical Lump - River embankment
8.		Restoration to Sapua left embankment near village Kotapur in Banpur NAC		Completed	9.37	Critical Lump - River embankment
9.		Improvement to Block-I saline gherry near Sundarpur from RD 1.1km to 2.7km		Completed	28.03	Critical Lump-Saline
10.		Improvement to Saline embankment from Kharibundha to Panthnibas near Barkul.		Completed	11.31	Critical Lump-Saline
11.		Improvement to road on Malaguni right bank from Rameswar to Atharamania		Completed	15.37	Road -LMB (20-3054)

6.4 Scope for integrating different schemes for Disaster Risk Reduction (DRR) Activities.

Table – 6.3:

Sl. No.	Schemes	Possible activities for DRR
1.	Mission Shakti: Empowering Women through SHGs	<ul style="list-style-type: none"> Capacity building of women on adaptation and risk reduction behaviors and preparedness at household level to face climatic extremes. Linking livelihood promotion with sustainable natural resource management.
2.	Gopabandhu Gramin Yojana	<ul style="list-style-type: none"> The roads must be assessed for future climatic extremes and should be location wise designed to be resilient. The same applies to the other two sectors. The integration can be done from design to implementation, monitoring and evaluation that the infrastructure is created maintained keeping in mind future possibilities and rising frequency and magnitude of extremes. A life cycle analysis based on (probable life of the infrastructure and expected future climatic extreme events) history of extremes and climatic projections can ensure resilient design, construction

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		and maintenance. For this capacity building of planners, contractors and engineers on themes such as, assessment of climate and disaster risks, resilient designs, monitoring and evaluation will be required
3.	Biju Pucca Ghar Yojana	<ul style="list-style-type: none"> • Disaster Resilient housing for the beneficiaries by the trained Engineers and Masons • Awareness among the beneficiaries to take up disaster resilient housing
4.	Prime Minister Awaas Yojana	<ul style="list-style-type: none"> • Disaster Resilient housing for the beneficiaries by the trained Engineers and Masons • Awareness among the beneficiaries to take up disaster resilient housing
5.	Pradhan Mantri Suraksha Bima Yojana (PMSBY)	<ul style="list-style-type: none"> • Insurance and Risk Transfer to be promoted among the beneficiaries to minimize the losses
6.	The Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)	<ul style="list-style-type: none"> • Insurance and Risk Transfer to be promoted among the beneficiaries to minimize the losses
7.	Sarva Shiksha Abhiyan	<ul style="list-style-type: none"> • Disaster resilient construction of new school buildings • Retrofitting in existing school buildings • Essential school safety, planning, preparedness & response at school level • Awareness among the PTA • Training of teachers and students on Search & Rescue and First Aid • Mock drill at the schools
8.	Member of Parliament Local Area Development Scheme (MPLADS)	<ul style="list-style-type: none"> • Construction of flood control embankments • Construction of common shelters for cyclones, Floods and handicapped • Purchase of motor boats for flood and cyclone prone areas • Fire tenders for Government organization • Retrofitting of essential lifeline buildings, viz Govt. hospitals, Govt. Schools and public buildings to be used as shelters in an emergency. • Early Warning Systems for effective disaster mitigation. • Construction of roads, approach roads, link roads, Pathways. • Drinking water facility
9.	MGNREGA	<ul style="list-style-type: none"> • Construction of embankments • Construction of roads in remote areas • Construction of multi-hazard shelters
10.	RKVY	<ul style="list-style-type: none"> • Preparation of agriculture plans for the districts and the States based on agro-climatic conditions, availability of technology and natural resources; • Development of structures for to mitigate various disaster related to agricultural, horticultural and veterinary

CHAPTER – VII **CLIMATE CHANGE ADAPTATION**

7.1 Climate Change Adaptation & Mitigation

Weather and climate are the results of complex interactions between anthropogenic and natural factors. Evidence of global climate change includes higher average temperatures, changes in precipitation, ocean warming, ocean acidification, sea level rise, decreasing sea ice, and changes in physical and biological systems. Observed climate change can be linked with the increase of greenhouse gas concentrations in the atmosphere since the industrial revolution. Global surface temperature change for the end of the 21st century is likely to reach 4°C if no drastic mitigation actions are taken. Various sources of climate data exist that can support planning for climate change.

Greenhouse gases (GHGs) are trace gases in the atmosphere that absorb and emit long wave radiation. They naturally blanket the earth and keep it at about 33° C warmer than it would be without these gases in the atmosphere. The table features the seven most important greenhouse gases as regulated under the Kyoto Protocol. The seven gases each have a different capacity to trap heat in the atmosphere, or a so-called "global warming potential" (GWP). They all belong to the group of long-lived greenhouse gases (LLGHGs), because they are chemically stable and persist in the atmosphere over time scales of a decade to centuries or longer, so that their emission has a long-term influence on climate. Some of the GHGs occur naturally (e.g. CO₂, CH₄ and N₂O) but increases in their atmospheric concentrations over the last 250 years are due largely to human activities. Other greenhouse gases are entirely the result of human activities (e.g. HFCs, PFCs, SF₆ and NF₃).

Table: 7.1

Greenhouse Gas	Global Warming Potential (GWP) (over 100 years)	% of Total Anthropogenic GHG Emissions (2010)
Carbon dioxide (CO ₂)	1	76%
Methane (CH ₄)	25	16%
Nitrous oxide (N ₂ O)	298	6%
Hydrofluorocarbons (HFCs)	124-14,800	< 2%
Perfluorocarbons (PFCs)	7,390-12,200	< 2%
Sulphur hexafluoride (SF ₆)	22,800	< 2%
Nitrogen trifluoride (NF ₃)	17,200	< 2%

7.2 Important Green house Gases : Carbon Dioxide (CO₂)

Most important greenhouse gas (contributes ~64% to total radiative forcing by long-lived GHGs). Half of CO₂ emitted by human activities is being absorbed in the biosphere and in the oceans. Rest remains in the atmosphere for hundreds to thousands of years

The most important anthropogenic GHG is carbon dioxide (CO₂). It accounts for around 64% of total radiative forcing due to LLGHGs. Carbon dioxide does not have a specific lifetime because it is continuously cycled between the atmosphere, oceans and land biosphere and its net removal from the atmosphere involves a range of processes

with different time scales. CO₂ is primarily emitted as a result of burning of fossil fuels, deforestation and forest degradation and iron and steel production. Oceans and forests are the main sequesters of carbon i.e. sinks that can absorb CO₂ from the atmosphere. Carbon dioxide is the gas to which all other gases are compared when speaking of Global Warming Potential. Emissions of other greenhouse gases can be converted into CO₂ equivalent emissions.

7.3 Important Green house Gases : Methane (CH₄)

Second most significant greenhouse gas (contributes ~18% to total radiative forcing by long-lived GHGs). Approximately 40% of methane is emitted into the atmosphere by natural sources. About 60% comes from human activities & Stays in the atmosphere for approximately 12 years.

The second most significant anthropogenic GHG is methane (CH₄) which contributes to approximately 18% of total radiative forcing due to LLGHGs. Approximately 40% of methane is emitted into the atmosphere by natural sources (e.g. wetlands and termites). About 60% comes from human activities (e.g. cattle breeding, rice agriculture, fossil fuel exploitation, landfills and biomass burning). Methane is mostly removed from the atmosphere by chemical reactions, persisting for about 12 years. Thus, although methane is an important greenhouse gas, its effect is relatively short-lived.

7.4 Important Green house Gases : Nitrous Oxide(N₂O)

The third most significant greenhouse gas (contributes ~6% to total radiative forcing by long-lived GHGs). Stays in the atmosphere for approximately 114 years. Nitrous oxide is emitted into the atmosphere from both natural (about 60%) and anthropogenic sources (approximately 40%).

Nitrous oxide is the third most significant GHG, contributing to about 6% of radiative forcing due to LLGHGs. The primary human sources of N₂O are fertilizer production and use in agriculture and various industrial processes. It is estimated that N₂O stays in the atmosphere for an estimated 114 years. Its impact on climate, over a 100-year period, is 298 times greater than equal emissions of carbon dioxide. It also plays an important role in the destruction of the stratospheric ozone layer which protects us from the harmful ultraviolet rays of the sun.

7.5 Important Greenhouse Gases : Fluorinated Gases

Global warming effect up to 23,000 times greater than carbon dioxide. Stay in the atmosphere up to 50,000 years. Three main groups: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Mainly developed as substitutes for ozone-depleting substances

Fluorinated gases are a family of man-made gases used in a range of industrial applications. Sources include refrigerants, air-conditioning, solvents, aluminium and magnesium production, etc. Many fluorinated gases have very high global warming potentials (GWPs) relative to other greenhouse gases. That means small atmospheric concentrations can have large effects on global temperatures. They can also have long atmospheric lifetimes, in some cases, lasting thousands of years. Fluorinated gases are

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removed from the atmosphere only when they are destroyed by sunlight in the far upper atmosphere. In general, fluorinated gases are the most potent and longest lasting type of greenhouse gases emitted by human activities. There are three main categories of fluorinated gases: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

- Hydrofluorocarbons (HFCs) are the most common group of *F-gases*. They are used in various sectors and applications, such as refrigerants in refrigeration, air-conditioning and heat pump equipment; as blowing agents for foams; as solvents; and in fire extinguishers and aerosol sprays.
- Perfluorocarbons (PFCs) are typically used in the electronics sector (for example for plasma cleaning of silicon wafers) as well as in the cosmetic and pharmaceutical industry. In the past PFCs were also used in fire extinguishers and can still be found in older fire protection systems.
- Sulphur hexafluoride (SF₆) is used mainly as an insulating gas, in high voltage switchgear and in the production of magnesium and aluminium.

7.6 Important Green House Gases : Chlorofluoro Carbons (CFCs)

Chlorofluorocarbons (CFCs) an important Green House Gas contribute about 12% to radiative forcing by long-lived GHGs has not been included in the Kyoto Protocol because they are already regulated under the Montreal Protocol on Substances that Deplete the Ozone Layer which entered into force in 1989. The Montreal Protocol includes, for example, chlorofluorocarbons (CFCs) which contribute about 12% to total radiative forcing by LLGHGs. CFCs can stay in the atmosphere for more than 1,000 years. CFCs have a global warming potential (GWP) that ranges between 4,750 and 14,400 (over 100 years' time span). CFCs are used in the manufacture of aerosol sprays, blowing agents for foams and packing materials, as solvents, and as refrigerants.

7.7 Green House Gas Sequestration

In order to prevent dangerous anthropogenic interference with the climate system, actions need to be taken to stabilize greenhouse gas concentrations in the atmosphere. Such actions are referred to as "climate change mitigation". More specifically, climate Change mitigation involves:

- Reducing GHG emissions, e.g. by making older equipment more energy efficient;
- preventing new GHG emissions to be released in the atmosphere, e.g. by avoiding the construction of new emission-intensive factories;
- preserving and enhancing sinks and reservoirs of GHGs, e.g. by protecting natural carbon sinks like forests and oceans, or creating new sinks ("carbon sequestration").

Major Greenhouse Gases Contributors (Anthropogenic) to Climate Change

Table: 7.2

Greenhouse Gas	Human Source (Examples)	% of Total Global GHG Emissions (2010)
Carbon dioxide (CO ₂)	Fossil fuel combustion, land use changes, cement production, etc	76%
Methane (CH ₄)	Fossil fuel mining/distribution, livestock, rice agriculture, landfills, etc	16%

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Nitrous oxide (N ₂ O)	Agriculture (fertilisers) and associated land use change, etc	6%
Hydrofluorocarbons (e.g. HFCs)	Liquid coolants, etc	< 2%
Perfluorocarbons (e.g. PFCs)	Refrigerant, electronics industry and aluminium industry, etc	< 2%
Sulphur hexafluoride (SF ₆)	Insulator in electronics and magnesium industry, etc	< 2%
Nitrogen trifluoride (NF ₃)	Electronics and photovoltaic industries, etc	< 2%

Source: Reproduced from IPCC 2007, UNEP 2012, and FERN

The global community has committed itself to hold warming below 2°C (compared to pre-industrial temperatures) to prevent dangerous climate change. The 2013 IPCC report on the physical science basis of climate change provides a “budget approach” to this goal, looking at total allowable CO₂ emissions level to meet the 2°C target. The report states that in order to have a greater than two in three chance of keeping *global warming* below 2°C, cumulative emissions of CO₂ cannot exceed 1,000 Gigatonnes of carbon (GtC). As of 2011, more than half this amount, or over 500 GtC, has already been emitted since 1861-1880. When the effects of other greenhouse gases are included, even less CO₂ could be emitted to keep below a 2°C warming.

Current annual emission levels are at 9.5 GtC and are likely to grow every year due to population growth and economic development patterns. If annual emissions continue to grow as in past years (“business as usual” scenario) the carbon budget will be exhausted in the next three decades.

Source: IPCC (2013). Climate Change 2013 – The Physical Science Basis, Summary for Policymakers

7.8 Details of forest as a major Carbon sink (District)

Table: 7.3

Reserved Forest / Protected Forest (in Sq. KM)	Revenue / Village Forest (in Sq. KM)	Private owned Forests (in Sq. KM)	Others (If any) (in Sq. KM)	Total (in Sq. KM)
16854 Ha	661.88 Ha	97.28 Ha	22693.99 Ha	

Sectors with High Mitigation Potential

Table : 7.4

SI No	Sectors	Mitigation Options
1	Energy	<ul style="list-style-type: none"> • Use of renewable heat and power (hydropower, solar, wind, geothermal and bio-energy) • Improved supply and distribution efficiency • Carbon capture storage (CCS) • Combined heat and power
2	Transport	<ul style="list-style-type: none"> • More fuel-efficient vehicles

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		<ul style="list-style-type: none"> • Use of alternative energy sources (biofuels, cleaner diesel, etc.) • Better land-use and transport planning • Shift from individual transport to public transport systems • More efficient driving practices • Non-motorized transport (cycling, walking)
3	Industry	<ul style="list-style-type: none"> • Process-specific technologies that improve efficiency and reduce emissions • Material recycling and substitution • Heat and power recovery/cogeneration • Control of greenhouse gas emissions
4	Agriculture	<ul style="list-style-type: none"> • Manure and livestock management to reduce CH₄ emissions • Improved fertilizer application techniques to reduce N₂O emissions • Improved crop and grazing land management to increase soil carbon storage • Restoration of cultivated peaty soils and degraded lands • Agro-forestry practices
5	Forestry	<ul style="list-style-type: none"> • Reduced deforestation • Afforestation/reforestation • Forest management • Tree species improvement to increase biomass productivity and carbon sequestration
6	Waste	<ul style="list-style-type: none"> • Landfill methane recovery • Waste incineration with energy recovery • Composting of organic waste • Controlled wastewater treatment • Recycling and waste minimization • Bio covers and biofilters to optimize CH₄ oxidation

7.9 Climate Change:

Climate Change Scenario of Odisha :

Rainfall patterns in Odisha have been more erratic since the 1960s, with below-normal rainfall across all districts being recorded for most years. The "normal" 120 days of monsoon rain has shrunk to 60–70 days, and unusual spikes in rainfall, with torrential rainfall of over 200–250 millimetres/day, are more frequent during the monsoon, frequently resulting in floods. This situation has had a strong influence on agriculture, especially during rabi season, because of the reduced residual moisture.

By 2100, the mean annual temperature globally is projected to increase by one to five degrees Celsius (24.5°C in 1970 to 28.5°C in 2080), depending on the A2 scenario in IPCC AR5 and location. Coastal Odisha will remain relatively less warm than the rest of the state, even though it clearly breaches the 2°C barrier. Northwestern, western, and south-western Odisha show the highest rise in temperature. This temperature rise is certainly at an unsustainable level, assuming the current challenges of global warming are not mitigated. This factor will have an increasingly larger impact on terrestrial and marine ecosystems.

According to the Coastal vulnerability index (CVI) studied by the Indian National Centre for Ocean Information Services (INCOIS), vulnerability, loss and damage from sea level rise, coastal geomorphology, tidal range, and elevation in the area of Odisha coastline varied from "low" in about 76 kilometres of the coastal stretch of Odisha state, covering parts of Ganjam, Chilka, southern Puri, and Kendrapara, and to "medium" in about 297 kilometres, covering northern Ganjam, Chilka, central Puri, Jagatsinghpur, Kendrapara, southern Bhadrak, and

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northern Balasore, and to “high” in about 107 kilometres, covering northern Puri, parts of Jagatsinghpur, Kendrapara, northern and southern Bhadrak, and southern Balasore.

A GHG inventory mapping exercise was undertaken by the state during preparation of the SAPCC in 2011 and to review the changes in state’s carbon footprint, a second study was conducted in 2014 with support of the Confederation of Indian Industries (CII). This emissions inventory was carried out using IPCC guidelines and it is aligned with the “India Greenhouse Gas Emissions Report 2007.”

Comparison of GHG Emissions in Last Five Years, Odisha :

Sector	Co2 – Equivalent (Megatonnes)		
	As per SAPCC I (2010-2015)	As per SAPCC II (2015 – 2020)	Change
Industry, Transport, Energy sector	82.68	109.77	6.0%
Agriculture	-	25.07	
Waste	0.56	0.66	42.4%
Forest	-4.56	-36.9	1.8%
Total	78.68	98.52	11.4%
Per capita Emission	1.88	2.35	11.4

[Source : Odisha Climate Change Action Plan 2015-2020]

Land Use Land Use Change & Forestry (LULUCF) estimation of carbon stock changes, CO2 emissions and removals and non-CO2 GHG were estimated to be just below 5 million tons of CO2. Total sequestered from crop land was estimated to be 7.6 million tons of CO2 & that from Forest land was 0.8 million tons of CO2. Sequestration from wetlands was relatively smaller. Emissions from fuel wood usage were 2.8 million tons of CO2 & grass land emissions were 0.7 Million Tons of CO2.

GHG Emission Summary in LULUCF:

Emission Source	Co2 Eq. / Removals [-Removals & + sequestration] tons
Forest Land	-872954
Crop Land	-7621879
Grass Land	686853
Wetland	-3006
Fuel wood cutting	2833534
Total	-4977452

Emission from ***Industry Sector***, which included emissions generated from cement production, chemical industries, iron & steel industries, aluminium industries, ferro-alloy industries, pulp & paper industries & other industry related energy consumption, amounted to 32 million tons of CO2. These emissions account for 24% of the total emissions generated in the state of Odisha.

GHG Emission Summary in Industrial sector:

Emission Source	Co2 Eq. (MT)
Cement Industry	3024600
Chemical Industry	15156
Iron & Steel Industry	19857741
Aluminium Industry (Smelter & Refinery)	6312838
Fero Alloys Industry	2052667

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Pulp & Paper	1415165
Other	70960
Total	32749128

The Overall approach for emission reduction strategy of Odisha should be to pursue an aggressive emission reduction target. In line with the National commitment of reducing emission intensity by 20-25% of 2005 levels by 2020, this study explored all possible options to help the state of Odisha achieve similar emission intensity reduction. Based on the mitigation options identified, an emission intensity reduction of 20-25% by 2020 for the state of Odisha looks feasible.

Key Recommendations:

1. Adopting voluntary renewable power obligation (RPO) targets.
2. Creation of "**Green Fund**" and supporting the States's Climate Mitigation Efforts.
3. Land Use, Land Use Change and Forestry (LULUCF) can significantly act as a carbon sink in the states effort.
4. Investment in renewable energy should be aggressively pursued.
5. Establishing a "**Power Plant Refurbishment Fund**" to create a fund source for the Odisha electricity board to gradually refurbish & modernize its power station.
6. Charging Fuel cess of Rs.0.50/litre on both petrol & disel, with the funds generated from it utilized for funding bio fuel research & supporting technology absorption.
7. Considering a "**Green Tax**" on new vehicles at 1% of the vehicle cost. This green cost can be channeled to develop public transport system and inter-city transportation across the state.
8. Consider **Clean Energy Cess** (@100 per ton of coal) to non fossil fuel-based energy such as energy plantations, bio mass, waste to energy etc.
9. Co-processing of industrial, municipal & other combustible wastes in cement kilns could be another viable needs of meeting partially cement industries energy requirement.
10. Cleaner production and industry symbiosis can improve the productive use of energy, materials and water, reduce the generation of waste and emissions (including GHGs) and strengthen the sound management of chemicals for small and medium enterprises (SMEs).
11. Promoting adoption of green buildings in residential & commercial space.
12. Demand side management in agricultural pumpsets, water & crop management and Systematic Rice Intensification (SRI) technique to be explored as potential emission reduction opportunities in agricultural sector.

Further information:

The 2°C target is not universally agreed. Small Island Developing States (SIDS) and Least Developed Countries (LDCs) have identified global warming of 1.5°C as warming above which there would be serious threats to their own development and, in some cases, survival.

Details of forest as a major Carbon sink (District)

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Sectors with High Mitigation Potential:

Sl No	Sectors	Mitigation Options
1	Energy	<ul style="list-style-type: none"> • Use of renewable heat and power (hydropower, solar, wind, geothermal and bioenergy) • Improved supply and distribution efficiency • Carbon capture storage (CCS) • Combined heat and power
	Transport	<ul style="list-style-type: none"> • More fuel-efficient vehicles • Use of alternative energy sources (biofuels, cleaner diesel, etc.) • Better land-use and transport planning • Shift from individual transport to public transport systems • More efficient driving practices • Non-motorized transport (cycling, walking)
	Industry	<ul style="list-style-type: none"> • Process-specific technologies that improve efficiency and reduce emissions • Material recycling and substitution • Heat and power recovery/cogeneration • Control of greenhouse gas emissions
	Agriculture	<ul style="list-style-type: none"> • Manure and livestock management to reduce CH₄ emissions • Improved fertilizer application techniques to reduce N₂O emissions • Improved crop and grazing land management to increase soil carbon storage • Restoration of cultivated peaty soils and degraded lands • Agro-forestry practices
	Forestry	<ul style="list-style-type: none"> • Reduced deforestation • Afforestation/reforestation • Forest management • Tree species improvement to increase biomass productivity and carbon sequestration
	Waste	<ul style="list-style-type: none"> • Landfill methane recovery • Waste incineration with energy recovery • Composting of organic waste • Controlled wastewater treatment • Recycling and waste minimization • Biocovers and biofilters to optimize CH₄ oxidation

CHAPTER – VIII

INCLUSIVE DISASTER RISK REDUCTION

8.1 Background: A need to include Persons with Disabilities

Different populations may face similar risks of exposure to the negative effects of environmental and man-made disasters, but their actual vulnerability is dependent on their socio-economic conditions, civic and social empowerment, and access to mitigation and relief resources. Individuals with disabilities are disproportionately affected in disaster, emergency, and conflict situations due to inaccessible evacuation, response (including shelters, camps, and food distribution), and recovery efforts.

Besides psychological impact of disasters, this population does not have adequate access to food, water, shelter and health services. There has been inadequate access to their specific needs including assistive devices, rehabilitation and interpreters. Disabled populations face discrimination and exclusion and therefore are confronted with considerable challenges in accessing the same opportunities as the rest of the population in disaster situations.

Common experience reveals that persons with disabilities are more likely to be left behind or abandoned during evacuation in disasters and conflicts due to a lack of preparation and planning, as well as inaccessible facilities and services and transportation systems. Most shelters and refugee camps are not accessible and people with disabilities are many times even turned away from shelters and refugees camps due to a perception that they need “complex medical” services.

Furthermore, the needs of persons with disabilities continue to be excluded over the more long-term recovery and reconstruction efforts, thus missing another opportunity to ensure that cities are accessible and inclusively resilient to future disasters. Thus, it is important that the Indian Disaster management system includes the needs of persons with disability faced in disaster risk management.

8.2 Legal framework to support the inclusion of persons with disabilities

The United Nations Convention on the Rights of Persons with Disabilities was adopted in December 2006. The Convention marks a “paradigm shift” in attitudes and approaches to persons with disabilities. Article 11 on Situations of risk and humanitarian emergencies, pays particular attention to the obligation of States parties to undertake “all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters.” Furthermore, Article 4.1, states that “States Parties undertake to ensure and promote the full realization of all human rights and fundamental freedoms for all persons with disabilities without discrimination of any kind on the basis of disability” and Article 32, recognizes the importance of international cooperation to address the limited capacities of some States to respond to situations of risk and humanitarian crises.

The Millennium Development Goals have the potential to make life better for billions of people in the world’s poorest countries. However, disability is currently not included in indicators and targets to help evaluate and monitor the achievement of the MDGs.

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Furthermore, persons with disabilities are often excluded from international and national poverty reduction strategies. Environmental dangers and natural disasters can lead to the onset of many types of disabilities, and inaccessible environments prevent persons with disabilities from taking part in economic and social activities. Human and environmental recovery is vital for the achievement of MDG Goal 7, "Ensure Environmental Sustainability". The MDGs cannot be achieved without the inclusion of all persons in society, including persons with disabilities.

The Rights of persons with Disabilities act (RPWDA) 2016 of India and UNCPRD form the overarching legal framework which identify and protect disability rights in India. The RPWDA mandates the participation of persons with disabilities in the disaster risk management process. In the Act DRM is articulated in the article 8 which stipulates that person with disabilities shall have equal protection and safety in situations of risk, armed conflict, humanitarian emergencies and natural disasters. The Act refers to the Disaster Management Act 2005 Clause (e) Section 2 for the safety and prevention of persons with disabilities

The District Disaster Management Authorities (DDMA) under Section 25 are specially mentioned to maintain the record of details of persons with disabilities in the district and inform such persons of any such situations of risk so as to enhance disaster preparedness. The authorities are to consult the state Commissioners in accordance with the accessibility requirements of Persons with Disabilities. The rights of Persons with Disabilities Act 2017 elaborate an implementable strategy specifically in accessibility of infrastructure, transport & communication technology which are important aspects in the context of disaster risk reduction

The Government of India approach to disaster management is that development cannot be sustainable unless disaster mitigation is built in to the development process. Built on this approach, the National Disaster Framework covering institutional mechanisms at the national, state & district exist where the disability related structures are also available which could be used to implement inclusive policies

8.3 Responding to the needs of persons with disabilities

Several studies show us that including the needs and voices of persons with disabilities at all stages of the disaster management process, and especially during planning and preparedness, can significantly reduce their vulnerability and increase the effectiveness of Government response and recovery efforts. However, despite an increasing worldwide focus on disaster risk reduction as opposed to mere disaster response, most city and related Government agencies fail to adequately plan for – or include – persons with disabilities in their disaster management activities. This causes severe inequities in access to immediate response, as well as long-term recovery resources for people who have disabilities prior to the disaster and those who acquire a disability as a result of the disaster.

Rehabilitation and reconstruction efforts must not only be inclusive and responsive to the needs of all people, including persons with disabilities, but should include the participation of persons with disabilities, to ensure that their needs and rights are respected. Women with disabilities are a particularly vulnerable group whose needs should be included at all stages of recovery and reconstruction efforts.

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Actors involved in Disability inclusive Disaster Risk Reduction (DiDRR) include Government at the different levels, national to local including cities and communities at local level, the UN System, Academic Institutions, Disabled People's Organizations Private actors, Armed Forces, Civil Society, Media, local community's Local emergency response organisations.

8.4 Data Collection

Data is essential to understanding the risks that people face during disasters and climate change situations. It is important to give effect to policies and establish norms. The Census in 2011 identifies 2.68 Crore persons with disabilities constituting 2.21% of the country's population.

8.5 Policy, Institutional Mechanisms and Inclusive Standards

Policies and their implementation need to be inclusive. Odisha State Disaster Management Plans has already laid the foundation of an inclusive strategy. OSDMA has set up a cell for persons with disabilities headed by a person with disability. The cell will look into inclusion in EWS, SER, rehabilitation and resettlement. Impart training for response forces ODRAF, Red Cross, Civil Defense and community level task force volunteers. Monitoring accessibility in shelters will also be work of the cell.

The Odisha State Disaster Management Plan 2017 takes note of the vulnerability of disabled persons and the specific provision provided is related to inclusive education of children with disabilities during disasters. It also makes special mention of children with disabilities and specifically 'mentally retarded' (Intellectual Disability).

Table-8.1-Information on PWD

Sl. No.	Block / ULB	No. of HHs headed by Women	No. of HHs headed by PWD	No. of Persons With Disability	
				M	F
1.	BBSR (R)	3900	487	1037	912
2.	Begunia	3782	740	1222	850
3.	Baliatna	3764	483	880	642
4.	Balipatna	3318	543	995	659
5.	Bolgarh	3490	770	1467	1138
6.	Jatni	5362	477	1136	651
7.	Tangi	6681	614	695	568
8.	Banapur	4609	377	967	578
9.	Khordha	6186	710	1310	743
10.	Chilika	3038	581	1248	702
11.	BMC I	3448	240	482	317
12.	BMC II	4486	261	330	214
13.	BMC III	3885	263	495	303
	Total	55949	6546	12264	8277

Table-8.2-Information on vulnerable women and children

Sl. No.	Block/ ULB	No. of HHs headed by Women	No. of Widow	No. of Orphans	
				M	F
1.	BBSR (R)	3900	5059	112	100
2.	Begunia	3782	5459	76	74
3.	Baliatna	3764	4484	122	128
4.	Balipatna	3318	4594	34	37
5.	Bolgarh	3490	5327	15	19
6.	Jatni	5362	5738	177	146
7.	Tangi	6681	6292	21	11
8.	Banapur	4609	5897	361	298
9.	Khordha	6186	7520	231	207

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10.	Chilika	3038	4097	29	33
11.	BMC I	3448	3552	91	92
12.	BMC II	4486	2054	58	51
13.	BMC III	3885	3627	399	503
	Total	55949	63700	1726	1699

Table-8.3-Information on people needing special care (Aged and Pregnant Women)

Sl. No.	Block/ ULB	No. of Aged Persons (60 and above)		No. of Pregnant and lactating mothers
		M	F	
1.	BBSR (R)	6582	7155	1816
2.	Begunia	9232	8810	1746
3.	Baliatna	8561	8325	1468
4.	Balipatna	8169	7575	1382
5.	Bolgarh	15	19	1746
6.	Jatni	8796	8087	1884
7.	Tangi	10204	10450	2234
8.	Banapur	9749	9329	2331
9.	Khordha	12555	11883	2443
10.	Chilika	7190	7048	1831
11.	BMC I	4494	4311	2500
12.	BMC II	2488	2398	1852
13.	BMC III	4203	3933	2544
	Total	92238	89323	25777

After compiling the database of the people who need special attention in the wake of a disaster and to make the district disaster management plan more inclusive, the following may be considered during District Disaster Management Plan preparation.

- **Pre-Disaster:** Identification of special needs of physically challenged and mentally challenged persons. Make necessary Planning for evacuation of people with special needs with special care and compassion. The DDMP should outline adequate training and orientation of field level functionaries who are normally engaged as frontline worriers of disaster management at grass roots. Special responsibility may be entrusted with the appropriate officials at block level to ensure the execution of the plan. The district must ensure that the committees and groups created in the district for the disaster management pursuits has adequate representation from the vulnerable section of the society as outlined above.
- **During Disaster:** Appropriate Relocation of the people in the shelter with special care, priority in meeting the needs of such population, organizing medical attention if needed.
- **Post disaster:** Ensuring careful & safe return of such people to home, prioritisation during relief distribution, prioritisation of rehabilitation & reconstruction efforts

CHAPTER – IX

SAFETY OF SCHOOLS & CHILD CARE INSTITUTIONS

Implementation of School Safety Policy Guidelines 2016 *(SSP-2016 Guidelines)*

9.1 Order on WP(C) 483/2004 of Hon'ble Supreme Court

The Hon'ble Supreme Court vide orders of dated 14.08.2017 in WP (C) 483/2004, directs vide letter no 2437/2004/SC/PIL/(WRIT) dt. 23.08.2017 that the School Safety Policy (SSP) 2016 guidelines issued by NDMA are statutory in nature and shall be implemented in letter and spirit by all concerned authorities for all schools. The direction of the Supreme Court in Implementation of the School Safety Policy Guidelines Inter-alia postulates as follow:

- Time bound implementation of the Guidelines
- District Disaster Management Authority to ensure and monitor compliance of the said Guidelines
- District Education Officer of each District to be a "Nodal officer" with responsibility, liability and obligation as well as powers and functions to ensure strict compliance with the Guidelines within the district of his jurisdiction.
- Joint Monitoring Committee consisting of representations of both Department of School Education & Literacy, Ministry of HRD and NDMA
- Quarterly compliance reports from the Chief Secretary to MHRD and NDMA on the actions taken.

Hon'ble Supreme Court has also defined few actions at different levels to ensure school safety

<u>State & District Level</u>	<u>School Level</u>
<ul style="list-style-type: none">• Policy for safety audits in all schools• 'Stability certificate' by Government-certified engineer.• Manual for fire safety procedures and other safety precautions• The National Building Code of India, 2005, to construct fire-safe buildings. (Revised 2016)	<ul style="list-style-type: none">• Schools must take appropriate safety measures and an emergency response plan that delineates staff responsibilities, communication modes, and training and updating procedures for all members of the faculty, staff and students.• Fire insurance coverage should be made mandatory for all schools.• Ensuring that the kitchen in the precincts of the school has adequate safety mechanisms.

9.2 Guidelines on School Safety Policy, 2016- NDMA

The School Safety encompasses "the creation of safe environments for children starting from their homes to their schools and back." This as well includes safety from large-scale natural hazards, human made risks, pandemics, violence as well as more frequent and smaller-scale fires, transportation and other related emergencies and environmental threats that can adversely affect the lives of children.

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Ref.: *Fire Safety Measures in Schools (Section 3.1 p-23) / Training of School Teachers & Other Staff (Section 3.1 p-25) / School Building Specifications (Section 3.1 p-27) Clearance & Certificates (Section 3.1 p-29) SC. Judgement on WP(C) 483/2004*

Vision:

- The Guidelines stand for a vision of India where all children and their teachers, and other stakeholders in the school community are safe from any kind of preventable risks that may threaten their wellbeing during the pursuit of education.
- Educational continuity is maintained/ resumed even in the immediate aftermath of a disaster so that Children are physically, mentally and emotionally secure within their schools.

Approach and Objectives

- All hazard approaches.
- All schools; all stakeholders 2. Strengthening existing policy provisions to make schools safer
- School Safety as an indicator of quality for continued planning, execution and monitoring
- Primary objective is to ensure the creation of safe learning environment for children.
- Also seek to highlight specific actions towards school safety that can be undertaken by different stakeholders within the existing framework of delivery of education.

Applicability

- The National School Safety Policy Guidelines apply to all schools in the country- whether government, aided or private, irrespective of their location in rural or urban areas.
- They apply to all stakeholders involved in delivery of education to Children in India

All hazard approaches

- School Safety efforts needs to take cognizance of all kinds of hazards that may affect the wellbeing of children.
- Hazards include structural and non-structural factors.
- Structural factors include dilapidated buildings, poorly designed structures, faulty construction, poorly maintained infrastructure, loose building elements, etc.
- Non-Structural factors include loosely placed heavy objects such as almirahs, infestation of the campus by snakes and any other pests, broken or no boundary walls, uneven flooring, blocked evacuation routes, poorly designed and placed furniture that may cause accidents and injury, inadequate sanitation facilities, etc.

