



Volume-I



DISTRICT DISASTER MANAGEMENT PLAN-2024-25

PREPARED BY

District Disaster MANAGEMENT AUTHORITY, NAYAGARH

with technical support from

odisha state disaster management authority



2025

District Disaster Management Plan Nayagarh, Odisha



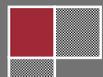
**DISTRICT DISASTER MANAGEMENT
PLAN**

FOR THE YEAR, 2024-25

**OF
NAYAGARH DISTRICT**

District Disaster Management Authority (DDMA)
Nayagarh, Odisha

6/11/2025



FOREWORD

We live in a fast changing global environment where peril & risk to human society is abounded. Disaster has the ability to maim & kill people. It destroys property & the environment & continue with lasting detrimental consequences. The enormity of the disaster problem today & in the foreseeable future calls for a more proactive approach that ensure effective disaster risk reduction at all levels towards sustainable development.

Nayagrath district is prone to a number of disasters, which includes flood, cyclone, drought & fire etc. Climate change is further aggravating the situation, as future disasters are likely to be more intensified. In order to manage the disaster risk, there is a need for systematic, long term & coordinated District Disaster Management Plan.

It gives me immense pleasure to introduce the revised Disaster Management Plan of Nayagarh for the year 2025. I learned that the DM plan has been prepared after a thorough analysis of the district's vulnerability towards various hazards, risk of getting exposure, strength to deal with and weaknesses to be bridged. The plan will indeed strengthen the District Disaster Management Authority & help the administration to lay intense stress on Preparedness, Capacity building & mitigating the impact to prevent loss of life and property as& when required.

The above plan incorporates different requirements for preparedness, response, capacity building, rescue and relief operation in the District. The Disaster Management Plan has been compiled after a series of meetings & consultations with different stakeholders acquainted with the ground realities of the district.

I would like to extend my wishes to all those rendered their sincere efforts & a special thanks to OSDMA for the technical support in preparing the DM plan.

Let's work together to make Nayagarh Disaster Resilient!



**Collector & District Magistrate,
Nayagarh**

Collector, Nayagarh

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Abbreviation

AAO	: Assistant Agriculture Officer
ADMO	: Additional District Medical Officer
ASHA	: Accredited Social Health Activist
ADM	: Additional District Magistrate
ADVO	: Additional District Veterinary Officer
BDMP	: Block Disaster Management Plan
BEO	: Block Education Officer
CDM&PHO	: Chief District Medical & Public Health Officer
CDVO	: Chief District Veterinary Officer
CSMMC	: Cyclone Shelter Management & Maintenance Committee
CSO	: Civil Supply Officer
DAO	: District Agriculture Officer
DDA	: Deputy Director Agriculture
DDMA	: District Disaster Management Authority
DDMP	: District Disaster Management Plan
DEO	: District Education Officer
DEOC	: District Emergency Operation Centre
DLCNC	: District Level Committee on Natural Calamities
DLO	: District Labour Officer
DM	: Disaster Management
DPM	: District Programme Manager
DPO (SSA)	: District Programme Officer, Sarva Shiksha Abhiyan
DRDA	: District Rural Development Agency
DSWO	: District Social Welfare Officer
EE	: Executive Engineer
FSMMC	: Flood Shelter Management & Maintenance Committee
HRVA	: Hazard Risk and Vulnerability Analysis
IDRN	: India Disaster Resource Network
LI	: Life Stock Inspector
LI	: Lift Irrigation
MCS	: Multipurpose Cyclone Shelter
MFS	: Multipurpose Flood Shelter
MI	: Marketing Inspector/ Minor Irrigation
MO	: Medical Officer
MVI	: Motor Vehicle Inspector
NGO	: Non Government Organisation
NDMA	: National Disaster Management Authority
NDRF	: National Disaster Response Force
NIDM	: National Institute of Disaster Management
ODRAF	: Odisha Disaster Rapid Action Force
OLIC	: Odisha Lift Irrigation Corporation
OSDMA	: Odisha State Disaster Management Authority
PHED	: Public Health Engineering Department
PHD	: Public Health Department
RD	: Rural Development
RTO	: Regional Transport Officer
SEC	: State Executive Committee
SEOC	: State Emergency Operation Centre
SLCNC	: State Level Committee on Natural Committees
SP	: Superintendent of Police

Chapter – 1

Odisha has a history of recurring natural disasters. While the coastal districts of Odisha are exposed to floods and cyclones, western Odisha is prone to acute droughts; a large section of the State is also prone to earthquakes. In addition, the State is also affected by disasters like heat waves, epidemics, forest fire, road accidents etc. The history of disasters substantiates the fact that about 80% of the State is prone to one or more forms of natural disasters.

Under the DM Act 2005, it is mandatory on the part of District Disaster Management Authority (DDMA) to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedient for prevention as well as mitigation of disasters. These processes are to be incorporated in the developmental plans of the different departments and preparedness to meet the disaster and relief, rescue and rehabilitation thereafter, so as to minimize the loss to be suffered by the communities and are to be documented so that it is handy and accessible to the general public.

Section 31 of Disaster Management Act 2005 (DM Act) makes it mandatory to have a disaster management plan for every district. DDMP shall include Hazard Vulnerability Capacity and Risk Assessment (HVCRA), prevention, mitigation, preparedness measures, response plan and procedures.

1.1 Aims and Objectives of the DDMP:

- i. To identify the areas vulnerable to major types of the hazards in the district.
- ii. To adopt proactive measures & engage in activities 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 make endeavours towards creating awareness among the people about disasters and its consequences and to capacitate & prepare them in advance to face such situations and to ensure their participation in the disaster mitigation plans.
- 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.
- viii. To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.
- x. To evolve information reporting and monitoring tools for preparedness, immediate response and damage assessment, keeping in view the socioeconomic conditions of urban and rural areas.
- xi. 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.
- xii. 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.
- xiii. To make the use of media in disaster management.
- xiv. 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.

1.2 Preparation and Approval of DDMP:

As defined in Section 30 of DM Act 2005, DDMA shall act as the 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 Collector being the Chairperson of DDMA will have to discuss in detail about the modalities & take necessary suggestions from members & Line Departments for preparation of a holistic plan in the meeting of DDMA held in the month of January. The DDMP has to be prepared by the end of February every year. After finalization; the District Authority shall send a copy of the District DM plan to the State Disaster Management Authority for approval.

The District Disaster Management Plan should be reviewed and updated annually.

1.3 Stakeholders and their responsibilities

At the District level, District Disaster Management Authority, with the District Collector designated as the Response Officer (RO), and other Line Departments at DHQ are responsible to deal with all phases of disaster management within district.

- Other technical institutions, community at large, local self-governments, NGOs etc. are also stakeholders of the District Disaster Management Plan.

The District Collector has the following duties:

- To facilitate and coordinate with local Government bodies to ensure that pre and post disaster management activities in the district are carried out.
- To assist community training, awareness programmes and the installation of emergency facilities with the support of local administration, non-governmental organizations and the private sector.
- To function as a leader of the team and take appropriate actions to smoothen the response and relief activities to minimize the adverse impact of disaster.
- To recommend the Special Relief Commissioner and State Government for declaration of disaster.

Local Authorities have the following duties:

- To provide assistance to the District Collector in disaster management activities.
- To ensure training of its officers and employees and maintenance of resources so as to be readily available for use, in the event of a disaster.
- To undertake capacity building measures and awareness and sensitization of the community
- To ensure that all construction projects under it conform to the standards and specifications laid down.
- Each department of the Government in a district shall prepare a disaster management plan for the district. The local authorities need to ensure that relief, rehabilitation and reconstruction activities in the affected area, within the district, are carried out.
- Trust / Organisations managing Places of Worships & Congregation
 - Each establishment / organisation identified as —critical infrastructure and key resource,
 - Including places of congregation in a district shall prepare —on-site and —off-site
 - Disaster management plan. Carry out mitigation, response, relief, rehabilitation and
 - Reconstruction activities.

Private Sector: (Community Groups and Volunteer Agencies)

- The private sector should be encouraged to ensure their active participation in the pre-disaster activities in alignment with the overall plan developed by the DDMA or the Collector.
- They should adhere to the relevant rules regarding prevention of disasters, as may be stipulated by relevant local authorities.
- As a part of CSR, undertake DRR projects in consultation with district collector for enhancing district's resilience.
- Citizen, Local community groups and voluntary agencies including NGOs normally help in prevention and mitigation activities under the overall direction and supervision of the DDMA or the Collector.

Chapter-2

District Profile

History & Location:

Nayagarh district, an administrative District of Odisha owes its name to its Hqrs. town Nayagarh. It was created in two phases. Firstly the ex-states of Nayagarh, Khandapara, Ranapur and Dasapalla were merged with the State of Orissa on 01.01.1948 enhancing the jurisdiction of Puri district by forming a separate sub-division with Hqrs. at Nayagarh. Secondly, on 02.10.1992 the Government of Orissa divided the erstwhile Puri district into three districts, namely, Puri, Khordha and Nayagarh. The present Nayagarh district came into existence on 01.04.1993 consisting of one sub-division i.e. Nayagarh sub-division. Considering the geographical location, the district of Nayagarh lies between 19°50' and 20°35' north latitude and 84°29' and 85° 30' east longitude. It is bounded on the north and northwest by Cuttack, Angul and Kandhamal districts, on the west by Ganjam district and on the east and south by the Khordha district. The area of the district is 3,890 sq. kms, which is 2.5% of the total area of the state occupying 18th rank based on area among the 30 districts of the state.

The District of Nayagarh celebrates many fairs and festivals round the year. Ravanapodi at Dasapalla, Pana Sanakranti of Dakhinakali at Nayagarh, Shivaratri of Sri Ladubaba at Sarankul, Magha Saptami at Kantilo, Ram Navami at Odagaon, Car Festival at Nayagarh are the main festivals of the district.

The district is educationally better off relatively. However, on other development indicators it needs substantial improvement in case of the villages. Demographically it has low growth rate and very low sex ratio. The sex ratio in 0-6 years is very disturbing as it indicates increasing disparity among the different gender groups. Due to possible low fertility and selective out migration, population of the district seem to be aging. While planning welfare services the demographic backdrop needs to be taken seriously. Special efforts are needed for the district to remove gender gap on different aspects and prevent the decline in number of women.

Administrative Setup:

The Collector and District Magistrate is the administrative head of the district. He is assisted by Addl. District Magistrates, Sub-Collector, Tahasildars, Block Development Officers, Deputy Collectors & Assistant Collectors for effective administration of the district. In addition to this, there are District level Officers of other departments who are under the administrative control of their respective departmental heads. The district consists of only one Sub-division Nayagarh which is under the administrative control of a Sub-Collector. For smooth running of revenue administration the district is divided into 8 Tahasils viz. Dasapalla, Khandapada, Nayagarh, Ranapur, Gania, Bhapur, Odagaon and Nuagaon and each tahasil is in charge of a Tahasildar. The developmental activities in rural areas of the district are being carried out through 8 Community Development Blocks and each Community Development Block is under the administrative control of a Block Development Officer.

In order to maintain law and order there are 13 Police Stations spreading over the district. Those are Dasapalla, Gania, Khandapada, Fategarh, Nayagarh, Nayagarh Sadar, Nuagaon, Odagaon, Sarankul, Ranapur, Banigochha, Itamati and Chandpur. There are five Urban Local Bodies (statutory towns) viz., Nayagarh Municipality, Khandapada NAC, Dasapalla NAC, Ranapur NAC & Odagaon NAC. To carry out developmental activities in Urban Local Bodies Executive Officers have been kept in charge. In addition to this, there are 5 Census towns viz.- Kantilo, Itamati, Odagaon, Rajasunakhala and Chandapur.

District at a Glance

Sl. No	Particulars	No.
1	No. of villages	1702
2	Total Population	963124
	a. Male	502819
	b. Female	460305
3	No. of Blocks	8
4	No. of Gram panchayat	194
5	No. of Tehsil	8
6	No. of RI circle	67
7	No. of Police Stations	13
8	No. of Fire Stations	8
9	No. of Urban Local Bodies	5
10	No. of Sub-centres	166
11	No. of PHC	37
12	No. of CHC	12
13	No. of District Head Quarter Hospital	1
14	No. of Veterinary hospitals	Hospital-1,Dispencery-16 Livestock centre-68
15	No. of Anganwadi Centres	1587
16	No. of ASHA	943
17	No. of Colleges	38
18	No. of Schools	2258
19	No. of Odisha Adarsh Vidyalaya	8
20	No. of Pump Water Supply system	493
21	a) No. of Tube Wells	13428
22	b) No. of tube well Functional/running	13384
22	c) No. of tube well dysfunctional	44
23	d) No. of tube well dysfunctional but repairable	NIL
24	e) No. of tube well having solar power	286
25	f) No. of Mega Water Supply	6
26	No of Permanent Shelter	17
27	No. of Temporary Shelters	399
29	No. of Night Shelters	01

Jurisdictional arrangements:-

There are 8 tahasils, 8 CD Blocks, 1702 villages, 4 NACs and 7 Census Towns in the district. Government of Odisha with an intention to extend the facility of revenue administration to the people. The total number of villages is 1702 under 194 GP out of which, 165 villages are uninhabited.

Climate & Rain fall:

This district is in the higher altitude than the sea level and above flood level. River Mahanadi flows in the Eastern boundary of the district. The District experiences tropical climate, with the summers being hot and the winter's cold. The maximum temperature that this district experiences is well above 40 deg C (during summers) and the minimum can be as low as 10 degree Celsius (during winters). Summers generally last from March to June and winters, from October to February. Rainfall is generally heavy during the monsoons, which occur during the months of July and August. South West monsoon is primarily responsible for the rainfall in this District. The district has witnessed an average of 1744.87 mm rainfall in the past five years. This district is situated in the hilly ranges in the West and its North Eastern parts have formed a small well cultivated fertile valleys intersected by small streams. On the basis of its topography, climate & sea types, the district comes under East and South Eastern coastal plain Agro-climatic Zone and all the eight Blocks are included in Raifed laterite Agro-Ecological Situation. The soil types are laterite, alluvial, red and mixed red and black. The climate of the district is sub-tropical hot and humid. The maximum and minimum relative humidity is 89.86% and 62.8%, respectively.

Geography:

The Nayagarh District is located towards the west of Puri district surrounded by Cuttack district in the North, Phulbani district in the West, Ganjam district in the South and Khurda district in the East. The District of Nayagarh lies between 19° 54' to 20° 32' North latitude and 84° 29' to 85° 27' East longitude. Nayagarh District Covering a geographical area of 3890 sq km. The district accounts for 2.5% of state's territory and shares 2.35% of the State population. This district is situated in the hilly ranges in the West and its North Eastern parts has formed a small well cultivated fertile valleys intersected by small streams. This district is in the higher altitude than the sea level and above flood level. The river Mahanadi flows in the Eastern boundary. The climate of the District carries a high temperature in hot months and cooler in winter.

Topography:

The district has a rectangular shape stretching from northwest to southeast direction. This district is situated in the hilly ranges in the West and its North Eastern parts has formed a small well cultivated fertile valleys intersected by small streams. River Mahanadi flows through the district and other small rivers like Kusumi, Brutanga, Malaguni, Kuanria, Dahuka and Buddhabuddhiani also flows through the district. These rivers make the district a fertile area. The land area under forest is 2,08,000 hectre in the district. The various minor forest produce of the district are Babool seed, Sikakai, Talamakhan, Polas, Chakunda, gill, Nageswear seed, Mahua, sesum, Siali, Mango Kernel, Karanja, Bena Chera, Neem seed and many others. Also teak, sal and other major trees are found in the forest of Nayagarh district.

River System:

There are 10 numbers of rivers with their tributaries flowing in this district. Floods, in this district normally occur from June to September due to heavy rainfall in the catchment areas of the rivers and release of water from Hirakud Dam through Mahanadi. Some of the major rivers are briefed below;

Mahanadi:

The Mahanadi enters this district at Kuturi of Badasilinga G.P. under Gania Block and takes an easterly course along Gania, Khandapara and Bhapur Blocks for about 55 Kms. The portion of its course from Boudh border to Baramul is known as Satakosia Gorge. The river here discharges a large volume of water in narrow channel flanked by high precipitous hills. During the flood,

Mahanadi overflows its banks and floods the adjoining G.Ps. of Gania, Khandapara and Bhapur Blocks.

Brutanga:

River Brutanga a tributary of river Mahanadi rises from the hilly areas of Phulbani and Bhanjanagar and carries large volumes of water to the river Mahanadi. During high flood in river Mahanadi the flood water of Brutanga River inundates the low lying areas of Gania Block being not discharged to river Mahanadi.

Kusumi:

It rises from Panchabati in Bhanjanagar Sub-Division of Ganjam District and takes its winding course. It meets with Duanta and Dahuka near Khandapara border and flows through Khandapara Tahasilareda and merges into Mahanadi near Kantilo. The excess water discharges from Budhabudhiani project combined with water of Duant and Lunijhara also cause flood in Nayagarh Block area.

Malaguni:

This river emanates from the hills of Ranpur Tahasil and takes its winding course and merges in Chilika Lake passing through the areas of Khurda District.

Other Rivers:

Budhabudhiani, Kuanria and Dahuka rivers where medium Irrigation projects have been constructed.

Demography: Out of the total Nayagarh population for 2011 census, 8.28 percent lives in urban regions of district. In total 79,738 people lives in urban areas of which males are 41,617 and females are 38,121. And 91.72 % population of Nayagarh districts lives in rural areas of villages. The total Nayagarh district population living in rural areas is 883,051 of which males and females are 461,019 and 422,032 respectively. The district of Nayagarh is constituted by 4 towns and 1699 villages spread over 8 C.D blocks. It has 963124 lakhs population of which male constitutes 52.17 percent and females 47.83 percent. The population growth rate during the last decade of the twentieth century is 1.03 annually. The district wise Census data is given below:-

Households and its distribution:

The total number of HHs is about 229170 spread over the rural and urban areas of the district. Thus the average household size is 5 persons per household. Of these around 14% HHs belong to ST, 18% HHs belong to Of the households 30.5 % are occupying permanent houses, 17.2 % semi permanent houses and 52.2 % temporary houses. The rural households are spread over 1,531 inhabited villages. Electric power supply is available in 64.53 percent of HHs.

Table No.-2.1

Sl. No	Total Number of Families/HH	Category		Category				Category	
		Rural	Urban	SC	ST	OBC	GEN	BPL	APL
1	229170	209053	20117	32956	14132	0	182082	111021	93141

Population and its composition:

The Scheduled Caste population of the district constitutes 14.04 percent and among them the major caste groups are Pan Pano(39.32percent), Dhoba etc. (12.27 percent) and Dewar (15.84 percent). The Scheduled Tribes account for 5.88 percent population of the district and Khond etc. (76.92 percent), Saoraetc. (8.06percent) and Shabar (7.77 percent) are the largest tribal groups in the district. Rural population constitutes 95.71 percent of total population. The population is highest in the Odagaon Block followed by Ranpur- and Nayagarh Blocks. Gania has the lowest population.

Table No.-2.2

Sl. No	Population			SC		ST		OBC	
	T	M	F	M	F	M	F	M	F
1	963124	502819	460305	69855	66538	29191	29500	NA	NA

Data Source:- Census 2011

[Details are at Table No. 03 of Volume II of the DDMP]

- Population density of the district and decadal growth of population- The density of population of the district is **248** people per sq. km against the State figure of **270**. The decadal growth of population (2001-2011) is **11.4%** against the State figure of **14%**.

Religion wise distribution of Population:

The major religions in the district are Hindu (**99.27** percent), Muslim (**0.55** percent), Christian (**0.04%**) and others (**0.13%**) indicating Hindu preponderance.

Table No.-2.3

Sl. No.	Total Population	Category				
		Hindu	Muslim	Christian	Sikh	Others
1	963124	956093 (99.27%)	5297 (0.55%)	385 (0.04%)	107 (0.01%)	1241(0.13%)

Data Source:- Census 2011

[Details are at Table No. 04 of Volume II of the DDMP]

Age Group:

The percentage of population in age **group 0-4** years is **8.72** percent and that of age group **5-14** years is **21.63** percent. The population in the working age group of **15-59** is **59.28** percent and old age group and age not stated group together constitute **10.36** percent. The age group wise distribution provides an idea of dependency burden and helps in planning of welfare services and business products. The district has **6.15** percent population enumerated in areas classified as urban. The major towns are **Nayagarh (Municipality), Khandapada (NAC), Dasapalla (NAC) & Ranpur (NAC)** having **14314, 8757, and 8735** in respective order.

Table No.-2.4

Sl. No.	Total Population	0-4years	5-14 years	15-59 years	60 years and above
1	963124	83984	208324	570940	99780

Sex Ratio:

Sex Ratio in urban region of Nayagarh district is **916** as per 2011 census data. Similarly child sex ratio in Nayagarh district was **855** in 2011 census. Child population (0-6) in urban region was 7,935 of which males and females were 4,324 and 3,611. This child population figure of Nayagarh district is 10.39 % of total urban population. Similarly in rural areas of Nayagarh district, sex ratio is **915** females per 1000 males. If child sex ratio data of Nayagarh district is considered, figure is **855** girls per 1000 boys. Child population in the age 0-6 is 98,936 in rural areas of which males were 53,275 and females were 45,661. The child population comprises **11.56** % of total rural population of Nayagarh district.

Table No.-2.5

1	Sex Ratio (Females per 1000 males):	915
2	Sex Ratio (0-6 Years):	855

Data Source:- Census 2011

Socio-Economic profile:

1) Workforce participation:

In Nayagarh district out of total population, 343,633 were engaged in work activities. 66.7% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 33.3% were involved in Marginal activity providing livelihood for less than 6 months. Of 343,633 workers engaged in Main Work, 22, 9076 were cultivators (owner or co-owner) while 120002 were Agricultural labourers. The total Work force of the district is 3, 43,633 according to 2011 Census & the Work force participation rate (WPR) for the district works out to be 35.7%. This is

higher than the corresponding WPR of 33.32% of the Census 2001. The WPR of males has increased to 2, 84,591 (82.8%) percent & the female WPR has increased to 59,042 (17.2%) percent. Dasapalla (44%) rank first in the WPR for total workers as well as female worker & the lowest WPR has been reported from Khandapada NAC (30%). The participation rate of women in the total workforce of the District is significantly lower (15.99 percent) than the state average of 31.54 percent. However, role of the women in agricultural activities and NTFP collection/processing is very significant. The overall position thus suggests for more efforts towards bringing gender equity. Building public awareness, social motivation, special schemes and provisions for women and girl child would help women to be in a more favorable position by 2020.

2) Land Holding Pattern:

Agricultural Census indicates that out of 1,59,675 operational holdings, nearly 87% belongs to the marginal farmers, 7% belongs to the share croppers, 2% belongs to small farmers, 4% belongs to the semi medium farmers & the rest are medium & large farmers. On the other hand marginal & small farmers are in possession of 62% land as operational holdings while medium & large farmers have 38% land. The average land holding of the district is 0.96 hect.

[Details are at Table No. 10 of Volume II of the DDMP]

3) Agriculture and Irrigation:

Agriculture being the main source of economy and subsistence for the rural people of Nayagarh district plays a critical role in the economy of the district and the livelihood of majority of its population. Agriculture is the mainstay of the district economy. Forestry, particularly bamboo harvesting and other NTFP collection like Siali leaf provides seasonal income to the people in some areas. On the basis of its topography, climate & sea types, the district comes under East and South Eastern coastal plain Agro-climatic Zone and all the eight Blocks are included in Raifed laterite Agro-Ecological Situation. The soil types are laterite, alluvial, red and mixed red and black. The gross cropped area of the district is 2, 27,000 hect with cropping intensity of 73%. The topography of the district is both flat and undulating. The important soil groups of the district are laterite, alluvial, red and mixed red and black soils. The soils are mostly acidic in reaction ranging from 74% to 88% across the blocks while neutral soils range from 11% to 24%. Alkaline soils are limited to 1 to 2%. The available nitrogen in the soils is low while availability of phosphorus and potassium is in medium range.

Rice, pulses, vegetables and sugarcane are important crops of the district. Horticultural crops like vegetables, tropical fruits and spices including flowers are important for the district as there is demand for such crops in high income group of urban area.

The total cultivable area of the district is 1, 34,001 Hect. & the total Net Sown area happens to be 1, 34,001 Hect. Out of that only 48,164 Hect are irrigated, which implies still 1, 34,001 Hect of cultivable area are non irrigated (Rain fed). This enhances the vulnerability of Drought situation in the district. Minor Irrigation projects have the major contribution towards irrigation (27668 Hect.) followed by Large & Medium Irrigation projects (10,348 Hect.), Lift Irrigation Points (18,840 Hect.) in the district. Nayagarh, Khandapada and Odagan Blocks have more than 35% of cultivated area under irrigation while other 5 Blocks have less than 35% under irrigation.

As per the history the agriculture sector has been worst affected in natural disasters like Cyclone, Flood, Drought, pest attack & unseasonal rain in the district. Ranging from 1999 super cyclone, 2013 Phailin, 2018 Title, 2019 Fani to Floods in 1995, 2000, 2001, 2002, 2003, 2006, 2008, 2009, 2011, 2012 & 2014, Drought in 1998, 2000, 2011, 2015 & 2017 Un-seasonal Cyclonic rain 2010, & 2017 and Pest attack in 2017 etc. Besides, COVID-19 pandemic in 2020 & 2021 have posed serious threat & challenge for the sector in the district.

4) Livestock: Livestock production is an important activity of landholders and landless families of the district. Cattle, buffalo, and goat, sheep and poultry birds are important sources of livestock in the district. Breed up gradation, disease control, and dairy development are important activities of Animal Resources Development Department in the district. There are 16 veterinary hospitals/dispensaries, 68 Livestock Aid Centers in the district. There are a total of 349252 numbers of cattle in the district, out of which 112144 are cows & buffaloes, 108849 are sheeps&goats, and 128229 bullocks, camels & horses. The ongoing programmes that are being implemented in the district are Mkuhyamantri Krushi Udyog Yojana, State Plan Schemes, RKVY Schemes, NAIP, NADCP etc. and fodder development along with training programmes. Annual production of milk, meat and eggs in the district are 14.61 '000 t. 1146 t and 41.12 lakh numbers respectively. The productivity of livestock in the district is much lower in the district when compared to state and national average as a result of which availability per capita is comparatively less.

In the past years during cyclone, drought & flood, close to 2 lakhs of cattle population have been affected so as the projects & production.

Table No. 2.6: Fisherman Community

Sl. No.	Name of the Block	Households	Population	No. of Boats/ Dugout Canoe etc.
1	Bhapur	738	2879	90
2	Ranpur	371	1471	1
3	Odogeon	344	1371	15
4	Nuagaon	280	1072	5
5	Daspalla	260	1031	112
6	Khandapada	539	2171	88
7	Gania	381	1540	71
8	Nayagarh	266	1081	-
9	TOTAL	3179	20216	382

Critical infrastructure

Anganwadi centers

The district has a total of 1575 Anganwadi centers in place including mini centres. Out of that 439 AWCs are having its own Pucca building with 83533 children enrolled as on today. The AWCs are currently taking care of 14444 numbers of pregnant & lactating mothers of the district.

Schools and other Educational Institutions

The district has 761 primary schools, 494 ME schools, 246 High schools, 63 colleges & 26 vocational/ ITI training institutes to ensure holistic development of the next generation. The teacher pupil ratio has been improved to 19.8 which show the promising character of the district towards rendering quality education. [Details are at Table No. 32 of Volume II of the DDMP.

Hospitals and Health Centers

Sl No.	Type of Institution	Number	Rented/Own
1	District HQ Hospital	01 (DHH, Nayagarh)	Own
2	District Post Martum Centre	01 (PPC, Nayagarh)	
3	Block Post Martum Centre	02 (Ranpur CHC and Khandapara CHC-under construction)	
4	Community Health Centers (CHC)	12 (Nuagadiasahi, Saranakul, Bhapur, Mahipur, Rajsunakhala, Gania, Badapandusar, Madhyakhanda, Dasapalla, Ranpur, Odagaon and Khandapada)	
6	Single Doctor PHC/PHC(N)	37	
7	Sub Centres	166	
8	Mobile Health Unit	16 (RBSK)	NRHM
9	Anganwadi Centers	1575	
	Ayurvedic		
10	Hospitals	0	
	Dispensaries	15	
	Homeopathy		
11	Hospitals	0	
	Dispensaries	20	
12	Other Hospital	BMGH, Chandapur (TB Hospital)	
13	AIDS Counseling & Testing Centers	5 ICTCs	
15	ASHA Gruha established	3 (DHH Nayagarh, Dasapalla CHC and Sarankul CHC)	
16	ANM Training Center, Dasapalla	1 (Dasapalla)	
17	No of ASHA sanctioned	957	
18	No of ASHA in-position	956	
19	RKS at DHH is formed	Yes	
20	Block RKS	8	
21	PHC-N	37	
22	No of MNGO	1	
23	No of FNGO	3	

Veterinary Hospitals

5) Livestock:

Livestock production is an important activity of landholders and landless families of the district. Cattle, buffalo, and goat, sheep and poultry birds are important sources of livestock in the district. Breed up gradation, disease control, and dairy development are important activities of Animal Resources Development Department in the district. There are 16 veterinary hospitals/dispensaries, 68 Livestock Aid Centers in the district. There are a total of 349252 numbers of cattle in the district, out of which 112144 are cows & buffaloes, 128229 are sheeps&goats, and 128229 bullocks, camels & horses. The ongoing programmes that are being implemented in the district are Mkuhyamantri Krushi Udyog Yojana, State Plan Schemes, RKVY Schemes, NAIP, NADCP etc. and fodder development along with trainingprogrammes. Annual production of milk, meat and eggs in the district are 29212MT, 6002.82 MT & 750.572 lakh numbers respectively. The productivity of livestock in the district is much lower in the district when compared to state and national average as a result of which availability per capita is comparatively less.

In the past years during cyclone, drought & flood, close to 2 lakhs of cattle population have been affected so as the projects & production.

Table No. 2.7-Livestock:

Sl . No.	Block/ ULBs	Livestock Population				Total	Requirem ent of Fodder in Qtls.
		Milch Animals		Draught Animals			
		Cow, Buffalo	Sheep, Goat	Camel, Horse, Bullock	Donkey, Pony etc		
1	Nayagarh	16976	9896	15746	0	42618	3569.08
2	Khandapa da	10915	13331	10949	0	35195	2586.33
3	Bhapur	13502	10966	15553	0	40021	3234.48
4	Gania	7304	11052	6755	0	25111	1737.46
5	Nuagaon	6927	9859	8295	0	25081	1817.97
6	Ranapur	14373	9616	16649	0	40638	3390.68
7	Odagaon	23092	20377	29158	0	72627	5836.31
8	Dasapalla	19055	23752	25154	0	67961	4862.99
	Total	112144	108849	128259	0	349252	27035.3

In order to ensure veterinary measures, the district has 16 veterinary hospitals & 68 Livestock Aid centres in different strategic locations of the district. A total number of 24 doctors & 52 livestock inspectors are appointed to undertake all possible veterinary measures. Additionally 8 mobile veterinary units have been deployed to ensure service delivery at the door step & also to ensure uninterrupted service during emergency situations.

Table No. 2.8- Veterinary Infrastructure and Human Resource:

Sl. No.	Block/ ULBs	Veterinary Hospitals	No. of Doctors	Livestock Aid Centers	No. of Livestock Inspectors	Others (to be specified) Mobile Veterinary Units
1	Nayagarh	2	5	13	11	1
2	Khandapada	2	1	6	5	1
3	Bhapur	1	1	4	2	1
4	Gania	1	2	5	2	1
5	Nuagaon	2	3	10	9	1
6	Ranapur	3	4	8	8	1
7	Odagaon	3	3	13	8	1
8	Dasapalla	2	3	9	7	1
	Total	16	22	68	52	8

Source:-CDVO, Nayagarh

Table No. 2.9 Employment and Livelihood:

S l. No.	Block	Agriculture	Agricultural Labourers	Other Daily Wage Labourers	Animal Husbandry (21-22 FY)	Fishery	Business	Services	Building & construction worker
1	Bhapur	8369	13888	NA	85	NA	NA	NA	10135
2	Dasapalla	13073	16251	NA	94	NA	NA	NA	13130
3	Gania	2513	4571	NA	87	NA	NA	NA	6527
4	Khandapada	7132	11571	NA	91	NA	NA	NA	15312
5	Nayagarh	11837	15991	NA	90	NA	NA	NA	19981
6	Nuagaon	10499	15311	NA	82	NA	NA	NA	10141
7	Odagaon	16030	23449	NA	87	NA	NA	NA	20501
8	Ranapur	13325	18970	NA	91	NA	NA	NA	19606
	Total	82778	120002						115333

Police and Fire Stations

Police Service

Nayagarh district has a rich culture of brotherhood & peace, hence there is hardly any evidence of law & order situation, communal riots reported in the past years. Yet to maintain the same the district has 13 police stations, 3 police sub-divisions, 13 police outposts in all block HQs & some other strategic locations. A total number of 596 Police personnel, 491 Gramarakhis & 325 Home guards are working in the district. Out of 26 police stations & outposts, a total of 25 VHF systems are installed in the district barring the Energy PS. The personnel rendering service are yet to be trained on search/ rescue, First Aid & Relief line clearance, which is major setback & may affect the quality of action during disaster situations.

Fire Service

The fire service department played a tangible role in disaster management. Wide range of actions & response, trained personnel, upgraded equipments etc makes them one of the strongest forces in disaster management. The district has a total of 8 fire stations situated in 8 blocks with 106 personnel trained on first-aid, relief line clearance, search & rescue etc. Through out the year the

department is undertaking mock drills exercises, orientation exercise with students on wide range of DM response etc.

Road and Railway network

The district has a strong Road network connected to almost all the GPs with all weather roads. The NH- 224 with a total length of 89 kms of passes through Ranpur, Nayagarh, Nuagaon&Daspalla blocks & act as one of the measure relief lines. Beside that a total length of 147.94 kms of State highways, 542 kms of district roads, 774.58 kms of rural roads, 3590.5 kms of GP/PS roads, 264.5 kms of forest roads etc boost to the life line of the people.

Beside these the district has just witnessed its long awaited dream to have connected to Railway Netwrok since 20 years. The district HQ is now connected to the Khordha Road railway station &18rganiza to connect to Dasapalla by end of 2023. As of now the district has a total of 79kms railway line connecting Khrodha road & district HQ.

Cyclone and Flood Shelters

It was felt that number of deaths were more in the affected areas during the Super Cyclone due to non-availability of safe shelter buildings in the coastal villages, which could have withstood the intensity of the cyclone and the storm surge. Only 23 cyclone shelters were constructed by Indian Red Cross before the super cyclone, wherein about 42000 people took shelter and saved their life. In the aftermath of the Super cyclone 1999, Government of Orissa decided to construct multipurpose cyclone shelters & multipurpose flood centres along the Orissa coast& other strategic locations to provide safe shelters to the vulnerable people during floods and cyclones.

The locations were identified through a scientific survey conducted by Indian Institute of Technology (IIT), Kharagpur with two major postulates i.e. No person will have to travel more than 2.25 km to get a safe shelter and without crossing a natural Barrier. The building is designed to withstand wind speed up to 300 kmph and moderate earthquakes. Its plinth is above High Flood line (HFL) and standing on a stilted floor, it can remain unaffected in storm surge up to the 1st floor level.

So far 4 MSCs & 13 MFCs have been constructed in the district to mitigate the impact of cyclone & flood at Ranpur, Gania, Odagaon, and Khandapada, Nayagarh&Bhapur blocks.

Rain gauge and Automatic Weather Stations

Therain-gauge station is located at every Block HQ & the Head Clerk of the concerned office is in-charge to correctly recording of rainfall data & transmission to the DEOC. A Rainfall Monitoring Portal <http://ori.nic.in/rainfall> has been developed with the help of National Informatics Centre (NIC) with provision of uploading the rainfall data at the Block level. Necessary user ID and password has been provided to all BDOs through the Collectors. The Officer-in-charge of each rain-gauge station ensures that rainfall data is uploaded in the said portal everyday irrespective of holidays latest by 11.00 A.M. User ID and password has also been provided to each Collector to access the data in the portal and make necessary correction, if any. Timely uploading of rainfall data in the portal in respect of all rain-gauge stations in the district is monitored at the district level by the District Emergency Officer. In case it is not possible to upload the rainfall data of a particular station or stations for some justified reason on a particular day, it is communicated to the office of Special Relief Commissioner forthwith through fax/ phone/ any other means and the portal is updated with such data as soon as possible.

Chapter- 3

Hazard, Vulnerability and Risk Assessment

Hazard, Risk, Vulnerability & Capacity Assessment (HRVCA) is concerned with collecting, organizing, & organizations information on a given community's vulnerability to hazards in a structured & meaningful way. This information then is then used to diagnose the key risks & existing capacities of the community, ultimately leading to activities aimed at reducing people's vulnerability to potential disasters & increasing their capacity to survive them & resume their lives.

HRVCA uses various participatory tools to gauge people's exposure to & capacity to resist natural hazards. It is an integral part of disaster preparedness & contributes to the creation of community-based disaster preparedness programmes at rural & urban grass-roots level. HRVCA enables local priorities to be identified & appropriate action taken to reduce disaster risk & assists in the design & development of programmes that are mutually supportive & responsive to the needs of the people most closely concerned.

The aims of HRVCA are to:

- Assess the risks & hazards facing communities & the communities' capacities for dealing with these.
- Involve communities, local authorities & humanitarian & development organizations in the assessment from the outset.
- Draw up action plans to prepare for & respond to the identified risk.
- Identify risk reduction activities to prevent or lessen the effects of expected hazards, risks & vulnerabilities.

HRVCA is complementary to national & sub-national risk, hazard, vulnerability & capacity mapping exercises that identify communities most at risk. A HRVCA is then undertaken in these communities to diagnose the specific areas of risk & vulnerability & determine the course of action can be taken to address them. To complete the circle, what a HRVCA unearths at the local level can provide a valuable indication of national & sub-national vulnerabilities & capacities.

Categorisation of Disasters

Water & climate related disasters:- Flood & drainage management, cyclones, tornadoes & hurricanes, Hailstorm, cloud burst, heat wave & cold wave, snow avalanches, droughts, sea erosion, thunder & lightning, tsunami

Geological related disasters: - Landslides & mudflows, earthquakes, dam failures/ dam bursts, minor fires

Chemical, industrial & nuclear related disasters: - Chemical & industrial disasters, nuclear disasters

Accident related disasters: - Forest fires, urban fires, mine flooding, Oil spills, major building collapse, serial bomb blasts, festival related disasters, electrical disasters & fires, air, road & rail accidents, boat capsizing, village fire.

Biological related disasters: - Biological disasters, pest attacks, cattle epidemics, food poisoning

The district is vulnerable to multiple hazards. Below given a table to understand the series of disasters occurred in the district since 1999.

Table no-3.1

Sl.No	Type of Natural Calamity	Year	Blocks Affected
1.	Super Cyclone & subsequent flood	1999	Ranpur and Bhapur worst affected. Daspalla, Gania, Khandapada, Nayagarh, Nuagaon and Odagaon (partly)
2	Flood	2000	Gania, Khandapara & Bhapur
3	Flood & Drought	2001	All Block & NACs of Nayagarh District
4	Flood	2002	Bhapur/Gania & Khandapara
5	Flood	2003	-do-
6	Flood	2005	-do-
7	Flood	2006	-do-
8	High Flood	2008	-do-
9	Flash Flood	2009	All Blocks of Nayagarh District
10	Unseasonal Cyclonic Rain during month of December	2010	-do-
11	Flood & Drought	2011	All Blocks & NACs
12	Flash Flood	2012	Nuagaon/Khandapara/Nayagarh
13	Phailin & Subsequent Flood-2013	2013	All Blocks/NACs
14	Flood-2014	2014	Gania, Khandapara & Bhapur
15	Drought-2015	2015	All Blocks/ULBs
16	Drought-2017, Unseasonal Rain & Pest Attack-2017	2017	All Blocks/ULBs
17	Flood -2018 (during July) (Titil during October)	2018	All Blocks/ULBs
18	FANI-2019 (During May)	2019	All Blocks/ULBs
19	COVID-19	2020	All Blocks/ULBs
20	Flood-2020 (during August)	2020	All Blocks/ULBs
21	COVID-19	2021	All Blocks/ULBs
22	Cyclonic Heavy Rain (JAWAD)	2021	Nayagarh, Nuagaon, Odagaon & Ranpur
23	Flood	2022	Gania, Bhapur & Khandapada
24	Flood	2023	Gania, Bhapur & Khandapada
25	Heavy Rain/Flood	2024	All Blocks/ULBs

Hazard profile of the District

Nayagarh is vulnerable to multiple disasters. Due to its sub-tropical littoral location, the district is prone to flood, tropical cyclone & drought. In major parts of Odisha, seismicity is moderately high. As per the recent categorization, the country has been divided into four zones (II, III, IV and V) and Nayagarh falls in Zone II i.e. low damage risk zone & at times the district has been shaken quite often though the damage has been negligible. Besides these natural hazards, human induced disasters such as accidents, stampede, fire, etc, vector borne disasters such as epidemics, animal diseases and pest attacks and industrial / chemical disasters add to human suffering. Its population density & housing pattern making it vulnerable to fire accidents also.

For a district like Nayagr, with over 80% percent of its population relying directly & indirectly on agriculture for their livelihoods, the impact of extreme events is critical. People often live in areas of high ecological vulnerability & relatively low levels of resource productivity & have limited & insecure rights over productive natural resources. These combined factors are significant forces

contributing to vulnerability to natural disaster. In the past two decades our District has been repeatedly battered by successive regular monsoons, high flooding & relative drought. Currently as much as 60% of Nayagarh is drought-prone & 40% is flood prone. For example the district has been hit with a loss of close to 1000 crores of assets, crop, infrastructure etc in the past two decades.

Some of the disasters that frequently occur/ likely to occur in the district are given below:-

Tropical Cyclones (TCs) are one of the natural hazards that affect India almost every year causing huge losses of lives and property. Among all the coastal states of India Odisha is more prone to cyclone where nearly one third of cyclones of east coast visits the state Odisha. Nayagarh is among the 12 districts of Odisha vulnerable to cyclone that resulted in loss of life, property etc in the past years.

Flood:- Amongst all the natural disasters afflicting the district, flood is the most frequent and devastating. Almost 80% of the annual rainfall is concentrated over a short monsoon period of 3 months. In Nayagarh, damages due to flood are caused mainly by the Mahanadi. The problem is further accentuated when flood synchronizes with high tide. The silt deposited constantly by the river in the delta area raises the bed levels and the rivers often overflow their banks or break through new channels causing heavy damages. Poor socioeconomic condition of the majority living in the flood plains, and the local economy being primarily dependent on the monsoon paddy add to the vulnerability of the community.

Drought:- The impact of the drought is mainly felt in agriculture, resulting in loss of production. Besides crop loss, droughts also create problems of irrigation and drinking water, loss of employment, scarcity of essential commodities, migration of farm labourers, increasing rural indebtedness, land and asset alienation, etc. People who get worst affected are small and marginal farmers, agricultural labourers.

Drinking water crisis:- Climatic changes, decrease in tree cover, depletion of ground water resources and increase in day temperature especially during the months of May and June, have made the district vulnerable to heat wave. In 1998, the district witnessed a severe heat wave, which claimed over 125 lives. The heat wave condition in Odisha is becoming increasingly prominent and regular. The main risk due to heat wave is heat stroke. After the large number of deaths in 1998, the main causal factor was identified as lack of awareness and not following certain do's and don'ts during heat wave conditions. Though extensive awareness campaigns have reduced large number of fatalities post 1998, poor socio-economic conditions, lack of enforcement and adoption of good working conditions during the summer months remain the main risks of heat wave.

Fire accidents are quite common, especially in rural areas because of the following factors. Individual housing with roof of straw and storage of straw/ hay in close proximity of the house, close proximity of houses in many areas leading to spread of fire and wider destruction, lack of availability of adequate water and nil or poor equipment for fire fighting especially in rural areas and small towns, lack of awareness of basic do's and don'ts when people live in houses that use inflammable materials & human error or carelessness.

Forest fire:- The number of forest fires varies from year to year, and quite a long time may elapse between forest fires that are considered to be large. Climatic conditions are the factor that has greatest impact on the extent of forest fires. The forest is most vulnerable in spring and summer seasons when there are long dry spells. Weather conditions such as precipitation and wind, as well as the layout of the terrain, are important factors in determining the size of the forest fire.

Table-3.2

Sl. No.	Disaster / Incident	No. of incidents during (2006-2022)	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage to Infrastructure				Damage and loss of Crop Area (in Hectares)
							School/AWC Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	
Disasters as approved under SDRF/ NDRF Guidelines.											
1	Flood	06	01	317454	71 (Affected 149048)	8774	2409 (Public utilities including infrastructure, road etc)				27365
2	Drought	03	00	451910	00	00	00	00	00	00	225508
3	Fire	737	68	7645	1663	00	00	00	00	00	00
4	Hail Storm	01	01	00	00	00	00	00	00	00	00
5	Cyclone	03	03	984000	85	46613	415	00	2201	53 nos	94290
6	Earthquake	-	-	-	-	-	-	-	-	-	-
7	Tsunami	-	-	-	-	-	-	-	-	-	-
8	Landslide	-	-	-	-	-	-	-	-	-	-
9	Avalanche	-	-	-	-	-	-	-	-	-	-
10	Cloud Burst	-	-	-	-	-	-	-	-	-	-
11	Paste Attack	3	0	14565 farmers affected	0	0	0	0	0	0	2877.77 hect-
12	Cold Wave	-	-	-	-	-	-	-	-	-	-
State Specific Disasters as per Notification No.1936 Dt. 01.06.2015											
13	Lightning	60	79	00	00	00	00	00	00	00	00
14	Heat wave	06	18	962789	128259	Nil	Nil	Nil	Nil	Nil	Nil
15	Whirl wind	01	01	00	00	00	00	00	00	00	00
16	Tornado	-	-	-	-	-	-	-	-	-	-
17	Heavy Rain	02	00	256845	00	3432	09 (Public utilities including infrastructure, road etc)				136586

18	Boat Accidents (Other than during Flood)	02	02	00	00	00	00	00	00	00	00
19	Drowning (Other than during Flood)	08	08	00	00	00	00	00	00	00	00
20	Snake Bite(Other than during Flood)	12	12	00	00	00	00	00	00	00	00

Religious gathering:-The district witnesses a series of social, religious gathering though out the year in different places. The number of people in each gathering ranges from 5000-10000 making it vulnerable to stampede & loss of life.

