

# CHAPTER-I

## Introduction

During the year 2017-18, the State of Odisha experienced multiple natural calamities like Flood, Heavy Rain, Drought, Pest Attack, Unseasonal Cyclonic Rain, Heat wave, Drowning, Snakebite Fire Accident, Lightning, Hailstorms and Whirlwind. Due to prompt and timely response of the State Government, the situation was overcome very successfully.

### (A) Profile of the State

Sl. No.	Name of the District	Total Land area (Sq. Km.)	Number of Villages (2011 Census)	Population (in '000)	Literacy Rate (in per cent)	Gross Cropped area (in '000 ha.)	Rivers	Normal Annual rainfall (mm)
1	2	3	4	5	6	7	8	9
1	Angul	6375	1871	1272	78.96	285.14	Brahmani, Mahanadi	1401.9
2	Balasore	3806	2932	2317	80.66	326.65	Subarnarekha, Budhabalang, Jalaka, Swarna	1592.0
3	Baragarh	5837	1206	1479	63.99	443.09	Mahanadi, Zira, Anga	1367.3
4	Bhadrak	2505	1312	1507	83.25	229.39	Baitarani, Salandi	1427.9
5	Balangir	6575	1783	1648	65.50	434.08	Hati, Suktel, Rahul	1289.8
6	Boudh	3098	1187	440	72.37	130.17	Mahanadi, Tel, Salanki, Bagh, Mehurni	1623.1
7	Cuttack	3932	1952	2619	84.20	309.73	Mahanadi, Devi, Kathajodi, Birupa, Kuakhai, Sidua, Luna,	1424.3
8	Deogarh	2940	878	312	73.07	94.74	Bramani	1582.5
9	Dhenkanal	4452	1208	1193	79.41	235.13	Bramani, Ramiyal	1428.8
10	Gajapati	4325	1612	576	54.29	131.66	Bansadhara	1403.3
11	Ganjam	8206	3195	3520	71.88	617.94	Rusikulya, Badanadi, Baghua, Dhanei, Loharakhandi,	1276.2

							Ghodahada, Kokalaba, Bahuda	
12	Jagatsinghpur	1668	1292	1137	87.13	70.97	Biluakhai, Paika, Mahanadi, Devi, Hansua.	1514.6
13	Jajpur	2899	1783	1826	80.44	258.60	Baitarani, Brahmani, Budha, Kharasrota, Birupa	1559.9
14	Jharsuguda	2081	351	579	78.36	81.87	Ib, Veden	1362.8
15	Kalahandi	7920	2253	1573	60.22	542.74	Hati, Indravati, Tel, Reta, Vamsadhara, Chandola, Utei.	1330.5
16	Kandhamal	8021	2587	732	65.12	163.34	Rahul, Salunki,	1427.9
17	Kendrapada	2644	1547	1440	85.93	254.26	Brahmani, Hansua, Kharasrota, Luna, Chitrotpala, Paika, Karandia	1556.0
18	Keonjhar	8303	2123	1803	69.00	371.67	Baitarani	1487.7
19	Khordha	2813	1534	2246	87.51	162.42	Kusabhadra, Bhargavi, Daya	1408.4
20	Koraput	8807	2042	1377	49.87	355.38	Kolab, Ultajharan, Champabati, Jhanjabati	1567.2
21	Malkanagiri	5791	1055	613	49.49	186.99	Saberi, Sileru, Guru, PriyaKalam, Taptadhara	1667.6
22	Mayurbhanj	10418	3950	2514	63.98	449.50	Kala, Budhabalang	1600.6
23	Nawaranghpur	5291	891	1219	48.20	261.60	Indravati, Tel, Vaskel	1569.5
24	Nayagarh	3890	1692	962	79.17	190.29	Mahanadi, Brutanga, Kaligiri, Kusumi, Malaguni, BudhaBudhari, Kuairia	1354.3
25	Nuapada	3852	668	606	58.20	269.72	Udanti, Jalka	1286.4
26	Puri	3479	1707	1698	85.37	259.04	Kadua, Dhanua,	1408.8

							Bhadua, Ratnachira, Malaguni, Devi, Daya, Kusabhadra, Bhargavi, Prachi, Luna	
27	Rayagada	7073	2665	962	50.88	234.77	Bansadhara, Nagabali	1285.9
28	Sambalpur	6657	1313	1044	76.91	249.11	Mahanadi	1495.7
29	Subarnapur	2337	962	652	74.42	217.75	Mahanadi, Tel	1418.5
30	Sundargarh	9712	1762	2081	74.13	349.86	Brahmani, Ib,	1422.4
<b>Total (State)</b>		<b>155707</b>	<b>51313</b>	<b>41947</b>	<b>73.45</b>	<b>8167.60</b>		<b>1451.2</b>

## (B) River Systems



**(B) Details of River Catchments**

Sl.No.	Name of the River Basin	Catchment Area (SqKm)		
		Total Area	Within Orissa	% to Geographical area of State
1	Mahanadi	141134	65628	42.15
2	Brahmani	39116	22516	14.46
3	Baitarani	14218	13482	8.66
4	Kolab	20427	10300	6.61
5	Rushikulya	8963	8963	5.76
6	Vansadhara	11377	8960	5.75
7	Indravati	41700	7400	4.75
8	Burhabalanga&Jambhira	6691	6354	4.08
9	Nagavali	9275	4500	2.89
10	Subernarekha	19277	2983	1.92
11	Bahuda	1118	890	0.57
Draining into Sea			3731	2.40
<b>Total</b>				<b>100.00</b>

**(D) Major Natural Calamities in the state**

The history of natural calamities for the state reveals that different types of calamities have their impact upon the state during a year, the major disasters being flood, cyclone and drought.

The table below indicates how the State has been seriously affected by such natural calamities in last 20 years.

Year	Calamity	Districts Affected
1997	Drought	16
1998	Drought, Heat wave	26
1999	Super Cyclone	14
2000	Drought	29
2001	Floods	24
2002	Drought	29
2003	Floods	23

2004	Floods	05
2005	Floods	15
2006	Floods	27
2007	Floods (July) (Aug & Sept)	12 15
2008	Floods (June & September )	21
2009	Flood & Heavy rain Drought / Pest Attack	17 18
2010	Flood & Heavy rain Drought Unseasonal Cyclonic Rain	06 17 24
2011	Drought Flood	21 21
2012	Drought Flood	4 5
2013	Very severe cyclonic storm `Phailin` / Flood	19
2014	Flood Very severe cyclonic storm `Hudhud`	27 15
2015	Drought Flood & Heavy Rain	27 14
2016	Drought Flood & Heavy Rain	4 6

**(E) List of Disasters approved by Government of India** (Refer-Guidelines for Constitution and Administration of the State Disaster Response Fund and National Disaster Response Fund)

1. Flood
2. Drought
3. Fire
4. Hailstorm
5. Cyclone
6. Earthquake
7. Tsunami
8. Landslide
9. Avalanche
10. Cloud Burst
11. Pest Attack
12. Cold Wave/ Frost

## **(F) State Specific Disasters**

In pursuance of item-13 of the Items & Norms of Assistance from State Disaster Response Fund and National Disaster Response Fund for the period 2015-2020 communicated vide Ministry of Home Affairs, Government of India Letter No.32-7/2014-NDM-I dated 8<sup>th</sup> April, 2015, the State Government has declared (Vide Notification No.1936/R&DM(DM) dated 1<sup>st</sup> June 2015) the following disasters as State Specific Disasters within local context in the State of Odisha for which expenditure on relief measures and immediate repair/restoration of damaged public infrastructure would be met from State Disaster Response Fund (SDRF) within the limit of ten percent (10%) of the annual allocation of the SDRF.