Right to Education Act 2009

- The Act sets minimum norms and standards with regard to location and quality of schools and in Clause 19, lays down that no school shall be established, or recognized unless it fulfills the norms and standards specified in the schedule.
- One of the key standards is in relation to access to "all weather buildings"; in "areas with difficult terrain, risk of landslides, floods, lack of roads and in general, danger for young children in the approach..."
- the State Government / Local Authority shall locate the school in such a manner as to avoid such dangers".
- The Act lays down the formation of the School Management Committee for planning of infrastructure and other requirements with respect to operational functioning of schools.
- The School Development Plan, as laid out by the Act, spells out the physical requirements of additional infrastructure and equipment to meet the norms spelt out in the schedule (in relation to all weather buildings).

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Key Action Areas

1. **Institutional strengthening at the State & District levels**
 - Co-opting senior officials of the Department of Education in SDMA and DDMA.
 - Nomination of School Safety Focal Point Teacher & Sensitization of School Management Committee on DM.
2. **Planning for Safety**
 - Structural Measures (including siting, design and detailing for structural safety).
 - Nonstructural Measures.
 - Preparation & implementation of School Disaster Management Plan.
 - Leveraging existing flagship programmes to make school campus safer.
3. **Capacity building for safe schools**
 - Training for students and school staff
 - Specialized training and skill building of Education officers, representatives of SCERT and DIET, SDMA, DDMA, etc on school safety
 - Mock Drills
4. Disaster Management in Core Curriculum
5. Regular monitoring of risk and revision of School Safety Plans (including Safety Audits & Availability of Emergency Equipment).

9.3 Category & type of schools

Table-9.1

Name of the Block	Government Schools				Government Aided schools	Private Schools
	Elementary		Secondary		Elementary/ Secondary	
	Rural	Urban	Rural	Urban		
Balianta	79	–	11	–	10	29
Balipatna	92	–	10	–	14	27
Banapur	103		11	–	13	16
Begunia	97		19	–	19	22
Bhubaneswar	87		15	–	7	61
Bhubaneswar mc	–	81	–	46	23	391
Bolgarh	82		19	–	21	19
Chilika	79		9	–	8	20
Jatni	78		16	–	8	26
Khordha	93		21	–	17	23
Tangi	106		17	–	10	24
Grand Total	896	81	148	46	150	658

9.4 School Safety Advisory Committee (District)

1. Date of Formation: 27.04.2018
2. Institutional Architecture

Table-9.2

SI No	Name & Designation	Contact No.	Email ID
1.	Sj. Sanat Kumar Mohanty, OAS (SAG), Collector & District Magistrate, Khordha	9438320007	dm-khordha@nic.in
2.	Superintendent of Police, Khordha	7008042675	spkda.orpol@nic.in
3.	Sj. Sanatan Mohapatra, District Fire Officer, Khordha	7008513096	khurdafirestation101@gmail.com

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4.	Sj. Manoj Kumar Nayak, District Welfare Officer, Khordha	9937374524	dwokhordha@gmail.com
5.	Smt. Arati Rath, District Social Welfare Officer, Khordha	9437370216	dswokhurda@nic.in
6.	Sj Bijayananda Sahoo, Executive Engineer, RWS&S / PWD, Khordha	9438420171	eerwss_bbsr@nic.in
7.	Smt Sanghamitra Behera, District Emergency Officer, Khordha	9437652225	khordhaemergency@gmail.com
8.	Dist. Panchayat Officer, Khordha		dpokhordha@gmail.com
9.	Principal, DIET, Khordha		
10.	Smt. Sandhyarani Rout, Block Education Officer, Khordha	9439255588	
11.	Secretary Biswa Seva Sangha (NGO)		
12.	Secretary, Bhairabi Club (NGO)		
13.	Smt Bandana Mohapatra, District Education Officer, Khordha	7809448888	deokhordha19@gmail.com

9.5 Details of School Safety in the district

Table-9.3

SI No	Activity	Total School	Achieved										
			BBSR	Balianta	Balipatna	BMC	Banapur	Begunia	Bolgarh	Chilika	Jatani	Khordha	Tangi
1	Schools having School Safety Advisory Committee (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
2	Schools having School Disaster management Plan (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
3	Schools having conducted Safety Audits (Structural) (Number)	977	87	71	87	101	95	93	88	69	82	103	101
B.	Safety Audits (Non-Structural) (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
4	Schools having conducted Annual Mock Drills (Number)	679	82	48	51	101	59	64	53	46	56	57	62
5	Schools Having Fire Extinguisher (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
6	Schools Adhering to safety norms in storing inflammable & Toxic Material (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
7	Schools confirming safety standards as per local building by-laws (Latest) (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
8	Schools having issued Recognition certificate under sub-Rule (4)-Rule 15 of RTE rules 2010 (only to schools that comply with Structural safety norms) (Number)	658											
9	Schools where students & teachers undergo regular training on School Safety & Disaster Preparedness (Number)	1171	102	90	102	127	113	117	101	88	94	114	123
10	Schools where disaster management is being taught as part of the curriculum (Number)	1171	102	90	102	127	113	117	101	88	94	114	123

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9.6 Disaster management Education (School Safety and School Disaster Preparedness):

[Disaster management education should include organizing awareness generation programmes in schools and colleges and conducting basic mock drills for fire and other disasters. For the purpose, in the first phase district level high schools and colleges (both govt. and private) may be taken into consideration.]

Table-9.4

Sl. No.	Name of the Programme	No. of Schools, Colleges and Other Educational institutions to be covered during the year	Time Line	Remarks
1.	Awareness generation and mock drills for fire/ earth quake etc.	20	By Feb 2022	
2.	Preparation of School disaster management plan	20		It is being prepared by the concerned schools

9.7 Details of Child Care Institutions

Table-8.5

SI No	Block/ ULB	Name and Address of the Organization	Boys	Girls	Total No of Children	Name and Contact no. of the Shift-in-Charge	Fire Safety Equipment (Fire Extinguisher , Alarm)	Staff Training on Fire Safety Equipment	Nearby open space for evacuation
1.	BBSR	Ruchika Social Service Organisation (Open Shelter), Plot-3731, Samantarapur, BBSR	10	0	10	Swagatika, Coordinator Priyadarshini, Social Worker 7978532093 9238589594	Yes	1	Open Space Available close to institution
2.	Janti	Bhairabi Club (Open Shelter), Jatni	4	0	4	Sri. Baikunthanatha Martha, Secretary Ranjit, Social worker 9437177490 9338961912	Yes	1	Open Space Available close to institution
3.	BBSR	Viswa Jeevan Seva Sangh, Plot No K/6, HIG 68, Kalinga vihar, Tamando, BBSR (Open Shelter)	0	22	22	Kodanda Pani Baral, Secretary Brundabati, Social Worker 9437286593 9040220823	Yes	1	Open Space Available close to institution
4.	BBSR	SOS Childrens Village and Youth House Khandagiri, Bhubaneswar, S-1/125,126,127, 128.Sector-1, Niladri Vihar, CS Pur, Bhubaneswar AND Kailnga Nagar, Ghatikia, Bhubaneswar	87	4	161	Sri Ajaya Kumar Dash, Director Siba Sankar Patro, Co-worker 9937287160 9040055205	Yes	1	Open Space Available close to institution
5.	BBSR	Palli Unayan Seba Samiti, Naharkanta, Bhubaneswar	0	37	37	Smt. Swati S. Patra, Secretary 8917242036, 8828296729	Yes	1	Open Space Available close to institution
6.	BBSR	Subhadra Mohatab Seva Sadan, Kolathia, Khandagiri, BBSR	0	18	18	Sri. Niranjan Mohanty, Secretary 9437885150	Yes	1	Open Space Available close to institution
7.	BBSR	ADRUT CHILDREN HOME For GIRLS,	0	64	64	Supriti Mohanty, Secretary	Yes	1	Open Space Available close

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		(RAWA) Mendhasala, Khordha				9438553647			to institution
8.	BBSR	ADRUT CHILDREN HOME For Boys, (RAWA) Gadakana, BBSR	27	0	27	Manas, Home incharge 7978690796	Yes	1	Open Space Available close to institution
9.	Banapur	Nehru Seva Sangha, Banpur, Khordha	9	22	31	Smt. Sarojini Dash, Secretary Birendra, Home incharge 9437010672 9937381894	Yes	1	Open Space Available close to institution
10.	BBSR	Open learning System, Gadakana, BBSR	22	20	42	Prakash Ku. Ratha, CEO Smt. Sujata Pattnaik, Home in Charge, Subrat, case worker 0674-2301626 9853304178 9937346635 7008250643	Yes	1	Open Space Available close to institution
11.	BBSR	Aama Ghara (Peoples Forum), Patrapada, Khordha	0	0	29	Govinda Chandra Pattanaik, Secretary Arpita, Superintendent 8280336260 9078085463	Yes	1	Open Space Available close to institution
12.	BBSR	Prativa Ashram, Jadupur, Dumduma, BBSR	27	0	27	Md. Zahir, Secretary Sarita, Home in charge 9937305526 9338448456 9438378044	Yes	1	Open Space Available close to institution
13.	BBSR	SRI SRI Maa Anand Ashram Chandrasekharapur, Damana, BBSR	26	0	26	Priyabrata Samal, Secretary 9438489530, 9777255408	Yes	1	Open Space Available close to institution
14.	BBSR	Divya Jyoti Childrens home, Patrapada, Bhubaneswar	0	31	31	Likun, 9668789808	Yes	1	Open Space Available close to institution
15.	BBSR	ASHRAYA, Handicapped Welfare Organisation, Dumduma, BBSR	28	0	28	Binayak Pallei, Secretary 0674-2470062 9439490154 8895725394	Yes	1	Open Space Available close to institution
16.	BBSR	Jivan Jyoti Seva Ashram For Boys & Girls, Khandagiri, BBSR	21	30	51	Sri. Prafulla Senapati 9438005718 8658640230	Yes	1	Open Space Available close to institution
17.	BBSR	Subhadra Mohatab Seva Sadan, Kolathia, Khandagiri, BBSR (Specialised adoption Agency)	3	7	10	Sri. Niranjana Mohanty, Secretary 9437885150	Yes	1	Open Space Available close to institution
18.	BBSR	Aama Ghara (Peoples Forum), Patrapada, Khordha (Specialised adoption Agency)	14	14	28	Govinda Chandra Pattanaik, Secretary Shreya Sarkar, Program Manager 8280336260 8093011022	Yes	1	Open Space Available close to institution

CHAPTER – X **CHEMICAL (INDUSTRIAL), NUCLEAR &** **RADIOLOGICAL DISASTER**

A. Chemical (Industrial) Disaster:

The growth of chemical industries has led to an increase in the risk of occurrence of incidents associated with hazardous chemicals (HAZCHEM). A chemical industry that incorporates the best principles of safety, can largely prevent such incidents. Common causes for chemical accidents are deficiencies in safety management systems and human errors, or they may occur as a consequence of natural calamities or sabotage activities. Chemical accidents result in fire, explosion and/or toxic release. The nature of chemical agents and their concentration during exposure ultimately decides the toxicity and damaging effects on living organisms in the form of symptoms and signs like irreversible pain, suffering, and death. Meteorological conditions such as wind speed, wind direction, height of inversion layer, stability class, etc., also play an important role by affecting the dispersion pattern of toxic gas clouds. The Bhopal Gas tragedy of 1984—the worst chemical disaster in history, where over 2000 people died due to the accidental release of the toxic gas Methyl Isocyanate, is still fresh in our memories. Such accidents are significant in terms of injuries, pain, suffering, loss of lives, damage to property and environment. A small accident occurring at the local level may be a prior warning signal for an impending disaster. Chemical disasters, though low in frequency, have the potential to cause significant immediate or long-term damage.

A critical analysis of the lessons learnt from major chemical accidents exhibited various deficiencies. Laxity towards safety measures, no conformation to techno-legal regimes and a low level of public consultation are a few such shortcomings. The scenario called for concerted and sustained efforts for effective risk reduction strategies and capacity development under a national authority to decrease the occurrence of such incidents and lessen their impact. Although tremendous efforts have been made to minimise such accidents and to improve emergency preparedness at all levels, substantial efforts are still required to predict the occurrence of disasters, assess the damage potential, issue warnings, and to take other precautionary measures to mitigate their effects. Another pressing need is to properly assess the potential of chemical emergencies and develop tools for emergency planning and response to minimise the damage in case of any eventuality.

Odisha is also an Industrial State and many Large, Medium and Small-Scale Industries are operating in the state. Many large industries are operating in the districts like Jagatsinghpur, Angul, Jhasrsuguda, Sambalpur and Rayagada and many medium and small industries are operating in other districts of the State. The District administration of the industrial district must be prepared to face any kind of Chemical (Industrial) disasters and always be prepared with the Off-site Emergency Plan of the District. The Off-site emergency plan needs to be updated on regular frequency.

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Thus, it is highly essential to take all the preparedness measures and minimize the risk of any Chemical (Industrial) disasters in the industrial districts of the State. The following information are required to be fulfilled and be updated every year in the District Disaster Management Plan of the District.

Khordha District has the following:

No of registered factories	- 792
No of MAH (Major Accident Hazard) factories	- 06
No. of 2 (cb - Hazardous Process) factories	- 79

Note - Hazardous process includes Prawn Processing Units, Ice Plants, Cold Storages, Beverages, Breweries, Solvent Extraction Units, Aviation Fuel Stations, Bleaching Powder & PVC Pipe manufacturing units which store / handle various hazardous substances in the manufacturing process.

Hazardous Chemicals Stored / Used in MAH units:

SI No	Name of MAH Factory	Hazardous Chemicals	Quantity
01	LPG Bottling Plant of M/s. BPCL	LPG HSD	900 T 5.8 T
02	LPG Bottling Plant of M/s. HPCL	LPG	1740 T
03	Bulk Petroleum Depot of M/s. IOCL	Aviation Gas MS SKO HSD ATF	48 KL 20806 KL 6578 KL 19797 KL 2845 KL
04	Anmol Industries Limited	Propane	140T
05	Nilachal Petroproducts Pvt. Ltd	LPG	56T
06	Lingaraj Biscuits Pvt. Ltd.	Propane PALM OIL	40T 60 KL

Hazardous Chemicals stored / used in 2(cb) Factories: Total 79 nos. Hazardous Factories in Khurda District as per the Notification of the Director of Factories & Boilers, Odisha vide no. IV(IH) (6) 9/13 No. 3748, Dated: 26.06.2020. Total Hazardous Chemicals Stored / used in those factories:

SI No	Hazardous Chemicals	Quantity
1	Ammonia	40 T
2	Chlorine	11 T
3	Spirit	740 KL
4	Pesticides	100 T
5	Others Chemicals	52 T

Besides the above storage, hazardous chemicals like petroleum products, chlorine, ammonia etc. are being transported through the road & rail network of the district which is subject to high risk of vulnerability.

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Chemical Disasters or related accidents occurred in the Dist:

SL. NO.	DATE OF ACCIDENT	NAME OF THE FACTORY	TYPE OF ACCIDENT	DETAILS OF LOSSES
1.	25.06.2010	M/S. HINDUSTAN COCACOLA BEVERAGES PVT. LTD	BOILER EXPLOSION	04 WORKERS DIED AND 04 WORKERS SERIOUSLY INJURED
2.	02.09.2013	M/S. MODERN CHEMICAL ORISSA PVT. LTD.	CHEMICAL POISONING	03 WORKERS INJURED
3.	14.05.2014	M/s. Universal Infra & Agri Oils Pvt. Ltd	FIRE	NO INJURY BUT DAMAGE TO STRUCTURE / BUILDING
4.	07.12.2014	M/S SHIV SHANKAR TRADING COMPANY	FIRE	NO INJURY BUT HEAVY DAMAGE TO STRUCTURE / BUILDING
5.	10.07.2017	M/S. LINGARAJ BISCUITS PVT. LTD	FIRE	NO INJURY BUT HEAVY DAMAGE TO STRUCTURE/ BUILDING

The above incidents show the chemical disaster must be taken into account and proper steps must be taken to mitigate those. OSDMA in collaboration with Disaster Management Institute (DMI), Bhopal is preparing the Off-Site plan for the District in coming days.

B. Nuclear & Radiological Disaster:

India has traditionally been vulnerable to natural disasters on account of its unique geoclimatic conditions and it has, of late, like all other countries in the world, become equally vulnerable to various man-made disasters. Nuclear and Radiological Emergencies as one such facet of man-made disasters is of relevance and concern to us. Any radiation incident resulting in or having a potential to result in exposure and/or contamination of the workers or the public in excess of the respective permissible limits can lead to a Nuclear / Radiological Emergency

For improving the quality of life in society, India has embarked upon a large programme of using nuclear energy for generation of electricity. As on date, India has 17 power reactors and five research reactors in operation along with six power reactors under construction. It is also planned to explore setting up Thorium based reactors to meet its ever-increasing energy needs. Further, the country utilises radioisotopes in a variety of applications in the non-power sector, viz., in the field of industry, agriculture, medicine, research, etc. Due to the inherent safety culture, the best safety practices and standards followed in these applications and effective regulation by the Atomic Energy Regulatory Board, the radiation dose to which the persons working in nuclear/radiation facilities are exposed to, is well within the permissible limits and the risk of its impact on the public domain is very low.

However, nuclear emergencies can still arise due to factors beyond the control of the operating agencies; e.g., human error, system failure, sabotage, earthquake,

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cyclone, flood, etc. Such failures, even though of very low probability, may lead to an on-site or off-site emergency. To combat this, proper emergency preparedness plans must be in place so that there is minimum avoidable loss of life, livelihood, property and impact on the environment.

Although, the State of Odisha does not have any major Nuclear/Radiological set up or power plants, still the districts need to be prepared in case of any Emergencies especially Medical Preparedness and Capacity Building of the Response Forces. Mock Exercises on Nuclear and Radiological Disasters or Emergencies at regular intervals is also highly essential. Districts are required to keep and updated the following information given in the table ever year for minimizing the risk of Nuclear/Radiological Disaster.

CHAPTER – XI **BIOLOGICAL DISASTER AND PUBLIC HEALTH IN** **EMERGENCIES**

11.1 Biological Disaster Management & Medical Preparedness

Biological disasters, be they natural or man-made, can be prevented or mitigated by proper planning and preparedness. The primary responsibility of managing biological disasters vests with the state government. The central government would support the state in terms of guidance, technical expertise, and with human and material logistic support to develop the policies, plans and guidelines for managing biological disasters in accordance with the national guidelines and those laid down by SDMA.

The H&FW would be the nodal Department for managing biological disasters in the State. Further, Home department will be the nodal for Bio-terrorism, Bio War, F&ARD Department will be the nodal department for animal health and Agriculture & Farmers Empowerment Department will be the nodal department for agro-terrorism. Besides, the community, medical care, public health and veterinary professionals, etc., must also remain in complete preparedness for such eventualities.

Table Nodal Departments for Managing Biological Disaster

Sl No.	Bio Disaster	Nodal Department	Contact person	Contact details (Office/Mobile)
1	Biological Disaster	H&FW Department	Sj. Viswabhusan Pati, CDM & PHO	9439994500
2	Bio Terrorism/ War	Home Department	Sj Rajkishore Dora, SP	7008042675
3	Animal Health Disaster	F&ARD Department	Dr. Asish Satapathy, CDVO	06755-223067 9937805208 / 9861044550
4	Agro -Terrorism	A&FE Department	Sj Ganesh Prasad Das	8280069311

11.2 Legal Framework

Stringent Legal frameworks must be drawn & enforced in order to:

- Prevention, mitigation and control of the spread of biological disaster at all level.
- Managing the prevailing and foreseeable public health concerns, threat of biological weapons by adversaries and cross-border issues.
- Notify the affected area, restrict movements or quarantine the affected area, enter any premises to take samples of suspected materials and seal them.
- Establish controls over biological sample transfer, biosecurity and biosafety of materials/laboratories.

11.3 Institutional & Operational Framework

SDMA will coordinate all the disasters including those of biological origin in the state. A multi-sectoral approach must be adopted involving H&FW, Home Department, PR&DW, SSEPD, F&ARD and A&FE.

- The intelligence and deterrence required & the management structure must be identified and strengthened so as to act as one crisis management structure, committees, task forces and technical expert groups preferably within the Nodal department
- **Different Committees like Crisis Management Committee, Task Force and Technical Experts needs to be formed to meet any eventuality.**
- A public health institution of eminence, matching international standards needs to be created, with following measures:
 - All existing public health institutions providing technical expertise in the area of field epidemiology, surveillance, teaching, training, research, etc., need to be strengthened. The core capacity needs to be developed for surveillance, border control at ports and airports, quarantine facilities, etc.
 - Each District will strengthen its public health infrastructure, including public health institutions which would collect epidemiological intelligence, share information with IDSP, provide for outbreak investigations and manage outbreaks.
 - Hospitals will develop capabilities to attend to mass casualties and public health emergencies with isolation facilities. In the districts, DDMA's will provide the requisite management structure for district DM, factoring in the requirements for managing biological disasters.
- The strategic approach for management of biological disasters must be done with responsible participation of the government, private sector, NGOs and civil society.

11.4 Preventive Measures

Prevention and preparedness shall focus on the assessment of bio-threats, medical and public health consequences, medical countermeasures and long-term strategies for mitigation. The important components of prevention and preparedness would include

- An epidemiological intelligence gathering mechanism to deter a BW/ BT attack;
- A robust surveillance system that can detect early warning signs, decipher the epidemiological clues to determine whether it is an intentional attack;
- Capacity building for surveillance, laboratories, and hospital systems that can support outbreak detection, investigation and management.
- Developing a biological disaster response plan

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- Pre-exposure immunisation (preventive, if available any) of first responders against anthrax and smallpox must be done to enable them to help victims' post-exposure.

11.4.1 Pre-Disaster Preventive Measures

- Important buildings and those housing vital installations need to be protected against biological agents wherever deemed necessary through security surveillance.
- Restricting the entry to authorised personnel only by proper screening,
- Installation of High Efficiency Particulate Air (HEPA) filters in the ventilation systems to prevent infectious microbes from entering the circulating air inside critical buildings.
- Those exposed to biological agents may not come to know of it till symptoms manifest because of the varied incubation period of these agents. A high index of suspicion and awareness among the community and health professionals will help in the early detection of diseases.
- Environmental monitoring can help substantially in preventing these outbreaks.
 - Water Supply: A regular survey of all water resources, especially drinking water systems, & proper maintenance of water supply and sewage pipeline will go a long way in the prevention of biological disasters and epidemics of waterborne origin.
 - Personal hygiene: Necessary awareness must be created in the community about the importance of personal hygiene, and measures to achieve this, including provision of washing, cleaning and bathing facilities, and avoiding overcrowding in sleeping quarters, etc. Other activities include making temporary latrines, developing solid waste collection and disposal facilities, and health education.
 - Environmental engineering work and generic integrated vector control measures including.
- Elimination of breeding places by water management, draining of stagnant pools and not allowing water to collect by overturning receptacles, etc.
- Biological vector control measures e.g. Gambusia fish, as an important measure in vector control.
- Outdoor fogging and control of vectors by regular spraying of insecticides.

Table Important/Critical Infrastructure

Infrastructure/ Institution Type	Dept./Instt.	Contact person with contact Details
CHC, Balakati	Health & Family Welfare	9439997038
CHC, Balipatna	DO	9439997403
CHC, Banpur	DO	9124442444
CHC, Gambharimunda	DO	943997200
CHC, Botalama	DO	8895177271

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CHC, Mendhasala	DO	9439997293
CHC, Bolagarh	DO	9437365646
CHC Bankoi	DO	9439994656
CHC, Balugaon	DO	7978279961
CHC, Jatni	DO	9439997467
CHC, Haldia	DO	9439994692
CHC, Tangi	DO	9438789735

11.4.2 Post-Disaster Preventive Measures

- When exposure is suspected, the affected persons shall be quarantined and put under observation for any atypical or typical signs and symptoms appearing during the period of observation.
- Health professionals who are associated with such investigations will have adequate protection and adopt recognised universal precautions.
- It often may not be possible to evolve an EWS. However, sensitisation and awareness will ensure early detection.
- Dead bodies resulting from biological disasters increase risk of infection if not disposed off properly. Burial of a large number of dead bodies may cause water contamination. With due consideration to the social, ethnic and religious issues involved, utmost care will be exercised in the disposal of dead bodies.

11.5 Disease Containment by Isolation and Quarantine Methodologies:

- Isolation refers to isolating suspected cases in hospital settings. In the case of biological disasters such as pandemic influenza which affects millions, home isolation may have to be recommended to those who can be treated at home.
- Quarantine refers to not only restricting the movements of exposed persons but also the healthy population beyond a defined geographical area or unit/institution (airport and maritime quarantine) for a period in excess of the incubation period of the disease.
- Restrictions in the movement of the affected population is an important method to contain communicable diseases. The status of the law-and-order mechanism of the state and district is an important factor in helping health authorities in this regard.

11.6 Preparedness and Capacity Development

An important aspect of medical preparedness in Biological Disaster Management includes the integration of both government and private sectors. The important components of preparedness include planning, capacity building, well-rehearsed hospital DM plans, training of doctors and paramedics, and upgradation of medical infrastructure at various levels to reduce morbidity and mortality. A biological disaster response plan is to be evolved on the basis of the national guidelines with due participation of health officials, doctors, various private and government hospitals, and the public at the national, state and district levels. The government health departments also need to be equipped with state-of-the-art tools for rapid epidemiological investigation and

control of any act of biological threat. The important components of preparedness are.

10.6.1 Establishment of Command, Control and Coordination Functions

The incident command system needs to be encouraged and instituted so that the overall action is brought under the ambit of an incident commander who will be supported by logistics, finance, and technical teams etc. EOCs will be established in all the state health departments with an identified nodal person as Director (Emergency Medical Relief) for coordinating a well-orchestrated response.

- Human Resource Development: The DHO, in consultation with the state epidemiological cell, will develop a simple & informative format for daily data collection, depending upon quantum of information available at each level.
- Control rooms will be nominated/ established at different levels in order to get all the relevant information and transmit it to the concerned official. The addresses and telephone numbers of the district collector, DHO, hospitals, specialists from various medical disciplines like paediatrics, anaesthesia, microbiology etc., and a list of all stakeholders from the private sector will be available in the control room.
- Manning the health Facilities: The shortfall of public health specialists, epidemiologists, clinical microbiologists and virologists will be fulfilled over a stipulated period of time. Teaching/training institutions for these purposes will be established.

11.7 Training & Education

- Necessary training /refresher training must be provided to medical officers, nurses, emergency medical technicians, paramedics, drivers of ambulances, and QRMTs/ MFRs to handle disasters due to natural epidemics/ Bio disaster.
- Structured education and web-based training must be given for greater awareness and networking of knowledge so that they are able to detect early warning signs and report the same to the authorities, treat unusual illnesses, and undertake public health measures in time to contain an epidemic in its early stage.
- Refresher training will be conducted for all stakeholders at regular intervals. An adequate number of specialists will be made available at various levels for the management of cases resulting from an outbreak of any epidemic or due to a biological disaster.
- Standardised training modules for different medical responders /community members for capacity building in the area of disaster management developed by state government or national government should be followed to create adequate training facilities for the same.
- Selected hospitals will develop training modules and standard clinical protocols for specialised care, and will execute these programmes for other hospitals. Table-top exercises using different simulations will be

used for training at different levels followed by full-scale mock drills twice a year.

- A district-wise resource list of all the laboratories and handlers who are working on various types of pathogenic organisms and toxins will be prepared.
- BDM related topics will be covered in the various continuing medical education programmes and workshops of educational institutions in the form of symposia, exhibition/demonstrations, medical preparedness weeks, etc.
- Biological disaster related education shall be given in various vernacular languages. Simple exercise models for creating awareness will also be formulated at the district level.
- Biological disaster plans will be rehearsed as a part of training every six months.
- Knowledge of infectious diseases, epidemics and BT activities will be incorporated in the school syllabi and also at the undergraduate level in medical and veterinary colleges.

11.8 Community Preparedness

Community members including public and private health practitioners are usually the first responders, though they are not so effective due to their limited knowledge of BDM. These people will be sensitised regarding the threat and impact of potential biological disasters through public awareness and media campaigns. The areas which need to be emphasised are:

- **Risk communication to the community**
 - Community education/awareness about various disasters and development of Dos and Don'ts.
 - The public will be made aware of the basic need for safe food, water and sanitation. They will also be educated about the importance of washing hands, and basic hygiene and cleanliness. The community will also be given basic information about the approach that health care providers will adopt during biological disasters.
 - Toll-free numbers and a reward system for providing vital information about any oncoming Biological disaster by an early responder or the public will be helpful.
 - Definition of predisposing existing factors, endemicity of diseases, various morbidity and mortality
 - indices. The availability of such data will help in planning and executing response plans.
- **Community participation**
 - Providing support to public health services, preventive measures such as chlorination of water for controlling the possibility of epidemics, sanitation of the area, disposal of the dead, and simple non-pharmacological interventions will be mediated through various resident welfare associations, ASHA /ANM, village sanitation committees, and PRIs.

- Community level social workers who can help in rebuilding efforts, create counselling groups, define more vulnerable groups, take care of cultural and religious sensitivities, and also act as informers to local medical authorities during a biological disaster phase, will be created after proper training and education.
- NGOs and Voluntary Organisations (VOs) will be involved in educating and sensitising the community.
- Supporting activities like street shows, dramas, posters, distribution of reading material, school exhibitions, electronic media, and publicity, etc., will be undertaken.

A legally mandated quarantine in a geographic area, isolation in hospitals, home quarantine of contacts, and isolation management of less severe cases at homes would only be possible with active community participation.

11.9 Medical Preparedness

Medical preparedness will be based on the assessment of bio-threat and the capabilities to handle, detect and characterise the microorganism. Specific preparedness will include pre-immunisation of hospital staff and first responders who may come in contact with those exposed to anthrax, smallpox or other agents. It further relates to activities for management of diseases caused by biological agents, EMR, quick evacuation of casualties, well-rehearsed hospital DM plans, training of doctors and paramedics and upgradation of medical infrastructure at various levels which will reduce morbidity and mortality. Medical preparedness will also entail specialised facilities including chains of laboratories supported by skilled human resource for collection and dispatch of samples. The major aspects of medical preparedness are e.g. Hospital DM Plan

Hospital planning will include both internal hospital planning, and for hospitals being part of the regional plan for managing casualties due to biological disasters. The major features will include the following:

- Hospital disaster planning will consider the possibility & needs to evacuate or quarantine or divert patients to other facilities.
- The plan will be 'all hazard', simple to read and understand, easily adaptable with normal medical practices and flexible enough to tackle different levels and types of disasters.
- The plan will include capacity development, development of infrastructure over a period of time and be able to identify resources for expansion of beds during a crisis.
- The plan will be based on the need assessment analysis of mass casualty incidents. There will be a triage area and emergency treatment facilities for at least 50 patients and critical care management facilities for at least 10 patients.
- The quality of medical treatment of serious/ critical patients will not be compromised. The development plan will aim at the survival and recuperation of as many patients as possible.

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- Hospitals will plan to recruit a sufficient number of personnel, including doctors and paramedical staff, to meet the patients' needs for emergency care.
- It is essential that all hospital DM plans have the command structure clearly defined, which can be extrapolated to a disaster scenario, with clear-cut job definitions when an alert is sounded. Emergency services provided must be integrated with other departments of the hospital.
- The hospitals will submit data on their capabilities to the district authorities and on the basis of the data analysis, the surge capacities will be decided by the district administration.
- There is no universal hospital DM plan which can be implemented by all hospitals in all situations. Therefore, on the basis of their specific considerations, each hospital will develop a disaster plan specific to itself. The plan shall be available with the district administration and tested twice a year by mock drills.
- The hospital DM plan will cater to the increased requirement of beds, ambulances, medical officers, paramedics and mobile medical teams during a disaster. The additional requirement of disease related medical equipment, disaster-related stockpiling and inventory of emergency medicines will also be factored into the hospital DM plan. The DM plan must be strengthened by associating the private medical sector.
- Networking between public and private hospitals must be done and hospital DM plans need to be updated at the district/state level through frequent mock drills.
- The registration and accreditation policy must make it mandatory to have a hospital DM plan.
- The existing infectious diseases hospitals will be remodelled to manage diseases with microorganisms that require a high degree of biosafety, security and infection control practices. There will be one such hospital in each state capital. In addition, the district hospitals and medical colleges will have isolation wards to manage such patients. Also, identified hospitals in vulnerable states will be strengthened for managing CBRN disaster victims by putting in place decontamination systems, critical care Intensive Care Units (ICUs) and isolation wards with pressure control and lamellar flow systems. The infectious control practices will include the following:
 - When dealing with biological emergencies, the health workers associated with the investigation of such exposures will have adequate personal protection.
 - Depending upon the risk, the level of protection will be scaled up from use of surgical masks and gloves, to impermeable gowns, N-95 masks or powered air-purifying respirators. They will follow laid down SOPs for use of PPE.
 - Infection control practices will be followed at all health care facilities, including laboratories.
 - Of the potential biological disaster agents, only plague, smallpox and VHFs are spread readily from person to person by aerosols

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- and require more than standard infection control precautions (gowns, masks with eye shields, and gloves).
- The suspected victims and those who have been in contact with them will be advised to follow simple public health measures such as using masks/ handkerchief tied over the nose and mouth, frequent washing of hands, staying away from other people by at least a metre, etc.
- To handle biological disasters, a hospital DM plan will have the following facilities:
 - Medical and paramedical staff: It is important to train medical staff and paramedics properly in universal safety precautions, use of PPE, communication, triage, barrier nursing, and collection and dispatch of biological samples. A team of specialists must be made available to handle infectious diseases affecting various body systems and they will be suitably immunised against agents such as anthrax and smallpox.
 - Expansion of casualty area: If the hospital casualty ward is unable to accommodate a large number of casualties, provision will be made to use the patients' waiting hall, duly reoriented, to receive the casualties. Each major hospital will cater to at least 50 additional patients at times of disaster.
 - Isolation wards: Adequate number of isolation wards are required to be planned with surge capacity to accommodate a large number of patients of infective disease. If required, side rooms, seminar rooms, other halls can be improvised for this purpose.
 - Security arrangements: Hospital security staff will prepare SOPs to prevent overcrowding of hospitals by visitors, relatives, VIPs, and the media at the time of a disaster. Help of the district administration will be sought, if required.
 - Identification of patients: The process will start at the time of giving first aid and triage. A system of labelling and identifying patients during spot registration by giving a serial number to the patient and putting an identification tag around the wrist can be done. In mass casualties, it can be supplemented by giving colour coded tags, such as red for serious patients, yellow for moderately serious patients, blue for those in need of observation and black for the dead.
 - Brought dead: All those brought in dead and patients who die while receiving resuscitation will be segregated and shifted to the mortuary through a separate route. Temporary mortuary facilities will be created to cater for a mass casualty incidence.
 - Diagnostic services: All laboratories and radio diagnostic services will be kept fully operational and utilised as and when required. These services will be available within the emergency treatment areas.

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- Communication: Both intra & inter communication facilities will be made available. These can be further augmented by the use of mobile phones.
- Medical supplies: Adequate supply of essential drugs and non-drug items will be made available for at least 50 patients in the emergency complex itself for immediate use. Additionally, hospital medical stores will have adequate buffer stocks.
- Blood bank services: The services will cater for an adequate supply of safe blood and its components. Voluntary blood donations will be encouraged to fulfil the increased demand of blood.
- Other logistic support: Adequate, uninterrupted supply of water and electricity will be ensured for proper management of casualties. The laying down of public health standards for hospitals and strengthening of CHCs across the nation for basic specialities on 24x7 basis under NRHM by GoI are steps in the right direction to strengthen medical care facilities in rural areas. NRHM initiatives will be expedited to reach every nook and corner of the country.