Heat Wave:-Heat Waves in Nayagarh in the year 1998 killed 125 people. In the year 1999, the state implemented first HAP in the state. Despite having HAP in place the district experienced another massive Heat Wave casualty in the year 2005 by losing 22 lives. There could have been many possible reasons, which are going to be exacerbated in coming years with growing urbanization, population and industrialization. The problem is further going to be magnified with ongoing climate change. According to estimates, the scenario is likely to become aggravated in coming years³, and the World Meteorological Organization (WMO) predicts heat related fatalities will double in less than 20 years. This demands the policy makers and researchers to revisit and strengthen the current HAP.

Road accident: - Road accidents are major challenges to be handled with care. The district is highly vulnerable to road accidents. The figures are however not complete since each and every accident case is not reported at the police stations. Thus, the actual number of road accident cases may be higher. Road transport acts as the principal mode of transportation due to the absence of railway network. The increase in the number of vehicles has also increased the unsafe practices and risks of road users.

Earthquake:-In major parts of Odisha, seismicity is moderately high. As per the recent categorization, the country has been divided into four zones (II,III, IV and V) and Nayagarh falls in Zone II i.e. low damage risk zone.

An epidemic (from Greek ἐπί *epi* "upon or above" and δῆμος *demos* "people") is the rapid spread of infectious disease to a large number of people in a given population within a short period of time, usually two weeks or less. For example, in meningococcal infections, an attack rate in excess of 15 cases per 100,000 people for two consecutive weeks is considered an epidemic.

Epidemics of infectious disease are generally caused by several factors including a change in the ecology of the host population (e.g. increased stress or increase in the density of a vector species), a genetic change in the pathogen reservoir or the introduction of an emerging pathogen to a host population (by movement of pathogen or host). Generally, an epidemic occurs when host

immunity to either an established pathogen or newly emerging novel pathogen is suddenly reduced below that found in the endemic equilibrium and the transmission threshold is exceeded. Cholera, Dengue, Chickengunya, Malaria, Plague etc are some of the major epidemic outbreaks occurred in India in the last decade.

Major Disasters/ Incidents during 2006-2023

A brief profile of major disasters/ incidents occurred in the district during last 17 years (2006 to 2022) is given below. It contains the disasters approved under SDRF/ NDRF guidelines as well as State specific disasters under notification of the Government.

Table No. : 9

A. Major Disasters/ Incidents in the District during 2019 to 2024:

The Table given below only comprises of the disasters affected the district in 2019-2023

FOR THE YEAR, 2019 (Table-3.3)

Sl. No.	Disaster/ Incident	No. of incidents during 2019	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage to Infrastructure				Damage and loss of Crop Area (in Hectares)
							AWC/ School Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	
2	Fire	02	00	9	0	2	00	00	00	00	00
1	Lightning	02	02	02	0	0	00	00	00	00	00
3	Drowning	12	12	12	0	0	00	00	00	00	00
4	Snake bite	09	09	09	0	0	00	00	00	00	00
5	Heat wave	01	01	01	0	0	00	00	00	00	00

FOR THE YEAR, 2020 Table-3.4

Sl. No.	Disaster/ Incident	No. of incidents during 2020	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage to Infrastructure				Damage and loss of Crop Area (in Hectares)
							AWC/ School Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	
2	Fire	01	00	5	0	01	00	00	00	00	00
1	Lightening	04	04	04	0	0	00	00	00	00	00
3	Drowning	21	21	21	0	0	00	00	00	00	00
4	Snake bite	20	20	20	0	0	00	00	00	00	00
5	Heat wave	0	0	0	0	0	00	00	00	00	00

FOR THE YEAR, 2021 Table-3.5

Sl. No.	Disaster/ Incident	No. of	No. of Deaths	Affected Population	Livestock	Houses	Damage to Infrastructure	Damage and loss
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		incidents during 20		on	Loss	Damaged	AWC/School Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	of Crop Area (in Hectares)
2	Fire	02	00	10	0	2	00	00	00	00	00
1	Lightening	05	05	05	0	0	00	00	00	00	00
3	Drowning	10	10	10	0	0	00	00	00	00	00
4	Snake bite	10	10	10	0	0	00	00	00	00	00
5	Heat wave	0	0	0	0	0	00	00	00	00	00

COVID-19 DeathTable-3.6

Sl. No.	Year	No of cases	Assistance	Audited	Non audited
1	2021-22	547	Rs2,73,500	213	334

FOR THE YEAR, 2022Table-3.7

Sl. No.	Disaster/ Incident	No. of incidents during 20	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage to Infrastructure				Damage and loss of Crop Area (in Hectares)
							AWC/School Buildings	Hospitals	Road in Km.	Other Critical Infrastructure	
2	Fire	01	01	10	0	2	00	00	00	00	00
1	Lightening	03	03	18	0	0	00	00	00	00	00
3	Drowning	34	34	124	0	0	00	00	00	00	00
4	Snake bite	17	17	102	0	0	00	00	00	00	00
5	Heat wave	02	02	12	0	0	00	00	00	00	00

Table-3.8

Sl no.	Incident	No of incedient block wise 2023								Total
		Bhapur	Khndapada	Gania	Naya garh	Daspalla	Ranpur	Odagaon	Nuagaon	
1	Fire	00	01	02	00	00	00	01	00	4
2	Lightning	03	00	00	00	01	02	03	00	9
3	Drowning	04	02	00	06	10	09	09	06	46
4	Snake bite	02	01	01	00	02	06	02	03	17
5	Heat wave	00	00	00	00	00	00	00	00	0
6	Whirl wind	00	01	01	00	00	00	00	00	2
Total -		09	05	04	06	13	17	15	09	78

Table-3.9

Sl no.	Incident	No of incedient block wise 2024								Total
		Bhapur	Khndapada	Gania	Naya garh	Daspalla	Ranpur	Odagaon	Nuagaon	

1	Fire	00	01	00	00	00	00	00	01	2
2	Lightning	01	01	01	00	00	00	00	01	4
3	Drowning	03	06	01	05	09	04	06	03	37
4	Snake bite	03	00	00	02	03	03	06	00	17
5	Heat wave	01	01	00	00	00	00	00	00	2
6	Whirl wind	00	00	01	00	00	00	00	00	1
Total -		08	09	02	07	12	07	12	06	63

Vulnerability and Risk Assessment related to disasters:

1. Cyclone

Cyclones come in four types: tropical disturbances, tropical depressions, tropical storms and hurricanes. Cyclones are classified according to their size and strength; wind speed is the primary differentiating factor. These **storms** form in the tropics, and they may arise in the Northern and Southern hemisphere alike. People call these storms by other names, such as typhoons or cyclones, depending on where they occur. The scientific term for all these storms is tropical cyclone.

Tropical cyclones are like giant engines that use warm, moist air as fuel. That is why they form only over warm ocean waters near the equator. Cyclones, also known as **hurricanes or typhoons**, are primarily caused by high ocean temperatures, broad-scale wind systems and clustered thunderstorms, which liberate the heat energy from the ocean surface and transfer it to the cyclone. Without warm surface water, the storm cannot survive. A tropical cyclone can dissipate when it moves over waters significantly below 26.5 °C (79.7 °F). This will cause the storm to lose its tropical characteristics, such as a warm core with thunderstorms near the center, and become a remnant low-pressure area.

Effects

The main effects of tropical cyclones include heavy rain, strong wind, large storm surges at landfall, and tornadoes. The destruction from a tropical cyclone depends mainly on its intensity, its size, and its location. Tropical Cyclones are dangerous because they produce destructive winds, heavy rainfall with flooding and damaging storm surges that can cause inundation of low-lying coastal areas.

With the current trend of the climatic variability accompanied with global warming and increased green house effects, the coastal areas of Odisha are likely to be affected by many more extreme cyclonic disturbances and low pressure systems of greater magnitude. Although the total number of cyclonic disturbances is more along the Odisha coast, as a natural hazard the severe storms are of greater public concern in view of their large scale damage potentiality, loss of life and property. By taking together the storms and severe storms which mostly create havoc and incur greater amount of damage, the Odisha Coastal Zone is twice more vulnerable in comparison to the other eastern states.

Cyclones generally occur in the district before and after the rainy season. October is the most crucial month for the Odisha coast as well as for the district. The other months in which storms affect the district with lesser frequencies are May, September and November. Cyclones ordinarily

bring in their trail heavy rains causing severe floods, tidal disasters and saline inundation. Disasters of this kind cause heavy mortality, untold suffering and damage to private and public properties. In view of potential the cyclones carry for damage to life and property, it calls for undertaking preventive and preparedness measures to encounter such possible calamity.

Cyclone &Nayagarh

The district is adjacent to the coastal districts like Ganjam &Khordha; hence all the blocks & ULBs of the district are vulnerable to cyclone. Although as per the cyclone vulnerability map of Odisha Ranpur, Odagaon, Nuagaon&Dasapalla blocks are more vulnerable. The district becomes more vulnerable to cyclone due to poor socio economic conditions, weak housing (more number of thatched, Kutcha & Semi pucca houses), large settlements, depletion of tree shelterbelts, and poor road communication to many villages. The district has witnessed severe loss due to cyclones occurred in 1999 & 2013. Although there was rain & wind during Hudhud in 2014 but no loss of property, crop & infrastructures were reported. Similarly during the year, 2018 this district was affected by Titli” and recent affected by ESCS FANI occurred on 03.5.2019.

The 1999 super cyclone hit the district hard with heavy rainfall & wind wrought heavy damage to agriculture, infrastructure, crops, properties etc. An estimated 776784 population of 8 blocks & 2 ULBs, 83315 hecta of agriculture land, 27030617 qtls of crops yield, 79 crores of public properties, 30 crores of private properties & 12284 numbers of houses were damaged. This proved to be a major setback for the district as the major contribution of economy is agriculture oriented.

The same was repeated in the Phailin subsequent flood occurred in 2013. Though the effect was less yet it affected all the 8 blocks & population of the district. Due to preparatory measures the district could able to evacuate 104863 numbers of people from villages situated at vulnerable locations & relocated them to temporary shelters. A total number of 70 free kitchens were operated to feed the affected during the course of cyclone. An estimated 94290 hecta of agriculture land, 46613 houses were damaged with 3 deceased & 180000 farmers severely affected. A total of 244.9 cores of public & private proprieties were damaged, which again happened to be a major setback for the district. Below given a block wise detail of GPs, Villages, Populations& Infrastructures vulnerable to cyclone in the district.

Table No. 3.10: Cyclone vulnerable areas of the district.

Sl. No.	Name of the Block/ ULB	No. of susceptible Gram Panchayats	No. of susceptible Villages/ Wards	Vulnerable Population in Nos.	Milch and Draught animals	Houses	Vulnerable Infrastructure			
							School/ AWC Buildings	Hospitals	Roads (in Km)	Other Critical Infrastructure
1	Bhapur	20	119	105532	42618	24731	22	-	20	Culverts
2	Dasapalla	20	342	85437	35195	22542	44	-	102	-
3	Gania	8	114	38506	40021	9247	34	-	92	-
4	Khandapada	22	196	107260	25111	25316	44	-	89	-
5	Nayagarh	29	152	154122	42618	35511	33	-	45	-
6	Nuagaon	22	236	93253	40638	23647	85	-	110	-
7	Odagaon	07	58	24917	18106	6151	72	9	135	
8	Ranpur	37	242	154509	67961	37613	98	7	49	-
9	Khandapada NAC	NA	1	1043	-	80	-	-	1.5	-
10	Dasapilla NAC	NA	9	8700	-	2350	2	-	65	-
11	Nayagarh NAC	NA	13	18471	-	80	-	-	1.5	-
12	Ranpur NAC	NA	15	14715	-	1710	14	-	26.91	-
13	Odagaon NAC	NA	NA	NA	NA	NA	NA	NA	NA	-
	Total	196	1497	806465	312268	188978	448		736.91	-

Electrical Infrastructure and cyclone Vulnerability:

The below given table indicates the electrical infrastructure vulnerable towards cyclone in the district. During the 2013 Phailin, the State was hit with a loss of Rs 1000 crore of power infrastructure & quite a significant number of distributing transformers, electrical lines, poles & high tension towers were damaged & as a result the district was in dark for 7 days. As per CESU, 40% of the villages are fully electrified, 56% villages are partially electrified & close 4% are un-electrified. This indicates that the power supply has been significantly improved in the past days. But if we calculate the number of households, it is evident that still 26% HHs are yet to be electrified. Below given the table indicates the electrical infrastructures vulnerable to cyclone. Since the entire district is cyclone prone, almost all the infrastructures are vulnerable to cyclone. **Table No. 3.11**

Sl No.	Name of the Block/ ULB	No. of Grid Stations	No. of 33/11 KV Substations	No. of Distributing Transformers			Conductor/ Electrical lines-11 KV or less (length in Kms.)	No. of Poles	No. of High Tension Towers	High Tension lines above 11 KV (length in Kms.)
				11 KV or Less	11 KV < and <60KV	60 KV and above				
1	Bhapur	1	3	503	2	nil	464.3	6980	0	19
2	Dasapalla		1	525	1	nil	630.56	9458	0	18.1
3	Gania		2	386	1	nil	421.2	6318	0	34.4
4	Khandapada		3	602	1	nil	584.8	8772	0	42
5	Nayagarh		5	795	2	nil	694.5	10418	62	21.74
6	Nuagaon		3	1250	1	nil	1001.4	15021	0	33
7	Odagaon		5	1194	3	nil	1766.7	26501	0	53
8	Ranpur		2	780	2	nil	420.5	6308	0	25
9	Total		24	6035	13	nil	5983.96	89776	62	246.24

Data source: - CESU, Nayagarh

Drinking water facility in the Cyclone prone areas:

The table indicates the drinking water facilities available in the district. Due to river systems mainly Mahanadi, quite a significant number of blockshave been benefitted in getting drinking water facilities & water for irrigation. During the cyclone & cyclonic wind/ storm, it is getting difficult to access the drinking water facilities available, so just to mitigate the impact, the district has started to promote individual pipe connections to HHs of villages likely to be worst affected by cyclone & scarcity of drinking water during summer. Since the entire district is cyclone prone, hence almost all the drinking water facilities are likely to be vulnerable during the occurrence of cyclone.

Table No.3.12:

Sl. No.	Name of the Block/ ULB	Total No. of Tube Wells	No. Sanitary Wells	PWS Schemes				Other Drinking Water Sources If any
				Total No.	Length in Mtrs.	No. of Over Head tanks	No. of Stand Points	
3	Khandapada	190	Nil	1	14790	1	105	Production wells

4	Nayagarh	230	Nil	1	46000	Nil	51	Prduction wells
5	Daspalla	221	Nil	1	34650	1	183	Prduction wells
6	Ranpur	191	Nil	1	9800	1	116	Prduction wells

Data source:- RWSS & BDO

2. Flood

Flood is one of the natural disasters that create enormous havoc and myriad miseries in the affected area. It causes loss of life, disruption of human activities, damage to properties, agricultural crops and health hazard. During the last few monsoon seasons almost all the districts of Odisha have witnessed flood disaster and suffered a lot from it. It has become a routine that severe floods in the Mahanadi river system devastates the downstream areas particularly the Mahanadi Delta area in the coastal tract of Odisha. This affects the districts like Jagatsingpur, Kendrapada, Puri, Boudh, Subarnapur, Cuttack, Nayagarh and Sambalpur. On analysis of the past and the present flood scenarios of Odisha, it is found that the Mahanadi River causes the maximum numbers of floods with high magnitude and massive loss factors. The Mahanadi river transects Odisha along the central graben area (Mahanadi Graben) running in EW direction. The coastal plain that constitutes the Mahanadi delta in the old stage, the segment of eastern sector of the Basin receives the maximum threshold of flood devastation.

Heavy rainfall during monsoon causes floods in the rivers. In Orissa, rivers such as the Mahanadi, Subarnarekha, Brahmani, Baitarani, Rushikulya, Vansadhara and their many tributaries and branches flowing through the State expose vast areas to floods. Flood is the major concern for Odisha as well as for Nayagarh, as Mahanadi, the largest perennial river of Odisha passes through the district touching 3 blocks namely Gania, Khandapada & Bhapur. Additionally the district has 9 more river systems namely Kusumi, Dahuka, Brutanga, Kuanria, Khalala, Duanta, Lunijhara & Kaligiri, which significantly contribute towards the flood situation in Nayagarh. All these rivers are rain dependent. The rainy season covers the period from the 15th of June till 15th of October and maximum precipitation is during the months of June to September. The average annual normal rainfall of the district is 1,3541.1 mm. Heavy precipitation within short period causes flooding as these natural channels can hardly hold the large volume of water which passes through these during the aforesaid period resulting in widespread inundation that calls for effective pre-flood measures, flood relief operations and post flood arrangements. Floods are caused by three factors – Cloud burst, Monsoon depression and Tropical cyclones. Of late, deforestation and soil erosion are also causing floods.

Cloud Burst

Cloud-bursts means highly concentrated rainfall in a particular area, which is far above normal. This usually happens in many places of India.

Monsoon Depression

India depends for its rain on both the monsoons, south-western and north-eastern. The south-west monsoons start in May and continue up to the end of September. The north-east monsoon starts in November and continues right up to the middle of January. Moreover, depressions occur both in the Bay of Bengal and in the Arabian Sea. They are more frequent in the Bay of Bengal. At least twenty depressions occur every year between May and September in different parts of the Bay of Bengal. These depressions result in heavy rains in coastal areas of Andhra Pradesh, Orissa, Bengal, Bihar and Uttar Pradesh. The depressions caused in the Arabian sea help rains in Gujarat, Rajasthan and the South Himalayan parts.

Tropical Cyclones

The main effects of tropical cyclones include heavy rain, strong wind, large storm surges at landfall, and tornadoes. The destruction from a tropical cyclone depends mainly on its intensity, its size, and its location. The thunderstorm activity in a tropical cyclone produces intense rainfall, potentially resulting in flooding, mudslides, and landslides. Inland areas are particularly vulnerable to freshwater flooding, due to residents not preparing adequately

Flood & Nayagarh

Gania, Khandapada, Nayagarh, Bhapur, Odagaon & Nuagaon are the flood affected blocks of the district. Gania still stands as the worst flood affected block due to the fact that 6 GPs out of 8 are vulnerable to flood. Mahanadi happens to be the flood causing agent for Gania, Khandapad & Bhapur blocks. People die; livestock perish; houses are washed away; paddy and other crops are lost and roads and bridges are damaged. The floods of 2003, 2006, 2008, 2009 & 2013 post Phailin flood in the district were particularly severe as properties worth crores of rupees were destroyed/ damaged in the floods.

The district was ravaged by floods in June and September during the year 2008. The floods that occurred in June 2008 and in September 2008 are unprecedented. The floods of June and September 2008 were calamities of rare severity. The flood in September '08 brought havoc in district due to heavy rainfall in the upper as well as in lower catchments of the Mahanadi River System resulting out of the effect of a deep depression in the Bay of Bengal from 16th to 21st September 2008.

The district has witnessed 9 deceased, more than 3 lakhs populations affected, 71 cattle deceased, more than 2 lakhs of livestock affected, close to 10000 households damaged/ destroyed, close to 3000 public utilities (roads, infrastructures etc) damaged in the afore said floods all together.

A list of the vulnerable points of the district is given below:-

Table no-3.13

Sl No	Name of the Block	Name of the River/ Embankment	Location Point
1	Khandapara	Mahanadi Right embankment	Sidhamula
2	-do-	-do-	Banapur to Kantilo
3	-do-	-do-	Patharchakada
4	-do-	Kuanria Right embankment	Gopinathpur
5	-do-	-do-	Duargaon
6	Bhapur	Mahanadi Right embankment	Padmabati (Seulaghai)
7	Bhapur	Do	Gudupada
8	Nuagaon	Kuanria Right embankment	Jagarnathprasad
9	-do-	Kuanria Right embankment	Sikrida
10	Daspalla	Brutanga left embankment	Kimbhirakhani
11	Dasapalla	Kuanria left embt.	Madhya Khanda
12	Nayagarh	Kusumi Right embankment	Baunsiapada
13	-do-	-do-	Sarapada
14	-do-	Dahuka Left embankment From DD Weir to M.D. Road	Kridaspur
15	-do-	Lunijhara Right embankment.	Khedaberana
16	-do-	-do-	Sanapandusara
17	-do-	Lunijhara Left embankment	Champatipur
18	-do-	Duanta Left embankment	Deuli

The table given below indicates the number of villages, GPs, Populations, Cattles & other critical infrastructure vulnerable towards Flood in the district. Analysing the history of floods, the table has been developed, although the district has already started taking mitigation measures for low lying areas by strengthening of road networks, infrastructures & embankments etc.

Table no-3.14 :Flood vulnerable areas of the district in general

Sl. No.	Name of the Block/ ULB	No. of susceptible Gram	No. of susceptible villages/	Population in Nos.	Milch and Draught	Houses	Vulnerable Infrastructure			
							School/ AWC Buildings	Hospitals	Roads (in Km)	Other Critical Infrastructure
1	Bhapur	10	23	28869	8237	6710	49	1	34	4 culverts
2	Gania	6	95	30931	32998	7384	75	5	70	-
3	Khandapada	13	37	38249	4997	8911	93	2	43.5	-
4	Nayagarh	13	33	43363	12056	10479	83	-		-
5	Nuagaon	10	21	21569	4133	5318	45	-	20	-
6	Odagaon	13	23	37131	7180	8794	57	-	76	-
7	Khandapada NAC	NA	1	689	139	42	3	0	1.5	-
8	Total	65	233	200801	69740	47638	405	8	245	

Data source:- BDO Table no-3.15

Sl. No.	Causin g agent- Rivers/ Water bodies/Tidal Wave/ Others	No. of Susceptible Blocks/ ULB	No. of Susceptible GPs	No. of Susceptible Villages/ Wards	Vulnerable Population	Milch and Draught animals	House s	Vulnerable Infrastructure			
								School/ AWC Buildin gs	Hosp itals	Roads (in Km)	Other Critical Infra.
1	Mahanadi	3	24	140	72340	43137	17012	154	8	147	-
2	Kusumi	3	14	30	43495	-	10336	78	-	36	
3	Duanta	2	13	25	36304	-	8699	62	-	36	
3	Lunijhara	1	2	3	2584	-	637	6	-	2	
4	Dahuka	2	11	23	23620	-	5792	37	-	13	
5	Kaligiri	1	1	3	6850	-	1632	8	-	20	
6	Kuanria	1	1	1	9181	-	2118	11	-	15	
7	Sulia	1	3	6	4965	-	1179	13		5	
8	Total	14	69	231	199339	43137	47405	369	8	274	

Agriculture and Flood Vulnerability

The flood causes submergence of crop plants restricting respiration and gaseous exchange thereby ceasing all growth processes leading to death and decay. Aerobic crops cannot resist standing water and submergence. Rice resists standing water due to supply of oxygen to root through aerial parts but cannot tolerate submergence for more than 7days. Deep water paddy can resist flood to the extent of 15 days when at rapid growth stages. But at early stage of growth, sudden rise of water level, speed and muddiness of water are the factors which makes most of the varieties susceptible to damage under submergence. Since rice is the main crop in rainy season, the extent of damage varies according to

days of submergence depending on topography of the land. In addition to that crops are also damaged due to sand cast.

Table no-3.16

Sl. No.	Name of the Block	Cultivable Area (Hectares)		Area susceptible to Flood (Hectares)	
		Paddy	Non Paddy	Paddy	Non Paddy
1	Bhapur	7737	3665	1625	769
2	Khandapada	9274	4580	1090	567
3	Gania	5872	3217	4500	2500
	TOTAL	22883	11462	7215	3836

Data source:-Deptt of Agriculture

Electrical Infrastructure in the Flood Prone Area

Power supplies in Nayagarh face a “**significant**” threat from flooding because substations serving thousands of people are not adequately protected, the district has learned. Even a slight chance of flooding can pose too great a threat to the delivery of services offered by the maintenance and operation of a community’s critical facilities. For a critical facility to function, electrical systems and equipment must remain operational. Each substation takes high-voltage electricity from the power stations’ giant transmission lines, transforming it to lower-voltage electricity which is then fed to individual buildings through the local grid. Their exposure to flooding will intensify concerns about the dangers posed by extreme weather to the district’s power supply.

Below given a list of electrical infrastructures susceptible to flood in the district

Table no-3.17

Sl. No.	Name of the Block/ ULB	No. of Grid Stations	No. of 33/11 KV Substations	No. of Distributing Transformers			Conductor / Electrical lines-11 KV or less (length in Kms.)	No. of Poles	No. of High Tension Towers	High Tension lines above 11 KV (length in Kms.)
				11 KV or Less	11 KV < and <60KV	60 KV and above				
1	Bhapur	1	1	240	0	0	145	2320	0	10
2	Dasapalla			0	0	0	0	0	0	0
3	Gania			125	0	0	135	2160	0	34.4
4	Khandapada			160	0	0	140	2240	0	5
5	Nuagaon			0	0	0	0	0	0	0
6	Nayagarh			0	0	0	0	0	0	0
7	Odagaon			0	0	0	0	0	0	0
8	Ranpur			0	0	0	0	0	0	0
9	Total			525	0	0	420	6720	0	49.4

Data source:-TPCODLNayagarh

Water and Flood Vulnerability:

The table given below indicates the drinking water sources likely to be vulnerable during flood situations. **Table No.3.18:**

Sl. No.	Name of the Block/ ULB	Total No. of Tube Wells	No. of Tube Wells with raised platforms	No. Sanitary Wells	PWS Schemes				Other Drinking Water Sources If any
					Total No.	Length in Mtrs.	No. of Over Head tanks	No. of Stand Points	
1	Bhapur	21	21	3	1				
2	Daspalla	2	2	0	2				
3	Gania	14	14	4	4				
4	Khandapda	29	29	5	1				
	Total	66	66	12	8				

Boat operation points:

Table No. 21: A **boat** is a watercraft of a large range of sizes designed to float, plane, work or travel on water. Small boats are typically found on inland waterways (e.g. rivers and lakes) or in protected coastal areas. However, boats such as the whaleboat were designed for operation from a ship in an offshore environment.

Since the River Mahandi flows touching the district boundary, usually the boat operation points in 3 blocks are only operated during flood situations. The neighbouring districts are very well connected in roadways, so the private boats available are only used for fishing purpose. Only in Gania block a couple of boats are operational for transport purpose. The district has a total 4 boat operation points with 4 number of power boats provided by the SRC. A boat inventory detail is given in table no- 69 of the DDMP vol 2. Below given table indicates the the status of deployment of boat operation point, deployment of power boat etc.

Table:- 3.19

Sl. No.	Name of the Block	Name of the ghat/ boat operation point	Name of the water body	No. of Panchayats/ villages connected	Daily to and fro movement of people in Nos. (Approx.)	Type of boats operating in Nos.	
						Mechanised	Non-Mechanised
1	Gania	Rasanga	Mahanadi	02 G.P.s/40	30-40	1	-
2	Gania	Chhadamula	Mahanadi	02 G.P.s/52	20-30	1	1
3	Khandapada	Banapur	Mahanadi	2 G.Ps/ 10	-	1	-
4	Bhapur	Bhapur	Mahanadi	2 G.Ps/ 6	-	1	-

Data source: - BDO

3. Drought

A **drought** is a period of drier-than-normal conditions that results in water-related problems. Precipitation (rain or snow) falls in uneven patterns across the country. When little or no rain falls, soils can dry out and plants can die. **Drought in India** has resulted in tens of millions of deaths over the course of the 18th, 19th, and 20th centuries. The state of Odisha is heading towards massive degradation of land because of loss of forest lands, agricultural land taken away for other purposes, increase in fallow land and loss of tree cover in plantations. Since the failure of the Kharif crop, farmers in the district have been in a very critical phase. Many farm areas of the district, especially in southern and interior are rain fed. Mostly common factors causing for draught are:-

Nayagarh & Draught Table:- 3.20

Sl. No.	Name of the Block	Average Annual Rain Fall	Ground Water Level (in mtrs.)	Cultivated Area (In Hectares)Year- 2023-24			
				Paddy		Non- Paddy	
				Rain fed Area	Irrigated area	Rain fed Area	Irrigated area
1	Bhapur	1290.08	10 to 15	4500	2067	2014	1162
2	Dasapalla	1054.20	12 to 18	5940	5916	4496	2599
3	Gania	929.4	10 to 15	4518	1354	2903	314
4	Khandapada	1695.78	12 to 18	2960	6164	2802	1694
5	Nayagarh	1134.40	10 to 18	4642	6934	4010	1216
6	Nuagaon	746.15	10 to 16	13795	2355	2415	525
7	Odagaon	1415.80	12 to 16	4948	12423	4989	1931
8	Ranpur	950.65	09 to 15	12210	5747	1153	1525
9	Total	1152.06	11 to 16	53523	42960	24782	10966

Nayagarh has limited number of perennial river systems, vast forest cover and it receives above average rainfall annually. Most farm holdings are small or marginal dependent on the rains for irrigation. The deficit rains in 2011, 2015-16 & 2017-18 pushed the district over the edge. The district is facing extensive crop loss and severe water shortage. Even after exploiting its resources to the hilt, the people of the district have not been provided with adequate piped water supply. In many ways, the drought in the district is manmade. The district was worst hit by drought in the year 2011, 2015&2018 where all the blocks were completely declared as drought affected. **Ground water** level is going down rapidly due to excessive use for irrigation; thousands of deep borewells are being operated by well-off farmers and also by the Odisha Lift Irrigation Corporation (OLIC). The Rural Water Supply and Sanitation (RWSS) also operate piped water projects using tube wells and deep bore wells. Many water bodies have dried up and many have been built over. Decrease in moisture of land led to loss of paddy crop in the district. However, as part of drought relief, the government has again announced to provide pump set and deep bore wells for irrigation. Contrary to logic, on May 5, 2016, the Agriculture Department officials announced a plan to increase cotton cultivation in the upcoming Kharif season. Cotton is known to be a water-guzzling crop. Only 25% of the district's cultivable area is irrigated despite of the efforts undertaken by OLIC, MI, Irrigation & IWMP. If, reports are to be taken into consideration, then the district may face possibly worst situations in future. The Table given below indicates the irrigated & rainfed areas of the district.

Table No. Table:- 3.21 Drought Vulnerability.

Sl. No.	Name of the Block	Year- 2015-16				Year – 2011-12				No drought like scenario since 2016-17 to 2023-24
		No. of GPs experience d drought	No. of Villages	Agricultural Crop Area lost (in Hectares)		No. of GPs experien ced drought	No. of Villag es	Agricultural Crop Area lost (in Hectares)		
				Paddy	Non- Paddy			Paddy	Non- Paddy	
1	Bhapur	19	112	8918.12	-				-	
2	Dasapalla	19	359	8184	-	17	293	9059.49	-	
3	Gania	8	103	4192.55	-	7	66	2088.64	-	
4	Khandapada	21	184	8970	-				-	
5	Nayagarh	26	146	13081.54	-	35	188	15005.14	-	
6	Nuagaon	20	220	12759	516	20	221	12660.75	-	
7	Odagaon	28	116	3664.89	-				-	
8	Ranpur	35	245	18157.35	-	35	247	22199	-	
9	Total	176	1485	77927.46	516	114	1015	61013.02	-	

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

Culture of Nayagarh District is a composite culture of heterogeneous faiths. Culture of Nayagarh District includes several indigenous festivals like Ravanapodi at Daspalla, Pana Sanakranti of Dakhinakali, Shivaratri at Sarankul, Magha Saptami (Kantilo Mela) at Kantilo, Ramnavami at Odagaon and Car Festival at Nayagarh, Khandapara, Dasapalla and Ranapur. Kalesi dance, Dinda Dhangedi dance, Matia dance, Paika dance, Dhudukinacha, Duari dance and Danda nacha are some of the popular folk dances of Nayagarh District.

Additionally the district HQ as well as NACs have started “Mahotsav” every year with a huge gathering of both urban & rural population every year. The table given below indicates the seasonality of festivals with possible gatherings making it vulnerable towards a wild stampede, which may occur at anytime. Looking at the occurrences of neighbouring districts & States, it is required to have mass public awareness during the festivals & mahotsavs to reduce the risk. Below given table indicates about the festivals celebrated in all the blocks & possible gathering etc.

Table No. 3.22

Sl. No.	Name of the Event/ Festival/ Function	Place (Block & Gram Panchayat)	Duration of the event (in No. of days)	Month (as per English Calendar)	Strength of population gathering (Approx.)	Remarks (other vulnerabilities associated with the place/ event, if any to the mentioned)
1	Nayagarh Mahotsav	Nayagarh	Daily upto 3 days	December	10000	
2	Odagaon Mahotsav	Odagaon	Daily upto 3 days	January	8000	
3	Sarankul Mahotsav	Odagaon, Sarankul	Daily upto 3 days	January	5000	
4	Ranpur Mahotsav	Ranpur	Daily upto 4 days	January	6000	
5	Daspalla Lanka Podi	Daspalla	Once	April	10000	
6	Kantilo Magha Mela	Khandapada, Kantilo	Daily upto 7 days	February	13000	
7	Odagaon Sriram Navami	Odagaon	Daily upto 8 days	April	10000	
8	Sarankul Maha Shivaratri	Odagaon, Sarankul	Once	February	20000	
9	Odagaon Maha Shivaratri	Odagaon	Once	February	15000	
10	Khandapada Rath Yatra	Khandapada	Once	June	15000	
11	Ranpur Rath Yatra	Ranpur	Once	June	5000	
12	Nayagarh Rath Yatra	Nayagahr	Once	June	5000	
13	Sarankul Chandan Yatra	Odagaon, Sarankul	Once	June-July	5000	
14	Kalapata Yatra	Gania, Chhamundia	Daily upto 4 days	November	7000	
15	Ratha Yatra	Daspalla	Once	June/July	7500	
16	LankapodiaJatra	Gania	10 days	April	5000	
17	KuanriaMahostave	Daspalla	3 days	April	8000	
18	Pana Sankranti Jatra	Nayagarh	5 days	April	10000	

5. Lightning:

There are several factors that make eastern India a deadly place when lightning strikes. But first, a little know fact: according to the National Crime Records Bureau, which tracks unnatural deaths

across the country, lightning kills more people in India than floods, heatstroke, earthquake or cyclone.

The NCRB data claims at least 2,000 deaths were associated with lightning every year since 2005. Yet, it is not classified as a natural calamity. It was only in 2015 that the Centre allowed it to be declared as a state-specific disaster, making affected people or their families eligible for compensation.

The problem with lightning, like earthquakes, is that it cannot be predicted. That makes the task of issuing timely warning more challenging. “Generally, lightning develops in uneven and hilly areas. This is why eastern parts of India are more prone to lightning,” During pre-monsoon or monsoon season, the air coming from sea carries ample moisture. The hilly area creates a hurdle and adds additional heat to it. The air along with moisture rapidly uplifts due to intense heat and other synoptic conditions and develops cumulonimbus cloud, which is a thundery cloud that causes lightning.

Since there is no study conducted to find out the lightning prone areas of the district, but taking the history into concerned it is observed that the Nayagarh block of the district is more prone to lightning incidents and the below given table indicates the lightning related data of the district of the past 5 years.

Table No. 3.23

Sl. No.	Name of the Block/ ULB	Identifiable incidents of lightning hit in last 5 years		No. of Lightning events	No. fatality/ Deaths	Injured Persons
		No. GPs	No. of Villages/ Wards			
1	Bhapur	3	3	3	3	-
2	Dasapalla	2	4	4	4	-
3	Gania	2	2	2	2	-
4	Khandapada	6	6	6	6	-
5	Nayagarh	17	19	23	18	1
6	Nuagaon	1	1	1	1	-
7	Odagaon	6	7	7	9	-
8	Ranpur	1	1	1	1	-
9	Total	38	43	47	44	1

6. Fire Events

A fire can happen at any time at any place irrespective of its occupancy status. You can expect a fire at any structure, may be at your home or at your workplace or in a hospital or in public places like theatres, malls, etc. Fire in any occupancy has the potential to cause harm to its occupants and severe damage to property. Though the number of deaths has been decreasing in the past five years, the figure still remains a cause for concern.

On an average, in India, every year, about 25,000 persons die due to fires and related causes. Female accounts for about 66% of those killed in fire accidents. It is estimated that about 42 females and 21 males die every day in India due to fire. According to the statistics released by the National Crime Records Bureau, fire accounts for about 5.9% (23,281) of the total deaths reported due to natural and un-natural causes during the year 2012. Probably many of these deaths could have been prevented, had we taken enough fire protection measures.

The cause-wise analysis of the fire accidents reveals that the maximum;-

- 18.3% of the total incidents, were reported in residential/dwelling buildings
- The other causes include fire in school buildings, mines, trains, private vehicles, government buildings and manufacturing units of combustible materials like crackers and match boxes.
- Individual housing with roof of straw and storage of straw/ hay in close proximity of the house
- Close proximity of houses in many areas leading to spread of fire and wider destruction
- Lack of availability of adequate water and nil or poor equipment for firefighting especially in rural areas and small towns
- Lack of awareness of basic do's and don'ts when people live in houses that uses inflammable materials

There is no separate data available for fire in temples. One must also admit that the fires are caused almost entirely by people, either through their actions, which may be accidental or deliberate and malicious or through their failure to make appropriate precautions such as, for example, the regular inspection, maintenance and repair of defective equipment.

The district is vulnerable to Fire accidents because 48% of the total HHs are thatched or kutcha house. Most of the fire accidents occurred in the district is village fires & in rural areas barring the one that occurred in the cracker factory under Nayagarh block, which registered 9 deaths & 2 injured. Mostly a wide spread awareness campaign can reduce the number of incidents in the rural pockets of the district. The table given below implies incidents occurred in the past 5 years in the district.

Table no:- 3.24

Sl. No.	Name of the Block/ ULB	Identifiable incidents of fire hit in last 5 years		No. of fire events	No. fatality/ Deaths	Injured Persons
		No. GPs	No. of Villages/ Wards			
1	Bhapur	44	65	68	1	-
2	Dasapalla	69	127	127	-	-
3	Gania	23	29	37	-	-
4	Khandapada	46	52	106	1	-
5	Nayagarh	69	80	89	9	2
6	Nuagaon	61	100	100	2	-
7	Odagaon	107	131	150	-	-
8	Ranpur	35	78	118	-	-
9	Total	454	662	795	13	2

7. Forest fire

Despite the Odisha government having a standard operating procedure to prevent forest fires that cause massive ecological and economic losses, there has been no let up in such incidents in the State. If occurrences of forest fires during the months of February and March are taken into account, 2,303 fires have so far been detected since February 1 this year whereas 1,175 fires were captured by satellite images during the same period in 2016. Usually in summer months the district witnesses forest fires. Several incidents of fires have occurred in the forests of the district in March and April causing huge damage to forest and wildlife resources.

Types

Ground fire:- A ground fire can occur in any conditions and is where peat, coal, tree roots or other materials ignite and burn under the ground. Ground fires can burn through to the surface and become surface fires. Surface fires are low to high intensity fires that burn on the surface of the ground. The district is more prone to Ground fire.

Crown fire:-A forest fire that advances with great speed jumping from crown to crown ahead of the ground fire forest fire - an uncontrolled fire in a wooded area. No major incidents of this kind have been reported till date in the district.

Major causes

The entire Nayagrh district forest range is prone to forest fires because of the following reasons. Three major natural causes of wildfire ignitions are lightning, **sparks from rock falls** & spontaneous combustion. Beside these Tropical forests, their rich bio-diversity, are also a source of variety of fruits, flowers, grass, seeds, barks, roots and vines, known as NTFP (non-timber forest produce).

The forest dwellers and surrounding population heavily depend on them for their sustenance. The state's forests boast of mahua flowers and seeds, kusum seeds, sal seeds, mango, hill broom, sal leaves, sialifibre, kendu fruits and leaves, thatch grass and many others which are collected by the people living in and around the forests. And to collect these, the easiest way is to set fire. Also the Poachers set fire to forest to catch wild animals. Also people collecting wood from forests use to set fire unknowingly by smoking "bibis" etc.

Damage

- Huge loss to forest and wildlife sources
- Organic content of soil affected
- Ecological balance disturbed
- Inhabitants residing in forest lose livelihood etc

Major incidences

- On April 22, 2016 a massive forest fire outbreaked at the Rukhi Hill Forest under Nayagrh forest range destroying its flora & fauna.

Remedy

- Drawing fire lines
- Engagement of Vana Suraksha Samiti volunteers and forest staff to douse fire
- Installation of fire blower machines
- Mass campaign to reduce man made forest fires etc.

8. Drinking Water Crisis:

Odisha villages are showing symptoms of desertification, with more and more people in rural belts being denied drinking water. Around 38.5% families travel at least half a km to fetch drinking water in Odisha villages. The number of such families was 32.5% in 2001, which increased by 6% in 10 years. In most of these places, the people have no alternative, as piped water supply has not been provided by the department. Rural water supply infrastructure is lying defunct for a range of reasons such as no power supply, disrupted power supply due to non-payment of dues or shortage of staff. Reservoirs have also dipped causing water shortages in areas where they supplied water. Some of the causes of drinking water crisis is given below;-

Ground water depletion

Groundwater levels in India are plunging at an alarming rate where some states experience water levels dwindling to criticality. Use of groundwater spans from irrigation purposes to industries and human consumption & the poor distribution system on part of the government too adds to the existing poor condition of water. Cities like Pune and Delhi lose 40% of water supply due to leakages.

River pollution & water scarcity in summer

Water in most rivers is polluted making it unfit for drinking or any other use. The poor quality rises from insufficient and delayed investment in urban water-treatment facilities. Industrial effluent rules are not implemented due to inadequate technical and human resource availability with the state pollution control boards. In summers usually the water in the rivers getting dried up resulting in failure of drinking water supply system.

Population explosion

The bursting population is a reason for insufficient water per head. While it has been estimated that the amount of usable water should be between 700-1200 billion cubic meter, India has only 1000 cubic meters of water per head.

Nayagarh & drinking water crisis

Rising temperatures have dried up surface water sources in almost all the rivers of the district barring Mahanadi. Ground water levels have been falling rapidly because of which many tube wells across the district are lying defunct. Hundreds of families are dependent on 1 or 2 tubewells in some villages in districts. In many water stressed areas, tube well water is laced with **Fluoride Contamination**. As per the latest data of RWS&S as many as 383 villages & 222457 populations are affected with the fluoride contamination in the district.

Urban water supply is also dismal as Ranapur NAC & Khandapada NAC become the worst affected in the summer & dependent upon deployment of tankers. Gradually year by year the condition is degrading in most wards of the urban settlements. Making matters worse, people are struggling with the water crisis in the middle of an intense heatwave. An analysis of the drinking water crisis in the district for the year 2017 is given below.

(Table:- 3.25)

Sl. No.	Name of the Block/ ULB	Villages/ Wards without proper source of drinking water		Villages/ Wards having crisis of drinking water during summer season		Fluoride Contamination			Others Arsenic/ Saline/ Iron If any
		No. of Villages/ Wards	Population	No. of Villages/ Wards	Population	No. of Villages/ Wards	Population	FRP Installed	
1	Bhapur	-	-	1	15	9	10596	8	-
2	Dasapalla	-	-	-	-	6	2540	8	-
3	Gania	25	10010	1	10	2	1194	4	-
4	Khandapada	-	-	-	-	24	31442	21	-
5	Nayagarh	-	-	5	385	12	12198	12	-
6	Nuagaon	13	1000-	1	5	10	8850	15	-
7	Odagaon	47	25205	3	45	19	17316	24	-
8	Ranapur	15	26111	5	195	3	4747	2	-
	Total	100	62326	16	655	85	88883	94	-

9	Daspalla NAC	-	4600	5	4600	-	-		-
10	Khandapada NAC	-	-	13	9038	-	-		-
11	Nayagarh NAC	-	-	13	17030	-	-		-
12	Ranapur NAC	-	-	15	14715	-	-		-
	Total	5	4600	46	45383				

Data source:- RWSS, BDO & NAC

Heat wave: - Due to global warming heat wave is also one kind of threat to people of Nayagarh. This year the temperature is increasing up to 41 degree in first week of April 2024. For this purpose, OSDMA is also very serious and organizing District level Orientation training & Review meeting for combating heat wave. Side by Side also provides Posters for pasting in different public congregated places by field functionaries. Recently DDMA Nayagarh organized the Orientation meeting of Dist level officers on 23.02.2024 and release office order for opening of Water kiosk & pasting of posters. With these initiatives DDMA, Nayagarh also constitute a committee comprising Dy. Emergency, DWO, DSWO, ADM & PHO & ADEO Nayagarh.

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 year 1998, the State of Odisha faced an unprecedented Heat Wave situation, as a result of which 2042 persons lost their lives. Though extensive awareness campaigns have largely reduced the number of casualties during post 1998 period, still a good number of casualties are being reported each year. Heat wave has become a menace during the hard summer causing insurmountable human suffering. The poor people, farmers and workers are the most vulnerable groups.

Heat wave & Nayagarh

Causes of heat wave

- Tropical climate where summer being extremely hot & winter being cold
- Green house effect
- Climate change
- Degradation of forest etc.

Heat Waves in Nayagarh in the year 1998 killed 125 people. In the year 1999, the state implemented first HAP in the state. Despite having a HAP in place the district experienced another massive Heat Wave casualty in the year 2005 by losing 22 lives. . The heat wave condition in Nayagarh is becoming increasingly prominent and regular due to rise of temperature upto 45 degree C. The main risk due to heat wave is heat stroke. After the large number of deaths in 1998, the main causal factor was identified as lack of awareness and not following certain do's and don'ts during heat wave conditions. Though extensive awareness campaigns has reduced large number of fatalities post 1998, poor socio-economic conditions, lack of enforcement and adoption of good working conditions during the summer months remain the main risks of heat wave.