1. Lightning
2. Heat wave
3. Whirl wind
4. Tornado
5. Heavy rain
6. Boat accident (other than during flood)
7. Drowning (other than during flood)
8. Snakebite (other than during flood)

All relief measures on account of the above local disasters are undertaken as per the scale and norms of various items of relief under the Items & Norms of assistance from State Disaster Response Fund and National Disaster Response Fund laid down by the Ministry of Home Affairs, Government of India except that the ex-gratia for death due to heat wave (sun-stroke) is @ Rs.50,000/- (Rupee Fifty Thousand) only per deceased.

## CHAPTER- II

### Rainfall

#### Normal rainfall (Long Term Average):

The long term average rainfall in respect of different Blocks, Districts and the State for different months of year is fixed by IMD, Pune taking into account the rainfall data for preceding 30 years. Such long term average rainfall popularly called 'Normal Rainfall' has been last fixed during 2006 for different districts and the State as follows:

Sl. No.	District	Annual Normal Rainfall (in mm)	Sl. No.	District	Annual Normal Rainfall (in mm)
1	Angul	1401.9	17	Kendrapada	1556.0
2	Balasore	1592.0	18	Keonjhar	1487.7
3	Bargarh	1367.3	19	Khordha	1408.4
4	Bhadrak	1427.9	20	Koraput	1567.2
5	Balangir	1289.8	21	Malkanagiri	1667.6
6	Boudh	1623.1	22	Mayurbhanj	1600.6
7	Cuttack	1424.3	23	Nawarangpur	1569.5
8	Deogarh	1582.5	24	Nayagarh	1354.3
9	Dhenkanal	1428.8	25	Nuapara	1286.4
10	Gajapati	1403.3	26	Puri	1408.8
11	Ganjam	1276.2	27	Rayagada	1285.9
12	Jagatsinghpur	1514.6	28	Sambalpur	1495.7
13	Jajpur	1559.9	29	Subarnapur	1418.5
14	Jharsuguda	1362.8	30	Sundargarh	1422.4
15	Kalahandi	1330.5			
16	Kandhamal	1427.9		<b>State Average</b>	<b>1451.2</b>

#### District-wise rainfall for the year 2017

The district-wise monthly rainfall statistics from January to December, 2017 including percentage of deviation is indicated in the table below.