- **Mobile Hospitals and Mobile Teams**

States will acquire and locate at least one mobile hospital at strategic locations. These hospitals can be attached to earmarked hospitals for their use in non-disaster periods. These will be manned by trained manpower and perform the following functions:

- To be mobilised to the disaster site for management of cases at times of any epidemic outbreak or biological disaster.
- Provide on-site medical treatment to casualties as per triage and evacuation guidelines. The teams will also make a complete assessment of the situation and transmit information to the appropriate authorities.
- Additional medical teams will be mobilised to assist in handling the large number of casualties in the wake of a mass casualty event.
- Adequate stock of medical stores, including essential drugs, will be stocked and made available to the medical teams.
- The stocking of emergency medical stores shall be done by the state government. Stock of medical stocks capable of treating 25/50/100 casualties will be kept ready to move with mobile units at short notice.
- Drills will be conducted at regular intervals by mobile hospitals and mobile teams to keep them in a functional mode at all times.

- **Stockpile of Antibiotics and Vaccines**

- Government medical stores will stock sufficient quantities of essential drugs, antibiotics and vaccines based on the risk assessment. State and local public health authorities have to develop plans for distributing and administering these materials.

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There is a need to have a supply of readily available anthrax, smallpox and other vaccines, which will be administered rapidly in the event of an outbreak to contain the spread of the disease. All first responders will be vaccinated in an impending disaster situation.

- A plan will be prepared to define the availability of antibiotics, anti-virals, vaccines, sera and other drugs from private pharmaceutical companies who will be able to supply these items at short notice.

- **Public Health Issues**

- Panic is a critical element in a disaster and, therefore, DM plans will address measures to allay public anxiety and fear arising out of Bio Terrorisms.
- Availability of safe food, clean water, and minimum standards of hygiene and sanitation will be ensured. Vulnerable groups such as children, pregnant women, the aged and patients suffering from diseases like HIV/AIDS will be given special attention.
- The routine training of medical undergraduates, nurses and health workers for mental health services is grossly inadequate. There is virtually no emphasis on the mental health aspects of disasters even in the routine postgraduate training in psychiatry. There is a need for coordinated training services and monitoring at the district and state levels.
- Most victims at the scene of a disaster suffer from psycho-social problems. Some people, including relief workers, may develop post-traumatic stress disorders. The plan will involve community level social workers who can help victims of psychosocial problems.
- Complete ban on the press or media is not the right approach in such circumstances. The media is very useful for disseminating proper information and educating the community during a disaster.

- **Emergency Medical Response**

A biological disaster can lead to mass casualty incidences, both intentional or otherwise. The development of infectious diseases depends on various factors such as type of agents, incubation period, immune status of individuals, amount of infectious agent entering the body, etc. However, a large number of cases arising in a short span of time may require prompt establishment of medical posts near the incident site. They would triage the patient, provide basic life-support if required at the site, and transport patients to the nearest identified health facility along with collection and dispatch of biological and environmental samples. If the incident command system is implemented, then the RRT/MFR will be integrated with the ICP and function under the overall directions of the incident commander. Important components of an EMR plan are as follows:

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- Pre-hospital care shall be established and operationalised using a trained medical force. EMR at the site will depend upon the quick and efficient response of MFRs.
- MFRs must be trained in the use of PPE and in collection and dispatch of samples from air, water, food and biological materials. The standards for detection and basic life support (airway maintenance, ventilation support, anti-shock treatment and preparation for transportation) will also be developed. EMR will be integrated with ICP and will function under the overall directions of the incident commander
- There will be periodic mock drills for checking response time and reducing it to a minimum. Periodic training and refresher training schedules will also be prepared.
- The medical posts shall provide evacuation services, specialised health care, food, shelter, sanitation, etc. These will coordinate with other functionaries involved in search, rescue, helplines and information dissemination, transport, communication, power and water supply, and law and order.
- SOPs for providing hospital care and a command control centre with the district collector as supreme head, will be laid down and rehearsed using mock exercises.
- The modes of communication will be dovetailed with emergency services of the district. Inter-hospital and inter-services communication will be established at all levels.
- Mechanisms for checking the status of coordination in planning, operations and logistic management will be developed.

11.10 Psycho Social Care

Disasters usually leave a trail of human agonies including loss of human life, livestock, damage to properties, loss of livelihood, and all development works. In any disaster the magnitude of psychosocial and mental health problems is enormous. Apart from logistic and material help, relief and rehabilitation, the sufferings of human beings will require psychosocial and mental health interventions. It has been recognized that most of the disaster affected persons' experience stress and emotional reactions after disaster as a 'normal response to an abnormal situation', and are able to cope well with a little psychosocial support. However, a significant proportion of people are not able to cope effectively with the situation in the absence of appropriate/ adequate support system and they experience significant signs and symptoms requiring psychosocial support and mental health services. The symptoms are directly related to trauma experience. The Greater the trauma, the more severe is the response if other factors are same.

Psychosocial support in the context of disasters refers to comprehensive interventions aimed to help individuals, families and groups to restore social cohesion and infrastructure along with maintaining their independence and dignity in the aftermath of a disaster. Psychosocial support helps in reducing

the level of actual and perceived stress that may prevent adverse psychological and social consequences among disaster affected people.

11.11 Disaster Mental Health Services

The Psycho-Social Support and Mental Health Services (PSSMHS) should be considered as a continuum of the interventions in disaster situations. While psychosocial support will comprise of the general interventions related to the larger issues of relief work needs, social relationships and harmony to promote or protect psychosocial wellbeing, the mental health services will comprise of interventions aimed at prevention or treatment of psychological symptoms or disorders. The experiences of the people subsequent to the disaster have direct relevance to recovery. The more the problems and life difficulties the survivors experience during the recovery phase, the more persistent will be their emotional reactions. This warrants appropriate interventions in accordance with the phase of recovery of the affected population with the diminished social supports being built for speedy recovery.

11.12 Community Based Disaster Psychosocial Care

The psychosocial aspects of disasters on human beings have been acknowledged as an international agenda (WHO, 1992). However, in India, the psychosocial aspects have never been emphasized until very recently after tsunami, 2004. The Bhopal gas tragedy (1984) was the most important disaster to draw the national attention due to its severe impact and the sensitivity of the politico-economic issues involved. The psychosocial impact was studied systematically although intervention programmes were more of psychiatric in nature. Marathwada earthquake (1993), and Andhra Pradesh Super Cyclone (1996) were disasters in which mental health professionals took an active part in terms of providing mental health services and undertaking research to study the psychosocial impact of these disasters.

The ICMR studies over last twenty years have provided strong base for integration of mental health services with general health care services and sensitization of the community members and rescue workers. Further, In the post Tsunami phase in India, the WHO along with the Department of Social Welfare, United Nations Team for (UNTRS), and partners have developed a model for providing sustained, low-cost community-based volunteer provided support systems. Community level workers who are the anchor for this programme are selected from various categories of people, including teachers, health workers, and members of Self-Help Groups etc, who have volunteered for this purpose. However, the finer details of the mechanisms and strategies for integration of mental health services with general health care services still need to be worked out.

11.13 Concept of Social Support Network

The psychological response to a disaster depends on three main factors

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Table

Disaster	Community	Survivor
<ul style="list-style-type: none"> » Place of occurrence » Magnitude » Suddenness » Type 	<ul style="list-style-type: none"> » Level of preparedness » Social support network » Leadership » Past disaster experience 	<ul style="list-style-type: none"> » Age / Sex » Level of education/ exposure » Marital status » Physical health / » Disability » Personality/ » Coping skills » Magnitude of losses » Social support available

The psychological reactions that people experience as a result of the disaster may be either adaptive or maladaptive.

Table

Adaptive	Maladaptive
<ul style="list-style-type: none"> • Adaptive responses allow individuals to overcome the difficulties caused by the disaster. • For instance, obtaining information or developing effective survival skills. 	<ul style="list-style-type: none"> • Maladaptive reactions can include denial, ineffective actions etc. reactions can be prevented from occurring and if they do occur then they can be treated. • The incident of a young girl can be considered here from Orissa cyclone. The rescue team saw her hanging from a tree after five hours, but she was not having any clothes on her body. After accepting the clothes from the rescue team, she immediately jumped in the floodwater and committed suicide.

After a disaster there are four main phases, which the survivors go through. The first phase is considered as rescue which is up to 72 hours after the disaster. The second phase is relief which continues for three months after the disaster. The third phase is rehabilitation, which lasts for one to two years and the last phase is rebuilding, or reconstruction, which extends over lifetime. Reconstruction phase is the longest period when the population rebuilds personal skills, social support and leadership. This overlaps with the rebuilding phase.

Table

Phases after a Disaster	Duration	Characteristics
Occurrence of the disaster	Hours	Apathy, Disorientation, Wandering Surprise, Fear, Perplexity Anxiety, Helplessness
Heroic	Up to 1-2 weeks	Feeling strong, Direct feeling of saviour, eroism, Solidarity, Optimism
Honeymoon	2 weeks to 3 to 6	Great solidarity, Eagerness to rebuild, Sharing

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	months	of common experience
Disillusionment	2months to 2 years	Withdrawal, Loneliness, Anger, frustration, Community disorganization, Negativity, Hostility, Impulsiveness, Violence, Alcohol and drug abuse
Reconstruction	2-5 years and Lifetime	Acceptance of losses Realistic assessment of the situation, Search for alternatives to rebuild lives

11.14 Coping with Loss & Circles of Support

It is very clear that the usual social support systems are eroded after a disaster. The family and the neighbourhood no more exist as a functional unit. The tertiary level of support system exists to some extent in terms of larger community, government and other external agencies. So, it is essential to pull these external resources (out of the affected community) for rebuilding the social support system and normalize the life of the survivors. At the third level the government and external agencies take the main role to rebuild the entire support system. Apart from the government agencies a lot of other players also come to the forefront. These include:

- Professionals from the medical, legal and other such fields.
- Student volunteers
- Religious social service groups
- Non-government organizations both national and international
- Business communities
- Civil society bodies
- Individuals in their own capacity contributing their skills or money

11.15 Needs of More Vulnerable Groups

The reactions to and impact of a single disaster event may vary among specific groups of survivors within the affected community, i.e. people with special needs or more vulnerable groups viz. children, people with disability, women, elderly people and people needing special medical care facilities. Lot of inter group and intra group variations are there in terms of vulnerabilities as detailed below

Table

Category	Exposure/Vulnerability
Children	<ul style="list-style-type: none"> • Children who were physically, neurologically, mentally and sensory challenged in the pre-disaster period and those who became disabled after the disaster • Children who need critical medical care facilities e.g. children suffering from cancer, diabetic, asthma, poor heart condition, blood borne diseases, HIV-AIDS, etc. • The children with special needs who become orphans after a disaster, are most vulnerable to different types of exploitation. • Orphaned and unaccompanied Adolescent children, especially girls Children whose parents are missing or

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	remarried
Women	<ul style="list-style-type: none">• Pregnant and lactating women• Disabled women• Women on critical health care facility• Women who lost their children and plan to undergo recanalization surgery• Elderly women• Women with prior history of psychiatric illness
Elderly	<ul style="list-style-type: none">• Reduced physical & mental capabilities, delayed response syndrome,• increased transfer trauma & the array of emotional difficulties,• dementia, and rigidity

As per the PWD Act (1995) of Govt. of India, people with disabilities are a highly diverse group. Thus, each disability has its unique characteristics and disability specific needs. Since, their life conditions even prior to disaster are at a higher deprivation level, life conditions after a disaster become even worse. This could induce higher level of psychological distress and negative emotional reactions, which in turn could jeopardize their whole life functions. Therefore, psychosocial care givers should take extra caution to safeguard their self-respect and cater to their mental health needs. In case special intervention programme is needed to address their overall safety, dignity and needs, more emphasis should be placed on the inter-sectoral collaborations for their betterment. The following aspects & vulnerabilities should receive special attention of the care givers in the post-disaster phase:

- Accessibility to shelters and availability of basic amenities
- Availability of auxiliary aids, equipment's and services during the relief
- Special livelihood programme
- Treatment for any associated psychiatric illness
- Long-term community rehabilitation
- People on Dialysis
- People with organ transplantation
- Alcohol/drug dependents
- Heart patients
- People living with HIV/AIDS (PLWHA)
- People on Specific therapies (such as Cancer patients)
- Insulin dependent diabetics on high doses of insulin

11.16 Principles of Psychosocial Support

- No one who experiences or witnesses the event is untouched by it
- Disaster stress and grief reactions are normal responses to an abnormal situation
- Disaster results in two types of trauma i.e. individual and collective trauma. Individual trauma manifests itself in stress and grief reactions, while collective trauma can lead to deterioration in the social ties of survivors with each other.

- Disaster mental health services must be tailored to the needs of specific communities to be served
- Interventions must be appropriate to the phase of disaster 1. Initial phase: listening, supporting, ventilation, catharsis and grief resolution are helpful and 2. latter phase: handling frustration, anger and disillusionment
- Support systems are crucial for recovery
- Attitude of the caregiver

11.17 Basic Techniques of Disaster Psychosocial Care

- Ventilation: ventilation is a process to help the disaster survivors in expressing their thoughts, feelings and emotions related to the disaster and the resulting living conditions.
- Empathy: "looking at the event from the other person's perspective and trying to realise the trauma of the other person by keeping himself/herself in that situation". This skill of developing empathetic attitude towards survivors comes
 - through regular habit of active listening of the survivor.
- Active listening Active listening is an important skill to facilitate ventilation and develop empathy, which in turn facilitate the whole process of providing emotional support. The following guidelines can help the care givers in achieving better results.
 - Look at the person while he/she is talking:
 - Respond occasionally while listening:
 - Avoid interruptions
 - Be tolerant & Empathise:
- Social support: Social support networks are extremely important for feeling comfortable and secure. In a disaster situation all the support systems get disrupted, hence the need to rebuild and restore.
- Externalization of Interests: Engaging them in small but productive activity/work (keeping age, gender, physical status, skills and interest as considerations) would help them in imbibing a positive thinking and feelings.
- The Value of Relaxation: Introducing relaxation activities for children (for instance some games, songs, dancing, painting, colouring and other things) and adults involving physical movement has proved to be very beneficial in helping survivors recover from their trauma and pain.
- Turning towards Religion and Spirituality: Helping people to turning towards his/her practiced religious rituals and practices (e.g. daily worship, prayer and related activities) would also facilitate the ventilation process, whereby there is a possibility of verbal/nonverbal expression of feeling/emotions and thus, making the survivor more peaceful in mind.

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11.18 Understanding of Stress Symptoms & Management

The concept of stress was first used by Selye (1956) in his biological stress theory. It was defined as a set of specific physiological responses to environmental stimuli, e.g. chronic fatigue, nervous breakdown, physical damage etc. The important role of psychological factors remain in understanding the occurrence and modification of stress response.

Table

Emotional	Interpersonal	Sensational	Biological	Behavioural	Cognitive
Anxiety Guilt Embarrassment Depression Hurt Jealousy Feel like dying Cry frequently Moody	Cannot keep relationships Suspicious Gossip Competitive Withdraw Fearful and unassertive Aggressive	Heart rate Headaches Nausea Aches and pain Tremble Fainting Numbness Dry mouth Stomach cramps Sweaty Indigestion	Digestion problems Blood pressure Heart problems Tiredness Allergies Low immunity Mental problems	Substance dependence Sleep problems Tea smoking Restless Eating problems Aggression Irritation Speech problems Accident prone Eat, talk, walk faster Unkempt and untidy Low productivity Bad time management	I must do well Life should not be like this I must have what I want This is terrible I cannot take this any longer Everyone should like me Working long hours » Not getting time to relax and take care of personal issues » Not able to contact the family members » The weather in the area etc

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Diverse Stress Responses

Table

Cognitive Responses:	Emotional Responses:	Self-image	Psychosomatic/Physiological Responses
Low awareness of the environment » Restricted scope of perception » Lowered ability to concentrate » Disturbed memory functions » Hesitation in decision making » Change in content of thinking » Low creativity and change in performance » Less ability to utilise relevant information	» Feelings of deprivation, guilt, anxiety, tension, aggression, irritation, worry, sadness, hopelessness and maladjustment.	» Low self confidence » Identity problem » Depression & Helplessness	» Headache & Body Ache » Muscular tension and pain » Gastrointestinal disorders/low appetite » Sleeplessness » Difficulty in breathing » High Blood Pressure (Source: Zimbardo, 1979) » Vague pain in different parts of the body » Increased heart beat & palpitation » Sweating in palms and feet » Shaking of the body & Fatigue » Butterfly sensation in the stomach

Relaxation Exercises

Table

Abdominal breathing	» Sit comfortably » Close your eyes » Put one hand on the abdomen » Focus on your breathing and try and see that you are breathing from your abdomen rather than your chest » Concentrate on the fact that your stomach is rising as you breath in and falling as you breath out
Count breathing	Sit comfortably » Close your eyes » Count 1-2 two as you inhale » Release your breath slowly counting 1-2-3-4 (double the count of your inhalation) » Practice this till you feel relaxed
Nostril breathing	» Inhale naturally and then let out with a whooshing sound. Hold for some time and then let out again » Breathe through one nostril and breathe out through the other one » Combine breathing with visualization that you are getting energy and refreshment » Listening to some music while practicing these will enhance positive impact of the techniques
Free Meditation	» Sit comfortably or lie down and close your eyes » Put on some music and listen to the music

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	<ul style="list-style-type: none"> » Do not try to think of anything, just concentrate on your breathing » If any thoughts come in do not try to control them or force them out, instead spend time on them and let them go as they come » Do it initially for about 5 minutes and slowly as you become better at it go on increasing the time period to about 20 –25 minutes and it would prove to be very relaxing
Candle meditation	<ul style="list-style-type: none"> » Sit comfortably » Light a candle or a lamp in front of you » Concentrate on the flame » Spend time just looking at the flame glowing and flickering » If you feel after some time close your eyes and look at the image in your mind » Slowly open your eyes after you are completely at ease » Do it initially for about 5 minutes and slowly as you become better at it go on increasing the time period to about 20 –25 minutes. It would prove to be very relaxing
Relaxation	<ul style="list-style-type: none"> » Lie down on the ground » Slowly move from your feet to your head saying the following to yourself

Disaster Psychosocial Referrals Table

<p>Within Caregiver’s Control if the Survivor:</p> <ul style="list-style-type: none"> » Is aware of who s/he is, where s/he is, and what has happened with him/her. » Is only slightly confused or dazed or show slight difficulty in thinking and decision making or finding difficulty in concentrating 	<p>Referral if the Survivor:</p> <ul style="list-style-type: none"> » Is unable to tell/recall his/her name, name of the place and what has happened to him/her in past 24 hours » Complains about what is happening with him/her
Behaviour	
<p>Is restless, mildly agitated and excited</p> <ul style="list-style-type: none"> » Has sleep difficulty and decreased appetite » Sad, rigid, clenches the fists 	<p>Is apathetic, immobile and unable to move around</p> <ul style="list-style-type: none"> » Is withdrawn and mutilates himself/herself, does not take care of self » Violent and causes harm to others » Uses alcohol or drugs » Repeats ritualistic acts as compulsions
Emotions	
<p>Within Care giver’s Control if the Survivor</p> <ul style="list-style-type: none"> » Is crying and weeping consistently by reiterating about the incident » Has blunt emotions, is numb and hardly reacts correctly to his/her environment » Easily irritated and angered over trivial issues » Shows high spirits or laugh excessively » Very quiet with no emotions 	<p>Consider Referral if the Survivor</p> <ul style="list-style-type: none"> » Is unable to be aroused and is completely withdrawn » Is excessively emotional and shows inappropriate emotions » Is excessively happy, or sad and depressed

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Perception	
<p>Has all senses intact and has no perceptual disturbance, like seeing the ghosts of those expired</p>	<p>Hears voices in absence of the actual living organism » Sees things in absence of any living organisms' existence » Has complaints about vague bodily sensations » Takes a constant peculiar body position for days together</p>
<p>Within Care giver's Control if the Survivor » Talks excessively about the disaster » Refuse to talk much » Has rapid or stammered speech</p>	<p>Consider Referral if the Survivor » Is talking irrelevant » Shows overflowing of incoherent speech » Does not talk at all for days together</p>
Thought	
<p>Has a feeling of despair and worthlessness » Has a doubt on his/her own recovery » Is over concerned about unimportant things and neglects important things » Denies what happened to him/her and blames Others</p>	<p>Is excessively preoccupied with one idea or thought » Has bizarre thoughts, which have no answerable reason in that situation » Has a false but extremely firm and strong belief of something that is going to happen to him/her » Is attempted suicide or has suicidal thoughts</p>

11.19. Ethics & Confidentiality

- Never make false promises to the survivors
- Maintain the confidentiality of the very private information/problems what the survivors share with you.
- Have the commitment and strive to help and support the survivors in an unbiased manner
- Helping the co-workers and taking care of your self is very crucial.
- Whenever, the pressure of work or dealing with human suffering become stressful for you, seeking help and support is a must.
- Keep smiling and spread smiling among others

CHAPTER – XII **CAPACITY BUILDING MEASURES**

12.1 Approach

Developing a DDMP without building capacity or raising awareness amongst stakeholders can be detrimental to the development of a successful and sustainable plan. Stakeholders and communities are critical components to a successful, long-term, sustainable disaster management plan. Capacity Building develops and strengthens skills, competencies and abilities of both Government and non-government officials and communities to achieve their desired results during and after disasters, as well as preventing hazardous events from becoming disastrous.

Developing institutional capacity is very important. At the same time, by making the local community part of the process and solution would help in ensuring that disaster mitigation measures are more likely to be implemented and maintained over time.

12.2 Capacity Building of Govt. Officials, PRI Members etc.:

Table – 12.1: (Proposed Plan)

Sl. No.	Name of the Course/ Training Programme	Participants	Duration of the Training Programme	Month of Organization	To be Organized by
1	2	3	4	5	6
1.	Orientation training programme on disaster management	ADM, Sub- Collector All BDOs, Tahasildars, Head of line departments, Police & Fire Dept. etc.	½ day		DDMA/ Collector
2	Training programme on heat wave preparedness	All BDOs / EE RWS &S, CDMO, CDVO, NGOs, etc.	1 day		DDMA/ Collector
3	Hospital preparedness and mass casualty management including hospital management plan	Doctors and Hospital Administrators			CDMO
4	Training programme on treating heat wave related health issues	Doctors and Paramedical Staff/ ANMs	1 day		CDMO
5	Mass Casualty Management.	Para Medics /Police / RPF /Home Guard /Fire and Civil Defense / Railway Officials			DDMA
6	Earth quake resistant construction	Asst. Engineers & JEs	1 day		
7	Post disaster damage assessment	AEs of all Blocks and line departments	1 day		DDMA
8	GIS mapping of Utilities	Block Computer Programmers, Line Department MIS officials	1 day		
9	Public health in	All BDOs, Block and			CDMO

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Sl. No.	Name of the Course/ Training Programme	Participants	Duration of the Training Programme	Month of Organization	To be Organized by
	emergencies- safe drinking water and sanitation	district level officials of PHED/ RWS & S Dept.			
10	Training of teachers on school safety including DM plan and conduct of Mock Drills	Principal/ Head Masters of all Govt. & Private Institutions	1 day		DEO
11	Role of PRIs and ULBs in disaster management.	Members of ZP and ULBs, Chairman & Vice Chairman of PS.	1 day		DDMA/ Collector
12	Block level training programmes on role of PRIs in disaster management	Sarapanchas & PS members	1 day		BDO
13	Role of NGOs/VOs/CBOs in disaster management.	District and block level NGOs/ VOs involved with district administration in disaster management			DDMA/ Collector
14	Training of ZKSS and BKSS members on basics of disaster management and creating community level awareness for dos and don'ts related to common disasters.	ZKSS and BKSS members	1 day		District Culture Officer/ DIPRO
15	Search & rescue and safe evacuation.	Civil Defense Volunteers, NSS, NYK Volunteers, NCC	5 days		SP/ Asst. Commandant of the nearest ODRAF unit.
16	Training of Masons on earthquake resistant construction.	Masons for Blocks & ULBs	5 days		DDMA
17	Role of Media in Disaster Management	Media Personnel	1 day		DIPRO
18	Preparation of Block Disaster Management Plan (BDMP)	BDOs / Tahasildars / Officer in charge of DM of Blocks & Tahasils / Computer Programmers	1 day		DDMA
19	Drought Management Plan	DAO / AAO / VAWs	2 days		DDA
20	Training of Engineers on earthquake resistant construction.	Engineers AE & JE) from Blocks	1 Day		DDMA / DRDA

12.3 Tabletop Exercise:

The objective of Table Top exercise is:

- To review the District Disaster Management Plan for Mitigation & Management of Cyclone / Flood / Heat wave.
- To facilitate in checking the adequacy of the Emergency

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- To review the Response Plan of districts to meet the exigency.
- To highlight the roles and responsibilities of the concerned stakeholders at the District level.
- To enhance the coordination and synergize efforts of various Emergency Support Functions at the District level.
- To identify gaps if any, in the resources, manpower, equipment, communication and systems.
- To chalk out the empowerment plan for vulnerable groups to face disaster squarely with enhanced resilience.

On 19.06.2021, a table top exercise was conducted for the Cyclone Warning in the Bay of Bengal. In the said Table Top Exercise all Line Departments, All BDOs and Tahasildars were participated in virtual mode.

12.4 District/ Block level Mock Drills:

Dist. Administration used to conduct mock drills at Dist., Block and Shelter level every year on 19th June. Due to COVID restrictions only table top exercise was conducted on 19th June this year.

Table – 12.2:

Sl. No.	Type of Mock Drill	Officials / Institutions to be involved	Month
1.	Flood	All Blocks / Tahasildars / Line department Officials like EE, Irrigation (Khordha, Prachi & Bhubaneswar), CSMMCs, NGOs	June
2.	Cyclone	All Blocks / Tahasildars / Line department Officials like EE, Irrigation (Khordha, Prachi & Bhubaneswar), CSMMCs, NGOs	June
3.	Industrial Accidents/ Industry Specific Mock drills	Industrial safety wings/ NDRF / Fire Service / Director, Factories & Boilers / Administration	Quarterly
4.	Railway Mock Drill	Railway Division Khordha / Administration / NDRF/ Fire Service	February

12.5 Disaster management Education (School Safety and School Disaster Preparedness):

School Safety is one of the most important aspect of disaster management, as the students are vulnerable to both natural and man-made disasters. Students spend 8 long hours in the school and the way nowadays Heatwave, EQ, cyclonic winds, accidents during school hours like drowning in the school pond, road accidents of the school vehicles etc. are happening, there is a demanding need for the school safety in all the schools. The Teachers as well as students needs to understand their vulnerability and prepare themselves for any exigencies. Similarly, there is need for mass awareness and training needed at the colleges too.

12.6 Community Capacity Building and Community Based Disaster Management:

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Village Disaster Management Plan (VDMP) for 310 villages of 10 blocks have been started and supposed to be completed within six months, but due to the Pandemic, COVID-19, the process has delayed. 5 nos of NGOs have been involved in the preparation of VDMP.

Table- 12.3:

Sl. No.	Block Name	Total No of Villages	No. of vulnerable villages to be covered during 2019-20	No. of VDMC and task force member to be oriented	No. NGOs to be involved in the process	Time line
1.	All 10 Blocks of the District	1669	310	310	5	6 months from selection of NGOs

- Delayed due to pandemic COVID-19 restrictions.

12.7 Capacity building of Cyclone and Flood Shelter Maintenance & Management Committee and Task Force members:

Table – 12.4:

Sl. No.	Name of the Training Programme	Total No. of Persons to be trained	No. of Training Programmes to be organized	Time Line
1.	Orientation of CSMMC and FSMMC	500 (10 MFS & 10 MCS)	20	Oct onwards
2.	Traing of Srapanches	51	1	Oct onwards
3.	Training of task force members on Search & Rescue	250	10	Oct onwards
4.	Training of task force members on First Aid	250	10	Oct onwards
5.	Dist. Level Trg. Of Trainers (SAR & FA)	40 – SAR 40 - FA	1 1	Oct onwards

12.8 Shelter level mock drills:

Table – 12.5:

Sl. No.	Type	No. of Cyclone/ Flood Shelters to be covered	No. of villages to be covered.	Month/ Date
1	Cyclone Mock drill	51	51	Oct onwards
2	Flood Mock drill	51	51	Oct onwards
3	Block Level Mock drill (10 blocks)			19 th June
4	Dist. Mock Drill (1 at the Dist. Level)			19 th June

12.9 FAMEX / CAP:

As a part of community awareness, Govt. of Odisha has initiated a process called Familiarisation Exercise (FAMEX) / Community Awareness Programme (CAP) to educate the Govt. Officials, PRIs, Community, Students (School / College), Teachers on various aspects of both Natural as well as Man-Made disasters such as Lightning, Snakebite, Drowning, Heatwave, Flood, Cyclone and Fire. ODRAF and Fire Services team were instructed to conduct such exercise in different places in close coordination with District Disaster Management Authority (DDMA).

CHAPTER – XIII **PREPAREDNESS**

Relief Lines: District to Blocks

Table – 13.1:

Sl. No	Name of the Road		Type of Road & Length	Vulnerability of the route (Description of the Vulnerability)	Coverage (Blocks & ULBs)
	From	To			
1.	Khordha	Balianta Block point	NH, 37 Kms (Via. Uttara & Hanspal)	No vulnerability till block points. Only vulnerability is falling of trees due to cyclone.	Bhubaneswar, Balipatna
2.	Khordha	Balipatna Block point	NH, 43 kms (Via. Uttra & Pipali)	No vulnerability till block points	Bhubaneswar, Balianta
3.	Khordha	Jatni Block point	NH, 11 kms	No vulnerability till block points	Jatni NAC
4.	Khordha	Bhubaneswar Block point	NH, 29 kms	No vulnerability till block points	Jatni Block
5.	Khordha	Khordha Block point	0 kms	No vulnerability till block points	Khordha Mplty
6.	Khordha	Bolgarh Block point	NH, 45 kms	No vulnerability till block points	Begunia, Khordha
7.	Khordha	Begunia Block point	NH, 21 kms	No vulnerability till block points	Khordha Block
8.	Khordha	Banapur Block point	NH, 76 kms	No vulnerability till block points	Chilika, Tangi, Khordha
9.	Khordha	Tangi Block point	NH, 71 kms	No vulnerability till block points	Khordha, Tangi
10.	Khordha	Chilika Block point	NH, 68 kms	No vulnerability till block points	Balugaon NAC, Banapur
11.	Khordha	Balugaon NAC Point	NH, 70 kms	No vulnerability till NAC points	Chilika, Banapur
12.	Khordha	Jatni NAC point	NH, 11 kms	No vulnerability till NAC points	Jatni Block
13.	Khordha	Khordha Mplty Point	0 kms	No vulnerability till Mplty points	Khordha Block
14.	Khordha	Banapur NAC point	NH, 76 kms	No vulnerability till NAC points	Banapur, Tangi, Chilika Block & Balugaon NAC

Distance chart from District Office, Khordha:

Approximate Distance in KM.	Bhubaneswar	Balianta	Balipatna	Bolgarh	Jatni	Tangi	Chilika	Banapur	Begunia	Khordha
Khordha	29	37	43	45	11	71	68	76	21	0
Begunia	50	57	65	24	33	37	62	67	0	
Banapur	105	114	115	56	85	35	62	0		
Chilika	92	57	100	58	73	25	0			
Tangi	50	57	65	24	50	0				

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Jatani	19	28	32	56	0
Bolgargh	74	81	89	0	
Balipatana	16	14	0		
Balianta	9	0			
Bhubaneswar	0				

Relief Line Channels: *Block to GPs & Villages*

Table – 13.2:

Sl. No	Name of the Road		Type of Road & Length	Vulnerability of the route (Description of the Vulnerability)	Coverage (In Nos.)	
	From	To			Village/wards	Population
1.	Gareidipanchan GP Off	Kiajodi	Muhhram Road 3 KM	Usually affected by Flood	Kiajodi	647
2.	Gareidipanchan GP Off	Biswanathpur	Muhhram Road 5 KM	Do	Biswanathpur	2203
3.	Pampalo GP Off	Huikera	Black top road 3 KM	Do	Huikera	315
4.	Pampalo GP Off	Darada	Black top road 2 KM	Do	Darada	1432
5.	Kurunjipir GP Off	Dalakasoti	Muhhram Road 5 KM	Do	Dalakasoti	466
6.	Kurunjipur GP Off	Sanamachhapu	Black top road 3 KM	Do	Sanamachhapur	602
7.	Kurunjipur GP Off	Ghasiandhoti	Black top road 2 KM	Do	Ghasiandhoti	424
8.	Kurunjipur GP Off	Indolakusuari	Muhhram Road 5 KM	Do	Indolakusuari	435
9.	Rajas GP Office	Danapada	Black top road 3 Km	Do	Danapada	513
10.	Rajas GP Office	Bindha	Black top road 2 Km	Do	Bindha	219
11.	Rajas GP Office	Garia	Muhhram Road 5 Km	Do	Garia	641
12.	Somanasasan	Palasahi	Black top road 3 Km	Do	Palasahi	978
13.	Somanasasan	Biswalpada	Black top road 2 KM	Do	Biswalpada	1277
14.	Somanasasan	Raiddeuli	Black top road 2	Do	Raiddeuli	585
15.	Orabarsingh	Hirimul	Hirimul Village Road 1.050	Do	Hirimul	143
16.	Orabarsingh	Masania	Masania Orabarsing Road 1.250	Do	Oranarsingh	2469
17.	Orabarsingh	Dihakhala	Dihakhala Village Road 0.450	Do	Dihakhala	441
18.	Orabarsingh	Durgapur	Durgapur Village Road 3.00	Do	Durgapur	148

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19.	Orabarsingh	Lekhanpur	Lekhanpur Main Road 0.500	Do	Lekhanpur	352
20.	Brajamohanpur	Saradhapur	Saradhapur Village Road 0.450	Do	Saradhapur	1444
21.	Brajamohanpur	Gopinathpur	Gopinathpur Village Internal Road 0.350	Do	Gopinathpur	1036
22.	Brajamohanpur	Brajamohanpur	Brajamohanpur Village Internal Road 2.450	Do	Brajamohanpur	1295
23.	Narangarh	Orami	Narangarh to Orami Road 1.850	Do	Orami	523
24.	Narangarh	Balapur	Narangarh to Balapur Road 0.950	Do	Balapur	1019
25.	Hadapada	Dhabalpur	Hadapada to Dhabalpur Road 1.250	Do	Dhabalpur	243
26.	Kuapaut Patana	Saarsahi	Kuapaut Patana PWD Road to Saarsahi Road 1.250	Do	Kuapaut Patana	--

Resources available: Response force & Volunteers

Table 13.3:

Sl. No	Response Force	Capacity (In Nos.)	No. of trained person			Name of Nodal Person	Contact Details (Mobile/Phone)
			Search & Rescue	First Aid	Relief line Clearance		
1	NDRF	45	40	40	40	Sh. Jaocb Kispotta	0671-287971 09437964571
2	ODRAF (6 th IRBN, Khordha)	50	44	44	44	Shri Narayan Dora, OPS-(S)	9437905270 8598811007
3	Police	477	--	--	--	Sj. Raj Kishore Dora, SP	06755-220535 7008042675
4	Home Guards	238	100	100	0	Sj. Raj Kishre Dora, SP cum Commandant Home Guards	06755-220535
5	Civil Defense	150	50	50	50	Babaji Charan Lenka, (I/C)	9861189979
6	NCC	730	--	--	--	Deputy Director General, NCC	06742432051
7	NSS	7400	1500	1500	0	Piyus Paranjape	06742421339 9960300770
8	NYK	300	300	300	300	Mr. Bipin Kumar	9869720295

