



**DISTRICT DISASTER MANAGEMENT AUTHORITY
DHENKANAL.**

**DISTRICT DISASTER MANAGEMENT PLAN – 2022-23,
DHENKANAL.**

Submitted to:

**Managing Director, OSDMA, Odisha
Bhubaneswar.**



Foreword

It gives me immense pleasure that, like last years, the District Disaster Management Authority (DDMA), Dhenkanal has taken pro-activeness to prepare the District Disaster Management Plan (DDMP)-2022-23 by updating DDMP-2021-22 with value additions and in conformity with the Disaster Management Act-2005 & Odisha Disaster Management Rule-2010 as well as guidance of OSDMA, Odisha, in a convergence, synergetic efforts following the holistic and bottom to top approach. It was challenging to prepare this plan amid COVID-19 pandemic. The DDMP-2021-22 will be approved by DDMA, Dhenkanal, on ---/---/----.

While formulating the District Disaster Management Plan, instruction of Special Relief Commissioner & Managing Director, OSDMA, Odisha, priorities and targets of Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 & SDG-2015-2030 and also valuable suggestions of Members of the District Level Committee on Natural Calamity Committee and DDMA, Dhenkanal, have been taken into account.

The District Disaster Management Plan (DDMP) will definitely help DDMA/ District Administration to bring together the information relating to equipments, skilled manpower and critical supplies available in the district and to know the Standard Operating Procedures (SOP) of various departments at the time of disaster and to mitigate any unexpected disaster effectively and to prevent the loss of human lives and property through preparedness, prevention & mitigation of disasters.

The Hazard Risk and Vulnerability Assessment (HRVA), DRR and SWOT analysis were exercised as per the prospective notified disasters in the district. The target fixed for reduction of toll due to notified disasters for next three years and 30 nos of strategies adopted and incorporated in the DDMP-2022-23.

The plan is based on two parts i.e Volume-I which contains DDMP having seventeen chapters & Volume-II deals with relevant statistical figures and annexure. It will certainly help a lot to manage the various disasters effectively & Disaster Risk Reduction (DRR).

I would like to express my gratitude to Sri. Pradeep Kumar Jena, Special Relief Commissioner & ACS to Government. Executive Director, OSDMA, Odisha, Bhubaneswar, whose constant guidance and inspiration motivated us to achieve our goal. I would also like to put on record my appreciation for the excellent work performed by Sri. Sasank Sekhar Dash, OAS(SAG) Addl. District Magistrate-Cum-CEO, DDMA, Dhenkanal, Mrs. Snigdha Chhaya Mohapatra, Deputy Collector Emergency, Collectorate, Dhenkanal, for timely support in preparation of the above plan.

I also appreciate the outstanding work of **Mr. Nimain Charan Das, DPO, OSDMA, Collectorate, Dhenkanal**, and put on record for preparing this year DDMP -2022-23 and strengthening the DDMA, Dhenkanal, earnestly, for effective Disaster Management in the district & DRR.

**Sri. Saroj Kumar Sethi, OAS(SS)
Collector-Cum-Chairperson, DDMA,
Dhenkanal.**



Acknowledgement

The Disaster Management Act 2005 mandates 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 expedient for prevention as well as mitigation of disasters. The impact and incidence could be reduced through proper and effective mitigative plan for Disaster Management in the different phases of disaster like pre disaster, during disaster and post disaster phase.

Section 31 of Disaster Management Act 2005 (DM Act) makes it mandatory to have a disaster management plan for the district. The District Disaster Management Plan (DDMP)-2022-23 includes 18 chapters.

This year DDMP-2022-23 will definitely help for over all Disaster Management in the district with special focus on eight nos. of State Specific Disasters. It is prepared in conformity with the Disaster Management Act-2005 & Odisha Disaster Management Rule-2010 as well as guidance of OSDMA, priorities and targets of Sendai Framework on Disaster Risk Reduction (SFDRR) 2015-2030 & SDG-2015-2030 and also valuable suggestions of Members of the District Level Committee on Natural Calamity Committee and DDMA, Dhenkanal, have been taken into account and based on information of all related line departments and stakeholders.

I would like to express my special thanks to Sri. Saroj Kumar Sethi, OAS(SS), Collector-cum-Chairperson, DDMA, Dhenkanal, for his constant guidance and support to accomplish the said plan. I express my thankfulness to President ZP -Cum-Co-chairperson, DDMA, Dhenkanal, all members of DDMA, Dhenkanal, Deputy Collector Emergency, District Level Officers, all BDOs and Tahasildars, Dhenkanal, for their co-operation in preparation of the DDMP -2021-22.

I appreciate the outstanding work of **Mr. Nimain Charan Das, DPO, OSDMA, Collectorate, Dhenkanal**, and put on record for preparation of this year DDMP-2022-23 and strengthening the DDMA, Dhenkanal, earnestly, for effective Disaster Management in the district & DRR. Lastly, I hope this plan will serve the purpose for which it has been formulated.

Sri. Sasank Sekhar Dash, OAS(SAG),

Addl. District Magistrate-Cum-CEO, DDMA, Dhenkanal.

CONTENT

Sl. No.	Subject	Page No.
1	Introduction.	8-9
2	District Profile.	9-10
3	Hazard, Risk and Vulnerability Assessment.	10-11
4	Forest Fire Management	12-13
5	Institutional Arrangement.	14-16
6	Climate Change Adaptation & Mitigation	17-19
7	Inclusive Disaster Risk Reduction	20-21
8	Safety of Schools and Child Care Institutions.	21-22
9	Chemical (Industrial), Nuclear and Radiological Disaster	23-25
10	Biological Disaster and Public Health in Emergencies	26-32
11	Capacity Building.	33-37
12	Preparedness.	38-41
13	Response.	42-45
14	Restoration and Rehabilitation.	46-48
15	Recovery.	49-50
16	Financial Arrangement.	50-54

17	Lessons Learnt and Documentation.	
18		

Abbreviation

DDMA	:	District Disaster Management Authority
DDMP	:	District Disaster Management Plan
BDMP	:	Block Disaster Management Plan
HRVA	:	Hazard Risk and Vulnerability Assessment
SWOT Analysis	:	Strength Weakness Opportunity and Threat
DEOC	:	District Emergency Operation Centre
ADM	:	Additional District Magistrate
AWC	:	Anganwadi Centre
BDO	:	Block Development officer
BCR	:	Block Control Room
CCA	:	Climate Change Adaptation
CDM&PHO	:	Chief District Medical &Public Health Officer
CDPO	:	Child Development Project Officer
CMRF	:	Chief Ministers Relief Fund
DCR	:	District Control Room
DDM	:	District Disaster Manager
DEOC	:	District Emergency Operation Centre
SEOC	:	State Emergency Operation Centre
DRDA	:	District Rural Development Agency
DSWO	:	District Social Welfare Officer

DRR	:	Disaster Risk Reduction
GoI	:	Government of India
GP	:	Gram Panchayat
HRVA	:	Hazard Risk and Vulnerability Assessment
IAY	:	Indira Aawas Yojana
MO	:	Medical Officer
NGO	:	Non-granted Organisation
OSDMA	:	Odisha State Disaster Management Authority
OIC	:	Officer In charge
PDS	:	Public Distribution System
PHC	:	Primary Health Centre
PWD	:	Public Works Department
RD	:	Route Distance
SP	:	Superintendent of Police
VSO	:	Veterinary Stock officer
W&CD	:	Women & Child Development
UNDP	:	United Nations Development Programme
NIDM	:	National Institute of Disaster Management
CDKN	:	Climate & Development Knowledge Network
GEAG	:	Gorakhpur Environmental Action Group
ISET	:	Institute for Social and Environmental Transitions
SLD	:	Shared Learning Dialogue
RTO	:	Regional Transport Officer
MVI	:	Motor Vehicle Inspector
CSO	:	Civil Supply Officer

ACSO	:	Assistant Civil Supply Officer
SI	:	Supply Inspector
MI	:	Marketing Inspector
DSWO	:	District Social Welfare Officer
SDWO	:	Sub-divisional Welfare Officer
DAO	:	District Agriculture Officer
AAO	:	Assistant Agriculture Officer
VAW	:	Village Agriculture Worker
ADMO	:	Additional District Medical Officer
Block MO I/C	:	Block Medical Officer In-charge.
ASHA	:	Accredited Social Health Activist
DEO	:	District Education Officer
BEO	:	Block Education Officer
CDVO	:	Chief District Veterinary Officer
ADVO	:	Additional District Veterinary Officer
LI	:	Life stock Inspector
DLO	:	District Labour Officer
LI	:	Labour Inspector
RRB	:	Regional Rural Bank.
ATM	:	All Time Money
VDMC	:	Village Disaster Management Committee.
VDMP	:	Village Disaster Management Plan.
WKS	:	Ward Kalyan Samiti
MAS	:	Mahila Arogya Samiti
GKS	:	Gaon Kalyan Samiti
SFDRR	:	Sendai Framework for Disaster Risk Reduction.