Sl. No.	DISTRICT	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY		
		Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.
1	Angul	8.4	12.6	-33.1	0.0	27.1	-100.0	22.4	24.3	-7.7	1.2	27.2	-95.5	35.8	52.9	-32.4	201.1	225.1	-10.7	213.4	347.7	-38.6
2	Balasore	0.0	14.7	-100.0	0.0	31.8	-100.0	105.3	34.4	206.1	18.5	62.2	-70.3	166.0	108.5	53.0	164.3	221.5	-25.8	318.0	308.6	3.0
3	Bargarh	7.0	12.5	-44.3	0.0	19.1	-100.0	11.8	22.0	-46.3	0.0	20.0	-100.0	16.8	25.6	-34.4	260.6	205.6	26.7	263.0	397.2	-33.8
4	Bhadrak	0.0	11.8	-100.0	0.0	29.6	-100.0	32.9	36.1	-8.9	7.0	51.2	-86.3	44.9	91.4	-50.9	169.2	198.2	-14.6	275.4	293.6	-6.2
5	Balangir	0.0	8.6	-100.0	0.0	13.2	-100.0	3.5	14.6	-75.7	1.3	13.4	-90.5	23.8	27.8	-14.3	182.8	202.8	-9.9	238.1	360.5	-34.0
6	Boudh	0.0	17.0	-100.0	0.0	26.8	-100.0	3.7	22.4	-83.3	0.0	16.5	-100.0	1.3	38.4	-96.5	322.6	233.8	38.0	282.0	418.5	-32.6
7	Cuttack	0.0	9.9	-100.0	0.0	28.6	-100.0	47.8	24.7	93.6	3.6	28.3	-87.2	16.7	71.5	-76.6	134.2	210.0	-36.1	382.5	308.3	24.1
8	Deogarh	0.3	14.1	-97.6	0.0	27.0	-100.0	44.1	20.6	114.2	0.3	21.3	-98.4	60.6	41.9	44.7	277.2	242.4	14.4	449.4	447.7	0.4
9	Dhenkanal	0.0	10.5	-100.0	0.0	21.9	-100.0	38.0	33.7	12.8	5.9	41.3	-85.7	74.3	69.6	6.7	126.4	225.7	-44.0	197.0	317.9	-38.0
10	Gajapati	0.0	8.1	-100.0	0.0	23.0	-100.0	81.4	41.3	97.2	24.0	65.2	-63.1	109.7	107.8	1.8	195.8	199.7	-1.9	345.9	230.6	50.0
11	Ganjam	0.0	9.4	-100.0	0.0	24.1	-100.0	49.3	32.6	51.2	31.0	36.6	-15.2	40.8	65.4	-37.6	212.7	168.3	26.4	296.8	220.8	34.4
12	Jagatsinghpur	0.0	14.5	-100.0	0.0	21.7	-100.0	42.8	35.5	20.4	0.3	25.4	-99.0	14.8	78.0	-81.1	123.5	202.3	-39.0	375.4	277.3	35.4
13	Jajpur	0.0	12.9	-100.0	0.0	25.1	-100.0	70.9	28.4	149.7	2.6	46.1	-94.5	86.7	93.7	-7.4	189.5	238.5	-20.6	227.5	350.9	-35.2
14	Jharsuguda	7.5	14.1	-46.8	0.0	22.9	-100.0	4.6	17.6	-73.6	1.0	15.1	-93.4	64.5	27.9	131.1	228.4	218.8	4.4	442.3	385.8	14.7
15	Kalahandi	0.0	10.3	-100.0	0.0	14.4	-100.0	15.5	23.7	-34.5	2.5	25.7	-90.4	16.5	41.8	-60.5	209.7	240.4	-12.8	511.9	327.7	56.2
16	Kandhamal	0.0	10.6	-100.0	0.0	29.7	-100.0	30.3	28.0	8.1	0.6	35.7	-98.3	62.7	67.8	-7.6	238.8	207.9	14.9	211.6	325.1	-34.9
17	Kendrapada	0.7	10.6	-93.7	0.0	30.2	-100.0	81.5	35.0	132.8	2.7	33.9	-92.1	30.5	94.2	-67.6	142.8	208.3	-31.4	343.2	317.1	8.2
18	Keonjhar	0.9	14.6	-93.7	0.0	33.8	-100.0	35.4	33.1	7.0	15.1	42.1	-64.1	117.5	94.8	23.9	162.0	241.4	-32.9	320.5	318.0	0.8
19	Khordha	0.7	12.4	-94.4	0.0	24.3	-100.0	52.7	22.1	138.5	10.3	28.0	-63.4	17.6	60.7	-71.0	164.9	196.2	-15.9	402.2	304.9	31.9
20	Koraput	0.2	5.7	-97.1	0.0	8.6	-100.0	10.7	18.3	-41.8	14.5	55.2	-73.8	76.8	81.9	-6.2	260.6	206.8	26.0	374.2	375.6	-0.4
21	Malkangiri	0.0	2.7	-100.0	0.0	4.1	-100.0	1.8	8.9	-80.1	6.6	34.8	-81.1	34.4	49.1	-30.0	334.5	212.2	57.7	454.2	465.7	-2.5
22	Mayurbhanj	2.7	10.3	-73.7	0.0	28.0	-100.0	44.9	40.2	11.6	23.4	52.5	-55.5	139.3	101.2	37.7	169.4	265.8	-36.3	385.3	337.3	14.2
23	Nawarangpur	0.1	6.7	-98.5	0.0	14.1	-100.0	14.3	15.1	-5.3	15.1	34.1	-55.6	57.5	66.1	-13.1	264.8	251.8	5.1	470.0	356.6	31.8
24	Nayagarh	0.3	11.7	-97.9	0.0	28.6	-100.0	59.6	30.0	98.5	8.4	39.9	-78.9	30.9	58.8	-47.5	132.9	203.5	-34.7	317.4	288.5	10.0
25	Nuapara	0.8	12.0	-93.3	0.0	14.6	-100.0	0.0	19.7	-100.0	0.0	21.8	-100.0	1.2	31.2	-96.2	237.2	210.3	12.8	171.4	347.1	-50.6
26	Puri	0.0	10.9	-100.0	0.0	25.4	-100.0	22.7	15.5	46.6	5.1	18.5	-72.5	6.5	62.1	-89.5	154.0	188.0	-18.1	331.2	292.0	13.4
27	Rayagada	3.9	9.6	-59.8	0.0	22.9	-100.0	46.3	38.0	21.8	5.1	52.7	-90.3	70.3	87.8	-19.9	221.2	195.3	13.3	363.6	259.5	40.1
28	Sambalpur	17.4	14.8	17.3	0.0	24.5	-100.0	12.2	18.2	-32.7	0.8	16.5	-95.2	33.4	32.3	3.4	276.4	221.0	25.1	391.6	429.5	-8.8
29	Subarnapur	0.0	12.5	-100.0	0.0	17.2	-100.0	2.5	15.7	-84.1	0.0	15.4	-100.0	7.5	29.3	-74.5	263.9	217.4	21.4	337.6	399.6	-15.5
30	Sundargarh	3.3	15.1	-78.0	0.0	24.9	-100.0	0.4	16.0	-97.4	0.4	16.0	-97.2	46.8	40.6	15.2	230.8	237.4	-2.8	499.2	386.4	29.2
<b>Total</b>		<b>54.1</b>			<b>0.0</b>			<b>989.4</b>			<b>207.2</b>			<b>1506.0</b>			<b>6252.3</b>			<b>10191.7</b>		
<b>State Average</b>		<b>1.8</b>	<b>11.4</b>	<b>-84.2</b>	<b>0.0</b>	<b>22.9</b>	<b>-100.0</b>	<b>33.0</b>	<b>25.5</b>	<b>29.3</b>	<b>6.9</b>	<b>33.1</b>	<b>-79.1</b>	<b>50.2</b>	<b>63.3</b>	<b>-20.7</b>	<b>208.4</b>	<b>216.5</b>	<b>-3.7</b>	<b>339.7</b>	<b>339.9</b>	<b>-0.1</b>