Preparedness at District level:

Table – 13.4:

Task	Activity
District Emergency operation Centre (DEOC)	<ul style="list-style-type: none"> • DEOC needs to be in a state of preparedness always with updated equipments, computers with Internet facility, telephone, Toll free no etc. • Test Checkup of all communication Interfaces in regular interval • Proper manning of the Control Room as per Para-10 of the Odisha Relief Code • A dedicated vehicle must be earmarked for Control Room

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	<ul style="list-style-type: none"> • An updated DDMP needs to be available at the DEOC
Upward & Downward Communication	<ul style="list-style-type: none"> • Have a list of Nodal persons with contact details • Establish regular linkages with all important stakeholders • Regular Communication with SEOC
Meeting of DDMA (Heads of the department & stakeholder)	<ul style="list-style-type: none"> • DDMA must meet twice a year to discuss different issues pertaining to disaster management • Emergency meeting of DDMA members before any disaster • Fix time & venue for regular Preparedness meeting to Assess preparedness of District /Department /Civil Society /Block Community /Family /Individual level regularly • Circulate the minutes of the meeting with clear-cut role & responsibility
Capacity Building	<ul style="list-style-type: none"> • Identifying & designating Nodal Officer for different Dept. • Regular training of Govt. Officials on latest updates of disaster preparedness and management • Training of PRIs on different aspects of Disaster Management • Capacity building & skill upgradation of ODRAF / Fire services / Police / Home Guard • Identify Volunteer like Civil Defense/Cyclone shelter Task Force / NCC / NSS /Scout & Guide & train them on Search & Rescue, First Aid, evacuation etc. • Take stock of required materials for search & rescue, first aid, mass casualty management, evacuation, relief etc. & update IDRN portal regularly with updated information from different line departments • Assess preparedness through Mock drill at District, Block & Community level
Shelter Management	<ul style="list-style-type: none"> • Formation of CSMMC and different Task force groups • Preparation of Shelter Management Plan • Training CSMMC on Shelter Management, Book Keeping etc. • Training of Task Force members on Search & Rescue and First Aid • Take necessary steps for operation & maintenance of shelters • Test Check of various Equipment at shelter level & repair of the defective ones • Ensure regular meeting of Shelter committee • Assess Shelter level preparedness through Mock drill
Planning & Reporting	<ul style="list-style-type: none"> • BEOC and DEOC needs to collect & transmit Rain fall data regularly • Collect & transmit weather report regularly • Ensure preparation of Disaster Management Plans & Safety plans at all levels • Capacity building of all Stake holders • Integrate the District plan with block & Village disaster management Plans • Develop healthy media partnership

Preparedness at Community Level:

Table -13.5:

Task	Activity
Early Warning Dissemination	<ul style="list-style-type: none"> • Build regular linkages with BEOC & DEOC • Have the BEOC / DEOC telephone no to ensure the viability of the warning issued • Test Check of various Equipment at shelter level & repair of the defective ones • Keep updates from BEOC/DEOC • Monitor & Transmit updates to BEOC • Supply required information to BEOC & DEOC
Ensuring Preparedness	<ul style="list-style-type: none"> • Have a list of Nodal person deployed in the village with contact details • Identification of safer routes & shelters • Identify possible ways to reach persons like Farmers / Fisherman / NTFP

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	<p>collectors etc. who ventures into fields, sea & forest respectively</p> <ul style="list-style-type: none"> • Build teams from among the task force on Search & Rescue, First aid, Damage & loss assessment • Assess preparedness at Family/Individual level • Test Check-up of equipment's • Understand Local dynamics exposed & vulnerable to different disaster • local Social Economic & weather conditions • Develop Village DM plan • List of emergency contact Nos. & display it in Centre places. • Participate in the activities of Preparing village Disaster Management, developing Safety plans, Capacity building Programmes & Mock Drills
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Preparedness at Family Level:

Table – 13.6:

Task	Activity
Warning Communication	<ul style="list-style-type: none"> • List the minimum Important requirements • Keep all the important Documents in a water proof polythene • Record the Safe & alternative routes to shelter • Keep News update in Radio/TV
Preparedness	<ul style="list-style-type: none"> • Always keep in readiness a "Ready to go Emergency Kit" containing Dry food (for 72 hours x Family member), Drinking water (2ltr/per person per day), Hand wash/soap, Important Documents/Valuables, Whistle/match box/lighter/ torch/battery/ umbrella, Mobile & charger / radio • Family must have a "Ready to go First Aid Kit" containing Iodine/ Band aids/ Cotton/ Medicines/ ORS/ ointments/ scissor/ halogens etc. • Assess preparedness on a regular basis by checking Radio/Mobile/ Emergency Kit/First Aid Kit/Fuels & Kerosene (as per need) • Replace the damaged outdated or expired materials with new ones.
Capacity Building	<ul style="list-style-type: none"> • Participate & involve in the activities of village disaster Management plan, preparation of Safety plans, • participate in Capacity building Programmes & involved in Mock Drills • Capacity building programmes for SHGs / Youth Clubs / Task Force members / Para medical staffs / ASHA workers etc.

Preparedness at Individual Level:

Table – 13.7:

Task	Activity
Early Warning Dissemination	<ul style="list-style-type: none"> • List & keep a ready to go minimum Important requirements • Record the Safe & alternative routes to shelter • Keep News update in Radio/TV
Ensuring Preparedness	<ul style="list-style-type: none"> • Every individual /child must have a Personal Identity information like a copy of Aadhar card / Voter ID / School Identity Card & Contact numbers of Preferably two who can be contacted in time of emergency • Family members especially kids must be sensitized about family gathering point during disaster & crowded places • Assess preparedness on a regular basis by checking Radio / Mobile / Emergency Kit / First Aid Kit / Fuels & Kerosene (as per need)
Capacity development	<ul style="list-style-type: none"> • Participate & involve in the activities of • Disaster Management • Safety plans • Capacity building Programmes • Mock Drills & FAMEX

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Preparedness of Departments:

Table – 13.8:

Name of the Department	Normal Time
Collector/ADM / Emergency Officer	<ul style="list-style-type: none"> • Ensure regular meetings of District Disaster Management Authority • Develop & update Disaster Management Plan, carry out Hazard analysis in the district • Identify safe alternate routes to cyclone shelters. • Keep a list of Contacts of DEOCs, Nodal officer of different departments, Important stake holders, Village leaders, shelters • List of Relief lines & storage places • List & maintenance of SAR equipment • Capacity building of stakeholders & volunteers • Asses preparedness through Mock Drills for different disasters at district department, block & community level • Adopt sustainable mitigation measures • Integrate DM & DRR features in development programmes • Develop Disaster Management Plans; Update the Disaster Management Plan quarterly, with focus on Hazard, Vulnerability, Risk and Capacity Analysis (HVRCA). Plan preparation should involve all concerned line departments and stakeholders in the district.
CDMO	<ul style="list-style-type: none"> • Disaster Management Plans & Safety plans for Hospitals • Capacity building of Medical & Para Medical Staffs • Formation of response teams and assignment of duties • Assess preparedness through Mock Drills & familiar exercises • Integrate department plans with plans with Village & Block Plans and development programmes • Develop media partnership • Develop capacity of hospitals with advance equipment, proper manning & disaster resilient infrastructures • Proper documentation and management of data for future reference
Superintendent of Police (SP)	<ul style="list-style-type: none"> • Prepare and quarterly update disaster management plan, especially identifying the sensitive areas with the active involvement of all concerned line departments and local bodies in the district. • Prepare a Deployment Plan for the Police Force, based on the needs of the most vulnerable and sensitive areas. • Ensure that a sufficient number of trained Police Force is available for responding to the disaster situation. • Frequent training programmes for the police personnel • Drill in regular intervals • Familiarization exercise at the community level to have a better rapport • Regular check up of equipments • Review and update emergency measures and procedures before the onset of monsoon
EE- RWSS	<ul style="list-style-type: none"> • Preparation of Departmental Disaster Management Plan to combat Heat wave and provide safe drinking water in flood prone areas • Capacity building of officials • Identification of water scarcity areas • Plan for structural and non-structural measures • Preparedness review at district and below before onset of summer and monsoon

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EE- Irrigation	<ul style="list-style-type: none"> • Preparation of Departmental Disaster Management Plan • Prepare and quarterly update the disaster risk and vulnerability map with active involvement of all concerned line departments and local bodies in the district. The map should show the vulnerability and risks of the critical infrastructure related to irrigation and the presence of alternate source of water within the district. • Formulate a plan for managing the water situation in a drought-affected area through reservoir management; repairs and augmentation of existing water supply schemes; • Capacity building of officials and other stake holders on disaster proofing mechanism • Identification of weak embankment areas • Plan for structural and non-structural measures by involving the local community and PRIs • Keep in readiness essential tool kits and protection material at critical places for emergency deployment before the onset of monsoon. These may include: 1. Empty Cement Bags 2. Boulders 3. Ropes 4. Sand 5. Wire mesh 6. Shovels 7. Baskets 8. Lights, and 9. First Aid Kit • Rapport building with the community
DAO- Agriculture	<ul style="list-style-type: none"> • Preparation of Departmental Disaster Management Plan • Capacity building of officials and farmers • Preparation of Drought management plan with Standard Operation Procedure • Identification of flood prone areas and identification & procurement of appropriate small duration variety seeds to be given to the farmers
EE- Rural Works	<ul style="list-style-type: none"> • Preparation of Departmental Disaster Management Plan • Capacity building of officials • Communication establishment with District and Block/ Tahasil control room and departmental officers within the division • Plan out the water resource management process for estimating the demand for water. It can be undertaken on the basis of the consumption needs of the total population of the district and the demand for water from industrial service and agricultural sector. • An officer to be nominated as nodal officer • Arrangement of extra vehicles/ heavy equipments, such as front-end loaders/ towing vehicles/ earth moving equipments/ cranes etc. • Inspection and emergency repair for roads/ road bridges/ underwater inspection/ piers/ concrete and steel work • Inspection by mechanical engineer of all plant and equipments • Route strategy for evacuation and relief marked • Clearance of blocked roads • Community assistance mobilized for road clearing • All staff informed about the disasters, likely damages and effects
EE- Public Works	<ul style="list-style-type: none"> • Develop and quarterly update the disaster management plan that includes the Contingency Action Plan for the Department based on HVRC analysis, with the active involvement of all concerned line departments and local bodies in the district. • Preparation of Departmental Disaster Management Plan • Capacity building of officials • Communication establishment with District and Block/ Tahasil control room and departmental officers within the division • An officer to be nominated as nodal officer to do the coordination with district administration • Arrangement of extra vehicles/ heavy equipments, such as front-end loaders/ towing vehicles/ earth moving equipments/ cranes etc. • Inspection and emergency repair for roads/ road bridges/ underwater inspection/ piers/ concrete and steel work • Inspection by mechanical engineer of all plant and equipments

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	<ul style="list-style-type: none"> • Route strategy for evacuation and relief marked • Clearance of blocked roads • Community assistance mobilized for road clearing • All staff informed about the disasters, likely damages and effects
DTO-Telecom	<ul style="list-style-type: none"> • Ensure regular check up of the facilities and services • Preparation of Departmental disaster management plan • Identification of additional HR in case of emergency
CDVO	<ul style="list-style-type: none"> • Preparation of departmental disaster management plan • Training of officials on various aspects of animal management including the farmers • Formation of response teams and assignment of duties • Proper vaccination of the animals before the onset of monsoon • Close watch on different animal related issues like bird flu.
RTO/MVI	<ul style="list-style-type: none"> • Work in close coordination with district administration • Provide required vehicles as and when required • Keep close watch on road accidents
Fire Officer	<ul style="list-style-type: none"> • Regular training programmes for the school & College students • Training programmes for officials • Regular check up of the equipments available with the fire station • In close contact with the district administration for clearing the roads / relief line in case of emergency
Railway	<ul style="list-style-type: none"> • Inspection of railway network in frequent intervals • Close watch on the tracks passing through flood / storm surge areas • Close watch on the tracks passing through coastal areas because of track damage due to saline water • Regular drills involving District Administration, NDRF, ODRAF etc. • Familiarization with the community residing at the both sides of the railway track • Creating awareness among the community to help the railway at the time of any sever accident and support the authority to provide all sort of help to the people suffered due to rail accident
EE- Electricity	<ul style="list-style-type: none"> • Database management • Ensure checking of the grid points and other important substations • Ensure uninterrupted supply of electricity to the Hospitals / CHCs / PHCs during summer to tackle Heat wave situation • Maintenance of the transformers and grid points at a regular interval • Identification of additional HR for emergency use.
EE - PHED	<ul style="list-style-type: none"> • Preparation of Departmental Disaster Management Plan to combat Heat wave and provide safe drinking water in water scarcity areas • Capacity building of officials and other stakeholders • Identification of water scarcity pockets to arrangement of water tankers to provide drinking water twice daily • Plan for structural and non-structural measures • Preparedness review at district and below before onset of summer and monsoon
DEO- School & Mass Education	<ul style="list-style-type: none"> • Training of Teachers on School safety • Training of Students on School Safety, Family safety during different disasters • Mock drills to memorize the safety tricks • Teachers to guide the villagers in village DM planning as and when required • Teacher to Act as a resource person for students as well as the villagers for disaster preparedness, mitigation and management activities
DEO - Higher Secondary Education	<ul style="list-style-type: none"> • Training of Lecturers and Students on disaster safety • Training of Students on Different Safety aspects, Family safety during different disasters • Training of Students on SAR and FA • Mock drills to memorize the safety tricks

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Preparedness activities by specialized teams:

National Disaster Response Force (NDRF)	<ul style="list-style-type: none">• Deployment and pre-deployment at the district• To conduct famex in order to acquaint personnel with vulnerability of the area, roads, infrastructure, populace and response to different disasters.• To conduct mock exercises in coordination with other stake holders for well coordinated response during disaster.• To conduct community awareness programmes for capacity building• To organise demonstrations and exhibitions as part of community awareness• To undergo different kinds of training in order to increase the skill and expertise of NDRF personnel.• To train SDRF, community, volunteers, students and NGOs in disaster management.
Fire Service	<ul style="list-style-type: none">• Conducts training cum awareness programme usually one programme in a month at different schools and colleges• Conducts the awareness programme in schools and colleges to make the students aware about the following<ul style="list-style-type: none">○ Fire safety in home○ Handling of gas cylinders in home○ Electrical Safety in schools and houses○ Rescue a drowning student during school hour○ To provide minimum first aid to a road accident victim○ Demonstration of Mock drills

CHAPTER – XIV **RESPONSE**

Response refers to activities done for handling disaster to bring the situation to normalcy not exceeding fifteen days from the abatement of disaster. The onset of an emergency creates the need for time sensitive actions to save life and property, reduce hardships and suffering, and restore essential life support and community systems, to mitigate further damage or loss and provide the foundation for subsequent recovery. Effective response planning requires realistic identification of likely response functions, assignment of specific tasks to individual response agencies, identification of equipment, supplies and personnel required by the response agencies for performing the assigned tasks. A response plan essentially outlines the strategy and resources needed for search and rescue, evacuation, etc.

14.1 Flood / Cyclone Circle Zone:

10 flood circle zones have been formed in 10 Blocks under the supervision of concerned Block Development Officers. Each zone is again sub-divided into sub-zones (Gram Panchayats) and kept in charge of ABDO/ VLWs/ RIs / Extension Officers.

- BDOs – Zone Officers of respective Blocks
- Tahasildars – Addl. Zone Officers of respective Tahasils
- Executive Officer, ULB – Flood Zone Officer
- GP Extension/Executive Officers – Sub Zone Officers of respective GPs

Sub-Collector, Khordha would monitor the Blocks like Banapur, Chilika, Tangi, Khordha, Bolgarh and Begunia. Whereas Sub-Collector, Bhubaneswar would monitor the blocks like Jatni, Bhubaneswar, Baliana and Balipatana.

For smooth monitoring of rescue and relief operation during high flood/ severe cyclonic situation or any calamity of similar nature, the senior district level Officers remain in-charge of the Blocks as Supervising Officers to keep close watch on preparedness and response actions.

The Additional District Magistrates, Khordha, ADM (Rev) and Bhubaneswar remain in-charge of the following Sub-divisions as Supervising Officers to keep close watch on prepared and response activities.

- ADM - Khordha Khordha, Bolgarh, Begunia
- ADM (Rev) Tangi, Chilika, Banapur
- ADM –Bhubaneswar Bhubaneswar Sub-Division

14.2 Duties of Zone / Addl. Zone Officer

The Zone/Addl. Zone Officers receive weather/flood warning from DEOC Sub-Divisional Control Rooms, Electronics and Print Media etc.

Immediately on receipt of warning they will act as follows:

- They will depute the Sub-Zone Officers to their appointed places.

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- Inter departmental coordination needs to be activated immediately.
- They will warn the people specifically of low-lying areas through Sarpanches, PS members, Ward members, youth clubs, NGOs working the area and by Public Address system, bit of drums, blowing the sankha or any other traditional way, in the village and local markets.
- They will take necessary steps to evacuate people from low-lying areas if situation so warrants. For this they may enlist co-operation of local Youths, volunteers and youth clubs or even the police and fire brigade consulting with DEOC.
- They will keep the Government power and country boats ready in vulnerable points and appoint boatman for the country boats. As such there is no facility available right now. So, they may access the private country boat use during emergency. The list must be prepared earlier at the time of preparation of Disaster Management Plan.
- They should see that sufficient quantity of rice/wheat/ Chuda/Kerosene oil/Match Boxes/fuel etc., are made available through retail sale center and at local markets.
- They will have to take steps to guard the weak and vulnerable points in embankments through village volunteers, Home Guards and Police constables etc. if situation demands then the Irrigation deptt may be coordinated to provide support and service.
- If situation so warrants, they will start distribution of emergent relief in marooned areas after obtaining approval of Collector/Sub-Collector concerned. While transporting and distributing relief the Officers concern may take the help of GP level and village level DMTs (relief team members) for the said purpose.
- There may be necessity of more vehicles for undertaking rescue and relief operation. In such circumstances they will immediately contact the Sub-Collectors / district control room for assistance.
- Apart from Govt. Country boats there may be necessary of private country boats. In such cases the Zone and Addl. Zone Officer may hire private country boats under intimation to District Control Room.
- They will keep District Control Room informed regularly about the situation and relief measures.
- They will assess damages through field staff and submit preliminary report within 3 days of the occurrence of the calamity. Before to this a daily situation report also will be submitted to the Collector by the Zone / Addl. Zone Officer without fail (as per para 71 of ORC)
- They will assess detailed damage and submit final damage report to District and Sub-Collector's office within a week.
- Tahasildars will assess the damage to the private houses through Revenue field staff and staff deputed from other offices. After assessment of damages they will conduct at least 10% test check to ensure correctness of the enumeration. Addl. Tahasildars and other officers deputed from different offices may also be engaged for checking. After final assessment, proposal is to be sanctioned by Tahasildars concerned and submitted to Sub-Collector/ District Office for approval of House Building Grant u/r 81(1) and 82(3) of Orissa Relief Code (the revised norms) and simultaneously requirement of

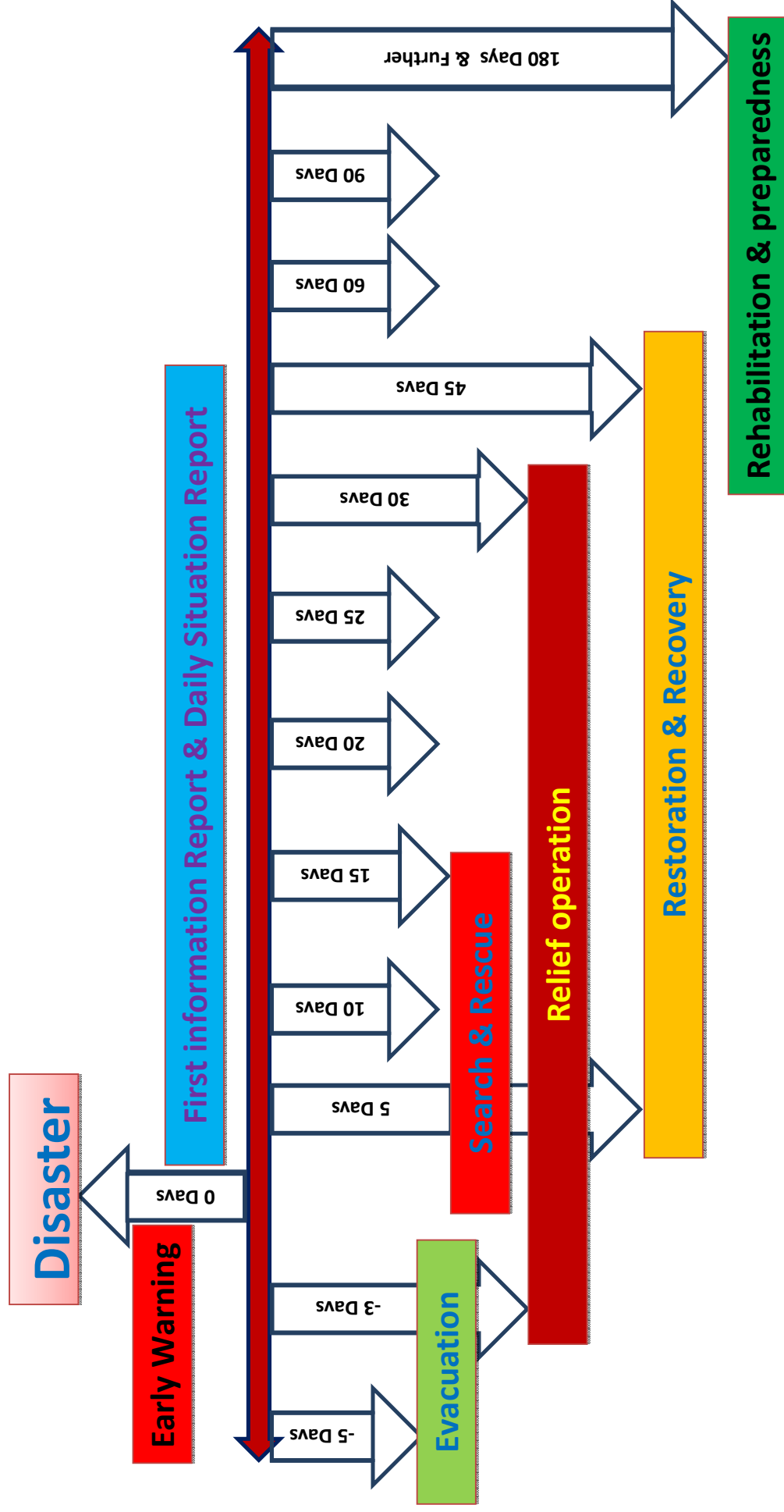
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funds should be indicated. All such assessment works should be completed within 7 days from the date of occurrence.

- In case of human casualty, the Tahasildars concerned will bring proforma report from Revenue Inspectors within 24 hours and submit report to District Collector at once for consideration and sanction of ex-gratia u/s 254 of Orissa Relief Code.
- All the Officers will immediately be called up and they should remain in headquarters until the situation becomes normal.
- A logbook may be maintained for recording chronological sequence of events time to time.
- They personally should check up availability of food (Rice, Chuda and Jaggery) and kerosene at block headquarters, with storage agents and other inaccessible pockets, BDOs shall contact all Storage Agents. The Agents shall remain present at the store round the clock. BDOs shall immediately depute one officer to the place where the storage godowns are located.
- They will direct the Stockiest /wholesaler and FCI to remain open on all days, including Sundays and holidays till situation gets back to normal.
- Movement of food stock and Kerosene Oil will be started from Block headquarters to areas that are likely to be cut-off.

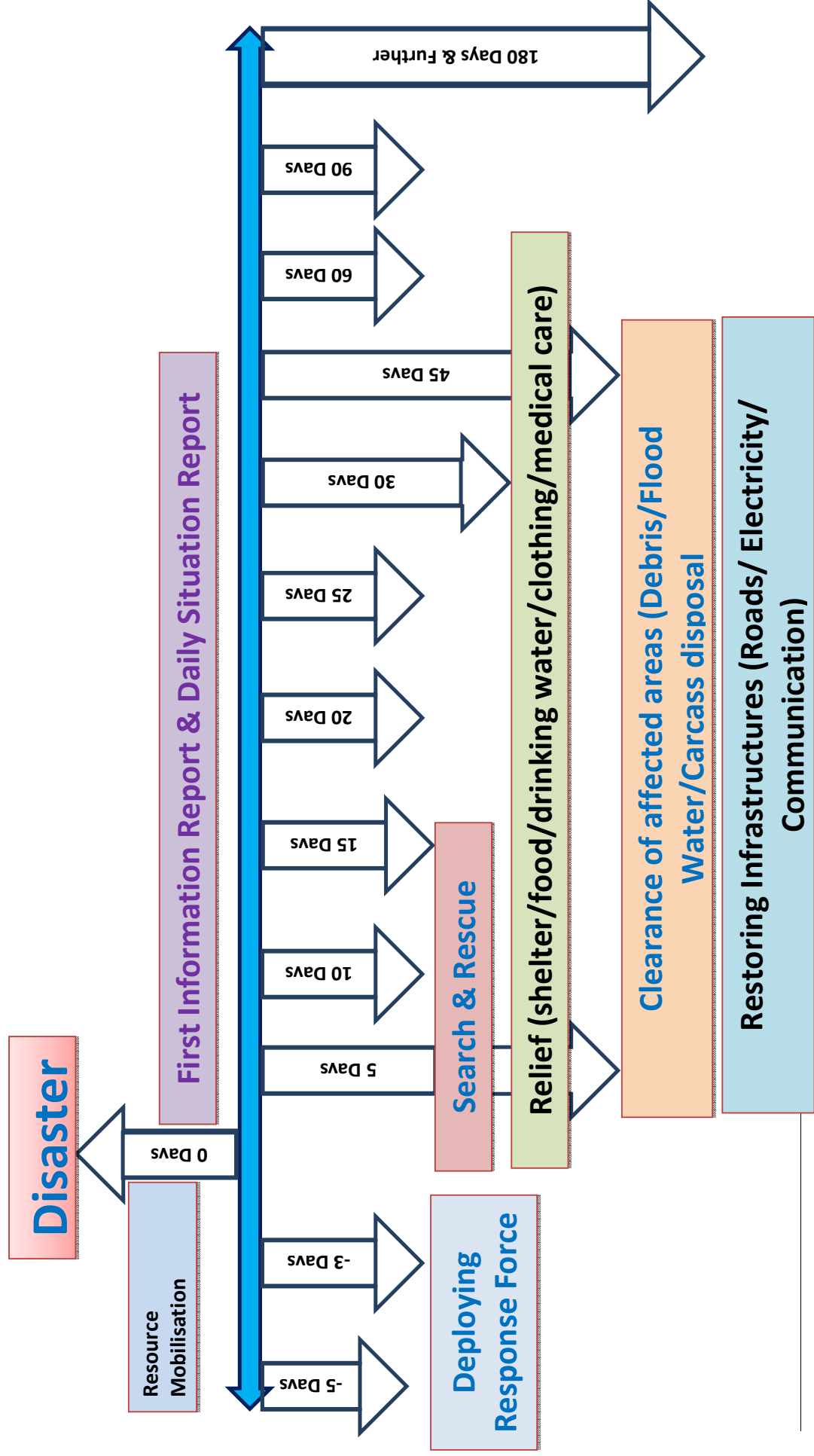
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14.3 Phases of Response: Timeline (Indicative)



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14.4 Relief Management: Timeline



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14.5 Response: District Administration

Task	Activity
Warning Communication	<ul style="list-style-type: none"> • Warning dissemination to the concerned BDOs / Tahasildars / Police stations / PRIs • Warning dissemination at the last mile by Public address system for necessary evacuation from the low lying areas • Recording the receipt of information & regular Status update • Transmitting updates to SEOC & DEOC in regular interval as instructed • Reporting frequently to DEOC
Meeting of DDMA (Heads of the department & stakeholder)	<ul style="list-style-type: none"> • Collector to take up a department coordination meeting & distribute works among all the Departments • Assignment of officers to coordinate with other line departments such as <ul style="list-style-type: none"> ○ Revenue officer to coordinate and call for report from CSO, RTO ○ Establishment officer to coordinate and call for report from CDMO, CDVO ○ Sports officer to coordinate with the NSS & NCC ○ Emergency officer to coordinate with the coordinating officers for smooth reporting and monitoring ○ DIPRO to conduct the media management in coordination with Dist. Emergency Officer • Collector issues circular to keep Govt. offices open cancelling all holidays and not allowing the field and HQ staff to leave their duty station • A fixed time to be finalized every day for reporting at all level. • Circulate the minutes of the meeting with clear-cut role & responsibility
Pre-positioning of staff, resources & Evacuation	<ul style="list-style-type: none"> • Identifying & designating Nodal Officer for different disaster affected areas. • Positioning of ODRAF / NDRF / Fire services / Police / Home Guard in the strategic places • Pooling Volunteer services (Civil Defense / Task Force / NCC / NSS / Scout & Guide) • Take stake of required materials for search & rescue, first aid, casualty management, evacuation, relief etc. • Make necessary arrangements of shelters for evacuation • Keeping track of the persons evacuated and the places where they have taken the shelter • Time to time reporting the nos of evacuees at different shelter places to the DEOC for onward transmission • Constitute a special team for special care to vulnerable section like specially abled, Sr. Citizen, Pregnant & lactating women, Infants & children etc. • CSO should have the plan for procuring the relief materials from the neighboring districts if required.
Response	<ul style="list-style-type: none"> • EOCs to Ensure back up (Power/Fuel/internet) Communication at Dist. / Dept. & Block levels • Response force under guidance of Nodal officers ensure complete Evacuation (Human/ Animal), carry out Search & Rescue, clear relief lines, • Collector to submit requisition of vehicle/boat/ helicopters & list of support from state & Centre to all concerned authorities • CSO to store required relief materials (Chhuda. Gur, Dry Foods) in the nearby storage points and identify the procurement point if required • CDVO to store, transport & distribute required foddors for animals to the affected areas

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	<ul style="list-style-type: none"> • Cyclone shelter committee & Village Disaster management committee to organize free kitchen in the shelters with help of revenue dept. • EE- RWSS & CDMO to ensure supply of drinking water, disinfection of water & maintain Health & hygiene in the shelters • CDMO to carry out First aid & casualty management • Collector to collect & transmit First Information Report (FIR) & Daily Situation Report as per requirement
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14.6 Response : Community Level

	Activity
	<ul style="list-style-type: none"> • DEOC to disseminate warning communication to BEOC, PRIs, Community through Email, Cell Phones, VHF Message (if required) • Print and Electronic Media needs to be used depending upon the severity of the situation • Response force to ensure Power/Fuel/internet/ Communication at Shelters back up • Supply Inspectors & Marketing Inspectors to distribute relief materials with response force, Task force & volunteers • Response force to carry out Search & Rescue measures, Emergent relief operation, Relief line clearance, distribution of relief • Doctors to carry out First aid & casualty management, Carcass disposal & sufficient mortuary facility in the affected areas • House hold members needs to protect their valuables such as property documents, medical prescriptions for critical illness (if any), jewelry etc. after getting the information so that it will be protected from damage • Every house hold needs to keep stock of dry foods at least three days so that if evacuated to the nearest shelter they can take care of their families and belongings.

14.7 Response: Family & Individual Level

	Activity
Response	<ul style="list-style-type: none"> • Listen to the instruction of the response force & warnings • Validate the warning from the DEOC (1077) or other control rooms nearby • Economic use of "Ready to go Emergency Kit" Ready to go First Aid Kit • Cooperate the response force/officers & Render volunteer service if asked for • Maintain cleanliness & hygiene at home / shelter / community center • Every house hold needs to keep stock of dry foods at least three days so that if evacuated to the nearest shelter they can take care of their families and belongings. • Follow the do and don't properly

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14.8 Response: Standard Operating Procedures for Departments

Name of the Department	On Receiving Warning	Response time	Post Disaster
Collector/ADM / Emergency Officer	<ul style="list-style-type: none"> • Review the situation in DDMC meeting and identification of gaps and arrangement to be done accordingly • Activate DEOC & Early Warning • Appoint / Deploy Officers In-charge of Response Base. i.e. DEOC.. • Work distribution among the officials for smooth operation • Circular to keep offices open and staffs to be in alertness • Arrange vehicle & activate Evacuation (Normal/Forceful) • Deployment of ODRAF / NDRF units in the affected areas. • Ensure formalizing supply contracts for all departments that require additional manpower during emergencies. • Create teams including transport, relief material and equipment for responding to the disaster incident headed by one of the Higher officer of the district. 	<ul style="list-style-type: none"> • Convene an emergency meeting and take stock of the situation. • After receipt of the information within 30 minutes the system needs to be activated and the warning disseminated to the concerned. • Frequent check up off updates and warning dissemination needs to be done accordingly. • Activate Search & Rescue • Arrange temporary shelters • Arrange logistics in shelters • Workout financial estimates (evacuation / relief /recovery) • Coordinate with Army, Air Force, Navy, NDRF & ODRAF for support towards evacuation, rescue and relief. • Facilitate preparation of a transportation plan for supply of relief items. 	<ul style="list-style-type: none"> • Convene an emergency meeting and take stock of the situation • Prepare an evacuation plan for the marooned / devastated areas. • Prepare a list of transit/temporary shelters, and check their suitability for accommodating people. • Activate relief line clearance • Proper relief Distribution • Start damage assessment • Facilitate Ex-gratia & Compensation • Start primary damage estimate • Pool resources for SAR/shifting of critical patients • Convene meetings of NGOs, Youth Clubs, Self-Help Groups, etc., in the district, and assign them specific responsibilities for relief, recovery and rehabilitation. • Have a back-up communication system.