Chapter 1: District Profile-

The district consists of 3 sub-divisions namely Dhenkanal, Hindol & Kamakshyanagar and each sub-division is under the administrative control of a Sub-Collector. For smooth running of revenue administration, the district is divided into 8 Tahasils viz. Bhuban, Kamakshyanagar, Parajang, Dhenkanal, Hindol, Gondia, Kankadahad and Odapada and each Tahasil is kept in charge of a Tahasildar. Similarly, for carrying out the developmental activities smoothly the district is divided into 8 C D Blocks and each C D Block is under the administrative control of a Block Development Officer. There are 14 nos of Police Stations, 12nos of Outpost in the district.

Geography: Dhenkanal is a land-locked district with a total geographical coverage of 4452 Sq.Km. Dhenkanal district is one of the centrally located district in Odisha. It lies between Longitude: 85° 58' to 86° 2' East and Latitude: 20° 29' to 21° 11' North.

The River Bramhani is the life line of Dhenkanal District. Ramial, Ragadinala, Pichhuli, Doliajora, Sapua are river tributaries in dhenkanal district.

Rainfall-Monsoon generally commences from 14th June every year. Average rainfall of the district is 1428.8 mm. The rainfall during June to December constitutes at least 75% of the annual rainfall of the district.

Aims and objectives of DDMP:

The main objectives of the DDMP are as follows:

- i. To identify the areas vulnerable to major types of the hazards in the district.
- ii. To adopt proactive measures at district level by all the govt. departments to prevent disaster and mitigate its effects.
- iii. To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- iv. To enhance disaster resilience of the people in the district by way of capacity building.
- v. Reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
- vi. Manage future development to mitigate the effect of natural hazards in the district.
- vii. To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.
- viii. To prepare a response plan based upon the guidelines issued in the State Disaster Management Plan so as to provide prompt relief, rescue and search support in the disaster affected areas.

- ix. To adopt disaster resilient construction mechanism in the district by way of using Information, Education and Communication for making the community aware of the need of disaster resilient future development.
- x. To make the use of media in disaster management.
- xi. Rehabilitation plan of the affected people and reconstruction measures to be taken by different govt. departments at district level and local authority.

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

Preparation process & Approval of DDMP:

As per the Section 30 of Disaster Management Act 2005, the DDMA, Dhenkanal, shall act 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 National Authority and the State Authority.

The District Disaster Management Authority (DDMA), Dhenkanal, decided to update District Disaster Management Plan (DDMP)-2022-23 **as per the guidelines and formats of the OSDMA.** The Executive Director (Admn), OSDMA, Odisha, Bhubaneswar, communicated to update DDMP-2022-23.

. All concerned District/Block and Line Deptt. Officers were intimated to submit information as per the last year formats & chapters. The District Project Officer (DPO), OSDMA, Dhenkanal, was assigned to prepare the DDMP-2022-23. The District Disaster Management Plan (DDMP-2021-22) will be reviewed and updated annually.

The DDMA, Dhenkanal will send soft copy of this plan to the State Disaster Management Authority (SDMA) & OSDMA, Odisha, Bhubaneswar, by 25.04.2022 for necessary feedback.

Chapter – 2

History : Centrally located on the Geo-political map of Odisha Dhenkanal district owes its name to its headquarters town. It is commonly believed that Dhenkanal town has been named after the Savar chief named **Dhenka** who formerly ruled over this tract. A district with unique history of its own, Dhenkanal has been popular as a famous religious site for a period of over

100 years. With flourishing economy and rich socio-cultural parameters the district is considered to be one among the few developed districts of Odisha. The district touches the boundary of Kendujhar on its north, Cuttack on South, Jajpur on its east and Anugul on its west.

Location: Dhenkanal is a land-locked district with a total geographical coverage of 4452 Sq.Km. Dhenkanal district is one of the centrally located district in Odisha. It lies between Longitude: 85° 58' to 86° 2' East and Latitude: 20° 29' to 21° 11' North.

Administrative Set Up

The district consists of 3 sub-divisions namely Dhenkanal, Hindol & Kamakshyanagar and each sub-division is under the administrative control of a Sub-Collector. For smooth running of revenue administration, the district is divided into 8 Tahasils viz. Bhuban, Kamakshyanagar, Parajang, Dhenkanal, Hindol, Gondia, Kankadahad and Odapada and each Tahasil is kept in charge of a Tahasildar. Similarly, for carrying out the developmental activities smoothly the district is divided into 8 C D Blocks and each C D Block is under the administrative control of a Block Development Officer. There are 14 nos of Police Stations, 12nos of Outpost in the district.

Climate & Rainfall, Topography:

Climate of the district is generally of high humidity. May is usually the hottest month. Occurrence of large number of fire accidents is a regular feature of the district during the summer months i.e. April to May. December is the coolest month of the year. The average minimum and maximum temperatures are 19.6° C and 33.3°C respectively. The humidity is generally high varying from 31 to 88%. Dhenkanal District has a moderate climate. The District experiences heat with high humidity during April and May and becomes cold during the winter months, i.e. December and January. December is usually the coldest month of the year with the mean daily minimum temperature of 13.9°C.

Monsoon generally commences from 14th June every year. Average rainfall of the district is 1428.8 mm. The rainfall during June to December constitutes at least 75% of the annual rainfall of the district.

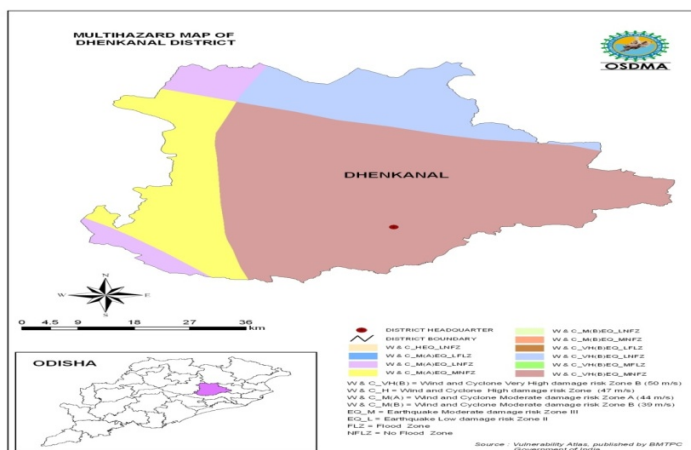
Topography:

For practical purpose, this district can be divided in to three natural divisions.

1. Southern hilly region.
2. The river Valley with tributaries.
3. The northern hilly region.

The district head quarter, Dhenkanal is 87 Kms from the State Capital, Bhubaneswar.

Chapter- 3 Hazard, Risk & Vulnerability Analysis:



Flood Prone Block: Bhuban

Colour description-

Yellow: wind and cyclone Moderate damage risk, Earth quake moderate and No flood Zone

Blue: wind and cyclone Moderate damage risk, Earth quake low and flood Zone

Pink: wind and cyclone Moderate damage risk, Earth quake low and no flood Zone

Blue: wind and cyclone Moderate damage risk, Earth quake low and flood Zone

Dark Orange: wind and cyclone very high damage risk, Earth quake moderate and no flood Zone

Chapter- 3 Hazard, Risk & Vulnerability Analysis:

The major point of discussion under this chapter is Major Disasters/Incidents during last ten years 2011-2022

The trends and analysis of death due to various disasters in last four years & pending cases due to different reasons as follows,

Sl.No	Name of Disaster	2018-19	2019-20	2020-21	2021-22	Total	Pending Cases 2021-22	Pending cases 2018-19 to 2020-21	Total Pending Cases
1	Snakebite	32	31	48	32	143	24	2	26
2	Drowning	45	47	75	25	192	39	19	58
3	Lightning	15	17	13	8	53	4	1	5
4	Sunstroke	3	6	2	1	12	0	2	2

5	Fire Accident	4	8	7	0	19	1	2	3
6	Boat Accident	0	4	0	0	4	0	0	0
	Total	99	113	145	66	423	68	26	94

The trends and analysis of Tahasil wise death due to various disasters in last four years from 2018-19 to 2021-22 as follows,

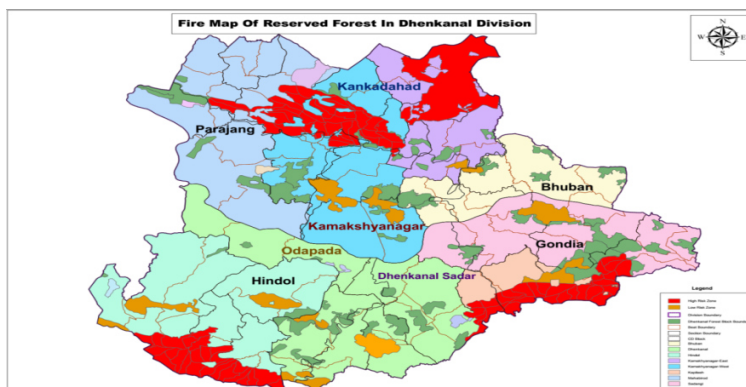
Tahasil wise death due to various notified Disasters from 2018-19 to 2021-22, Dhenkanal.