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Sl. No.	DISTRICT	AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			Annual		
		Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.
1	Angul	213.1	357.5	-40.4	143.7	217.5	-34.0	109.1	86.3	26.4	16.9	20.4	-17.2	0.0	3.3	-100.0	965.0	1401.9	-31.2
2	Balasore	276.5	332.1	-16.7	198.0	267.6	-26.0	251.6	170.5	47.6	47.2	34.6	36.4	5.1	5.5	-7.6	1550.4	1592.0	-2.6
3	Bargarh	244.8	374.4	-34.6	115.6	222.6	-48.1	63.3	52.8	19.8	1.1	10.4	-89.3	0.0	5.1	-100.0	983.9	1367.3	-28.0
4	Bhadrak	215.4	311.7	-30.9	120.9	216.8	-44.2	242.0	145.3	66.6	75.6	37.3	102.7	15.6	4.9	218.4	1198.9	1427.9	-16.0
5	Balangir	206.8	333.6	-38.0	137.2	237.4	-42.2	59.6	68.4	-12.8	0.9	7.2	-88.1	0.0	2.3	-100.0	854.0	1289.8	-33.8
6	Boudh	192.0	488.8	-60.7	202.2	244.8	-17.4	152.9	90.5	68.9	16.0	21.1	-24.2	0.0	4.4	-100.0	1172.8	1623.0	-27.7
7	Cuttack	301.2	339.1	-11.2	250.1	229.2	9.1	222.4	125.6	77.1	63.8	45.0	41.7	19.8	4.1	382.6	1442.1	1424.3	1.2
8	Deogarh	385.8	443.4	-13.0	224.9	228.2	-1.5	54.5	84.4	-35.4	12.5	8.0	56.7	0.0	3.5	-100.0	1509.8	1582.5	-4.6
9	Dhenkanal	241.9	344.8	-29.9	224.1	220.6	1.6	167.8	104.4	60.7	56.3	36.2	55.6	1.9	2.2	-14.2	1133.5	1428.8	-20.7
10	Gajapati	463.2	253.6	82.7	200.9	237.9	-15.6	195.5	168.6	15.9	70.7	61.8	14.4	0.0	5.7	-100.0	1687.2	1403.3	20.2
11	Ganjam	264.1	246.8	7.0	180.4	216.3	-16.6	209.3	177.7	17.8	76.2	71.1	7.2	2.2	7.1	-68.8	1362.8	1276.2	6.8
12	Jagatsinghpur	336.5	379.1	-11.2	200.0	241.4	-17.1	327.9	151.1	117.0	130.5	80.4	62.3	67.3	7.9	751.3	1618.8	1514.6	6.9
13	Jajpur	249.3	341.2	-26.9	135.7	238.0	-43.0	250.1	140.2	78.4	74.3	41.0	81.2	15.8	3.9	304.9	1302.2	1559.9	-16.5
14	Jharsuguda	300.8	382.9	-21.4	245.8	210.7	16.7	97.1	54.9	76.8	0.0	7.7	-100.0	0.0	4.4	-100.0	1392.1	1362.8	2.1
15	Kalahandi	342.7	355.4	-3.6	208.9	204.6	2.1	116.7	74.0	57.7	1.2	10.9	-89.3	0.0	1.6	-100.0	1425.4	1330.5	7.1
16	Kandhamal	242.0	330.8	-26.8	216.4	239.1	-9.5	195.4	117.7	66.0	33.8	31.0	8.9	0.0	4.5	-100.0	1231.6	1427.9	-13.7
17	Kendrapada	330.9	333.3	-0.7	148.0	237.3	-37.6	228.9	183.7	24.6	146.2	67.2	117.5	48.9	5.2	841.0	1504.3	1556.0	-3.3
18	Keonjhar	230.5	343.6	-32.9	161.2	241.1	-33.1	160.1	101.3	58.0	25.0	20.5	21.9	0.1	3.4	-97.3	1228.4	1487.7	-17.4
19	Khordha	313.3	320.6	-2.3	239.1	234.5	1.9	249.3	149.3	67.0	60.0	50.4	19.0	20.0	5.0	300.4	1530.1	1408.4	8.6
20	Koraput	398.2	393.6	1.2	175.3	256.3	-31.6	181.5	126.1	43.9	28.6	32.6	-12.4	0.0	6.5	-100.0	1520.5	1567.2	-3.0
21	Malkanagiri	493.8	472.8	4.5	219.5	281.2	-22.0	177.9	109.5	62.5	0.0	23.6	-100.0	0.0	3.0	-100.0	1722.7	1667.6	3.3
22	Mayurbhanj	291.0	359.9	-19.1	170.1	262.0	-35.1	189.1	114.1	65.7	34.8	21.6	61.1	1.8	7.3	-75.3	1451.8	1600.2	-9.3
23	Nawarangpur	448.3	407.5	10.0	152.0	225.6	-32.6	91.5	168.6	-45.8	2.0	18.7	-89.4	0.0	4.6	-100.0	1515.5	1569.5	-3.4
24	Nayagarh	254.8	288.2	-11.6	183.1	226.8	-19.3	181.7	134.5	35.1	49.5	39.0	26.8	1.2	4.8	-74.5	1219.7	1354.3	-9.9
25	Nuapara	265.5	327.8	-19.0	220.5	214.5	2.8	114.6	68.9	66.4	0.0	15.3	-100.0	0.0	3.2	-100.0	1011.3	1286.4	-21.4
26	Puri	314.4	297.9	5.5	198.1	243.2	-18.5	306.9	181.6	69.0	103.6	67.3	53.9	68.4	6.4	968.8	1510.9	1408.8	7.2
27	Rayagada	281.7	273.7	2.9	184.7	199.1	-7.2	178.7	109.7	62.9	26.1	32.9	-20.8	0.0	4.7	-100.0	1381.6	1285.9	7.4
28	Sambalpur	256.8	442.4	-42.0	201.6	224.7	-10.3	62.2	54.7	13.6	8.1	12.7	-36.0	0.0	4.4	-100.0	1260.5	1495.7	-15.7
29	Subarnapur	205.2	408.9	-49.8	168.8	228.0	-26.0	127.4	59.8	113.1	3.3	11.4	-71.1	0.0	3.3	-100.0	1116.1	1418.5	-21.3
30	Sundargarh	260.1	393.9	-34.0	183.4	211.5	-13.3	60.4	67.7	-10.7	3.3	8.7	-62.6	0.0	4.2	-100.0	1288.1	1422.4	-9.4
<b>Total</b>		<b>8820.6</b>			<b>5610.0</b>			<b>5025.2</b>			<b>1167.1</b>			<b>268.1</b>			<b>40091.7</b>		
<b>State Average</b>		<b>294.0</b>	<b>356.0</b>	<b>-17.4</b>	<b>187.0</b>	<b>231.9</b>	<b>-19.4</b>	<b>167.5</b>	<b>114.7</b>	<b>46.0</b>	<b>38.9</b>	<b>31.5</b>	<b>23.5</b>	<b>8.9</b>	<b>4.5</b>	<b>98.6</b>	<b>1336.4</b>	<b>1451.2</b>	<b>-7.9</b>

## Rainfall during Monsoon 2017 (1<sup>st</sup> June to 30<sup>th</sup> September)

The State experienced average deficit rainfall of 3.7 percent in June, 0.1 percent in July, 17.4 percent in August and 19.4 percent in September, 2017 compared to the long term average rainfall. The cumulative average rainfall statistics of the State from June to September, 2017 accounts for a deficit of 10.1 percent.