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Name of the Department	On Receiving Warning	Response time	Post Disaster
<p>Chief District Medical Officer (CDMO)</p>	<ul style="list-style-type: none"> • Disseminate the alert to all concerned (Staff list) • Arrangement of medicine, First aid kits & teams • Assignment of Mobile Health units for inaccessible pockets • Provision of medicines to the Medical Relief Centers • Identifying & shifting patients requiring intensive care to safer places • Supply of medicines & pre-positioning of medical teams to vulnerable areas • Vaccination for prevention of communicable diseases • Measures to dis –infect drinking water • Availability of Blood Banks/Ambulance • Assign medical personnel for each Response Base, as identified by the district administration, to the extent possible. Keep essential medicines and first aid facilities with each Response Base. • Constitute mobile response units consisting of a doctor, health workers and ANMs, and prepare a deployment plan. Each mobile health unit should be capable to cover at least one Response Base in a day. • Check stocks of equipments and drugs which are likely to be needed most in disaster management. These can be categorized generally as: 1. Drugs used in treatment of wounds and fractures such as tetanus toxoid, analgesics, antibiotics, dressing material, and splints; 2. Drugs used for treatment of diarrhoea, influenza, malaria, and infective hepatitis; 3. Drugs required for treating snake bite and infection; 4. Drugs needed for detoxification including breathing equipment; and 5. Intravenous fluids. 	<ul style="list-style-type: none"> • Mass Casualty Management units & Triage • First Aid Centers • Medical surgical teams • Adequate mortuary facility • Measures to shift patients requiring intensive care • Pool of Blood donors (Preferably each group) • Additional laboratories • Carcass disposal team & units • Hospital administration should: 1. Establish work schedules to ensure that adequate staff is available for patients' needs; 2. Organize in-house emergency medical teams to ensure that adequate staff is available at all times to handle emergency casualties; and 3. Set up teams of doctors, nurses and paramedical staff as per IRS • Secure medical supplies in adequate quantity for dealing with these situations, which may include: 1.Oral Rehydration Solutions; 2. Chlorine Tablets; 3. Bleaching Powder; 4. Anti-diarrhoeal and Antiemetic (Used for controlling vomiting and nausea) medicines; 5. Intravenous fluids; 6. Suture material (A foreign body implanted into human tissues for closure of wounds); 7. Surgical Dressings; 8. Splints; 9. Plaster Rolls; 10. Disposable Needles and Syringes; and 11. Local Antiseptics. 	<ul style="list-style-type: none"> • Psycho-Social Counseling • Post Disaster Disease surveillance system • Special attention to vulnerable section • Move medical personnel both for each Response Base and mobile unit as soon as possible. • Determine type of injuries/illness expected and drugs and other medical items required, and accordingly ensure that extra supplies of medical items are obtained quickly. • Networking with & promote treatment in Private Hospitals • Carcass Management & Issuance of Death Certificate • Relocate non-ambulatory patients to the safest areas within the hospital. The safest rooms are likely to be: 1. On ground floor; 2. Rooms in the Centre of the building away from windows; and 3. Rooms with concrete ceilings. • Proper documentation of the patients coming to the hospital and keeping their records. • Develop a system of monitoring the outbreak of disease to ensure that timely measures can be initiated to counter them. Carry out monitoring for potable water and quality of food and disposal of waste in transit/relief camps, feeding centres and affected villages

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Name of the Department	On Receiving Warning	Response time	Post Disaster
	<ul style="list-style-type: none"> • Check the emergency electrical generator to ensure that it is operational and that buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one. • Fill hospital water storage tanks, and arrange water storage tanks, if not in existence; and also keep drinking water in clean and protected containers. • Prepare an area of the hospital for receiving casualties. 	<ul style="list-style-type: none"> • Pack all valuable instruments such as surgical tools, ophthalmoscopes, portable sterilizers, ECG machine, dental equipments, ultrasound machine, analyzer, invertors, and computer hardware, etc., in protective coverings and store in rooms considered to be the most damage proof. • Protect all immovable equipment such as X-ray machines, Sterilizer, Dental Chair by covering them with tarpaulins or polythene. • All electrical equipments likely to be affected should be marked & unplugged when disaster warning is received. • Prepare a maternity facility for pregnant women in every Response Base/ Advance Medical Post. 	<ul style="list-style-type: none"> • Arrange transport for transfer of seriously injured/sick patients from villages and peripheral hospitals to general hospitals. If roads are blocked, ensure arrangement of alternate mechanism by Nodal Officer/ Deputy Commissioner/ District Collector/ District Magistrate. • Use information formats and monitoring checklist for programme monitoring and development and report to emergency operation centre at state level. This is in addition to existing reporting system in the department. • Seek security arrangements from Senior Superintendent of Police to keep curious persons from entering hospital areas and to protect staff from hostile actions. • Establish "Health Helpline" with means of communication to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations in disaster situations, and providing the list of admitted patients and dead persons, etc.

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<p>Superintendent of Police (SP)</p>	<ul style="list-style-type: none"> • Ensure functioning of the warning system. • Formation of team • Delegation of areas • Formation of zones/Sub-Zones • Prepare a Deployment Plan for the Police Force, based on the needs of the most vulnerable and sensitive areas. • Ensure that a sufficient number of Police Force is available for responding to the disaster situation. • Constitute 'Search & Rescue' Teams from the Police Force, and arrange training for these units. At least, one Search and Rescue Team for every district should be in place; more Teams could also be constituted depending upon the area and magnitude of disaster. Arrange rescue kits. • Support Block staff and volunteers during evacuation operation • Check the wireless communication network, and secure additional wireless sets for deployment during a disaster. • Assist fire brigade personnel in their efforts • Maintain law and order situation • Assess and identify roads on the bases of following conditions/facilities: 1. One-Way 2. Blocked 3. Alternate route 4. Overall Traffic Management and 5. Other access roads • Plan for Installation of radio communications at: <ol style="list-style-type: none"> 1. District Control Room, Deputy Commissioner/ District Collector/ District Magistrate and SP Office; 2. Control Room at affected site; and 3. Departmental Offices within the District and Division. • Review and update emergency measures and procedures, and ascertain with staff the precautions that have been taken to protect equipment. 	<ul style="list-style-type: none"> • Remain in close contact with the district administration • Keep close watch on the situation • Call for emergency meeting to take stock of the situation. Develop a strategy and a mission underlining objective. • Ensure that all field staff and stationed officers submit the necessary action reports to the Control Room. • Provide convoys for relief materials. • Arrange rescue kits. • Support Block staff and volunteers during evacuation operation • Assist fire brigade personnel in their efforts • Maintain law and order situation • Ensure security of key installations like power, water and supply, telecommunication, etc. • Provide the VHF at most vulnerable points 	<ul style="list-style-type: none"> • Support District/Block officials and volunteers during search and rescue operation • Provide guards wherever needed, particularly at stores and distribution centres. • Help injured people, and assist the community in organizing emergency transport of seriously injured to medical treatment centres, with the assistance of health professionals. • Assist fire brigade personnel in their efforts • Make available officers to inquire into deaths and record them, as there is likely to be shortage of time or personnel available to carry out Standard Post-mortem Procedures. • Monitor the medical needs and welfare of people sheltered in relief camps. • Activate a public helpline, with the help of government offices to: <ol style="list-style-type: none"> 1. Respond to personal inquiries about the safety of relatives in the affected areas; 2. Serve as a rumour control centre; and 3. Build confidence among the public. • Provide adequate security to personnel of International Agencies for Search and Rescue, Medical Assistance and Security for their relief material and equipments, etc.
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<p>DRDA wing in-charge of Water Supply & RWSS / PHED</p>	<ul style="list-style-type: none"> • Develop and update the disaster management plan that includes the Contingency Action Plan for the Department based on HVRC analysis with the active involvement of all concerned line departments and local bodies in the district • Installation and repairing of tube-wells • Site visit and report • Awareness generation for using bleaching • Helping BDO during emergency • Review and update precautionary measures and procedures and ascertain with staff the precautions that have been taken to protect equipment. • Supply of drinking water during emergency • Site selection and water test in • Collection and storing of K-018H2s test stripe, bottle, bleaching, halogen tablets, tube well accessories • Area wise deployment of staff, fitter, Mason etc. • To inform all its staff members to report their respective headquarters • Close contact with DEO • Arrangement of water tankers • Procurement collection of water purifiers • Stockpiling of accessories • Repairing the defunct tube-wells • Raising platforms/height of the tube wells in low lying areas. • On the receipt of disaster warning, organize continuous monitoring of: 1. Wells 2. Intake structures 2. Pumping stations 3. Buildings above ground, and 4.Pumping mains; and 	<ul style="list-style-type: none"> • Call for emergency meeting to take stock of the situation • Coordination with the DEOC for the information and keeping a strict vigil over the situation and act accordingly. • Maintenance of record for information generation and dissemination. • Co-ordinate with District Administration • Immediate address the issues related to water scarcity during summer • Make provisions to acquire tankers and establish other temporary means of distributing water on an emergency basis. • Make available standby water supply in the event of damage, saline intrusion or other pollution of the regular supply. • Prepare plans in coordination with other departments for water distribution to all transit and relief camps, affected villages and cattle camps and ensure proper execution of these plans. 	<ul style="list-style-type: none"> • Damage assessment • Identification of areas for clearance • Delegation of team • Monitoring the work • Proposal to the government for repair and restoration • Identify unacceptable water sources and take necessary precautions to ensure that no water is accessed from such sources, either by sealing such arrangements or by posting the department guards; • Ensure that potable water supply is restored, as per the standards and procedures laid down in "Standards for Potable Water";
	<p>Treatment plant</p>		

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<p>EE- Irrigation</p>	<ul style="list-style-type: none"> • Suspension or cancellation of all leaves of instruction to the concerned person to join head quarter immediately. • Arrangement of all-important telephone line and number in order • Arrangement or requisition of Jeeps/ Trekkers/ Auto Rickshaw to disseminate received warning information to the population of vulnerable/ weak places. • Maintenance of record for information generation and dissemination. • Co-ordinate with District Administration • Checking of all the rain-gauge stations and ensure that they are functioning properly. Ensure that the readings from these stations are available immediately to the Irrigation Department. Prescribe a register for recording of rainfall • Keep in readiness essential tool kits and protection material at critical places for emergency deployment. These may include: <ol style="list-style-type: none"> 1.Empty Cement Bags 2. Boulders 3. Ropes 4.Sand bags 5. Wire mesh 6. Shovels 7. Baskets 8. Lights, and 9. First Aid Kit 	<ul style="list-style-type: none"> • Coordination of the information and keeping a strict vigil over the situation and act accordingly. • Maintenance of record for information generation and dissemination. • Co-ordinate with District Administration • Organize round the clock inspection and repair of : <ol style="list-style-type: none"> 1. Bundhs 2. Dams 3. Irrigation channels 4. Bridges 5. Culverts 6. Control/sluice gates 7. Overflow channels 8. Pumps 9. Generators 10. Motor equipment, and 11. Station building 	<ul style="list-style-type: none"> • Damage assessment • Identification of areas for clearance • Delegation of team • Monitoring of work • Proposal to the government for repair and restoration • Field Office Priorities: <ol style="list-style-type: none"> 1. Continue round the clock inspection and repair of bunds, dams, irrigation channels, bridges, culverts, control gates and overflow channels, etc.; 2. Make round the clock inspection and repair of pumps, generators, motor equipment and station buildings; 3. Clear the inlet and outlet to lake or reservoirs, on an on-going basis, in order to ensure that waterways are unobstructed by trees or vegetation; and 4. Use information formats and monitoring checklist for programme monitoring and development, and for reporting to District Emergency Operations Centre (DEOC). This is in addition to existing reporting system in the department.
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<p>DAO- Agriculture</p>	<ul style="list-style-type: none"> • Activate the field functionaries • Issue necessary instructions to the staff as well as the farmers to safe guard their crops (in case of heavy rain warning, to cover up the paddy or other crops already placed in the house premises) • Close watch on the flood situation • Review and update precautionary measures and procedures. • Check and stock equipment, if possible agricultural materials, which are likely to be needed most, during and after a disaster. 	<ul style="list-style-type: none"> • Close watch on the flood situation • Develop a pest and disease monitoring system so that timely steps can be taken to reduce damage to crops. • Suggest variety of seeds and cropping pattern, which can reduce losses and reduce the risks to farmers. • Review of stock of seeds available with the department. • Identification of vehicles for necessary transportation of the seeds to the affected. • Farmers' awareness plan needs to be chalked out depending upon the severity of the situation. 	<ul style="list-style-type: none"> • Call for emergency meeting to take stock of the situation. Develop strategy and objectives for early recovery. • Assess the extent of damage to soil, crop, plantation, micro-irrigation systems and storage facilities and ascertain the requirements of seeds, pesticides, equipments, etc., to salvage the situation or go for re-plantation. • Pack all valuable equipments and instruments in protective coverings and store in room that is most damage-resistant. • Assist Extension Officers to: <ul style="list-style-type: none"> a. Establish work schedules to ensure that adequate work force is available; and b. Set up teams of extension personnel and assistants for visiting disaster/disaster affected sites. • Coordinate the provision of agricultural services with irrigation department, DRDA, District EOC, Site Operations Centres. • Ensure that certified seeds of required varieties are available in adequate quantities. The Agriculture Department should work with National Seeds Corporation and other suppliers and ensure availability at their depots or have agents appointed for the same. • Print and widely distribute the list of points where certified seeds are available along with names of varieties and rates.
	<p style="text-align: center;">District Emergency Operation Center</p>	<p style="text-align: center;">(DEOC): Khordha</p>	<p style="text-align: center;">179</p>

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<p>EE- Rural Works</p>	<ul style="list-style-type: none"> • Suspension or cancellation of all leaves of instruction to the concerned persons to join head quarter immediately. • Arrangement of all- important telephone line and number in order. • Maintenance of record for information generation and dissemination • Co-ordinate with District Administration <p>Clearance of Roadside dead trees posing threat to communication, life and electricity.</p>	<ul style="list-style-type: none"> • Remain in alertness and close watch on the situation 	<ul style="list-style-type: none"> • Establish a public information centre with means of communication, to assist in providing updated information to people. Ensure that the department is responsible for keeping the community informed of its potential and limitations in disaster situation • Assist farmers to re-establish their contacts with agriculture produce market and ensure that produce gets proper support price. • Immediate restoration of the relief lines • If there is a cut off in communication then provision of alternative communication roads for relief operation.
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<p>EE- Public Works (Buildings & Roads)</p>	<ul style="list-style-type: none"> • Make personnel available to the Deputy Commissioner/District Collector/District Magistrate, within the affected district/sub-division, tahasil. If more personnel are required, recall those on leave. • Ensure personnel are aware and nominated to be available for emergency duties within the affected district and sub-division. • Appoint Nodal officers (technical officers) and ensure they meet the staff to review emergency procedures in their jurisdiction. • Move heavy equipments, such as front-end loaders to areas likely to be damaged and put them in a safe place. • Ensure emergency inspection by mechanical engineer of all plants and equipment at the district workshops. • Inspect old buildings and suggest retrofitting of weak buildings/ demolition of dangerous structures and evacuation of population. • Declaration of the unsafe buildings for not safe for shelter. 	<ul style="list-style-type: none"> • Close watch on the situation • Ensure the Officer-in-Charge-PWD (B&R) is responsible for mobilizing staff and volunteers to clear the roads in his section. • Dispatch extra transport vehicles from headquarters and ensure these are stationed at safe strategic spots along routes likely to be affected. • Give priority attention to urgent repair works that need to be undertaken in disaster affected areas. • Check the evacuation routes and assist people, if they have to evacuate an area. • Construct/ reinforce the connecting roads from villages to roads, canals and bunds and raise their level so that people can access the high ground. 	<ul style="list-style-type: none"> • Provide a work team carrying emergency tool kits, depending on the nature and extent of the disaster, essential equipments such as: 1. Towing vehicles 2. Earth moving equipments and 3. Cranes, etc. • Coordinate with Public Works Department and Zila Parishad. • Mobilize community assistance for road clearing by contacting community based organizations. • Undertake clearing of ditches, grass cutting, burning or removal of debris, and the cutting of dangerous trees along the roadside in the affected area through area engineer's staff. • As per the decisions of the District Control Room, undertake construction of temporary structures required, for organizing relief work and construction of relief camps, feeding centres, medical facilities, cattle camps and Site Operations Centres. • Keep an up-to-date report of all damage and repairs in the district office report book and communicate the same to the District Control Room.
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<p>DTO-Telecom</p>	<ul style="list-style-type: none"> • Remain in close contact with the district administration • Regular inspection of towers, repair if required 	<ul style="list-style-type: none"> • Take steps as per the demand of the situation • All the staff needs to remain alert 	<ul style="list-style-type: none"> • Restore the telephone lines as per the priority basis such as Dist. Administration, Block Administrations, Govt. Offices,
<p>CDVO</p>	<ul style="list-style-type: none"> • List out staff members with contact address • Vaccination of cattle population • Provision of supply of yearly medicines • Arrangement of mobile health units in inaccessible areas • Health awareness campaign • Arrangement of vehicle for uninterrupted mobility • Repair of LI Centers and other necessary equipments • On receipt of warning ask all the staff to join duty immediately • Deployment of staff to the inaccessible areas • Regular maintenance of records • Co ordination with higher authorities • Fix the price of fodder so that it is affordable to the farmers. • Estimate the requirement of water, fodder and animal feed, for cattle camps and organize the same. • Procure fodder through Forest Department, traders, private cultivators, and neighbouring states, if required. 	<ul style="list-style-type: none"> • Record keeping • Information dissemination to concerned quarters (Sub-Divisional Vet. Officer) • Maintenance of regular flow of information • Develop a system of monitoring outbreak of diseases to ensure that timely measures can be initiated to contain them. 	<ul style="list-style-type: none"> • Damage assessment • Identification of areas for clearance • Delegation of team • Monitoring of work • Proposal to the government for repair and restoration • Cattle camps and hospital administrators should: 1. Establish work schedules to ensure that adequate staff are available; 2. Set up teams of veterinary doctors, and assistants for visiting disaster affected sites; 3. Fix the quantity and quality of fodder and feed to be provided in the cattle camp. Issue fodder and feed for each cattle in accordance to standards; • Ensure that adequate sanitary conditions through cleaning operations are maintained in order to avoid outbreak of any epidemic.

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RTO/MVI	<ul style="list-style-type: none"> Remain in close contact with the Dist. Emergency Officer A nodal officer to be nominated to make necessary coordination between RTO and Administration Provide necessary vehicles for relief distribution Provide vehicle for team movement if required 	<ul style="list-style-type: none"> Remain in close coordination with the administration Issue standing instructions to the state transport department for providing buses for evacuation and relief. 	<ul style="list-style-type: none"> Provide required vans and ambulances for mobile health and animal husbandry teams. Make available trucks, buses, jeeps, tractors, etc., for evacuation and supply chain management.
Fire Officer	<ul style="list-style-type: none"> Remain alert with staff and equipment If required test check the equipment available In close contact with district administration Mobilize volunteers trained earlier by the fire service Make the volunteers always action mode Ready for rescue operation 	<ul style="list-style-type: none"> Close watch to the situation around Assist the administration in rescue operation if required Always attend the control room phone of the station and any grave situation comes to notice, immediately inform the district administration to take prompt action 	<ul style="list-style-type: none"> Assist the administration in clearing the relief lines Assist the administration as and when required
Railway	<ul style="list-style-type: none"> Remain alert with staff and equipments If required test check the equipment available In close contact with district administration Safety officer of the organization needs to be always in coordination with the administration 	<ul style="list-style-type: none"> Attend the calls comes to the control room Any grave situation comes to notice immediately rush to the spot and inform the administration to take further steps. 	<ul style="list-style-type: none"> Damage Assessment Immediate restore of essential services Assist the administration in relief transportation

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<p>EE- Electricity</p>	<ul style="list-style-type: none"> • Make personnel available to the Deputy Commissioner/District Collector/District Magistrate, within the affected district/sub-division, tahasil. If more personnel are required, recall those on leave. • Regular identification of faults • Regular checking and repair of weak points / Transformers • Pre monsoon maintenance of the transformers and high tension lines • Pre monsoon cutting of the branches of the trees to safe guard the supply lines • Stockpiling of equipments/accessories • Skill development training/orientation • Precautions/protections near high voltage electric equipments installed • Stopping illegal consumption of electricity • Disconnection of electricity in the event of an emergency • Arrangement of alternative energy sources such as generators and fuel for generators • Identification of HR and allot them to different areas • Protect Power Stations from disaster. Raise the height of compound walls. Arrange gunny bags. Install pump sets for draining water in case of Disaster/ Cyclone/ Tsunami, etc. • Check emergency tool kits, and assemble any additional equipment needed. • After receiving alert warning, immediately undertake inspection of the following: 1. High tension lines 2. Towers 3. Sub-stations 4. Transformers 5. Insulators 6. Poles, and 7. Other equipments. 	<ul style="list-style-type: none"> • Disconnection of electricity to the affected areas to avoid any causality due to short circuit • Arrangement of uninterrupted power supply at the Hospitals (PHC , CHC, etc.) / temporary shelters • Dispatch emergency repair groups equipped with food, bedding, tents, and tools. • Provide information to the people about the state of power supply, as it is one of the most important sources of information. • Assist hospitals in establishing an emergency supply by assembling generators and other emergency equipments, if necessary. 	<ul style="list-style-type: none"> • Restoration of electricity with additional HR • Ensure that the Power Supply department makes alternate arrangements of emergency supply for the following offices on receipt of warning: 1. Hospitals 2. Public Health Departments 3. Deputy Commissioner/ District Collector/ District Magistrate Office 4. District EOC, Sub-Divisional EOC, Site Operation Centres 5. Police Stations 6. Telecommunications buildings 7. Meteorological stations 8. Irrigation Office, and 9. Any other place, if required. • Compile an itemized assessment of damage, from reports made by various electrical receiving centres and sub-centres. • Report all activities to the head office and district EOC.
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<p>EE - PHED</p>	<ul style="list-style-type: none"> • Alerting the staff • Drinking water to be immediately filled in overhead tanks to provide safe drinking water • Arrangement of generator and fuel for emergency at the supply points 	<ul style="list-style-type: none"> • Close watch on the situation 	<ul style="list-style-type: none"> • Immediate restoration of water supply with additional human resources
<p>DEO- School & Mass Education</p>	<ul style="list-style-type: none"> • Closely work with the block administration • HMs of the schools needs to be alerted and schools needs to be closed depending upon the severity of the situation. • School keys need to be placed with a teacher staying at the same village • Necessary arrangement for cooking materials i.e. utensils and gas • If the school itself in the flood area then steps needs to be taken to safe Guard the books supplied by the govt. for the students. 	<ul style="list-style-type: none"> • If required the key needs to be handed over to the villagers to take shelter • The local teachers needs to be present at the school to look after the important documents i.e. Enrollment list, other related official document. • Further the available teacher also try to maintain the discipline among the evacuees taking shelter in the school 	<ul style="list-style-type: none"> • Assist the villagers to go to their houses after de-warning or the situation comes to normalcy.

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14.9 Departmental Standard Operating Procedure (SOP):

Public Health Engineering Department:

Actions to be Taken	Action Taken: Yes / No
Early Warning & Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency.	
2. To direct department staff at all levels across the district about the possible impending disaster and actions to be taken to prepare for response including arrangement of water supply tankers, as required.	
3. Construction of required number of toilets, bathrooms and implanting of hand pumps in shelter sites on the basis of demand received.	
4. Providing halogen tablets in areas facing water contamination, particularly during floods and bleaching of water sources such as Ring Wells or Hand Pumps in rural areas by leveraging field staff.	
5. Coordination with the health department specially to locate areas that report good number of cases of waterborne diseases so as to quality affected water sources, including surface water bodies such as Ponds for undertaking their disinfection.	
6. Coordination with the health department to provide safe drinking water sources in affected health centers.	
7. Arrangement of water tankers and other temporary means of distribution and storage water.	
8. Water quality testing of habitations that get affected by floods and addition of these habitations among the priority beneficiaries of projects like Rain Water Harvesting, Raised Hand Pumps and Raised Toilets, thereby creating a database.	
9. To deactivate the emergency response actions in consultation with DEOC and agencies.	
10. Reporting to DEOC.	

Water Resources Department

Actions to be Taken	Action Taken: Yes / No
Early Warning & Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency as with the responsibility of the appointed Nodal Officer and the accountability of the Executive Engineer, WRD or the Assistant Exec Engineer, if former is not placed in the district.	
2. All personnel required for disaster management, shall work under the overall supervision and guidance of the Responsible Officer (RO), i.e., Deputy Commissioner & the Incident Commander.	
3. To direct department staff at all levels across the district about the possible impending disaster, cancel leaves of all staff and prepare actions to be taken to prepare for response. In case of a declared emergency by the DEOC, communicate to staff at all levels.	
4. To prepare situation reports of river water levels periodically and share those with the DEOC and DDMA.	
5. In locations where Sluice Gates have been installed, undertake opening	

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of gates to allow water to move across the side of embankments that shall help reduce pressure on embankments and improve irrigation for fields on the other side.	
6. In a post-earthquake scenario, undertake embankment audit and activate village embankment status checking teams to ensure any vulnerable points can be identified by the department.	
7. To deactivate the emergency response actions in consultation with DEOC and agencies.	

PUBLIC WORKS DEPARTMENT (BUILDING)

Actions to be Taken	Action Taken: Yes / No
Early Warning & Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency. The responsibility of the nominated Nodal Officer and the accountability of the Executive Engineer, PWD (Building) or Assistant Executive Engineer, if former is not placed in the district..	
2. To put all contractors and their equipments in ready to respond mode in case of an early warning.	
3. To push all contractors with their equipments into actions for emergency response and giving them the required directions.	
4. To undertake rapid visual screening and damage assessment to buildings.	
5. To direct department staff at all levels to take immediate retrofitting or seismic strengthening / repairing of buildings on high priority that are damaged by earthquake.	
6. Controlled demolition of buildings which are beyond repair and hazardous due to severe damage and dumping of debris in identified dumping sites.	
7. To undertake clearing of debris and trees from the roads that blocks the communication by using the equipments such as JCBs and sharp equipments such as Chain saw, cutter.	
8. To deactivate the emergency response actions in consultation with EOC and agencies.	

PUBLIC WORKS DEPARTMENT (BRIDGES & ROADS)

Actions to be Taken	Action Taken: Yes / No
Early Warning & Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency.	
2. To put all contractors and their equipments in ready to respond mode in case of an early warning.	
3. To push all contractors with their equipments into actions for emergency response and giving them the required directions.	
4. Temporary roads shall be constructed to access transit relief camps and medical facilities for disaster victims.	
5. To undertake rapid visual screening and damage assessment of bridges and roads.	
6. To direct department staff at all levels to take immediate seismic	

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strengthening / repairing of bridges & roads on high priority that are damaged by earthquake or floods.	
7. Arrangement of extra vehicles/ heavy equipments, such as front-end loaders/towing vehicles/earth moving equipments /cranes etc.	
8. Controlled demolition of bridges which are beyond repair and hazardous due to severe damage and dumping of debris in identified dumping sites.	
9. A priority listing of roads to be opened first shall be established. The most important roads are those leading to hospitals, main trunk routes and highways.	
10. To undertake clearing of debris and trees from the roads that blocks the communication by using the equipments such as JCBs and sharp equipments such as saw.	
11. Community organisations shall be contacted to mobilise community assistance for road clearing.	
12. To deactivate the emergency response actions in consultation with DEOC.	

FOREST DEPARTMENT

Actions to be Taken	Action Taken: Yes / No
DISASTER RESPONSE	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency as with the responsibility of the nominated Nodal Officer and the accountability of the District Forest Officer for Search & Rescue and Damage Assessment.	
2. To undertake assessment of damage to plantation done due to floods, storms, hailstorms or animal depredation.	
3. Identification of forest areas affected by erosion from flooding and placing plans of flood bank protection initiatives on priority.	
4. To support district administration in Search & Rescue operations if required to be done in forest areas with the involvement of the Forest Protection Force.	
5. Providing compensation in case of damage to ready to harvest crops, injury or loss of lives of domestic animals or humans, or otherwise any other damage to property.	
6. To deactivate the emergency response actions in consultation with DEOC and agencies.	
7. Reporting to DEOC.	

SOCIAL WELFARE DEPARTMENT

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency. The responsibility lies with the nominated Nodal Officer and the accountability of the District Social Welfare Officer.	
2. All personnel required for disaster management, shall work under the overall supervision and guidance of the Responsible Officer (RO), i.e., Deputy Commissioner & the Incident	

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Commander.	
3. To direct department staff at all levels across the district about the possible impending disaster, cancel leaves of all staff and prepare actions to be taken to prepare for response. In case of a declared emergency by the DEOC, communicate to staff at all levels.	
4. To provide special care of children, women, old and disabled, especially those separated from families.	
5. To fetch records of households who lose life during disasters in coordination with the health department to provide these households life insurance support proactively.	
6. To ensure continued access to food supplies to AWCs.	
7. To deactivate the emergency response actions in consultation with EOC and agencies.	
8. Reporting to DEOC.	

HEALTH DEPARTMENT

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency. The responsibility for the same lies with the appointed Nodal Officer and the accountability of the Joint Director of Health Services or the CMO.	
2. The Nodal Officer shall be responsible for coordination with DEOC and Support agencies	
3. All personnel required for disaster management, shall work under the overall supervision and guidance of the Responsible Officer (RO), i.e., Deputy Commissioner & the Incident Commander.	
4. To direct department personnel at all levels across the district about the possible impending disaster, cancel leaves of all staff and prepare actions to be taken to prepare for response. In case of a declared emergency by the DEOC, communicate to staff at all levels.	
5. To coordinate and transport necessary medical supplies to disaster affected areas.	
6. The following emergency drugs & medical equipments are stocked <ul style="list-style-type: none"> • Drugs used in treatment of cuts and fractures, such as tetanus toxoid, analgesics and antibiotics • Drugs used for the treatment of diarrhoea, water-borne diseases and flu(including oral rehydrating supplies) • Drugs required to treat burns and fight infections • Drugs needed for detoxication including breathing equipments 	
7. To provide immediate first-aid and transport to the health centres for the treatment of the patients injured or rescued.	
8. To maintain records of the number of people injured and the number of lives lost during the disaster and share the information on the number of the dead with Social Welfare department so that they can provide the life insurance sum proactively.	
9. In-house emergency medical team to ensure that adequate	

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staff available at all times to handle emergency 'casualties	
10. Designating an area of the hospital for receiving large number of casualties. <ul style="list-style-type: none"> • Emergency admissions • Procedures to be maintained • Records to be kept for future reference • Work schedules to ensure availability of adequate staff 	
11. Accommodation arrangement for medical personnel from outside the area.	
12. Continuing procedural management of all forms of waste from the health centres.	
13. Establishing of Public Information Center at the hospital	
14. To deactivate the emergency response actions in consultation with EOC and agencies.	

Home Department

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with the DEOC or the Deputy Collector, Emergency. The responsibility for the same lies with the appointed Nodal Officer and the accountability of the Superintendent of Police.	
2. The Nodal Officer shall be responsible for coordination with DEOC	
3. Immediately after the disaster, it shall be ensured that all police stations are functional with all appointed force at all the required locations and law and order is maintained properly.	
4. All personnel required for disaster management, shall work under the overall supervision and guidance of the Responsible Officer (RO), i.e., Deputy Commissioner & the Incident Commander.	
5. To direct department personnel at all levels across the district about the possible impending disaster, cancel leaves of all staff and prepare actions to be taken to prepare for response. In case of a declared emergency by the DEOC, communicate to staff at all levels.	
6. Security shall be provided in transit and relief camps, affected villages, hospitals, medical centres, and the identified areas should be cordoned off.	
7. All department vehicles shall be refueled and parked unprotected /safe area.	
8. At the onset of the disaster, officers shall be dispatched to identify and assist people and communities in life-threatening situations.	
9. Seriously injured people shall be identified and the community assisted in organizing emergency transport to medical treatment centres.	
10. The community shall be assisted and encouraged in road-clearing operations.	
11. Transport carrying transit passengers (i.e. passengers	

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travelling through trains, buses-passing through the district) shall be diverted away from the disaster areas.	
12. Public Information Centre shall be set-up to: <ul style="list-style-type: none"> • Latest status of effect of disaster in the affected area. • Respond to personal inquiries about the safety of relatives in the affected areas • Compile statistics about affected communities, deaths, complaints and needs • Respond to the many specific needs that will be presented 	
13. Officers shall be available to inquire and record deaths normally there are neither time nor personnel available to carry out the standard post-mortem procedures.	
14. The police shall co-ordinate with the military service personnel in the area.	
15. District authorities shall be assisted in taking necessary action against hoarders, black marketer and that manipulating relief material in conjunction with other government offices.	
16. To deactivate the emergency response actions in consultation with EOC and agencies.	

ENERGY / ELECTRICITY DEPARTMENT

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activate communication with the DEOC or Deputy Collector, Emergency. The responsibility for the same lies with the appointed Nodal Officer and the accountability of the Exec Engineer.	
2. The Nodal Officer shall be responsible for coordination with DEOC.	
3. To cutoff power supply during storms, hailstorms, floods and in inundated areas to prevent loss of lives to electrocution.	
4. Standby arrangements for temporary electric supply or generators.	
5. Procurement and storage of fuel for generator sets that may be required to be installed.	
6. Inspection and repair of high-tension lines / substations / transformers / poles.	
7. Clearing of damaged poles / salvaging of conductors and insulators	
8. To deactivate the emergency response actions in consultation with DEOC and agencies	
9. Reporting to the DEOC.	

AGRICULTURE DEPARTMENT:

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with the DEOC or Deputy Collector,	

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Emergency. The responsibility for the same lies with the appointed Nodal Officer and the accountability of the District Agriculture Officer.	
2. The Nodal Officer shall be responsible for coordination with DEOC.	
3. To conduct damage assessments of the damage to agricultural output and submit report to the DEOC.	
4. To deactivate the emergency response actions in consultation with EOC.	

ANIMAL HUSBANDRY DEPARTMENT

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with the DEOC. The responsibility for the same lies with the appointed Nodal Officer and the accountability of the CDVO.	
2. The Nodal Officer shall be responsible for coordination with DEOC	
3. To conduct damage assessments of the injury or deaths of livestock in the district and submit the report to the DEOC.	
4. Arrangement of anesthetic drugs/vehicle for transport of injured animals.	
5. To start relief camps for livestock in higher places during floods and providing support with fodder supplies and drinking water.	
6. To facilitate mass casualty management by disposal of animal carcasses necessary to prevent spread of epidemics.	
7. To deactivate the emergency response actions in consultation with EOC and other agencies.	

DEOC, DDMA

Actions to be Taken	Action Taken: Yes / No
Disaster Response	
1. Activation of communication with Early Warning or Emergency Response.	
2. The Nodal Officer shall be responsible for sending communication and coordination with all agencies.	
3. Communities in disaster prone areas shall be made aware of the Early Warning System especially through field indications.	
4. All available Early Warning Systems shall be used & information so gathered to be disseminated as quickly as possible through laid down channels/methods.	
5. The early warnings shall to the extent possible, be clear about its spread with risk area, its severity, duration, and likely damages it may cause.	
6. Warning statements should be conveyed in simple, local language in order that it is understood. Along with today's	

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messages, relevant continued background scenario along with likely development in few days ahead may also if possible, to be incorporated. The warning statement should not evoke panic and prevent any spread of rumour.	
7. Wherever possible, assistance of community leaders and organized groups should be sought managing the threat to the people.	
8. Once issue of early warning has been started, it shall be followed-up by subsequent warnings till it is over in order to keep people informed of the latest situation.	
9. In case of a disaster threat reduces, deactivation of warning or emergency response actions in consultation shall be sent to community.	

14.10 DISTRICT LEVEL RESPONSE PLAN BY DIFFERENT DEPARTMENTS:

District Administration for Flood Response:

The District Administration instructed all the line departments and Block development officers to prepare their respective disaster management plans and make necessary arrangements for food stuffs at vulnerable pockets, flood fighting materials at weak embankments, close watch on flood and cyclone forecasting, remain alert always. Also all concerned officials instructed not to leave their respective HQs without prior permission. Apart from this the dist. administration identified the boats which can be utilized at the time for flood response. The details are given below:

At the time of emergency, it was the practice of using hired country boats available in the areas of Mangalajodi under Tangi Block and Balugaon.

The following are the registered boats with the Ports and Inland Water Transport, Balugaon. If situation arises the same boats can be requisitioned through **Mr. Prasant Kumar Rout, Asst. Engineer (Mech), Ports & IWT, Balugaon, Cell no: 9438702127.**

The nodal officer for boat liaison is **Sri Sasanka Sekhar Sahu, District Fisheries Officer, Balugaon, Cell no: 8917487123** can also be contacted for fishing Boats which can also be used for rescue operation.