Sl.No.	Tahasil/ Block	Death due to Disasters from 2018-19 to 2021-22						Total
		Snakebite	Drowning	Lightning	Sunstroke	Fire Accident	Boat Accident	
1	Dhenkanal	22	22	8	1	1	0	54
2	Hindol	19	22	2	3	0	0	46
3	Kamakshyanagar	12	41	8	1	4	0	66
4	Parjang	21	49	9	1	2	4	86
5	Odapada	12	12	1	1	5	0	31
6	Bhuban	5	13	9	0	4	0	31
7	Gondia	32	19	7	4	2	0	64
8	Kankadahad	20	14	9	1	1	0	45
	Total	143	192	53	12	19	4	423

The highest no. of death (86) has occurred in Parjang block and lowest no. of death occurred in Odapada & bhuban block (31 each). Where as 66 nos. of death was in Kamakshyanagar block and 64 nos. of death was in Gondia block relatively higher than rest three blocks. The graphical representation is as follows,

Chapter -4 Forest Fire Management

The major point of discussion under this chapter is Introduction, Situational Analysis



Red colour indicates high fire accident cases in forest, Yellow colour indicated low fire fire accident cases in forest and green colour indicates forest boundry with area.

Analysis of Fire Status in different Reserve Forest in Dhenkanal Division

2021		
1	ANANTAPUR	132
2	RANJAGARH	121
3	KANDHARA	106
4	KAPILASH	40
5	BOMPA	28
6	SAPTASAJYA	27
7	NANDINIA	25
8	SUNAJHARI	16
9	KOI	13
10	MAULABHANJA	12
11	SUNDARAKHOL	11
12	ASHWAKHOLA	9
13	HITINDA	9
14	BELABANIA	8
15	TALCHER BOADER	7
16	GHANTABAJA	7
17	MATIAMUNDIA	6
18	DOLIA RF	5
19	RAMEI	5
20	AMBITHI	5
21	BARABANK-NORTH	4
22	JIRIDAMALI	4
23	ANLABERENI	3
24	BARABANK SOUTH	3
25	SULIA	3
26	BHAIRPUR	3
27	CHARAKHOLA	3
28	KHALPAL	3
29	MADHI	3
30	MATHARAGADI	3
31	TAMANDA	3
32	GONDIA	2
33	PATALU	2
34	PATAPURI	2
35	RUPABALIA	2
36	SIARIMALLA	2

37	SUNIAMARU	2
38	BALIBO	1
39	BALIPASHI	1
40	CHANTABAIA	1

Chapter -5 deals with the Institutional Arrangements

National Disaster Management Authority (NDMA),

National Executive Committee (NEC), State Disaster Management Authority (SDMA), State Executive Committee (SEC),

Revenue and Disaster Management Department, Special Relief Organization, Odisha State Disaster Management Authority (OSDMA),

State Level Committee on Natural Calamity (SLCNC), District Disaster Management Authority (DDMA),

District Level Committee on Natural Calamity (DLCNC), District Crisis Group(DCG),

Block level Disaster Management Committee (BDMC),

Gram Panchayat Level Disaster Management Committee (GPDMC),

District Task Force, District Rapid Response Team, National Disaster Response Force (NDRF), Odisha Disaster Rapid Action Force (ODRAF),

Emergency Communication System, State Emergency Operation Centre (SEOC), District Emergency Operation Centres (DEOC), Block Emergency Operation Centre (BEoC), Control Rooms, GO-NGO Coordination, Role of Corporate Sector in DM,

Multi-Purpose Cyclone/ Flood Shelter, Identified safe shelters, Identified safe places

District Legal Service Authority (DLSA) at district level ,SALSA at state level and NALSA at national level .The role responsibilities of DLSA in Disaster Management is defined.

List of MFS at Dhenkanal District

Sl. No.	District	Block	GP	Village	MCS/ MFS	Under Scheme
1	Dhenkanal	Gondia	Khandabandha	Khandabandha	MFS	CMRF (By RD dept-post Phailin)
2	Dhenkanal	Gondia	Kashipur	Nahada	MFS	CMRF (By RD dept-post Phailin)
3	Dhenkanal	Kamakhyanagar	Budhibili	Budhibili	MFS	CMRF (By RD dept-post Phailin)
4	Dhenkanal	Bhuban	Bhusal	Asurabandha	MFS	CMRF (By RD dept-post Phailin)

5	Dhenkanal	Odapada	Kuspanga	Kuspanga	MFS	CMRF (By RD dept-post Phailin)
6	Dhenkanal	Odapada	Khadagprasad	Khadagprasad	MFS	CMRF (By RD dept-post Phailin)
7	Dhenkanal	Parjang	Rentapat	Panigengutia	MFS	CMRF (By RD dept-post Phailin)
8	Dhenkanal	Kankadahad	Kankadahad	Kankadahad	MFS	CMRF (By RD dept-post Phailin)

The District Administration identified 19 nos. of School buildings which will be used as shelters during Exigencies like Flood and Cyclone. The List is mentioned below.

LIST OF CYCLONE / FLOOD SHELTERS

Sl.No	Name of the Block	G.P.	Village	Name of the School
1.	Bhuban	Balibo	Balibo	BaliboHigh School
2.	Bhuban	Dhalpada	Joragadia	BalunkeswarHigh School
3.	Dhenkanal	Mangalpur	Mangalpur	SatyabadiHigh School
4.	Dhenkanal	Talabarakote	Talabarkote	TalabarkoteHigh School
5.	Dhenkanal	Banasingh	Radhadeipur	RadhadeipurHigh School
6.	Gondia	Kabera	Chirulei	SudarsanHigh School
7.	Gondia	Ratanpur	Chandia	RaisingaprasadHigh School
8.	Hindol	Dudurakote	Dudurakote	JanatarajHigh School
9.	Hindol	Rasol	Rasol	RasolHigh School
10.	Hindol	Nizigarh	Nizigarh	Govt.GirlsHigh School
11.	Kamakhyanagar	Sogar	Sogar	Sogareswar Bidyapitha
12.	Kamakhyanagar	Badasuanlo	Badasuanlo	BadasuanloHigh School
13.	Kamakhyanagar	Budhibili	Budhibili	Budhibili High School
14.	Kankadahad	Mahabirroad	Mahabirroad	JanapravaHigh School
15.	Kankadahad	Maruabili	Marubili	PanchayatHigh School
16.	Odapada	Odapada	Odapada	OdapadaHigh School
17.	Odapada	Gadasila	Mahendrapur	DandimalHigh School
18.	Parjang	Badajhara	Badajhara	SatyanarayanHigh School

19.	Parjang	Sanda	Sanda	SandaHigh School
-----	---------	-------	-------	------------------

Contact details of President/secretary of MFS.

Sl No.	Block	Name of GP	Name of the Multipurpose Flood Shelters (MFS.	Name of the Sarpanch with Contact No.	Name of the Secretary with Contact No.
1	Gondia	Khandabandha	Khandabandha	Malay Kumar Majhi Mob.No.9776906021	Rabi Narayan Nayak
2	Gondia	Kashipur	Nahada	Chanchala Barik Mob.No.9348123981	Ramesh Ch.Maharana
3	Kamakhyanagar	Budhibili	Budhibili	Sasmita Kumari Sahoo. Mobile No-9439256209	Mr.Nrusingha Ch. Behera
4	Bhuban	Bhusal	Asurabandha	Tuni Mallik Contact No. 7978325064	Sri Pratap Kumar Mishra
5	Odapada	Kuspanga	Kuspanga	Anita Nayak, 9348801117	Chitta Ranjan Nath
6	Odapada	Khadagprasad	Khadagprasad	Sabitri Dalei, 8260424239	Sanjay Bhoi
7	Parjang	Rentapat	Panigengutia	Prasanta Kumar Nayak, Mob. - 8917511445	Krishna ch Panda
8	Kankadahad	Kankadahad	Kankadahad	Anusaya Sahoo Mob.No-8018032835	Sukadeb Sahoo

Non-structural Measures: Initiative of DDMA, Dhenkanal.