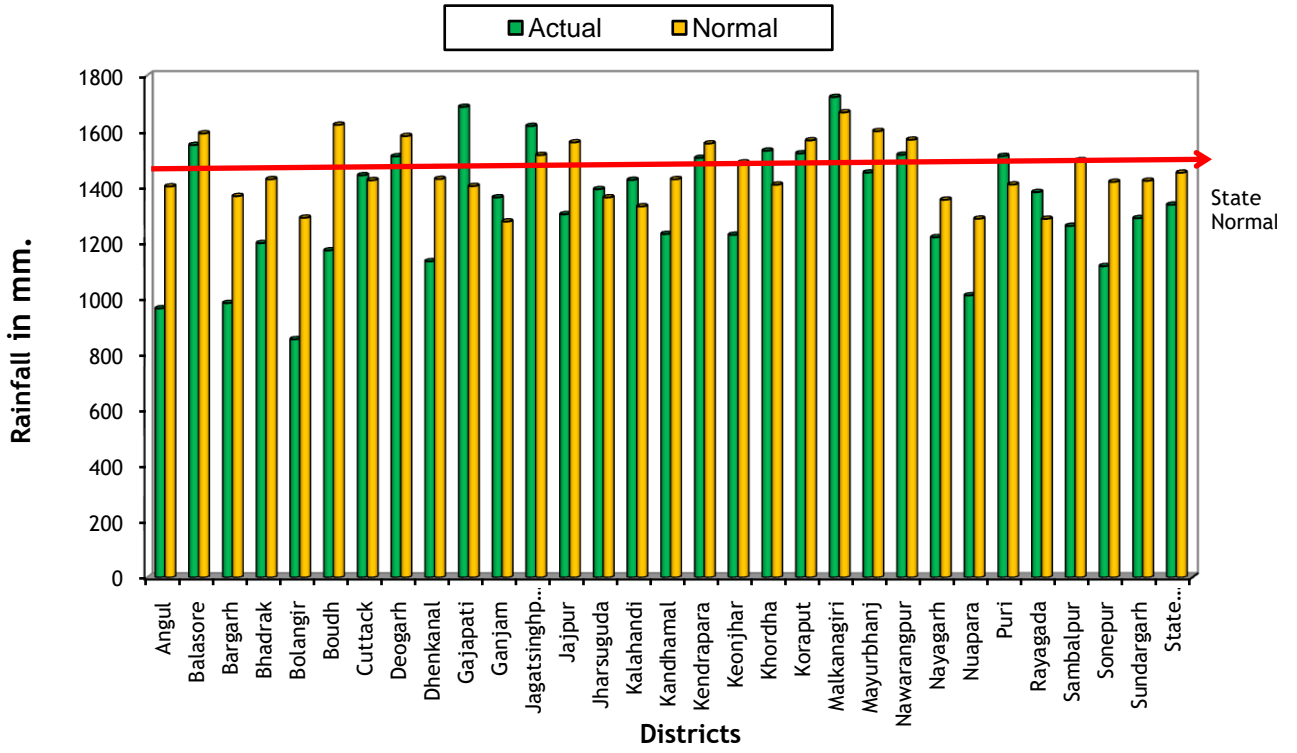
Month	Normal	Rainfall in MM	
		Actual	Deviation in %
June	216.5	208.4	-3.7
July	339.9	339.7	-0.1
August	356.0	294.0	-17.4
September	231.9	187.0	-19.4
<b>Total:</b>	<b>1144.3</b>	<b>1029.1</b>	<b>- 10.1</b>

Block-wise analysis of the cumulative rainfall from 1<sup>st</sup> June to 30<sup>th</sup> September 2017 indicates that out of 314 Blocks in the State, 45 Blocks received surplus rainfall (above 19%), 155 Blocks received normal rainfall (+19% to -19%), 87 Blocks received deficit rainfall (shortfall of >19% to 39%), 24 Blocks received severe deficit rainfall (shortfall of >39% to 59%) and 3 Blocks scanty rainfall (shortfall of >59%) category. Table below indicates district-wise position.

Sl. No.	District	No. of Blocks having Surplus Rainfall (above 19% )	No. of Blocks having Normal Rainfall (+19% to -19%)	No. of Blocks having Deficit Rainfall (shortfall of >19% up to 39%)	No. of Blocks having Severe Deficit Rainfall (shortfall of >39% up to 59%)	No. of Blocks having Scanty Rainfall (shortfall of >59% )
1	Angul			5	3	
2	Balasore		7	4	1	
3	Bargarh		4	6	2	
4	Bhadrak		4	1	2	

5	Balangir		4	6	3	1
6	Boudh			3		
7	Cuttack	2	7	3	1	
8	Deogarh		3			
9	Dhenkanal		2	4	1	1
10	Gajapati	6	2			
11	Ganjam	9	10	3		
12	Jagatsinghpur	1	4	3		
13	Jajpur		3	2	5	
14	Jharsuguda	2	3			
15	Kalahandi	5	6	2		
16	Kandhamal	1	5	5	1	
17	Kendrapada		7	2		
18	Keonjhar		5	6	1	1
19	Khordha	4	4	2		
20	Koraput	3	9	2		
21	Malkanagiri	2	4	1		
22	Mayurbhanj		13	12	1	
23	Nawarangpur	2	8			
24	Nayagarh		5	3		
25	Nuapara	1	2		2	
26	Puri	2	5	4		
27	Rayagada	4	7			
28	Sambalpur		6	3		
29	Subarnapur		3	2	1	
30	Sundargarh	1	13	3		
<b>No. of Blocks</b>		<b>45</b>	<b>155</b>	<b>87</b>	<b>24</b>	<b>3</b>
<b>No. of Districts</b>		<b>15</b>	<b>28</b>	<b>24</b>	<b>13</b>	<b>3</b>