9. Road accidents

There's one death every 4 minutes due to a road accident in India. One serious road accident in the country occurs every minute and 16 die on Indian roads every hour. 1214 road crashes occur every day in India. Two wheelers account for 25% of total road crash deaths. 20 children under the age of 14 die every day due to road crashes in in the country. 377 people die every day, equivalent to a jumbo jet crashing every day. Two people die every hour in Uttar Pradesh – State with maximum number of road crash deaths. Tamil Nadu is the state with the maximum number of road crash injuries. The gravity of the issue can easily be understood.

Causes

Distracted driving, speeding, drink & drive, reckless driving, teenage driving, unsafe lane changes, improper turns, driving under the influence of drugs, etc are the main causes of accidents.

Table no- 3.26: Damages

The table is based on the reported cases only, yet a significant number go unreported every year.

Road Accidents:

Table No- 21: The table indicates the volume of National highways & State highways passes through the district. As you could see the highways pass through some of the block Hqs, district Hq & other traffic congestion areas ultimately making it vulnerable towards mishappenings. The list is indicative; the actual number of congestion areas & accident prone areas may vary a little.

Table:- 3.26

Sl. No.	Stretch of Road (From - to)	Length in Kms.	No. of Traffic Congestion Areas	No. of Accident Prone Areas	No. of villages/ habitations adjacent to accident prone areas
1	Chandrapur by pass at bent	5km.	2	2	4
2	Bijipur to Nayagarh Town	10km	3	3	5
3	Nayagrth to Khandapada	20km	4	2	5
4	Odagaon to Komanda	7km	1	1	1
5	Daspalla to Taker, Banigochha	30km.	2	2	6
6	Nayagarh to Sarnakul	12km.	4	1	8

Data source: - EE, NH & ,R&B

Railway Line Exposed different Hazards:

It was dream of the people of Nayagrth to have connected to Railway Netwrok since 20 years & finally it came true. The district HQ is now connected to the Khordha Road railway station &targetted to connect to Dasapalla by 2019. As of now the district has a total of 23kms railway line connecting Khrodha road & district HQ. Though the line passes through 7-8 kms of flood area, but the line has been raised to 30ft of height minimising the vulnerability of getting exposed to flood.

Population Requiring Special Care:

On the occurrence of a disaster, there are population barely require special care. Special Care serves children, with and without special needs, persons above 60 years, persons with disability (both men & women), orphans & palliative care for pregnant & lactating mothers. Our mission is to keep the population requires special needs in safe, inclusive and supportive environments through adequate preparedness at all levels. The table gives us an idea about the said population:

Table No: 3.27

Sl. No.	Block/ ULB	No. of HHs head ed by Wo men	No. of HHs headed by PWD	No. of Persons With Disability		No. of Widow	No. of Children		No. of Orphans (0-8yrs)		No. of Aged Persons (60 and above)		No. of Pregnant and lactating mothers
				M	F		0-5 Years	6-14 Years	M	F	M	F	
1	Bhapur		127	2512	1539	2201					5593	3886	
2	Dasapalla		314	1525	935	2675					3869	2689	
3	Gania		225	813	499	800					2093	1455	
4	Khandapada		678	1921	1178	2931					5242	3643	
5	Nayagarh		732	2042	1252	3920					8020	5574	
6	Nuagaon		474	1652	1012	2832					4450	3093	
7	Odagaon		260	2458	1506	4084					8026	5577	
8	Ranpur		412	2001	1227	3515					7593	5277	
9	NAC, Daspalla			114	76	495					704	489	
10	NAC, Khandapada			92	66	215					414	288	

11	NAC Municipality			104	67	262					291	202	
12	NAC, Odagaon			97	58	301					431	300	
13	NAC, Ranpur			64	48	361					690	479	
	Total		3222	15395	9463	24592	54263				47416	32952	

Table:- 3.28

14.1 Identified Old and depleted Buildings in the District (if any)

Sl. No.	Block/ ULB	No. of Vulnerable Buildings	Population at Risk (inhabitants and the neighbouring)	Remarks

Forest Fire: Forest Fire Incidents:Table:- 3.29

1.

Sl. No.	Name of the Division	No. of Range	No. of Fire Incidents Reported during last- 5 years	Total Area Affected in Ha.	Loss of life/ property if any
1	DFO,Nayagarh	07	2336	1650.00	Forest Ground fire only
2	Mahanadi Wildlife Div. Nayagarh	3	474	51.1652	Nil

Fire incident from march 2023 to April 2025

Table: - 3.30

Sl. No.	Name of the Division	No. of Range	No. of Fire Incidents detected		Total.	No of fire incident attended	
			By FSI	By direct sighting		FSI	Directly
1	DFO,Nayagarh	07	75	50	125	75	50
2	Mahanadi Wildlife Div. Nayagarh	3	6	0	6	6	0

Table: - 3.31

Forest fire vulnerability:

Sl. No.	Name of the Division	No. of Range	Area (in Sq. Km)	Total Notified Forest Area (in Sq. Km)	High Risk Zone (Area in Sq Km)	No. of Villages/ habitations inside/ adjacent to the High Risk Zone	Medium Risk Zone (Area in Sq. Km)	No. of Villages/ habitations inside/ adjacent to the Medium Risk Zone	Low Risk Zones (Area in Sq. Km)	No. of Villages/ habitations inside/ adjacent to the Low Risk Zone
1	DFO,Nayaga	07	3067.281	1109.64	0.85	217	0.261	105	1.77	39
2	Mahanadi Wildlife Div. Nayagarh	3	316.02	277.737	87.23	10	102.701	12	78.860	26

Fire and Life Safety of High Rise Buildings (buildings having a height of more than 15 meter)-

Table- No. 3.32

Sl. No.	Name of the ULB/ Block	No. of High Rise Buildings	No. of High Rise Buildings where Fire & Life Safety Audit has been carried out in last 2 years.	Remarks
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Table-No3.33

Sl. No.	Name of the High Rise Building	Location/ Area	Name, Address, Contact Details of the Owner	Whether Fire & Life Safety Audit Under Taken (Yes/ No.)	If Yes then the Year and the Name of the Agency	Vulnerable Population
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(As per National Building Code -2016 Para E-7 of Annexure E)

Embankments:Table-No3.34

Irrigation Division Wise Embankments in the District:

Sl. No.	Division	Name of the Embankment	Type (Capital Embankment/ Other Agricultural/ Test Relief/ Saline)	Length (in Km.)
1	Nayagarh,Irrigation Division			

Division wise list of Vulnerable Points:

Table-No3..35

Sl. No.	Name of the Division	Name of the Embankment/ River	Location of the Vulnerable Point	Affected Length (in Mtr.)	Name of the Block	Name of the Villages to be affected
1	Nayagarh,Irrigation Division	Mahanadi Right	Badabara	400mtr.	Bhapur	Badabara, Karabara
2	Nayagarh,Irrigation Division	Kusumi Left	Bodosa	450mtr.	Khandapada	Bodosa, Puania
3	Nayagarh,Irrigation Division	Kusimi Right	Sikharpur	130mtr.	Odagaon	Sikharpur
4	Nayagarh,Irrigation Division	Kusmi Right	Behera Sahi	280mtr.	Nayagarh	Beherasahi

Dam- Burst Scenario: (For large Dams)

Table-No3.36

Sl. No.	Name of the Dam	Location & Water body	Type (Major/ Medium/ Minor)	Storage Capacity	Full Reservoir Level (FRL)	Maximum Water Level (MWL)	Dam Break Model / Risk Map for Dam break developed?(Yes/No)	Pre and Post Monsoon Inspection of Structural Measures done?(Yes/No)	No. of Villages to be affected/ needs to be evacuated in case of a possible scenario (District & Block Wise)
1.	Budhabudhiani Dam	Salajharia	Medium	1864.00	146.38	148.07	No	Yes	Salajharia,Dhusuma,Golagaon,Badagorada,Patulisa hi,Bilagorada&Bhaliadihi
2.	Kuanria Dam	Odasara	Medium	2200.00	135.70	135.70	No	Yes	Satapada,Odasara ,Sariganda,Mahulia,Barapurikia.

Table-No3.37**Contingency Planning for Dam bursts scenario:**

1. For Dam - A

Sl. No.	District	Block	Name of the Village	Evacuation Route for the village/s	No. of HHs	Population	Safe Shelter Identified	Remarks

2.For Dam - B

ii. Formation and Subsequent Bursting of Landslide Dams:Table-No3.38

Sl. No.	District	Block	Name of the Village	Evacuation Route for the village/s	No. of HHs	Population	Safe Shelter Identified	Remarks

Table-No3.39

Sl. No.	Land Slide Area/ Location formation of land slide Dams	Vulnerable for	No. of Villages likely to be affected	Population to be affected
1	0		0	0

Cultural Heritage Sites and Precincts:Table-No3.40

Sl. No.	Cultural Heritage site/precinct	Address/Location	Category (Centrally Protected Monument/ State Protected/ UNESCO World Heritage Site/ Unprotected Monument)	Name & Contact details of the Controlling/ Supervising Authority at the district level	Hazards & Vulnerability of the Place	Remarks (if Any) (Average Foot Fall and Days/ Period during which the place receives highest Foot Fall)
1	0	0	0	0	0	0

Museums:Table-No3.41

Sl. No.	Name of the Museum	Location and Address	Type	Category/ Controlling Body (ASI/ Central Government/ State Government/ Private/ Public Trust/ Privately Managed/ University/ College)	Name & Contact details of the Controlling Authority/ Owner	Hazard & Vulnerability	Average Foot Fall and Days/ Period during which highest Foot Fall is received)	Remarks (if any)
	0	0	0	0	00	0	0	0

Human Animal Conflict due to animal attack.Table-No3.42

Sl. No.	Vulnerable Place (Village/ Panchayat etc.)	Causing Agent/Animal (Elephant, Bear, Crocodile etc.)	Number of Human Lives lost during last 5 years	Damage to House and Property during last 5 years	Crops Damaged from 2013-14 to 2017-18
1	Mahipur Range under Mahipur, Gateri, Khamalada, Jakeda, Nuagaon G.P.	Elephant & wild boar	01	Nil	Ac.755.38

Chapter – 4: Institutional Arrangement

4.1 National Disaster Management Authority (NDMA)

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

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

4.2 National Executive Committee (NEC)

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

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

4.3 State Disaster Management Authority (SDMA)

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

The State Disaster Management Authority shall:-

- Lays down policies and plans for disaster management in the State.
- Approves the State Plan in accordance with the guidelines laid down by the NDMA,
- Coordinates the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures.
- Review the developmental plans of different departments of the State to ensure the integration of prevention, preparedness and mitigation measures.
- Lay down guidelines to be followed by the departments of the State Government for the purpose of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance there for.
- Review the measures being taken for mitigation, capacity building and preparedness by the departments of the Government & issue such guidelines as may be necessary.
- Lay down detailed guidelines for providing standards of relief (Not less than the minimum standard of relief in the guidelines of NDMA) to persons affected by disaster in the State.

4.4 State Executive Committee (SEC)

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

The State Executive Committee shall:-

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

4.5 Revenue and Disaster Management Department:

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

4.6 Special Relief Organization:

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

4.7 Odisha State Disaster Management Authority (OSDMA)

Odisha State Disaster Mitigation Authority (OSDMA) was established by the Government of Odisha as an autonomous organization vide Finance Department Resolution No. IFC- 74/99-51779/F dated the 28th December 1999 (in the intermediate aftermath of the Super-cyclone in 1999). It was registered under the Societies Registration Act, 1860 on 29.12.1999 as a non-profit making & charitable institution for the interest of the people of Odisha, with its headquarters at Bhubaneswar and jurisdiction over the whole State.

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

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

4.8 State Level Committee on Natural Calamity (SLCNC)

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

The Function of the SLCNC is -:

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

4.9 District Disaster Management Authority (DDMA)

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

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

a) The Collector or District Magistrate or Deputy Commissioner of the District is the Chairperson (*ex-officio*) of DDMA.

b) The elected representative of local authority is the Co-chairperson (*ex-officio*) of DDMA.

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

c) The Chief Executive of the District Authority, *ex officio*;

d) The Superintendent of Police, *ex officio*;

e) The Chief Medical Officer of the district, *ex officio*;

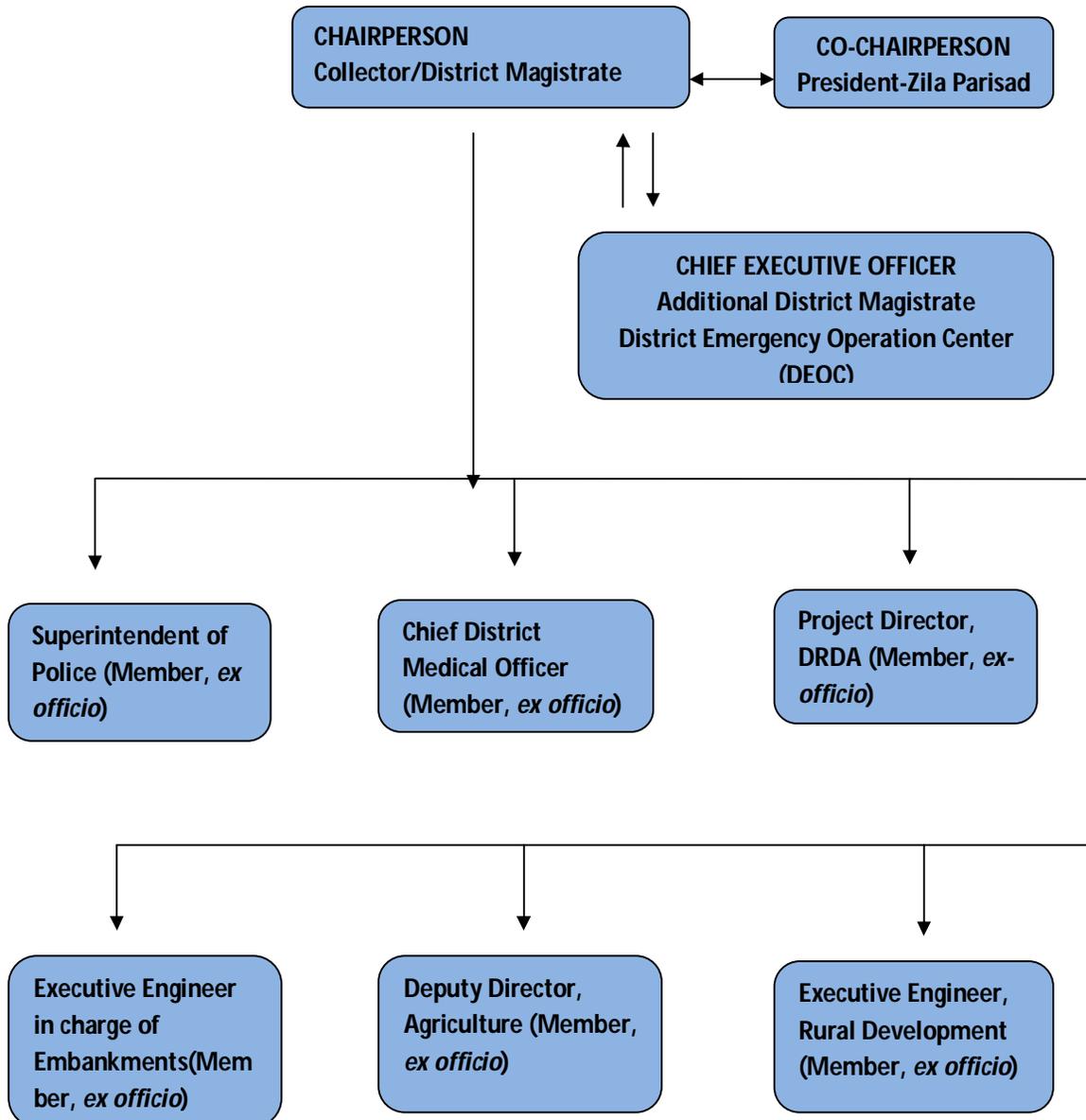
f) Not exceeding two other district level officers, to be appointed by the State Government

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

Table 1:-Structure of District Disaster Management Authority for the year 2024-25

Sl No.	Name of the Officer	Designation	Position in DDMA	Contact No.
1	Mr. Akshay Sunil Agrawal, I.A.S	Collector & District Magistrate	Chairperson, <i>ex-officio</i>	8280343088
2	Er. Debasish Pattanaik	President, Zilla Parishad	Co-chairperson, <i>ex-officio</i>	9937499112
3	Smt. Rojina Das, OAS (SAG)	Additional District Magistrate	CEO, <i>ex-officio</i>	9437631729
4	S. Shusree	Superintendent of Police	Member, <i>ex-officio</i>	06753252088
5	Lagnjit Rout OAS (SAG)	CDO cum EO Zilla Parishad Nayagarh.	Member, <i>ex-officio</i>	9437107397
6	Dr. Susant Ku Das	Chief District Medical & Public Health Officer	Member, <i>ex-officio</i>	9439991499
7	Sri Suman Singh Pattanaik	Chief Dist Agriculture Officer	Member, <i>ex-officio</i>	9437846892
8	Er. Sasmita Munduri	Superintendent Engineering, RD-I	Member, <i>ex-officio</i>	9776440897
9	Er Soubhagya Das	Superintendent Engineering, RD-II	Member, <i>ex-officio</i>	9437489474
10	Sri Pritam Chetan Pothal	Executive Engineer, Irrigation & in charge of Embankments	Member, <i>ex-officio</i>	9437393700

Figure__ : Organogram of District Disaster Management Authority



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

The District Disaster Management Authority (DDMA) shall:-

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

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

Specific task assigned to members of DDMA by the Chairperson

- 1) Chairperson, Zilla Parishad
 - To assist in preparation of DM Plan of the district
 - To act as the nodal point for coordination at the grass root level
 - To play a tangible role in preparedness, response, relief, rescue, rehabilitation & resettlement activities by involving PRI system
 - To ensure that awareness about all the hazards among the Panchayat functionaries & build their capacity through regular capacity building initiatives
 - To oversee the smooth management of the Multipurpose cyclone & flood shelters constructed in different areas of the district
 - Providing training to Zilla Parishad members to identify &analyse the cross cutting issues in Disaster Management & to mainstream these through the developmental programmes at their level
- 2) **Additional District Magistrate:** The ADM in charge of emergency shall undertake the following assignments
 - To coordinate the DDMA meeting & ensure the presence of all the members
 - To facilitate the discussions of the DDMA meeting
 - To function as the nodal point for preparation of DM plan of the district
 - To function as the nodal point for disbursement of CMRF.
 - Management & functioning of the round the clock emergency helpline during heat wave & other emergency situations
 - Coordinating point for preparedness, response, relief, rehabilitation related activities of the district during disaster & normalcy

- 3) Superintendent of Police
 - To communicate & alert all the personnel for readiness to tackle any kind of disaster situation
 - To maintain law & order & provide security at disaster locations
 - To prevent commission of cognizable offences against life, property & public tranquility
 - To train & capacitate human resources dealing with disaster response
 - To conduct mock drill & image building exercise of police at selected locations
- 4) Chief District Medical Officer
 - To extend all possible support in preparation of the District Disaster Management Plan
 - To prepare separate plan for the district on disaster response
 - To make special arrangements for areas having the history of vulnerability to epidemics
 - To train & capacitate human resources for disaster response
 - Promotion of IEC materials using all possible grass root platforms on general & critical health issues
- 5) Deputy Director, Agriculture
 - To extend all possible support in preparation of the District Disaster Management Plan
 - Agricultural mapping of the district with respect to different hazards
 - Ensure crop loss assessment of the district is performed in coordination with other line departments
 - Construction of structural measures at drought & flood prone areas in coordination with other line departments
 - Surveillance of pest & disease situation of crops
 - Usage of high productive crops by the farmers in the district
 - Promotion of IEC activities at the rural & drought affected belt of the district
- 6) CDO.cum EO Zilla ParisAD
 - To extend all possible support in preparation of the District Disaster Management Plan
 - Effective coordination with the Panchayati Raj Institution for cataloguing the development process of the district
 - Oversee the effective implementation of different anti poverty schemes & linkages of schemes with post disaster rehabilitation activities
 - Creation of water bodies to prevent drought through MGNREGS
 - Improve awareness level of rural poor on rural development & poverty alleviation programmes
 - To provide livelihood opportunity to population affected by disaster
- 7) Executive Engineer, Rural Development
 - To extend all possible support in preparation of the District Disaster Management Plan
 - Preparation of master plan of the entire rural road network of the district
 - Undertake flood & drought mitigation measures in consultation with other line departments
 - Ensure disaster resistant technological practices in construction of critical infrastructures
 - Undertake training & capacity building of staff, elected representatives & other officials
- 8) Executive Engineer in charge of embankments
 - To extend all possible support in preparation of the District Disaster Management Plan
 - Identification, repair & maintenance of the weak embankments of the district
 - Preparation of contingency plan
 - Preparedness for possible breaches during flood

4.10 District Level Committee on Natural Calamity (DLCNC)

A meeting of the DLCNC shall be convened by the end of May & another in November every year. The committee which sits in May not only review the ongoing relief measures, if any, but it may also suggest the list of relief works to be undertaken, advise the precautionary measures to be taken for flood, drought etc.

The committee which sits in November may similarly make a review of the immediate post situation on crop conditions, relief measures, if any & also suggest on the immediate future relief activities.

The members of DLCNC are as follows:

Table 2: Structure of District Level Committee on Natural Calamity

Sl No.	Name of the Member	Designation	Contact No.
1	Mr. Akshay Sunil Agrawala I.A.S.	Collector &Dist.Magistrate,Nayagarh	8280343088
2	Sj. Bhartuhari Mahatab	MP, Cuttack	9868180308
3	Sj. Sambit Patra	MP, Puri	9999611442
4	Sj. Sukanta Panigrahi	MP, Kandhamal	9437873717
5	Srimati Surama Padhy	MLA, Ranpur /Speaker of OLA Bhubaneswar	9937372328
6	Sj. Dusmanta Swain	MLA, Khandapada	7008238084
7	Dr. Aruna Kumar Sahoo	MLA, Nayagarh	9437516147
8	Sj. Ramesh Ch. Behera	MLA, Daspalla	9437161612
9	Smt. Rojina Das , OAS (SAG)	Additional District Magistrate,Nayagarh	9437631729
10	Sri Karnadev Samaddar	Sub-collector,Nayagarh	8249129393
11	Dr. Susanta Ku Das	CDM &PHO,Nayagarh	9439991499
12	DR. Prasanta Kumar Mishra	Chief District Veterinary Officer,Nayagarh	9437197818
13	Sri Pritam Chetan Pothal	Superintendent Engineer, Irrigation & in charge of Embankments,Nayagarh	9437393700
14	Smt. Tapati Raj	District Emergency Officer,Nayagarh	9438581598

District Drought Monitoring Cell (DDMC)

As per Order No.859\Emer, Dtd.27.06.2019, in accordance with revised Drought Manual 2016 in chapter 4 under the title “Institutional Resoponse” as well as decision taken by the State Executive Commitee (SEC) in its 4th meeting communicated vide OSDMA letter no 778/OSDMS,dt.18.02.2019, the District Drought Monitoring Cell is hearby constituted with the following members/stakeholders for effective monitoring of drought or drought like situations in this district.

- | | |
|---|--------------------|
| 1. Collector & District Magistrate, Nayagarh | Chairperson |
| 2. Addl.DistrictMagistrate,Nayagarh | vice-chairperson |
| 3. Project Director,DRDA,Nayagarh | Member |
| 4. Sub-Collector, Nayagarh | Member |
| 5. Chief District Medical Officer, Nayagarh | Member |
| 6. Chief District Veterinary Officer,Nayagarh | Member |
| 7. Deputy Director, Agriculture, Nayagarh | Convener |
| 8. Deputy Director, Horticulture, Nayagarh | Member |
| 9. Dy. Director Planning & Statistics, Nayagarh | Member |
| 10. Project Director, Watershed, Nayagarh | Member |
| 11. Executive Engineer, Irrigation Divn. Nayagarh | Member |
| 12. Executive Engineer, M.I. Divn.Nayagarh | Member |
| 13. Executive Engineer, OLIC Divn. Nayagarh | Member |

- | | |
|---|--------------------|
| 14. Executive Engineer, Electricals Divn.Nayagarh | Member |
| 15. Executive Engineer, RWS&S Divn.Nayagarh | Member |
| 16. All BDOs/All Tahasildars | Member |
| 17. Civil Supply Officer, Nayagarh | Member |
| 18. District Emergency Officer, Nayagarh | Coordinator |

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

The district is in the process of forming Block Disaster Management Authority in all the blocks to decentralize the process of disaster management involving grass root. The process is likely to be completed by the end of June 2017.

4.12 National Disaster Response Force (NDRF)

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

Table 3: Location of National Disaster Response Forces

SI No.	Battalion, Location	State	Man power drawn from	Contact Person	Contact No.
1	01 Bn, NDRF, Guwahati	Assam	BSF	Sh. S.K. Shastri, Commandant	09401307887, 0361-2840027
2	02 Bn, NDRF, Kolkata	West Bengal	BSF	Sh. Nitish Upadhyay, Commandant	09434742836, 033-25875032
3	03 Bn, NDRF, Munduli	Odisha	CISF	Sh. M.K. Yadav, Commandant	09439103170, 0671-2879710
4	04 Bn, NDRF, Arakkonam	Tamil Nadu	CISF	Ms. Rekha Nambiyar, Commandant	09423506765, 02114-247010
5	05 Bn, NDRF, Pune	Maharashtra	CRPF	Sh. Anupam Srivastava, Commandant	09423506765, 02114-247010
6	06 Bn, NDRF, Gandhinagar	Gujrat	CRPF	Sh.R.S Joon, Commandant	09428826445, 079-23202540
7	07 Bn, NDRF, Ghaziabad	Uttar Pradesh	ITBP	Sh. P.K. Srivastava, Commandant	09968610014, 0120-2766013
8	08 Bn, NDRF, Bhatinda	Punjab	ITBP		
9	09, Bn, NDRF, Patna	Bihar	BSF	Shri Vijay Sinha, Commandant	07762884444, 06115-253942
10	10 Bn, NDRF, Vijayawada	Andhra Pradesh	CRPF	Sh. Parshant Dar, Commandant	07382299621, 0863-2293178

11	11Bn,NDRF, Varanasi	Uttar Pradesh	SSB	Sh. A.K. Singh, Commandant	09455511107, 0542-2501201
12	12 Bn, NDRF, Itanagar	Arunachal Pradesh	SSB	Sh. Angom Kiran Chand Singh, Commandant	09485236141, 03621-242940

4.13 Odisha Disaster Rapid Action Force (ODRAF)

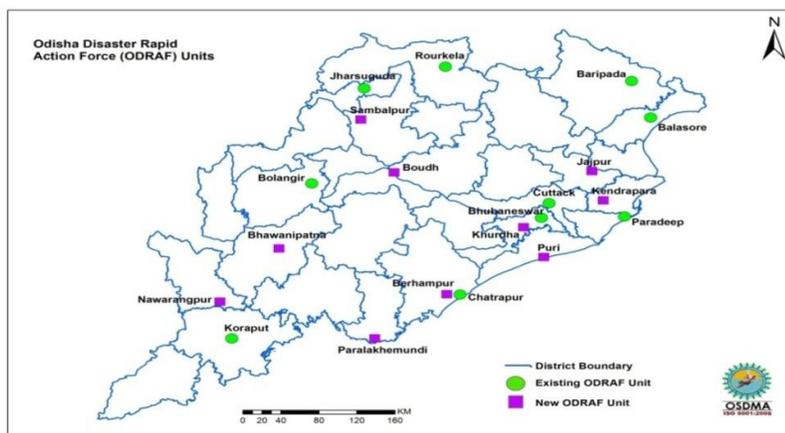
The Government of Odisha formed Odisha Disaster Rapid Action Force (ODRAF) vide notification no.939/CD dated 07.06.2001. ODRAF is a multi-disciplinary, multi-skilled, high-tech force for all types of disasters. ODRAF aims at reducing casualties, clearance of communication channels, quick deployment of personnel and equipments and minimize expenditure and time lag and support institutional arrangement. In 3 phases, ten units of ODRAF have been set up. The ODRAF units are strategically located throughout Orissa. Locations of these units are identified on the basis of vulnerability profile to cut down the response time for their deployment. The ODRAF Units do not have any geographical /territorial restrictions in terms of area of operation.

10 new units of ODRAF have been proposed to set up at different locations like Sambalur, Boudh, Kalahandi, Nawarangpur, Gajapati, Berhampur, Puri, Khorda, Kendrapada and Jajpur.

Table04: Location of Odisha Disaster Rapid Action Force with contact details

Sl No.	Place	Personnel drawn from	Name of the Commandant	Contact No.	ODRAF In charge	Contact No.
1	Cuttack	OSAP 6th Bn, Cuttack	Mr. Lingaraj Parida, OPS	9861039267	Mr. Mahatang Hansda	9439457443
2	Jharsuguda	OSAP 2nd Bn, Jharsuguda	Mr Mohammed Zahid, OPS	9437176264	Mr. Kul Bahadur Thapa	9658630354
3	Koraput	OSAP 3rd Bn, Koraput	Mr. Subash Chandra Nayak	9437250194	Mr. Ramesha Chandra Hati	9938406905
4	Chatrapur	OSAP 8th Bn, Chatrapur	Mr. B.N. Mishra	9437087055	Mr. C.R. Bisoi	8280033508
5	Balasore	Armed Police Reserve (APR), Balasore district	Mr. Nithi Sekhar, IPS	9438153309	Mr. P.K. Ransingh	9439379619
6	Bhubaneswar	OSAP 7th Bn, Bhubaneswar	Mr. Biren Ku. Sasmal, OPS-I	9437081266	Mr. D.K. Dehuri	9437185548
7	Mayurbhanj at Baripada	OSAP 5th Bn, Baripada	Mr. Abinash Kumar, IPS	9438153308	Mr. Chandamani Bag	9861986183
8	Rourkela	OSAP 4th Bn, Rourkela	Mr. Khageswar Goud, OPS	9437358292	Mr. Ashok Behera	9437419436
9	Balangir	Armed Police Reserve (APR), Balangir district	Mr. Ashish Kumar Singh, IPS	8895046814	Mr. M. Laxmiranjan	9439268154
10	Jagatsinghpur at Paradeep	Armed Police Reserve (APR), Jagatsinghpur district	Mr. J.N. Pankaj, IPS	9437102020	Mr. P.K. Routray	9438436188

Map__ : Location of ODRAF Units



4.14 Other Disaster Response Teams in the district

Table 05: List of other Disaster Response Teams in the District

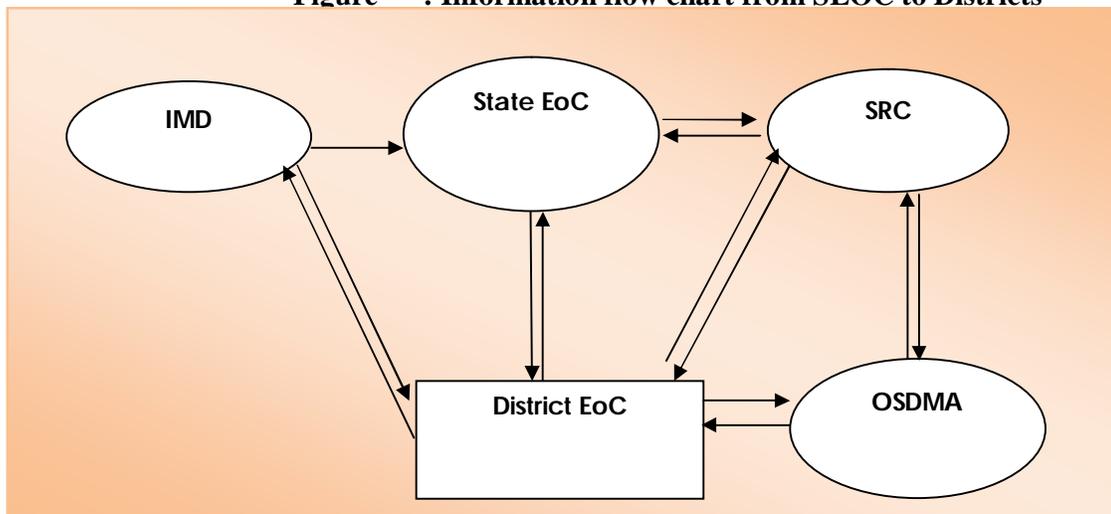
Sl. No.	Name of the Institutions	Name of the Chief Coordinator of the Organization	Designation	Contact Number	Alternate Contact Number	Number of Volunteers
1	Home Guards	Sanjay Kumar Barik	Sergeant	88957 26481	06753 252578	325
2	National Service Scheme (NSS)	Dr. (Mrs.) Surekha S. Swain	Programme Coordinator	0674 2581515 (O)	2582850 (F)	1160
3	National Cadet Crops (NCC)	Capt. Bhabani Prasad Hota	Captain	94377 62354	-	400
4	Nehru Yuva Kendra (NYK)	Basanta Mishra	Local Coordinator	94372 03908	-	2909
5	YuthRed Cross	Aditya Narayan Mishra	Cordinator	9439752030	-	40
6	NGOs	Bijay Kumar Mohaptra	Secretary HAMS	9777230088	-	30

4.15 Emergency Communication System

4.15.1 State Emergency Operation Center (SEOC)

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

Figure : Information flow chart from SEOC to Districts



4.15.2 District Emergency Operation Centers (DEOC)

As per the Government of India national framework for disaster management, the districts are being assisted to set up control rooms/emergency operations centres at district level. An **emergency operations center (EOC)** is a central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, or disaster management functions at a strategic level during an emergency, and ensuring the continuity of operation of the district.

An EOC is responsible for strategic direction and operational decisions and does not normally directly control field assets, instead leaving tactical decisions to lower commands. The common functions of EOCs is to collect, gather and analyze data; make decisions that protect life and property, maintain continuity of the organization, within the scope of applicable laws; and disseminate those decisions to all concerned agencies and individuals.

Emergency Operation Center plays a vital role in the Emergency Operation activation. It coordinates the flow of information with respect to activities associated with relief operations. During the normal times it maintains a systematic database of the resources available, important phone numbers, names and addresses of important government and non-government officials, international bodies, NGOs. During crisis it is expected to function as a center for decision-making and help flow of information horizontally and vertically to the respected departments for smoother relief operations.

Role of EOC on occurrence of disaster

The EOC will function to its fullest capacity on the occurrence of disaster. The district EOC will be fully activated during Level 0 and Level 1 disasters. The activation would come into effect either on occurrence of disaster or on receipt of warning. On the receipt of warning or alert from any such agency which is competent to issue such a warning, or on the basis of reports from IMD, OSDMA, SRC of the occurrence of a disaster, all community preparedness measures including counter-disaster measures will be put into operation. The Collector will assume the role of the Chief of Operations for Disaster Management. The Level disaster/event would be communicated to the following BDOs, Tahasildars, SP, Fire Officer immediately on phone. The EOC may perform the below given actions on the occurrence of a disaster:-

- The occurrence of disaster shall be immediately communicated to all the first responders such as police, fire, health, water and other stakeholders such as NGOs, trained SAR volunteers through SMS gateway for which specific provision of group mobile directory would be mad
- Act as the communications link between line departments and the affected facility.
- Ensure that specifically trained response individuals are available or are being mobilized in the event their expertise is necessary.
- Ensure that necessary equipment is available on site. This may require ordering and arranging delivery of equipment and materials from contractors.
- Monitor TV, radio, and wire services to determine accuracy of public information
- Update executive management as the incident transpires and changes.
- Ensure that all regulatory, state and local notifications and procedures are performed. Act as a liaison with Federal, State, and local regulatory agencies and officials affected by the location and specific nature of the incident.
- Ensure employees and the impacted community is adequately informed of the incident and response actions.
- The directory would be grouped according to the disaster specific response groups.

Role of EOC during normal time

The normal time activities of the District EOC will be to

- Ensure through appropriate statutory instruments that :
- SDMP and DDMPs are operationalised.
- Standard Operating Procedures for various departments are operationalised.
- Ensure that all departments/ blocks continue to update DDMP on a regular basis.
- Encourage departments/ blocks to prepare area-specific plans prone to specific disasters receive reports on preparedness from the district control room.
- Serve as a data bank to all line departments and the planning department with respect to risks and vulnerabilities and ensure that due consideration is given to mitigation strategies in the planning process.
- Convey policy guidelines and changes if any in the legal and official procedures, eligibility criteria with respect to relief and compensation.
- Upgrade and update State DMP according to changing scenarios in the State.
- Update data bank IDRN.
- Monitor preparedness measures undertaken at the district levels including simulation exercises undertaken by various departments.
- Organise post-disaster evaluation and update state DMP accordingly.
- Ensure warning and communication systems and instruments are in working condition.
- Inform district control room about the changes if any in legal and official procedures with respect to loss of life, injuries, livestock, crop, houses, to be adopted (death certificates, identification procedures, etc.)

Table: 6 Equipments provided to DEOC and their operational status

Sl No.	Equipments	Unit	Status		Remarks
			Operational	Non-Operational	
A	Communication Equipment				
1	Satellite Phone	1 No	Yes	-	-
3	Fax Machine	2 No	1	1	1 in good condition, another one out of order
4	VHF Base Station	1 No	-	1	Defunct condition & needs painting and re-erection at new Collectorate Building
5	VHF Mobile Station	1 No	-	1	Defunct condition & needs to be reinstalled at DEOC of New building
6	VHF Handsets(Walkie-talkie)	2 Nos	-	2	Out of order
7	Television Set	1 No	1	-	-
8	Public Address System- Handheld Mega Phone	1 No	1	-	-
9	Siren	1 No	1	-	-
B	Computer Hardware				
10	Desktop Computers	2 Nos	2	-	-
11	UPS	2 Nos	2	-	Defunct & irreplaceable
12	Laser Printer(Hp Laserjet-1150)	1 Nos	-	1	1 printer is damaged & beyond repair
13	Scanner	1 Nos	-	1	1 scanner is damaged & beyond repair
13	Fax	2 Nos	1	1	One fax machine is out of order & beyond repair
14	Multi Utility Machine (Printer, Scanner, Fax, copy)	1 No	1	-	-
C	Other Equipments				
15	GPS Unit	The GPS has been taken back by OSDMA			
16	Satellite Phone	2 Nos	1	1	1 defunct
17	Digital Camera	1 No	1	-	-
18	CO2 Fire Extinguisher	3 Nos	3	-	Good condition & needs replacement of the liquid in due

					time
19	White Board	1 No	1	-	-
20	Soft Boards for display of Maps & Charts	1 No	1	-	-
21	Diesel Generator Set	1 No	1	-	-
22	Computer Chair	1 No	1	-	-
23	Computer Table	1 No	1	-	-
24	Life Buoy	5 Nos	5	-	-
25	Life Jacket	5 Nos	5	-	-
26	Inflatable Tower light	2 Nos	1	1	1 needs to be repaired
27	Power Saw	2 Nos		2	Need repair
28	G.I. Trunk	1 No	1		
29	Inverter with Battery	1 No	1		1 inverter with 2 nos battery
30	Inflatable Tower Light	2 Nos	2	1	1 needs to be repaired
32	Aluminum Ladder	-	-	-	-
33	Megaphone	-	-	-	-
34	Colour TV/Stand	-	-	-	-
35	Mobile Phone	-	-	-	-
36	Rack	1	1	-	-
37	Book Case			-	-
38	Commando Search Light	1	1	-	-
39	Steel Almirah	2	2	-	-

Table 7 Important Line Departments at the District.

Sl No.	Department	Head of the Department at District	Name of the Nodal Officer & Designation	Contact No.
1	Police	SP	S. Susree	06753252088
2	Forest	DFO- Territory	Sri Kshyama Sarangi OFS (1)	7853033077
3	Forest	DFO- Wildlife	Sj. Phalguni Sarathi Malik(OFS-1)	9439035080
4	DRDA	CDO cum EO	Sri. Lagnajit Rout	9437107397
5	Health	CDM&PH. Officer	Dr. Susanat Ku Das	9439991499
6	Education	DEO	Sr. Chitta Ranjan Pandey	8895971612
7	Livestock	CDVO	Dr. Prasant Kumar Mishra	943197818
8	Food Supply	CSO	Sri.Bajendra Kumar Mohanty	9437313515
9	Agriculture	CDAO	Suman Singh Pattaniak	9437846892
10	Horticulture	DDH	Sri Lalit Kumar Panda	9437443991
11	Transport	RTO	Sri P.K. Parida	9439720052
12	Road & Building	EE, R&B	Sri Pramod Kumar Dhar	9249484140
13	RWSS	EE- RWSS	Er.Surfranj Khan	7377859245
14	Electricity	GM TPCODL	Sri.Santoshkumar Mahapatra	9437095252
15	Irrigation	EE, Irrigation	Sri Pritam Chetan Pothal	9437393700
16	NH	AEE, NH	Sri Chandan Ku. Rath	9439158833
17	Minor Irrigation	EE, MI	Sri BishnupadaPattayat	9439051125
18	Fire	Asst. Fire Officer	Prasanjit Behera	9437827131
19	Social Welfare	DSWO	Smt. Puspalata Patra	7328068859
20	Social Security	DSSO	Sri Kamdev Nayak	9853370717
21	Emergency	DEO	Smt. Tapati Raj	9438581598

A. Contact details of Tahasildars of District Nayagarh

Sl No.	Name of the Tahasil	Name of the Tahasildars	Landline No	Mob. No.	E-mail Id
1	Tahasildar, Bhapur	Arjun Pradhan	06757-238122	9437280256	bhapurtahasildar@gmail.com
2	Tahasildar, Dasapalla	Smrutiranjana Satapathy	06757-220022	9556000638	tahasildaspalla@gmail.com
3	Tahasildar, Gania	Pritibala Rana	06757-230022	8260596958	tahasildkha@gmail.com
4	Tahasildar, Khandapada	Biswa Bisruta Tripathy	06757-226075	7751009654	tahasildgania@gmail.com
5	Tahasildar, Nayagarh	Sri Rajes keshari Swain	06753-252254	9438444758	tahasildngr@gmail.com
6	Tahasildar, Nuagaon	Sri Hemanta Kumar Nayak	06753-263123	7978297979	tahasildnuagaon@gmail.com
7	Tahasildar, Odagaon	Sri Manas Bhoi	06753-260050	8249323852	tahasildar.odagaon@gmail.com
8	Tahasildar, Ranpur	Sri Arya Kumar Sarvadaman	06755-236025	7325916900	tahasildar.ranpur@gmail.com

B. Contact details of BDOs of District Nayagarh.

Sl No.	Name of the Block	Name of the BDO	Landline No	Mob. No.	E-mail Id
1	BDO, Bhapur	Sri Sarada Prasan Panda	06757- 238025	9810160379	ori-bhapur@nic.in
2	BDO, Dasapalla	Sri Bhubanananda Pattanaik	06757-220025	7008831151	ori-daspalla@nic.in
3	BDO, Gania	Sri Sagar Nanda	06757-230025	8328963326	ori-gania@nic.in
4	BDO, Khandapada	Ankur Abhilash	06757-226025	8895504311	ori-khandapara@nic.in
5	BDO, Nayagarh	Aisurya Bhuyan	06753-252207	8076041642	ori-bnayagarh@nic.in
6	BDO, Nuagaon	Dr. Amrut Roul	06753-263025	9439400990	ori-nnuagaon@nic.in
7	BDO, Odagaon	Sri Jitendra Nayak	06753-260800	8249006255	ori-odagaon@nic.in
8	BDO, Ranpur	Sri Manoj Kumar Nayak	06755-236050	9937735054	ori-ranpur@nic.in

C. Contact details of Executive Officers of ULB of District Nayagarh.

Sl No.	Name of the ULBs	Name of the E.O	Landline No	Mob. No.	E-mail Id
1	EO, NAC, Daspalla	Abinash Mohanty	NA	8895084847	nacdaspalla@gmail.com
2	EO, NAC, Khandapada	Abhisek Mishra	NA	9777472290	nackpg89@gmail.com
3	E.O Municipality, Nayagarh	Snehalata Acharya EO	NA	9438335150	nacnayagarh@yahoo.co.in
4	EO, NAC, Odagaon	Nihar Ranjan Behera	06753-260062	7008628567	nacodagaon@gmail.com
5	EO, NAC, Ranpur	Biswambhar Mohapatra	NA	8637278034	eoranpurnac.ranpur@gmail.com

D. Contact details of line department officers of District Nayagarh.

1	Home(Fire)	Asst. Fire Officer, Nayagarh	Prasanjit Behera	9437827131
2	Labour & ESI Deptt.	District Labour Officer, Nayagarh	Sri Chittaranjan Rout	9438256050
3	Forest, E & CC Deptt.	District Forest Officer(T), Nayagarh	Kshyama Sarangi, DFO(T)	9437118438

4	C & T Deptt.	RTO, Nayagarh	Sri Prasanta Kumar Parida	9439720052
5	F & ARD Deptt.	CDVO, Nayagarh	Dr. Prasanta Kumar Mishra	9437197818
6	Agriculture & FE Deptt.	CDAO, Nayagarh	Suman Singh Pattanaik	9437846892
7	Agriculture & FE Deptt	Dy. Director, Horticulture, Nayagarh	Sri Lalit Panda, DDH	9437443991
8	Water Resource Dept.	Irrigation, Nayagarh	Sri Pritam Chetan Pothal SE	9437393700
9	WCD Dept.	DSWO	Puspalata Patra	7328068859

E. Contact details of CDPOs of Nayagarh district

1	CDPO, Bhapur	CDPO	Smt. Trupti Mohapatra	9938958824
2	CDPO, Dasapalla	CDPO	Smt. Sanjukta Samal	9658170070
3	CDPO, Gania	CDPO	Smt. Usharanui Sahu	8455824515
4	CDPO, Khandapada	CDPO	Smt. K. Koteswari	9438774102
5	CDPO, Nayagarh	CDPO	Smt. Soudamini Panda	9439904701
6	CDPO, Nuagaon	CDPO	Smt. Subhrakeshi Mallik	6371601507
7	CDPO, Odagaon	CDPO	Smt. Lahadimala Pradhan	9437589317
8	CDPO, Ranpur	CDPO(I/C)	Smt. Soudamini Panda	9439904701

4.15.3 Any other Alternative Emergency Operation Center in the district

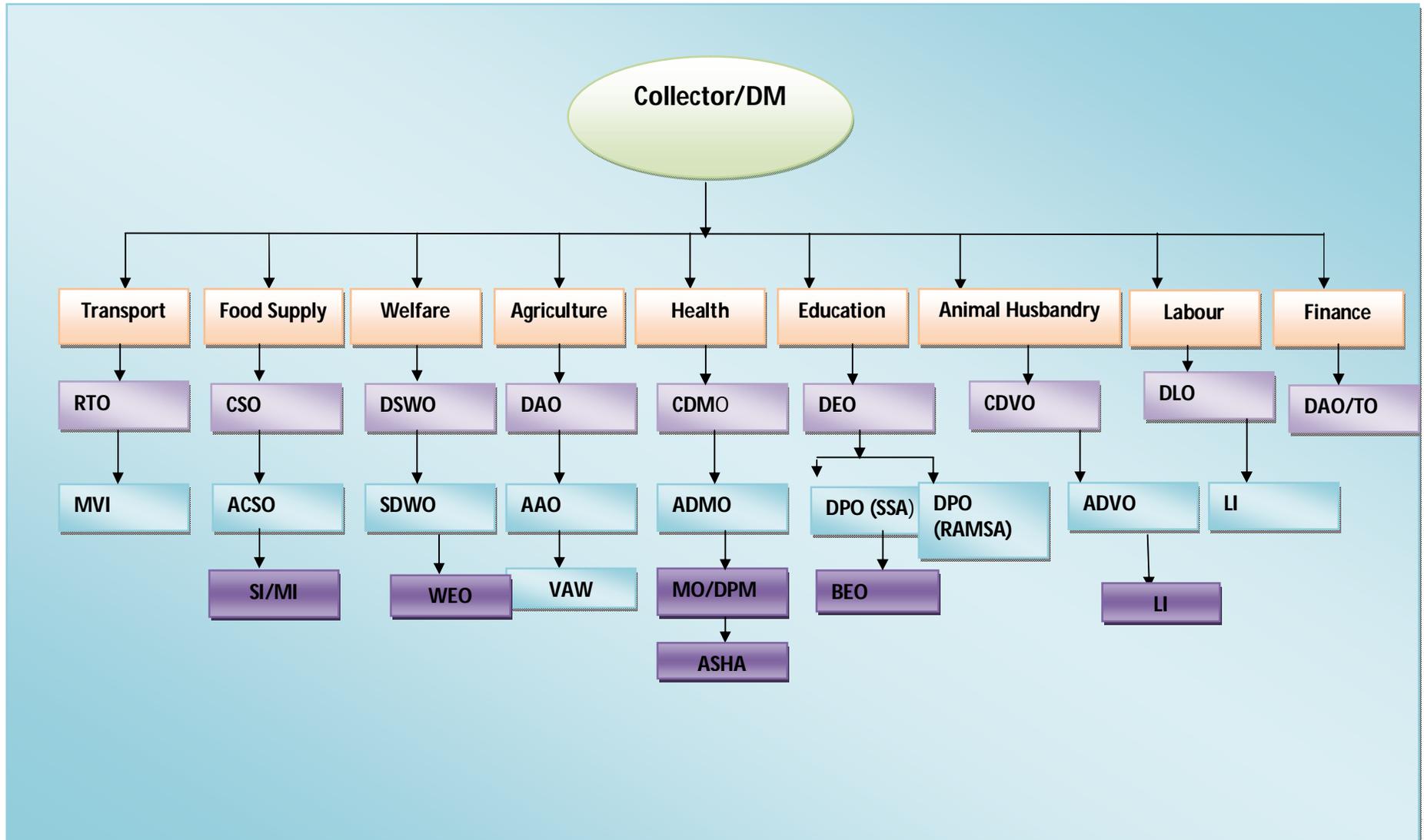
Beside these other departments like transport, police, fire service & health are operating round the clock emergency operation centre in the district. The contact details are given below:-

Table No.9

Sl. no	Name of the Block	Name of the Department/ Agency	Contact Number
1	Nayagarh	CHC, Badapandusar	06753-256040
2	Bhapur	CHC, Bhapur	06757-238085
3	Gania	CHC, Gania	9439991568
4	Daspalla	CHC, Madhyakhanda	9439991577
5	Nuagaon	CHC, Mahipur	9439991607
6	Khandapada	CHC, Nuagadisahi	9178638025 9439991720
7	Ranapur	CHC, Rajsunakhala	9439991557
8	Odagaon	CHC, Sarankul	9439991587
9	Dist HQ	Police Control Room	06753-252568
10	Dist HQ	Fire Services	06753-252101
11	Odgaon	Fire Station	06753-260050
12	Daspalla	Fire Station	06757-220023
13	Khandapada	Fire Station	06757-230033
14	Bhapur	Fire Station	06757-238101
15	Nuagaon	Fire Station	06753-215101
16	Ranpur	Fire Station	06755-236022
17	Gania	Fire Station	06757-226101
18	Dist HQ	Irrigation Division	06753-252256

4.16 Coordination structure at the District level and down the line

Figure 4: Coordination structure at the District level and down the line



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

Since the community is the first responder in any disaster situation, there is a great need for community level initiatives in managing disasters. The initiatives taken by various agencies, including the NGOs, need to be people-centric and the level of community participation should be gauged through the role played by the community in the process of planning and decision-making. Efforts should also be made to strengthen local economies, thereby making people independent of external assistance.