Besides this **Sri Aishwarya Samantaray, BDO, Tangi (Mobile No: 8280056658)** can be contacted for boats from Magalajodi area under Tangi Block.

Table – 14.10.1:

[Source: Ports & IWT Balugaon]

SL.No	Name of the Boat Owner	Address	Registration of the Boat	Carrying Capacity	Location of the Boat	Contact No.
1	2	3	4	5	6	7
1.	Dhusasan Behera	At.Atharabati, Po.Badkul Ps. Balugaon, Khordha	OML-23-513	13+2	Chilika (Badkul)	637224940 2
2.	Sadhu Charan Behera	At.Aswari patina, Po. Badakul, BalugaonKhordha	OML-23-344	13+2	Chilika (Badkul)	955668887 6

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3.	Rabindra Jally	At. Aswaripatana, Po. Badakul, Balugaon Khordha	OML-23-234	13+2	Chilika (Badkul)	
4.	Kabiratna Behera	At. Aswari patana, Po. Badakul, Balugaon Khordha	OML-23-247	13+2	Chilika (Badkul)	9348152570
5.	Brundaban Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-278	13+2	Chilika (Badkul)	
6.	Sambari Das	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-649	13+2	Chilika (Badkul)	
7.	Jitendra Jally	At. Chandraput Po-Badkul, Balugaon Khordha	OML-23-539	13+2	Chilika (Badkul)	9337814996
8.	Sarat Chandra Nayak	At. Chhedapadar, Badkul, Balugaon, Khordha	OML-23-538	13+2	Chilika (Badkul)	6370138654
9.	Subrat Kumar Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-537	13+2	Chilika (Badkul)	9937403661
10.	Gobinda Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-643	13+2	Chilika (Badkul)	8596992349
11.	Ghanashyam Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-528	13+2	Chilika (Badkul)	7077054837
12.	Baikunth Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-525	13+2	Chilika (Badkul)	
13.	Sankar Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-309	13+2	Chilika (Badkul)	
14.	Bidulata Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-534	13+2	Chilika (Badkul)	8280167282
15.	Jaydev Jena	At. Chhedapadar, Badkul, Balugaon, Khordha	OML-23-238	13+2	Chilika (Badkul)	8144040277
16.	Santosh Kumar Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-520	13+2	Chilika (Badkul)	
17.	Doma Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-518	13+2	Chilika (Badkul)	8338098088
18.	Rankanath Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-215	13+2	Chilika (Badkul)	
19.	Prafulla Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-216	13+2	Chilika (Badkul)	
20.	Merua Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-228	13+2	Chilika (Badkul)	7873719743
21.	Ogal Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-180	13+2	Chilika (Badkul)	
22.	Krushna Ch. Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-248	13+2	Chilika (Badkul)	
23.	Buli Das	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-517	13+2	Chilika (Badkul)	
24.	Trinath Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-545	13+2	Chilika (Badkul)	
25.	Ganguli Jally	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-546	13+2	Chilika (Badkul)	
26.	Prakash Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-536	13+2	Chilika (Badkul)	
27.	Babula Behera	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-270	13+2	Chilika (Badkul)	7008318539
28.	Pramod Das	At. Chandraput Po-Badkul, Balugaon, Khordha	OML-23-206	13+2	Chilika (Badkul)	
29.	Nishamani Behera	At. Chandraput Po-Badkul,	OML-23-541	13+2	Chilika (Badkul)	

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		Balugaon, Khordha				
30.	Bhagabat Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-277	13+2	Chilika (Badkul)	
31.	Gurubari Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-648	13+2	Chilika (Badkul)	
32.	Mohan Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-547	13+2	Chilika (Badkul)	
33.	Dasarathi Behera	At.Aswari patina, Po. Badakul, Balugaon Khordha	OML-23-218	13+2	Chilika (Badkul)	9938480678
34.	Sudam Charan Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-217	13+2	Chilika (Badkul)	
35.	Deepak Ku. Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-227	13+2	Chilika (Badkul)	8917611881
36.	Dhobi Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-133	13+2	Chilika (Badkul)	
37.	Subash Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-222	13+2	Chilika (Badkul)	
38.	BrajaKishor Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-220	13+2	Chilika (Badkul)	
39.	Maguni Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-540	13+2	Chilika (Badkul)	
40.	Suryakanta Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-524	13+2	Chilika (Badkul)	
41.	Jadunath Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-524	13+2	Chilika (Badkul)	
42.	Lingaraj Behera	At.Chandraput Po-Badkul, Balugaon, khoda	OML-23-231	13+2	Chilika (Badkul)	9348456480
43.	Ushamani Behera	At.Aswaripatana,Po.Badakul, Balugaon, Khordha	OML-23-548	13+2	Chilika (Badkul)	9556688876
44.	Lingaraj Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-229	13+2	Chilika (Badkul)	
45.	Dambur Das	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-307	13+2	Chilika (Badkul)	
46.	Dukhishyam Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-174	13+2	Chilika (Badkul)	8342982296
47.	Dukhishyam Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-201	13+2	Chilika (Badkul)	9861469025
48.	Sankar Behera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-202	13+2	Chilika (Badkul)	6371231739
49.	Lingaraj Jally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-512	13+2	Chilika (Badkul)	
50.	SaratJally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-236	13+2	Chilika (Badkul)	
51.	LingarajBehera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-647	13+2	Chilika (Badkul)	
52.	RamchandraBehera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-130	13+2	Chilika (Badkul)	8260137978
53.	DasarathiBehera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-123	13+2	Chilika (Badkul)	
54.	MochiramJally	At.Atharabatia Po.Badakul, Balugaon, Khordha	OML-23-644	13+2	Chilika (Badkul)	9861477353
55.	SuresBehera	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-200	13+2	Chilika (Badkul)	
56.	KesabaJally	At.Chandraput Po-Badkul, Balugaon, Khordha	OML-23-521	13+2	Chilika (Badkul)	9439849597
57.	DushasanBehera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-269	13+2	Chilika (Badkul)	
58.	RabindraBehera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-645	13+2	Chilika (Badkul)	
59.	PintuBehera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-131	13+2	Chilika (Badkul)	
60.	Dilip Ku. Behera	At.Chandraput Po- Badkul,	OML-23-226	13+2	Chilika (Badkul)	637184412

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		Balugaon, Khordha				4
61.	Dasarathi Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-527	13+2	Chilika (Badkul)	
62.	Kalu Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-132	13+2	Chilika (Badkul)	9337336230
63.	Dharmensra Jally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-121	13+2	Chilika (Badkul)	
64.	Dhoba Das	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-134	13+2	Chilika (Badkul)	
65.	Milaj Kumar Behera	At .Chandraput Po- Badkul, Balugaon, Khordha	OML-23-533	13+2	Chilika (Badkul)	
66.	Mahendra Ku. Behera	At. Chandraput Po- Badkul, Balugaon, Khordha	OML-23-195	13+2	Chilika (Badkul)	
67.	Bijaya Kumar Jally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-197	13+2	Chilika (Badkul)	
68.	Sanjay Kumar Behera	At. Chandraput Po- Badkul, Balugaon, Khordha	OML-23-530	13+2	Chilika (Badkul)	8018738877
69.	Hata Kishore Kei	At. Chandraput Po- Badkul, Balugaon, Khordha	OML-23-198	13+2	Chilika (Badkul)	
70.	Kanhei Das	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-543	13+2	Chilika (Badkul)	
71.	Kartik Behera	At. Chandraput Po- Badkul, Balugaon, Khordha	OML-23-523	13+2	Chilika (Badkul)	
72.	Ashok Behera	At. Atharabatia Po- Badkul, Balugaon, Khordha	OML-23-650	13+2	Chilika (Badkul)	
73.	Bibhuti Bhusan Jally	At .Chandraput Po- Badkul, Balugaon, Khordha	OML-23-221	13+2	Chilika (Badkul)	
74.	Rajesh Das	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-515	13+2	Chilika (Badkul)	7381862815
75.	Puspalata Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-184	13+2	Chilika (Badkul)	
76.	Bankanidhi Jally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-652	13+2	Chilika (Badkul)	
77.	Brundaban Jally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-526	13+2	Chilika (Badkul)	
78.	Mochiram Lally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-651	13+2	Chilika (Badkul)	
79.	Jalandhar Swain	At. Pathara Po- Badkul, Balugaon, Khordha	OML-23-529	13+2	Chilika (Badkul)	9437184631
80.	Sunita Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-176	13+2	Chilika (Badkul)	
81.	Muralidhar Swain	At- Pathra Po- Badkul, Balugaon, Khordha	OML-23-531	13+2	Chilika (Badkul)	9437925482
82.	Srikanta Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-346	13+2	Chilika (Badkul)	9556688876
83.	Rajak Das	At. Atharabatia Po- Badkul, Balugaon, Khordha	OML-23-514	13+2	Chilika (Badkul)	8917548209
84.	Devraj Jally	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-516	13+2	Chilika (Badkul)	7978700925
85.	Surendra Behera	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-656	13+2	Chilika (Badkul)	
86.	Suryamani Behera	At. Atharabatia Po- Badkul, Balugaon, Khordha	OML-23-283	13+2	Chilika (Badkul)	
87.	Dayanidhi Behera	At.Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-522	13+2	Chilika (Badkul)	7328014556
88.	Kala Chanda Das	At.Chandraput Po- Badkul, Balugaon, Khordha	OML-23-532	13+2	Chilika (Badkul)	8917340778
89.	Mohan Behera	At/PO- Badkul, Balugaon, Khordha	OML-23-535	13+2	Chilika (Badkul)	
90.	Sukanta Swain	At.-Pathara Po- Badkul, Balugaon, Khordha	OML-23-642	13+2	Chilika (Badkul)	9668787411
91.	Bhagirathi Behera	At.-Aswaripatana Po- Badkul,	OML-23-329	13+2	Chilika (Badkul)	

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		Balugaon, Khordha				
92.	Kuna Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-166	13+2	Chilika (Badkul)	
93.	Joginath Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-501	13+2	Chilika (Badkul)	
94.	Smt.Gouri Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-463	13+2	Chilika (Badkul)	
95.	Debaraja Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-491	13+2	Chilika (Badkul)	
96.	Lokanath Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-460	13+2	Chilika (Badkul)	
97.	Basanta Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-469	13+2	Chilika (Badkul)	
98.	Bharati Behera	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-511	13+2	Chilika (Badkul)	
99.	Prafulla Mohapatra	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-509	13+2	Chilika (Badkul)	
100	Smt. Josada Das	At.-Aswaripatana Po- Badkul, Balugaon, Khordha	OML-23-330	13+2	Chilika (Badkul)	
101	Smt. Sukanti Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-273	13+2	Chilika (Badkul)	
102	Debaki Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-275	13+2	Chilika (Badkul)	
103	Chapala Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-467	13+2	Chilika (Badkul)	
104	Chandramani Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-502	13+2	Chilika (Badkul)	
105	Sahadev Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-470	13+2	Chilika (Badkul)	
106	Sasmita Das	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-252	13+2	Chilika (Badkul)	
107	Ramchandra Behera	At.-Aswaripatana Po-Badkul, Balugaon, Khordha	OML-23-504	13+2	Chilika (Badkul)	
108	Bijaya Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-361	13+2	Chilika (Balugaon)	9776496128
109	Bipin Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-362	13+2	Chilika (Balugaon)	9776496128
110	Maheswar Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-370	13+2	Chilika (Balugaon)	7377335766
111	Binod Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-377	13+2	Chilika (Balugaon)	8342847356
112	Chaitanya Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-295	13+2	Chilika (Balugaon)	6371386982
113	Chakrapani Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-296	13+2	Chilika (Balugaon)	7684986059
114	Narayan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-285	13+2	Chilika (Balugaon)	9937210770
115	Sarat Parida	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-363	13+2	Chilika (Balugaon)	9861113447
116	Rankanath Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-375	13+2	Chilika (Balugaon)	9853625507
117	Sankar Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-297	13+2	Chilika (Balugaon)	9777105079
118	Sudarsan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-358	13+2	Chilika (Balugaon)	7749976630
119	Sankar Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-444	13+2	Chilika (Balugaon)	9853525763
120	Sudarsan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-434	13+2	Chilika (Balugaon)	9337119287
121	Sudarsan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-435	13+2	Chilika (Balugaon)	9776496128
122	Sukanta Kumar	At.-Samantarapur, Po-	OML-23-555	13+2	Chilika	993750354

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	Subudhi	Balugaon, Khordha			(Balugaon)	7
123	Padma Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-562	13+2	Chilika (Balugaon)	9078571141
124	Kanha Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-568	13+2	Chilika (Balugaon)	9853625507
125	Sankar Dalai	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-572	13+2	Chilika (Balugaon)	8018772716
126	Sangram Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-626	13+2	Chilika (Balugaon)	8144964404
127	Sadasiv Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-577	13+2	Chilika (Balugaon)	--do --
128	Ramesh Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-627	13+2	Chilika (Balugaon)	9777105079
129	Rabindra Duhudi	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-564	13+2	Chilika (Balugaon)	9777000910
130	Maguni Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-317	13+2	Chilika (Balugaon)	9594835662
131	Niranjan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-318	13+2	Chilika (Balugaon)	9861113447
132	Laxmidhar Mahapatra	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-288	13+2	Chilika (Balugaon)	9937414390
133	Kulamani Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-302	13+2	Chilika (Balugaon)	8596090470
134	Kanha Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-568	13+2	Chilika (Balugaon)	9853625507
135	Hardibandhu Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-571	13+2	Chilika (Balugaon)	6372710752
136	Golakha Tarai	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-579	13+2	Chilika (Balugaon)	9040515208
137	Ganesh Parida	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-299	13+2	Chilika (Balugaon)	9583343710
138	Chandan Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-625	13+2	Chilika (Balugaon)	6372843935
139	Bideshi Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-566	13+2	Chilika (Balugaon)	
140	Bibhuti Behera	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-578	13+2	Chilika (Balugaon)	
141	Sushanta Kumar Patra	At.-Samantarapur, Po-Balugaon, Khordha	OML-23-305	13+2	Chilika (Balugaon)	
142	Tulasi Ranjan Paul	At.-Chilika Road, Po-Balugaon, Khordha	OML-23-306	13+2	Chilika (Balugaon)	9437205907
143	Goutam Ranjan Paul	At.-Chilika Road, Po-Balugaon, Khordha	OML-23-575	13+2	Chilika (Balugaon)	9437205907
144	Sunil Tarai	At.-Gandhi Nagar, Po-Balugaon, Khordha	OML-23-552	13+2	Chilika (Balugaon)	6372710752
145	Laxmidhar Tarai	At.-Gandhi Nagar, Po-Balugaon, Khordha	OML-23-441	13+2	Chilika (Balugaon)	9437010611
146	Satya Behera	At.-Biswalsahi, Po-Rambha, Ganjam	OML-23-287	13+2	Chilika (Balugaon)	9090364165
147	Panchu Behera	At.-Tikarpada, Po-Balugaon, Khordha	OML-23-303	13+2	Chilika (Balugaon)	9776427352
148	Muralidhar Behera	At.-Singheswar, Po-Balugaon, Khordha	OML-23-565	13+2	Chilika (Balugaon)	943873323
149	Bhikari Behera	At.-Bankiapally, Po-Balugaon, Khordha	OML-23-365	13+2	Chilika (Balugaon)	7873265320
150	Surendra Jally	At.-Mahensha, Berhampur, K.P.Gada, Puri	OML-23-319	13+2	Chilika (Balugaon)	9777078894
151	Akhila Behera	At.-Kodapur, Po-Gheakhala, Balugaon, Khordha	OML-23-364	13+2	Chilika (Balugaon)	9777421102
152	Judhistir Behera	At.-Kodapur, Po-Gheakhala, Balugaon, Khordha	OML-23-305	13+2	Chilika (Balugaon)	
153	Satyaban Behera	At.-Kodapur, Po-Gheakhala	OML-23-374	13+2	Chilika	

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		Balugaon, Khordha			(Balugaon)	
154	Purna Chandra Behera	At.-Kodapur,Po-Gheakhala, Balugaon, Khordha	OML-23-380	13+2	Chilika (Balugaon)	
155	Hari Behera	At.-Kodapur,Po-Gheakhala, Balugaon, Khordha	OML-23-554	13+2	Chilika (Balugaon)	

The list of fishing boats available in the district are given below which can be requisitioned for relief operation at the time of emergency. The same can be mobilised through the Dist. Fisheries officer, Balugaon, Mr. Sasanka Sekhar Sahu, **8917487123**.

Table -14.10.2:

Sl. No.	Name / No of the boat	Name of the boat owner	Location of Boat	Carrying Capacity	Address	Contact No
1	IND-OR-06-MO-12729	Prasant Behera	Balipatapur	1.5	At: Balipatapur PO: Bhusandpur, Tangi	6370661243
2	IND-OR-06-MO-4631	Purna Ch. Behera	Balipatapur	1	At: Balipatapur PO: Bhusandpur, Tangi	7848984637
3	IND-OR-06-MO-4807	Bulla Behea	Balipatapur	1.5	At: Balipatapur PO: Bhusandpur, Tangi	7064456842
4	IND-OR-06-MO-4740	Dayanidhi Behera	Balipatapur	1.5	At: Balipatapur PO: Bhusandpur, Tangi	6370640172
5	IND-OR-06-MO-2408	Arupa Behera	Balipatapur	1.5	At: Balipatapur PO: Bhusandpur, Tangi	7609911021
6	IND-OR-06-MO-4248	Dhruba Behera	Bhusandpur	1.5	At/PO: Bhusandpur, Tangi	6238236772
7	IND-OR-06-MO-9706	Sagar Behera	Bhusandpur	1.5	At/PO: Bhusandpur, Tangi	9777363626
8	IND-OR-06-MO-426	Arupa Behera	Bhusandpur	1.5	At/PO: Bhusandpur, Tangi	7684071428
9	IND-OR-06-MO-9303	Sarat Behera	Bhusandpur	1.5	At/PO: Bhusandpur, Tangi	9847949752
10	IND-OR-06-MO-480	Sudarsan Behera	Bhusandpur	1	At/PO: Bhusandpur, Tangi	8342855201
11	IND-OR-06-MO-3099	Haribandhu Behera	Kalupadaghat	1	At: Paniduar, PO: Jaripada, Chilika	8144291672
12	IND-OR-06-MO-8947	Judhistir Behera	Kalupadaghat	1.5	At: Paniduar, PO: Jaripada, Chilika	7789945302
13	IND-OR-06-MO-3513	Saraju Behera	Kalupadaghat	1	At: Paniduar, PO: Jaripada, Chilika	7735022324
14	IND-OR-06-MO-4844	Khaleswar Behera	Kalupadaghat	1.5	At: Jagannathpur, PO: Jaripada, Chilika	9090655621
15	IND-OR-06-MO-10993	Brundaban Bhoi	Kalupadaghat	1.5	At: Jatiapatna, PO: Jaripada, Chilika	9777053411
16	IND-OR-06-MO-2698	Sachidananda Behera	Soren	1.5	At: Mansinghpur, PO: Soren, Chilika	6371755478
17	IND-OR-06-MO-8497	Nabakishore Behera	Hatabaradi	1	At/PO: Hatabaradi, chilika	7894369651
18	IND-OR-06-MO-7487	Chandan Ghadei	Hatabaradi	1	At/PO: Hatabaradi, chilika	9583833162
19	IND-OR-06-MO-4481	Pandab Behera	Hatabaradi	1	At/PO: Hatabaradi, chilika	7684940352
20	IND-OR-06-MO-7630	Santosh Behera	Baulabandha	1.5	At/PO: Baulabandha, chilika	9337013526

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Similarly, for the Govt. Boats provided to different blocks by the administration, the services of temporary Drivers and Khalasi would be utilized.

Electrical Division:

Table – 14.10.3

Electrical Division: -Khordha Electrical Division, Khordha.						
SI No.	Name of the power station	Transmission tower (major)	Electrical Installation	Responsible officer for the station (Phone No.)		
				Section	Sub-Division	Division
1	10 pole structure Khordha	Over head lines are constructed with joist & PSC pole	2*8 MVA	Junior Manager (Elect) No-1., Khordha Ph-9437555902		
2	Gurujanga	-do-	1*5 MVA	JM(Elect)No-II., Khordha Ph-9437555904	SDO (Elect.) Khordha Phone No.- 9437555870	
3	Tirimal	-do-	2*5 MVA	JM(Elect) No-III., Khordha Ph-9437555913		
4	Oil mill structure	-do-	2*12.5 MVA	JM(Elect) No-IV, Khordha Ph-9437555915		
5	Jatin	-do-	2*8 MVA + 1x5MVA	JM (Elect)No-3 1 / JatinPh-9437555916		
6	Janla	-do-	3*5MVA	JM(Elect), Janla, Ph -9437555934	SDO (Elect.) Jatni Phone No.- 9437555873	Khordha Electrical Division, Khordha Phone No. 06755-220530
7	Harirajpur	-do-	1*3.15MVA+2*5MVA	JM(Elect) Harirajpur, Ph-9437555935		
8	Jankia	-do-	2*3.15MVA+1*5MVA	JM(Elect)1, Jankia, Ph-9437555936		
9	Malipada	-do-	2*5MVA	JM (Elect), Malipada, Ph-94375559336	SDO (Elect.) Jankia Phone No.- 9437555892	
10	Naranagada	-do-	2*5MVA			
11	Parichala	-do-	1*5 +1x3.15MVA	JM(Elect) Begunia, Ph-9437555947	SDO (Elect.) Begunia Phone No.- 9437555895	
12	Begunia	-do-	1*3.15MVA			
13	Baghamari	-do-	2x3.15+1x5 MVA	JM(Elect) Baghamari, Ph-9437555949		
4	Binodpada	-do-	3*5.MVA	JM (Elect) Raj Sunakhala, Ph-9437555952		
15	Kalapathara	-do-	2*3.15MVA	JM(Elect)		

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Electrical Division: -Khordha Electrical Division, Khordha.						
SI No.	Name of the power station	Transmission tower (major)	Electrical Installation	Responsible officer for the station (Phone No.)		
				Section	Sub-Division	Division
				Kalapathara, Ph-9437555953		

Executive Engineer, R&B, Bhubaneswar:

Table – 14.10.4

Machinery at R&B II , IV, Bhubaneswar				
SI No.	Location	Details of Men/Machineries	Contact Person	Contact No.
1	(R&B) Section No. 28, BBSR (MLA Colony)	J.C.B- 1 1Nos Labourers (along with axes)- 5Nos Tipper/Tractor-1 No. Power Saw-1 No	A.E.E (R&B) Sub-Divn. -X/ Er. N.K Nayak, A.E. (R&B) Sec. No.30	9437033439(M) 9437300959(M)
2	Raj Bhawan (R&B) Section Raj Bhawan	J.C.B- 1 1Nos Labourers (alongwith axes)- 5Nos Tipper/Tractor-1 No. Power Saw-1 No	A.E.E (R&B) Sub-Divn. -X/ A.E. (R&B) Sec.	9437033439(M) 9437335257(M)
3	(R&B) Section No. 33, BBSR Unit-IX (Flat)	J.C.B- 1 1Nos Labourers (alongwith axes)- 5Nos Tipper/Tractor-1 No. Power Saw-1 No	A.E.E (R&B) Sub-Divn. -XI/ A.E. (R&B) Sec. No.33	9437316324(M) 9438803169(M)
4	RoB-Bomikhal Site, BBSR	J.C.B- 1 1Nos Labourers (along with axes)- 5Nos Tipper/Tractor-1 No. Power Saw-1 No	A.E.E (R&B) Sub-Divn. -XI	9437316324(M) 9437184646(M)
5	(R&B) Section No. 36 (Sainik School, BBSR)	J.C.B- 1 1Nos Labourers (along with axes)- 5Nos Tipper/Tractor-1 No. Power Saw-1 No	A.E.E (R&B) Sub-Divn.-XII/ A.E. (R&B) Sec. No.36	9437301932(M) 9437190113(M)
6	R&B Division II	Earth Moving & Road Cleaning Equipment are not available with the division but available with the contractors and agencies which can be utilised as and when required. Sand bags, bullahs and other required equipments are being kept at the O/O: AE, Pipili, IB at pipili, IB at Saradeipur.	EE, R&B Division II, Bhubaneswar	0674-2397694 9439925306
7	R&B Sub-Division IV	Do	AE, R&B Sub-Division IV, Bhubaneswar	9437011507
8	R&B Sub-Division V	Do	Er. Ramakanta Mishra, AE, R&B Sub-Division V, BBSR	9437036992
9	R&B Sub-Division VI	Do	R&B Sub-Division VI, BBSR	9437054789
10	R&B Sub-Division Pipili	Do	AE, R&B Sub-Division Pipili	9777073252
11	R&B Section Saradeipur	Do	AE, R&B Sub-Division Saradeipur	9437263133
12	R&B Section Jatni	Do	AE, R&B Section Jatni	9438373329

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Machinery at R&B II, IV, Bhubaneswar				
SI No.	Location	Details of Men/Machineries	Contact Person	Contact No.
13	R&B Section Pipili	Do	AE, R&B Section Pipili	9937234549

Deputy Director, Agriculture:

Contingent measures for Rainfed Agriculture in Khordha:

The aberration in temporal and spatial distribution of rainfalls makes the crop vulnerable to drought. Among the different Kharif crops the upland rice is most affected by drought. Therefore, diversified land use with low duty non paddy crops is the best option in these lands. So, it is imperative to have a long-term policy and planning at the beginning of the season for judicious use of water, and crops in a particular locality for the best results.

Preventive measures for upland:

- Select efficient crops and cropping system matching the length of growing season. Some of the promising crops for rain-fed uplands are maize, Arhar, Black gram, Ragi Groundnut, Sesame, Pumpkin and Sweet Potato.
- Choose short duration varieties which possess faster rate of growth, deep and penetrating root system and ability to escape drought.
- Store rain water to use as life saving irrigation.
- Plough and sow the crops across the slope to develop a mosaic of ridge and furrow type of land configuration for effective soil moisture conservation to overcome drought for longer period.
- Perform off season ploughing to conserve moisture, reduce pest and weed problem and to facilitate early sowing.
- Follow proper land levelling in the lean period.
- Follow partial mechanisation to ensure for timelines operation and quality of operation and quality of operation (Desired depth and tilt) totalise land, rainfall and other natural resource effectively.
- Use of soil amendments in acid soils. Acid soils promote more grassy weeds. Use of soil amendment like lime or paper mill sludge reduces 'grass population.
- Adopt intercropping / mixed cropping system in recurrent drought prone areas. The intercropping systems recommended for the state are as follows.
- Practise the best farming systems and grow different field crops in the alleys.
- Adopt integrated farming system.
- Follow principal of watershed management:
 - In situ soil and water management measures like contour farming, cover cropping, bundling, trenching, terracing and ridge and furrow method of planting.
 - Manage water ways through check dams, stone structures, and brush ward structures on natural streams / Nalaha to store water.
 - Water harvesting (Digging ponds and lining) in 10-12 % area.
 - Utilised harvested water through Micro-Irrigation methods

(Drip/ Sprinklers)

- Moisture conservation through mulching.

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- Gully plugging stacking of locally available pebbles, filled in empty cement bags across water ways. Growing of grasses in water ways is also helpful in reducing soil erosion.
- Construct several percolation tanks to recharge the profile.
- Strengthen village institutions to enable people's participation.

Drought ameliorative measures:

It is difficult to define rigid contingent measures well in advance of the cropping season applicable to all situations. However, some general contingent measure have been suggested considering specific aberrant situations.

Situation- I (Early onset and sudden stoppage of monsoon). (Upland)

1. Under such a situation there is more livelihood of mortality of rice seedlings. When there is more than 50% Mortality, resow the crop in the month of July when sufficient rain has received. It is always wise to raise low water requiring non paddy crops like Green gram (K851, Sujata, PDM- 54), Black gram (T-9, Pant-U-19, Pant-U-30 and Sarala), Castor (Jyoti, Kranti). These crops may be gap filled and resown with subsequent rains rather than allowing sub-optimal poor plant stand.

2. Cultivate vegetables- Okra, Brinjal where ever possible. Besides. Other helpful measures as listed below may be followed.

- i. Apply portion of FYM in the seed furrows at the time of sowing to conserve moisture for sustaining the seedlings from early "drought.
- ii. Soak the paddy seed in sodium phosphate solution (358 Mg/ Ltr of water) for 6 Hours and dry seeds before sowing. It will help in better germination and growth of seedlings.
- iii. Spray the crop with Potassium silicate (10%) on IOPPM Cycocel to overcome the drought effect in rice.
- iv. Grow drought tolerant! escaping rice varieties such as Armada, Pathara, Khandagiri, Kalinga- III, Heera, Vandana (90 days), Sahabhazi Dhan (100 days), Mandakini (100 days), Jaldi Dhan-6 (80 days), Jyotirmayee (95 days), Sidhant Jogesh.

Medium and low land:

- i. If rice population is less than 50% resow the crop. Select medium duration (125 days) varieties. Sprouted seeds may be direct seeded on fresh seedlings of early varieties may be raised for transplanting.
- ii. If the rice population is more than 50%, carry out weeding and adjust the plant population by Khelua (removing and redistributing the hills) and clonal propagation.
- iii. Raise community nursery of rice for transplanting at a reliable water source to save time for further delay.
- iv. Sow the seeds at 3-5 cm depth by Punji method (10-15) seeds at one points, cover it with a mixture of FYM: SSP (10:1) to avoid seeding mortality due to moisture stress in low land.

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- v. Saline soil: Use *FYM/Green* leaf manure. So sprouted seeds, Gap filling the crop by transplanting.

Situation - 11(Late onset, upland areas are hot covered till mid-July:

- i. Sow non paddy drought tolerant crops like Rabi, Green Gram, Black Gram, Cow pea, Guar, Castor etc. in place of upland rice.
- ii. Vegetables come up well in drought! low rainfall years. Utilise the ponds, reservoirs and water bodies for growing Brinjal, Okra, Chilly.
- iii. Apply full P,K and 20% N of the recommended dose as basal along with well decompose organic manure for early seedling vigor.
- iv. Seed treatment with (Carboxin+ Thiram) i.e. Vitavax power @ 1.5 Gram or (Carbendazim 1g+ Thiram 1.5g)1 Kg. of seed to avoid germination failure.
- v. Major emphasis should be given on in-situ rain water conservation, harvesting excess run off for its recycling to make provision for protected irrigation.
- vi. Take up weeding in the newly planted fruit orchards. Make rings around the plants and provide mulching to conserve moisture.

Situation- III (Mid season drought- Temporary wilting):

- i. Spray 2% KCI+O.I PPM boron to black gram to overcome drought situation.
- ii. Foliar application of 2% urea at pre-flowering and flowering stage.
- iii. Spray 1% Urea in Brinjal- Take Spraying measures against mealy bugs and mite which area more prevalent in dry weather.
- iv. Top dress the crop after receipt of rain.
- v. Remove the borer affected tiller / late formed tillers/ dried leave in sugarcane and fallow wrapping and propping as chains- stripe the lower 4-5 leaves.
- vi. Thinning to the extent of 25% and using the removed plants as cattle feed.
- vii. Close the drainage holes and check of seepage loss in direct sown medium land rice regularly.
- viii. If there is apprehension of losses of more than 75% of the standing crop, go ahead for the next crops like Arhar (T-21, Upas etc.), Black gram (T-9, Sarala, Pant U-29 etc.) or groundnut (AK 12-24 Jeval Kishan etc.)

Situation- IV (Beushaning operation delayed due to want of rain in medium and low land:

- i. Do not practice beushaning (blind ploughing in rice, if crop is more than 45 days old.
- ii. Weed out the field, top dress after receipt of rainfall.
- iii. Use seedling of same age of clonal tillers for gap filling to have uniform distribution of plant after rain.
- iv. Strengthen the field bunds and clog the holes to check seepage loss.

Situation-V (Contingent Measure in situation where rice seedlings are over aged):

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- i. Remove the weeds and follow plant protection measures against blast in nursery.
- ii. About 45 and 60-70 days old seedlings can be transplanted in case of medium and late duration rice varieties respectively without much reduction in yield.
- iii. Pulverise the main rice field in any condition, if is not ploughed earlier to save time final puddling.
- iv. Use tractor/ Power tiller/ Tractor mounted rotavator for speedy land preparation! puddling cover, more area with less time.
- v. Follow close transplanting using 5-7 seedling / hills.
- vi. Apply 50% recommended N at the time of transplanting.

Situation- VI (Late season drought/ terminal drought):

It occurs as a result of early cessation of monsoon rains and is expected to occur year of late commencement or weak activity of monsoon. The management practice is.

- i. Provide protective irrigation through recycling of excess rain water.
- ii. Provide irrigation at critical states in alternate furrows in wide spaced crops. Harvest upland rice at physiological maturity stage and crops like cow pea green gram fodder purpose when all season drought is anticipated.
- iii. Under situation of complete crop failure, dibble the pre Rabi crops in the standing Kharif crop/ dismantle the Kharif crop and prepare the land for pre Rabi crop.

Pest control:

The following insect! pests and diseases appear more frequently under drought situation for which it requires constant vigilance to take up timely control measures.

1. Rice:

- Stem bores attack starting from nursery to rain field will increase as the temperature (28-38C) and humidity remain high.
- Mealy bug attack on direct sown and upland rainfed will increase.
- Foliage damage by grass hoppers, leaf minor (*Hydrollia Griseola*) and grub of *Hispa* may increase.
- Suntia and other hairy caterpillar will increase and damage the crop in inland districts.

2. Sugarcane:

- Termite and mealy bug attack will increase among the borers early shoot borer attack will continue. Top shoot borer attack will be there.

3. Vegetables:

- *Epilachna* beetles (in Gourds and Brinjal) shoot and fruit borers and fruit flies will increase damage. Damage due to ants will also be increased.

Diseases:

1. Rice

Brown spots and blast diseases increase under the dry condition.

FLOOD

Early Flood (July)

1. Medium/ Low Land

- Select the rice varieties like Kanchan, Ramachandi, Durga, Sarala, Varsa dhan for semi- deep low lands.
- If damage is more than 50% retranslate rice crop.
- In partially damaged fields allow the rice plants to stand upright. Do not go for Beushaning as it may further reduce the plant population.
- Weed out the rice field, make gap filling and top dress P and to boost the growth.

Late Flood (September)

If flood occurs during mid August to early September,

- Transplant 40-65 days old seedling after flood water recedes.
- Make up plant population by transplanting clonal tillers detaching from the old clump wherever possible.
- Apply moderate dose of fertilizers.
- Broadcasting! Line sowing of sprouted seeds of relatively short duration rice varieties in soft puddle.
- Particularly in up- medium land, where there is no scope for revival of rice, go for pulses Green gram, Black gram.

Plant population:

- Raise dapog method of nursery to transplant wherever possible.
- Maintain a buffer nursery in the backyard/ high land area to ensure adequate plant population in the field after flood damage.

Fertilizer Application:

- Reduce nitrogen application and apply recommended dose of P and K as basal
- Apply moderate dose of N:P:K at beushaning, if not applied earlier.
- Top dress N and K in Flood affected areas.
- Apply of phosphatic fertilizer to rice at the time of sowing to increase flood resistance.

Besides above some general pre planned measures are being taken:

- To ensure the availability of agricultural inputs like seed, fertilizer and pesticides at the time of needs of the farmers at their reach.
- Departmental sales centres should remain open from 9 AM to 5PM in all working days.
- The pest surveillance activities should be geared up. In case of any occurrence, prompt and appropriate remedial measures may be advised to

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farmers. If it is not solved at field level this should be immediately brought to the notice of higher officers.