**Fig.1.1. District-wise Rainfall for the year 2017**



**Fig.1.2. Month-wise Rainfall for the year 2017**

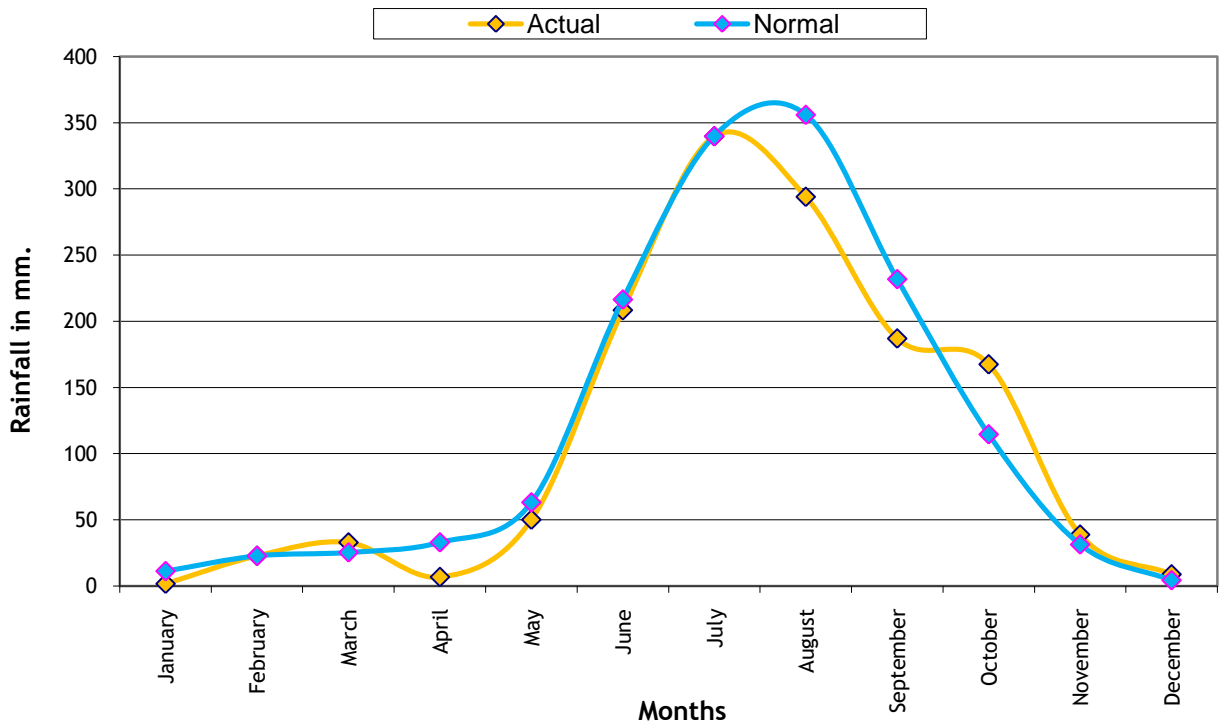
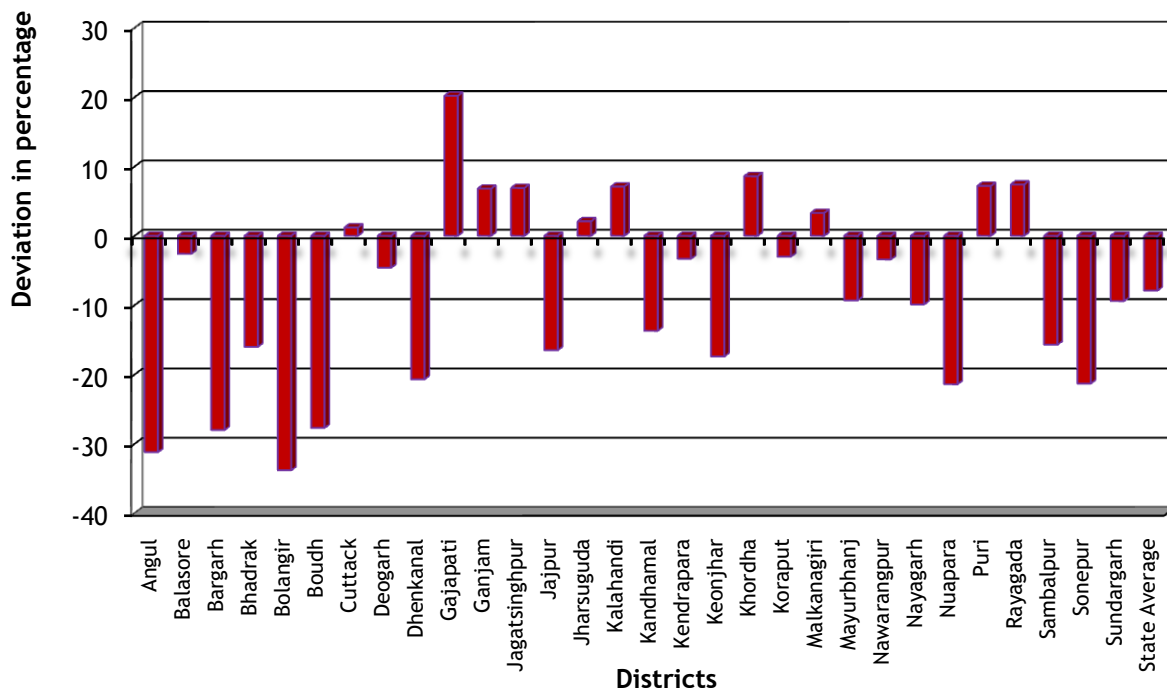


Fig.1.3. Rainfall Deviation of the Districts for the year 2017



## **CHAPTER – III**

### **Heavy Rain & Floods**

The State of Odisha experienced floods in two phases. The 1<sup>st</sup> phase flood covered the districts in southern Divisions in the 2<sup>nd</sup> week of July. The 2<sup>nd</sup> phase flood covered some districts of Central and Northern Division during last week of July.

#### **1st Phase Flood**

The flood in Rayagada, Kalahandi, Nabarangpur, Malkangiri and Koraput districts was due to heavy rainfall arising out of uninterrupted heavy down pour over the upper as well as in lower catchments of the rivers Nagavali, Kalyani, Hati, Indravati, Vansadhara and Saberi from 15<sup>th</sup> to 19<sup>th</sup> of July 2017.

Two scheduled tribe dominated Blocks namely Kalyansinghpur and Rayagada of Rayagada district were worst affected by flood in Rivers Nagavali and Kalyani. The unprecedented flood severely affected the lives and private as well as public properties. Normal life was out of gear and the communication systems were totally paralyzed. The ferocity of the disaster could be well imagined from the fact that two Railway Bridges (Railway Bridge near Kartikguda, and Railway Bridge between Therubali&Singapur RD stations) and three bridges on roads were completely washed away. At least, three villages of Kalyansingpur Block were completely washed away. The power supply infrastructure faced heavy destruction. The telecom lines including mobile connectivity were disrupted causing major problem in communicating with the people engaged in the relief and restoration.

Similarly, flood like situation occurred in Nawarangpur district due to rise of water level in river Indravati, Turi, Bhaskel and Bangeri& their branches after heavy precipitation from 17<sup>th</sup> to 19<sup>th</sup> of July 2017.

The districts of Kalahandi, Koraput and Malkangiri were also affected due to heavy rain and flood.

## River Map -Rayagada District



## IMPACT

Sl.	District	Blocks affected	Villages affected	ULBs affected	Population affected	Human casualty	House damage	Livestock causality
1	Rayagada	02	70		28000	0	1121	1316
2	Kalahandi	07	133		45200	2	3304	
3	Malkangiri	01	30		257	1	51	
4	Koraput	13	53		1135	0	247	
5	Nawarangpur	10	242	02	106919	0	413	
<b>Total</b>		<b>33</b>	<b>528</b>	<b>02</b>	<b>181511</b>	<b>3</b>	<b>5136</b>	<b>1316</b>

## Damage to Agriculture

Sl.	District	Crop Area Affected in Ha.	Area under Sand Cast in ha.
1	Rayagada	1159	934.51
2	Kalahandi	11992	1063.258
3	Nawarangpur	9205	110.66
<b>Total</b>		<b>22356</b>	<b>2108.428</b>

## **Relief & Rescue Operation:**

The State Government took immediate steps to manage the flood situation in these districts.

- **Evacuation**

As many as 7565 people were evacuated to safer places during this flood. Evacuated persons were kept in temporary shelters. They were provided with adequate quantity of dry food as well as cooked food through free kitchen at 53 centres.

- **Rescue Operation**

The flood situations became grim on 16<sup>th</sup>, 17<sup>th</sup> & 18<sup>th</sup> of July 2017. Many villages became marooned. Two teams of National Disaster Response Force stationed in Odisha, 5 teams of ODRAF, one platoon of CRPF and Fire Service Personnel were engaged for search and rescue operations of people trapped in the flood.

- **Emergent Relief**

Emergent food assistance for seven days was given to affected people in Kalyansinghpur and Rayagada blocks. Emergent relief distributed to the affected people in the flood affected villages include 988.7 Qtls. of rice, 104.3 Qtls. of Chuda (flattened rice) and 17.6 Qtls. of Guda (Juggery). In addition to that, the dry foods, candles, matchboxes, kerosene and other materials were also distributed.