The voluntary sector has been in the forefront of mobilizing communities, enabling them to cope with disasters in the past decades. Their initiatives and experiences have been consolidated and demonstrated on a larger scale with the help of the state. Development organizations working in communities share a good rapport with the community, which helps the state in implementing its plans more effectively; village level plans prepared after the Super Cyclone in Orissa could be seen as an example of the same.

The focus of GO-NGO coordination in disaster management plan now incorporates the following:

- Community Based Disaster Preparedness
- Development of block, Gram Panchayat and Village disaster management plans
- Capacity building
- Response & rescue

The district has no GO-NGO coordination cell in place right now but talks are in progress & likely to form in near future.

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

Globally disaster risk mitigation and management is now taken up as everybody's business. It is increasingly realized that private, or more appropriately, corporate sector cannot remain insulated from either the effects of increasing natural disasters or the responsibilities of reducing the risks of disasters. Corporate sector depends on community at large for sustenance, not only as a source of labour, capital and material but also as a market for products and services. If the community life itself is destroyed by disaster the lifeline of the corporate gets threatened. Further in a globalized economy market in the remotest part is integrated by a long supply chain, which is disrupted by disasters.

There are three main ways in which corporate sector contributes to the process of disaster risk reduction:

- Corporate Social Responsibility (CSR) in supporting relief, rehabilitation and risk reduction activities;
- Redefining the business continuity plan to factor in hazards, risks and vulnerabilities;
- New business opportunities created in disaster reduction due to the increase in emphasis on risk reduction.

Corporate Social Responsibility

Historically business houses have been spending money on disaster relief and rehabilitation on following grounds:

- a) It helps community in distress;
- b) It helps community to bounce back as ultimate consumers as also producers and therefore helps to sustain business;
- c) It improves the image and public relations of the company;
- d) It attracts tax concessions.

In many countries big business houses have their own non-profit organizations which run a range of social projects on education, health, community development and entrepreneurship development etc which reduce disasters in the long run.

Smaller business houses mainly contribute to projects run by NGOs. Government can create an enabling environment for greater corporate sector investment in disaster risk reduction activities through innovative partnership. A few examples of such partnerships are:-

APELL (Awareness and Preparation for Emergencies at the Local Level): It involves private sector, government and people to raise awareness of communities to prevent technological accidents. This network has been supported in a number of countries by United Nations Environment Programme;

DRN: (Disaster Resource Network). This network is run by Construction Federation of India to encourage safe construction practices;

IDRN: (India Disaster resource Network): This is a web based inventory of human and material resources on disaster response;

Innovative Public Private Partnership

Various innovative models of Private-Public-Partnerships are emerging in many countries for promoting multi-sectoral partnerships on disaster risk reduction under the leadership of the private sector. Some of the examples of such innovative models are:

- Private-Public-People Partnership - private sector joining hands with government and community based organizations for risk reduction programs at local level. Example: Bhagidari of Delhi;
- Pro-Poor Public-Private Partnerships designed to attract investment and technology in dry land areas for production of high value food commodities and for creating supply chain in a globalized economy. New hybrid organizations involving corporate sector, government, civil society and NGOs coming up. Proactive policy interventions of national governments shall encourage such innovations on disaster risk reduction with minimal direct investments of government.

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

Red Cross Volunteer Forum

The Indian Red Cross is a voluntary humanitarian organization having a network of over 700 branches throughout the country, providing relief in times of disasters/emergencies and promotes health & care of the vulnerable people and communities. It is a leading member of the largest independent humanitarian organization in the world, the International Red Cross & Red Crescent Movement. The movement has three main components, the International Committee of Red Cross (ICRC), 187 National Societies and International Federation of Red Cross and Red Crescent Societies.

The Red Cross Voluntary Forum was established 10-12 years ago in the district with an objective to Promoting humanitarian principles and values; Disaster response; Disaster preparedness; and Health and Care in the Community. Although in the past years the paradigm has also been extended to a number of local issues including promoting awareness on road safety, organizing health & blood donation camps, arrangement of funeral work of deceased, medical assistance to injured, mass marriage of poor/ backward girls, transportation facility to patients faced accidents etc.

A total of 40 self motivated volunteers from different blocks of the district are working under the forum. In the past years the volunteers have significantly contributed towards disaster response during the 2013 Phailin & 2014 flood in the district as well as in 2008 Kandhamal communal riot.

Table__Contact Details of Private emergency services

Sl. No.	Name of the Contact Person	Contact No.
1	Jaminikanta Pattanaik, Convener	94372 87001
2	Bibhuti Bhusan Pattanaik, Advisor	99382 27515

4.20 Multi Purpose Cyclone Shelters (MCS) in the district

a) Details of Cyclone Shelter Management and Maintenance Committee (CSMMC)

After the Super Cyclone it was felt that number of deaths were more in the affected areas during the Super Cyclone due to non-availability of safe shelter buildings in the coastal villages, which could have withstood the intensity of the cyclone and the storm surge. Only 23 cyclone shelters were constructed by Indian Red Cross before the super cyclone, wherein about 42000 people took shelter and saved their life. In the aftermath of the Super cyclone 1999, Government of Orissa decided to construct multipurpose cyclone shelters along the Orissa coast to provide safe shelters to the vulnerable people during floods and cyclones under different programmes like NCRMP, ICZMP, CONCOR, NCRMP& CMRF. The Cyclone Shelter Buildings are designed to withstand a wind speed of 300 km per hour. The plinth level has been fixed above the recorded high tide level to prevent inundation by possible storm surge or high floods. Most of these buildings have been constructed within school premises for use as schools and for other community activities during normal time. All the Cyclone Shelters have been provided with generator sets for alternative power supply; disruption in power supply being a known phenomenon during cyclone.

Community based Cyclone Shelter Management and Maintenance Committee (CSMMC) have been formed under the Chairmanship of Sarpanch and a volunteer from the community as Secretary and the buildings have been handed over to the concerned CSMMC for management and maintenance. Local Tahasildar, Medical Officer, Junior Engineer of the Block, Revenue Inspector, Head Master of the School, ANM and Anganwadi Supervisor are Ex-Officio Members of the Committee. Representatives from local NGO, from shelter and served villages, SHG and SC & ST communities are also members of the Committee. The CSMMC takes the charge of day-to-day management and maintenance of the building. Most of the buildings have been constructed in School premises so that the buildings will be used for School purposes during normal time. The CSMMC has also been authorized to put the building for economic / community uses like community house, kalia mandap etc. and earn user fees. The amount so earned is kept in a joint account and as and when necessary spent for the purpose of maintenance of the building. 4 numbers of MCSs have been constructed in Ranpur block at most vulnerable locations & are managed by CSMMC of the concerned vicinity. Aim and Objectives of the CSMMC/ FSMMC:

- To manage and maintain the Multipurpose Cyclone Shelter (MCS) constructed by Orissa State Disaster Mitigation Authority (OSDMA) as a caretaker to the community asset on behalf of OSDMA and the community.
- To ensure safe custody of the building and the equipment supplied/ to be supplied from time to time.
- To keep the building in readiness for use as shelters by the evacuated persons during the disaster and to vacate the same after disaster.
- To ensure lawful use of the building during normal time, to put it on income generating use and collect funds for maintenance and to carry out actual minor repair work as per the rule out of the fund and maintain the records as per rules.

- To ensure participation of the vulnerable community including the shelter village and served villages in disaster preparedness activities and in management and maintenance of the MCS.
- To organize community based capacity building activities like workshops, seminars, training programme on disaster related skills, padayatra etc to sensitize, involve and to strengthen the community.
- To develop a spirit of voluntarism among the youth of the community and to organize them into different task forces, strengthen their capacity and ensure their participation in disaster management.
- To disseminate disaster warnings and preparedness safety tips in the community and helps them in preparedness.
- To establish and maintain relation with field level officials of different departments of Govt., VDMC members and NGOs for better preparedness and management of activities during disaster.

The details of the Cyclone shelter Maintenance & Management Committee are given below:-

Sl. No.	Name of the Cyclone Shelter	Location	Name of the GP	Name of President	Contact No.	Name of Secretary	Contact No.
1	MCS, Champagada under Ranpur block	Panchayat High School, Champagada	Champagada	Piyush Ranjan Parida	8327704100	Manmath Ku. Bhola	9938565939
2	MCS, Raipada under Ranpur block	Near Gram Panchayat Office, Raipada	Raipada	Basanti Dei	9777277409	YudhistrirRansingh	6372532565
3	MCS, Muktapur under Ranpur block	Muktapur Prakalpa Upper Primary School, Muktapur	Kerendatangi	Pragati Mahapatra	8598965029	Satyanarayan Palei	7735328672
4	MCS, Barangadia under Ranpur block	Balukeswar Bidya Pitha, Barangadia	Champapedi	Sakuntala Martha	9938341208	Ramesh Chandra Rout	9348487932 7894872474

Equipments provided to the Multi purpose Cyclone Shelter

SlNo.	Name of the MCS	Location	Equipment Provided	Status		Remarks
				Operational	Non-Operational	
1			Generator Set- 1 Set	✓		
2			Aska Light	✓		
3			Chain Saw	✓		
4			Life Jackets (MMD & SOLAS Approved)	✓		
5			Life Buoy (MMD & SOLAS Approved)	✓		
6			Nylon Rope- 12 mm Dia	✓		
7			Manila Rope – 6 mm Dia	✓		
8			Sisal Rope (Cord)- 6 mm Dia	✓		
9			Telescopic Aluminum Ladder- 30 ft	✓		
10			Florescent Jackets	✓		
11			Mass Kitchen Utensils- 22 items	✓		

12			Notice Board with chicken Net covering and Locking	✓		
13			Dari	✓		
14			Black Board	✓		
15			Plastic Chair	✓		
16			Solar Lantern with Charger	✓		
17			Siren	✓		
18			Hand Held Megaphone	✓		
19			Black Board	✓		
20			Plastic Chair	✓		
21			Solar Lantern with Charger	✓		
22			Siren	✓		
23			Hand Held Megaphone	✓		
24			Black Board	✓		
25			Plastic Chair	✓		

4.21 Flood Shelters (FS) in the District

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

Community based Flood Shelter Management and Maintenance Committee (FSMMC) constituted at the shelter level are responsible for the sustainable maintenance and management of these shelters by generating resources on putting these buildings in income generating use under the leadership of Sarpanch. The FCS buildings have been handed over to the respective Flood Shelter Management and Maintenance Committee (FSMMC). Task Forces have been constituted for each shelter and they have been trained on Search & Rescue, First Aid and use of basic search and rescue Equipment provided to the cyclone shelters. 13 numbers of MFSs have been constructed in the district at most vulnerable locations & are managed by FSMMC of the concerned vicinity. Out of that 8 shelters are under construction/ not submitted to the district. The detail is given below:-

Table_9_ : Details of FSMMC

Sl. No.	Name of the Flood Shelter	Location	Name of the GP	Name of President	Contact No.	Name of Secretary	Contact No.
1	MFS, Champapedi under Ranpur block	GP office campus, Champapedi	Champapedi	Sakuntala Martha	9938341208	Nabakishore Sam antaray	9937458592
2	MFS, Raipada under Ranpur block	Arjunpur UGSS School, Arjunpur	Raipada	Basanti Dei	9777277409		
3	MFS, Badmul Under Gania block	Bethisahi Project UP School, Badmul	Chhamundia	Diptirekha Senapati	7735199929	Gyana Ranjan Behera	8018802168
4	MFS, Wallipur under Gania block	Wallipur Lower Primary School, Wallipur	Belpadapatna	Sukanta Ganthia	9938275933	Anadi Ch.Swain	9938009903
5	MFS, Kantilo under Khandapada block	Infront of East gate of Nilamadhab Temple, Kantilo	Kantilo	Shreeyarani Behera	7008467048	Santosh Kumar Sahoo	9937708554
6	MFS, Sidhamula under Khandapada block	GokulanandaBidyapitha, Sidhamula	Sidhamula	Gitanjali Jena	6372374201	Kartika Swain	9937709920
7	MFS, Karabar under	Adjacent to Girls	Karabara	Usharani	9938117343	Saumya Ranjan	97763

	Bhapur block	High School, Karabara		Sahoo		Mahapatra	88517
8	MFS, Kalipalli under Bhapur block	Kalipalli	Dhanchangda	Subhaswapna Biswal	7750047948	Bidyadhar Behera	7325845717
9	MFS, Madhapur under Bhapur block	Madhapur	Patharchakada	Shibani Dash	7008309914	Trinath Sahoo	8249121931
10	MFS, Hamumantprasad under Bhapur block	Hanumantprasad	Kendupalli	Tareswar Majhi	6370615134	Basanta Ku. Jena	9778764468
11	MFS, Natugaon under Nayagarh block	Near Natugaon GP Office, Natugaon	Natugaon	Sagarbala Barad	7008471325	Bhagaban Jena	9937013188
12	MFS, Badpandusar under Nayagarh block	Badapandusara High School, Badapandusara	Badapandusar	Banita Nayak	9437925908		909025 1867
13	MFS, Bilagoroda under Odagaon block	Bilagoroda Project Primary School, Bilagoroda	Badagoroda	Trilochan Dalei	9337095356	Ramesh Nahak	7653859241

4.22 Other identified Safe temporary shelters in the district

Table __: Identified Safe temporary shelters(Block wise) Deatil list available in DEOC, Nayagarh.

DEOC Nayagarh already identified 399 temporary shelter in nayahargdist all over the 6 blocks. Mainly the school building, AWW building ,Club building,Kothhaghar are used as tomparary shelters having the faciltes of RCC roof,Clean toilet, Kitchen and free space for the evacuated people.

Sl no	Name of the block	No of temporary shelter
1	Ranpur	17
2	Bhapur	12
3	Gania	7
4	Dasapalla	200
5	Nuagaon	83
6	Odagaon	75

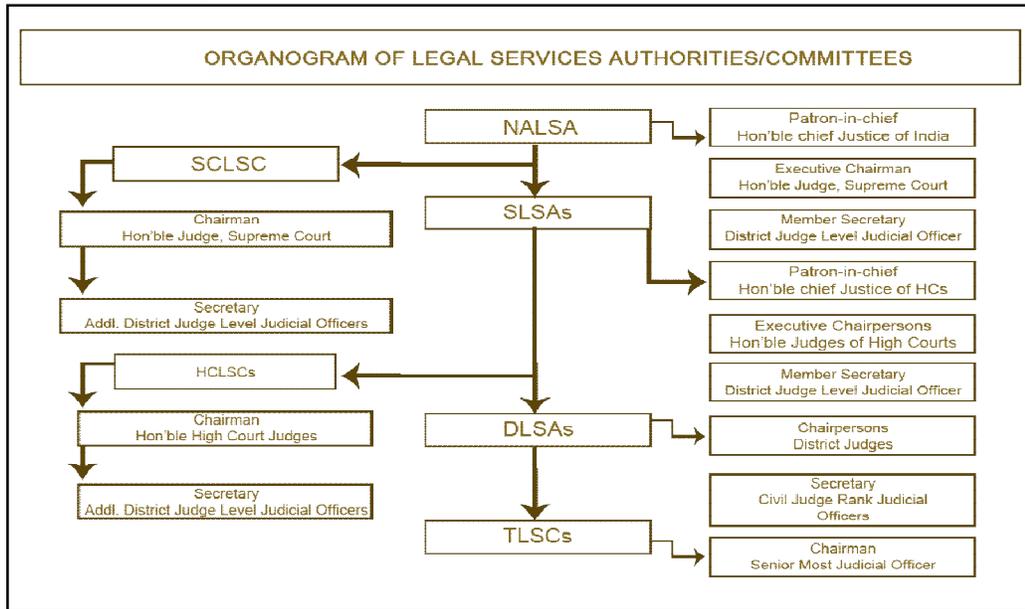
4.23. Other SafeSites for temporary shelter for Flood/ Tsunami etc.

Sl. No.	Block Name	GP Name	No. of Mounts	No. of High Bridges
1	Gania	Chhamundia	10	03
2	Nayagarh	Champatipur	-07	01

National Legal Services Authority (NALSA):

The National Legal Services Authority (NALSA) has been constituted under the Legal Services Authorities Act, 1987 to provide free Legal Services to the weaker sections of the society. The Chief Justice of India is the Patron-in-Chief and the senior most Hon'ble Judge, Supreme Court of India is the Executive Chairman of the Authority. Public awareness, equal opportunity and deliverable justice are the cornerstones on which the edifice of NALSA is based. The principal objective of NALSA is to provide free and competent legal services to the weaker sections of the society and to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities, and to organize Lok Adalats for amicable settlement of disputes. Apart from the abovementioned, functions of NALSA include spreading legal literacy and awareness, undertaking social justice litigations etc. With the aim of reaching out to the diverse milieu of people belonging to different socio-economic, cultural and political backgrounds, NALSA identifies specific categories of the marginalized and excluded groups from the diverse populace of the country and formulates various schemes for the implementation of preventive and strategic legal service programmes to be undertaken and implemented by the Legal Services Authorities at the various levels. In carrying out all these responsibilities, NALSA works in close coordination with the various State Legal Services Authorities, District Legal Services Authorities and other agencies for a regular exchange of relevant

information, monitoring and updating on the implementation and progress of the various schemes in vogue and fostering a strategic and coordinated approach to ensure smooth and streamlined functioning of the various agencies and stakeholders.



Odisha State Legal Services Authority (SALSA):

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

The general public who need any legal help / legal aid can directly contact the concerned Taluk Legal Services Committee / District Legal Services Authority, the High Court Legal Services Committee and the State Legal Services Authority, as the case may be, for their legal needs. Added to it, Front Offices have also been established in the premises of the District Legal Services Authority and Taluk Legal Services Committee manned by advocate retainers to offer legal advice to the beneficiaries and the general public as well and also to assist them in different Legal Services Activities. The State Legal Services Authority has 15 Members which include the Hon'ble Chairman of High Court Legal Services Committee, Principal Secretaries in the Depts. of Law and Finance, Director-General and Inspector-General of Police, Advocate General, District Judges of Cuttack and Khurda at Bhubaneswar. Apart from that the State Authority has 5 nominated Members namely Hon'ble Minister, Law, Orissa, a Senior Advocate of Orissa High Court, an M.P., an M.L.A., and an eminent social worker who have experience in the field of Law, Finance, Social Service or Administration and who are engaged in the upliftment of the weaker sections of the society, including Schedule Castes, Schedule Tribes, Women, Children, rural and Urban Labour and who are interested in the implementation of the Legal Service Schemes.

Chapter – 5

Prevention & Mitigation Measures

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

Structural measures may refer to both- engineered structures & non engineered structures. Engineered structures involve architects & engineers during the planning, designing & construction of structures including buildings, dams, embankments, roads, bridges etc. Many countries have laws & rules providing codes for engineered construction. These codes provide guideline for appropriate design & construction techniques in disaster prone areas for specific disasters such as earthquakes & cyclones.

Non engineered structures are generally constructed by people with the help of local artisans like masons, carpenters etc using locally available resources & raw materials. These structures are normally low cost but less strength/ resistance for disaster.

Multi Hazard Mitigation Actions

The following structural measures may also be considered in addition to hazard specific actions:-

- All public buildings like schools, hospitals, health centres etc should be multi hazard resilient, being built on raised grounds & platforms with retrofitting and having adequate exit gates and fire extinguishers in place.
- Construct multipurpose community shelters/ cyclone shelters/ flood shelters in all vulnerable areas.
- Houses built in the area should have multi hazard resilient features keeping in tune with cultural housing practices.
- A study may be conducted by the district administration to assess the existing structures and systems in place for watershed management and recommend best options for effective watershed management.
- Promotion of Earthquake resistant construction mainly includes construction safety, quality control and proper inspection. Previously there were no specific guidelines on earthquake resistant constructions and seismic strengthening.
- Periodically cleaning, de-silting & deepening of natural water reservoir & drainage channels.
- Construction of irrigation channels. Sluice gates may be linked with ponds which could be used as a water resource for enhancing livelihood.

Below given table indicates some structural measures planned to implement for prevention of **drought** situations in Nayagr district by the **IWMP**. Construction of rain water harvesting structure like ponds, canals, dams & recharging of the ground water table etc are the main aims of IWMP.

Sl. No.	Name of the Block	Unit	Name of the Department/ Office	Activity/ Project	Starting date	Date of completion	Cost (in Lakhs)	Funding source
1	Nayagarh	0	Soil Conservation and Watersheds Development, Odisha/ Project Director, Watersheds, Nayagarh	PMKSY (Watershed Development)/PM KSY (PDMS, Other Intervention)			5.98	Govt of Odisha
2	Daspalla	0			8.10			
4	Khandapada	2			4.37			
5	Odagaon	13			38.19			
6	Ranpur	28			77.97			
7	Nuagaon	6			17.67			
8	Bhapur	10			24.46			

5.2 Structural Measures: For Mitigation of Flood & Cyclone

Since Naygarh has continuously become the victim of multiple natural hazards, it is of utmost importance to undertake mitigation measures. Depending upon the need & vulnerability of the vicinity 4 numbers of MCSs & 5 MFS have already been constructed & handed over to the district, however 8 numbers of MFSs are under constructed in the district. Below given table gives a glimpse of the structural measures undertaken to mitigate the impact of flood & cyclone in the district by the Government. Below given infrastructures are the ongoing & the concerned BDOs are supervising the activities

5.3 Non-structural Measures:

It is of utmost importance that the non-structural mitigation measures are also to be framed essentially in such a way that the population of the district will be aware on disaster preparedness & mitigation measures & simultaneously their capacity shall be developed to cope up with hazardous situations in future.

- Risk transfer mechanisms: Insurance brings quality consciousness in the infrastructure & culture of safety by insisting to follow building codes, norms, guidelines & quality materials in construction. Establishment & strengthening of insurance schemes & policies which would transfer the risk & losses to a third party. Insurance schemes for crop, cattle, small business & life should be strengthened & promoted to minimize economic losses.
- Formation of trained groups of architects, engineers & masons for construction of disaster resilient infrastructures.
- Alternate safe housing technology with rain water harvesting structure is constantly encouraged & mainstreamed for long-term vulnerability reduction. Policies & bylaws could be developed for the same.
- Continuous awareness campaign & encouragement for disaster proof habitat planning at community level including shifting/ relocating from low lying areas & villages within embankments to safe raised grounds.
- Disaster Management may include first-aid, evacuation & search & rescue as a part of school, college, educational institutions curriculum.
- The DDMA may suggest conducting research on alternative cropping to reduce adverse effect due to flood, water logging or drought.
- Specialised projects may be implemented in the district to strengthen the process of Community Based Disaster Risk Reduction (CBDRR).

District Consists up of weak & illegal constructions, which compounds its vulnerability to earthquake, fire & building collapse. Buildings constructed with good design are not necessarily disaster resilient & built with earthquake safe design. There is a need of an urgent mitigation planning under which new constructions should be come up as per building bylaws & standard codes. The RD department & district administration needs to administer flood, cyclone & fire safety assessments of the infrastructures & fire-fighting arrangements shall be promoted in all minor & major buildings & establishments. Below given some of the activities undertaken at the district level:-

Crop insurance

The Pradhan Mantri Fasal Bima Yojana (Prime Minister's **Crop Insurance** Scheme) was launched by Prime Minister of India Narendra Modi on 18 February 2016. It envisages a uniform premium of only 2 per cent to be paid by farmers for Kharif **crops**, and 1.5 per cent for Rabi **crops**.

Swasthya Kantha

Under the programme of NHM, the health department in the district is using the common accessible places to display all the informations, reduce epidemic related morbidity & mortality & mitigate the impact etc both in rural & urban areas.

Road safety week

The district is observing the road safety week at all the vital & strategic locations to spread awareness among the inhabitants to enhance the understanding & reduce the risk.

Mock drill & demo exercise

The fire services wing in the district is conducting safety mock drill & exercises in schools, colleges, hospitals & vulnerable locations on fire safety, first aid, rescue etc throughout the year.

Vana Suraksha Samiti

The district has 326 VSS in place & entrusted for the protection of forest. Their main task is to protect the forest from forest fire. And quite significantly the said groups have performed in the past years voluntarily. Since the forest in the district is prone to Ground fire, the existence of such groups is quite helpful in tackling the forest fire easily.

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

DRR means Integrating risk reduction into development policies and plans at all levels of government including poverty reduction strategies and multi-sectoral policies and plans (HFA 2005-2015). Mainstreaming Disaster Risk Reduction into Development and Disaster Management Plans is an important mandate of the Disaster Management Act 2005. Already there is an emerging consensus that the key to achieve sustained reduction in disaster losses lies in factoring risk considerations into development activities. Risk sensitive land-use planning, building regulations with provisions for structural safety against natural hazards, construction of hazard resistant infrastructures including housing, mechanism for disaster risk audit, catastrophic risk insurance etc. could reduce future disaster risks.

Mainstreaming disaster management into the development planning process essentially means looking critically at each activity that is being planned, not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity's potential contribution to hazard specific vulnerability. In order to mainstream DRR appropriate policy interventions and adequate financial allocation would be required. Below given a table indicates the possible convergence of DRR with mainstreamed schemes of the government.

Sl. No.	Scheme	Possible activities for DRR
1	Pradhan Mantri Fasal Bima Yojna (PMFBY)	<ul style="list-style-type: none">Identified drought prone villages of the district can be covered under the scheme to encourage risk transfer mechanismThe DDMA can stretch the awareness to all the corners of the district & encourage farmers to avail the facility
2	Pradhan Mantri Gramin/ HFA-Urban Awas Yojana, Biju Pucca Ghar Yojana, Indira Awas Yojana, Rajiv Awas Yojana	<ul style="list-style-type: none">Disaster resilient technology can be utilised during construction of the rural/ urban housing under the said schemesAll the JEs, AEs, masons of the district can be trained on how to promote & utilise the technology during construction of buildings & infrastructures
3	Nehru Yuva Kendra, National Cadet Core, National Service Scheme	<ul style="list-style-type: none">Youths & volunteers can be trained on different aspects of disaster management directly & simultaneously their family members indirectly
4	Biju Setu Yojana	<ul style="list-style-type: none">Mainly targets the rural connectivity (GP/PS roads) & can play a tangible role in DM.The new technology can be utilised to make the infrastructures disaster resilient

Chapter – 6

6.1 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 greenhouse gas concentrations in the atmosphere since the industrial revolution. Global surface temperature change for the end of the 21st century is likely to reach 4°C if no drastic mitigation actions are taken. Various sources of climate data exist that can support planning for climate change.

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

Table: 1

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

6.2 Important Greenhouse Gases: Carbon Dioxide (CO₂)

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

The most important anthropogenic GHG is carbon dioxide (CO₂). It accounts for around 64% of total radiative forcing due to LLGHGs. Carbon dioxide does not have a specific lifetime because it is continuously cycled between the atmosphere, oceans and land biosphere and its net removal from the atmosphere involves a range of processes with different time scales. CO₂ is primarily emitted as a result of burning of fossil fuels, deforestation and forest degradation and iron and steel production. Oceans and forests are the main sequesters of carbon i.e. sinks that can absorb CO₂ from the atmosphere. Carbon dioxide is the gas to which all other gases are compared when speaking of Global Warming Potential. Emissions of other greenhouse gases can be converted into *CO₂ equivalent emissions*

Table:2

6.3 Important GreenhouseGases: Methane (CH4)

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

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.

Table :3

Sl No	Name of the Block	Major Sources	Annual émission (In PPM)	Ranking as per CH4 Emission (PPM)	Action taken for cutting down émission

6.4 Important GreenhouseGases: 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 :4

Sl No	Name of the Block	Fertiliser /Industrialprocesses	Annual Usage (In tonnes)	Ranking as per N2O Emission (PPM)	Other major pollutants emitted (PPM)	Action taken for cutting down émission

6.5 Important GreenhouseGases: FluorinatedGases

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.

Table:5

Sl No	Name of the Industry/Firm/Plant	location	Annual émission (In PPM)	Ranking as per flourinatedgas Emission (PPM)	Action taken for cutting down émission

6.6 Important Green House Gases: chlorofluorocarbons (CFCs)

Chlorofluorocarbons (CFCs) an important Green House Gas contribute about 12% to radiative forcing by long-lived GHGshas 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.

Table :6

Sl No	Name of the Industry/Firm/Plant	location	Annual émission (In PPM)	Ranking as per flourinatedgas Emission (PPM)	Action taken for cutting down émission

6.7 Green House Gas Sequestration

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

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

Source: UNFCCC (2009). Fact Sheet: The Need for Mitigation

Major Greenhouse Gases Contributors (Anthropogenic) to Climate Change

(Table :7)

Greenhouse Gas	Human Source (Examples)	% of Total Global GHG Emissions (2010)
Carbon dioxide (CO ₂)	Fossil fuel combustion, land use changes, cement production, etc	76%
Methane (CH ₄)	Fossil fuel mining/distribution, livestock, rice agriculture, landfills, etc	16%
Nitrous oxide (N ₂ O)	Agriculture (fertilisers) and associated land use change, etc	6%
Hydrofluorocarbons (e.g. HFCs)	Liquid coolants, etc	< 2%
Perfluorocarbons (e.g. PFCs)	Refrigerant, electronics industry and aluminium industry, etc	< 2%
Sulphur hexafluoride (SF ₆)	Insulator in electronics and magnesium industry, etc	< 2%
Nitrogen trifluoride (NF ₃)	Electronics and photovoltaic industries, etc	< 2%

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

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

Details of forest as a major Carbon sink (District) (Table:.8)

Reserved Forest / Protected Forest (in Sq. KM)	Revenue / Village Forest (in Sq. KM)	Private owned Forests (in Sq. KM)	Others (If any) (in Sq. KM)	Total (in Sq.KM)

6.8 Sectors with High Mitigation Potential (Table : 9)

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

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

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Chapter – 7

INCLUSIVE DISASTER RISK REDUCTION

7.1 Background: A need to include Persons with Disabilities

Different populations may face similar risks of exposure to the negative effects of environmental and man-made disasters, but their actual vulnerability is dependent on their socio-economic conditions, civic and social empowerment, and access to mitigation and relief resources. Individuals with disabilities are disproportionately affected in disaster, emergency, and conflict situations due to inaccessible evacuation, response (including shelters, camps, and food distribution), and recovery efforts. Besides psychological impact of disasters, this population does not have adequate access to food, water, shelter and health services. There has been inadequate access to their specific needs including assistive devices, rehabilitation and interpreters. Disabled populations face discrimination and exclusion and therefore are confronted with considerable challenges in accessing the same opportunities as the rest of the population in disaster situations.

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

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

7.2 Legal framework to support the inclusion of persons with disabilities

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

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

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

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

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

7.3 Responding to the needs of persons with disabilities

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

Rehabilitation and reconstruction efforts must not only be inclusive and responsive to the needs of all people, including persons with disabilities, but should include the participation of persons with disabilities, to ensure that their needs and rights are respected. Women with disabilities are a particularly vulnerable group whose needs should be included at all stages of recovery and reconstruction efforts. Actors involved in Disability Inclusive Disaster Risk Reduction (DiDRR) include Government at the different levels, national to local including cities and communities at local level, the UN System, Academic Institutions, Disabled People’s Organizations Private actors, Armed Forces, Civil Society, Media, local community’s Local emergency response organisations.

7.4 Data Collection

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

7.5 Policy, Institutional Mechanisms and Inclusive Standards

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

The Odisha State Disaster Management Plan 2017 takes note of the vulnerability of disabled persons and the specific provision provided is related to inclusive education of children with disabilities during disasters. It also makes special mention of children with disabilities and specifically 'mentally retarded' (Intellectual Disability). For preparation of the inclusive DDMP the following data at district level are to be collected

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

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

Chapter-8

Safety of Schools and Child Care Institutions

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

8.1 Order on WP(C) 483/2004 of Hon’ble Supreme Court

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

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

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

State & District Level <ul style="list-style-type: none">• Policy for safety audits in all schools• ‘Stability certificate’ by Government-certified engineer.• Manual for fire safety procedures and other safety precautions• The National Building Code of India, 2005, to construct fire-safe buildings. (Revised 2016)	School Level: <ul style="list-style-type: none">• Schools must take appropriate safety measures and an emergency response plan that delineates staff responsibilities, communication modes, and training and updating procedures for all members of the faculty, staff and students.• Fire insurance coverage should be made mandatory for all schools.• Ensuring that the kitchen in the precincts of the school has adequate safety mechanisms.
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Ref. :Fire Safety Measures in School s(Section 3.1 p-23) / Training of School Teachers & Other Staff (Section 3.1 p-25) /School Building Specifications (Section 3.1 p-27) Clearance & Certificates (Section 3.1 p-29) SC. **Judgement on WP(C) 483/2004**

8.2 Guidelines on School Safety Policy, 2016- NDMA

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

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).**

Table No. 1- Availability of Educational Facilities:

Sl. No.	Name of the Block/ ULBs	No. of Villages	No. of Villages having Primary School within the village (1 K.M.)	No. of Villages having Upper Primary School within 3 K.M. radius	No. of Villages having Access to High School within 5 Km.
1	Bhapur	120	120	120	120
2	Daspalla	377	310	297	377
3	Gania	108	107	108	108
4	Khandapada	177	168	175	177
5	Khandapada NAC	13	13	13	13
6	Nayagarh	186	181	183	186
7	Nayagarh NAC	13	13	13	13
8	Nuagaon	237	216	223	237
9	Odagaon	253	238	251	253
10	Ranpur	295	271	282	295
Total -		1779	1637	1665	1779

Source:- Dept of Education, Nayagarh

Table No. 2- Enrolment Status of Children (6-14 years):

Sl. No.	Name of the Block	Total No. of Children Enrolled	No. of Children Dropped Out	No. of Children Never Enrolled
1	Bhapur	13351	0	0
2	Daspalla	15449	59	11
3	Gania	5405	11	2
4	Khanadapada	13550	5	0
5	Nayagarh	18938	27	4
6	Nuagaon	12946	18	1
7	Odagaon	23230	13	24
8	Ranpur	24876	15	0
9	Khandapada NAC	2112	0	0

10	Nayagarh NAC	5050	1	0
11	Total	134907	143	42

Source:-Dept. of Education, Nayagarh

Details of Child Care Institutions

Table-No.3

S I N O	Block / ULB	Name and Address of the Organization	Boys	Girls	Total No of Childr en	Name and Contact no.of the Shift-in- Charge	Fire Safety Equipments (Fire Extinguisher, Alarm)	Staff Training on Fire Safety Equipment	Nearby open space for evacuation	Alternati ve Shelter/s Identifie d
1	Naya garh	Utkal Balasram At- Word No-2 (Back side of Narayani Park Nayagarh	0	0	0	Upendra Badajena Secy	Only Fire Extinguisher	No	Yes	No
2		Nayagarh Kala parisasd, Panipoila, PO-Balugaon	10	11	21	Pravasini Nanda (Secy) Mob- 824910919 7	Only Fire Extinguisher	No	yes	Yes
3		Tapasya (only for Girls) managed by Gania Unnayan Committee, running at Ghadual (Mahavir Nagar) P.S.Itamati	0	11	11	Rasmita Kar (Supdt) Mob- No.737762 1427	Yes (without Alaram) Only Fire Extinguisher	yes	Yes	yes
4		Specialized Adoption Agency (SAA) managed by Anatha ParityaktaBalashram running at Sriram Nagar Khandapara Road, Nayagarh	2	1	3	Manas Parida (Manager SAA) Mob No.706436 8572	Yes (without Alaram) Only Fire Extinguisher	No	yes	No



Chapter-09

Chemical (Industrial), Nuclear and Radiological Disaster

A. Chemical(Industrial)Disaster

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

B. Nuclear & Radiological Disaster:

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

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

9.1 Factories or Storage Unit Details of the District

Organisation Name	Type (Large/Medium/Small/Micro)	Manufacturing Process & Capacity	Address	Lat/ Long	Site Operator Head Name	Site Operator Head Designation	Site Operator Head Email	Site Operator Head Mobile Number

9.2 Hazardous Chemical Storage

Hazardous Chemical Storage Points Details

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Organisation Name	Hazardous Chemicals/ Substances Name	Hazardous Chemicals Type (Flammable/ Reactive/ Explosive/ Toxic)	Hazardous Chemicals Quantity (Volume/ Capacity/ Max Qty can be Stored/ Inventory)	Type of Storage (Under Ground/ Submerged/ On the Ground/ Above Ground)	Type of Container (Spherical/ Box Type/ Cylindrical)	Type of Alignment (Horizontal/ Vertical)	Hazard Anticipated (Fire/ Explosion/ Toxic release)	MSDS (Material Safety Data Sheet) of the Chemicals	Vulnerable Zone in case of Emergency (Radius in Km/ Meter)	Downwind Distance	Total Number of People in the Vulnerability Zone

9.3 Critical Facilities/ Infrastructure situated within close proximity of the Factories/ Industries or Chemical Storage

Factories/ Industries Name	Critical Facilities (within Close Proximity) Name	Facility Type (School, AWC, Hospital etc)	Location Address	Lat-Long	Facility in-charge Name	Facility in-charge email	Facility in-charge mobile number	Total Population in the Close Proximity

Hospital Details

ls

Organisation Name	Nearest Hospitals (Govt/Private) Name	Hospital Address	District Name	City	Pin Code	Lat-long	Chief Medical Officer/Hospital Superintendent Name	Chief Medical Officer/Hospital Superintendent Mobile Number	Chief Medical Officer/Hospital Superintendent Email	Infrastructure Facilities

9.4 Nearest Fire Station of the

9.5 Factories/Industries

Fire Stations Details											
Organisation Name	Area of fire station name	Hospital address	District Name	City	Pincode	Lat-long	Fire Officer Name	Fire Officer Designation	Fire Officer Email-id	Fire Officer Mobile Number	Facilities Available

9.6 Stakeholders to be informed in case of an Industrial Accident Table-

Designation	Organisation/Department name	Name	Mobile Number	Office Phone	Email
Nodal Officer, Controlling Officer, Supervising Officer	SRC				
	OSDMA				

**(Hospital Preparedness
Table-9.7**

SIN o.	Name of the Hospital	No. of Decontamination Room	Radioactive Bio-Waste Disposal Facilities	No. of Medical Staffs Trained on Radiation Injury Management	Stocks of essential medicines	Data base of the Trained Medical Staffs being maintained	Name, Designation and Contact Details of the Nodal Officer

Specialized Response Forces Table-9.8

Sl No.	Name of the Response Forces	No. of Personnel trained on CBRN	No. of Personnel trained on MFR	Name and Designation of the Command in Charge	Contact No. of the Command in Charge

**9.9 Mock Exercises on Nuclear/Radiological
Disaster Table-9.9**

Sl. No.	During	Stakeholders to be Involved	Process to be followed	Details of the Nodal Officers for the ME

Chapter-10

Biological Disaster and Public Health in Emergencies:-

10.1 Biological Disaster Management & Medical Preparedness

Biological disasters, be they natural or man-made, can be prevented or mitigated by proper planning and preparedness. The primary responsibility of managing biological disasters vests with the state government. The central government would support the state in terms of guidance, technical expertise, and with human and material logistic support to develop the policies, plans and guidelines for managing biological disasters in accordance with the national guidelines and those laid down by 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 No.1. Nodal Departments for Managing Biological Disaster-

SIN o.	Bio Disaster	Nodal Department	Contact person	Contact details (Office/Mobile)
1	Biological Disaster	H&FW Department	CDMO (District)	9439990996
2	BioTerrorism/ War	Home Department	SP	06753252088
3	Animal Health Disaster	F&ARD Department	CDVO (District)	9437197818
4	Agro-Terrorism	A&FE Department	CDAO	7008782600

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 control over biological sample transfer, biosecurity and biosafety of materials/laboratories.

10.2 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.

10.3 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.

10.4 Collaborative Institutions

- 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.

10.5 -Pre-Disaster Preventive Measure

- 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.

10.5 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.

10.6 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 (airport and maritime quarantine) for a period in excess of the incubation period of the disease.

- Restrictions in the movement of the affected population are 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.

10.7 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.

10.8 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 short fall 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.

10.9 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 BTA activities will be incorporated in the school syllabi and also at the undergraduate level in medical and veterinary colleges.

10.10 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 Do 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 a near by 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 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.

Mobile Hospitals and Mobile Teams

States will acquire and locate at least one mobile hospital at strategic locations. These hospitals can be attached to earmarked hospitals for their use in non-disaster periods.

These will be manned by trained manpower and perform the following functions:

- To be mobilised to the disaster site for management of cases at times of any epidemic outbreak or biological disaster.

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

Table -2 Mobile Hospitals & Health Teams

SI	Mobile Hospitals & Health Teams	Nodal Person	Contact Details
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- **Stockpile of Antibiotics and Vaccines**

- Government medical stores will stock sufficient quantities of essential drugs, antibiotics and vaccines based on the risk assessment. State and local public health authorities have to develop plans for distribution and administering these materials. There is a need to have a supply of readily available anthrax, smallpox and other vaccines, which will be administered rapidly in the event of an outbreak to contain the spread of the disease. All first responders will be vaccinated in an impending disaster situation.
- A plan will be prepared to define the availability of antibiotics, antivirals, vaccines, sera and other drugs from private pharmaceutical companies who will be able to supply these items at short notice.