Sl. No.	Name of the Department/ Office	Activity/ Project	Starting date	Date of Completion	Cost Rs.	Funding Source
1	Revenue &DM/ Collectorate, Dhenkanal.	Mock Drill at District/Block/ MFS level	17.06.2021	19.06.2021	89200/-	OSDMA
2	Revenue &DM/ Collectorate, Dhenkanal.	FAMEX&CAP by ODRAF/Fire/NDRF	2021		-	OSDMA &DDMA,Dhenkanal

Chapter-6 Climate Change Adaptation & Mitigation-

Weather and climate are the results of complex interactions Between anthropogenic and natural factors. Evidence of global climate change include 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 green house 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).

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”).

Sl No	Name of the Industry/ Plant/Firm	Location	Quantity of Co2 emission (PPM)	Ranking as per CO2 Emission (in the district)	Other major pollutants emitted (PPM)	Action taken for cutting down émission
1	M/s Tata Steel BSL Ltd.	Meramandali, Dhenkanal	11615546 MT/ (during 2020-21)	--	Particulate matter <50 mg/Nm3	Installed Electrostatic Precipitator , bag filters
2	GMR Kamalanga Energy	AT/Post Kamalanga, Block-	0.0006621 65	--	Annual average emission : - Particulate Matter	1. PAT Schème (Cycle - V) Implemented since 2018-2019

Limited	Odapada N. Dist. Dhenkanal (Odisha)	(5171512 tCO ₂)		(PM) - 28mg/Nm ³ Sulphur-Di-Oxide (SO ₂) - 433.91ppm Nitrogen Oxides (NO _x)- 135.61ppm Total Mercury (Hg)-0.01mg/Nm ³	<ol style="list-style-type: none"> 2. Plantation done - 388797 Nos. 3. Energy Conservation Management System (EnMS 50001 ISO) implemented & Certified by BVI 4. Reduction of Auxiliary power consumption (APC) 5. High Efficient Hybrid ESP installed for control of Particulate Mater. 6. FGD is Under Installation for Control of SO₂. 7. Low NO_x burner & Over Air Fire (OAF) System installed.
---------	----------------------------------------------	--------------------------------	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

6.1 Important Greenhouse 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.

6.2

SI No	Name of the Block	Major Sources	Annual emission (In PPM)	Ranking as per Emission (PPM)	Action taken for cutting down émission
	Odapada N	GMR Kamalanga Energy Limited	1184.18 tCO ₂ ^{eq.}		

6.3 Important Greenhouse 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.

Table: 6.4

SI No	Name of the Block	Fertiliser /Industrial processes	Annual Usage (In tonnes)	Ranking as per N ₂ O Emission (PPM)	Other major pollutants emitted (PPM)	Action taken for cutting down émission
	Odapada N	GMR Kamalanga Energy Limited	144.3 tCO ₂ ^{eq.}			

6.4 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 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.

6.5

SI No	Name of the Industry/ Firm/Plant	Location	Annual émission (In PPM)	Ranking as per flourinated gas Emission (PPM)
	GMR Kamalanga Energy Limited	AT/Post Kamalanga, Block-Odapanda N. Dist. Dhenkanal (Odisha)	<ul style="list-style-type: none"> • HCFC22-788.48 tCO₂^{eq.} • HCFC134-16.8tCO₂^{eq.} 	

6.6 Important Green House Gases : ChlorofluoroCarbons (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.

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").

Chapter-7 Inclusive Disaster Risk Reduction:

- ✓ A need to include Persons with Disabilities, Responding to the needs of persons with disabilities
- ✓ Village wise Information on PWD, village wise Information on people needing special care (Aged and Pregnant Women), and Information on vulnerable women and children

Details of Child Care Institutions:

S I N o	Bloc k/ ULB	Name and Address of the Organization	B o y s	Gi rls	Tot al No of Ch ild	Name and Contact no. of the Shift-in- Charge	Fire Safety Equipmen t (Fire	Staff Traini ng on Fire Safety Equip	Near by open space for evacu	Altern ative Shelter /s Identif ied
01	Sadar	Children's Home Maharshi Dayananda Service Mission, At- Gobindpur, in front of Kalyani GAS, Dist. Dhenkanal Secretary- Pradeep Ku Sahoo Ph- 9437528709, Mail ID- info@mdsmiddion.org	38	34	72	Sanjaya Kumar Behera Mob:- 993802665 0	Available	Yes	Yes	Yes
	Sadar	Biswa Kuntala Children's Home AT/Po-Mahulpada, PS- Sadar, Dist-Dhenkanal Secretary- Puspanjali Jena Ph- 9937462339 E-mail ID:- puspanjaliiswodkl@gmail.com	11	28	39	Anusuya Nayak 933793260 2	Available	Yes	Yes	Yes
	Sadar	Adruta Children's Home, At/Po- Ichhadeipur, Near Shamacharanpur Railway Station, Dhenkanal. Secretary- Suprity Mohanty Mob- 9438553647 Mail ID: ach.dhenkanal@gmail.com	17	00	17	Nilamani Mohapatra 700851007 9	Available	Yes	Yes	Yes
	Sadar	Open Shelter (MDSM) At- Kathagada, Dist. Dhenkanal	04	04	08	Jasmita Panda Mob:-	Available	Yes	Yes	Yes

		Secretary- Pradeep Ku Sahoo Ph- 9437528709, Mail ID- info@midsmiddion.org				934882515 2				
Sadar		SEPECIALISED ADOPTION AGENCY (MDSM) At- Kathagada, Dist. Dhenkanal Secretary- Pradeep Ku Sahoo Ph- 9437528709, Mail ID- info@midsmiddion.org	0 0	01	01	Sailabala Swain Mob:- 814463560 7	Available	Yes	Yes	Yes

Chapter-8 Safety of Schools and Child Care Institutions-

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.

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 well being 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 approach.
- 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 approach

- 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 equipments to meet the norms spelt out in the schedule (in relation to all weather buildings).

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).
- Non structural 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).

1.3 **Details of School Safety in the district:**

Details of School Safety in the District

Sl.No	Name of the block	Schools having Safety Advisory committee	No.of Schools which have finalised the school disaster management plan(SDMIP)	No.of schools which have conducted safety audits		No. of schools which have conducted annual mock drills	No. of schools where fire extinguisher have been installed	No.of Schools which adhere to safety norms with respect to storage of inflammable and toxic material	No.of schools which confirms to the safety standards as per local building bye-laws(as approved by local authorities)	No.of schools which have been issued Recognition Certificate under sub-rule(4)-Rule 15 of RTE rules 2010(only to schools that comply with structural safety norms)	No. of schools where students and teachers undergo regular training in school safety and disaster preparedness	No. of schools where disaster management is being taught as part of the curriculum
				Structural	Non Structural							
1	Sadar	248	248	224	226	224	242	242	243	9	228	89
2	Gondia	211	211	211	211	85	211	211	211	2	211	157
3	Odapada	167	167	100	80	62	150	167	135	4	133	120
4	Hindol	216	216	224	241	92	240	241	201	3	216	160
5	k.nagar	175	175	175	175	160	160	175	175	8	175	125
6	Bhuban	141	141	141	141	0	137	141	0	10	141	116
7	Kankadahad	204	204	204	204	31	204	204	110	5	204	139
8	Parjang	175	175	175	175	110	175	175	165	3	175	120
		1537	1537	1454	1453	764	1519	1556	1240	44	1483	1026

Sl No	Activity	Total School	Achieved									Total
			Sadar	Odapada	Gondia	Hindol	K.Nagar	Bhuban	Parjang	K.Had		
1	Schools having School Safety Advisory Committee(Number)	1840	256	183	223	266	195	175	195	225	1718	
2	Schools having School Disaster management Plan(Number)	1840	256	183	223	266	195	175	195	225	1718	
3	Schools having conducted Safety Audits (Structural)(Number)	1840	256	183	223	266	195	175	195	225	1718	
4	Safety Audits (Non-Structural)(Number)	1840	256	183	223	266	195	175	195	225	1718	
5	Schools having conducted Annual Mock Drills(Number)	1840	51	51	53	51	51	51	51	51	410	

6	Schools Having Fire Extinguisher(Number)	1840	248	219	176	259	190	215	190	167	1664
7	Schools Adhering to safety norms in storing inflammable & Toxic Material(Number)	1840	293	234	197	279	207	230	208	192	1840
8	Schools confirming safety standards as per local building bye-laws (Latest)(Number)	1840	59	60	59	59	59	59	59	62	476
9	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)										40
10	Schools where students & teachers undergo regular training on School Safety & Disaster Preparedness (Number)	1840	50	35	45	30	40	45	50	35	330
11	Schools where disaster management is being taught as part of the curriculum (Number)	801	67	126	114	106	97	103	86	102	801

Famex & CAP (Familiarization Exercise and Community awareness program)-10 days at 10 high school, in all 8 blocks, by NDRF, School safety committee formed , regular meetings.