- **Air Dropping**

The helicopters of Indian Air Force were requisitioned in order to facilitate the dropping of food packets in the marooned areas for the flood victims. But the IAF helicopters could not take off from Jagdalpur base due to heavy rainfall and bad weather there.

Two Indian Navy helicopters were deployed for airdropping of food packets for the marooned people in the cut off areas. The choppers during its operation airdropped about 1800 food packets in four sorties.



The Dronier Aircraft of the Coast Guard was deployed for surveillance in the inaccessible areas. The Aircraft also airdropped some food packets in the said areas.

- **Closure of Schools**

Schools were closed in the flood affected areas of Rayagada and Kalahandi districts for three days. The schools in these areas were used for relief camps and free kitchen centres.

- **Health and Sanitation Measures**

In addition to the stock of medicines in the districts headquarters stored prior to the floods, essential drugs like halogen tablets, antibiotics, paracetamol tablets, antacids, snake bite injections, bleaching powders and ORS packets were rushed to District Headquarter hospitals. 14 Medical teams were deployed in flood-affected districts.

Medical Relief Centers opened	:	26
Mobile Team Deployed	:	14
ORS packet distributed	:	31985
Halogen tablets distributed	:	41725

- **Animal Care**

Due to flood, the entire livestock and poultry population of Kalyansinghpur and Rayagada Blocks were severely affected. As per the preliminary estimation, 39,411 livestock were affected. 13.5 MT cattle feed were despatched to Rayagada district. As many as 15 veterinary camps were opened and 8 Rapid Response Teams were formed in Rayagada and Kalahandi districts for cattle care.

Cattle feed arranged for distribution	:	13.5 MT
Animal vaccinated	:	15,707
Animals treated	:	12,382
Veterinary Team deployed	:	15

- **Drinking Water**

Piped water supply sources in Rayagada and Kalahandi were submerged under flood water. The pumps and pipes were filled with sand in some places

causing severe damage to the water supply system. However, efforts were made to restore the system. Pending restoration, water was supplied through tankers. Mobile vans were deployed for disinfections and repair of tube wells.

Water pouches distributed	:	49,330
Water tanker deployed	:	04
Tube wells disinfected	:	1476
Open Wells disinfected	:	122
Bleaching powder bag distributed	:	190
Tube Wells Repaired	:	194

The Government took immediate steps for early restoration of communication, power supply, supply of drinking water. Besides, health measures for both human and cattle were strengthened in the affected areas to avoid any epidemic.

### **Damage to Public Utilities**

Massive and unprecedented damage was caused to public properties such as canal/ river embankments, roads, bridges, culverts, drains, water works, tube wells, LI points, electrical installations, telecommunications infrastructure, Government buildings etc.

### **Works Dept.**

#### **• PWD Roads**

<b>Sl.</b>	<b>District</b>	<b>No. of Road Damaged</b>	<b>No. of Breaches</b>	<b>Length of Road Damaged in KM</b>	<b>No. of CD damaged</b>	<b>No. of CDs Washed Away</b>
1	Rayagada	15	2	39.9	17	0
2	Kalahandi	51	28	394.17	77	4
3	Nawarangpur	17	0	56.86	6	0
4	Koraput	31	0	106.095	59	0
5	Malkangiri	2	1	0.100	1	1
	<b>Total</b>	<b>116</b>	<b>31</b>	<b>597.125</b>	<b>160</b>	<b>5</b>

## Rural Development Department

### • Rural Roads

Sl.	District	Length of Road damaged in KM	No. of Breaches	No. of CD damaged	No. of CDs washed Away
1	Rayagada	10.650	15	13	7
2	Kalahandi	83.065	45	45	0
3	Nawarangpur	34.285	7	4	0
4	Koraput	0.320	4	4	0
	<b>Total</b>	<b>128.320</b>	<b>71</b>	<b>66</b>	<b>7</b>

### • Rural Buildings

Sl.	District	No. of Non – Res Buildings Damaged	No. of Res Buildings Damaged
1	Rayagada	7	2
2	Kalahandi	70	42
3	Nawarangpur	8	1
	<b>Total</b>	<b>85</b>	<b>45</b>

## Pachayati Raj & Drinking Water Department

### • GP/ PS Roads/ Buildings

District	Public Utilities	No. of public utilities	Loss (Rs. In lakh)
Kalahandi	Damage caused to Roads	780 Nos. & 354.05 km	1373.70
	Damage to culverts & bridges	20.835 Km	559.50
	Damaged to Panchayat buildings	16 Nos.	68.00
Rayagada	Damage to Road/ CD/ Bridges/ Embankment	24 CDs & 31.95 km	442.60
	Other Infrastructure	171 nos.	477.50
Nawarangpur	Damage to Road/ CD/ Bridges/ Embankment		1766.20
	Other Infrastructure		203.20
	<b>Total</b>		<b>4890.70</b>

- **Pipe Water Supply System**

Sl.	District	Block	No. of PWS Damaged
1	Kalahandi	Bhwanipatna	4
		Junagarh	1
		Kesinga	1
		Narla	2
		Th.Rampur	7
2	Rayagada	K.Singhpur	2
	<b>TOTAL</b>		<b>17</b>

### Water Resource Department

- **Damage to Canal & River Embankments**

Sl.	District	Type of Embankment	Length damaged in KM	No. of Breaches	No. of CDs damaged	No. of CDs washed away
1	Kalahandi	River/ canal Embkt. partial damage	1.207	0	0	0
2	Nawarangpur	River. Embkt partial damage / canal breach	0.544	18	0	0
3	Malkangiri	canalEmbkt. partial damage / breach	0.395	3	0	0
4	Rayagada	River Embkt. Breach / partial damage	2.760	19	0	0
	<b>Total</b>		<b>4.906</b>	<b>40</b>	<b>0</b>	<b>0</b>

- **Damage to Minor Irrigation Projects**

Sl.	District	Type of Embankment	Length damaged in KM	No. of Breaches	No. of CDs damaged	No. of CDs washed away
1	Kalahandi	MIPs/Check Dams	10.524	294	13	1
2	Nawarangpur	MIPs/Check Dams	0.396	22	8	0
3	Rayagada	MIPs/Check Dams	2.255	19	2	0
	<b>Total</b>		<b>13.175</b>	<b>335</b>	<b>23</b>	<b>1</b>

- **Damage to Lift Irrigation Points**

372 Lift Irrigation Points of Kalahandi Districts were damaged due to flood water.

**SC &ST Development Department**

SI	District	No. of Utility
Rayagada	Education/ Residential Institute under SSD/ Drainage/ Water supply/ boundary wall/ roads/ culvert/ roof etc.	56
Kalahandi	Education/ Residential Institute under SSD/ Drainage/ Water supply/ boundary wall/ roads/ culvert/ roof etc.	40
	<b>Total</b>	<b>96</b>