- **Public Health Issues**

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

- **Emergency Medical Response**

A biological disaster can lead to mass casualty incidences, both intentional or otherwise. The development of infectious diseases depends on various factors such as type of agents,

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

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

10.11 PsychoSocial Care

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

Psychosocial support in the context of disasters refers to comprehensive interventions aimed to help individuals, families and groups to restore social cohesion and infrastructure along with maintaining their independence and dignity in the aftermath of a disaster. Psychosocial support helps in reducing the level of actual and perceived stress that may prevent adverse psychological and social consequences among disaster affected people.

10.12 Disaster Mental Health Services

The PsychoSocial Support and Mental Health Services (PSSMHS) should be considered as a continuum of their interventions in disaster situations. While psychosocial support will comprise of the general interventions

related to the larger issues of relief work needs, social relationships and harmony to promote or protect psychosocial

wellbeing, the mental health services will comprise of interventions aimed at prevention or treatment of psychological symptoms or disorders. The experiences of the people subsequent to the disaster have direct relevance to recovery. The more the problems and life difficulties the survivor experiences during the recovery phase, the more persistent will be their emotional reactions. This warrants appropriate interventions in accordance with the phase of recovery of the affected population with the diminished social supports being built for speedy recovery.

Community Based Disaster Psychosocial Care

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

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

Table-3 Volunteers & Paramedical Staffs (Community)

Name of Volunteers	Institution/Organization	Contact Person with contact details	Contact Details (Number & Email ID)	Address

Concept of Social Support Network

The psychological response to a disaster depends on three main factors

Table-4

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

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

Table-5

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

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

Table-6

Phases after a Disaster	Duration	Characteristics
Occurrence of the disaster	Hours	Apathy, Disorientation, Wandering Surprise, Fear, Perplexity Anxiety, Helplessness
Heroic	Upto 1-2 weeks	Feeling strong, Direct feeling of saviour, eroism, Solidarity, Optimism
Honeymoon	2 weeks to 3 to 6 months	Great solidarity, Eagerness to rebuild, Sharing of common experience
Disillusionment	2 months to 2 years	Withdrawal, Loneliness, Anger, frustration, Community disorganization, Negativity, Hostility, Impulsiveness, Violence, Alcohol and drug abuse
Reconstruction	2-5 years and Lifetime	Acceptance of losses Realistic assessment of the situation, Search for alternative to rebuild lives

12. Coping with Loss & Circles of Support

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

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

13. Needs of More Vulnerable Groups

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

Table-7

Category	Exposure/Vulnerability
Children	<ul style="list-style-type: none"> • Children who were physically, neurologically, mentally and sensory challenged in the pre-disaster period and those who became disabled after the disaster • Children who need critical medical care facilities e.g. children suffering from cancer, diabetic, asthma, poor heart condition, bloodborne diseases, HIV-AIDS, etc. • The children with special needs who become orphans after a disaster, are most vulnerable to different types of exploitation. • Orphaned and unaccompanied Adolescent children, especially girls • Children whose parents are missing or remarried
Women	<ul style="list-style-type: none"> • Pregnant and lactating women • Disabled women • Women on critical health care facility • Women who lost their children and plan to undergo canalization surgery • Elderly women • Women with prior history of psychiatric illness
Elderly	<ul style="list-style-type: none"> • Reduced physical & mental capabilities, delayed responses syndrome,
	<ul style="list-style-type: none"> • Increased transfer trauma & the array of emotional difficulties, • dementia, and rigidity

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

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

13.2 Principles of Psychosocial Support

- No one who experiences or witnesses the event is untouched by it
- Disaster stress and grief reactions are normal responses to an abnormal situation
- Disaster results in two types of trauma i.e. individual and collective trauma. Individual trauma manifests itself in stress and grief reactions, while collective trauma can lead to deterioration in the social ties of survivors with each other.
- Disaster mental health services must be tailored to the needs of specific communities to be served
- Interventions must be appropriate to the phase of disaster
1. Initial phase: listening, supporting, ventilation, catharsis and grief resolution are helpful and
2. Latter phase: handling frustration, anger and disillusionment
- Support systems are crucial for recovery
- Attitude of the caregiver

14 Basic Techniques of Disaster Psychosocial Care

- Ventilation: ventilation is a process to help the disaster survivors in expressing their thoughts, feelings and emotions related to the disaster and the resulting living conditions.
- Empathy: "looking at the event from the other person's perspective and trying to realise the trauma of the other person by keeping himself/herself in that situation". This skill of developing empathetic attitude towards survivors comes
- Through regular habit of active listening of the survivor.
- Active listening
Active listening is an important skill to facilitate ventilation and develop empathy, which in turn facilitates the whole process of providing Emotional support.

The following guidelines can help the caregivers in achieving better results.

- Look at the person while he/she is talking:
- Respond occasionally while listening:
- Avoid interruptions
- Be tolerant & empathise:
- Social support: Social support networks are extremely important for feeling comfortable and secure. In a disaster situation all the support systems get disrupted, hence the need to rebuild and restore.
- Externalization of Interests: Engaging them in small but productive activity/work (keeping age, gender, physical status, skills and interests as considerations) would help them in imbibe positive thinking and feelings.
- The Value of Relaxation: Introducing relaxation activities for children (for instance some games, songs, dancing, painting, colouring and other things) and adults involving physical movement has proved to be very beneficial in helping survivors recover from their trauma and pain.
- Turning towards Religion and Spirituality: Helping people to turn towards his/her practiced religious rituals and practices (e.g. daily worship, prayer and related activities) would also facilitate the ventilation process, whereby there is a possibility of verbal/nonverbal expression of feeling/emotions and thus, making the survivor more peaceful in mind.

15. Understanding of Stress Symptoms & Management

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

Diverse Stress Responses Table 8

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

Relaxation Exercises Table 9

Abdominal breathing	» Sit comfortably » Close your eyes » Put one hand on the abdomen » Focus on your breathing and try and see that you are breathing from your abdomen rather than your chest » Concentrate on the fact that your stomach is rising as you breathe in and falling as you breathe out
Count breathing	Sit comfortably » Close your eyes » Count 1-2 two as you inhale » Release your breaths slowly counting 1-2-3-4 (double the count of your inhalation) » Practice this till you feel relaxed
Nostril breathing	» Inhale naturally and then let out with a whooshing sound. Hold for some time and then let out again » Breathe through one nostril and breathe out through the other one » Combine breathing with visualization that you are getting energy and refreshment » Listening to some music while practicing these will enhance positive impact of the techniques
Free Meditation	» Sit comfortably or lie down and close your eyes » Put on some music and listen to the music » Do not try to think of anything, just concentrate on your breathing » If any thoughts come in do not try to control them or force them out, instead spend time on them and let them go as they come » Do it initially for about 5 minutes and slowly as you become better at it go on increasing the time period to about 20–25 minutes and it would prove to be very relaxing

Candle meditation	<ul style="list-style-type: none"> » Sit comfortably » Light a candle or a lamp in front of you » Concentrate on the flame » Spend time just looking at the flame glowing and flickering » If you feel after some time close your eyes and look at the image in your mind » Slowly open your eyes after you are completely at ease » Do it initially for about 5 minutes and slowly as you become better at it go on increasing the time period to about 20–25 minutes. It would prove to be very relaxing
Relaxation	<ul style="list-style-type: none"> » Lie down on the ground » Slowly move from your feet to your head saying the following to yourself

15.3. Disaster Psychosocial Referrals

Within Caregiver's Control if the Survivor:	Referral if the Survivor:
<ul style="list-style-type: none"> » Is aware of who's/he's, where's/he's, and what has happened with him/her. » Is only slightly confused or dazed or shows slight difficulty in thinking and decision making or finding difficulty in concentrating 	<ul style="list-style-type: none"> » Is unable to tell/recall his/her name, name of the place and what has happened to him/her in past 24 hours » Complains about what is happening with him/her
Behaviour	
<ul style="list-style-type: none"> Is restless, mildly agitated and excited » Has sleep difficulty and decreased appetite » Sad, rigid, clenches the fists 	<ul style="list-style-type: none"> Is apathetic, immobile and unable to move around » Is withdrawn and mutilates himself/herself, does not take care of self » Violent and causes harm to others
	<ul style="list-style-type: none"> » Uses alcohol or drugs » Repeats ritualistic acts as compulsions
Emotions	
Within Caregiver's Control if the Survivor	Consider Referral if the Survivor
<ul style="list-style-type: none"> » Is crying and weeping consistently by reiterating about the incident » Has blunt emotions, is numb and hardly reacts correctly to his/her environment » Easily irritated and angered over trivial issues » Shows high spirits or laughs excessively » Very quiet with no emotions 	<ul style="list-style-type: none"> » Is unable to be aroused and is completely withdrawn » Is excessively emotional and shows inappropriate emotions » Is excessively happy, or sad and depressed
Perception	
<ul style="list-style-type: none"> Has all senses intact and has no perceptual disturbance, like seeing the ghosts of those expired 	<ul style="list-style-type: none"> Hears voices in absence of the actual living organism » Sees things in absence of any living organisms' existence » Has complaints about vague bodily sensations » Takes a constant peculiar body position for days together
Within Caregiver's Control if the Survivor	Consider Referral if the Survivor
<ul style="list-style-type: none"> » Talks excessively about the disaster » Refuses to talk much » Has rapid or stammered speech 	<ul style="list-style-type: none"> » Is talking irrelevant » Shows overflowing of incoherent speech » Does not talk at all for days together
Thought	

<p>Has a feeling of despair and worthlessness</p> <ul style="list-style-type: none"> » Has a doubt on his/her own recovery » Is over concerned about unimportant things and neglects important things » Denies what happened to him/her and blames Others 	<p>Is excessively preoccupied with one idea or thought</p> <ul style="list-style-type: none"> » Has bizarre thoughts, which have no answerable reason in that situation » Has a false but extremely firm and strong belief of something that is going to happen to him/her » Is attempted suicide or has suicidal thoughts
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15.4 Ethics & Confidentiality

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

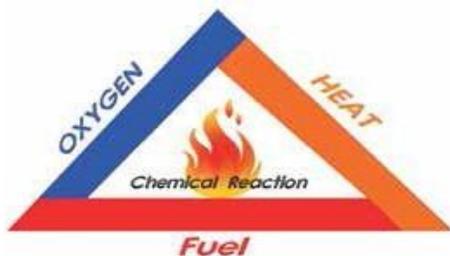
Chapter-11

FORESTFIRE: CAUSE AND IMPACT

Introduction

The word “fire” evolved from the Greek word “*pyra*” meaning growing embers. Fire is actually the heat and the light that results when three elements i.e. fuel, oxygen and the source are combined. The other elements, which determine the behaviour of the fire, are weather, the landscape and the presence of the fuel. As far as the birth of fire is concerned, fire emerged on the earth with its origin only. From the time our planet came into existence, lightning has sparked landscape. Artificial or the human induced fire began when the earlier human being first rubbed two stones.

Forest fire may be defined as an unclosed and freely spreading combustion that consumes the natural fuels. Combustion is another word for fire. When a fire burns out of control it is known as **Wild** Components of forest fire



Fire is the naturally occurring companion of energy released in the form of heat and light, when oxygen combines

with a combustible or burnable material at a suitable high temperature (about 617 degrees F, temperature or 325 degrees C for wood to burn). There are basically three components

i.e. fuel, heat and oxygen that are needed in right combination to produce fire. Combination of these components produce the “**fire triangle**”.

By nature, triangle

needs three sides, missing of any of the ones will collapse the triangle. The same is true for fire. Take away any of the three components of fire - fuel, heat or oxygen, the fire collapses. Fire-fighters to suppress the fire, try to do just that and remove one of the three essential components of fire (Fig.4.1). With a steady supply of oxygen (a fire needs air that contains at least 16 percent oxygen; the earth’s atmosphere contains 21 percent oxygen), fuel and temperature become critical for sustaining a fire once it is ignited. The general relationship between fuel and temperature is simple: **the more fuel, higher the heat; the more heat, the faster the fire spreads**. When there is plenty of heat and fuel, fires start at its own. In the words of one fire behaviour expert, “*Large fires live to feed themselves.*” Large fires can create their own winds and weather, increasing flow of oxygen. A large fire can generate hurricane – force winds with a speed of up to 120 miles an hour. The key to fire management is understanding its nature-how it is created, what it takes to create fire, and more important during difficult fire seasons-what is to be done to control it?

Types of forest fire

Surface fires-

Surface fire is the most common forest fire that burns undergrowth and dead material along floor of the forest. It is the type of fire that burns surface litter, other loose debris of the forest floor and small vegetation. In general, it is very useful for the forest growth and regeneration. But if grown in size, this fire not only burns ground flora but also results to engulf the undergrowth and the middle storey of the forest. Surface fires spread by flaming combustion through fuels at or near the surface- grass, dead and down limbs, forest needle and leaf litter, or debris from harvesting or land clearing. This is the most common type of fire in timber stand of all species. It may be a mild, low-energy fire in sparse grass and pine needle litter, or it may be a very hot, fast moving fire where slash, flammable under story shrubs or other abundant fuel prevails. A surface fire if spread may burn up to the taller vegetation and tree crowns as it progresses (Fig.-4.2).

Under ground fires

The fires of low intensity, consuming the organic matter beneath and the surface litter of forest floor are sub grouped as underground fire. In most of the dense forests a thick mantle of organic matter is found on top of the mineral soil. This fire spread sin by consuming such material. These fires usually spread entirely underground and burn for some meters below the surface. This fire spreads very slowly and in most of the cases it becomes very hard to detect and control such type of fires. It may continue to burn for months and destroy vegetative cover of the soil. The other terminology for this type of fire is **Muck fires**. (Fig.-4.3)

Groundfires

These fires are fires in the subsurface organic fuels, such as duff layers under forest stands, Arctic tundra or taiga, and organic soils of swamps or bogs. There is no clear distinction between underground and ground fires. The smouldering underground fire sometime changes into ground fire. This fire burns root and other material on or beneath the surface i.e. burn the herbaceous growth on forest floor together with the layer of organic matter in various stages of decay. They are more damaging than surface fires, as they can destroy vegetation completely. Groundfires burn underneath the surface by smouldering combustion and are more often ignited by surface fires. Thus a ground fire consumes the organic material beneath the surface litter of the forest floor. A true **groundfire** spreads by a slowly smouldering edge with no flame and little smoke. These fires are often hard to detect and are the least spectacular and slowest moving. Fighting such fire is very difficult (Fig.-4.4).

11.1 Crownfires

Crown fire is the most unpredictable fires that burn the top of trees and spread rapidly by wind. In most of the cases these fires are invariably ignited by surface fires. This is one of the most spectacular kinds of forest fires which usually advance from top to down of trees or shrubs, more or less interdependent of surface fires. In dense conifer stands with a brisk wind, the crown fire may race ahead of the supporting surface fire (Fig.-4.4). Since it is over the heads of ground force it is uncontrollable until it again drops to the ground, and since it is usually fast moving, it poses grave danger to the fire fighters becoming trapped and burned..

11.2 Causes of Forest Fire:

Out of three essential components of fire triangle, two components i.e. fuel and oxygen are naturally available in forest. It is the third component i.e. heat that really initiates fire in the forest. Heat may be supplied by either natural or artificial reasons. Depending upon the source of the heat, the causes for forest fire may be classified as natural or artificial. While lightning, volcanic explosion, friction of rolling stone etc. are the natural causes for forest fire; the anthropogenic causes may be subdivided into two categories i.e. deliberate causes and unintentional or accidental causes.

Natural causes	Anthropogenic causes		
	Deliberate Cause	Accidental Cause	
Lightening	Shifting Cultivation	Collection of Non Timber Forest Produce	
Friction of Rolling Stones	To flush growth of kendu leaves And Mahula Flower	Burning farm residues	
Rubbing of dry bamboo clumps	To have good growth of grass & fodder	Driving away wild animals	
Volcanic Explosion	To settle score with Forest Department or personal rivalry	Throwing burning bidi/cigarettes	
	To clear path by villagers	Campfires by picnickers	
	To encroach upon Forest land	Sparks from vehicle exhaust	
	For concealing illicit felling	Sparks from transformers	
	Tribal tradition/ custom		Uncontrolled prescribed burning
			Res tapping
			Making charcoal in forest
		Extracting wine in forest	
	Sparks from cooking near the forest		
	Heating coal tar for road construction in forest		

DISTRICT ACTION PLAN ON FOREST FIRE PREVENTION AND MANAGEMENT

I. INTRODUCTION:

Forest fires are a regular phenomenon in our country, often observed during the fire season, January-July. Every year large areas of forests are affected by fires of varying intensity and extent. Based on the forest inventory records, 54.40% of forests in India are exposed to occasional fires, 7.49% to moderately frequent fires and 2.405 to high incidence levels while 35.71% of India's forests have not yet been exposed to fires of any real significance. A forest fire does a number of specific things. First, it consumes woody material

leading to release of carbon dioxide on large scale and subsequently global warming. Second, the heat it creates kills vegetation and animal life leading to loss of forest cover, biodiversity therein and habitats to wildlife. In most fires, much more is killed, injured, or changed through heat than is consumed by fire. Third, it produces residual mineral products that may cause chemical effects, mostly in relation to the soil reducing their quality and fertility. Precious forest resources including carbon locked in the biomass is lost due to forest fires every year, which adversely impact the flow of goods and services from forests. In addition to the aforementioned consequences, following are also the results of forest fire.

- a. degradation of catchment areas
- b. global warming
- c. loss of carbon sink resource and increase in percentage of CO₂ in atmosphere
- d. change in the microclimate of the area with unhealthy living conditions
- e. ozone layer depletion
- f. health problems leading to diseases
- g. loss of livelihood for tribal people and the rural poor, as they are directly dependent upon collection of non-timber forest products from forest areas for their livelihood.

In Nayagarh district, the forest types present are mainly, Odisha Tropical Semi Evergreen Forest, Peninsular (Coastal) Sal Forest, Moist Peninsular low level Sal Forest, Dry Peninsular Sal, Northern dry mixed forest, *Anogeissus latifolia* forest, Dry Bamboo Break, Moist Peninsular Low level Sal. dry deciduous and scrub mixed, Dry Bamboo brakes Seral types, Dry Tropical riverine forests and they sustain wide variety of floral and faunal biodiversity resources. Nayagarh district consists of 3 divisions i.e. Nayagarh, Mahanadi Wildlife and Ranpur Tahasil of Khurda Forest Division. The forests in Nayagarh division 2 mainly Sulia, Hatimunda, Gochha etc. nurtures lush deciduous vegetation with broad teak and Sal trees. The forests in Mahandai WL are the main source of habitat for the wildlife in the wildlife sanctuary. The forests and plantations in all ranges of this Forest Division adds to the green cover of Nayagarh acts as green belt, reduces the effects of urban heat island and pollution and overall impacts the weather. The green cover in and around Mahanadi influences the quality of the river and the biodiversity therein. Therefore, it is highly essential that the precious forest resources in the Nayagarh district be sustainably conserved and adroitly managed through prevention, mitigation and management of forest fires. The details of forest area of Nayagarh district in a nutshell is provided below:

Forest Area of the District

(Nayagarh (T) Division, Mahanadi (WL) Division & Ranpur range of Khordha (T) Division)

Sl No	Category of Forest	No. of Blocks	Notified Area in Ha.	% of total Forest area of the Division
1	Reserved Forest (RF)	51	133533.42	63.61
2	Proposed Reserve Forest (PRF)	30	12023.13	5.73
3	DPF	21	8176.63	3.89
4	Village Forest (VF)	75	654.122	0.31
5	Protected Forests (PF)	10	1535.24	0.73
6	DLC Forest	540 village	54009.30	25.73
Total Forest			209931.842	100.00

In order to achieve the goal of sustainable management of forests through fire management, a thorough description of the topography, landscape, climate, etc is necessitated.

Description of the area:

A. **Extent:** Nayagarh District consists of 3 divisions. Nayagarh division is bounded by Latitude **19°54' N to 20°28' N and Longitude 84°20' E to 85°19' E**. The total geographical area of Nayagarh Forest Division is **3067.281 Sq. Km.** against total Geographical area of the district 3890 Sq. Km. (78.85%). The division is coterminous with Nayagarh District except Ranpur CD Block and Reserved Forests constituting the Baisipali Sanctuary. It comprises Seven C.D. blocks, three NACs. & one Municipal Council. Mahanadi Wildlife

Division lies between the geo co-ordinates of N - 20°24' to 20°37' & E- 84°34' to 84°57'. The total area of this Division is 433.86 Sq Km covering 4 Ranges, 12 Sections & 36 Beats. There are 4RFs, 3 PRFs, 1 DPF in this Division within 2 sanctuaries namely Baisipalli&SatkosiaGorge Sanctuary. This Division is a part of Satkosia Tiger Reserve declared during the year,2007.

B. Topography: Physio-graphically the division exhibits a rugged and broken mountain system separated by a number of plains and valleys. It is a stable landmass of Indian peninsula but the rise and fall of the hills are not in any systematic order. These hills and plains are crisscrossed by numerous nallas and rivers. Numbers of isolated and scattered hills are seen in the division.

C. Climate: The District experiences tropical climate, with the summers being hot and the winter's cold. The maximum temperature is well above 40 deg C (during summers) and the Minimum can be as low as 10 degree Celsius (during winters).

D. Rainfall: The rainy Season usually starts from June- July and continues up to September. The South West monsoon brings rain to this tract. The average rainfall in this district is about 1330 mm. There are some pockets which receive high rainfall and results in Semi evergreen Forest to Moist Deciduous Forest in the division. Cyclonic depression in Bay of Bengal brings wide spread rainfall to the tract. It also experiences Cyclonic Storm.

E. Wind: The tract is about 150 Kms from Sea. It experiences SW wind in Rainy Season, NE wind in Winter and erratic in other period. The normal wind speed is 5 km per hr to 6km per hr. During depression in Bay of Bengal / cyclonic Storm the wind speed goes up to 125-130 km per hour.

F. Drought: Nayagarh district experiences moderate drought condition when rainfall is reduced to 1100-1200 mm.

G. Flood: Odisha is one of the coastal states lying in the eastern margin of the Indian Peninsula that shares 480 km of coast line with the Bay of Bengal. Natural disasters are the frequent visitors in Odisha designating it as the land of disasters. Since last one decade or a little more period than that tells the devastating stories of extreme climatological events in the region. After the super cyclone in 1999, the state has suffered many times from the flood disasters. It has witnessed severe floods in the year 2003, 2008, 2011 and 2013 besides many small ones. The catastrophic nature of such floods in Odisha has brought immense sufferings for the inhabitants of Odisha particularly in the Mahanadi delta region. Moderate flood is experienced in every year. High flood is experienced in the district in a 4-5 year cycle.

Land use pattern of Nayagarh District has been published by the Forest Survey of India in its report 2019. The district forest cover / Land use pattern is

District Forest Cover/ Land use pattern (as per 2019 FSI report)

District	Geographical Area in Sq. Km	Land Use (as per 2019 Report)	Area in Sq. Km
Nayagarh	3890	Very Dense Forest	189.00
		Moderate Dense Forest	965.00
		Open Forest	559.75
		Misc Trees & Groves	60
		Permanent pasture	40
		Cultivable Waste	50
		Land put to Non-Agricultural Use	250
		Barren & Un cultivable land	50
		Agricultural land	1350
		Mining	10
		Habitation / Transportation Etc	366.25
		Total	3890

I. Water availability and drainage pattern: The Mahanadi, Burtanga, Kaunria, Kamai, Budha nadi constitute the major drainage system of the Division. The drainage is mainly dendritic, radial & centripetal in nature. Major portion of drainage water from the forests of this Division flows into the River Mahanadi. A

small portion of forests of the Southern part of Chadiapalli Forest Block, a portion of South-West of Ragadimada Forests Block, Western portion of Bahadajhola Forest Block and South-West of Gochha Forest Block drain in to the Rushikulya River of Ganjam District.

J. Status of ground water: This district comes under eastern ghats climate and type of terrain is mostly undulating. As the terrain is undulated most of the rainfall flows as Surface run off to the river or nallas. Hence it is highly essential to promote extension activities relating to water harvesting and water management. Similarly, steps have to be taken for creation of major and medium Irrigation projects to make optimum utilisation of surface water. The drainage systems i.e. rivers of the district gets filled with water during the monsoon and the gradually it decreases from the month of January to June of each year. In the summer season all rivers become almost dry excepting narrow flow of water within the basin.

1. FOREST DISTRIBUTION AND STATUS The forests are classified in to evergreen, semi-evergreen, deciduous, coniferous, and littoral and swamp, etc based on the characteristics of the vegetation. The soil type, climate, elevation, and topography are some of the major elements that define the type of forest. Apart from this broad classification, detailed classification is made by Champion & Seth. There are different types of forests present in Khordha district as per Champion and Seth classification of forests in India, which are mentioned division wise for better decision making.

Division	Champion&SethClassification	
	SUB-GROUPS	FORESTTYPES
Nayagarh	2B.Northern Tropical SemiEvergreenForests	2B/C ₃ OdishaTropical SemiEvergreenForest
	3C. North IndianMoistDeciduous Forests	3C/C ₁ VeryMoist Sal Bearing Forests3C/C ₂ MoistSalBearingForest
	5B.Northern Tropical DryDeciduousForests	5B/C ₁ DrySalbearing Forest 5B/C ₂ Northerndrymixedforest5B/E ₁ Anogeissu <i>slatifolia</i> forest
Khordha	2BNorthern TropicalSemi-evergreenforests.	2B/C3Orissasemievergreenforests.
	3CNorthIndiantropicalmoistdeciduou sforests.	3.C/C ₁ (d) Peninsular (coastal) Sal forests3.C/2Si Northern secondary moist-deciduousforests.
	5.BNortherntropicaldrydeciduousfore sts	5.B/C ₁ (c)DrypeninsularSalforests.5.B/ DS1DryDe ciduousForests.
Mahana di(WL)	3CNorthIndianMoist DeciduousForests-	3C/C ₂ e(ii)-MoistPeninsularLowlevel Sal.
	5BNorthenTropicalDryDeciduousFo rests	5B/C ₁ cDryPeninsularSalbearingforests. 5B/C ₂ NorthernDryMixedDeciduousForests. 5/DS1DryDeciduous&Scrubforest.

ACTIONPLAN

Basing on the situation analysis mentioned above, the Fire spots have been identified as verysevere, severe, medium, light, and insignificant. The critical beats and forest villages having verysevere and severe category will be focused during 2022 and accordingly present action plan ispreparedfortakingpreventiveandmitigation measures as suggested below.

1. PREVENTIVE MEASURES

a) A preliminary Sensitization meeting involving staff of this Division has already been done and a division level coordination meeting with the staff of Mahanadi (WL) and Ranpur Range of Khordha Division, Nayagarh District Fire Officer and all other stakeholders is proposed to be held on 24th December, 2021 with objective of detail discussion, inviting suggestion and to find out a modality for undertaking preventive measures in a coordinated effort. The activities suggested by staffs during preliminary Sensitization meeting on Forest Fire, 2022 are detailed below.

- Coordination Meeting with the local BDO, Tahasildar, Kendu leaf staff, OFDC Ltd. Staff, Fire staff, Revenue Officials, PRI members & Govt. Officials of different Gram Panchayats of all ranges will be conducted to make the **Panchayats Forest Fire Free (3F panchayat)**.

b) Creation of fire lines: Creation of fire breaks will slow down the spreading of fire thus enabling the ground firefighting force to reach the head end of the fire.

- District border/Division border boundary lines over 300 RKM will be scrapped at a width of 30ft to act as fire line to prevent cross border fire.
- Fire lines at a width of 10ft over 600 RKM will be created in all existing footpaths, roads, boundary of forest block passing through the forest.
- Fire line at a width of 10ft will be created around all plantation sites.
- Zigzag fire line over 1000 RKM will be created in a natural forest through blower.
- Control burning around 10000 Nos. mahua tree will be made in ring method.
- Removal of all debris, leaf litter and other inflammable materials from the forest floor will be taken up where SSO work has been undertaken.

c) Maintenance of existing fire lines by forest department with volunteering from VSSs, EDCs and PRIs.

Divisions	Fire line creation in RKM	Fire line maintenance in RKM
Nayagarh	500	500
Mahanadi WL	300	330
Ranpur Range of Khordha Division	300	294

d) Forest Roads: Forest roads are generally used as fire breaks which is extremely important for fire management.

e) Watch Tower: These are located in forest areas at various stations are manned by permanent & semi-permanent staff.

- The site for setting up camps will be selected and machans/ make shift house will be constructed within first fortnight of February.
- 20 Nos. of camps will be established in the severely vulnerable areas from 15th February to 31st May 2022. In each camp 03 Nos. persons will be deployed. They will conduct regular patrolling inside the forest area and keep surveillance on the movement of public/poachers into the forest.

f) Silvicultural Treatment: Timely silvicultural operation like Subsidiary Silvicultural Operation (SSO) as prescribed in Working Plan will reduce a lot of forest fire. Weeding on both sides

of the roads inside the forest also reduces incidences of fire.

g) Co-ordination with personnel & fire service Department & Training.

h) Attempt to create awareness in GP level to deal with the forest fire.

i) Do & don't list will be displayed in vulnerable points adjacent to forest blocks.

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

j) Anti-poaching Squad, Anti-depredation Squad, Plantation Watchers, Drivers and Support Staff engaged for eco-tourism will work in coordination with the local communities to prevent and control forest fire.

k) Forest Fire Ratha (Chariot) will move in all fire prone areas of this division and will sensitize the people not to set fire and also educate the people regarding penal provision for setting fire in the forest.

l) Patrolling duty during fire season (15th February, 2022 to 31st May 2022)

- Repairing of forest road and inspection path inside the forest area before the month of January for intensive patrolling before fire season.
- Regular intensive patrolling (by four-wheeler, by two-wheeler, by foot) will be conducted by the forest staff and squad to prevent any occurrence of forest fire.
- Surveillance on poachers will be reinforced during fire season.

m) Other activities

- Action for filling of vacant position in fire risks forest beats will be taken during January.
- Procurement of firefighting equipment and tools will be made within January 2022 to strengthen the base level field functionaries. During 2022 one well-conditioned fire blower will be provided to each beat. In case of beats having multiple forest blocks, 02 Nos. of fire blowers shall be provided.
- Firefighting squad will be selected by the Range Officers within January who are having experience in extinguishing forest fire during previous years.
- Arrangement of labour and hired vehicle is to be completed within January 2022.
- The staff will be well acquainted with the area, map, topography, routes, water source and fire risk area of his jurisdiction.
- The mobile phones of all staff and squad will be recharged and shall be registered in OFMS/FSI portal.
- Provision of incentive will be made to the VSS/villages/Panchayat which will be forest fire free during 2022.
- Provision of reward will be made to the staff/squad/public who effectively contr

- olsforest fireorprovideinformationaboutthe offender offorest fire.
- TheVHFstationsandwalkietalkiearetobemadefunctionalforquicktransmissi onoffirealertparticularlyin mobilephonein accessible area.
- Afterextinguishingthefire, thefirepointswillbeuploadedinOFMSportal.

2. FUNCTIONING OF 24X7 CONTROL ROOM AND CHANNEL OF COMMUNICATION

- Control rooms in all the divisions are operational 24/7 and collect, collate, and disseminate information on forest fire alerts. The details of control rooms of forest department are mentioned below. Apart from this, the contact numbers of fire station officers and the universal helpline number is also provided. A register is maintained in the control room in which GPS coordinates of fire points, area affected, action taken by staff are recorded.

Division	Control Room No
Nayagarh	9437118438
Mahanadi WL	9437494951
Khordha	8280027540

- Similarly control room at all range office of the Division will be opened during 2022 fire season. Forester (Enforcement) and DEO of each range will operate the control room. Soon after receipt of the fire alert from division office the same will be communicated to all FGs for mitigative action. RO of concerned range will monitor the control room in exigencies and ensure complete extinguish of fire by field staff/ squad and upload the fire point in OFMS portal.

District	Fire Station Office	Name & contact No.
Nayagarh	Nayagarh	Shri Ajay Paikray (AFO-I/C):- 8249888262
	Odagaon	Shri Pratap Pradhan :-SO-9937495904
	Khandapada	Shri Prafulla Sahoo- 6372334423
	Bhapur	PK Sahu-LFM-9348136657
	Nuagaon	Apurba Ranjan Sahoo SO- 9438234588
	Gania	Bipin Samal -LFM- 8763009906
	Ranpur	Sri Soumya Ranjan Sethi- 9937529502
	Daspalla	Ansuman Sahoo-9658831692
Control Room No-112		

1. DISTRICT SUPPORT ALLOCATIONS

DRDA will be mobilized to sanction project relating to "Improvement of forest" in which components like fire line creation will be incorporated. The PRI members will be motivated to counsel the villagers to refrain from setting fire and extinguish the fire wherever occurs nearby their village. District Administration will be requested to coordinate among all departments & impart instruction to all line departments to assist forest department in extinguishing forest fire.

2. SUPPORT OF LINE DEPARTMENTS

Support of fire service will be taken whenever required. District Fire Officer has assured to extend cooperation in this regard. The Fr/FG/Seasonal staff of Kenduleaf wing will be motivated to extinguish fire along with territorial staff. The field functionaries of OFDC Ltd as well as other line departments will be requested to extend cooperation to our staffs.

3. NON-BUDGETARY SUPPORT

- **Fire Department:** The forest departments shall coordinate with fire department in extinguishment of forest fires in Nayagarh district. There are fire station offices located across the district, whose cooperation could be sought for collection, collation, sharing of information from the field. Since the control room numbers of fire stations are utilized by the citizens often, the first-hand information about forest fires could also be received by them, in addition to forest fire control rooms in division offices. Where the forest fires are in urban area and in and around the fire stations and where water sprays could be used, fire department teams could assist with their man power and equipment. Where the forest fire squad is far away from the fire points alert received, fire department could assist until the time the forest fire squad arrives. Apart from this, capacity building of forest personnel shall be enhanced through training programs, mock drills, assistance etc. A monthly meeting shall be conducted at the district level with fire department for reviewing the progress and coordination.
- **Police Department:** Police departments shall assist in the enforcement activities in relation to forest fire. Lighting fire or setting ablaze any forest patch is in violation of and punishable under Odisha Forest act, 1972 and Wildlife Protection Act, 1972 for hunting purposes.
- **Urban Local Bodies:** Man power and equipment could be provided for assistance in creation and maintenance of fire lines. Apart from this, regular awareness generation and capacity building measures training programs could be conducted with forest department.
- **Panchayati Raj Institutions:** The Gram Panchayats and Gram Sabhas shall also act as first point of contact for collection, collation, and sharing of information with forest and fire department. Apart from this, regular awareness generation and capacity building measures training programs could be conducted with forest department in prevention, mitigation and management of forest fire.

Chapter-12

Gender Inclusion in Disaster Risk Reduction

A gender-sensitive disaster management approach is one that recognizes and addresses the distinct needs, vulnerabilities, and capacities of both men and women during all phases of disaster risk reduction, preparedness, response, and recovery. It acknowledges that gender norms and power dynamics influence how individuals experience and are affected by disasters, and it strives to promote equality and empowerment for all.

Why Gender Sensitive Approach is necessary:

- **Recognizing Differential Impacts::**-Disasters don't affect everyone equally. Women and girls often face unique challenges due to pre-existing gender inequalities, such as limited access to resources, restricted mobility, and increased risk of gender-based violence.
- **Addressing Needs::**-A gender-sensitive approach ensures that disaster preparedness and response plans consider these specific needs, providing targeted support for women, girls, men, and boys.
- **Promoting Participation::**-It emphasizes the importance of involving both men and women in decision-making processes related to disaster management, ensuring that their voices and perspectives are heard.
- **Challenging Gender Stereotypes::**It aims to break down harmful gender stereotypes that can limit women's roles and opportunities in disaster situations, recognizing their potential as leaders and agents of change.
- **Building Resilience::**-By addressing gender inequalities and empowering women, a gender-sensitive approach contributes to building more resilient communities that are better equipped to withstand future disasters.
- **Focusing on Post-Disaster Recovery::**-It recognizes that post-disaster recovery provides an opportunity to address underlying gender inequalities and promote social justice.

Importance of Gender Inclusion in Disaster Risk Reduction

Effectiveness:-Gender-sensitive approaches lead to more effective disaster management because they address the root causes of vulnerability and promote inclusive solutions.

Equity:-It ensures that all members of society have equal access to resources and opportunities, and that no one is left behind in the aftermath of a disaster.

Sustainability:-By empowering women and promoting gender equality, it contributes to more sustainable and resilient communities.

Examples of Gender-Sensitive Practices: :-

Collecting sex- and age-disaggregated data::- This helps to understand the specific impacts of disasters on different groups and tailor interventions accordingly.

Providing gender-specific training::-This ensures that women and men have the skills and knowledge to prepare for, respond to, and recover from disasters.

Establishing gender-sensitive early warning systems::-This ensures that information is disseminated to all members of the community, regardless of gender or other social factors.

Integrating gender considerations into infrastructure development:-This ensures that infrastructure is designed to meet the needs of all community members.

Goal: To integrate gender and inclusion issues into all Disaster Risk Reduction (DRR) strategies plans, and activities of OSDMA, ensuring that the needs and contribution of diverse groups, particularly, girls, women, children, people with disability, the elderly and marginalized communities, are recognized and addressed. This program aims to enhance resilience by fostering equitable participation in disaster preparedness, response, and recovery efforts, ultimately leading to more effective and sustainable outcomes in disaster risk reduction and enhanced community safety.

Objective 1: To increase the voice of women and the visibility of women's roles & contributions to DRR especially in emergency rescue, basic community-based primary health care & psychosocial care.

Objective 2: To enhance community resilience through women's leadership in disaster risk reduction.

Objective 3: To eliminate gender-based violence and other harmful practices and norms during disaster and post-disaster situations.

Objective 4: To enhance inclusivity in disaster risk reduction, by prioritizing needs & easy access to resources for the most vulnerable sections of society like women, girls, children, people with disability, and the elderly.

PROCEEDINGS OF THE DISTRICT LEVEL WORKSHOP ON MAINSTREAMING GENDER & INCLUSION IN DISASTER RISK REDUCTION

A district level Consultation workshop on mainstreaming gender & inclusion in disaster risk reduction was organized by District Disaster Management Authority, Nayagarh on 22nd January 2025, under the chairmanship of Additional District Magistrate, Nayagarh. The workshop was presided over by Sri Dilip Kumar Bal, Addl. District Magistrate (Rev.), in presence of Sri Lagnajit Rout CDO cum EO ZP, Nayagarh, Smt. Tapati Raj, District Emergency Officer, Nayagarh. Er. Debasis Pattanaik President ZP Nayagarh attended the workshop as chief guest. Sri Tapas Kumar Sethy (OAS) General Manager participated as observer from OSDMA along with Sri Aranyak Mishra, Gender Consultant & Sri Subodha Kumar Nayak as resource person. The objective of the workshop was to enhance the awareness of District level officers for mainstreaming gender and inclusion in Disaster Risk Reduction with finalization modalities and fix up the plan of action in presence of all Block & District level officers with NGO & Resource persons for organizing Block & GP level workshop District Emergency Officer, Nayagarh coordinated the process with help of staff of District Emergency Operation Centre, Nayagarh.

First of all Mrs. Tapati Raj, District Emergency Officer, Nayagarh welcomed all the participants & guests on behalf of District Disaster Management Authority, Nayagarh. She rightly focused on innovative idea of OSDMA for organizing the workshop in District level. During her deliberation, she highlighted the importance of mainstreaming gender and women empowerment.

Followed to this, Sri Tapas Kumar Sethy, General Manager OSDMA once again welcomed all including the dignitaries on behalf of OSDMA. He said the objective of the workshop was to give a clear picture on Gender issues to all district level officers & finalize the strategy to overcome the issues at block & GP level by organizing Block & GP level Workshop & training. Apart from that he also requested all district level Officers to have their own sectoral plan with special focus on mainstreaming Gender & inclusion in DRR.

& send to DDMA, Nayagarh to have a separate chapter in District Disaster Management Plan. He requested all to cooperate the District Administration to prepare a concrete District Disaster Management Plan ,which can be used as a guide book during any disaster and also stated that if possible, we can incorporate the sectoral plan in annexure for better clarity.

Mr. Dilip Kumar Bal, ADM, Nayagarh welcomed all the participants and discussed about the need for consultation workshop. He said mainstreaming gender & inclusion is a burning issue now days. To face such type of issues, we should finalize the plan of action in advance with combine effort of all line department officers and also stated that we shall gather feedback & information for the same & to prepare the District Disaster Management Plan including a chapter on mainstreaming of Genders and how to have inclusion of gender in Disaster Risk Reduction. In this context he cited the example of cyclone DANA. He told that how special importance was given to women and vulnerable sections particularly expectant and lactating mothers during evacuation of cyclone DANA. The District Administration issued instruction for shifting of pregnant mother to health centre& engaged lady officer as nodal officer in all shelter houses especially for women evacuees. Apart from that he also focused on mainstreaming of women who lost their livelihood.

Er. Debasis Pattanaik, President, ZP Nayagarh appreciated the role of OSDMA in this regard. He said although women are more vulnerable than Men for their genetic condition & physical structure but they are not in such down position. During DANA, he had visited all the shelters & verified all the amenities available in flood or cyclone shelter. He requested to all the district level Officers to provide gender specific data for preparation of District Disaster Management Plan in accordance with Age & sex and prepare the Sectoral plan at each department level for use in disastrous situation.

As the programme has two parts inaugural & technical , the inaugural session was closed with vote of thanks to all the dignitaries & with felicitation to General Manager Mr. Tapas Kumar Sethy, Mr. Aranyak Mishra, Gender consultant & Mr. Subodh Nayak, Gender Coordinator, OSDMA.

The technical session was started by Aranyak Mishra, Gender consultant OSDMA with highlighting the need of workshop for awareness generation, special focus on gender issue & preparation of sectoral plan and to send the same to DDMA, Nayagarh for preparation of District Disaster Management Plan. He explained the need for Gender inclusion in Disaster Management Programme

National Disaster Management Plan has mandated to include Gender in the Disaster Management Plans in the year 2019

Disaster Management act 2005, Section: 61; prohibits any kind of discrimination on the basis of sex, caste, community, descent or religion

Insufficient Gender- disaggregated Data and/or gender-based vulnerability assessments. Sex, Age and Disability Disaggregated Data (SADDD) in DRR available in only 14% of Asia-Pacific countries (UN Women)

Gender aspects are included in only 33% of post-disaster needs assessment methodologies (UN Women)

Poor understanding of Gender issues in DRR at conceptual and practice levels, especially at administrative & operation management level

Lack of institutional and individual capacity and tools to mainstream gender in DRR

Followed to this he discussed on approaches of OSDMA on Gender Perspective:-

Integrating Gender in policies, programmes, manuals and handbooks has been started.

Involving women volunteers Task forces in shelter managements.

Gender & Inclusion cell has been opened at OSDMA & a Roadmap for coming 5 years adopted

Under Swayamsiddhaprogramme, SHG members will be trained on search & Rescue, First –aid and shelter management, Psychosocial counseling

Existing shelters will be reviewed and necessary modifications will be incorporated in governance

Focused and sustained programme has been taken up in collaboration with UNFPA for developing gender inclusive Gram Panchayats where there will be trained person in every village, every family to respond emergencies.

During his deliberation he interacted with all line department officers with their active participation to make the programme participatory .All the line department officers explained their experience & their gender bases activities in implementing their own programme.

SC ST Coordinator from District Education Office, Nayagarh highlighted the interventions of School & Mass education Department like installing of vending machine to provide sanitary napkin, appointment of lady councilor for counselling the people on different old tradition & superstitious belief, impart training for self defense, Beti Bachao & Beti Padhhao etc. Apart from those, they are also conducting school safety programme, creation of community volunteers, providing vocational training etc for mainstreaming & gender inclusion. She also said during the block and Pacnchayt level training we can use Block Resource Teacher to impart training on mainstreaming Gender & inclusion in DRR activities.

In this context ACF (WL) Nayagarh discussed about the situation during flood & cyclone in the reserve forest areas. She said during that period special focus should be given to that community or women community who suffer much. For this purpose the objective of OSDMA for such organizing capacity building for adolescent girl is very much necessary. She advised the field level Officers to involve themselves in true letter & spirit for better implementation of the Project.

Followed to this discussion Mr. Sudhir Kumar Nayak, BDO, Ranpur appreciated the role of OSDMA and committed to organize the programme in respective block in first week of February 2025. He told all concerned BDOs should personally be involved in this programmme during the workshop & training in their respective blocks & GP.

Mr. Govinda Mohapatra, Block Disaster Nodal Officer, Gania focused on 17 goals of sustainable Development goal, in which he pointed out Gender equality & climate change are most important. He said, this is the right time to capacitate the people on mainstreaming of gender and inclusion in DRR.

Mr. Anit Badset, GPDO cum Block Disaster Nodal Officer, Khandapada stated that as this programme is very important and we must implement the activities like block & GP level workshop & training in true letter & spirit.

Mr. Tusar Rout GPDO cum Block Disaster Nodal Officer, Nayagarh requested OSDMA to organize capacity building training program for them to improvise the documents like DDMP & BDMP.

Secretary HAMS (NGO), Nayagarh discussed how they focused on gender issues in implementing Project on Preparation & Gram Pacnchayt& Village Disaster Management Plan.

Mr. Subodha Kumar Nayak, Gender Coordinator, OSDMA discussed on modalities of organizing the workshop in block & GP level .He suggested to involve all the line department officers from block & GP level to be involved in workshop. DSWO, Nayagarh will issue office order to CDPO for involving AWW to identify adolescent girl for the GP level training who is interested to be a volunteer. Apart from that he explained the participants at Block & GP level programme as follows

Important decisions taken in the workshop

The block level workshop will be organized by Block Administration in the month of February like Ranpur-First week , Gania -2nd Week &, Khandapada-third week of February The date will be communicated to DEOC, Nayagarh by block level nodal Officer for DM activities. The fund in the tune of Rs2, 15,000/- will be transferred to BDO, Khandapada, Gania &Ranpur to organize the block GP level Programme. Concerned BDO &Tahasildar should participate in the workshop unfailingly.

The 6 GP level workshops will be organized in the month of March involving all the stake holders under the direct supervision of Block level nodal Officer, Disaster Management

Followed to the GP level workshop the training at GP level will be organized.

The DSWO will instruct to CDPOs for issuing necessary order to AWW for identifying the adolescent girl in accordance with the instructions in the prescribed guideline.