Chapter -9 Chemical (Industrial), Nuclear and Radiological Disaster: Off site Mock drill conducted at district in March 2022, CBRN

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 minimize 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 minimize 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.

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.

It covers Factories or Storage Unit Details of the District, Hazardous Chemical Storage Details

Critical Facilities/Infrastructure situated within close proximity of the Factories/Industries

Nearest Hospital Details of the Factories/Industrial Units

Nearest Fire Station of the Factories/Industries

Chapter-10 Biological Disaster and Public Health in Emergencies. It covers Biological Disaster Management & Medical Preparedness, Nodal Departments for Managing Biological Disaster, Legal Framework, Institutional & Operational Framework, Crisis Management Committee, Task Force, Technical Experts, Nodal Public Health Institution, Collaborative Institutions, Infrastructure that can be used as quarantine centres, Preparedness and Capacity

Development, Establishment of Command, Control and Coordination Functions, Training & Education, Community Preparedness, Medical Preparedness, Mobile Hospitals & Health Teams, Stockpile of Medicines, Psycho Social Care, Disaster Mental Health Services, Nodal Psycho Social Health Institution, Volunteers & Paramedical Staffs (Community), Coping with Loss & Circles of Support, Needs of More Vulnerable Groups, Principles of Psychosocial Support, Basic Techniques of Disaster Psychosocial Care, Understanding of Stress Symptoms & Management etc.

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 SDMAs.

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 10.1 Nodal Departments for Managing Biological Disaster

Sl No.	Bio Disaster	Nodal Department	Contact person	Contact details (Office/Mobile)
1	Biological Disaster	H&FW Department	CDM&PHO(Dhenkanal)	9439981081
2	Bio Terrorism/ War	Home Department	SP	06762-225777
3	Animal Health Disaster	F&ARD Department	CDVO (District)	9439779848
4	Agro - Terrorism	A&FE Department	CDAO	7008784258

10.2 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.

10.3 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

Table 10.2- Crisis Management Committee

SL	Member	Dept./Instt.	Contact Details
	CDM&PHO, Dhenkanal	H&FW	9439981081
	DPHO, Dhenkanal	H&FW	9439980500
	DPM, NHM	H&FW	9439980663

Table 10.3 Task Force

SL	Member	Dept./Instt.	Contact Details
	DPHO	H&FW	9439980500
	DMO cum MS ,DHH	H&FW	9439981040
	DPM,NHM	H&FW	9439980663
	Hospital Manager, DHH	H&FW	9439981100
	DVLM,NHM	H&FW	9778379190

Table 10.4 Technical Experts

SL	Member	Dept./Instt.	Contact Details
	DPHO	H&FW	9439980500
	ADPHO(DC)	H&FW	8249124695
	Epidemiologist	H&FW	8908157050
	Microbiologist	H&FW	7978652534
	VBD Consultant	H&FW	9439989943

- 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.

10.5 Nodal Public Health Institution

Name of the Institution, Address & Contact details of the contact (Nodal) Person	No. of trained Doctors (Biological Disaster)	No. of trained Paramedical staffs (Biological Disaster)	Facilities available	Equipment's available
DHH Dhenkanal, Dakhinakali Road, DMO(MS)	27	29	Radiologica and Haematologic al Investigatio n	CBC Ventilator(N ot Installed but will be installed soon,)

10.6 Collaborative Institutions

Name of the NGO/CSO/ Private Sector	Expertise	Contact Person	Contact Details (Number & Email ID)	Address

10.4 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
- 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.

10.4.1 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 10.7 Important/Critical Infrastructure

SI	Infrastructure/ Institution Type	Dept./Instt.	Contact person with contact Details
1	DHH Dhenkanal	Health & FW	ADPHO(VBD) 9438397531 VBD Consultant 9439989943

10.4.2 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.

10.8 Infrastructure that can be used as quarantine centres

Sl	Infrastructure/ Institution Type	Dept./Instit.	Contact person with contact Details
	DCH Dhenkanal(Tertiary care with ICU)	Health and FW	Hospital Manager Dhenkanal 9439981100

10.5 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.

10.6 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.

10.7 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.

10.8 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.

Chapter -11 Capacity Building : 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.

Capacity Building of Govt. Officials, PRI Members

District/ Block level Mock Drills, Disaster Management Education

Community Capacity Building, Capacity building MFSMMC members

Heat wave meeting, Mock drill- June 19, and October 29 every year. MFS level training will be done , NGO training completed.

Developing a DDMP without building capacity or raising awareness amongst stake- holders 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 disasters

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.

Capacity Building Programmes of Govt. Officials at District and Sub-District Levels and PRI & other stakeholders as follows,

Sl.No.	Name of Capacity Building & Training programme.	Participants	Total Participants	No. of batches.	Duration	Budget (Rs.)	Organised by
May-22							
1	District Level Training-Cum-Workshop on Role of PRI members in Disaster Management & DRR and implementation of Integrated DM with GPDP	President/Vice-President,ZP Members,Chairman/ Vice Chairman of Panchayat Samiti and Govt.Official	70	1	1 Day	35000	DDMA
2	Training programe on Shelter Management for FSMMC members.	Members of FSMMC& other stake holders.	400	8	1	80000	DDMA/BD O
3	Block Level Training programme on Role of PRI members in Disaster Management & DRR and Implementation of Integration of DM with GPDP	Sarpanch &PS Member, Block Level Officers &PEO	240	4	1 Day	72000	DDMA/BD O
Jun-22							
1	District Level ToT on Disaster Management & DRR and implementation of Disaster Management with GPDP	Block Extension Officers,ICDS supervisors, BPC-Mission Shakti,BPM-OLM,RIs	100	2	2Days	120000	DDMA

2	Post Disaster Needs Assessment(PDNA)	Concerned Line Deptt.Officers,BDOs, Tahasildars &Others	100	2	2Days	100000	DDMA
2	Block Level Training programme on Role of PRI members in Disaster Management & DRR and Implementation of Integration of DM with GPDP	Chairman/Vice Chairman,Sarpanch &PS Member,concerned block level officials &PEO	240	4	1 Day	72000	DDMA/BDO
July-2022		Jul-22					
1	District Level Training programme on Extreme Weather Events &DRR	Concerned Line Deptt.Officers,BDOs, Tahasildars &Others	60	1	1Day	30000	DDMA
2	District Level ToT on Disaster Management & DRR and implementation of Disaster Management with GPDP	Block Extension Officers,ICDS supervisors, BPC-Mission Shakti,BPM-OLM,RIs,NYK/CD Volunteers.	150	3	2Days	180000	DDMA
3	District Level Training-Cum-Workshop on GO-NGO Initiatives &CBDRM.	Member of DLNCC/BLNCC	80	1	1Day	40000	DDMA
Aug-22		August-2022					
1	District Level workshop on SFDRR Road Map and SDG &PM's 10 Points Agenda on Disaster Management and Implementation	Officials of line Departments/NGOs and key stakeholders	70	1	1 Day	35000	DDMA
2	District Level Training programme on Chemical &Biological Disaster Management	Officers of concerned line deptt.,BDO &Tahasildars,and others.	60	1	1Day	30000	DDMA
3	District level training programme for officials on IDRN &NDMIS and Disaster Management	District level Officials of different departments and stakeholders.	60	1	1 Day	30000	DDMA
Sep-22		Sep-22				0	