- A control room will start functioning from June 1st to till the end of November and will remain open from 8AM to 8PM. One officer at district level will remain in over all charge of the control room. The contact Telephone No: 06755-223955. Crop whether watch group will be constituted at district level. Rainfall and crop coverage will be assessed regularly. AAOs at block level and DAOs at DAO level has been advised to open control room similarly to collect information and report to the district authority.
- To face the drought situation short duration paddy varieties (Sahabhagi Dhan, Mandakini, Khandagiri) of 500 Qtls., mung of 140 QtI & Biri 140 Qtl have been indented in addition to the previous indent.
- To combat the situation, advance stocking of fertiliser has been prepared & one rake of fertiliser at Jatni rake point has already reached in the last week of May 2015 & planning for arrival of more rakes has been prepared with different fertiliser manufactures in the chairmanship of the Collector & District Magistrate, Khordha.
- Steps have already been initiated at district level forum for restoration of defunct lift irrigation point by the order of the Collector & District Magistrate, Khordha.
- 500 pumpsets under BGREI has been programmed for supply to farmers on subsidy in Khordha district to overcome the drought like situation. For controlling the pest and disease, pesticides will be available on 50% subsidy under BGREI scheme to the affected farmers during Kharif in Khordha district.

Drainage Divisions:

The drainage division channel in Khordha District are being renovated from time to time as and when required on proposals from local farmers / public representatives are received by this orgnasiation. Some of the drainage channels have already been renovated in the recent past. The renovation of drainage channels which are now in progress is expected to be completed before monsoon. The clearance of congestion due to growth of weeds and water hyacinth at various bridge / culvert points will be taken up as and when required during flood.

List of responsible officers with contact details:

Table – 14.10.5:

SI No	Name of the Officer	Designation	Cell no
1	Er. Raghu Natha Swain	Executive Engg.	9439189021
2	Rudra Madhab Samal	Asst. Engg.	9853779006

Chief District Veterinary Officer (CDVO):

Veterinary Measures:

Vaccination: Mass pre-flood vaccination programme is in progress in all flood prone areas, i.e. Khordha, Jankia, Nirakarpur, Balipatna and Baliana along with all other blocks of the district. The required vaccines have already been supplied in all the

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blocks of the district. Further supply would be carried out depending upon receipt of indent of the same from the BVOs. Vaccination would also be taken up post-flood depending upon the need of the vaccines and intensity of the flood in the affected areas. OBPI, Bhubaneswar is in constant touch for allocation of vaccines during probable flood situation for the district.

Medicines: Medicines received from Director of AH & VS, Cutback have been supplied to the SDVO, Bhubaneswar for utilization in their Sub-Division. The medicines of Khordha Sub-Division have been distributed in the concerned blocks. Further, the Director, AH & VS, Cuttack will be moved for supply of more medicines for flood relief work if the situation demands.

In addition, the following medicines are required for ensuing the probable flood and cyclone situation during 2019. These medicines would be utilized in 20 Veterinary Dispensaries including Veterinary Hospitals and 98 Livestock Aid Centers of the district.

Table – 14.10.6:

Sl no:	Name of the Medicine	Quantity	Amount
1.	Inj. DNS – 5% 500ml	2000 Bottles	46000.00
2.	Inj. Dexamethasone-5ml	2000 Vials	40000.00
3.	Inj. Multivitamin 30ml	2000 Vials	80000.00
4.	Inj. B. Complex 30ml	2000 Vials	60000.00
5.	Anti stress Solution 500ml	2000 Bottles	400000.00
6.	Inj. Chlopheniramine maleate 30 ml	4000 Vials	80000.00
7.	Saline Infusion Set	500 Nos	15000.00
	Total	Total	721000.00

Feed & Fodder: The concerned BVOs of the block have been instructed to trace out the supply agency of their areas respectively for supply of cattle feed during emergency. The requirement of the cattle feed will be assessed as per the declaration of the flood affected villages by the District Administration, so that the total amount can be calculated as per the cattle population of the area and as per the total number of days of relief declared. The OMFED and Agro Industries Corporation Ltd will supply the required cattle feed on requisition by the Director of AH & VS, Odisha, Cuttack. The daily flood report will be submitted during the flood situation.

If the flood situation warrants, Collector will indent cattle feed on receipt of requirement from the CDVO, Khordha and the cattle feed will be stored at the respective block go down and distributed to concerned GPs by BDOs, so that the distribution of cattle feed can be done by the Livestock Inspector, Block Veterinary Officer and Additional Veterinary Assistant Surgeon in the presence at local PRI members and revenue Inspector depending upon the demand of the situation

In addition, rice bran and green fodder will also be supplied as done in previous years during flood.

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Mobile Teams:

Like previous year, this year also 2 Nos. of District Mobile Teams have been constituted consisting of 1 Vet, 1 Para Vet and 2 Attendants in each Team to face accordance of flood situation. The names of Employees of Mobile Team are given below. Similar arrangement of 1 mobile team is to be constituted at each Block VD (10 blocks) and team mobile team at SDVO, Bhubaneswar.

Publicity and Creation of public awareness:

Action is being taken for wide publicity of pre-cautionary measures to be taken during Flood and Cyclone situation. The Department Officers are instructed to Create awareness on this during Public meeting & various Training programmes & Camps.

Organization of Camps:

Like previous year this year also. Mass deworming Camps & Mega Health Camps will be organized with Department Medicines in Flood affected areas.

Daily report on Flood/cyclone situation:

During the flood period action will be taken to submit a daily report like previous year to the Collector-cum-District Magistrate (Emergency Section) & Director of Animal Husbandry & Veterinary Services, Odisha, Cuttack mentioning Daily status performance report of Mobile team. The filed officers are accordingly instructed to inform regarding any eventuality in their area to this office immediately over phone to avoid delay, followed by written report.

Disease Surveillance:

Like previous years this year also during the flood period, action would be taken to invite Expert for Disease surveillance. The OIL, District Diagnostic Laboratory, Nayagarh would be provided with a vehicle to proceed to flood affected areas for disease surveillance.

Information on Veterinary Institutions:

Sl no	Name of the Block	Name of the VD	No of GPs	No of LACs	No of functional Gomitra	No of Large Animals (Cattle & Buffalo)	No of Small Animals (Sheep & Goats)
1.	Tangi	Tangi, Nirakarpur	20	7	5	33182	8237
2.	Begunia	Begunia	21	8	9	34715	12659
3.	Khordha	Khordha	20	9	5	93257	9304
4.	Bolagarh	Bolagarh	19	12	3	28039	12144
5.	Chilika	Balugaon	14	7	5	18896	4196
6.	Banapur	Gambharimunda, Nachuni	13	5	1	26402	4772

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7.	Balipatana	Balipatana	14	15	1	32795	17149
8.	Balianta	Balakati	15	13	5	25161	14402
9.	BBSR	Old Town, Nayapalli, Saheed Nagar, Chandaka	19	16	6	47987	10804
10.	Jatni	Jatni, Janla	13	6	2	26817	6779
	Total		168	98	42	313251	100446

Khurda Irrigation Division, khurda:

1. Introduction:

Khurda Irrigation Division is looking after the River embankments of Hada, Malaguni, Kusumidhar and Salia and Saline Embankments of Chilika in **KHURDA** District. The total length of Embankments is 138.72 km in Khurda District under Khurda Irrigation Division. The details are given below:

Table – 14.10.7:

Sl No	Type of Embankment	Length in Km.
1	Capital Embankment	-
2	O.A.E.	64.90
3	T.R. Embankment	4. 00
4	Saline Embankment	69. 82
	Total	138. 72

The Embankments are constructed along the banks of the Rivers mentioned above for protection to nearby villages, towns and agricultural fields against flood. There is no Capital embankment in Khurda District under Khurda Irrigation Division.

2. Review of Vulnerable Points:

There is 1(one) No. of Vulnerable point located along the river embankments as per the criteria determined for the Vulnerable points. When the River touches the Danger Level, those vulnerable points will be kept on close vigil round the clock till the flood recedes and comes to normal.

3. Maintenance of River Gauge & Discharge Observation:

This division is maintaining 3(Three) Nos. of River Gauge Stations at different locations of River Malaguni, Kusumidhar and Chilika along with 1(One) No. of Reservoir Gauge station at Salia. A list showing the Zero value of the gauge, Danger Level, Highest flood level so far recorded and Highest Flood Levels of July-2001, September-2008, September-2011, October 2013 and September-2014 are enclosed as Annexure.

Arrangements have been made to measure flood levels of river 2(Two) times day i.e. at 6.00 A.M. and 6.00 P.M. on normal days. When the River flows above danger levels hourly gauge reading will be taken up and continued till the flood recedes.

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5. Functioning of Flood Control Room and its Function:

A flood control room will function at Division Office, Khurda round the clock from **1st of June** and will continue the same up to **31st October**. The Telephone No of the control room is **06755-220729 Khurda**. The information relating to gauge of the river with respect to time will be sent to the control Rooms functioning at Office of the Engineer-In-Chief, Water Resources, Bhubaneswar, respective District Collectors, Sub-Collectors & other destinations as and when required.

Besides this, information about River gauge & flood relating to River Malaguni and Chilika will be available at the section office at Jankia and Tangi respectively. The Reservoir Level and Discharge through Spillway of Salia Reservoir will be available at the Office of The Sub-Divisional Officer, Salia Dam Sub-Division, Banapur. Telephone No: **220352**. The list of Telephone nos are enclosed as Annexure.

5. Reporting of Flood Messages / Damages: -

On normal days (When their normal flow or no flood in the River) messages will be conveyed to various quarters by 10.30 A.M. shortly after compilation of the same at Flood Control Room at Division Office, Khurda. On the high flood days the messages on river gauge damages and flood conditions will be sent to various quarters immediately after its receipt. The medium of transmission is through Telephone, Wireless or Special messenger which is available at the earliest.

6. Review of Flood Responsibility: -

Assistant Engineer of Jankia and Khurda Irrigation Section of Khurda Irrigation Sub-Division, Khurda along with their staffs located at various points will keep a strict vigil on flood round the clock during high flood days.

7. Use of police and central water commission's wireless: -

Police Wireless of Jankia, Tangi, Banapur & Khurda Police Station will be used for transmission of flood messages as it is situated nearest to our control rooms, gauge sites etc. District administration is requested to instruct concerned Police stations to transmit flood messages on top priority basis. There are no gauge stations of Central Water Commission within the jurisdiction of the Khurda Irrigation Division.

8. Observation of kilometer wise free board and flood slope: -

The Top Level of the Embankments has been fixed with 1.20m high above H.F.L. of 2001 flood. During July-2001, flood of 14, 00,000 Cusecs passed through river Mahanadi. During September-2008, unprecedented flood of 15.81 lakhs cusecs passed through river Mahanadi. Rivers like Daya, Rajua and Makara shared a part of it according to its capacity. High flood occurred in river Salia, Sapua in July, 2009 and October, 2009. Heavy flood occurred in Malaguni river during July, 2009. Also during September-2011, high flood of 13.86 lakhs cusecs passed through river Mahanadi.

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9. Drainage Clearance: -

People used to make cross bundhs across river Malaguni for the purpose of irrigating their land during Rabi Season. Tahasildars may be instructed to remove such cross bundhs by 15th of June and make drainage path clear.

10. Other items if any: -

(a) Flood fighting Materials: -

Flood fighting materials like **empty cement gunny bags 42000 nos, bullahs sand 560 Cum** will be stored at various locations preferably at nearby villages quite close to the vulnerable points. The other flood fighting materials like **Bamboo mats** etc. will be procured at the time of requirement. A list showing flood fighting materials proposed to be stored at different places is enclosed as Annexure. Extra flood fighting materials if required in case of very high flood, the same will be procured at that time basing on further requirement.

(b) Flood of 2020:

01 breach occurred in river embankment due to flood in the year 2020.

Nimapada Irrigation Division, Khordha:

Nimapara Irrigation Division comes under administrative control of the Superintendent Engineer, Central Irrigation circle, Bhubaneswar and looks after the maintenance of river embankments namely River Kuakhai, Kushabhadra, bhargavi, Devi, dhanua, Siarocut and Saline embankments within Devi mouth and Kushabhadra Dhanua mouth. To combat the grave situation of flood under Khordha district, flood embankments have been constructed on both sides of all rivers.

This Division maintains a total length of 328.62 km. of embankments under different categories. Khordha district covers 62 kms.

The category wise break up is given below.

Table – 14.10.9:

Sl.No.	Category of Embankment	<i>Khurda</i>
1	Capital Embankment	<i>55.00</i>
2	O.A. Embankment	<i>7.00</i>
3	T.R. Embankment	<i>--</i>
4	Saline Embankment	<i>--</i>
	TOTAL	<i>62.00</i>

RIVER ESCAPES/SLUICES

A. Jogisahi Escape

- i. Location: Kushabhadra Right Embankment
- ii. RD: 4.00 km.
- iii. Type: Gated AFC

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- iv. Function Being maintained by Executive Engineer, stores & Mechanical Division, Bhubaneswar & it works when the flood in Mahanadi is 8.00 lakh crosses at Naraj.

B. Achutapur Escape:

- i. Location: Bhargabi left embankment
- ii. RD: 8.50 km.
- iii. Type: ungated
- iv. Function Works when flood in Mahanadi exceeds 6.00 lacks cusecs at Naraj

1. CRITICAL VULNERABLE & VULNERABLE POINTS

Almost all the weak points in the river embankment have been strengthened and they are safe against flood of 9.50 lakhs csecs at Head of Delta at Mundali. There are no critical vulnerable points under this office however 1 No. of vulnerable points need constant watch and ward during the flood time with complete arrangement of flood fighting materials for combating any breaches.

2. GAUGE & DISCHARGE OBSERVATION

Table – 14.10.10:

Sl No	Name of the River / Embankment	Location	Location RD (in Km)	Sub-Division	Section	Type of Structure	Gated / Ungated	Remarks
1.	Kushabhadra Right	Jogiasahi	4.00	Balipatana	Bhubanpur	Escape	Gated	Good Condition
2.	Kushabhadra Right	Marthapur	25.00	Balipatana	Basantamal	Sluice	Gated	Good Condition
3.	Bhargavi Left	Achyutpur	8.50	Balipatana	Achyutpur	Escape	Ungated	Good Condition

3. OPERATING OF FLOOD CONTROL ROOM AND ITS FUNCTION

During Flood, the Divisional Control Room will function round the clock at the Division office (**Phone No.06758- 250240**) under the control of Assistant Executive Engineer (Estimator) of this Division who will coordinate with the control room of higher authorities and control rooms of Sub-divisional level and at temporary flood cell units to be situated at different sites if required.

4. TRANSMISSION OF FLOOD MESSAGE

There is 3 Nos. of. of Police Station within the jurisdiction of this Division i.e. at Balipatna, Balanga & Nimapara. Besides one number CWC Wireless station is functioning at Delta Colony, Nimapara. The flood message will be transmitted effectively.

5. TEMPORARY FLOOD SHED

During Flood period for proper watch and ward of the river embankments temporary flood sheds will be constructed to have stock for urgently required flood fighting

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materials. These temporary flood sheds will be constructed near weak points as listed depending upon the necessity and urgency.

6. REQUIREMENT OF FLOOD FIGHTING MATERIALS

Balipatana Sub Division requires 32000 empty Cement Bags, 1400 cum sand, 80 nos of 1st class bamboo, 80 nos of non-sal bullah and 100 ltrs of kerosine for flood fighting.

Prachi Irrigation Division:

1. The jurisdiction of Prachi Division covers part of Cuttack, Jagasinghpur, Khordha & Puri District. River Mahanadi and it's branches i.e. Kathajori, Kuakhai, Kushabhadra, Daya and Devi are the main rivers flowing inside the jurisdiction of Prachi Division. To combat the grave situation of flood, flood embankments have been constructed on both the sides of all the rivers. The total length of embankment under Prachi Division is 285.77 Km with 22 Nos. of drainage sluices.

Embankments under Khordha District:

Table – 14.10.11:

Capital Embankment:-			
01.	Kuakhai Right Embankment RD 6.00 to 32.50Km		26.50 Km.
02.	Daya Right Embankment RD 00 to 8.50Km		08.50 Km.
03.	Daya Right Embankment at Tirumal (RD 30.00 Km to 31.60Km)		01.60 Km.
04.	Kushabhadra Left Embankment 00 to 30.00Km		30.00 Km.
05.	Kuakhai Left Embankment (RD 11.00 to 19.00Km)		08.00 Km.
<u>Other Agricultural Embankment.</u>			74.60 Km.
01.	Kuakhai Right Embankment RD 6.00 to 8.70Km		02.70 Km.
	(Gherry Bundha to Jhinkardiha Marichia Island)		
		Total	77.30 Km.

2. Review of Weak Points:

Almost all the weak points in the river embankments have been strengthened and they are safe against flood of 9.50 lakhs Cusecs at Head of Delta at Mundali. Near Kantisal on Kathajodi-Sirua-Devi Rt. Embankment from RD 61.00 Km to 63.00 Km, the protection works have been completed under central assistance. Near Gopalpur-Tithapada, the protection works have been completed under CRF grant under the supervision of OSDMA.

If unprecedented flood like 1980, 1982, 1991, 1992, 2001, 2003, 2006, 2008 and 2011 occurs in order of 12.27 lakhs, 15.80 lakhs, 12.18 lakhs, 12.09 lakhs, 13.15 lakhs, 13.35 lakhs, 12.75 lakhs, 15.81 lakhs and 13.80 lakhs cusecs magnitude at Mundali, the embankments may not sustain. There is no weak point in respect of Khordha district under the division.

3. Flood fighting Materials:

The requirement of flood fighting materials under the division is given below:

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Table – 14.10.12:

Sl. No.	Name of Sub-Division	Empty Cement bags in No.	Sand in Cum
1	Bhubaneswar	200	50
2	Balianta	2500	30
	Total		

4. Flood Control Room:

The Divisional control room will function at Division Office, Phone No.- **2562427** under the control of Assistant Executive Engineer (Estimator)/ Asst. Engineer (Estimator) who will co-ordinate the control room of higher authority and control rooms at Sub-Divisional levels and temporary flood sheds to function at different sites.

Chief District Medical Officer (CDMO):

District Health Control Room Contact Number: - 06755 – 223178

1. Block Level Control Room & Preparedness:

- The Block Medical Officer I/Cs are instructed to form the Control room and open it round the clock.
- To attend the emergency of any natural calamity, epidemic situation whenever required without waiting to the direction of District Authorities.
- To form Block Rapid Response team which will take care of the epidemic and natural calamity situation.
- Chlorination of the wells and drinking water sources, 1st round completed in April, 2nd in May & 3rd round is going on.
- During epidemic situation PRI members, ASHA, AWW and School teachers will be involved.
- Sending of daily/ weekly/ fortnightly reports to the district control room, CDMO office through special messenger/ phone/ E. Mail.
- To store adequate emergency medicines like Bleaching powder, ORS, Halazone, Anti- Diarrhoeal, IV fluids, Anti Snake Venom etc.
- To supply Paracetamol, ORS (25 nos.), Halazone, Metronidazole sufficiently to all ASHA & AWW of the flood prone blocks.

2. Block CHCs Health Personnel with Contact Number:

Table – 14.10.13:

SI	Block	Name and Address of Health Centre	Facility In-charge	
			Name	Contact
1	Balianta	CHC, Balakati	Dr Tanmay Tripathy	9439997038
2	Balipatna	CHC, Balipatna	Dr. Manoranjan Hati	9439997403
3	Banapur	CHC, Banpur	Dr. Rakesh Ku Moharana	9124442444
		CHC, Gambharimunda	Dr. Dhrujati pr. Mohapatra	943997200
4	Begunia	CHC, Botalama	Dr. Anita Lenka	8895177271
5	Bhubaneswar	CHC, Mendhasala	Dr. Subhranshu pradhan	9439997293
6	Bolagarh	CHC, Bolagarh	Dr. Arun Kumar Mohapatra	9437365646

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		CHC Bankoi	Dr. Balabhadra Behera	9439994656
7	Chilika	CHC, Balugaon	Dr. Soumyakanta Das Pattanaik	7978279961
8	Jatani	CHC, Jatni	Dr. Jitendra Ku Panda	9439997467
9	Khurda	CHC, Haldia	Dr. Paresh ku acharya	9439994692
10	Tangi	CHC, Tangi	Dr. Dilip Mallick	9438789735

3. List of ASHAs

Table – 14.10.14:

Name of the Block.	No. of ASHA
Banapur	107
Balugaon	125
Tangi	155
Begunia	136
Bolagarh	130
Khordha	133
Bhubaneswar Rural	97
Jatni	89
Balianta	110
Balipatna	115
Total	1197

4. Contingency plan for mobile health team & deployment of staff:

- One M.O and one paramedic are to be mobilized from D.H.H and non affected blocks.

Plan for mobile team:

No of teams:

From within district	5
From outside district	2
Total	7

5. Supply of Drugs, Logistics and Disinfectants:

- Adequate stocks available at CHCs, PHC (N) and Sub-centre level.
- Stocks are ensured for prepositioning & to be replenished as per guideline as follows

Table – 14.10.15:

Sl. No	Name of the Items	Health Facilities			
		Sub Center	PHC (N)	CHC	ASHA
1	ORS Sachets	100	400	1500	25
2	Halazone	1000	3000	5000	-
3	Bleaching Powder	1 Kg	1 Bag (25Kg)	3 Bag (75Kg)	-
4	ASV	-	5 Vials	10 Vials	-

- The stock position of block CHCs will be replenished regularly by district drug warehouse.

6. Ambulance Services:

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- Ambulance 108 & 102 services will be utilized for referral of cases.
 - In cases of non availability of institutional ambulances, then can be hired using Untied / RKS fund of NHM.
- 7. Disinfection of Drinking Water Sources:**
- First round of disinfection of all drinking water sources by bleaching powder have been completed in the month of April, 2nd in May & 3rd round is being done in the month of June.
 - The R.W.S.S and R.D dept. have been communicated to repair the defunct tube wells and also do disinfection of tube wells, bore wells & over head tanks.
 - PHED have been contacted for maintenance of pipe water supply in Municipality & NAC areas.
 - Orthotoludine Test Kits (OT Test Kit) to ensure chlorination & Hydrogen sulphide Test Kits (H₂S) to confirm contamination of water are available in all CHCs in the district. Random tests are being done weekly. During epidemic, daily testing will be done.
- 8. Disease surveillance (IDSP):**
- The epidemiological situation of the district will be analysed and immediate effective containment measures will be taken. Compliance reports of news items in the daily news papers will be investigated and sent to State H.Q by email / Fax.
- 9. Health Education:**
- District Mass Media organisation (electronic, print, outdoor display), health services providers like M.O, AYUSH, DPHCO, PHEIO, MPHS (M/F), MPHWS (M/F) should propagate the message related to personal hygiene, hand washing, safe drinking water, chlorination use of ORS, Halazone & Chlorine Tabs, Food hygiene and environmental sanitation.
- 10. Daily reporting:**
- The day's report in the prescribed format will be sent to State H.Q, through Email/Fax/by 3 PM of next day.
11. Motor boats will be provided by Special Relief Commissioner (SRC) and as per direction of Collector & District Magistrate, those will be deployed. Dedicated Boats would be available for medical relief.

No of motor boats required with their station:

Table – 14.10.16:

Sl. No	Name of the Block	Place of Station	Nos
1	Balipatana	Pumpalo, Nischintapur, Rajas	3
2	Balianta	Kulasahi, Sarakana, Phulapala	3
3	Khordha	Masania, Manapur	2
4	Begunia	Baghamari, Tulasipur	2
5	Tangi	-----	0
6	Jatani	Pandiabili, Budhapada	2
7	Mendhasal	Itipur	1

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Civil Supplies Officer: Khordha

As per the contingency plan submitted by the CSO, the table given below shows the proposed quantity of Rice to be stored in the flood prone areas:

Table – 14.10.17:

SI No	Name of the Block	No of FPS	Amount (in Qntls)
1.	Balipatana Smt. Debasmita Mallick MI Mob- 8280000375	14	4282.64
2.	Balianta Smt. Debasmita Mallick MI Mob- 8280000375	8	1937.34
3.	Bhubaneswar Smt. Gayatri Patanaik, ACSO Mob-9437162606	8	2227.00
4.	Jatni Pruthiraj Pradhan, M.I Mob-9937535933	4	462.75
	Total	34	8909.73

PDS Godowns at Blocks:

Table – 14.10.18:

SI.No	Type of storage structure	Location	Capacity	Contact Persons	Adress and Phone No
1	Pucca	Macheswar RRC-Cum-DSC	3000 M.T	Rasmita Mallick, P.I Sri Siba Sankar Mohapatra ACSO	9778920326 8249823360
2	Pucca	Jatani RRC-Cum-DSC	1000 M.T	Subendu Mohanty, P.I Pruthiraj Pradhan M.I	7978068688 9937535933
3	Pucca	CWC, PEG, Jatani	11700 M.T	Ayesees Nayak, P.I Pruthiraj Pradhan M.I	9861364376 9937535933
4	Pucca	PEG, Muljhari	5000 M.T	Damayanti Majhi, P.I Trilochan Sahoo ASCO	9438326509 9337821488
	Total		20700 M.T		

Pre-Positioning of Food Grains:

Table – 14.10.19:

SI.No	Name of the block	NO.of FPS	Name of FPS	Quantity of Rice (in Qtl)
1	2	3	4	5
1	Balipatna Smt. Debasmita Mallick MI Mob- 8280000375 (Contact person)	14	PEO, amanakud G.P	233.40
			PEO, Bhakarsahi G.P	242.82
			PEO, Bhapur G.P	433.56
			PEO, Deulidharpur G.P	504.20
			PEO, Garedipanchan G.P	167.62
			PEO, Guapur G.P	212.02
			PEO, Kurunjipur G.P	377.44
			PEO, Majjihara G.P	332.10
			PEO, Marthapur G.P	303.28
			PEO, Narisho G.P	373.76
			PEO, Pampalo G.P	379.30
			PEO, Rajas G.P	163.64
			PEO, Sonamasasan G.P	215.90

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			PEO, Turintira G.P	343.60
	Total (in Q)			4282.64
2	Balianta	08	PEO, Balianta G.P	193.70
	Smt. Debasmita Mallick MI Mob-8280000375 (Contact person)		PEO, Bhingarpur G.P	308.00
			PEO, Jaydev G.P	168.92
			PEO, Jhintيسان G.P	196.28
			PEO, Prataprudrapur G.P	227.82
			PEO, Pratapsasan G.P	340.08
			PEO, PuranPradhan G.P	182.18
			Sarakana SCS	320.36
	Total (in Q)			1937.34
3	Bhubaneswar	08	PEO, Barimunda G.P	131.06
	Smt. Gayatri Patanaik, ACSO Mob-9437162606 (Contact person)		PEO, Basuaghai G.P	402.21
			PEO, Dadha G.P	374.56
			PEO, Dhauli G.P	290.57
			PEO, Itipur G.P	255.14
			PEO, Kalyanpur G.P	247.67
			PEO, Sisupalgarh G.P	250.37
			PEO, Tikarpada G.P	275.42
	Total (in Q)			2227.00
4	Jatani	04	PEO, Benapanjari G.P	142.74
	Pruthiraj Pradhan, M.I Mob-9937535933		Ramamani Jena, Tirimal	174.76
			Sidheswar Mahana, Benapanjari	101.66
			Bhagirathi Sasmal, Benapanjari	43.59
	Total (in Q)			462.75
	Grand Total(in Q)	34		8909.73

Pre-Positioning of K.Oil:

Table – 8.10.18:

Name of the Wholesaler	Location	Contact details with ph.No	Deals with type of food materials/K.Oil
MaaDuladei Filling Station, Wholesaler of K.Oil	Uttarachakk	9437988115	S.K Oils
Utkal Dyes & Chemicals, Wholesaler of K.Oil	Samantarapur, Bhubaneswar M.C	9937815169	S.K Oils
M/A R.A Surekha, Wholesaler of K.Oil	Ramachandrapur Bazar, Jatani	9861071951	S.K Oils
M/S Bolagarh Kerosene Depot, Wholesaler of K.Oil	Bolagarh	9438355148	S.K Oils
S.R Agency, Wholesaler of K.Oil	Jagamara, BMC	9937220121	S.K Oils
OnKarmalNanakram, Kerosene Wholesaler	Ramachandrapur Bazar, Jatani	9437010251	S.K Oils
M/S Ashok Kumar Sahoo, Kerosene Wholesaler	Balugaon	9437212110	S.K Oils
M/S Subash Chandra Sethi, Kerosene Wholesaler	Balugaon	9437286040	S.K Oils

Traders identified for providing the essential commodities like chuda, gur, etc in case of emergency:

1. Sudhakar Panda, Kuberapuri, Bhubaneswar (Mob-9438555802).
2. Gangadhar Sahoo, GangaNagar Unit-8, Bhubaneswar (Mob-9437449877).
3. Kamal Jajodia, Unit-4 Market, Bhubaneswar (Mob-9437010119).

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4. Mahalaxmi Bhandar, Unit-4, Bhubaneswar (Mob-9438505150).
5. Sri Ram Trading Co. Station Bazar, Bhubaneswar (Mob-8895351444).
6. Sahoo General Store, Kuberapuri Market, Bhubaneswar (Mob-9777947478).
7. Subudhi Traders, Unit-4, Bhubaneswar (Mob-9437954131).
8. Chatubhujara Sahu, Jhinkijhari Chuda Mill.
9. Mahalaxmi Store, Talasahi, Khordha (Mob-8249142611).
10. Dasarathi Store, Talasahi, Khordha (Mob-9437232826).
11. Baikuntha Sahoo, Khordha Municipality (Mob-7978000892).
12. Niranjana Sahoo, Khordha Municipality (Mob-9437222503).
13. Ashok Sahoo, Balakati (Mob-9439315312).
14. Hrushikesh Sahoo, Balakati (Mob-9337948724).
15. Nabakishore Sahoo, Balakati (Mob-9861355521).
16. Krushna Ch. Sahoo, Athantara, Balipatna (Mob-9238919639).
17. Arta Sahoo/Budhanath Sahoo, Garedipachana, Baliana (Mob-7377555341).
18. Prafulla Nayak, Biswanathpur, Garedipanchan (Mob-9439918691).
19. Narayan Sahoo, Ambika Store, Banamalipur (Mob-9439867187).
20. Sarat Sahoo, Madhuban Chakk, Balipatna (Mob-7790015115).
21. Maa tarini Enterprise, Budhapada, Jatani (Mob-7008638776).
22. Manasa Trading Co. Jatani (Mob-6370092596).
23. Mahaveer Store, Jatani (Mob-9777494643).

CHAPTER – XV

REHABILITATION AND RESTORATION

15.1 Rehabilitation & Restoration

Rehabilitation and restoration comes under recovery phase immediately after relief and rescue operation of the disaster. This post disaster phase continues until the life of the affected people comes to normal. This phase mainly covers damage assessment, disposal of debris, disbursement of assistance for houses, formulation of assistance packages, monitoring and review, cases of non-starters, rejected cases, non-occupancy of houses, relocation, town planning and development plans, awareness and capacity building, housing insurance, grievance redress and social rehabilitation etc.

The district is the primary level with requisite resources to respond to any natural calamity, through the issue of essential commodities, group assistance to the affected people, damage assessment and administering appropriate rehabilitation and restoration measures.

The District Disaster Management Authority reviews the relief measures and submit financial requisition to the state Govt. under SDRF & NDRF. The requisition must reach the SDMA & SRC office in the prescribed format as annexed for smooth & quick processing.