Resource person who are trained by OSDMA will impart training to the participants.

District Emergency Officer &Dist Project Officer (OSDMA) will attend the Block & GP level workshop as resource persons and monitor the activities undertaken by Block Administration and to visit to GP level training for smooth implementation of the Project..

In conclusion, a gender-sensitive disaster management approach is crucial for building more effective, equitable, and sustainable disaster resilience. It recognizes the unique needs and capacities of women and men, and it empowers communities to prepare for, respond to, and recover from disasters in a way that promotes gender equality and social justice.

Chapter – 13:

Capacity Building Measures

Approach

As per the High Powered Committee Report, Capacity Building is a complex, long term phenomenon requiring the development of human resources, the establishment of well functioning organisations within a suitable work environment & a supportive socio-political environment for improving the performance of institutions & personnel. 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.

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

The approaches of the DDMA are proactive in prevention; mitigation & preparedness thereby follow a holistic & integrated approach in dealing with disasters. Holistic approach is all about integrating all aspects of disaster management like preparedness, response, recovery etc with sustainable development. Whereas integrated approach is about involving all stake holders, the Government, NGOs & the community with DM.

Table 13-1 Proposed Training program

Sl. No.	Name of the Training Programme	Participants	Duration of the Training Programme	Month of Organization	To be Organized by
1	Training program on heat wave preparedness	All BDOs/ EE RWS &S, CDMO, CDVO, NGOs, etc.(60 Numbers)	1 day	Feb	DDMA/ Collector
2	Training program on heat wave, snake bite, lightning, drowning casualty management	Doctors and Paramedical Staff/ ANMs(100 Numbers)	2day	Feb	CDMO
3	Post disaster damage assessment	AAOs of all Blocks, RIs of Tahsils and line departments(150 Numbers)	1 day	Sept	DDMA/SRC
4	Public health in emergencies- safe drinking water and sanitation	All BDOs, ULB and district level officials of PHED/ RWS & S Dept.(50 Numbers)	1 day	March	CDMO / EE, RWSS
5	Training of teachers on school safety including DM plan and conduct of Mock Drills	BEO / ABEO / BRCC(60 Numbers)	2day	Oct	DEO
6	Block level training program on role of PRIs in disaster risk management / VDMP (in two blocks)	Sarapanchas, ZP&PS members(50 each in two blocks 100)	1 day	June	BDO
7	Role of Media in Disaster Risk Management	Media Personal(150 members)	1 day	Nov	DIPRO
8	Convergence and Livelihood Security: Post Disaster Strategies	Officials of the Line Dept. (100 members)	1 days	Sept	PD, DRDA/DDA /DDMA
9	Mainstreaming DRR and CCA in	All BDOs, Head of line	1 Days	Jan	DDP/DDMA

	Development Planning	departments(50 members)			
10	Training for selected community members and NGO representatives of TWO blocks on preparation of VDMP Training and Mock drill of VDMC member	Selected members from the GP/village at block level (70 each in two blocks 140)	2 days	June	DDMA
11	Training on Search and Rescue and First Aid for personnel of Fire Services and Police Dept.	Selected members from the dept. (50 members)	3 days	Oct	DDMA
12	Block level training programs of PRIs members on heat wave, snake bite, lightning, drowningcasualty management.	All blocks (50 members)	2 days	Dec	DDMA
13	Training on Search and Rescue and First Aid for Red Cross Volunteers.	All blocks (50 members)	5 days	Oct	DDMA

Tabletop Exercise:

The tabletop exercise is a meeting to discuss a simulated emergency situation. Members of the campus review and discuss the actions they would take in a particular emergency, testing their emergency plan in an informal, low-stress environment. Tabletop exercises are used to clarify roles and responsibilities and to identify additional campus mitigation and preparedness needs. The exercise should result in action plans for continued improvement of the emergency plan.

Major Elements:

- Policy level personnel evaluate plans and procedures
- Resolution of coordination and responsibility questions
- Facilitated group discussion

Advantages:

- Low stress environment
- Low cost
- Ongoing evaluation
- Facilitated group discussion of problem areas

Disadvantages:

- Lacks realism
- Not a true test of operational capability
- Provides only a superficial review of an organization's overall plan

The table top exercise will be carried out on the 1st week of April under the chairmanship of Collector & DM of the district.

District/ Block level Mock Drills:

The ultimate objective of the training programmes on preparedness & mitigation is to conduct mock drills, which reflects an artificial scenario of the disaster to some extent. The objectives encompassed in the mock drills are to validate the Standard Operating Procedures (SOPs) & ascertain the capabilities created by DDMA in managing & responding to natural disasters. The DDMA will propose the following mock drills to be organised at district level & block level.

Sl. No.	Type of Mock Drill	Officials/ Institutions to be involved	Month/ Date	Remarks
1	Flood	All BDOs, Tahasildars, Line departments	June	Flood & Cyclone mock drills to be done at one stretch
2	Cyclone			
3	Flood& Cyclone	All block level officials of Gania block	July	Flood & Cyclone mock drills to be done at one stretch

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

Keeping in view School safety programme as one of the most important components of Disaster Risk Reduction (DRR) and in order to save children's lives and protect damages in infrastructures and investments costs in the education sector, the DEOC has planned to implement school safety programmes in coordination with the Fire department. The objectives of the School Safety training are:

- To enhance conceptual understanding on various aspects of Disaster Risk Reduction and School Safety from an inclusive perspective.
- To develop competencies of the participants to undertake Disaster Risk Reduction measures in schools and in day today hazards.
- To enable their families to undertake preparedness at individual & family level.

During 2017-18, the district has planned to focus on the schools & colleges situated in the District HQ, simultaneously the needs assessment will be conducted to replicate the same in other strategic locations.

Sl. No.	Name of the Programme	No. of Schools, Colleges and Other Educational institutions to be covered during the year	Time Line	Remarks
1	Awareness generation on DM, evacuation drill, basic first-aid and mock drills for fire/earth quake, debate & drawing competition on allied issues etc.	5 schools & 5 colleges of the district	For 5 days in April	In coordination with fire department

13.3 Community Capacity Building and Community Based Disaster Management:

Taking into account the negative impact of the natural disasters in the district, community is the first responder to any disaster & the first to be affected. Hence defining community is the first step towards community preparedness & stressed that any strategy must focus on the community & its problems for effective implementation of the programme. The community needs to be empowered for coping with disasters & as well as the need to mobilise their capabilities & capacities for effective DM. Therefore effective participation of the community which includes all sections of a society is emphasised to capacitate the community & increase their preparedness level so that loss of life & property can be reduced. It is also known that the local communities have an active part to play in all phases of disasters because:-

- A good state of preparedness by the community before a disaster strikes may reduce its impact.
- The community can save more number of lives during the golden hours after a disaster strikes till the arrival of external help.
- The community can effectively address the issues of water & sanitation, health, rehabilitation in more organised way.

CBDM approach is about involving the community in every aspect of the disaster management planning. Involving communities in disaster preparedness programmes provides platform for these communities to implement their own solutions thus inculcating ownership & an increased probability of sustainability. The DDMA has completed the task of forming VDMC & Task Force in 17 shelter level areas of Nayagarh district may be increased afterwards.

Sl. No.	Block Name	No. of shelters	No. of FMCC/CMCC and task force member oriented	No. NGOsto be involved in the process	Time line
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1	Nayagarh	2	150	1	Sept-22 Mar.23
2	Gania	2	150	1	
3	Khandapada	2	150	2	
4	Bhapur	4	300	1	
5	Ranpur	6	450	1	
6	Odagaon	1	75	1	

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

For all round management of the MCS/ MFS, it is the community who needs to drive up front & take the responsibility & to see that happening, the all round capacity building of the members is of utmost importance. The CSMMC members and Village Disaster Management have witnessed mock drills but no formal training has been imparted. Similarly the district is in the process of forming 20 Task forces & Village Disaster Management Committee (VDMC) in Natugaon GP of Nayagarh block by DEOC & BDOs of Gania, Khandapada, Bhapur, Ranpur in 20 villages. A glimpse of the trainings to be imparted with time line is given below.

13.5 Apda Mitra Training programme

5 batches of ApdaMitra trainingprogramme organized by DDMA, Nayagarh from Nov 2022 to March 2023 in DPRC Nayagarh. 200 nos of volunteers from 8 blocks of Nayagarh District undergone the training programme on life saving skills, fire fighting, Search & Rescue etc.All the volunteers are covered the life insurance during any disaster.They are supplied two sets of uniform& all kinds of disaster related equipments for using during any kind of disaster. Collector cum DDMA advised to DEOC Nayagarh to provide the phone no of Apda Mitra volunteers to all BDO &Tahasildars of concerned block &Tahasil.

13.6 Shelter level mock drills:

Mock drill is a participatory method to practice the safety-related measures and evacuation during an emergency situation. For fire- related evacuation **mock drills**, the fire-alarm is activated and the building is evacuated as though a real fire had occurred. Hence to train the members of the shelter committee by creating artificial emergency situations & possible actions to overcome the same needs to be carried out at regular intervals. Usually DDMA in coordination with NDMA perform the mock drills at different shelters of the district. This year the district has planned to carry out the activity in 4 shelters located in Ranpur&Nayagarh blocks.

Chapter – 14:

Preparedness

14.1 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	Nayagarh	Khandapada	19 Kms of Pucca road	During severe wind flow the trees at both the sides of the road may fall down & block the road.	Nayagarh & Khndapada
2	Nayagarh	Nuagaon	23Kms of Pucca road (NH57)	The road passes through 5Kms of jungle before reaching the block HQ with huge amount of trees both the sides making it difficult to operate during heavy wind. Additionally one accident prone point at Nuagaon exists in the route	Nayagr & Nuagaon
3	Nayagarh	Ranpur	State highway (35Km)	Newly improved from Pratappasad to D.Npur & D.Npur to Ranpur under New Gajannath Sadak Cyclone affected	Nayagarh & Ranpur
4	Nayagarh	Bhapur	BT 40Km	The road passes through 5Kms of jungle before reaching the block HQ with huge amount of trees both the sides making it difficult to operate during heavy wind. During hail storm & cyclone trees are likely to block the road	Khandpada & Bhapur
5	Nayagarh	Gania Via Khandapada	BT 50Km	Partially cyclone affected	Khandapada
6	Nayagarh	Gania Via Daspalla	BT 63Km	The road passes through 5Kms of jungle at Nuagaon block before with huge amount of trees both the sides making it difficult to operate during heavy wind. Additionally two accident prone points at Nuagaon & Dasapalla exists in the route before reaching Gania block	Nuagaon & Daspalla
7	Nayagarh	Daspalla	NH-57 (40 KM)	The road passes through 5Kms of jungle at Nuagaon block before with huge amount of trees both the sides making it difficult to operate during heavy wind. Additionally two accident prone points at Nuagaon & Dasapalla exists in the route	Nuagaon
8	Nayagarh	Odagaon	BT 26Km	Nil	Odagaon

14.2 Relief Line Channels : Block to GPs & Villages

Sl. No.	Name of the Block	Name of the Road		Type of Road & Length	Vulnerability of the route (Description of the Vulnerability)	Coverage (In Nos.)	
		From	To			Village	Population
1	Ranpur	Ranpur	Patia	BT Road (20Km)	PMGSY Road from Raipada to Patia Narrow Road	11	4225

2	Ranpur	Raipada	BT Road (14Km)	3Km jeepable Moorurum Road	7	2894
3	Ranpur	Chandpur	BT Road (15Km)	State highway vulnerable to cyclone	2	6477
4	Ranpur	K. Nayagarh	BT Road (16Km)	State highway vulnerable to cyclone	1	4671
5	Ranpur	Champagarh	21Km	State highway 15Km, NH 4 Km other village C.C. Road vulnerable to cyclone	4	3996
6	Ranpur	Kerendangi	18Km	State Highway 13Km other village C.C. Road vulnerable to cyclone	7	5469
7	Ranpur	Mayurjharia	20Km	State Highway 8Km RD Road 8Km village C.C. Road 4Km vulnerable to cyclone	3	3511
8	Ranpur	Jankia	25Km	State Highway 8Km& RD Road 10Km village C.C. Road 5Km vulnerable to cyclone	3	4272
9	Ranpur	Jhadapada	12Km	State Highway 8Km& RD Road 4Km vulnerable to cyclone	2	2611
10	Ranpur	Champapadi	17Km	State Highway 11Km& village C.C. Road 6Km Jeepable Road vulnerable to cyclone	7	4058
11	Bhapur	Badasahara	BT & CC 8Km	NIL	9	6422
12	Bhapur	Baghuapalli	BT & CC 13Km	NIL	11	7318
13	Bhapur	Baigunia	BT & CC 10Km	NIL	9	8938
14	Bhapur	Baunsabati	BT & CC 8Km	NIL	4	4170
15	Bhapur	Bhagabampur	BT & CC 15Km	NIL	8	4025
16	Bhapur	Bhapur	HQ	Cyclone affected	7	6112
17	Bhapur	Bijipur	BT & CC 3Km	NIL	7	6062
18	Bhapur	Chakaradharprasad	BT & CC 8Km	NIL	3	4793
19	Bhapur	Dhanchanagada	BT & CC 17Km	Partially flood affected	7	5125
20	Bhapur	Fategarh	BT & CC 4Km	Partially flood affected	5	8004
21	Bhapur	Golapakhari	BT & CC 4Km	NIL	8	7006
22	Bhapur	Kainfullia	BT & CC 2Km	NIL	2	3193
23	Bhapur	Karabara	BT & CC 7Km	Partially flood affected	5	5932
24	Bhapur	Kendupalli	BT & CC 10Km	NIL	3	2452
25	Bhapur	Nimani	BT & CC 11Km	NIL	4	3968
26	Bhapur	Padmabati	BT & CC 7Km	Partially flood affected	4	4979
27	Bhapur	Patharachakada	BT & CC 11Km	Partially flood affected	2	4158
28	Bhapur	Rakama	BT & CC 6.5Km	NIL	3	3551

Bhapur

29		Bhapur	Salapada	BT & CC 3.5Km	NIL	9	5426	
30		Bhapur	Sasana	BT & CC 5Km	Partially flood affected	2	3717	
31	Gania	Gania	Badasilin ga	Pichu & Morum/45 K.M	Road from Rasanga to Badamulapatana totally submerged during flood.	13	2515	
32		Gania	Chhamun dia	Pichhu/18 K.M	Road from Rasanga to Chhamundia totally submerged during flood.	9	1172	
33		Gania	Kishorepr asad	Pichu/5 K.M.	Nil	2	997	
34		Gania	Karadapa da	Pichu/4 K.M.	Nil	3	1090	
35		Gania	Adakata	Pichu/8 K.M.	Nil	3	1310	
36		Gania	Belapadap atna	Pichu/3 K.M.	Nil	3	1119	
37		Gania	Rasanga	Pichu/6 K.M.	Nil	3	1396	
38		Gania	Gania	Pichu/1 K.M.	Nil	-	-	
39		Daspalla	Daspalla	Kujamend hi	Black top and metaling road-50 KM	Nil	35	3815
40			Daspalla	Banigoch ha	Black top road-35 KM	Nil	20	3789
41	Daspalla		Duda	Black top & Ghat road-37 KM	Partially flood affected	15	2853	
42	Daspalla		Kuluruku mpa	Black Top road - 30KM	Nil	20	3701	
43	Daspalla		Takera	Black Top road - 15KM	Nil	19	4006	
44	Daspalla		Tumandi	Black Top road - 13KM	Nil	13	2322	
45	Daspalla		Bhogabad i	Black Top road - 16KM	Nil	15	2410	
46	Daspalla		Pokharigo chha	Black Top road - 23KM	Nil	12	2295	
47	Daspalla		Sariganda	Black Top road - 8KM	Nil	19	5321	
48	Daspalla		Nachhipur	Black Top road - 5KM	Nil	14	3690	
49	Daspalla		Ghugudip ada	Black Top road - 13KM	Nil	22	4879	
50	Daspalla		Dihagaon	Black Top road - 8KM	Nil	12	6955	
51	Daspalla		Madhyak handa	Black Top road - 10KM	Nil	3	5614	
52	Daspalla		Gholahan di	Black Top road - 13KM	Nil	9	4057	
53	Daspalla		Khamarsa hi	Black Top road - 3KM	Nil	13	7618	
54	Daspalla		Similisahi	Black Top road - 5KM	Nil	10	4502	
55	Daspalla		Tendabadi	Black Top road - 7KM	Nil	20	5420	
56	Daspalla		Chadeyap alli	Black Top road - 25KM	Nil	27	5055	

57		Daspalla	Kalasa kha man	Black Top road - 40KM	Nil	25	3208
58		Daspalla	Nuagaon	Black Top road - 50KM	Nil	19	3927
59	Khandapada	Khandapada	Sikharpur	Black Top road- 5Km	Cyclone & affected	5	3682
60		Sikharpur	Jogiapalli	Black Top road- 4Km	Nil	10	2584
61		Jogiapalli	Ranipada	Black Top road - 3Km	Flood affected	3	2876
62		Khandapada	Salajharia	Black Top road - 4Km	Flood affected	5	1664
63		Salajharia	Gunthuni	Black Top road - 6Km	Flood affected	3	4443
64		Khandapada	Jagannath prasad	Black Top road - 14Km	Nil	10	4910
65		Khandapada	Banamali pur	Black Top road- 5Km	Nil	9	9077
66		Banamalipur	Ranichheli	Black Top road- 5Km	Flood affected	7	1733
67		Khandapada	Khalisahi	Black Top road- 2Km	Cyclone affected	9	7557
68		Khalisahi	Mardarajpur	Black Top road - 1Km	Nil	6	4381
69		Mardarajpur	Bodasa	Black Top road - 3Km	Nil	6	4022
70		Mardarajpur	Benagadia	Black Top road & 4Km	Cut off during heavy rain	12	8479
71		Benagadia	Banpur	Black Top road & 4Km	Cut off during heavy rain	16	5066
72		Benagadia	Kantilo	Black Top road & 7Km	Flood affected	1	9181
73		Banpur	Sidhamala	Black Top road & 12Km	Flood affected	10	5801
74		Khalisahi	Singhapada	Black Top road & 4Km	Cyclone affected	20	5327
75		Singhapada	Gadiasahi	Black Top road & 2Km	Cyclone affected	9	3435
76		Gadiasahi	Kiajhara	Black Top road & 4Km	Nil	18	4072
77		Kiajhara	Koska	Black Top road & 10Km	Nil	16	3807
78		Koska	Balabhadraprasad	Black Top road & Km	Nil	11	2797
79	Koska	Kumbhara pada	Black Top road & 4Km	Cut off during heavy rain	4	2858	
80	Kumbharapada	R. Dholamara	Black Top road & 4Km	Nil	11	5144	
81	Nuagaon	Nuagaon	Nuagaon	Pucca Road- 1 K.M	Nil	7	4719
82		Nuagaon	Korada	Pucca Road- 3 K.M	Cyclone affected	10	4844
83		Nuagaon	Sorada	Pucca Road- 7 K.M	Cyclone affected	3	4903

84	Nuagaon	Sikida	Pucca Road- 4 K.M &kacha Road- 4 K.M	Cyclone affected	8	3062
85	Nuagaon	Udayapur	Pucca Road- 7 K.M	Cyclone affected	11	3452
86	Nuagaon	Jakeda	Kachha Road- 11 K.M	Cyclone affected	23	2643
87	Nuagaon	Kaptapalli	Kachha Road- 20 K.M &Pucca Road- 6 K.m	Cyclone affected	24	2442
88	Nuagaon	Gumi	Kachha Road-20 K.M Pucca Road- 10 K.M	Cyclone affected	14	3724
89	Nuagaon	Bahadajhola	Pucca Road-26 K.M	Cyclone affected	4	6639
90	Nuagaon	Beruanbari	Pucca Road-32 KM	Cyclone affected	17	5628
91	Nuagaon	Haripur	Pucca Road-30 KM	Cyclone affected	5	2987
92	Nuagaon	Singarapalli	Pucca Road- 16KM	Cyclone affected	11	5893
92	Nuagaon	Gateri	Pucca Road- 13 K.M	Cyclone affected	10	3375
93	Nuagaon	Mahipur	Pucca Road- 10 K.M	Cyclone affected	4	5414
94	Nuagaon	Durudura	Pucca Road- 13 K.M	Cyclone affected	11	6144
95	Nuagaon	Khandugan	Pucca Road- 13 K.M	Cyclone affected	4	2504
96	Nuagaon	Chahali	Pucca Road- 10 K.M & Kacha Road- 3 K.M	Cyclone affected	3	2890
97	Nuagaon	Maichheli	Pucca Road- 7 K.M	Cyclone affected	9	4449
98	Nuagaon	Dhenkena	Pucca Road- 19 K.M	Cyclone affected	5	3522
99	Nuagaon	Malisahi	Pucca Road- 10 K.M & Kacha Road- 5 K.M	Cyclone affected	14	6062
100	Nuagaon	Badagotha	Pucca Road- 12 K.M	Cyclone affected	9	4369
101	Nuagaon	Paradhipi	Pucca Road- 7 K.M & Kacha Road- 10 K.M	Rough Road and cyclone affected	11	3588
102	Odagaon	Sunamuhi	Pucca Road- 16	Nil	9	6073
103	Odagaon	Kural	Pucca Road- 9	Nil	6	8358
104	Odagaon	Panderipada	Pucca Road- 8	Nil	4	3768
105	Odagaon	Pantikhari	Pucca Road- 4	Nil	5	3519
106	Odagaon	Rabigadia	Pucca Road- 7	Nil	9	5144
107	Odagaon	Korapitha	Pucca Road- 5	Nil	3	2083
108	Odagaon	Saradhapur	Pucca Road- 10	Nil	8	4103

109	Odagaon	Bhadikila	Pucca Road- 12	Nil	3	2953
110	Odagaon	Magarabandha	Pucca Road- 15	Nil	8	5147
111	Odagaon	Gotisahi	Pucca Road- 24	Nil	9	5411
112	Odagaon	Solpata	Pucca Road- 25	Nil	3	2698
113	Odagaon	Dimisar	Pucca Road- 24	Flood affected	2	5144
114	Odagaon	Sarankul	Pucca Road- 15	Nil	7	6623
115	Odagaon	Nandighore	Pucca Road- 6	Nil	3	5124
116	Odagaon	Areda	Pucca Road- 8	Flood affected	4	2898
117	Odagaon	Odagaon	Pucca Road- 1	Nil	4	6450
118	Odagaon	Dalak	Pucca Road- 2	Nil	4	5491
119	Odagaon	Rabara	Pucca Road- 4	Flood affected	3	2159
120	Odagaon	Ranganipatana	Pucca Road- 3	Nil	6	4577
121	Odagaon	Komanda	Pucca Road- 8	Cyclone affected	6	4907
122	Odagaon	Banthapur	Pucca Road- 16	Cyclone affected	15	3094
123	Odagaon	Goudaput	Pucca Road- 12	Cyclone affected	14	4601
124	Odagaon	Godipalli	Pucca Road- 10	Nil	3	5299
125	Odagaon	P.Manpur	Pucca Road- 8	Nil	2	4325
126	Odagaon	Hariharpur	Pucca Road- 14	Flood affected	5	6360
127	Odagaon	Sikharpur	Pucca Road- 17	Flood affected	1	5216
128	Odagaon	Barasahi	Pucca Road- 16	Cyclone affected	5	3324
129	Odagaon	Golagaon	Pucca Road- 22	Nil	2	3130
130	Odagaon	Kajalaipalli	Pucca Road- 25	Cyclone affected	10	3618
131	Odagaon	Bhaliadihi	Pucca Road- 24	Nil	3	3035
132	Odagaon	Panchumu	Pucca Road- 28	Nil	6	3657
133	Odagaon	Godipada	Pucca Road- 26	Cyclone affected	3	5590
134	Odagaon	Haridabandha	Pucca Road- 29	Nil	3	2520
135	Odagaon	Angisingi	Pucca Road- 19	Flood affected	2	2888
136	Odagaon	Badagorada	Pucca Road- 21	Flood affected	3	3335
137	Odagaon	Giridipalli	Pucca Road- 11	Nil	8	3407
138	Odagaon	Rohibankara	Pucca Road- 10	Cyclone affected	7	4785
139	Odagaon	Sakeri	Pucca Road- 8	Nil	6	4437

14.3 Resources available : Response force & Volunteers

Sl. No	Response Force/	Capacity (In Nos.)	No. of trained person			Name of Nodal Person	Contact Details (Mobile/Phone)
			Search /Rescue	First Aid	Relief line Clearance		

1	Police	596	-	-	-	Sridhar Pani	94373 60590
2	Home Guards	325	-	-	-	Sgt. Sanjay Kumar Barik	88957 26481
3	NCC	400	-	-	-	Capt. Bhabani Prasad Hota	94377 62354
4	NSS	1160	-	-	-	Dr. (Mrs.) Surekha S. Swain	0674 2581515 (O)
5	NYK	2909	-	-	-	Basanta Kumar Mishra	94372 03908
6	Fire	86	86	86	86	Balaram Pradhan	94370 66085
7	Red Cross	40	02	40	4	Jaminikrushna Pattanaik	94372 87001

14.4 Preparedness at District level:

Preparedness is the state of readiness to deal with a threatening disaster situation or disaster and the effects of thereof. Those who are unaware & unprepared generally get affected more due to their lack of knowledge and physiological pressure. Hitherto, the approach towards coping the effects of disasters has been post-disaster management, involving many problems related to law and order, evacuation, communications, search and rescue, fire-fighting, medical, and psychiatric assistance, provisions of relief and shelters etc. After initial trauma, next phase starts with long-term reconstruction planning which takes about 5 to 6 years to normalize the life-style in a particular area.

In view of these problems the district administration, has prepared a comprehensive plan. The plan detailed out preparedness strategy under which communities and district authorities would be prepared so that level of destruction and unnecessarily delay in relief and response can be reduced. The preparedness measures include setting up disaster relief machinery, formulation of community preparedness plans, training to the specific groups and earmarking funds for relief operations.

14.5 Components of Community Preparedness Plan

Several previous attempts have been made by researchers to measure community preparedness within various indicators. Some of the important components of measuring preparedness are given below:

- 1. Physical Safety:** i.e. how safe community members are in view of the physical danger from these hazards? The parameters essentially tries to measure how effective structural mitigation measures are e.g. resistance of building structures for earthquakes, availability of safe shelters and its capacity etc.
- 2. Hazard awareness:** i.e. awareness level about hazards which have a reasonably higher probability of occurrence
- 3. Organization preparedness:** i.e. how far the community is organized to face disaster i.e. existence of committee at community level, task forces, and volunteers of civil defense and other local volunteers, trained disaster management teams and community disaster management plan etc.
- 4. Infrastructure and services** which tries to measure current state of these services and how well restoring critical services as and when disruptions occur.
- 5. Recovery ability:** i.e. ability of the community members to recover from the impact of the hazard
- 6. Physical environment:** i.e. state of environment to face hazards e.g. Condition of sub-surface aquifers and vegetation etc
- 7. Social capital:** i.e. degree to which social networking and cooperation exists among community members.
- 8. Psychological preparedness:** i.e. how safe and prepared do community members feel in view of these hazards

9. Cultural capital: i.e. cultural richness such as existence, recognition and use of traditional mechanism to cope with such disasters

10. Household preparedness: i.e. preparedness at a house hold members

14.6 Components of Administrative Preparedness

Administrative preparedness is another very important issue which helps in reducing relief and response time in a disaster situation. Preparedness plan is based on below-given components

- i.** Operation readiness of facilities, equipments and stores in advance
- ii.** Maintaining response inventory of equipments and materials required for response
- iii.** Assignment of responsibilities to agencies and organizations
- iv.** Management training of crisis group members, desk officers and officers of respective departments likely to be assigned management duties
- v.** Specialized trainings of district disaster committee members, officials, community organizations through seminars and workshop
- vi.** Training of taskforces
- vii.** Raising community awareness
- viii.** Improving response mechanism through conducting practice drills etc.

14.7 Annual updating of District and community level plans

Task	Activity
District Emergency operation Centre (DEOC)	<ul style="list-style-type: none"> • Test Checkup of all communication Interfaces in regular interval • Proper manning of the Control Room as per Para-10 of the Odisha Relief Code • A dedicated vehicle must be earmarked for Control Room
Upward & Downward Communication	<ul style="list-style-type: none"> • Have a list of Nodal person with contact details • Establish regular linkages with all important stakeholders • Contact SEOC regularly • Standard Operating Procedures for various departments are operationalised
Meeting of DDMA (Heads of the department & stakeholder)	<ul style="list-style-type: none"> • DDMA must meet twice every year & before any disaster • Fix time & venue for regular Preparedness meeting to Assess preparedness of District /Department /Civil Society /Block Community /Family /Individual level regularly • Circulate the minutes of the meeting with clear-cut role & responsibility
Capacity Building	<ul style="list-style-type: none"> • Identifying & designating Nodal Officer for different Dept. • Capacity building & skill upgradation of ODRAF/Fire services/ Police/Home Guard • Identify Volunteer like Civil Defense/Cyclone shelter Task Force/NCC/NSS/Scout & Guide & train them on Search & Rescue, First aid, evacuation etc. • Take stake of required materials for search & rescue, first aid, casualty management, evacuation, relief etc. & update IDRN portal regularly • Assess preparedness through Mock drill at District, Block & Community level
Shelter Management	<ul style="list-style-type: none"> • Take necessary steps for operation & maintenance of shelters • Test Check of various Equipment at shelter level & repair of the defective ones

	<ul style="list-style-type: none"> • Ensure regular meeting of Shelter committee • Assess Shelter level preparedness through Mock drill 1
Planning & Reporting	<ul style="list-style-type: none"> • Collect & transmit Rain fall data regularly • Collect & transmit weather report regularly • Monitor preparedness measures undertaken at the district levels including simulation exercises undertaken by various departments • Ensure preparation of Disaster Management Plans & Safety plans at all levels • DDMP is operationalised in the district • Ensure that all departments/ blocks continue to update DDMP on a regular basis • Integrate the District plan with block & Village disaster management Plans • Capacity building of all Stake holders • Develop healthy media partnership

14.8 Preparedness at Community Level

Task	Activity
Early Warning Dissemination	<ul style="list-style-type: none"> • Build regular linkages with BEOC & DEOC • Test Check of various Equipment at shelter level & repair of the defective ones • Keep updates from BEOC/DEOC • Monitor & Transmit updates to BEOC • Supply required information to BEOC & DEOC
Ensuring Preparedness	<ul style="list-style-type: none"> • Have a list of Nodal person deployed in the village with contact details • Preparation of resource & vulnerability map • Identification of safer routes & shelters • Identify possible ways to reach persons like Farmers/Fisherman/NTFP collectors etc. who ventures into fields, sea & forest respectively • Build teams from among the task force on Search & Rescue, First aid, Damage & loss assessment • Assess preparedness at Family/Individual level • Test Check-up of equipment's
Planning & Reporting	<ul style="list-style-type: none"> • Understand Local dynamics exposed & vulnerable to different disaster • local Social Economic & weather conditions • Develop Village DM plan • List of emergency contact Nos. & display it in Centre places. • Participate in the activities of Preparing village Disaster Management, developing Safety plans, Capacity building Programmes & Mock Drills
Shelter Management	<ul style="list-style-type: none"> • Management & maintenance of the MCS & FCS constructed in the vicinity • Maintenance of the emergency equipments available at the shelter • Coordination with all the members & ensure regular committee meetings conducted & sharing meeting minutes with DEOC/ BEOC • Coordination with DEOC/ BEOC for conducting capacity building exercise & mock drill

Preparedness at Family Level

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

14.9 Preparedness at Individual Level

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

Preparedness of Departments

Name of the Department	Normal Time
Collector/ADM / Emergency Officer	<ul style="list-style-type: none"> Ensure regular meetings of District Disaster Management Authority Develop & update Disaster Management Plan, carry out Hazard analysis in the district Identify safe alternate routes to cyclone shelters.

	<ul style="list-style-type: none"> • Keep a list of Contacts of EoCs, Nodal officer of different departments, Important stake holders, Village leaders, shelters • List of Relief lines & storage places • List & maintenance of SAR equipment • Capacity building of stakeholders & volunteers • Asses preparedness through Mock Drills for different disasters at district department, block & community level • Adopt sustainable mitigation measures • Integrate DM & DRR features in development programmes
CDMO	<ul style="list-style-type: none"> • Disaster Management Plans & Safety plans for Hospitals • Capacity building of Medical & Para Medical Staffs • Assess preparedness through Mock Drills & familiar exercises • Integrate department plans with plans with Village & Block Plans and development programmes • Develop media partnership • Develop capacity of hospitals with advance equipment, proper manning & disaster resilient infrastructures & review and update precautionary measures & procedures • Orient field staff with standards of services, procedures including tagging • Ensure that stakeholders are aware about the emergency facilities/ resources available at each hospital
Superintendent of Police (SP)	<ul style="list-style-type: none"> • Prepare & update DM plan especially identifying the sensitive areas with the active involvement of all concerned line departments & local bodies in the district • Prepare a deployment plan for the police force, based on the needs of the most vulnerable & sensitive areas • Formation of search & rescue team & take necessary steps for the training & capacity building of teams • Develop emergency traffic plan including detail mapping with focus on strategic points, which may used at the time of incident for safe transporting of personnel, resources and relief goods to and from the affected area • Develop communication protocols for responding during disasters eg designate separate channels for rescue, relief for example • To conduct mock exercises with various stakeholders & test and update their different plans • Keep the police vehicles & other modes of transport in readiness for deployment of police • Review & update emergency measures & procedures & ascertain with staff the precautions that have been taken to protect equipment
EE- RWSS	<ul style="list-style-type: none"> • RWSS must develop a disaster management plan to tackle any kind of disaster & share with DDMA • Keeping the structures, plants, machinery, equipments & other facilities in an optimum working order • Develop manuals on water scarcity, resources of safe drinking water etc as a part of preparedness measure • Will coordinate with Block DEE/ Panchayat AE/ Village JE on vulnerability analysis to various forms of disaster with close support form VWSC • Must support DDMA on overall coordination of emergency water & sanitation response • Coordinate vulnerability hazard analysis exercise conducted in the district

	<ul style="list-style-type: none"> • An inventory/ check list of water supply & sanitation resources in the district will be listed out & updated regularly • All the Executive Engineers/ AEEs should be instructed to check up the PWS schemes which are prone to disasters in their jurisdiction & compile a report on water supply position of the concerned area & present before DDMA • Ensure stock piling of supplies like water purification tablets, essential spare parts, etc
EE- Irrigation	<ul style="list-style-type: none"> • Prepare & update the disaster risk map of the district with focus on vulnerability & risk analysis of the critical infrastructure related to irrigation • Set up the protocol for exchange of information with Disaster Control Rooms at District, State & National levels • Undertake channel improvement for rivers, nullahs & canals to the extent possible to improve flow of water • Preparation of contingency plan for the maintenance & repair of Bundhs & embankments • To take up drought prevention & mitigation measures • Plan for providing irrigation facility to farmers during drought • Commence timely repair of critical bundhs before & after monsoons, after surveying the damages & ensure the completion within the stipulated time • Check all the siphons & regulators on the bundhs & canals & cleaning before monsoon • Creation of assured irrigation facilities by constructing check dams, water storage tanks (ahars) and safe water channels (pynes) • Promotions of water shed management in hilly areas • Encouraging rooftop water harvesting in plain as well as hilly areas • Construction of community based water storage facilities like ponds • Promotion of research in water conservation and management in the drought affected areas
DDA- Agriculture	<ul style="list-style-type: none"> • Prepare HRV analysis of the district & develop contingency plan by taking up appropriate measures accordingly for the agriculture sector • Timely assessment of drought situation of the district & sharing update with DDMA • To update information regarding the area under various types of crops, the progress of agriculture operations & the growth of crops sown during Khariff season linked to the advance of monsoons • A pest & disease monitoring system should be developed to ensure that a full picture of risks is maintained • Preparation of action plan to meet scarcity conditions that accounts commencement of relief works, primarily fodder for the cattle, crop contingency plan etc • Continue educating farmers on soil & water conservation technologies through implementation of watershed projects & know-how of drought resistant crops • Develop a pest & disease monitoring system so that timely steps can be taken to reduce damage to crops • Suggest varieties of seeds & cropping patterns, which can reduce losses & risk to farmers

EE- Rural Works	<ul style="list-style-type: none"> • Should have master plans for the entire rural road network in the digitized form & for roads devolved to PRIs, simple inventory details (length, width, cross drainage works) & visual based condition surveys may be carried out • Construction of ODR, VR bridges & culverts keeping in view the vulnerability of the area & by putting mitigation measures in consultation with DMD, Water Resources & MI department • Ensure disaster resistant technological practices in construction of critical infrastructures • Off-carriageway routine maintenance & repair of rural roads & bridges involve activities like restoration of rain cuts on shoulders & side slopes, dressing of berms, removing silt & debris from drains & clearance of vegetation growth in the waterway passage of culverts & bridges etc • Enhance safety through maintenance (open to movement of traffic, cautionary signs near speed breaker, roads signs, pavement markings etc) • Keeping in view the hazard profile of the area make preparations & keep ready man & materials for the reconstruction of roads, bridges & culverts to of restoration movement • Undertake training & capacity building of staff, elected representatives & other officials
EE- Public Works	<ul style="list-style-type: none"> • Preparation, updation & review of the Disaster Management plan & to conduct HRV analysis of the district • Ensure technology transfer to local artisans, builders, engineers on how to make better structures should be a part of reconstruction exercise • Ensure all the stakeholders involvement in reconstruction exercise • Construction & repair of roads, bridges, culverts in the district including construction & repair of public buildings of the district • Provide regular capacity building / training for staffs to undertake vulnerability assessment of critical lifelines, develop mitigation options • Periodical inspection of the buildings, residences, high rise buildings under their control • Maintain the departmental equipments such as bulldozers, tractors, water tankers, dumpers, earthmovers excavator, generators, cutters etc; which can be used during emergency
DTO-Telecom	<ul style="list-style-type: none"> • Inspect the telephone exchanges/ sub-exchanges in the damage prone area at every 3 months • Action plan for repairs/ alternative arrangement in case of disruption of telephone lien & microwave towers • To ensure that the telephone lines at the shelters, emergency hospitals, police stations, control room & other vital places of emergency services, which can be used during disaster are not disrupted • Assess the different disaster scenarios & match the communication needs with the available resources • Assess the needs & capabilities of the response personnel, relief officers, NGOs & other critical users of communication means • Perform periodic, well documented & effective tests on the procedures & equipments used during emergencies • To mobilize deployable satellite terminals & satellite phones in inaccessible &

	<p>remote area</p> <ul style="list-style-type: none"> • To organise & conduct awareness campaigns on the use of communications systems during disaster
CDVO	<ul style="list-style-type: none"> • Develop & quarterly update the DM plan that includes the contingency action plan for the department based on the HVRC analysis • Review & update precautionary measures & precautions that have been taken to protect equipments • Prepare a list of water borne diseases that are preventable by vaccination & publicize the list of common ailments in disaster with possible precautions • Undertake fodder assessment & develop contingency plan in case of drought & drought like conditions • Arrangement of repairs/ alternative options in case the facilities related to animal husbandry & veterinary services disrupted • Capacity building of staffs & farmers in regular intervals on dealing with livestock during disaster • Undertake campaigns in the drought affected areas to increase the awareness of the farmers about cattle health issues related to fodder & feed, vitamins & minerals & sanitation etc
RTO/MVI	<ul style="list-style-type: none"> • Develop & update Disaster Management plan that includes the contingency action plan for the department based on HVRC analysis • Prepare a list of vehicles- trucks, buses, jeeps, tractors, etc of the Govt. & private agencies in the district & share with DEOC & DDMA • Issue standing instructions to bus, truck owner's association to ensure availability of vehicles during the time emergency • Ensure connectivity of all GPs/ villages with transport services
DFO- Territory & Forest	<ul style="list-style-type: none"> • Develop & update Disaster Management plan & HRV analysis of forests of the district • To undertake effective forest management services • Check erosion & management of environment infrastructure of the district • Protection & sustainable use of natural resources • Educate the mass on environment protection & to prevent forest fire in the district • Support income generation activities under JFM scheme • Arrangement of alternative source of drinking water for wildlife during scorching summer • Identification of areas that could be opened or made available for grazing or fodder collection in case of disaster • Ensure plantation to the maximum possible extent • Implementation of social forestry scheme in mission mode • Preparation of wild life protection programme & activities during various disaster related crisis
Railway	<ul style="list-style-type: none"> • Develop & update Disaster Management plan & HRV analysis of the terrain • Management & maintenance of the Self Propelled Accident Relief Train (SPART) to deal with crisis/ disaster • Provision of emergency escape route • Capacity building of staffs, search & rescue teams dealing with different disasters

	<ul style="list-style-type: none"> • Strengthening of railway networks • Preparation to provide better facilities • Expansion of resources to meet requirements in major accidents • Conducting mock drills with communities at accident prone areas on communication, early response, search & rescue of victims
EE- Electricity	<ul style="list-style-type: none"> • Prepare hazard/ disaster specific contingency plan of the district • Ensure 24*7 supply of electricity to public water sources require electricity • Undertake risk assessment of the lifeline infrastructure (generation, transmission & distribution systems) to hazard risks & address through mitigation measures • Provide adequate power supplies to the consumers in usual as well disaster environments • Protection of power stations from disaster by raising the height of compound d walls, arrange gunny bags, install pump sets for drainage of water etc
EE - PHED	<ul style="list-style-type: none"> • Formulation of Public Health Engineering related programme& activities by intonating them with hazard specific preventive & mitigation measures • Creation of stocks of installation materials at the district level for use in emergency • Capacity building of technical assistance team to hasten the installation during emergency • Strategizing the installation of hand-pumps etc with hazard profile of the area in mind • Keep a track of ground water level & having a fresh look at the facilities created as a part of the programme& activities • Organising interaction with GPs for having proper sanitation facilities & providing them support & guidance in planning, implementation & maintenance of the same • To ensure safe hygiene through Total Sanitation Campaign (TCS) • Providing safe drinking water to all the schools located in rural areas • procurement, upkeep & maintenance of sanitation equipment for use in emergencies
DEO- School & Mass Education	<ul style="list-style-type: none"> • Incorporate disaster management into education curriculum of schools • Maintain & ensure school facilities across the district can stand safe from known hazards & can be used during & post disaster environment • Identify/ Designate school buildings & infrastructure for providing shelter during emergency situations • Making adequate arrangements for getting hand pumps installed, storage facility created, toilet & bathrooms built in those schools where communities do take shelter during disaster • Ensure necessary facilities built up to cater support to the evacuated • Undertake training & capacity building initiatives & develop a resource pool of teachers & students trained in DM • Conduct mock drills in school in coordination with fire, police & R & DM dept • Construction of earthquake resilient school buildings
DEO - Higher Secondary	<ul style="list-style-type: none"> • Incorporate disaster management into education curriculum of colleges • Maintain & ensure infrastructure & other facilities across the district can stand

Education	<p>safe from known hazards & can be used during & post disaster environment</p> <ul style="list-style-type: none"> • Identify/ Designate college buildings & infrastructure for providing shelter during emergency situations. • Making adequate arrangements for getting hand pumps installed, storage facility created, toilet & bathrooms built in those schools where communities do take shelter during disaster • Ensure necessary facilities built up to cater support to the evacuated • Undertake training & capacity building initiatives & develop a resource pool of lecturers & students trained in DM • Coordinate with Nehru Yuva Kendra volunteers & locality based youth clubs & undertake joint exercise in escort services, relief works, establishment of community kitchen & taking care of children, women, old & sick • Conduct mock drills in school in coordination with fire, police & R & DM dept • Construction of earthquake resilient buildings
CSO- Food & Civil Supplies	<ul style="list-style-type: none"> • Maintain adequate stock of food supplies & ensure food security in the district • Identification of supply of food needs to be dispatched in case of declaration of disaster • Arrangement of community kitchens during disaster • Build reserve stock of supplies in most vulnerable & difficult to access regions of the district • Implementation of food security act effectively
DIPRO- Information & Public Relation	<ul style="list-style-type: none"> • Undertake education & awareness programmes among masses, build societal awareness • Take steps towards enhancing department level preparedness to HRV in the district • Capacity building of media houses on the coverage, reporting, flow of information, SOP during disaster situation • Preparation of information sharing/ dissemination protocol/ guideline & sharing with line departmnets

CHAPTER-15

Response

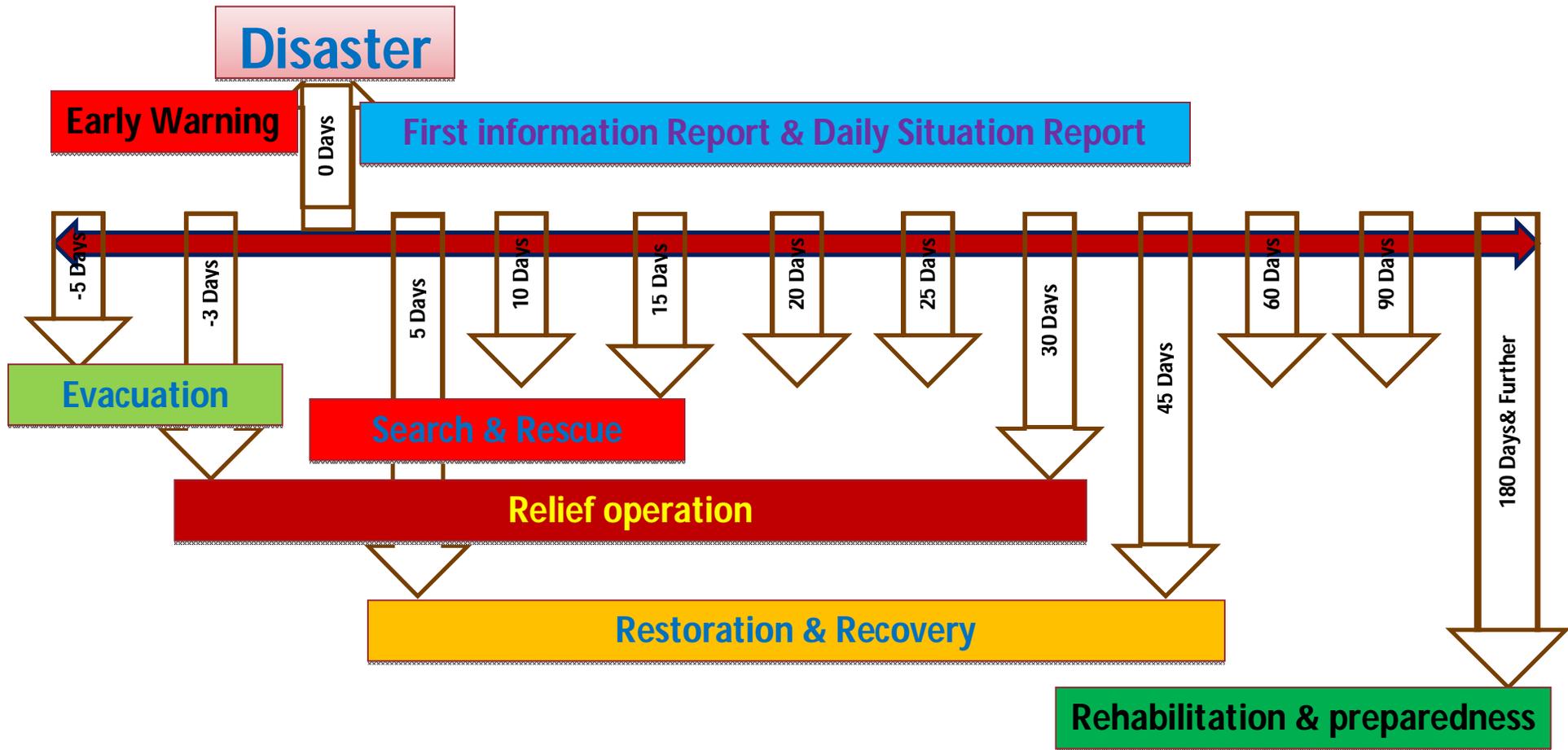
Disaster response is the second phase of the disaster management cycle. It consists of a number of elements, for example;-

- Warning/ evacuation
- Search and rescue
- Providing immediate assistance
- Assessing damage & continuing assistance
- And the immediate restoration of infrastructure

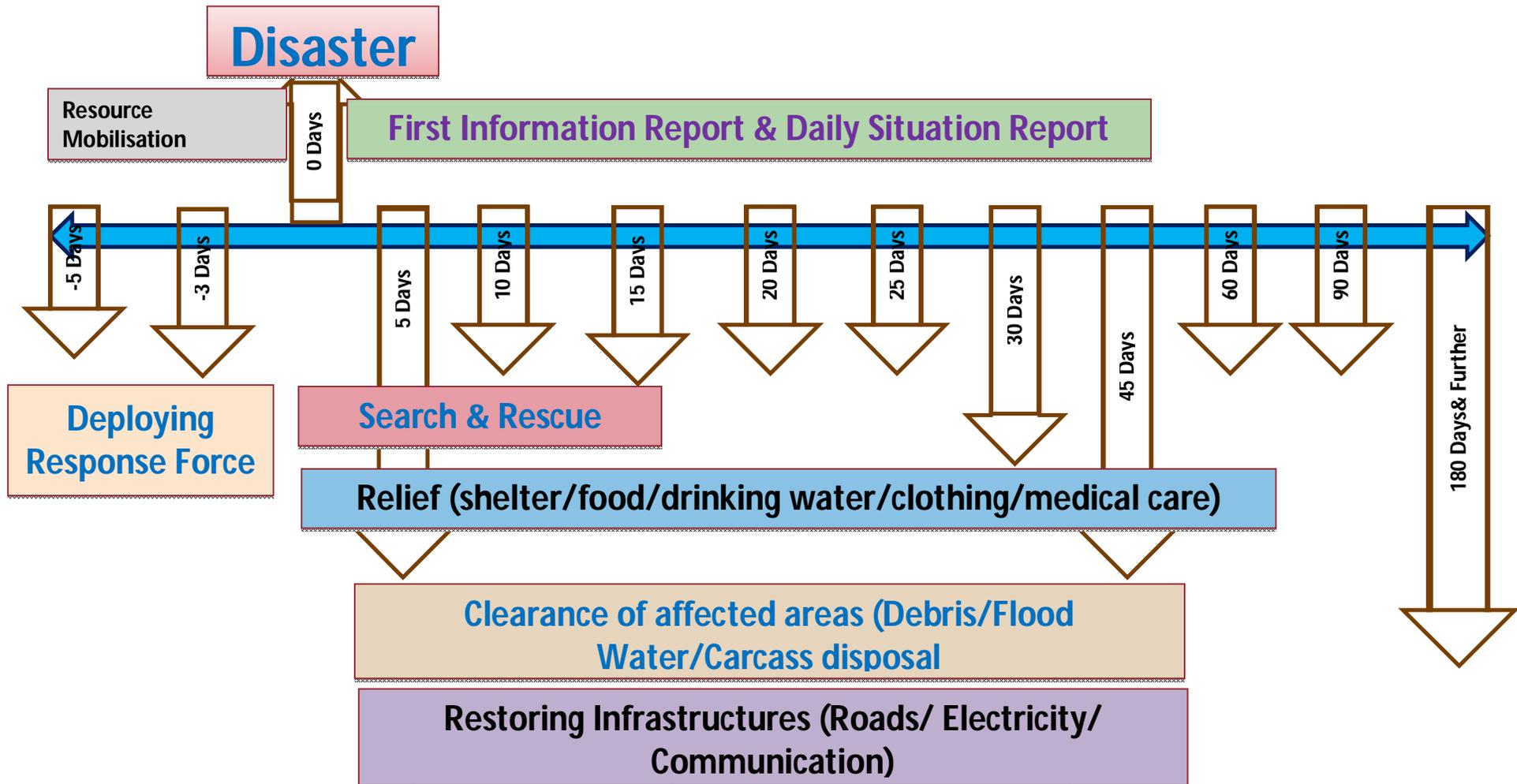
The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure.