1	District level Training on Drought Manual & Drought Management	District,Subdivision ,Block level Officials of Agriculture& Horticulture /Revenue dept. and other stakeholders.	60	1	1	30000	DDMA
2	District level workshop on Disaster Medicine and Public Health Management.	Health/Hospital Administrators and Concerned line Deptt.Official & Safety Officers of Major Industries.	70	1	1 Day	35000	DDMA/CD MO
3	Block level Training on Drought Manual & Drought Management	Block & Panchayat level Officials of Agriculture /Revenue dept.	50	8	1/2 Day	120000	DDMA/DD A
4	District Level Workshop - Cum-Training on SSP & Disaster Management.	DEO/DPC-SSA & Staff,all BEO & CRCC	50	1	1	25000	DDMA
5	District Level Work Shop on Disaster Management to Orient DPC members & Integration of DRR activities in Development Works/Construction and resilient infrastructure building	District Planning Committee Members & Concerned Officers and stakeholders	50	1	1	35000	DDMA
6	District Level ToT on Disaster Management for NYK & Civil Defence Volunteers.	NYK & Civil Defence Volunteers	60	1	1 Day	30000	DDMA
Oct-22		Oct-22				0	
1	District Level Orientation Workshop on CCDRM.	Representatives of the CCIs, Concerned Line Deptt. Officials & Stakeholders	50	1	1 Day	25000	DDMA
3	Mainstreaming DRR and CCA in Development Planning	All BDOs, Tahasildars, Head of line departments,	60	1	1 Day	30000	DDMA
4	District Level ToT on role of Women & SHG Federation in Disaster Management & DRR.	Staff of ICDS & Mission Shakti & OLM District/Block SHG Federation Members.	150	3	1 Day	90000	DDMA
Nov-22		Nov-22				0	
1	District level Workshop - Cum-Training Programme on Disaster Management & DRR for NSS & NCC, YRC volunteers.	NSS, NCC, YRC Counselor & Student Volunteers	250	4	1 Day	125000	DDMA

2	Block Level Training programme on role of women & SHG Federation in Disaster Management & DRR.	Staff of OLM, ICDS & Block /GP SHG Federation Members and others.	400	8	1Day	120000	DDMA/BD O/ DSWO
Dec-22		Dec-22				0	
1	Awareness programme on Disaster Management at School Level (Lightning Safety, Cyclone, Drowning, Snakebite, etc)	Teachers, SMC members, Student	2500	25	1/2 Day	125000	DDMA/DE O/DPC-SS
2	Capacity Building /Training of VDMC members(5Nos/VDMC)	Members of VDMC/Task Force Members	280	4	1 Day	80000	DDMA
3	District Level workshop on IRS & ICS(Basic & Intermediate)	Officials of district level line departments/Fire/O DRAF/CD and all key stakeholders	70	1	1 Day	35000	DDMA
Jan-23		Jan-23				0	
1	Training -Cum-Workshop on Management of Chemical Emergency & Industrial Safety.	DCG Members & Key Line Deptt. Officials and Stakeholders.	60	1	1 Day	30000	DDMA/AD (F&B)
2	Community Based Disaster Risk Management(CBDRM)	BDO, GPEO, RI, Member of DLNCC & others	50	1	1Day	25000	DDMA
3	Capacity Building /Training of VDMC members(5Nos/VDMC)	Members of VDMC/Task Force Members	250	4	1 Day	80000	DDMA
Feb-23		Feb-23				0	
1	Capacity Building /Training of VDMC members(5Nos/VDMC)	Members of VDMC/Task Force Members	250	4	1 Day	75000	DDMA
2	Child Centric Disaster Risk Reduction(CDRR)	DCPO, ICDS staff & SHG Federation Members.	50	1	1Day	25000	DDMA
3	Community Based Disaster Risk Management(CBDRM) & Inclusive DRR	BDO, GPEO, RI, Member of DLNCC & others	100	2	1Day	50000	DDMA
4	District Level Capacity Building Programme of all RIs & ARIs on Disaster Management & DRR and Relief Measures and provision under SDRF/NDRF & Reportings.	All RIs & ARIs	100	2	1 Day	50000	DDMA

Chapter -12 Preparedness -

The preparedness means the state of Readiness to deal with a threatening disaster situation or disaster and the effects thereof (Under Section-2(e) (m) of the Disaster management Act-2005. The measures for preparedness on different disasters are as follows,

1-Flood:

- 1- Convening a meeting of the District Level Committee on Natural Calamities (DLNCC) in the month of May to review the precautionary measures taken or contemplated to be taken against the possible flood, stocking of food stuff in advance in interior, vulnerable, strategic & key areas and review of other programmes or work in progress, if any.
2. Closure of past breaches in river & canal embankments and guarding of weak points.
3. Arrangements of keeping the drainage systems clear for free flow of flood water.
4. Assigning the change of Flood Circles.
5. Rain recording and submission of rainfall reports as per the provision under Appendix-IV ensuring Inspection of Rain Gauge Stations & taking steps to rectify the defects, if any.
6. Activating the Control Rooms with adequate trained personnel & necessary communication equipment in order and arrangements of training for those who are deployed in the control room.
7. Submission of daily situation report on rainfall & flood from 1st June to 15th October.
8. Dissemination of weather reports/ warnings and flood bulletins issued by the Meteorological Centre & Central Flood Forecasting Division, Bhubaneswar and communication of gauge-recordings.
9. Installation of temporary Police Wireless Stations & temporary telephones in flood prone areas (Collectors may indicate their requirement by 20.05.2017 for installation of temporary wireless stations only at such places where the telephone/ mobile connectivity is not available for communicating flood related matters).

10. Arrangements for keeping telephone lines in order.
11. Deployment of boats at strategic points including enumeration of private boats with names & contact details of the owners & boatmen, execution of pre-contract with boat owners and advance planning for deployment of such boats.
12. Storage of food in interior, vulnerable strategic & key area.
13. Pre-contract on arrangements of dry food stuff & other necessities of life.
14. Arrangements for supply of safe drinking water during crisis period.
15. Health, Sanitation, Veterinary & Agricultural measures.
16. Identification of flood shelters including drinking water & sanitation arrangements at such shelters. Advance planning for making these arrangements for sheltering the people in case of high flood
17. Evacuation plan including identification of low lying areas likely to be inundated/ marooned, identification of evacuation route and means of transportation.
18. Advance planning & arrangements including logistics for deployment of ODRAF/ NDRF/ Defence Forces.
19. Listing of helipads/ airstrips available in the district with correct geographical co-ordinates (Latitude & Longitude).
20. Organization of relief parties & training to those to be deployed in flood relief work.
21. Arrangements for immediate restoration of essential services like power, telecommunication, roads, etc.
22. Coordination with Line Department officials.
23. Coordination with civil society organizations, SHGs, CBOs and members of Panchayati Raj Institutions for their participation & help in rescue and relief work.
24. Arrangement for Rapid Damage Assessment.
25. Organization of training/ refresher training for the officials to be engaged in damage assessment work to orient them about the provisions & procedure.

26. Review of pre-flood arrangement by the Collector.
27. In addition to the above, the following actions will be taken:- National Disaster Management Authority (NDMA) in exercise of its powers u/s 12 of the Disaster Management Act, 2005 has recommended certain guidelines for the basic minimum standards of relief to be provided to persons affected by disaster relating to shelter, food, water, sanitation & medical cover in relief camps & relief for widows & orphans. In this matter, this office letter No. 672/Dt. 21.03.2016 may be referred to. Necessary prior arrangements may please be made in this regard and ensure that the said guidelines are meticulously followed.
28. In disaster situation, it may be required to regulate the flow of traffic/ people to disaster affected areas. This is more relevant in case of tourist/ religious places. Based on forecasts, it may be required to regulate the tourists/ pilgrims. Besides, plan for evacuation from tourist/ religious places including alternative routes in the event of an imminent disaster should be made in advance. The District Authorities must have their plan included in their DM Plan to deal with such situations. If not, appropriate provisions may be included in the DM Plan of the district & various functions in this regard including the regulatory function should be entrusted to specific officials/ agencies.
30. Instructions will be issued in the past to close the bridges/ roads submerged or over topped with flood/ rain water by constructing temporary barricades on both sides and erect hoardings. The respective authorities in charge of the concerned roads will be responsible for the same.

2-Heat Wave:

- Heat Wave is defined as a condition of increased atmospheric temperature that leads to physiological stress, which sometimes can claim human life. Quantitatively Heat Wave can be defined as any increase from the normal temperature. Again, depending on the upper deviation from the normal temperature it can be moderate Heat Wave or Severe Heat Wave. If the maximum temperature of any place continues to be 45° C for consecutive two days, it is called as Heat Wave condition. Physiologically human body can tolerate environmental temperature of 37° C.
- Whenever the environmental temperature increases above 37° C., the human body starts gaining heat from the atmosphere. In the case of humidity being high along with high temperature, a person can suffer from heat stress disorders even with the temperature at 37° or 38° C. Higher daily peak temperatures and longer, more intense Heat Waves are becoming

increasingly frequent globally due to climate change. Extreme heat events already have a significant impact in Odisha and India.