15. Standard Operating Procedure: Restoration & Rehabilitation

Table – 15.1:

Name of the Department	Normal Time / Post Disaster
District Disaster Management Authority	<p>Normal:</p> <ul style="list-style-type: none">• Conduct capacity building programmes for Govt. Official, PRIs, NGOs, Volunteers, SHGs, Paramedical Staffs, etc. To have a better knowledge on disasters and its management.• Documentation of best practices• Provision of funds for infrastructure development• Preparation of DDMP and its implementation at all levels <p>Post Disaster:</p> <ul style="list-style-type: none">• The DDMA will review the relief, restoration and rehabilitation measures.• Utilize the machinery in restoration and rehabilitation work without compromise• In close coordination with Blocks, Tahasil and PRIs• Act at the center point for State and below district level

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Name of the Department	Normal Time / Post Disaster
Collector/ADM / Emergency Officer	<p>Normal:</p> <ul style="list-style-type: none"> • Monitor the activities undertaken by DDMA • Review the preparedness activities <p>Post Disaster:</p> <ul style="list-style-type: none"> • Restoration of Critical Infrastructures to bring situation to normalcy • Ensure Restoration of roads & channels, Communication Network, Electricity & Energy • Ensure address of health issues in the affected areas • Adopt sustainable mitigation measures in the restoration activities • Monitor & review the restoration activities • Ensure proper functioning of rehab centers • Ensure proper functioning of free kitchen centers in rehab centers
CDM & PHO	<p>Normal:</p> <ul style="list-style-type: none"> • Awareness and training programs for staff and other stakeholders • Preparedness planning and sharing with the DDMA • Review and monitor the preparedness activities and report to DDMA <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • Carry out Disease surveillance measures to check epidemic prone diseases • Rehabilitation of deprived & destitute • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA on daily basis • Carry out Trauma & Psycho-social counseling • A mechanism for quick identification of factors affecting the health of the affected people shall be established for surveillance and reporting. • An assessment of the health and nutritional status of the affected population shall be done by experts with experience of emergencies and, if possible, local knowledge. • The voluntary deployment of the nearest medical resources to the disaster site, irrespective of the administrative boundaries, will be warranted. • Mobile medical hospitals and other resources available with District shall be provided to the relief camp. • Adequate supply of medicines, disinfectants etc. shall be made. • Where necessary inoculation shall be done. • Vaccination of the children & pregnant women shall be undertaken. • Vector-borne diseases are a major cause of sickness and death in many disaster situations. Vector control measures shall be undertaken. • Water borne diseases may cause sickness and deaths and therefore

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Name of the Department	Normal Time / Post Disaster
	adequate measures shall be taken to prevent such outbreaks.
Superintendent of Police (SP)	<p>Normal:</p> <ul style="list-style-type: none"> • Conduct training programmes for staff on operation of updated equipments for Search and Rescue • Conduct training programme for staff on First Aid • Review and monitor of preparedness activities • Rapport building with the local community by the staff members <p>Post Disaster:</p> <ul style="list-style-type: none"> • Close coordination with Dist. Administration • All Circle Officers will carry out damage assessment in their respective areas • Deployment of police personnel in shelters and relief camps to ensure smooth operation • Coordination with the district administration for law and order situation • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA on daily basis
EE- RWSS	<p>Normal:</p> <ul style="list-style-type: none"> • Proper planning for supply of drinking water at the rural pockets for summer and flood season • Time to time restoration of tube wells and raising of platforms in the flood affected area • Aware the community to use safe drinking water <p>Post Disaster:</p> <ul style="list-style-type: none"> • Close coordination with DEOC • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA on daily basis • Immediate restoration of drinking water facility • Provision of drinking water tankers in water scarcity pockets. • Disinfection of drinking water sources • Awareness among the community to take safe drinking water
EE- Irrigation	<p>Normal:</p> <ul style="list-style-type: none"> • Identification of weak embankments • Repairing of the embankments • Capacity building training programmes for staff and other stakeholders • Flood contingency planning and sharing with DDMA <p>Post Disaster:</p> <ul style="list-style-type: none"> • Close coordination with DEOC

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Name of the Department	Normal Time / Post Disaster
	<ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA on daily basis
CDAO- Agriculture	<p>Normal:</p> <ul style="list-style-type: none"> • Training to farmers and other stake holders on different good agricultural practices • Training to Staff members on different good / updated agricultural practices <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment
EE- Rural Works	<p>Normal:</p> <ul style="list-style-type: none"> • Routine developmental works but disaster proofing mechanism needs to be ensured <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Immediate restoration of critical infrastructures
EE- Public Works	<p>Normal:</p> <ul style="list-style-type: none"> • Construct/reinforce the connecting roads from villages to roads, canals and bunds and raise their level so that people can access the high ground. • Routine developmental works but disaster proofing mechanism needs to be ensured <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Immediate restoration of critical infrastructures

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Name of the Department	Normal Time / Post Disaster
<p>DTO-Telecom</p>	<p>Normal:</p> <ul style="list-style-type: none"> • Routine developmental works such as towers needs to be placed outside crowded locality with the disaster proofing mechanism needs to be ensured <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Similar damage assessment reports needs to be sent to the parent organisation
<p>CDVO</p>	<p>Normal:</p> <ul style="list-style-type: none"> • Awareness of the livestock farming as one of the viable alternative livelihood option in the normal year in particular and in drought year in general through awareness generation, attractive schemes etc. <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Restore the gosalas with fodder, water etc. • Distribution of assistance • Improvement of the quality and productivity of local livestock through Artificial Insemination and other breeding process. • Strengthening of the dispensaries/Livestock Aid centers with staffs, medicines, and equipment to proper health care of the animal. • Capacity building of the grass root extension workers/Para worker/farmers on animal health care and hygiene, AI/breeding, birth care etc. • Popularization of the cultivation of nutritious fodder grasses or trees in the home stead/field bunds of farmers/village pasture lands etc. through demonstration unit, mini kit distribution etc. • Storage, Processing, Market linkage, Price fixation of the livestock products • Promotion of the development of Institutions like Milk Cooperatives, Goat grower association etc. for better access to market, credit etc. • Supply of quality and productive fingerlings of fast growing/improved fish species.
<p>RTO/MVI</p>	<p>Normal:</p> <ul style="list-style-type: none"> • Identification of potential places of road accident and necessary arrangement needs to be done to prevent accidents in coordination with the Police service • Prepare a plan to meet any sort of disasters with clear cut role and responsibilities

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Name of the Department	Normal Time / Post Disaster
	<p>Post Disaster:</p> <ul style="list-style-type: none"> • RTO /MVI needs to have a close watch on the situation and coordinate with DEOC • All Circle Officers instructed to be in coordination with the local authority • Identification and Provision of vehicles for necessary emergency movement
Dist. Fisheries Officer	<p>Normal:</p> <ul style="list-style-type: none"> • Introduction of Pisciculture in all the Dams, Reservoirs /MIP /GP tanks and other bodies. • Capacity building of fish farmers/grass root extn. Workers/SHG members on commercial pisciculture, fish seed and feed production etc. <p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis
Railway	<p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Damage Assessment report of Railway may be sent to parent department apart from DDMA /DEOC.
EE- Electricity	<p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Restoration of Electricity in hospitals, administrative buildings
EE – PHED	<p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment

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Name of the Department	Normal Time / Post Disaster
	<ul style="list-style-type: none"> • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Restoration of safe drinking water • Close watch on outbreak of jaundice and other water related diseases
DEO- School & Mass Education	<p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Immediate restoration of Electricity, Drinking water facility, sanitation facilities after any serious disastrous event
DEO - Higher Secondary Education	<p>Post Disaster:</p> <ul style="list-style-type: none"> • All Circle Officers will carry out damage assessment in their respective areas • Representatives from line department's viz. Agriculture, PWD, PHED, Water Resource, Animal Husbandry, Education, Health, Irrigation, Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment • All damage assessment reports in the prescribed format (By GoO) to be submitted to DDMA /DEOC on daily basis • Immediate restoration of Electricity, Drinking water facility, sanitation facilities after any serious disastrous event

CHAPTER-XVI

RECOVERY

16.1 Recovery:

A series of long-term activities framed to improve upon the repaired activities in the Reconstruction & rehabilitation phase are covered under Recovery phase. Recovery includes all aspects of mitigation and also incorporates the continuation of the enabling process, which assists the affected persons and their families not only to overcome their losses, but also to achieve a proper and effective way to continue various functions of their lives. The Recovery process is therefore a long-term process in which everyone has a role – the Government including the PRI members, NGOs and especially the affected people, their families and the community.

- Preparation of Recovery plan for displaced population, vulnerable groups, environment, livelihoods
- Organise initial and subsequent technical assessments of disaster affected areas and determine the extent of recovery works necessitated in addition to reconstruction & rehabilitation works.
- Evaluate the extent of works under SDRF/NDRF & other sources (damaged infrastructures)
- Explore opportunities for external aids like (International Agencies / Civil Society / Corporate Sector)
- Allocate funds for the stabilisation of the repaired & reconstructed infrastructure.
- Integrate Climate change & Disaster Risk Reduction features in the recovery programmes

The DM & Collector will be the co-ordinator of all Recovery activities in the district. The role of the DM & Collector will be to:

- Generally, monitor the management of the recovery process;
- Ensure implementation of the recovery plan by line departments, blocks
- Effective service delivery minimising overlap and duplication;

There are schemes implemented by DRDA such as OLM and MGNREGS which help the poorest of the poor for recovering from the poverty. Also helps them in enhancing the livelihood opportunities.

10.2 Odisha Disaster Recovery Project:

ODRP is one of the Recovery Project taken up immediately after the Cyclone Phailin. In Khordha district Tangi block 95 nos and Chilika block 183 nos of beneficiaries allotted houses at a cost of Rs.3Lakhs each.

CHAPTER- XVII

FINANCIAL ARRANGEMENT

17.1 National Disaster Response Fund (NDRF)

The National Disaster Response Fund (NDRF) has been constituted by the Government of India as per the sub-sections (1) of section (46) of Disaster Management Act, 2005 and recommendation of the 13th Finance Commission. NDRF has been constituted by replacing the National Calamity Contingency Fund (NCCF). It is administered by the National Executive Committee (NEC).

In the event of a calamity of a severe nature when the State Disaster Response Fund (SDRF) is insufficient to meet the relief requirements, additional central assistance is provided from NDRF, after following the laid down procedure. The State Government is required to submit a memorandum indicating the sector-wise damage and requirement of funds. On receipt of memorandum from the State,

- An Inter-Ministerial Central Team is constituted and deputed for an on the spot assessment of damage and requirement of funds for relief operations, as per the extant items ad norms.
- The report of the Central Team is considered by the Inter-Ministerial Group (IMG) / A Sub-committee NEC constituted under section 8 of DM act, 2005, headed by the Home Secretary.
- Thereafter, the High Level Committee (HLC) comprising of the Finance Minister, the Agriculture Minister, the Home Minister and the Deputy Chairman, Niti Ayog considers the request of the State Government based on the report of the Central Team recommendation of the IMG thereon, extant norms of assistance and approves the quantum of assistance form NDRF.
- This is, however, subject to the adjustment of 75% of the balance available in the State's SDRF for the instant Calamity.

[Please refer to Annexure - III for NDRF Items and Norms]

17.2 State Disaster Response Fund (SDRF)

As per the provisions of Disaster Management Act, 2005 sub-section (1)(a) of Section (48) and based on the recommendation of the 13th Finance Commission, the Government of Odisha has constituted the State Disaster Response Fund (SDRF) replacing the Calamity Relief Fund (CRF). The amount of corpus of the SDRF determined by the 13th Finance Commission for each year the Finance Commission period 2010-15 has been approved by the Central Government. The Central Government contributes 75% of the said fund. The balance 25% matching share of contribution is given by the State Government. The share of the Central Government in SDRF is released to the State in 2 installments in June and December respectively in each financial year. Likewise, the State Government transfers its contribution of 25% to the SDRF in two installments in June and December of the same year.

Ministry of Home Affairs, upon being satisfied that exigency of a particular calamity so warrant, may recommend an earlier release of the Central share up to 25% of the funds due to the State in the following year. This release will be adjusted against the installments of the subsequent year.

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As per the Guidelines on Constitution and Administration of the State Disaster Response Fund (SDRF) laid down by the Ministry of Home Affairs, Government of India, the SDRF shall be used only for meeting the expenditure for providing immediate relief to the victims of cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst and pest attack. The State Executive Committee (SEC) headed by the Chief Secretary SEC decides on all matters connected with the financing of the relief expenditure of immediate nature from SDRF.

[Please refer to Annexure - III for NDRF Items and Norms]

17.3 Chief Minister Relief Fund (CMRF)

Chief Minister's Relief Fund aims to provide assistance to calamities and in distress condition, to indigent persons suffering from critical ailments and to undertake charitable activities for public welfare.

17.3.1 Cases Eligible for Assistance under CMRF

17.3.1.1 Poor and persons in distress: Relief to the poor, including grant and aid (financial or otherwise) to persons in distress.

17.3.1.2 Aged, differently able, orphans, AIDS affected: Assistance for the relief and rehabilitation of the aged, differently able' orphans, HIV/AIDS affected persons/families and those otherwise differently able or incapable of earning their livelihood, by grant and aid (financial and otherwise) and / or maintenance, establishment and support of institutions and homes for the benefit of such persons.

17.3.1.3 Persons affected by calamities or violence: Assistance for relief & rehabilitation of persons affected by natural or man-made calamities, communal violence', naxal violence or public disorder of a serious nature or any other calamity' affecting a family or a community, which deserves extreme compassion and not covered under any existing assistance scheme of State/central Government.

17.3.1.4 Assistance for Rural Development: Financial assistance out of CMRF may also be considered to undertake, promote, aid or otherwise support rural development including any programme for promoting the social and economic welfare of the public in any rural area either directly or through an independent agency following due procedure.

To assist more number of deserving person and for better utilisation of the Chief Minister's Relief Fund, the State Government have delegated powers to the Collectors for sanction of assistance out of CMRF so as to extend such assistance to the deserving persons immediately at the time of their need.

17.4 Release of Funds to Departments and Districts:

Funds required towards pure relief to affected persons / families for natural calamities in shape of emergency assistance, organizing relief camp / free kitchen / cattle camp, agriculture input subsidy and other assistances to affected farmers, ex-gratia as assistance for death cases, grievous injury, house building assistance, assistance to fisherman / fish seed farmers / sericulture farmers, assistance for repair / restoration of dwelling houses damaged due to natural calamities are administered through the respective collectors.

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Part funds towards repair / restoration of immediate nature of the damaged public infrastructure are released to the Departments concerned. On receipt of requisition from the Collectors / Departments concerned, funds are released after obtaining approval / sanction of S.E.C. However, funds towards pure relief are released under orders of Special Relief Commissioner / Chief Secretary and the same is placed before the State Executive Committee in its next meeting for approval. To save time, Collectors have been instructed to disburse the ex-gratia assistance from the available cash and record the same on receipt of fund from Special Relief Commissioner.

17.5 Damage Assessments and Report after Flood/Cyclone

Private properties and properties of Government under different Departments are damaged by high floods and cyclones. As per para-75 of Orissa Relief Code, the Collector shall undertake assessment of damages to private properties as well as properties of Government. This assessment shall be done quickly soon after the abatement of flood in the prescribed formats prescribed in Appendix- X of Orissa Relief Code.

17.5.1 Submission of preliminary damage report (Para-76 of ORC)

1. The Collector as well as the district level officers under each Department of Government shall immediately after assessment of flood damage forward a copy of their report to their immediate Head of Department. The district level officers may also supply reports to the Collector.
2. The Heads of Departments after necessary scrutiny shall forward their reports to their respective Departments of Government with copy to Special Relief Commissioner, not later than two weeks from the date of abatement of flood.
3. The Special Relief Commissioner shall compile the State report and shall furnish the consolidated preliminary report to the Revenue Department within a week of the receipt of the reports from the Heads of Department.
4. The preliminary flood damage report should be prepared as accurately as possible, as the relief measures, if any, are to be based on the merit and statistical data of that report.

17.5.2 Submission of final flood damage report (Para-77 of ORC)

The concerned Heads of Departments as well as the Collector shall take immediate steps to compile the final report on flood/cyclone damage in the formats prescribed in Appendix- X soon after submission of the preliminary report.

Accidental errors, clerical mistakes, shortcomings, if any, noticed should be rectified in the final report. The final report shall be made available to Special Relief Commissioner as soon as possible and not later than one month from the date of abatement of flood.

On receipt of the reports from the different sources, Special Relief Commissioner shall forthwith compile the State report and furnish the same to the Revenue Department.

17.6 Central and State Government programmes and Schemes on Natural Calamities

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Mainstreaming Disaster Management in development planning is the most critical component to mitigate disaster risks. That's why it's important to make note of financial resources which are used in the implementation of such programmes and schemes which can lessen the risk from disasters by reducing vulnerability. It is also crucial to build communities resilience to deal with them. Moreover, as mandated by Ministry of Finance & Ministry of Home Affairs on 01st and 03rd June, 2014 respectively, 10 % flexi-fund within the centrally sponsored schemes (CSS) to be utilised, inter alia for mitigation / restoration activities in the event of natural calamities in the sector covered by CSS. Thus, relevant Central Government and State Government funded schemes are identified which are crucial to build over resilience of communities in the context of the district.

Table-17.1: Different State and Central Government Schemes and Programms

Sl No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
1	National Agriculture Insurance Scheme (NAIS)/ Rastriya Krishi Bima Yojna (RKBY)	Crop Insurance	Agriculture Insurance Company of India (AICI)	To protect the farmers against the losses suffered by them due to crop failures on account of natural calamities, such as droughts, floods, hailstorm, storms, animal depredation, etc.
2	Janashree Vima Yojna	Life Insurance	Life Insurance Corporation Of India	The objective of the scheme is to provide life insurance protection to the rural and urban poor persons below poverty line and marginally above the poverty line.
3	Mahatma Gandhi National Rural Employment Guarantee Schemes (MGNREGS)	Livelihood Security	Ministry of Rural Development / Panchayati raj Department	It aims at enhancing the livelihood security of the households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do Un-Skilled manual work.
4	National Rural Livelihood Mission (Deen Dayal Antordaya Yojana)	Poverty reduction programme	Ministry of Rural Development / Panchayati raj Department	To reduce poverty by enabling the poor households to access gainful self-employment and skilled wage employment opportunities, resulting in appreciable improvement in their livelihoods on a sustainable basis, through building strong grassroots institutions of the poor.
5	Deen Dayal Upadhaya - Gramin Kaushalaya Yojana (DDU-GKY)	Skill development scheme	Ministry of Rural Development / Panchayati raj Department	DDUGKY is a placement linked skill development scheme for rural poor youth. This initiative is a part of NRLM
6	Pradhan Mantri Gram Sadak Yojana (PMGSY)	Poverty Reduction Strategy	Rural Development Department	Pradhan Mantri Gram Sadak Yojana (PMGSY) aims at providing all weather connectivity to all unconnected habitations having population 250 and above for IAP districts and population of 500 or more in general area and population of 250 or more in schedule area for non-IAP districts

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SI No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
7	National Social Assistance Programme (NSAP)	Social Welfare programme	Ministry Of Rural Development	The National Social Assistance Programme (NSAP) which came into effect from 15th August, 1995 represents a significant step towards the fulfillment of the Directive Principles in Article 41 of the Constitution. The programme introduced a National Policy for Social Assistance for the poor and aims at ensuring minimum national standard for social assistance in addition to the benefits that states are currently providing or might provide in future. NSAP at present, comprises of Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS) and Annapurna.
8	Pradhan Mantri Awas Yojana (Housing for all – Urban)	Rehabilitation of Slum Dwellers	Ministry of Housing and Urban Poverty Alleviation	The Mission will be implemented during 2015-2022 and will provide central assistance to Urban Local Bodies (ULBs) and other implementing agencies through States/UTs for: 1. In-situ Rehabilitation of existing slum dwellers using land as a resource through private participation 2. Credit Linked Subsidy 3. Affordable Housing in Partnership 4. Subsidy for Beneficiary-led individual house construction/enhancement.
9	Swachha Bharat Mission (SBM-U)	Cleanliness, Water & Sanitation, Urban	Ministry of Drinking Water & Sanitation	To accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation, the Prime Minister of India launched the Swachh Bharat Mission on 2nd October, 2014. The Mission Coordinator shall be Secretary, Ministry of Drinking Water and Sanitation (MDWS) with two Sub-Missions, the Swachh Bharat Mission (Gramin) and the Swachh Bharat Mission (Urban), which aims to achieve Swachh Bharat by 2019, as a fitting tribute to the 150th Birth Anniversary of Mahatma Gandhi, which in rural areas shall mean improving the levels of cleanliness in rural areas.
10	Swachha Bharat Mission (SBM-G)	Cleanliness, Water & Sanitation, Gramin	Ministry of Drinking Water & Sanitation	To accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation, the Prime Minister of India launched the Swachh Bharat Mission on 2nd October, 2014. The Mission Coordinator shall be Secretary, Ministry of Drinking Water and

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Sl No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
				Sanitation (MDWS) with two Sub-Missions, the Swachh Bharat Mission (Gramin) and the Swachh Bharat Mission (Urban), which aims to achieve Swachh Bharat by 2019, as a fitting tribute to the 150th Birth Anniversary of Mahatma Gandhi, which in rural areas shall mean improving the levels of cleanliness in rural areas.
11	National Rural Drinking Water Programme (NRDWP)	Safe Drinking Water	Ministry of Drinking Water & Sanitation	The aim and objective of National Rural Drinking Water Programme (NRDWP) is to provide every rural person with adequate safe water for drinking, cooking and other basic domestic needs on a sustainable basis, with a minimum water quality standard, which should be conveniently accessible at all times and in all situations. Achieving this aim and objective is a continuous process.
12	Pradhan Mantri Krishi Sinchai Yojana (PMKSY) – Integrate Watershed Management Programme (IWMP)	Agriculture	Ministry of Agriculture and Farmers Welfare, GoI	Har Khet ko Pani "Prime Minister Krishi Sinchayee Yojana" PMKSY has been formulated amalgamating ongoing schemes viz. Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD&GR), Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) and the On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC).
13	Digital India Land Record Modernisation Programme (NLRMP)	Digital India	Ministry of Rural Development	The Digital India Land Records Modernization Programme (DILRMP) is launched by Government of India in August 2008, aimed to modernize management of land records, minimize scope of land/property disputes, enhance transparency in the land records maintenance system, and facilitate moving eventually towards guaranteed conclusive titles to immovable properties in the country.
14	Deen Dayal Upadhaya Gram Jyoti Yojana (DDUGKY)	Rural Electrification	Ministry of Power	<ul style="list-style-type: none"> • Separation of agriculture and non-agriculture feeders • Strengthening and augmentation of sub-transmission & distribution • Rural electrification
15	Shyama Prasad Mukherjee Uban Mission – NRuM	Economic Development	Ministry of Rural Development	The objective of the National Rurban Mission (NRuM) is to stimulate local economic development, enhance basic services, and create well planned Rurban clusters.
16	Atal Mission for	Urban	Ministry of Urban	Providing basic services (e.g. water

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Sl No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
	Rejuvenation and Urban Transformation (AMRUT)	Infrastructure	Development	supply, sewerage, urban transport) to households and build amenities in cities which will improve the quality of life for all, especially the poor and the disadvantaged is a national priority.
17	Smart City Mission	Urban Infrastructure	Ministry of Urban Development	It aims at: i. Adequate water supply, ii. Assured electricity supply, iii. Sanitation, including solid waste management, iv. Efficient urban mobility and public transport, v. affordable housing, especially for the poor, vi. Robust IT connectivity and digitalization, vii. good governance, especially e-Governance and citizen participation, viii. Sustainable environment, ix. Safety and security of citizens, particularly women, children and the elderly, and x. health and education.
18	Pradhan Mantri Fasal Bima Yojana (PMFBY)	Agriculture Insurance	Ministry of Agriculture and Farmers Welfare, Government of India	To provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests & diseases. - To stabilise the income of farmers to ensure their continuance in farming. - To encourage farmers to adopt innovative and modern agricultural practices. - To ensure flow of credit to the agriculture sector.
19	National Health Mission (NHM)	Health	Department of Health & Family Welfare, GoO	Improved health status and quality of life of rural population with unequivocal and explicit emphasis on sustainable development measure.
20	Integrated Child Development Scheme (ICDS)	Women and Child	Ministry of Women and Child Development	Objectives of the scheme are as under:- <ul style="list-style-type: none"> • To improve the nutritional and health status of children in the age group of 0-6 years. • To lay the foundation for proper psychological, physical and social development of the child. • To reduce the incidence of mortality, morbidity, malnutrition and school dropout. • To achieve effective co-ordination of policy and implementation amongst the various departments to promote child development, and • To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.
21	Mid-Day Meal Scheme	Primary Education	Ministry of Human Resource	With a view to enhancing enrolment, retention and attendance and

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SI No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
			Development, Department of School Education, Literacy, GOI	simultaneously improving nutritional levels among children, the National Programme of Nutritional Support to Primary Education (NP-NSPE) was launched as a Centrally Sponsored Scheme on 15th August 1995.
22	Pradhan Mantri UJJWALA Yojana (PMUY) – LPG connection to BPL families	Women Empowerment	Ministry of Petroleum and Natural Gas	Pradhan Mantri Ujjwala Yojana (PMUY) aims to safeguard the health of women & children by providing them with a clean cooking fuel – LPG, so that they don't have to compromise their health in smoky kitchens or wander in unsafe areas collecting firewood.
23	Pradhan Mantri Kaushal Vikash Yojana	Skill Development	Ministry of Skill Development and Entrepreneurship (MSDE)	Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development & Entrepreneurship (MSDE). The objective of this Skill Certification Scheme is to enable a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. Individuals with prior learning experience or skills will also be assessed and certified under Recognition of Prior Learning (RPL).
24	Digital India – Public Internet Access Programme – Providing common Service Center in each Gram Panchayat	Digital India	Ministry of Electronics & Information Technology Government of India	CSCs would be strengthened and its number would be increased to 250,000 i.e. one CSC in each Gram Panchayat. CSCs would be made viable and multi-functional end-points for delivery of government and business services. DeitY would be the nodal department to implement the scheme.
25	Pradhan Mantri Awaas Yojana(Grameen) Earlier - Indira Awaas Yojana (IAY)			<ul style="list-style-type: none"> ❖ Indira Awaas Yojana has been restructured into Pradhan Mantri Awaas Yojana w.e.f 1st April, 2016 in India. ❖ Government committed to provide "Housing for all" by 2022. ❖ Identification and selection of beneficiaries based on the housing deficiency and other social deprivation parameters in SECC-2011.
26	Gopabandhu Gramin Yojana (GGY)	Rural Development	Panchayati Raj Department	The principal objective of the scheme is to provide additional development funds to the targeted districts to provide infrastructure consisting of Bijili, Sadak and Pani (i.e. electrification, roads and water supply) to every revenue village in the identified districts on need based manner.
27	Biju Pucca Ghar Yojana (BPGY)	Rural Housing	Rural Development Department	Biju Pucca Ghar Yojana is a major Flagship program of Government of Odisha, which plays a pivotal role in

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SI No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
				Rural Development. Odisha Government attaches utmost priority and importance to provide pucca house to every household, living in kutcha house and is committed to achieve this goal by 2019.
28	Biju Pucca Ghar Yojana (Mining)	Rural Housing	Rural Development Department	Biju Pucca Ghar Yojana (Mining) is a major Flagship program of Government of Odisha, which plays a pivotal role in Rural Development. Odisha Government attaches utmost priority and importance to provide pucca house to every household, living in kutcha house and is committed to achieve this goal by 2019.
29	Nirman Shramik Pucca Ghar Yojana	Rural Housing	Rural Development Department	The Nirman Sharmika Pucca Ghara Yojana has been lunched to meet the housing needs of building and other construction workers registered under the Odisha Building and other Construction Workers' welfare Board who do not have their own pucca house and who have not availed of housing assistance under any other Govt. Scheme of the State or Central Govt. A building worker between the age of 18 years and 60years having existing valid registration with the Odisha Building and other construction Workers Welfare Board under the Building and other construction workers (RE&CS) Act at least for a continuous period of 3years will be eligible for assistance under the "Nirman Sharmika Pucca Ghara Yojana".
30	Self Employment training & bank Linkage (SKILL DEVELOPMENT)	RUDSET Institute, Bhubaneswar	Odisha Livelihood Mission, Panchayati Raj Department	The objective of the programme is to provide Self employment/Skill development training to rural youths within the age group of 18-35 & bank linkage them for their economic development with free of cost.

17.7 Roles of District Planning Committee on financial outlay on mainstreaming Disaster Risk Reduction (DRR) in development programs.

As per the Orissa District Planning Committee Rules 2000, the District Planning Committee, Khordha consists of 20 members as per details given below.

- a. 11 members to be elected out of Zilla Parishad members
- b. 5 members to be elected out of Councilors/Corporators of ULBs.
- c. 2 Expert Members to be nominated by Govt.
- d. Minister of the State nominated by Govt. is the Chair Person of the Committee and Collector is the Member Secretary of the Committee.

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Hon'ble MPs & Hon'ble MLAs are the permanent invitees of the concerned District Planning Committee.

Now the aforesaid Rule has been modified as Odisha District Planning Committee (Amendment) Rules, 2016. As per modification,

- a) As nearly as may be, but not less than one-half of the total number of the elected members shall be reserved for Women.
- b) The term of office of elected Members shall be 3 years commencing on the date of his/her Election unless removed earlier, provided that the term of the office of every elected members shall be co-terminus with his/her membership in the Zilla Parishad or, as the case may be, the Municipality.
- c) The term of Office of nominated members shall be 3 years commencing from the date of his/her nomination unless remove earlier.
- d) A Minister in the Council of Ministers of the State or a Member of the Legislative Assembly of the state representing the constituency which comprises wholly or partly any area of the district, as may be nominated by the Govt., who shall be the Chairperson.
- e) The Vice Chairperson shall be nominated by the Government from among the elected members.

Role of DPC

1. The list of projects to be taken up under Gopabandhu Grameen Yojana shall be approved by the District Planning Committee.
2. Technical committees will be constituted in the District level, Panchayat level, Block level & ULB level for preparing Integrated Draft Development Plan every year in respect of 47 nos. of District Sector Schemes.
3. Consolidation of Draft Development Plan for approval in the Committee.

Besides, Power has been delegated by the Govt. to the Chairperson of District Planning Committee to sanction funds out of "Critical Gap Fund for District Plan" placed at his disposal to address the basic rural infrastructure needs as priority with special emphasis on zero connectivity areas, Health, Drinking Water, Street Lights etc.

17.8 Fund provision for disaster preparedness & capacity building

Special Relief Commissioner and OSDMA has to provide necessary funds for preparedness and capacity building activities at the dist. and below level.

CHAPTER - XVIII

PREPARATION & IMPLEMENTATION OF DDMP

18.1 Procedure for preparation of DDMP as per the DM act to be elaborated

Under Section 31 of Disaster Management Act 2005 (DM Act), it is mandatory on the part of District Disaster Management Authority (DDMA) to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedite for prevention as well as mitigation of disasters. DDMP shall include Hazard Vulnerability Capacity and Risk Assessment (HVCRA), prevention, mitigation, preparedness measures, response plan and procedures. These processes are to be incorporated in the developmental plans of the different departments and preparedness to meet the disaster and relief, rescue and rehabilitation thereafter, so as to minimize the loss to be suffered by the communities and are to be documented so that it is handy and accessible to the general public.

As per the DM Act 2005, DDMA Khordha invited a meeting of all line departments and the members of DDMA to have a preliminary discussion on the formats given by SRC and OSDMA. A detailed discussion was made on the different formats and all the line departments issued instructions to provide necessary information so that all the required information will be incorporated in the DDMP. The processes followed to prepare the DDMP are given below:

1. Stakeholders meeting at the Dist. level on the formats given.
2. Detailed discussion was made on the format.
3. Letters issued under the signature of Collector & DM to the line departments to provide the information with a dateline.
4. Reminders were also issued to the defaulting line departments under the signature of ADM.
5. A sharing meeting organized for DDMA members to have a discussion on the plan prepared and to identify the gaps.
6. Necessary suggestions from DDMA members incorporated in the plan and one round of follow up made to collect the missing data from the line departments.
7. DDMP was finalized with information from the line departments.
8. After finalization, DDMP placed for approval of Chairman, DDMA and finally submitted to SRC for necessary information.

18.2 Roles of ADM, DEO and Nodal Officers support from other line Departments to be defined:

ADM, Khordha:

- ADM, Khordha took the leading role in preparation of DDMP.
- Reminders issued to the line departments to provide the necessary data.

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- Time to time reviewed the progress of preparation of DDMP by discussing with DEO and DPO, Emergency.

DEO, Khordha:

- Actively supervised the preparation of DDMP.
- Time to time called different departments to provide the required information.
- Talked to the senior officials to the departments to provide necessary inputs from their department for preparation of DDMP.
- Time and again wrote mails to all to provide data.

Nodal Officers:

- Provided necessary support for data from their line departments.
- As huge data required from different departments, the Nodal officers took the pain of extracting the data from the files and provided to the Dist. Administration.

18.3 Support of line departments (for providing information) to be mentioned.

- Line departments provided necessary data, but as the DDMP process was started in the month of March, it was difficult on their part to devote time for the data.
- After required follow up, the administration managed to get some data from line departments.
- Two reminders were issued to the concerned departments to provide the information.
- Other departments provided data but after constant follow ups.

18.4 Time lines for updating DDMP to be mentioned. (From January to February of every) should be incorporated in matrix (information to line departments etc.)

SI No.	Activities to be done	Timeline
1	Consultation with line department officials and important stakeholders at district level	1 st week of Feb
2	Submission of base line data by all line departments	3 rd week of Mar
3	Compilation of information's and preparation DDMP. Sharing of draft with Chairperson, members of DDMA and other stakeholders	1 st week of Apr
4	Necessary modification and finalization	2 nd week of May
5	Placing the final copy before DDMA, finalization and submission of a copy to SDMA	Last week of May
6	Approval by SDMA	By May

18.5 Details of number of consultation and meetings, discussion with stakeholders for modification and final sharing.

- A three day workshop on preparation of DDMP was attended by DEO and DPO at State level on 8th June to 10th June 2019.
- Dist. level meeting on sharing of formats was done on 31st May 2019.
- Letter issued in the month of Mar with the formats to all line departments and asked to provide data by 31st Mar, later one reminder issued to the defaulting offices to provide the data by end of April 2019.
- DEO used to do the weekly review the data collection.
- ADM used to do the fortnightly review of data collection and progress of DDMP.
- Review of DDMP by the CEO of DDMA was done.
- Sharing with DDMA members was done.
- Approval of DDMP was done.
- The soft copy of the DDMP provided to all line departments to refer and asked for necessary suggestions, so that the same can be made more effective in the coming years.

18.6 Sharing and placing before DDMA for approval

After the sharing of DDMP with DDMA members the final touch was given to the DDMP.

CHAPTER - XIX

LESSONS LEARNT AND DOCUMENTATION

COVID-19 Pandemic – An extraordinary effort by the Administration

COVID – 19 management was a challenge for the Dist. Administration. In Khordha District, the following strategies have been outlined for the containment of the disease. Second wave was started in the month of Mar 2021.

a. Control Room: A dedicated COVID-19 Cell has been set up with a control room functioning round the clock and Addl. District Magistrate, Bhubaneswar, Sri. Prafulla Kumar Swain is the Nodal Officer. A 24×7 call centre at DHH:

b. Call Centre: A call centre has been operationalized at DHH, Khordha working round the clock.

COVID-19 Cell Control Room	0674-2393440 / 9937975446
DHH Helpline	06755-223178

Similarly, one Health Monitoring Cell has been opened in the Zila Sanskruti Bhawan, Khordha by the Dist. Administration to keep in touch with the near and dear ones of the COVID positive patients. Also provided necessary consultation to the COVID patients who were in homeisolation.

c. Line Departments with Specific Responsibilities:

Chief District Medical Officer	<ul style="list-style-type: none">-All health infrastructure needed for containment of COVID-19-Recruitment of health professionals-Training and capacity building of all health professionals for treating COVID-19 patients-Stocking of required drugs and medical equipment-Procurement of all logistic materials-Identification of Isolation and Quarantine beds-Formation of Rapid Response Teams (RRTs)
Tahsildars	<ul style="list-style-type: none">-Incident commanders-Enforcement of social distancing and lockdown guidelines.-Enforcement for hoarding of essential commodities
BDOs/EOs of ULBs	<ul style="list-style-type: none">-Identification of Temporary Medical camps-Providing food to sick, indigent, destitute and migrant workers-Disbursement of PDS/social security pension-Financial assistance to Construction workers and street vendors-Formation of RRTs at village level

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	-Health survey by door to door visit of RRTs
Police	- Enforcement of social distancing and lockdown guidelines.
Fire Officers	-Sanitization and disinfection of streets, roads, places of congregation like vegetable and fish markets and other offices.
CSO/MI	-Ensure supply of essential commodities -Distribution of PDS
Executive engineer, PHD/RWSS	-Uninterrupted supply of water in all Hospitals, TMCs, Critical offices -Repair of all damaged pumpsets and tubewells
Executive Engineer, CESU	-Uninterrupted supply of electricity in all Hospitals, TMCs, Swab Collection centres
District Social Security Officer	-Involvement of WSHGs in providing cooked food to the sick, indigent and destitute under supervision of BDOs -Preparation of masks by SHGs -Involvement of Anganwadi workers in the RRTs for health survey -Identification of pregnant women and distribution of THR at doorstep.
District Social Security Officer	-Proper management of old age homes -Ensuring shelter and food to the beggar community -Distribution of old age pension in co-ordination of BDOs and EOs
District Labour Officer	-Identification of stranded migrant workers during lockdown -Ensuring provision for shelter and food to the migrant workers in co-ordination with BDOs and EOs.

d. Interagency coordination meetings and monitoring:

- Interagency co-ordination meetings are held from time to time and Senior Officers of the district have been appointed as Nodal Officers in Collectorate Order No.1004 dt. 18.03.2020 for each Block/ULB to supervise and monitor all works of such Block/ULB relating to COVID-19.
- Weekly three review meeting were conducted with the Nodal Officers, BDOs, Tahasildars, Medical Officers etc by Collector & DM, Khordha to monitor the situation time to time.
- RDC, CD has conducted review meetings in virtual mode to take the stock of the situation time to time.
- Hon'ble CM has also taken meeting in virtual mode with the senior officials of the district to monitor the strategies taken up by the administration to reduce the effect of COVID in the district.

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- On daily basis reports were prepared and submitted to different quarters during the period.
- Now Administration along with OSDMA is in the process of documenting the best practices observed by the NGOs during the period.

e. NGO coordination Cell:

The existing GO-NGO co-ordination cell of the district is functional. NGO coordination meeting was held on 27th Mar 2020 for the purpose under the chairmanship of ADM (Revenue), Khordha. Many other NGOs and Civil Society Organisations have also come forward to extend their support for fighting COVID-19.

Apart from this Temporary Medical Centres, Covid Care Homes and Covid Care Hospitals were opened to manage the situation. Currently we are in a position to reduce the effect of pandemic but still a long way to go.