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. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. The main responsibility to address these needs and respond to a disaster lies with the government or governments in whose territory the disaster has occurred. In addition, Humanitarian organizations are often strongly present in this phase of the disaster management cycle, particularly in countries where the government lacks the resources to respond adequately to the needs.

15.1 Phases of Response: Timeline



15.2 Relief Management: Timeline



15.3Response

District

Task	Activity
Warning Communication	<ul style="list-style-type: none"> • Warning dissemination to the list of Nodal person & concerned BDOs • Recording the receipt of information & regular Status update • Transmitting updates to SEOC in regular interval as instructed
Meeting of DDMA (Heads of the department & stakeholder)	<ul style="list-style-type: none"> • Collector to take up a department coordination meeting & distribute works among all the Departments • Collector issues circular to keep Govt. offices open cancelling all holidays. • A fixed time to be finalized every day for reporting at all level. • A nodal officer is identified for media management • Circulate the minutes of the meeting with clear-cut role & responsibility
Pre-positioning of staff, resources & Evacuation	<ul style="list-style-type: none"> • Identifying & designating Nodal Officer for different stages of disaster & affected areas. • Positioning of ODRAF/NDRF/Fire services/ Police/Home Guard in the affected areas • Pooling Volunteer services (Civil Defense/Task Force/NCC/NSS/Scout & Guide) • Take stake of required materials for search & rescue, first aid, casualty management, evacuation, relief etc. • Make necessary arrangements of shelters for evacuation • Constitute a special team for special care to vulnerable section like Specially abled, Sr. Citizen, Pregnant & lactating women, Infants & children etc.
Rersponse	<ul style="list-style-type: none"> • EOCs to Ensure back up (Power/Fuel/internet/ Communication at Dist/Dept. & Block levels • Response force under guidance of Nodal officers ensure complete Evacuation (Human/ Animal), carry out Search & Rescue, clear relief lines, • Collector to submit requisition of vehicle/boat/ helicopters & list of support from state & Centre to all concerned authorities • CSO to store required relief materials (Chhuda. Gur, Dry Foods) in the nearby storage points • CDVO to store, transport & distribute required foddors for animals to the affected areas
	<ul style="list-style-type: none"> • Cyclone shelter committee & Village Disaster management committee to organize free kitchen in the shelters with help of revenue dept. • EE- RWSS & CDMO to ensure supply of drinking water, disinfection of water & maintain Health & hygiene in the shelters • CDMO to carry out First aid & casualty management • Collector to collect & transmit First Information Report (FIR) & Daily Situation Report as per requirement

15.4 Response: Community Level

Activity
<ul style="list-style-type: none"> • DEOC to disseminate warning communication to BEOC & Community • Response force to ensure Power/Fuel/internet/ Communication at Shelters back up • Supply Inspectors & Marketing Inspectors to distribute relief materials with response force, Task force & volunteers • Response force to carry out Search & Rescue measures, Emergent relief operation, Relief line clearance, distribution of relief • Doctors to carry out First aid & casualty management, Carcass disposal & sufficient mortuary facility in the affected areas

15.5 Response: Family & Individual Level

Task	Activity
Response	<ul style="list-style-type: none"> • Listen to the instruction of the response force & warnings • Economic use of “Ready to go Emergency Kit” Ready to go First Aid Kit • Cooperate the response force/officers & Render volunteer service if asked for • Maintain cleanliness & hygiene at shelter

15.6 Response: Standard Operating Procedures for Departments

Name of the Department	On Receiving Warning	Response time	Post Disaster
Collector/ADM / Emergency Officer	<ul style="list-style-type: none"> • Review the situation in DDMC • Activate EOC & Early Warning • Work distribution for operation • Circular to keep offices open • Arrange vehicle & activate Evacuation (Normal/Forceful) • Communication to line departments for readiness • In touch with IMD/ SRC/ OSDMA for regular update about the situation • Arrangement of alternative communication, power 	<ul style="list-style-type: none"> • Activate Search & Rescue • Arrange temporary shelters • Arrange logistics in shelters • Workout financial estimates (evacuation / relief /recovery) 	<ul style="list-style-type: none"> • Activate relief line clearance • Proper relief Distribution • Start damage assessment • Facilitate Ex-gratia & Compensation • Start primary damage estimate • Pool resources for SAR/shifting of critical patients

	supply etc		
CDM& PHO	<ul style="list-style-type: none"> • Disseminate the alert to all concerned (Staff list) about the disaster, likely damages & aftermath as well as the ways to protect life etc • Arrangement of medicine, First aid kits & teams • Mobile Health units for inaccessible pockets • Identifying & shifting patients requiring intensive care to safer places • Identify type of injuries/ illness expected & drugs & other items required & accordingly ensuring the extra supply is obtained • Supply of medicines & pre-positioning of medical teams to vulnerable areas • Vaccination for prevention of communicable diseases • Measures to dis –infect drinking water • Availability of Blood Banks/Ambulance • All valuable electrical equipments likely to be affected should be marked & kept safe once the warning is received 	<ul style="list-style-type: none"> • Mass Casualty Management units & Triage • First Aid Centers • Medical surgical teams • Adequate mortuary facility • Measures to shift patients requiring intensive care • Pool of Blood donors (Preferably each group) • Additional laboratories • Sterilise large number of dressing pads to last for 4-5 days • Carcass disposal team & units • Develop a system of monitoring the outbreak of disease to ensure that timely measures can be initiated to check the loss 	<ul style="list-style-type: none"> • Psycho-Social Counseling • Post Disaster Disease surveillance system • Special attention to vulnerable section • Networking with & promote treatment in Private Hospitals • Carcass Management & Issuance of Death Certificate
Superintendent of Police (SP)	<ul style="list-style-type: none"> • Maintain line of communication as per the protocol • Disseminate the alert to all concerned • Ensure adequate personnel are available for response • Mobilise the response teams to hazard prone locations based on the warning information • Facilitate evacuation orders, enforcements/ monitor through police • Appointment of nodal officer in the control room • Ensure that evacuation order by the District/ State administration is carried out 	<ul style="list-style-type: none"> • Providing assistance to the District Emergency Operation Centre • Maintain law & order and enforcement of traffic rules & regulations at the disaster site • Review the situations at the department level &organise reinforcements if required • Organising security at the relief camps • Deployment of trained forces & search 	<ul style="list-style-type: none"> • Maintain law & order situation at the disaster site & other places as required • Organising security at the relief camps • Managing enquiry centre& emergency helpline • Providing escort services • Undertake search & rescue operations

	<ul style="list-style-type: none"> • Ensure functioning of all the police stations once the warning is received • Support the DDMA as when required 	<ul style="list-style-type: none"> • & rescue for clearance of relief lines • Security of the transportation of the relief material • Dispatch police to systematically identify & assist people & communities in life threatening situations 	<ul style="list-style-type: none"> • Provide security cover for VIP visits • Assist in management of deceased • Help injured people & assist the community in organizing emergency transport of seriously injured to facility centres
EE- RWSS	<ul style="list-style-type: none"> • Overall coordination of emergency water & sanitation response • Deployment of team of trouble shooters at the site of incident to take preventive measures • Setting up emergency control room in the office for daily monitoring under the guidance of DDMA • AEEs/ AEs to check up the PWS schemes & submit updated report on water supply situation • Arrange for procurement of emergency water & sanitation materials • Maintain adequate stock of chlorine tablets & bleaching powder • Safeguard pump stations from water logging 	<ul style="list-style-type: none"> • Ensure supply of clean drinking water supply to affected areas • Arrangement of alternate water supply & storage in all transit camps, feeding centers, relief camps, cattle camps etc till normal water supply is restored • Transportation of water with minimum wastage to affected areas • Ensure special care is taken of women with infants, kids, senior citizens, pregnant women etc • Ensure availability of adequate toilets to prevent further contamination of water sources • Ensure that the drinking water supplied conforms to the prescribed quality standards • Deployment of staffs from outside area if required 	<ul style="list-style-type: none"> • Restoration of water supply & sanitation infrastructures as per assessment • To enhance the reach of pipe water supply & to make it sustainable • Identify unacceptable water resources & take precautions to ensure that no one accessing those by posting the department guards or any other measures
EE- Irrigation	<ul style="list-style-type: none"> • Identification & measure for critical bundhs • The emergency tool kits & materials like empty cement bags, boulders, ropes, sand, wire mesh, 	<ul style="list-style-type: none"> • Round the clock inspection of bundhs, dams, irrigation channels, bridges, culverts etc 	<ul style="list-style-type: none"> • Immediate repairing of damaged infrastructure • Assessing the damage to small

	<p>shovels, etc be ready with each technical assistant</p> <ul style="list-style-type: none"> • Designate one officer to be posted at areas warned to be hit by hazard • Ensure the wireless network & all the flood stations are active • Secure all repairs/ under construction activity with sand bags, rock falls etc • Ensure that all rain gauge stations are functional & arrangements have been made to report the readings 	<ul style="list-style-type: none"> • Survey of the blocked water ways & opening up alternative channels for releasing excess water • Opening up alternate channels for releasing excess of water during disaster • Organise round the clock inspection of all the critical infrastructures • Periodic monitoring of water levels of check dams • Check the top of all the bundhs, if they have been cleared of encroachments & motorable • Use information formats & monitoring checklist for programme monitoring & development 	<p>check dams & removal of debris</p> <ul style="list-style-type: none"> • providing alternative irrigation facility to the drought affected lands for sowing & saving the standing crops • Creation of new irrigation & rain water harvesting schemes
DAO- Agriculture	<ul style="list-style-type: none"> • Gather information related to warning of impending flood, drought & pest attacks • call for emergency meeting to take stock of the situation & develop strategies for early recovery • Establish work schedules to ensure that adequate workforce is available • Take necessary precaution actions, including moving of farm equipments/ tools to safe locations • In case of pest attack, determine the source/ disease & take measures for protection of standing crop • Plan for emergency accommodation of for agriculture staff from outside the area • Develop strategy for early recovery 	<ul style="list-style-type: none"> • Assessment of damaged crops & daily reporting & recording • Estimate needs for recovery • Discuss with the farming community through agriculture extension cell & support to conduct cleaning operations 	<ul style="list-style-type: none"> • Crop damage assessment • Assess the extent of damage to soil, crop, plantation, micro-irrigation systems & storage facilities • Strategizing the storage & supply of seeds, fertilizers & pesticides • operations, restore soil conditions • Provide support & material inputs/ farm implements to assist in recovery • Equip farmers with knowledge to deal with drought risks/

			hydro- meteorological & climate related disasters <ul style="list-style-type: none"> • Providing support in the implementation of alternative cropping programme in draught as well as flood affected area
EE- Rural Works	<ul style="list-style-type: none"> • Coordinate with officials to relay information & activation of plan • Making a map of ODR & VR indicating their connectivity to State Highways & National Highways • Emergency check up of relief lines & other rural road networks 	<ul style="list-style-type: none"> • Restoration of road connectivity & remaining vigilant to attend to similar needs elsewhere • Emergency clearance of rural road networks, • Provide support to road construction department in restoring traffic movement • GIS mapping of the damaged area 	<ul style="list-style-type: none"> • Gathering information about the damages & start repair & maintenance of the damaged infrastructures • Deployment of work team carrying emergency tool kits depending upon the nature of emergency • Construction of temporary roads to connect the rehabilitation sites, hastening rescue & relief works etc
EE- Public Works	<ul style="list-style-type: none"> • Undertake emergency repairs/ shoring measures • Determine routes for mobilisation of resources • Establish inter & intra emergency communication networks • Secure tools & equipments in safe places • Secure all under construction works with ropes, sandbags, & cover them with tarpaulins if necessary • Preparation of plan for emergency inspection by engineers 	<ul style="list-style-type: none"> • Direct department engineering cadre for emergency response operations • Provide equipment support for search & rescue • Coordinate temporary repairs to damaged infrastructures • Undertake emergency repair of roads/ communication and shoring of buildings • Establish missing road links • Create/ provide emergency access in areas which communication links are lost/ damaged severely during the event 	<ul style="list-style-type: none"> • Take on construction of temporary roads to serve as access to temporary transit & relief camps & medical facilities for disaster victims • Participate in conduct of structural damage assessment • Undertake detailed damage assessment of critical infrastructure • Supervise the civil work activities & ensure safe construction practices are

		<ul style="list-style-type: none"> • Removal of debris flow, conduct clearance operations & reestablishment of roads & bridges • Mobilise community assistance for clearance works of the affected areas 	<p>streamlined during recover/ reconstruction phase</p> <ul style="list-style-type: none"> • Guide urban authorities & line agencies on structural repair works & package development of repair/ reconstruction scheme for housing & social infrastructures
DTO-Telecom	<ul style="list-style-type: none"> • Set up of control room at the district HQ & operationalization • The Disaster Response Task Force to be alerted with all the equipments ready in advance • Ensure availability of spares at the site • Store backup spares & other requisites in an accessible area • Coordinate the requirement of temporary telecommunication in the affected areas 	<ul style="list-style-type: none"> • To mobilize deployable mobile phone systems or portable base stations to be in position & operational anywhere on the main cities within 8 hrs of the request & additionally 2-4 hrs are granted for rural areas due to nature of difficulty • If required portable/ vehicle mounted/ air transportable BTSs/ BSCs with backhaul on satellite media may be installed by TSPs • Shall broadcast messages at regular intervals in consultation with STDCC/ DEOC to all subscribers in the affected areas 	<ul style="list-style-type: none"> • To mobilize deployable satellite terminals & satellite phones in inaccessible & remote areas • To replace damaged or destroyed telecoms physical infrastructure • If required, TSPs shall open sufficient number of PCOs preferably free of cost for use of public in affected areas • TSPs shall submit first information report as per formats & thereafter daily status report about their network, helpline, PCOs etc to DDMA
CDVO	<ul style="list-style-type: none"> • Identify shelters, fodder requirements, veterinary equipments • Prepare a plan for setting up cattle camps & cattle feeding centers • In case of disease outbreak, follow necessary instruction & protocol identified by the department • Detection, diagnosis, assessment of risk & surveillance of the disease 	<ul style="list-style-type: none"> • Administering vaccination to prevent outbreak of any disease • Deployment of teams to do quick access of damage & identify requirement for relief/ rescue, equipment & fodder • Arrangements for removal of carcass in a scientific manner, disinfection of 	<ul style="list-style-type: none"> • Thorough checking of livestock before handing over to the owners • Continue giving veterinary advice till business returns to normalcy • Organise transfer of seriously injured livestock from villages

	<ul style="list-style-type: none"> • Vector control, quarantine control • Storing of sterilized surgical packs & other important equipments in safe & damage proof locations • Setup teams of veterinary doctors & assistants for visiting disaster affected areas 	<p>contaminated areas</p> <ul style="list-style-type: none"> • Coordinate with wildlife department to take necessary measures & treatment of injured animals • Coordinate with agencies for supply & distribution of fodder & other materials • Draw measures for protection & care of abandoned livestock 	<p>to veterinary aid centres</p> <ul style="list-style-type: none"> • Ensure that adequate sanitary conditions through cleaning operations are maintained to avoid outbreak of any epidemic
RTO/MVI	<ul style="list-style-type: none"> • To set up a temporary control room & information centre at the main bus station. • Make a quick assessment of population that require evacuation or movement to safe locations/ shelter • Control & restrict vehicular traffic to risk prone areas • Issue standing instruction to the small & heavy vehicle associations for providing bus, truck & other vehicles required for evacuation & relief • Keep emergency vehicles on standby at pre-identified locations/ district/ block HQs • Move population to safe areas • To assist the district administration to send the messages of warning to the remote areas through the drivers/ conductors on transport routes 	<ul style="list-style-type: none"> • Facilitate movement of emergency personnel, equipment & relief to affected sites • Resumption of road transportation as soon as the road connectivity is restored • Facilitate movement of emergency medical supplies & first responders to affected sites • Move population to safe areas & back on clearance from the administration • Maintain & operate round the clock connectivity to all the areas • To engage manpower & available resources to manage disaster 	<ul style="list-style-type: none"> • Provide recovery support to line departments • Assess damage to transport infrastructure • Coordinating the reinstatement of transport services & infrastructure • Coordinate arrangement of vehicles for transportation of relief supplies from helipads, airports, railway stations etc to the designated places • Coordinate arrangement of vehicles for transportation of search & rescue activities • Making available cranes to the district administration
DFO- Forest	<ul style="list-style-type: none"> • Determining of protocol during various types of disaster • Call for emergency meeting to take stock of situation, develop strategy • Deployment of field staffs at disaster prone areas 	<ul style="list-style-type: none"> • Allow the transportation of fodder from forest areas, when the fodder is not freely available • Allow local farmers to take forest produce, such as cutting of fodder 	<ul style="list-style-type: none"> • Assessment of damaged infrastructures • Immediate removal of fallen trees obstructing the movement of traffic

	<ul style="list-style-type: none"> • Determine strategy for flow of information & status update at regular intervals 	yielding trees, free of charge or upon payment of fee	<ul style="list-style-type: none"> • Allow certain forest land for free grazing of livestock during disaster
Railway	<ul style="list-style-type: none"> • To set up a temporary control room & information centre at the railway station, main bus station etc • The Disaster Response Task Force to be alerted with all the equipments ready in advance 	<ul style="list-style-type: none"> • Rapid access to the sites of incidents/ crisis/ disaster • Effective site management by making best use of on-board & locally available resources • Quick extrication of victims • Speedy transportation of victims to hospital • Proper communication system both for assisting the stranded passengers as well as giving out timely information to the media 	<ul style="list-style-type: none"> • Assessment of critically damaged infrastructures • Arrangement of alternatives until the normalcy restored
EE- Electricity	<ul style="list-style-type: none"> • On receipt of advisory, maintain vigil & undertake inspection works wherever necessary • Prepare a list of public properties related to MSEDCL, which are in the damage prone areas & will make advance arrangements to minimize the damage • Undertake emergency rapid works if necessary • Immediate inspection of high tension lines, towers, sub-stations, transformers, insulators etc • Ensure all personnel are available as per IRS plan • Sharing update with the DEOC regarding the state of power supply • Review & update precautionary measures & procedures & review the precautions that have been taken to protect equipment 	<ul style="list-style-type: none"> • Inspection of damage to power infrastructure in regular interval • Undertake emergency repair of damage poles, other equipments • Dispatch quick response teams for restoration of power lines • Making proper lighting arrangements • Providing dedicated power supply to the rural areas during drought like situations as per the decision of State Government • Provide temporary electricity supply to temporary shelters, relief camps, feeding centres etc • Disconnection of temporary power supply for the affected area to prevent 	<ul style="list-style-type: none"> • Power supply & lighting arrangements in the rehabilitation areas • Restoration of power supply • Undertake detailed damage assessment to power infrastructure • Take steps towards speedy repair & complete restoration of services • Document lesson learnt & incorporate/ update in the DM plan • Establish temporary electricity supplies to transit camps, feeding centres, relief camps

		<p>outbreak of fire & others</p> <ul style="list-style-type: none"> • Assist hospitals in establishing an emergency supply by assembling generators & other emergency equipments, if necessary 	<p>&site operation centres, DEOC & on access roads to the same</p>
EE - PHED	<ul style="list-style-type: none"> • Ensuring provisions for acquiring water supply tankers • Undertake chlorination programme • Protect vital water supply infrastructure from contamination • Arrange for alternate energy source in the event of failure of electricity supply • Installation of extra hand pumps to sustain the supply of drinking water 	<ul style="list-style-type: none"> • Provide immediate safe drinking water supply in disaster affected areas • Provide immediate safe drinking water supply for conduct of response activities at hospitals, emergency shelters, schools designated as shelters, relief camps etc • Provide drinking water facilities in shelter for livestock • Daily reporting to the DEOC in the prescribed format • 	<ul style="list-style-type: none"> • Assist line departments & agencies in identification sources of potable water • Assess the impacts of extreme events on facilities of the department & propose/undertake reconstruction measures. • Implementation of plan & making arrangements for the repair & maintenance of the same • Continue the supply of safe drinking water at camps & shelters until normalcy is restored
DEO- School & Mass Education	<ul style="list-style-type: none"> • Convey appropriate information to the administration staff in the department, further relay of information based on established protocol • Coordination with line departments in establishing temporary shelters in schools 	<ul style="list-style-type: none"> • Safe keeping of infrastructure of schools converted into shelters • Notify continuation of activities or temporary closure till situation is normalized • Based upon the notification/ disaster declaration, provide necessary support to schools to function as temporary shelters/ relief camps 	<ul style="list-style-type: none"> • Getting the school vacated as soon as the normalcy is restored • Detailed damage assessment of education infrastructure • Resumption of teaching work at the earliest

<p>DEO - Higher Secondary Education</p>	<ul style="list-style-type: none"> • Convey appropriate information to the administration staff in the department, further relay of information based on established protocol • Coordination with line departments in establishing temporary shelters in schools 	<ul style="list-style-type: none"> • Safe keeping of infrastructure of colleges converted into shelters • Notify continuation of activities or temporary closure till situation is normalized • Based upon the notification/ disaster declaration, provide necessary support to colleges to function as temporary shelters/ relief camps 	<ul style="list-style-type: none"> • Getting the colleges vacated as soon as the normalcy is restored • Detailed damage assessment of education infrastructure • Ensure DRR concerns are considered in design of new facilities/ strengthening of existing facilities
<p>SCO- Food & Civil Supplies</p>	<ul style="list-style-type: none"> • Keep updated on weather bulletins & warning related information • Estimate the population at risk & would be needing support • Cataloguing of available food supplies & resources • Identify mechanism for safe transport of food items to the affected population • Maintain adequate stock of food supplies to provide food security during disaster 	<ul style="list-style-type: none"> • Coordinate with local authorities & transport essential supplies to disaster affected areas & pre determined locations • Provide tailored food packets to people with special needs • Making provisions for smooth running of kitchen at relief camps, shelters etc • Ensure that food distributed is fit for human consumption • Mobilise & coordinate with other ESFs for air dropping of food in the affected areas • Compliance of food grain demand received from Disaster management Department in time for earthquake, flood, cyclone, fire etc 	<ul style="list-style-type: none"> • Maintain the supply of food grains till the rehabilitation is complete • Provide food supply to relief centres & kitchens till lifted off by the district authority • Establishment PDS points as per the changed scenario/ resettlements • Issuing of duplicate ration cards to the disaster victims, who lost their papers • Maintain price of basic commodities in disaster affected areas • Curb unfair practices • Coordinate/ manage transportation of essential supplies to communities affected & at risk during post disaster situation

SOP for the Departments to be done accordingly

Chapter-16

Rehabilitation & Restoration

16.1

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.

16.2 Damage Loss Assessment

Sector	Damage in Physical terms	Requirement of funds for repair of immediate nature	Out of (3) amount available from annual budget	Out of (3) amount available from related schemes/ programmes / other sources	Out of (3) amount proposed* to be met from SDRF/NDRF as per the list of works indicated in the revised items & norms
1	2	3	4	5	6
Roads & Bridges					
Drinking water Supply works (Rural)					
Drinking water Supply works (Urban)					
Irrigation					
**Power					
Primary Health Centres					

Community assets in social sectors covered by Panchayats					
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Calculation of assistance for agricultural input subsidy-SMF

(Rs. In lakh)

Sl.	Name of the Block	Area held by SMF (in Hectares)	Total Agricultural area Affected [in Hect.]	Total agricultural area where crops is > 50%	Crop loss 33% & above			Expenditure incurred			Total
					Irrigated [in hect.]	Rainfed [in hect.]	Perennial	Irrigated @Rs.13,500/- per hectare	Rainfed @Rs.6800/- per hectare	Perennial @ Rs.18000/- per Hect.	
1	Bhapur										
2	Daspalla										
3	Gania										
4	Khandapara										
5	Nayagarh										
6	Nuagaon										
7	Odagaon										
8	Ranpur										
Total											

16.3 Agricultural input subsidy- Farmers other than SMF

Farmers affected first year

(Rs. In lakh)

Sl.	Name of the Block	Area held by farmers other than SMF (in hectares)	Crop loss > 33%							Total Amount Spent
			No of Farmers	Irrigated area in hect	Amount spent @ Rs.13,500/- per hect.	Rainfed Area in hect.	Amount spent @ Rs.6800/- per hect.	Perennial Area in hect	Amount Spent @ Rs.18000/- per Hect.	
1										
2										
Total										

16.4 Farmers affected by successive calamities

Sl.	Name of the Block	Area held by farmers other than SMF (in hectares)	Crop loss > 33%							Total Amount Spent
			No of Farmers	Irrigated area in hect	Amount spent @ Rs.13,500/- per hect.	Rainfed Area in hect.	Amount spent @ Rs.6800/- per hect.	Perennial Area in hect	Amount Spent @ Rs.18000/- per Hect.	
1										

16.5 Animal Husbandry (Replacement of Animals)

Name of the Block	No of Livestock / Birds lost				No of animals qualifying for relief grant (i.e., subject to ceiling of 3 large milch animal or 30 small milch animals or 3 large draught animal or 6 small draught animal per household	Expenditure incurred (Milch animals @ Rs.30,000 for large animal , Rs.3000 for small animals & Draught animals @ Rs 25000 for large animal, Rs. 16,000 for small animals)				Poultry @ 50/- per bird subject to a ceiling of assistance of Rs.5000/- per beneficiary household.	Total expenditure (11+12+13+14+15)				
	Milch Animal		Draught Animal			Poultry Birds	Milch Animal		Draught Animal						
	Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony			Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock			Calf/ Donkey/ Pony			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

16.6 Assistance sought for repair /restoration of damaged houses

(Rs. In Lakh)

Sl	District	Fully Damaged/ Severely Damaged								Partially (15% & More)				Huts		Cattle shed attached with house		TOTAL
		Plain Areas				Hilly Areas				pucca	Amount @ Rs.-5200/-	Kutchra	Amount @ Rs.-3200/-	Nos.	Amount @ Rs.-4100/-	Nos.	Amount @ Rs.-4100/-	
		Pucca	Amount @ Rs.-95100/-	kutchra	Amount @ Rs.-95100/-	pucca	Amount Rs.- 101900/-	Kutchra	Amount @ Rs.-101900/-									
1																		
2																		
3																		
4																		
5																		
6																		
TOTAL																		

16.7 Assistance for provision for temporary accommodation, food, clothing and medical care

Sl. No.	Name of the district	Average No. (in a day) of relief camps	Average duration of operation of relief camps	Average No. of people accommodated per day in the relief camps	Expenditure incurred on (Rs. in lakh)				
					Tempo-raryaccom-m-odation	Food	clothing	Medical care	Total expen-diture
1									
2									
3									
Total									

16.8 Extent of damage due to natural calamities

Dist : Nature and period of natural calamity :

Sl.	Item	Details
1.	Total number of Blocks in the district	
2.	Number and names of Blocks affected	
3.	Number of villages affected	
4.	Population affected (in lakh)	
5.	Total land area affected (in lakh ha.)	
6.	Cropped area affected (in lakh ha)	
	i) Total cropped area affected	
	ii) Estimated loss to crops (Rs. in lakh)	
	iii) Area where cropped damage was more than 33%	
7.	Percentage of area held by SMF	
	i) In the State as a whole	
	ii) In the affected districts	
8.	House damaged	
	a) No. of houses damaged	
	i) Fully damaged pucca houses	
	ii) Fully damaged kutch houses	
	iii) Severely damaged pucca houses	
	iv) Severely damaged kutch houses	
	v) Partly damaged houses (pucca + kutch)	
	vi) No. of huts damaged	
b) Estimated value of damage to houses (Rs. in lakh)		
9.	No. of human lives lost	
	No. of persons with grievous injuries	
	No. of persons with minor injuries	
10.	Animal lost	
	a) No. of big animals lost	
	b) No. of small animals lost	
	c) No. of poultry (birds) lost	
11.	Damage to public properties	
	a) In physical terms (sector wise details should be given – e.g. length of State roads damaged, length of districts roads damaged, length of village roads damaged, No. of bridges damaged, No. of culverts damaged, No. of school buildings damaged etc.)	
	b) Estimated value of the damage to public properties	
	Estimated total damage to houses, crops and public properties	

16.9 Format for working out the requirements under the head of repair of damaged infrastructure of immediate nature

(Rs. In lakh)

Sector		Damage in physical terms	Requirement of funds for repair of immediate nature	Out of (3), amount available from annual maintenance budget	Out of (3), amount available from related schemes/ programs/ other sources	Out of (3), amount proposed to be met from CRF/NCCF in accordance with list of works indicated in the Appendix to the revised items and norms
Roads & Bridges	PWD Roads	No. of breaches- Length of Road damaged – No. of culverts damaged – No. of culverts washed away –				
	Rural Roads	No. of Roads damaged – Length of Road damaged – No. of breaches – No. of CD/Bridge damaged– No. of CD/Bridge washed away –				
	Urban Roads	Length of drain damaged – Length of Road damaged No. of culverts damaged –				
	Panchayat Roads	No. of Roads damaged – Length of breaches – Length of Road damaged – No. of culverts damaged – No of culverts washed away				
	River/Canal Embankment Roads	No of Roads damaged in river embankments– Length of Road damaged in river embankments – No of Roads damaged in canal embankments – Length of Road damaged in canal embankments –				

Drinking Water Supply	Rural Water Supply	No of Tube wells damaged – No of platforms damaged – No. of Rural pipe water supply system damaged -				
	Urban Water Supply					
Irrigation	River Embankment	No of breaches – Length of breach in Km – No of partial damage -				
	Canal Embankments	No of breaches – Length of breach in Km – No of partial damage -				
	M I projects	No of Minor Irrigation projects damaged -				
	Clearance of Drainage channels	Length of drainage channels congested with vegetative materials –				
Primary Education	Primary School Buildings	No of Primary School buildings damaged -				
PHCs	PHCs	No of Primary Health Centres damaged -				
Community assets owned by Panchayats	Community Halls	No of Panchayat Ghar/Community Hall damaged -				
	AWW Centres	No of Anganwadi Centres damaged -				
Power	Electrical lines	No of Primary sub-stations damaged – 33 KV lines damaged – 11 KV lines damaged – Distribution Transformers damaged – LT lines damaged –				
Total						

Chapter-17

Recovery

The value of a Disaster Recovery or Control Plan is the ability to react to a threat or event swiftly and efficiently. This can only be achieved when a department has informed staff, disaster supplies and planned procedures -- in short, a Disaster Recovery Plan. A series of long term activities framed to improve upon the repaired activities in the Reconstruction & rehabilitation phase are covered under Recovery phase. Recovery includes all aspects of mitigation and also incorporates the continuation of the enabling process, which assists the affected persons and their families not only to overcome their losses, but also to achieve a proper and effective way to continue various functions of their lives. The Recovery process is therefore a long-term process in which everyone has a role – the Government including the PRI members, NGOs and especially the affected people, their families and the community.

The Disaster Recovery Plan

The Disaster Recovery Plan should be prepared by the Disaster Recovery Committee, which should include representatives from all critical departments or areas of the department's functions. The committee should include at least one representative from management, computing, risk management, records management, security, and building maintenance. The actual size and composition of the committee will depend on the size, location, and structure of the individual department or facility. The committee needs to prepare a time line to establish a reasonable deadline for completing the written plan. This time line may take the form of a Program Evaluation and Review Technique (PERT) chart or a decision.

- 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;

What was discussed earlier about planning for disaster prevention applies equally to planning for disaster recovery? The planning is a senior management function and cannot succeed without top level support. Recognition of the need for such a plan must be present at an early.

Team Task Organization

The plan must spell out the titles and functions of each team member involved in the disaster recovery process. The individuals who will compose the team or teams should be identified by title or position and name. In a small facility or department with only a handful of employees, the entire staff may become the Disaster Recovery Team with one person designated to lead the recovery effort. The DM may act as Coordinator must be given the necessary authority to declare a disaster, and to act quickly and effectively during the salvage operation.

Information Distribution Procedures

The plan must include specific methods for contacting team members and alternates, vendors, support agencies, suppliers, consultants and all those with whom special disaster contracts and agreements are in effect.

Specific Disaster Reactions

The plan must provide for both major and minor disasters, and must address individual and community-wide natural disasters such as flood, cyclone and drought. The plan should also define in terms of business interruption what constitutes a disaster; thus, authorizing the activation of the disaster recovery plan.

Training of Employees

The recovery plan must provide for initial and ongoing employee training. Skills are needed in the reconstruction and salvage phases of the recovery process. Your initial training can be accomplished through professional seminars, special in-house educational programs, the wise use of consultants and vendors, and individual study tailored to the needs of your department. A minimal amount of training is necessary to assist professional restorers/recovery contractors and others having little knowledge of your information, level of importance, or general operations.

Priorities for the Restoration of Essential Functions

The disaster recovery plan must not only spell out which functions are vital, but also the order they are restored. This is especially critical in the vital, complex computing functions where accounts receivable, payroll, and accounts payable have fluctuating priorities throughout the month.

The plan should establish only general priorities. Leave individual decisions to managers who know which functions are critical at a specific period of the month or in a particular situation.

Contracts and Agreements with Disaster Support Agencies

Copies of contracts and agreements with all disaster support agencies and businesses including salvage and reconstruction consultants, available alternative sites, and vendors of other essential equipment and supplies must be included in the written plan.

A list of additional recovery resources should include:

- Local fire department
- Police department
- Civil defense
- Ambulance services
- Paper supply vendors
- Copy machine(s)
- Office equipment
- Computer equipment and supplies
- Resources for freezer space/freezer trucks
- Local volunteers or temporary help

The disaster recovery plan must specify by name, address, position, and phone number the various resources the disaster team will use.

A List of Disaster Salvage Equipment and Supplies

A list of the equipment and supplies gathered for the disaster salvage kit forms part of the disaster recovery plan. This list should indicate the available items and their location. Each department must decide what items should or should not be included on the supply list. **Below are some items to consider:**

Your disaster recovery supplies can be assembled within the department as part of disaster planning, or they can be purchased after a disaster from previously contracted suppliers. The latter approach is risky in a general disaster when such supplies are in great demand.

Summary

A disaster recovery plan maps out the process of resuming normal business operations, reconstructing or salvaging vital and other important records and equipment, and becomes a guide for all managers and employees during and after a disaster. The plan's key elements fall into three categories: those common to all sections of the plan; those pertaining mainly to the resumption of business operations; and those pertaining mainly to the reconstruction or salvage.

Chapter 18

Standard Operating Procedures (SoPs) for District level Officials for management of Heat wave Conditions

1. Collector/ADM/PD,DRDA

- i. Updating the Heat Action Plan for the District in the month of January
- ii. Action plan for mitigating water scarcity problems in different towns and villages to be prepared in the January
- iii. Water scarcity areas to be identified in advance and supply of drinking water and for other uses through tanker to those areas to be ensured
- iv. Prepare list of water tankers and earmark them to water scarce areas wise
- v. Preventive maintenance of tubewells has to be ensured
- vi. Suitable arrangements also to be made to promptly respond to reports of water scarcity anywhere in the district
- vii. Ensuring Public Awareness campaign through electronic and print media on heat wave precautionary measures (Dos and Don'ts) from February onwards
- viii. Involve Civil Society Organization and Panchayati Raj Institutions (PRI) members in awareness campaign and other measures to tackle the situation arising out of Heat Wave
- ix. Identification and trace out of the high-risk vulnerable pockets of district prior to the heat wave.
- x. Issue directions to line departments officials for taking measures to tackle heat wave situations in the month of February
- xi. Issue direction to BDOs to convene meeting of PRI representatives in the month of February
- xii. Issue direction to ULBs/GPs for opening of “**Jal Seva Kendra**” (Water Kiosk) at market places, bus stands and other congregation points. Ensuring sanitation and hygiene of water distribution points.
- xiii.** Convene meeting of the Civil Society Organization to seek their assistance in Heat Wave mitigation activities including opening of “**Jal Seva Kendra**”
- xiv. Issue direction to CDVO/BDOs for construction/repair of vats for ensuring drinking water for roaming livestock
- xv. Issue instructions to BDOs, District Education Officer, District Social Welfare Officer and District Child Protection Officer for making drinking water arrangements in all schools
- xvi. Principals of all Government and Private colleges are to be instructed to make drinking water arrangements in their institutions
- xvii. Instruct and direct the leading PSUs & Industries of the district to supply potable water in the water scarcity villages of their periphery under CSR initiatives.
- xviii. Ensuring functioning of control room at District office, DHH, Block / Tehsil, CHC/PHC round the clock
- xix. Rescheduling of timing of classes and examination in schools and colleges during summer as per the directions given by SRC/School & Mass Education Department.
- xx. DSWO/CDPO/Dist. Child Protection Officer are to be instructed to facilitate availability of drinking water and health needs in all Child Care Institutions (CCIs) in the district
- xxi. District Labour Officer (DLO), PD, DRDA, the Executive Engineer, Rural Works, the E.E. R&B to ensure rescheduling of the timing of working hours and make necessary arrangements for supply of drinking water, ORS packets and provision of rest shed at work sites as per directions of SRC/Labour and ESI department
- xxii. Ensuring restriction of working hours in works under MGNREGA and other schemes
- xxiii. Give instructions to the Regional Transport Officer (RTO) to ensure availability of

water and ORS packets in public transport vehicles. Timing of public transport services and plying of buses to be rescheduled as per directions of SRC/ C&T (Transport) Department

xxiv. To issue instruction to the Electricity Distribution Company to ensure uninterrupted power supply during heat wave period. Uninterrupted power supply to be maintained for critical facilities such as hospitals, urban health centres and water supply facilities

xxv. If any information on casualty is received or report published in newspaper, it should be immediately enquired jointly by the medical and revenue officers

xxvi. Prompt steps are to be taken for payment of ex-gratia to the bereaved family where, upon enquiry, the death is confirmed to be due to sunstroke

xxvii. Instruct the departments like CDM&PHO/CDVO/Executive Engineer, CESU/General Manager, WATCO and other related departments to submit the Heat Wave management action plan in the month of February

2. Chief District Medical & Public Health Officer (CDM&PHO)

i. Facilitate training programs for the CHC staffs, ANM, ASHA workers on treatment of patients affected with heat/sun stroke

ii. IEC activities and Public Awareness in the districts relating to Heat Wave conditions/ advisories to be done from the month of February onwards

iii. Check hospital readiness prior to the heat wave seasons start in the district from CHC level to DHH

iv. Take necessary steps for albedo/white painting of roof tops of hospitals, Community Health Centres (CHCs), Public Health Centres (PHCs) and patients resting areas in coordination with the concerned engineering Departments

v. Sufficient Storage of lifesaving medicines, ORS in dispensaries, PHCs, CHCs and District Head Quarter Hospital to meet any crisis. ORS to be available with ASHA and AWWs

vi. Arrangement of separate wards and beds and cool rooms for treatment of heat stroke patients in different hospitals

vii. Ensure 24x7 ambulance services 108 for the treatment of heat wave & heat stroke patients with reaching at the patients with shortest time for that to find out alternative routes in advance.

viii. Continuous monitoring and preventive measures against diarrhoea and other health hazards during summer season

ix. Daily reporting of cases and deaths to H&FW Department, SRC and Collector

x. Copy of the post-mortem report of heat wave casualties to be shared with the Tahasildars to make the process of ex-gratia payment fast and smooth.

3. Executive Officers - Municipalities/Urban Local Bodies (ULB)/ Development Authorities

i. Preventive maintenance of tube wells/pipe water supply-arrangements for distribution of water through water tankers in the water scarce areas

ii. Awareness generation on Heat Wave Do's and Don'ts with Special attention to slums areas

iii. Opening of "**Jal Seva Kendra**" (Water Kiosk) at market places, bus stands, slums, vending zones and other congregation points-Ensuring sanitation and hygiene of water distribution points

iv. Identification of suitable resting places for street vendors during summer

v. Increasing access to public parks, public libraries for providing cool resting places for the public

vi. Regular sprinkling of water on roads

vii. Promote cool roof initiatives (albedo painting of roofs)

viii. Encourage use of K-glass, doubly glazed glass in buildings and vehicles.

ix. Setup the electronic display boards in the prominent places to broadcast the temperature and heat wave related information.

x. Engage the leading CSO/ NGO in creation of the public awareness & street play on heat

wavewarningthe urban areas

xi. Suspendnon-essentialsupplyofwater(otherthancoolinganddrinking) in the city by taking permission of the collector & DM of the district.