Table I: IMD Temperature Ranges for Heat Wave Designations

The normal temperature is < 40° C. Any increase from the above normal temperature is called a Heat Wave.

+ (5 or 6) ° C – Moderate Heat Wave or simply Heat Wave Days (HWD).

+7° C or more – Severe Heat Wave Day (SHWD)

Table II -The normal temperature is ≥ 40° C. Any increase from the above normal temperature is called Heat Wave.

+ (3 or 4) ° C – Moderate Heat Wave (or HWD)

+5° C or more – Severe Heat Wave Day (SHWD)

Table III -If the maximum temperature of any place continues to be 45° C consecutively for two days

(40° C for coastal areas), it is also called a Heat Wave condition or HWD.

- The precautionary measures Heat Wave Action Plan (HAP) as prescribed by OSDMA from year to year should be implemented apparently in a meticulous manner. The DDMA shall take appropriate action for convergence of all line departments along with synergetic effort for its implementation as per responsibility fixed and timely monitoring and Supervision.
- The District Level Preparatory Meeting on implementation of HAP is conducted under the chairmanship of Collector-cum-Chairman, Dhenkanal in well advance for heat wave management in the district along with responsibilities of all concerned line departments at district as well as block level.

12.1 Relief Lines: District to Blocks.

Sl. No	Name of the Road		Type of Road & Length	Vulnerability of the route (Description of the Vulnerability)	Coverage (Blocks)
	From	To			
1	Dhenkanal	Odapada	NH 55 & 30 KM	Possibility of obstruction by trees existing in road side	1
2	Dhenkanal	Sadar Block	District Road & 1.00 KM	Nil	1
3	Dhenkanal	Parjang	SH 35 Km , NH 25 Km	Nil	1
4	Dhenkanal	Bhuban	NH 53 & 46 KM	Possibility of obstruction by trees existing in road sides	1

5	Dhenkanal	Hindol	Black Topping Road & 60 Kms	NA	1
6	Dhenkanal	Kamakhy anagar	PWD & 35 K.M	Possibility of obstruction by trees existing in road side	1
7	Dhenkanal	Gondia	SH-27 KMs	Possibility of obstruction by trees existing in road side	1
8	Dhenkanal	Kankadah ad	MDR-19/PWD=55 KM	Possibility of obstruction by trees existing in road side	1

Chapter-13 Response activities - briefly describes the Flood/ Cyclone Circle Zone, Duties of Zone / addl. Zone Officers, Phases of Response (Flow Charts), Relief Management, Response by Administration etc .

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.

Standard Response Plan for various Disasters.

1- Flood:

Measures to be taken as per the Odisha Relief Code.

(i) Functioning of Control Room (Para 10 & 47 of ORC)

Control Room is functioning in District Office with telephone No.06762-221376 round the clock with the effect from **1st May to 30th November** Control Rooms are also functioning in the Offices of the Sub-Collectors/Tahasildars/Block Development Officers and in other District Level Officers. The case of any natural calamities viz – flood or cyclone etc immediately after the occurrence it will be the responsibility of village level workers to inform the facts to the nearest RI who will pass on the information to the

nearest Police Station for transmission of the message to the Sub-Collector and Collector's Control Room also keep the concerned zone officer and Tahasildar informed. Revenue Inspector's are trained at Tahasils level for the purpose.

(ii) Wireless station (Para 55 OF O.R.C)

All the Police Station and Out-posts in the District are equipped with VHF/HF for transmission of the flood /cyclone messages. Special Relief Commissioner has been moved for installation of temporary V.H.F. Centers at the following places to facilitate transmission of flood/cyclone messages.

(iii) Rain recording and submission of rainfall reports (Para 49 of O.R.C.)

Rain recording stations are available in all the blocks of this district. The Head Clerks of the Blocks are acting as Rain Recording Officers under the supervision of the respective Block Development Officers. The rainfall reports from each rain recording station shall be transmitted to the District Control Room daily through V.H.F./ Telephone/ Messenger.

(iv) Gauge reading (Para 50 of O.R.C.)

The gauge reading stations of different rivers are available at different places in the district as shown. The gauge readings will be transmitted by the flood control cell to the District Control Room every hour when the gauge reading is near or above danger level. When the gauge reading is fairly below the danger level, the same will be transmitted once a day by 5 P.M., Gauge readings at the above Gauge stations shall be communicated to the Revenue Control Room through phone/Fax from the District Control Room.

(v) Dissemination of weather reports, flood bulletin etc. (Para 52 of O.R.C.)

Immediately on receipt of weather warnings and bulletin above high flood from the Metrological Center of the Government of India at Bhubaneswar or from the Revenue Department/ Special Relief Commissioner, the same shall be communicated to the superintendent of Police. Executive Engineers of the Water Resources Department, the Sub-Collectors, Executive Officers of U.L.Bs., Tahasildars and Block Development Officer who shall, without delay of time, disseminate the messages among the people through their respective agencies and caution them so that they will be in readiness to shift to flood shelters or other safer places in the event of high floods. The people will also be asked to refer to the special weather/flood bulletin of T.V./Radio during such periods.

(vi) Storage of foodstuff in interior areas (Para 57 of O.R.C.)

To ensure that food grains/food-stuff are available in the interior areas which are likely to become inaccessible during flood, Civil Supplies Officer, Dhenkanal, has been reported to store adequate amount of rice and also to keep stock of Kerosene. Other dry foods like chuda, mudhi, guda, bread and other necessities like candle, match box etc, will be arranged immediately for distribution among the marooned people in the event of high flood.

(vii) Selection of flood shelters (Para 60 of O.R.C.)

In or about the flood prone areas, suitable buildings belonging to Government, Panchayat Samities, Gram Panchayats, Educational Institutions, Mahila Samitis, Recreation Centres or other Institutions of public nature may be selected for providing emergent shelter to the people on evacuation from the flood affected areas. In case no such buildings could be found, temporary structures with bullahs, bamboos, talais and tarpaulins should be raised on high mounds or embankments for such shelters. The Collectors of flood prone districts shall arrange for quick availability of bamboos, bullahs, ropes, talais, tarpaulins, etc. for construction of such shelters.

(viii) Organisation of relief parties for rescue and relief operation (Para 60 of O.R.C.)

In the event of high flood it will be necessary to rescue the marooned people and to distribute emergent relief to the people affected by the calamity. For smooth management of rescue and relief operation, the Sub-Collector have been instructed to constitute Relief Parties in advance indicating their area of jurisdiction. The employees of the local Government offices shall be included in such relief parties. NGOs will also be involved in the programmed.

(ix) Arrangements for army assistance (para 61 & 69 of O.R.C.)

In case of severe and wide spread calamity, the assistance of army personnel may be sought for relief and rescue operation. In such contingency, necessary arrangements shall be made to requisition the army to assist the civil authorities through Special Relief Commissioner / Government following the procedure laid down under paragraph 61 and 69 of the Orissa Relief Code

(x) Daily reporting of flood situation (Para 71 of O.R.C)

As per para 71 of Orissa Relief Code instructions have been separately issued for submission of daily situation report by the Block Development Officer /Tahasildars in the prescribed format through wireless message from the date of occurrence of the flood till after 3 days of the abatement of flood. The required flood information will be collected by the V.L.Ws and Extension Officers who will furnish the same to the Block Office by 2 P.M. every day. Besides, other line department officers will also pass on the information relating to their department officers who will also pass on the information relating to their department to the respective Block Development Officers. The Block Development Officers will compile and transmit the information as per the format of the daily situation report through the nearest police wireless by 3 P.M. to District Control Room.

(xi) Transport.

In the event of any Natural Calamity, vehicles may be required for sending the relief parties and relief materials including foodstuff to the affected areas. The Regional Transport Officer will make requisition and provide such vehicles with the help of his enforcement staff as per the requirement.

(xii) Disposal of dead bodies (Para 73 of ORC)

The dead bodies of human beings, if any, found in the flood-affected areas in case of high flood, shall ordinarily be made over to their relatives and friends, if available, for cremation or burial. When there are no claimants for dead bodies, those shall be cremated/buried at the Govt. cost i.e. Health Department. Chief District Medical Officer, Khordha will issue necessary instructions to their officer and staff in the field in this regard. Similarly, carcasses of cattle and other animals shall be buried by the Animal Resources Development Department. Chief District Veterinary Officer will issue necessary instruction in this regard.