4. District Labour and Employment Officer (DLO)

- i. Monitoring and enforcement of rescheduling of working hours as per the instructions of SRC/L&ESID Department
- iii. Monitoring provision of sufficient drinking water, ORS packets and first-aid, rest sheds at worksites
- iv. Instruct the Project Directors of all National Child Labour Projects (NCLPs) to reschedule the school timing for special schools running under NCLP in accordance with the timings prescribed by SRC/ School and Mass Education Department
- v. To ensure creation of awareness among the labourers and workers on risks, signs and symptoms of heat stress during probable heat wave like situations, preventive and precautionary measures including that through constructions agencies/contractors
- vi. Ensure the supervision of construction sites, quarries, factories and other vulnerable worksites, particularly during high temperature periods, to enforce labour laws related to heat safety

5. District Education Officer (DEO)

- i. Monitoring and enforcement of school timings and other restrictions.
- ii. Promoting IEC activities on Heat Wave prevention and management in schools
- iii. Ensuring training of the teachers and conduct of mock drills among students on health risks and management during heat waves through workshops, orientation programmes, special classes, etc.
- iv. Ensuring provision of safe drinking water, ice packs, ORS, etc. in schools and examination centres
- v. Encourage concerned authorities/schools for Albedo paintings on roofs of schools
- vi. Encourage students to bring their own water bottle while coming to school

6. Executive Engineer-Electrical (TPCODL)

- i. Identify overload energy points/transformers and take precautionary measures for uninterrupted power supply
- ii. Ensuring uninterrupted power supply for critical facilities such as hospitals, urban health centres and drinking water supply facilities
- iii. Keep energy gangs, equipment, spares ready at strategic locations for earliest restoration of power supply in case of outages
- iv. Setting up timing for power shedding, if absolutely required, and ensuring announcement of power shedding sufficiently in advance
- v. Record and monitor the peak load of primary substations/feeders regularly, so as to avoid breakdown due to failure of power transformers/ overloading and consequent snapping of conductors in coordination with competent authorities
- vi. Instruct all Junior Engineers (JEs)/Sub-Division Officers (SDOs) to monitor and record peak load status of the Distribution Transformers (DTs) (250 KVA & both), so as to avoid burning of DTs due to overloading and consequent power outages thereto
- vii. Keeping the stock of transformers in different strategic places to meet the urgent need

7. Regional Transport Officer (RTO)

- i. Taking initiatives on creating awareness among drivers and helpers of vehicles on Heat Wave
- ii. Encourage the Bus/Truck owner's association of the district and the local NGOs to involve themselves in public awareness campaign on Heat Wave

- iii. Ensuring functioning of Control room at RTO office round the clock during Heat Wave period
- iv. Issue instructions for restriction of Bus plying times during peak hours and rescheduling of timing of the public transport as decided by SRC/C&T (Transport) department
- v. Enforce and monitor provision of safe drinking water, ice packs, ORS packets in buses and cool resting places at bus stops
- vi. Facilitate setting up of “*Jal Seva Kendra’s*” (water kiosk) at bus stops and bus stands
- vii. Conducting regular meetings with stakeholders for sorting out issues pertaining to Heat Wave conditions
- viii. Ensuring all the buses plying in his/her jurisdiction must have affixed with the awareness material pertaining to heat wave

8. Executive Engineers - Water Resources

- i. Prepare an action plan for storage of water in the reservoirs to meet the water requirement of drinking water supply facilities and irrigation
- ii. Monitoring release of water in canals for public use, to increase the underground water level and to reduce the atmospheric temperature during summer

9. District Mining Officer (DMO)

- i. Issuing directives for heat wave prevention and management in industries and mines
- ii. Give instructions for and facilitate water sprinkling in mines and other areas to settle down the suspended particulate matter (SPM)

10. District Tourism Officer (DTO)

- i. Issue instructions and monitor registration of tourists visiting the district
- ii. Disseminate safety tips (Do’s and Don’ts) on Heat Wave at tourist points during summer
- iii. Ensure availability of water and rest sheds at tourist places
- iv. Rescheduling of visiting hours at tourist places to avoid heat stress to the visitors

11. District Social Welfare Officer (DSWO)

- i. Use the Village Health Nutrition Day (VHND) for creating awareness and educate young girls and mothers regarding the dangers of Heat Wave, its related health impact and precautionary measures to be taken
- ii. Ensure display of IEC materials at Anganwadi Centres
- iii. Encourage Anganwadi workers to create awareness on Heat Wave with special focus on infants, children below five years, pregnant women, lactating mothers and geriatric population to protect them from dehydration.
- iv. Ensure provision of drinking water and first aid at all the Anganwadi Centres, old age homes and Child Care Institutions (CCIs)
- v. Sufficient ORS to be kept in Anganwadi Centres and with AWWs

12. Divisional Forest Officer (DFO)

- i. Identify water scarce locations in forest and prepare a plan of action for ensuring availability of water for animals and human habitation facing water scarcity inside reserved/protected forest
- ii. Keeping continuous watch in the forest areas to avoid forest fire.
- iii. Issue instruction and ensure arrangements for protection of the zoo animals from heat wave
- iv. Give instructions for conducting village meetings through NGOs prior to the hot weather seasons for making the villages aware for not setting forest fire
- v. Ensure proper afforestation (greenery) in public places
- vi. Formation of a Fire Surveillance team to watch & ward in the forest fire.

- vii. Identification and basic orientation training to the local volunteers on controlling forest fire.

13. Project Administrator, Integrated Tribal Development Agencies (PA, ITDA)

- i. Generate awareness through IEC activities on Heat Wave prevention and management in tribal schools
- ii. Ensure availability of safe drinking water, ORS packets, Ice packs and other required first aid materials in tribal schools
- iii. Monitor and enforce school and examination timing as directed by SRC/SC & ST Department
- iv. Encourage concerned authorities/schools for albedo paintings on roofs of schools and hostel buildings

14. Chief District Veterinary Officer (CDVO)

- i. Issue advisory on animal care during heat wave by making provisions for drinking water for animals and birds with timely replacement at sheds
- ii. Generate awareness among animal owners for feeding the animals in early morning or during evening hours to avoid heat stress
- iii. Issue advisory for farmers for not leaving their animals outside the shed during peak hours of heat
- iv. Encourage the owners of livestock and poultry farms to plant bushy trees near the sheds
- v. Advisory to be issued for mixing electrolytes in drinking water of animals and birds to avoid dehydration
- vi. Issue instructions to the concerned authorities not to vaccinate or deworm the animals and birds during heat hours of the day to avoid any extra stress
- vii. Issue advisory to the farmers for restraining the animals from hard work in open areas during heat hour of the day
- viii. Mobile Veterinary Units must be kept in readiness to attend the emergency cases

Standard Operating Procedures (SoPs) for District level Officials for management of Drought

1. Collector

- i. Submission of weather and crop situation report to the O/o SRC as per the provisions laid down under the paragraphs 24 and 25 of ORC
- ii. Convene meeting to review measures in line with the Crisis Management Plan
- iii. Direct all the district level line departments to participate in drought management, prepare contingency plans and mobilize their staffs and resources
- iv. Prepare District Agriculture Contingency Plans
- v. Implement all the decisions of Government related to drought management on the ground through line departments
- vi. Monitor all the indicators of drought on the ground such as collection of daily rainfall data, water storage, water availability, seeds supply and progress of sowing operations
- vii. Monitor local information related to demand of relief employment, prices of food grains and availability of fodders
- viii. Ensure timely collection of field information and ground truthing of sensor-based data and submission of periodical reports on all the important indicators to the Government
- ix. Assess the situation related to scarcity of drinking water and fodder and issue appropriate instructions regarding reservations and supply of drinking water, procurement and sale of fodders and setting up of fodder depots and cattle camps
- x. Supervise reservoir management with the help and support of Water Resources Department and decide the volume and timing of release of water in the canals

- xi. Review the progress of drought relief measures in the district from time to time
- xii. Make arrangements for efficient and timely distribution of food grains after declaration of drought
- xiii. Prepare relief employment plan in consultation with agencies

2. Chief District Medical & Public Health Officer (CDM & PHO)

- i. Organize Health Camps in drought affected areas to screen people for common ailments
- ii. Arrange clinical management of cases due to waterborne and vector-borne diseases
- iii. Deploy Rapid Response Teams (RRTs) for managing any outbreak of water borne or vector-borne diseases and surveillance through State Integrated Disease Surveillance Programme
- iv. Ensure laboratory facilities for diagnosis of water borne and vector-borne diseases through public health laboratories, district headquarters hospitals, laboratories and medical colleges
- v. Promote awareness generation on risk of water borne and vector-borne diseases in the community
- vi. Tracking regularly the children health through ANM/ASHA workers at the villages

3. Chief District Veterinary Officer (CDVO)

- i. Ensure availability of fodder, feed, and water for cattle
- ii. Ensure quality of feed and fodder supplied through the fodder depots and cattle camps
- iii. Undertake awareness campaign for farmers in drought-affected areas on cattle health relating to fodder, feed, vitamin, minerals and other sanitation issues
- iv. Ensure provision of minerals, vitamins, medicines and vaccines to the livestock owners
- v. Carry out necessary inspection and check in drought-affected areas to ensure that cattle are maintained in good health
- vi. Depute Livestock Inspector (LI) for checking the health of cattle at least once in a week and undertake all precautionary measures to avoid outbreak of any disease

4. Chief District Agriculture Officer (CDAO)

- i. Ensure preparation/ updating District Level Crop Contingency Plan in consultation with Krishi Vigyan Kendra (KVK)
- ii. Identify and assess the requirement for important agricultural inputs like- seeds, fertilizers and pesticides at subsidised rates for the farmer through Primary Agricultural Cooperative Societies (PACS) and private dealers
- iii. Sufficient prepositioning of drought resilient seeds and fertilizers in different strategic locations
- iv. Promote awareness on crop insurance and ensure timely enrolment of non-loanee farmers under “Pradhan Mantri Fasal Bima Yojana” (PMFBY)
- v. Apprise the District Drought Monitoring Cell (DDMC) on crop weather situation on weekly basis
- vi. Ensure rapid damage assessment during early season drought and facilitate availability of seeds for immediate sowing by the farmers
- vii. Promote diversification of crops with suitable low water consumption crops like- millets and oilseeds over rice in the drought prone areas
- viii. Capacity building of farmers through Agricultural Technology Management Agency (ATMA) for alternate livelihood options like mushroom cultivation, goatery, poultry, fruit trees etc. in the drought prone areas

Standard Operating Procedures (SoPs) for District level officials in the management of Floods and Cyclones

1. Collector/ADM/Sub-Collector

A. Pre Flood Arrangements

- i. Convenemeetingofthe DLCNCduringthemothof May
- ii. Makeinventoryofprivate/country/powerboatstobeusedfor reliefandrescueoperation
- iii. Ensuredeploymentof Boats atstrategicpoints
- iv. EnsureregularsubmissionofrainfallreportstotheO/oSRC
- v. EnsureproperfunctioningofControlroomroundthelockwithadequate manpowerhavingknowledgeabout thesituation
- vi. Identificationof safebuildings tobeused as floodshelters
- vii. Inventoryofnon-officialandvoluntaryorganizationforcarryingoutreliefandrescueoperations
- viii. IdentifytheLow-lyingareasandvulnerablepopulationGPwiseforrescue &relief
- ix. InstructtheR&Bandotherrelatedworksdepartmenttoidentifythelowembankment areaand repair themaccordingly
- x. Awareness generationactivitiesonfloodSafety(DosandDon'ts)
- xi. Ensureregularupdatingof IDRN

B. ArrangementsduringFlood

- i. Convene immediate meeting of all line department officials, all BDOs, Tahasildars, District heads of NDRF, ODRAF and Fire Services toreviewthesituationandissuenecessaryinstructionstoalltheconcernedto makearrangements accordingly
- ii. Ensure evacuation of marooned and people residing in the low-lyingareasto safeshelters andarrangementoffreekitchen
- iii. Instructiontobegivenfortakingspecialcareofold,PWDs,womenandchildren whileevacuating
- iv. Instructiontobegiventoconcernedauthoritiesforevacuationoflivestockand domesticanimalsto safeshelters
- v. Ensureprovision ofemergent relieffor theaffected people
- vi. Ensurearrangements of propersanitationmeasuresintheshelters
- vii. TimelysubmissionofdailysituationreportsintheprescribedtotheO/o SRC

C. PostFloodManagement

- i. Issueinstructionsforproperdisposalofdeadbodies
- ii. Ensuredamageandlossassessmentofprivatepropertiesandsubmission ofreportto Governmentforrelease of assistance
- iii. Review the restoration of damaged roads, bridges, embankments andotherpublicproperties
- iv. Ensure proper enumeration of house damage, crop damage and preparelistofbeneficiariesalongwiththeirbankaccountnumbersforimmediatepayment ofdisasterrelief
- v. Ensure proper documentation of the relief and restoration activities forrecords
- vi. Submissionoffinal damagereport to theO/o SRC
- vii. Provision of employment to the able-bodied persons under the plan andnon-planschemesofthegovernmentensuringlabouremploymentprogrammes

D. OnreceivingCyclonewarning

- E.** Convene immediate meeting of all line department officials, all BDOs, Tahasildars, District heads of NDRF, ODRAF and Fire Services toreviewthesituationandissuenecessaryinstructionstoalltheconcernedto makearrangements accordingly
- F.** InstructtheBDOstoconductBlocklevelpreparatorymeetingsinvolvingSarpanches/SecretariesofCSMMC /FSMMC,NGOs/CSOsandotherstakeholdersfor takingup preparatorymeasures

- G.** Issue instructions for operation of the District Emergency Operation Centres and control rooms of other offices round the clock. Adequate manpower to be deployed in the control rooms
- H.** Issue notice to keep Govt. Offices to remain open, cancel government holidays (if required), recall the officers on leave (if required) and instruct government officials to remain alert
- I.** Take steps for dissemination of correct and updated information on the impending cyclone to people with advice not to panic
- J.** Check the operationality of the communication equipment like Satellite Phone, Fax and other communications systems
- K.** In six coastal districts, besides satellite phones, other communications systems like Digital Mobile Radio (DMR), Satellite Based Mobile Data Voice Terminal (SBMDVT), Alert siren towers under EWDS project, are to be tested and kept in readiness
- L.** Ensure deployment of boats of Special Relief Organizations at strategic locations for transportation of relief materials and relief parties to inaccessible areas, if required.
- M.** Adequate quantities of POL to be arranged. POL stocks also to be arranged for boats of NDRF, ODRAF and Fires Services for carrying out SAR operations and distributions of relief materials.
- N.** Instruct the concerned line department officials for making arrangements for power back up as power supply is likely to be cut off during Cyclones. Generator available in different offices including health institutions should be checked immediately and adequate fuel to be stored.
 - i. Instruct the BDOs to monitor the readiness of MCS/MFS and report to the Collector/ADM/DEO
 - ii. Give instructions to the Sarpanch and Secretaries of CSMMC/FSMMC to organize the meetings of CSMMC/FSMMC and make proper arrangements in the MCS/MFS.
 - iii. Instruct the BDOs to coordinate with the Sarpanch and Secretaries of CSMMC/FSMMC to check the water supply systems, generators, inflatable tower lights, mechanical cutters, and other equipment available in the shelters to be put to test run and the defective one gets immediately repaired. Fuel arrangements for generators and other equipment to be made
 - iv. Give instructions to BDOs/Sarpanches and Secretaries of CSMMC/FSMMC to identify the vulnerable people and evacuating them to safe shelters
 - v. Instruct the BDOs for evacuating people living in kutcha houses or living near the coast or in low lying areas in the coastal and adjoining districts to safe shelters
 - vi. Instruct other line department officials to assess the situations and take steps to evacuate people
 - vii. Instruction to be given for taking special care of old, PWDs, women and children while evacuating
 - viii. In case of a possible storm surge instructions to be given for evacuating people living in coastal areas even in two-storied buildings after assessing the situations
 - ix. Instruction to be given to concerned authorities for evacuation of livestock and domestic animals to safe shelters. No cattle should be left tied in kutcha houses
 - x. Issue instructions to the concerned authorities for checking the safety of residential schools, child care institutions, old age homes and similar institutions, and if necessary, the inmates may be shifted to shelters. Ensuring the availability of sufficient food stuffs, drinking water, essential medicines for the inmates of such institutions
 - xi. Instruct the BDOs, Presidents and Secretaries of CSMMC/FSMMC for arrangements of cooked food through free kitchen, safe drinking water, lighting, health & sanitation facilities at the MFS/MCS
 - xii. Instruct the concerned authorities for making arrangements for supply of safe drinking water to the people in the affected areas including measures to run the pumps with generators in absence of electricity and make necessary arrangements for supply of water through portable water tankers and water pouches in the affected areas including the shelters
 - xiii. Give requisition to SRC for deployment of ODRAF / NDRF and Fires Service teams in the likely to be affected locations of the districts.

- xiv. Arrangements for immediate food assistance in the shape of rice, chuda, guretc. and other essentials items to be made
- xv. Check availability of polythene, assess the requirement and requisition placed with SRC
- xvi. Arrangements to be made for keeping the mobile health units and veterinary teams ready in advance for deployment in the affected areas. Feed and fodder to be arranged for the animals
- xvii. Issue warning messages to the fishermen not to venture into these areas and recall the fishermen inside the sea to the shore
- xviii. Entrust responsibilities to specific officers and teams to undertake the above tasks in seamless manners and monitor it frequently

O. During Cyclone

- i. Coordinating with BDOs and other Block Officials of affected areas and take stock of the situation
- ii. Disseminate latest updates on Cyclone at the earliest to the concerned as & when received from SEOC/State
- iii. Coordinate with SEOC, Army, Air Force, Navy, NDRF & ODRAF for support towards evacuation and rescue.

P. Post Cyclone

- i. Convene an emergency meeting and take stock of the situation
- ii. Soon after Cyclone abated, food assistance in shape of rice, chuda, gudetc. and other essentials items to be provided to people immediately
- iii. The households whose houses are damaged in cyclone/heavy rain need to be provided with temporary shelter materials (polythene sheets) without delay
- iv. Ensuring immediate restoration of road communication for movement of relief materials. Instruct the concerned departments for restoration of damaged roads immediately after Cyclone
- v. Immediate restoration of electricity and tele-communication including internet services to be ensured
- vi. Instruct the BDOs and concerned officials for enforcing and monitoring proper relief distribution
- vii. Issue instructions to the district heads to initiate damage assessment
- viii. Convene meetings of NGOs, Youth Clubs, Self-Help Groups, etc., in the district, and assign them specific responsibilities for relief, recovery and rehabilitation
- ix. Enforce, Facilitate & Monitor Ex-gratia & Compensation to the disaster affected families
- x. Ensure submission of Situation & Daily report to office of Special Relief Commissioner

2. Chief District Medical & Public Health Officer

A. Preflood Arrangements/On Receiving Cyclone Warning

- i. Convene meeting with other stakeholders for taking all preparatory measures
- ii. Prepare contingency plan for monitoring hygiene and sanitation
- iii. Taking stocks of essentials medicines for flood related diseases, water purifying (Halogen) tablets, anti-snake venoms in District H.Q. hospitals, CHCs and PHCs
- iv. Ensuring sufficient stocks of bleaching powder, chlorine powder, lime powder etc.
- v. Relocate the patients to the safe areas within the hospital
- vi. Power backup arrangements to be made in all CHCs, PHCs and DHH and other hospitals
- vii. Issue instruction for shifting of pregnant women to MAAGriha immediately on receipt of Cyclone/ Flood warnings
- viii. Identifying & shifting patients requiring intensive care to safer places well in advance
- ix. Constitute Mobile Health Units (MHUs) consisting of a doctor, health workers and ANMs. Each mobile health unit should be capable to cover at least one relief centre in a day
- x. Deploy Mobile Health Units along with required medicines to the vulnerable/likely to be affected areas

- in advance
- xi. Initiate vaccination in the likely to be affected areas (as & when necessary) for prevention of communicable diseases
- xii. Ensure availability of medical equipment and essential drugs
- xiii. Ensure power backup in hospitals
- xiv. Ensure availability of safe drinking water in hospitals
- xv. Earmark separate wards in the hospital for treatment of injured persons.

B. During Flood/Cyclone

- i. Deploy Rapid Response Teams and carry out health care services
- ii. Prepare a maternity facility for pregnant women in every Response Base/Advance Medical Post

C. Post Flood/Cyclone

- i. Establish Helpline for providing information to the affected population.
- ii. Initiate, ensure post disaster diseases surveillance system and monitor the outbreak of epidemic
- iii. Promote Psycho-Social Counselling camps for the disaster affected population
- iv. Coordinate with Private Hospitals for treatment of the affected population, if required
- v. Enforce & ensure proper dead body management & early submission of post mortem report to the concerned authority
- vi. Arrange transportation/ambulance for seriously injured/sick patients from PHCs/CHCs to referral hospitals.
- vii. Ensure timely submission of reports to the Collector & H&FW department

3. Superintendent of Police

A. Pre-Flood Arrangements/On Receiving Cyclone Warning

- i. Ensure functioning of the communications systems
- ii. Ensure proper functioning of the control room round the clock with public helpline number
- iii. Prepare a Plan for deployment of police/response force to activate search & rescue operation, maintain law & order and traffic management
- iv. Provide necessary support to district administration and others for expediting rescue and relief operations
- v. Review and update emergency measures, procedures, and take necessary steps to protect emergency equipment

B. During Flood/Cyclone

- i. Remain in close coordination with the district administration
- ii. Keep close watch on the situation and activate Search & rescue operations
- iii. Ensure that all field staff and stationed officers submit the necessary action reports to the Control Room
- iv. Ensure security of key installations like power, water supply, telecommunication, etc.
- v. Restrict plying of vehicles on overtopping roads and bridges
- vi. Coordinate with the administration for law-and-order situation during distribution of relief to the affected people

C. Post Flood/Cyclone

- i. Ensure safety of the evacuees during stay at shelters & back at home.
- ii. Ensure security measures at different storage points & relief distribution centres
- iii. Ensure functioning of control room with public helpline number
- iv. Provide adequate security to personnel of International Agencies for Medical Assistance, relief operations etc.

4. Chief District Agriculture Officer

i. Pre-Floods Arrangements/On receiving Cyclone warning

- i. Activate the field functionaries
 - ii. Issue necessary instructions to the staff & advisory to the farmer to safe guard their crops (in case of heavy rain warning, to cover up the paddy or other crops already placed in the house premises)
 - iii. Close watch on the situation, review & update precautionary measures and procedures
 - iv. Develop a pest and disease monitoring system so that timely steps can be taken to reduce damage to crops
 - v. Take necessary steps to aware and enrol farmers on “*Pradhan Mantri Fasal Bima Yojna*”
- ii. During Flood/Cyclone**
- i. Close watch on the flood situation, and chalk out a farmers’ awareness plan depending upon the severity of the situation
- iii. Post Flood/Cyclone**
- i. Call for emergency meeting to take stock of the situation. Develop strategy and objectives for early recovery
 - ii. Assess the extent of damage to soil, crop, plantation, micro-irrigation systems and storage facilities and ascertain the requirements of seeds, pesticides, equipment, etc. to salvage the situation or go for re-plantation
 - iii. Assist the district administration for enumeration of crop loss and identification of beneficiaries for providing assistance
 - iv. Review of stock of seeds available and timely transportation of these seeds to the affected areas
 - v. Suggest variety of seeds and cropping pattern, which can reduce losses and reduce the risks to farmers
 - vi. Coordinate the provision of agricultural services with irrigation department and soil conservation
 - vii. Establish a public information centre with means of communication, to assist in providing updated information to people
 - viii. Assist farmer to re-establish their contacts with agriculture produce market and ensure that produce gets proper support price

5. Executive Engineer - Rural Development

i. During Flood/Cyclone

- i. Remain in alertness and close watch on the situation
- ii. Coordination with district administration and keeping a strict vigil over the situation and act accordingly
- iii. Co-ordinate with District Administration, Enforce, Organize & Ensure round the clock inspection and repair of
 1. low lying roads
 2. critical buildings
 3. bridges
 5. culverts
 6. overflow channels
 8. pumps
 9. generators
 10. motor equipment,
 11. station building, etc.

ii. Post Flood/Cyclone

- i. Immediate restoration of the relief lines
- ii. If there is a cut off in communication, then provision of alternative communication roads for relief operation
- iii. Identification of areas for clearance, delegation of team, monitoring of work
- iv. Initiate damage assessment & submission of proposal to the government for repair and restoration
- v. Continue round the clock inspection and repair of passage ways bridges, culverts, overflow channels, etc.
- vi. Clear the passage ways, on an on-going basis, in order to ensure that relief lines are unobstructed
- vii. Use information formats and monitoring checklist for programme monitoring and development, and for reporting to District Emergency Operations Centre (DEOC)

6. Executive Engineers - Works

i. Pre-Flood Arrangements/On receiving Cyclone Warning

- i. Appoint Nodal officers (technical officers) and ensure they meet the staff to review emergency procedures in their jurisdiction
- ii. Move heavy equipment, such as front-end loaders to areas likely to be damaged and put them in a safe place
- iii. Ensure emergency inspection by mechanical engineer of all plants and equipment at the district workshops

- iv. Construct/ reinforce the connecting roads from villages to roads, canals and bundhs and raise their level so that people can access the highground
- v. Inspect old buildings and suggest retrofitting of weak buildings/ demolition of dangerous structures

ii. During Flood/Cyclone

- i. Close watch on the situation
- ii. Immediate restoration of breached roads for clearance of relief lines and to restore traffic

iii. Post Flood/Cyclone

- i. Provide a work team carrying emergency tool kits, depending on the nature and extent of the disaster, essential equipments such as: 1. Towing vehicles 2. Earth moving equipment and 3. Cranes, etc.
- ii. Coordinate with Public Works Department and Zila Parishad
- iii. Mobilize community assistance for road clearing by contacting community-based organizations
- iv. Undertake clearing of ditches, grass cutting, burning or removal of debris, and the cutting of dangerous trees along the roadside in the affected area through area engineer's staff
- v. As per the decisions of the District Control Room, undertake construction of temporary structures required, for organizing relief work and construction of relief camps, feeding centres, medical facilities, cattle camps and Site Operations Centres
- vi. Keep an up-to-date report of all damage and repairs in the district office report book and communicate the same to the District Control Room

7. District Telecom Officer (DTO)

i. On receiving Cyclone Warning

- i. Remain in close contact with the district administration
- ii. Regular inspection of towers, initiate repair & maintenance, if required
- iii. Ensure stock pile of generators & sufficient fuels for emergencies
- iv. Identify and coordinate for additional technical manpower for immediate restoration of telecommunication.

ii. During Flood/Cyclone

- i. Take steps as per the demand of the situation
- ii. All the staff needs to remain alert

iii. Post Flood/Cyclone

- i. Restore the telephone lines as per the priority

8. Chief District Veterinary Officer (CDVO)

i. Pre-Flood Arrangements/On receiving Cyclone warning

- i. Arrangement of vehicle for uninterrupted mobility of mobile health units in inaccessible areas
- ii. Organise Health awareness campaign & ensure vaccination of cattle population
- iii. Ensure repair of LIC centres and other necessary equipment & make provision for supply of yearly medicines
- iv. Ensure storage of cattle feed and fodder in interior vulnerable strategic and key areas
- v. Regular co-ordination with district administration

ii. During Flood/Cyclone

- i. Record keeping, Information dissemination to concerned quarters (Sub-Divisional Vet. Officer)
- ii. Develop a system of monitoring outbreak of diseases to ensure that timely measures can be initiated to contain them

iii. Post Flood/Cyclone

- i. Identification of areas for clearance, delegation of team, monitoring of work

- ii. Damage assessment and reporting
 - iii. Ensure feed concentrate and fodder for affected cattle population
 - iv. Ensure that adequate sanitary conditions through cleaning operations are maintained in order to avoid outbreak of any epidemic
- 9. Regional Transport Officer/MVI**
- i. Pre-Flood Arrangements/On receiving Cyclone warning**
 - i. Remain in close contact with the District Administration
 - ii. Provide necessary vehicles for evacuation, transportation of relief materials, team movements and when required
 - ii. During Flood/Cyclone**
 - i. Remain in close coordination with the administration
 - ii. Control vehicular movements till normalcy
 - iii. Post Flood/Cyclone**
 - i. Provide required vans and ambulances for mobile health and animal husbandry teams
 - ii. Make available vehicles for supply chain management
- 10. Executive Engineer WATCO**
- i. On receiving Cyclone warning**
 - i. Ensure drinking water is filled in overhead tanks to provide safe drinking water
 - ii. Arrangement of water tankers, generator and fuel for emergency at the supply points
 - iii. Ensure provision of safe drinking water and availability of halogen tablets, ORS packets in the shelters
 - iv. Coordinate with Executive Engineer, CESU for necessary uninterrupted power supply to water supply units.
 - ii. During Flood/Cyclone**
 - i. Close watch on the situation
 - ii. Keep track on the low-lying areas & drinking water supply system therein
 - iii. Post Flood/Cyclone**
 - i. Immediate restoration of water supply with additional human resources
 - ii. Damage assessment and reporting
 - iii. Disinfection of all overhead tanks and piped water supply systems for supply of safe drinking water
- 11. Executive Engineer-Electrical**
- i. On receiving Cyclone warning**
 - i. Undertake inspection of high-tension lines, towers, sub-stations, transformers, insulators, poles, and other equipment
 - ii. Ensure regular identification of faults, checking and repair of weak points/transformers
 - iii. Ensure prior maintenance of the transformers and high-tension lines, cutting of the branches of the trees to safeguard the supply lines
 - iv. Ensure stockpiling of equipment/accessories, skill development training/orientation
 - v. Precautions/protections near high voltage electric equipment installed.
 - vi. Disconnection of electricity in the event of an emergency
 - vii. Arrangement of alternative energy sources such as generators and fuel for generators
 - viii. Protect Power Stations from disaster. Raise the height of compound walls. Install pump sets for draining water in case of emergency
 - ii. During Flood/Cyclone**

- i. Disconnection of electricity to the affected areas to avoid any casualty due to short circuit
- ii. Arrangement of uninterrupted power supply at the Hospitals (PHC, CHC, etc.) / Temporary shelters
- iii. Dispatch emergency repair group equipped with food, bedding, tents, and tools
- iv. Provide information to the people about the state of power supply, as it is one of the most important sources of information
- v. Assist hospitals in establishing an emergency supply by assembling generators and other emergency equipment, if necessary

iii. *Post Flood/Cyclone*

- i. Restoration of electricity with additional HR
- ii. Ensure that the Power Supply department makes alternate arrangements of emergency supply in all critical infrastructures
- iii. Damage Assessment and reporting

Standard Operating Procedures (SOPs) for key stakeholders in the management of Tsunami

1. *State Emergency Operation Centre (SEOC)*

A. *On receiving Tsunami Alerts*

- i. Functioning of the SEOC round the clock i.e. 24x7
- ii. Activation of all the alert sirens systems from SEOC after getting the tsunami message from INCOIS
- iii. Sending Mass SMS through the Early Warning Dissemination System (EWDS) from SEOC
- iv. Sending Voice messages through the Alert Siren Systems from Block Emergency Operation Centres (BEOC)
- v. Using of Digital Mobile Radio (DMR) systems provided to the Alert Siren locations for two-way communication
- vi. Activation of Satellite Based Mobile Data and Voice Terminals (SBMDVT) and Satellite Phones provided to the districts to transmit the message
- vii. Dissemination of Tsunami Bulletin to the District Emergency Operation Centre (DEOC) of the six coastal districts through different communication modes, viz., Phone, Email, Fax, Social Media (Facebook & Twitter) for further transmission to the Block Authorities through Phone, Email, Fax, Social Media
- viii. Alerts senior officers of Government like SRC, Chief Secretary, CMO, ADG (LAO), DG, Fire Service
- ix. Send message to electronic media with approval of the SRC

2. *District Emergency Operation Centre/ Collector/ ADM/Dist. Emergency Officer*

A. *On receiving warnings*

- i. Ensuring the Tsunami warning by contacting State Emergency Operation Centre
- ii. Once confirmed immediately activate the District Emergency Operation Centres DEOC in Charge or District Emergency Officer to intimate Collector, ADM(s), senior officers of District Administration
- iii. Passing the warning message to the community members and PRI representatives through the existing communication modes i.e. through Phones, E-mail, Fax and Social media
- iv. Decision on evacuation should be taken as per the following threat status
 - a. **Warning:** Public should be advised to move in-lands toward higher grounds, Vessels should be advised to move into deep ocean
 - b. **Alert:** Public should be advised to avoid beaches and low-lying areas. Vessels should be advised to move into deep ocean
 - c. **Watch:** No immediate action
- v. Threat Passed: All clear determination to be made the local authorities
- vi. Determining the estimated time of tsunami arrival on reception of tsunami message from INCOIS/ SEOC

- vii. Ascertaininglevelofthreat/impact
- viii. DeploymentofResponseForcesifrequired
- ix. Incaseofboatsinharbours,estuariesandshallowcoastalwatersshouldbeadvised to movefromoffshoreto deepwater
- x. Vesselsalready atseashouldbeadvisedtostaywelloffshoreandremainthereuntil furtherinstructions
- xi. AllWarningmessages tobconvertedtolocallanguages
- xii. Preparingthemessagewith“whatisthecurrentsituationandwhatistheadviceto public”
- xiii. Evacuationplanisactivatediftheshold levelisexceeded
- xiv. Ensuringtheevacuationisdoneproperlythroughthedesignatedevacuationroots
- xv. Ensuringallpossibleevacuation modesto beusedduringevacuation
- xvi. Continuousmonitoringof bulletinsfrom TWC.
- xvii. Reassessand reviewinstructions.
- xviii. Assessingsafetyforreturn
- xix. Issuing “All Clear” based onlocal evidence

B. PostTsunamiactivities

- i. Aftersituationgetsclearimmediatelyassessthegroundsituationsfromfiledofficials
- ii. Response Forces to start the search and rescue and First-Aid to be giventheinjured
- iii. Triageandtemporarymedicalcampstosetupimmediatelyaspertheneeds
- iv. Startingof freekitchen atthetemporaryshelters
- v. Ensuringprovisionofsafedrinkingwater,medicinesandothernecessaryarrangementsto bemadeat theshelters

3. Community

- i. GettheaccurateinformationontheTsunamithreatfromBlock/PanchayatOffice
- ii. Actaspertheinstructions(Warning,AlertWatch,ThreatPassed)issuedbythe Sarpanchs/BDOs/District Administration
- iii. If instructed for evacuation use the designated evacuation root of thevillage
- iv. Duringevacuationspecialcaretobegiventothemostvulnerablesection like pregnant women, elderly and sick persons, children andPWDs
- v. The shelter level Task Force Volunteers and Apada Mitra volunteers tohelp evacuatingthepeople
- vi. People needs to carry with them essential documents and other goodslike(Landrecords,educationalcertificates,bankpassbooks,dailyconsumedmedicines etc.) whileevacuating
- vii. Constantly get in touch with the Panchayat, Block Office regarding thestatusof thethreat
- viii. Needtobeevacuatedtotheidentifiedsheltersorothershelterlocatedatthehigher places

Chapter- 19

FINANCIAL ARRANGEMENT

13.1 National Disaster Response Fund (NDRF)

The National Disaster Response Fund (NDRF) has been constituted by the Government of India as per the sub-sections (1) of section (46) of Disaster Management Act, 2005 and recommendation of the 13th Finance Commission. NDRF has been constituted by replacing the National Calamity Contingency Fund (NCCF). It is administered by the National Executive Committee (NEC).

In the event of a calamity of a severe nature when the State Disaster Response Fund (SDRF) is insufficient to meet the relief requirements, additional central assistance is provided from NDRF, after following the laid down procedure. The State Government is required to submit a memorandum indicating the sector-wise damage and requirement of funds. On receipt of memorandum from the State,

- An Inter-Ministerial Central Team is constituted and deputed for an on the spot assessment of damage and requirement of funds for relief operations, as per the extant items ad norms.
- The report of the Central Team is considered by the Inter-Ministerial Group (IMG) / A Sub-committee NEC constituted under section 8 of DM act, 2005, headed by the Home Secretary.
- Thereafter, the High Level Committee (HLC) comprising of the Finance Minister, the Agriculture Minister, the Home Minister and the Deputy Chairman, Niti Ayog considers the request of the State Government based on the report of the Central Team recommendation of the IMG thereon, extant norms of assistance and approves the quantum of assistance form NDRF.
- This is, however, subject to the adjustment of 75% of the balance available in the State's SDRF for the instant Calamity.

13.2 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.

11.3 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.

13.3.1 Cases Eligible for Assistance under CMRF

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

13.3.1.2 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.

13.3.1.3 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.

13.3.1.4 Assistance for Rural Development: Financial assistance out of CMRF may also be considered to undertake, promote, aid or otherwise support rural development including any programme for promoting the social and economic welfare of the public in any rural area either directly or through an independent agency following due procedure.

To assist more number of deserving person and for better utilisation of the Chief Minister's Relief Fund, the State Government have delegated powers to the Collectors for sanction of assistance out of CMRF so as to extend such assistance to the deserving persons immediately at the time of their need.

13.4 Release of Funds to Departments and Districts:

Funds required towards pure relief to affected persons / families for natural calamities in shape of emergency assistance, organizing relief camp / free kitchen / cattle camp, agriculture input subsidy and other assistances to affected farmers, ex-gratia as assistance for death cases, grievous injury, house building assistance, assistance to fisherman / fish seed farmers / sericulture farmers, assistance for repair / restoration of dwelling houses damaged due to natural calamities are administered through the respective collectors.

Part funds towards repair / restoration of immediate nature of the damaged public infrastructure are released to the Departments concerned. On receipt of requisition from the Collectors / Departments concerned, funds are released after obtaining approval / sanction of S.E.C. However, funds towards pure relief are released under orders of Special Relief Commissioner / Chief Secretary and the same is placed before the State Executive Committee in its next meeting for approval. To save time, Collectors have been instructed to disburse the ex-gratia assistance from the available cash and record the same on receipt of fund from Special Relief Commissioner.

13.5 Damage Assessments and Report after Flood/Cyclone

Private properties and properties of Government under different Departments are damaged by high floods and cyclones. As per para-75 of Orissa Relief Code, the Collector shall undertake assessment of damages to private properties as well as properties of Government. This assessment shall be done quickly soon after the abatement of flood in the prescribed formats prescribed in Appendix- X of Orissa Relief Code.

13.5.1 Submission of preliminary damage report (Para-76 of ORC)

1. The Collector as well as the district level officers under each Department of Government shall immediately after assessment of flood damage forward a copy of their report to their immediate Head of Department. The district level officers may also supply reports to the Collector.
2. The Heads of Departments after necessary scrutiny shall forward their reports to their respective Departments of Government with copy to Special Relief Commissioner, not later than two weeks from the date of abatement of flood.
3. The Special Relief Commissioner shall compile the State report and shall furnish the consolidated preliminary report to the Revenue Department within a week of the receipt of the reports from the Heads of Department.
4. The preliminary flood damage report should be prepared as accurately as possible, as the relief measures, if any, are to be based on the merit and statistical data of that report.

13.5.2 Submission of final flood damage report (Para-77 of ORC)

The concerned Heads of Departments as well as the Collector shall take immediate steps to compile the final report on flood/cyclone damage in the formats prescribed in Appendix- X soon after submission of the preliminary report.

Accidental errors, clerical mistakes, shortcomings, if any, noticed should be rectified in the final report. The final report shall be made available to Special Relief Commissioner as soon as possible and not later than one month from the date of abatement of flood.

On receipt of the reports from the different sources, Special Relief Commissioner shall forthwith compile the State report and furnish the same to the Revenue Department.

13.6 Central and State Government programmes and Schemes on Natural Calamities

Mainstreaming Disaster Management in development planning is the most critical component to mitigate disaster risks. That's why it's important to make note of financial resources which are used in the implementation of such programmes and schemes which can lessen the risk from disasters by reducing vulnerability. It is also crucial to build communities resilience to deal with them. Moreover, as mandated by Ministry of Finance & Ministry of Home Affairs on 01st and 03rd June, 2014 respectively, 10 % flexi-fund within the centrally sponsored schemes (CSS) to be utilised, inter alia for mitigation / restoration activities in the event of natural calamities in the sector covered by CSS. Thus, relevant Central Government and State Government funded schemes are identified which are crucial to build over resilience of communities in the context of the district.

Table __: Different State and Central Government Schemes and Programms

Sl No.	Name of the Scheme	Sector	Nodal Department	Objective of the Scheme
1	National Agriculture Insurance Scheme (NAIS)/ Rastriya Krishi Bima Yojna (RKBY)	Crop Insurance	Agriculture Insurance Company of India (AICI)	To protect the farmers against the losses suffered by them due to crop failures on account of natural calamities, such as droughts, floods, hailstorm, storms, animal depredation, etc.
2	Janashree Vima Yojna	Life Insurance	Life Insurance Corporation Of India	The objective of the scheme is to provide life insurance protection to the rural and urban poor persons below poverty line and marginally above the poverty line.
3	Modified National Agricultural Insurance Scheme (MNAIS)	Crop Insurance	Agriculture Insurance Company of India (AICI)	To provide insurance coverage and financial support to the farmers, sharecroppers, tenant farmers, individual owner- cultivator, pesticide farms, group of farmers, SHGs etc in the event of prevented sowing & failure of any of the notified crop as a result of natural calamities, pests & diseases.
4	Coconut Palm Insurance Scheme (CPIS)		Agriculture Insurance Company of India (AICI)	Assist coconut growers in insuring coconut palms, against natural and other perils.
5	National Cyclone Risk Mitigation Project(NCRMP)Ph-I		National Disaster Management Authority (NDMA)	The Project development objective of the NCRMP is to reduce vulnerability of coastal communities to cyclone and other hydro meteorological hazards.

13.7 Roles of District Planning Committee on financial outlay on mainstreaming Disaster Risk Reduction (DRR) in development programmes.

District Planning Committee (DPC) is the committee created as per article 243ZD of the Constitution of India at the district level for planning at the district and below. The Committee in each district should consolidate the plans prepared by the Panchayats and the Municipalities in the district and prepare a draft development plan for the district. The District Planning Office, Nayagarh started its functioning w.e.f. November'1994. Prior to that period, it was functioning under the control of the Chief Planning & Development Officer, Puri. As per G.O. No.11741/P. dt.29.8.2000 of the Govt. in Planning & Co-Ordination Deptt. Orissa, the District Planning Officer, Nayagarh has been vested with the powers of functioning as its Head of Office. Accordingly, necessary financial and administrative powers have also been conferred to the D.P.O.

Schemes

Members of Parliament Local Area Development Scheme (Mplads)

Objective

The objective of the scheme is to enable MPs to recommend works of developmental nature with emphasis on the creation of durable community assets based on the locally felt needs to be taken up in their constituencies. Right from inception of the scheme, durable assets of national priorities viz. drinking water, primary education, public health, sanitation and roads, etc. are being created.

Integration with DRR

Natural calamities:-

In the event of "Calamity of severe nature" in any part of the country, MP can recommend works up to a maximum of Rs.50 lakh for the affected district. Whether a calamity is of severe nature or not, will be decided by the Government of India. The funds in this regard will be released by the Districts Authority of the Nodal district of the MP concerned to the Districts authority of the affected district to get the permissible works done. The Works Completion Report, Utilisation Certificate and Audit Certificate for such works and funds will be provided by the District Authority to the respective Districts Authority from whom funds were received.

Members of Legislative Assembly Local Area Development Fund (Mlalad)

Objectives :- With a view to increasing the participation of local people and their representatives in the planning process, which is one of the main objectives of the decentralized planning, the concept of Members of Legislative Assembly Local Area Development Fund "MLALAD Fund" has been introduced in the State of Orissa since 1997-98, similar to that of MPLAD Fund, introduced by Govt. of India in 1993. Under the Scheme funds to the tune of Rs.50.00 lakh per constituency will be provided in the State's plan budget every year, which may change depending on the resources position and other commitments of the State. The "MLALAD Fund" is intended to be utilized for small but essential Projects/Works based on the felt needs of the local public. It is also meant to be used for providing missing links to operationalise the non-operational plan assets for which funds cannot be provided under any other on-going programmes.

Special Problem Fund

Objectives:- The scheme of "Special Problem Fund" has been introduced in the State during the year 1997-98. The scheme aims at taking up small and essential projects of local importance involving special nature of problems in the absence of which the development process will remain incomplete.

Chapter -20

LESSONS LEARNT AND DOCUMENTATION

Our experiences have taught us that practice makes perfect and that it probably is unreasonable to expect everything to be orderly, same, and appropriate during disaster management. The best we can hope for probably is controlled. We do believe that we have generated an improved plan, that the plan is known, and that it is being revised continuously. We can no longer rely on our goodwill and good intentions to manage mass casualties in a disaster. There are too many factors that can reduce our ability to provide medical care in this situation.

- Hospital planning is essential. The hospital should be represented on the emergency preparedness committee so it is knowledgeable about the various plans throughout the city. Hospital staff must be kept current on the various plans to understand the communication, authority, responsibility, security, and medical control for each plan.
- Each plan must be practised to identify potential problems.
- The DM plan allows the personnel in these departments to review their responsibilities continually in a concise manner and allow practice of disaster preparedness without implementing an entire disaster drill.
- Time has come to shift the paradigm from response to disaster preparedness & capacity building to mitigate the impact of disasters.
- Involvement of community in the process of Disaster Risk Reduction is of utmost importance.

Good practices of last cyclone

- Early warning issued by IMD in advance helped in evacuation of most of the vulnerable population including fisher men resulting in minimal loss of life.
- Communication plan having list of officers with locations, HAM channel number, mobile, land-line numbers and wireless frequencies, was prepared and circulated to all supervisory officers for coordinated response after receipt of early warning. ii) HAM radios with operators were pre-positioned at strategic locations in affected areas (Cyclone shelters, relief camps, district, subdivision and block etc.) that assisted in communication for making preparations and thereafter in response and relief operation.
- The electronic media,whats App were used as a mode of communication by District Administration in forewarning communities before the cyclone struck/made landfall

Gap

- The early warning dissemination system was not in place to send communication directly to the communities by District Administration.
- NDRF personnel at some places did not carry requisite resources/tools and equipments with them and were dependent upon district authorities for the logistic support, putting further pressure on the districts.
- Many of Cyclone Shelters were in dilapidated condition and needed repair or renovation.
- After cyclone, majority of the crops like vegetables, mango, cashew, papaya, coconut etc. are prone to attacks of pest and diseases. No action was taken to protect the crops.
- The breaching of road embankments and bridge approaches at certain locations caused caving of roads. Cross drainage structures were also affected.