(xiii) Assessment of damage (Para 74 to 77 of O.R.C)

Damages caused by the Natural Calamity to the private and public properties and loss of life are assessed by the Revenue Agency. The Tahasildars are to collect such information with the help of his staff through the local enquiry. The Block Development Officers and the Extension Officers in this work if necessary will assist them and officers may be specially deputed by the Collector to assist the Tahasildars in this work where there is large-scale damage. This report of damages would be submitted without delay. The other departments will similarly assess their losses and submit reports within the stipulated time.

(xiv) **Restoration of communication and power supply (Para 86 of ORC)**

In case of high flood, the communication and power supply to the affected areas are usually cut off. The respective departments will take immediate steps for restoration of the communication as well as power supply after abatement of flood.

(xv) **Law and order.**

In case of occurrence of any Natural Calamity, there is change of law and order problems. Transportation and distribution of relief materials may require police protection. The Superintendent of Police will issue necessary instruction to all Inspector officer/officer officers in the District in the direction of maintenance of law and order in such eventuality and to render necessary assistance to the District/Sub-Divisional authorities for smooth management of relief and rescue operation.

Chapter-14 Restoration & Rehabilitation activities with the Standard Operating Procedure for department wise Rehabilitation & Restoration activities.

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 submit financial requisition to the state Govt. under SDRF & NDRF. The requisition must reach the SDMA & SRC office in the prescribed format as detailed below for smooth & quick processing.

1.1 Standard Operating Procedure: Restoration & Rehabilitation.

Name of the Department	Normal Time
Collector/ADM / Emergency Officer	<ul style="list-style-type: none">• Restoration of Critical Infrastructures to bring situation to normalcy• Ensure Restoration of roads & channels, Communication network, Electricity & Energy

	<ul style="list-style-type: none"> • Coordination of Line departments and review of activities. • Ensure health management in the affected areas • Adopt sustainable mitigation measures in the restoration activities
CDMO&PHO	<ul style="list-style-type: none"> • Carry out Disease surveillance measures to check epidemic prone diseases • Dis-infection of drinking water & measures for health & hygiene • Rehabilitation of deprived & destitute with DSWO. • Carry out Trauma & Psycho-social counseling. • Rehabilitation health services through DDRC, Branch office of NIRTAR.
Superintendent of Police (SP)	<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
EE- RWSS	<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
EE- Irrigation	<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
DAO- Agriculture	<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
EE- Rural Works	<ul style="list-style-type: none"> • Routine developmental works but disaster proofing mechanism • 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	<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

	<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 • Immediate restoration of critical infrastructures
DTO-Telecom	<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
CDVO	<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
RTO/MVI	<ul style="list-style-type: none"> • All Circle Officers instructed to be in coordination with the local authority • Identification and Provision of vehicles for necessary emergency movement
DFO-	<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	<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	<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,

	<p>Fishery and Social Welfare will accompany Circle Officer & his staff during damage assessment</p> <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 Electricity in hospitals, administrative buildings
EE – PHED	<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 safe drinking water • Close watch on outbreak of jaundice and other water related diseases
DEO- School & Mass Education	<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 -15 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-terms 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;

Currently no such Recovery project is under implementation, DDMA will take appropriate action for implementation of Recovery project, if sanctioned in future, as per the guidance of the Govt.

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;

Currently no such Recovery project is under implementation, DDMA will take appropriate action for implementation of Recovery project, if sanctioned in future, as per the guidance of the Govt. Provision of Input subsidy, crop loss assistance, ex-gratia etc

Chapter -16 Financial Arrangements- NDRF, SDRF, CMRF etc

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 Subcommittee 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.

16.2 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 exigencies 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.

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 Volume-II for SDRF Items and Norms)

16.3 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.

16.3.1 Cases Eligible for Assistance under CMRF

16.3.1.1 Poor and persons in distress: Relief to the poor, including grant and aid (financial or otherwise) to persons in distress.

16.3.1.2 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.

16.3.1.3 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.

Chapter -17 lessons learnt & Documentation from the past disasters and its management.

The Disaster Management of Extremely Severe Cyclonic Storm (ESCS)-“FANI”.

About FANI: The Extremely Severe Cyclonic Storm “Fani” was the strongest tropical cyclone to strike Odisha since Phailin in 2013. The second named storm and the first Extremely Severe Cyclonic Storm of the 2019 North Indian Ocean cyclone season, Fani originated from a tropical depression that formed west of Sumatra in the Indian Ocean on 26 April, 2019. Vertical wind shear at first hindered the storm's development, but conditions became more favorable on 30 April, 2019. Fani rapidly intensified into an ESCS and reached its peak intensity on 2 May as a high-end Extremely Severe Cyclonic Storm—the equivalent of a high-end Category 4 major hurricane. Fani weakened before making landfall, and its convective structure rapidly degraded thereafter, degenerating into a remnant low on 4th May, and dissipating on the next day.

Prior to Fani's landfall, authorities in India and Bangladesh moved at least a million people each from areas within Fani's projected path onto higher ground, and into cyclone shelters, which is thought to have reduced the resultant death toll.[3] Fani killed at least 89 people in eastern India and Bangladesh. Fani caused about US\$1.81 billion in damages in both India and Bangladesh, mostly in Odisha. At least 72 people have been killed by Fani in India; 64 in Odisha, and 8 in two districts of Uttar Pradesh. There was no casualty in Dhenkanal District.

Disaster Management (preparedness & Mitigative) measures to tackle FANI by DDMA, Dhenkanal.

1. The District Level Preparatory meeting was held on 30.04.2019 under the chairmanship of the Collector-Cum-Chairperson, DDMA, Dhenkanal for Disaster Management of ESCS-FANI. All Deptt. Officers were aware of the action to be taken by respective Line Deptt. Officers at District, Sub-Division, Block, GP, Village level.
2. The Nodal Officer for each block was fixed to co-ordinate all activities.
3. Timely Dissemination of Information received from SRC Office/OSDMA to different level to take action.
4. ADM, Dhenkanal, PD-DRDA, Dhenkanal, District Emergency Officer, Collectorate Dhenkanal and DPO-OSDMA, Collectorate, Dhenkanal co-ordinated/monitored all activities with support of staff of Emergency Section.
5. All BDOs & EO, ULBs (Dhenkanal, Kamakhyanagar, Hindol, Bhuban) took proactive action to evacuate people in safe identified Shelter and free kitchen provision was made as per SDRF/NDRF norms following the minimum standard of relief as per NDMA norms to the evacuees at Temporary Shelters.
6. The District Administration took appropriate steps to curb black marketing of essential items and to maintain rational price of essential items. All Sub-Collectors, CSO, Dhenkanal, Police Officers took action accordingly.
7. The DEOC was operating 24x7 basis, the staff of different section was deployed to Emergency Section till 06.05.2019. The DEOC was regularly in touch with Block Administration as well as all GP Office to take stock on preparedness measures through direct telephonic Contact.

8. Special focus was given in inaccessible area of Kankadahad Block and prepositioning of all essential items was made available.
9. The District Level GO-NGO meeting was held on 02.05.2019 under the chairmanship of Collector-Cum-Chairperson,DDMA,Dhenkanal and requested all concerned Civil Society Organisations, Corporate Ogranisations to extend their co-operation for the Disaster Management of Impending Cyclonic Storm-FANI and accordingly they agreed to extend cooperation to District Administation in Disaster Management.
10. The Response Forces like one NDRF unit and local fire brigades were strategically positioned to tackle any type of eventualities.
11. The required resources like Vehicles, Bus, Trucks, Kerosene, DoL/PoL, Generator set, cash etc were ready as per the requirement.
12. The steps were taken by CDM&PHO, DSWO, Dhenkanal to admit all expecting mothers whose EDD coming under 01.05.2019 to 10.05.2019. Total 64 nos. of pregnant women were admitted in different Delivery Points for their safe delivery and treatment of Maternal & neonatal health issues.
13. Others as per requirement.

Impact &Incidence:

The Cyclonic Storm-FANI hit Odisha on 03.05.2019 in Puri district and its impact & incidence fall on 14 districts including Dhenkanal and accordingly 52 ULBs and 159 blocks affected, however, 5 districts(Puri,Khordha,Cuttack,Jagatsinghpur,Nayagarh) severely affected as per the notification of SRC Office/Govt.In Dhenkanal, 04 ULBs, all 8 blocks were affected.There was no human casualty in Dhenkanal District, however public &private properties, loss of livelihood were severely affected.Some of the photographs are placed herewith for information.

The DDMP, Volume - II basically covers the information of different quarters Annexures, Standard Operating Procedure (SOP) of NDRF on various disasters, IDRN resources, formats, Maps, IEC materials on disaster Management and others.