**Energy Department**

Sl.	District	Type of Infrastructure	Nos.
1	Kalahandi	11KV in KM	46.8
		11KV DTR	25
		LT IN KM	26
2	Nuapada	33kv in km	0.9
		11kvin km	8.4
		LT in km	3.3
3	Rayagada	33kv in km	0.21
		11kv inn km	26.93
		11/0.4kv dtr	7
		LT LINE IN KM	11.24
4	Nabarangpur	Line, Substation & Transformer	25
5	Koraput	11 kv line	4.2KM

**Fisheries & ARD Department**

28 nos. of fishing net and 7 nos. of boat were damaged in Kalahandi district

Damages to infrastructure of other Departments were also damaged as follows:

## Forest & Environment Department

Sl.	Name of the Forest Division	Nature/Extent of Damage
1	Jeypore	Compound wall of Res. Building of DFO
2	Malkangiri	Compound wall of Range office, Balimela
		Safety Tank of Range office, Balimela
		Roof damaged in WFP Godown
3	Rayagada	Forest Guard quarters at K.singhpur
		Damage of fencing 350 mtrs at K.singhpur
		Deposit of sand over 3Acres in the nursery at K.singhpur
4	Kalahandi South	Wall damage, Range office building at Th.Rampur
		Compound wall, Old Range office
		Damage to 10000 nos. nursery plantation
5	Kalahandi North	Forest Road (Mohangiri-Urladani), M. Rampur

## Women & Child Development Department

Sl. No	District	No. of AWCs damaged
1	Kalahandi	74
2	Rayagada	09
	<b>Total</b>	<b>83</b>

## School & Mass Education Department

84 Primary and Upper Primary Schools and 38 High Schools have been damaged due to floods in Rayagada&Kalahandi districts.

### Total Loss

Basing on reports received from different departments, the total financial loss caused by these floods comes to the tune of **Rs. 218.72 crore.**

## 2<sup>nd</sup> Phase Floods

Before normalcy was restored in the flood affected southern districts, due to heavy rainfall in North Odisha and adjoining States, eight districts namely Jajpur, Balasore, Sundergarh, Bhadrak, Angul, Kendrapara, Dhenkanal and Deogarh were affected by flood in River Baitarani, Subarnarekha and Brahmani along with their tributaries and distributaries in the third week of July.

## Impacts

Sl.	District	Blocks affected	Villages affected	ULBs affected	Wards affected	Population affected	Human casualty	Crop Area affected (ha.)	Houses damaged
1	Jajpur	9	156			135794	4	28766	170
2	Balasore	3	150			159783		2565	53
3	Sundargarh	3	22			3559			52
4	Bhadrak	2	106	1	15	35611	2	8208	10
5	Angul	1	18			4000			
6	Kendrapara	4	107	1	11	175537		11992	3
7	Dhenkanal	4	5						
8	Deogarh	3	42	1	2	385		0	77
<b>Total</b>		<b>29</b>	<b>606</b>	<b>3</b>	<b>28</b>	<b>514669</b>	<b>6</b>	<b>51531</b>	<b>365</b>

### Area under sand cast – 0.86 ha. in Sundargarh district

#### Relief & Rescue Operation:

- **Evacuation**

As many as 3708 people were evacuated to safer places during this flood. Evacuated persons were kept in temporary shelters. They were provided with adequate quantity of dry food as well as cooked food through free kitchen at 56 centers.

- **Rescue Operation**

ODRAF and Fire Service Personnel were engaged for search and rescue operations in the flood.

- **Administration of Relief**

Jajpur District:

- Free kitchen provided to 17662 people
- Chuda 194.5 Qtls. and Gurh 19.34 Qtls.
- Cattle feed- 125 MT distributed by the District Administration

Balasore District:

- Free kitchen provided to 130 people
- Rice 1230.33 Qtls. and Chuda 2 Qtls. at Bhograi Block covering 46137 adults and 30752 children

- Rice 1099.17 Qtls. at Baliapal Block covering 45263 adults and 19391 children
- Cattle feed 50 MT distributed

Sundargarh District:

- Free kitchen provided to 20 people at village Jaanla
- 02 free kitchen centres opened at Rourkela Municipality on 27.07.2017
- Dry food in shape of Chuda and Gur and other relief materials like matchbox, candle and polythene provided to affected people.

Bhadrak District:

- 50 persons evacuated and accommodated in the relief camp.

Kendrapada District:

- Emergent relief for 3 days provided
- Rice- 3283.035 Qtls. distributed
- Cattle feed 100 MT distributed

Angul District:

- Dry foods supplied

## **Health & Sanitation Measures**

Jajpur District:

- 24 medical relief centres opened and 08 number of medical teams deployed
- 4770 ORS packets and 47738 halogen tablets distributed
- 2529 minor aliment treatment done
- 1700 wells disinfected

Balasore District:

- 07 medical relief centres opened
- 106 ORS packets and 6600 halogen tablets distributed
- 115 minor aliment treatment done

Kendrapada District:

- 14 medical relief centres opened
- 04 Medical teams deployed
- 4552 ORS packets and 87854 halogen tablets distributed.
- 1984 minor aliment treatment done
- 989 numbers of wells disinfected
- 40000 water pouches distributed and 3 water tankers used
- 21 bags (25 Kg. each) used



Bhadrak District:

- 06 medical relief centres opened
- 330 ORS packets and 20000 halogen tablets distributed
- 460 minor aliment treatment done

### Animal Health Care

Jajpur District:

- 99 animal camps opened
- 17 Veterinary doctors and 20 Para Veterinary staffs deployed
- 17750 number of vaccination done
- 8003 animals treated

Balasore District:

- 51 number of animal camps opened
- 04 Veterinary doctors and 17 Para veterinary staffs engaged
- 21450 number of vaccination done
- 4949 animals treated

Kendrapada District:

- 17 animal camps organised
- 04 Veterinary doctors and 12 Para Veterinary staffs deployed
- 1400 number of vaccination done
- 1309 number of animals treated

Bhadrak District:

- 24 number of animal camps organised
- 05 Veterinary doctors and 13 Para veterinary staffs engaged
- 3250 number of vaccination done
- 821 animals treated

### Damage to Public Properties

Sl.	District	No. of Public Utilities Damaged								Total
		WR	RD	Works (R&B)	PR & DW	H & UD	S & ME	H & FW	F& ARD	
1	Jajpur	2	24	6	571				98	<b>701</b>
2	Balasore	53	44	22						<b>119</b>
3	Sundargarh	4	24	10	115	33				<b>186</b>
4	Bhadrak	144	14		248				3	<b>409</b>
5	Kendrapara			14	442	26	1			<b>483</b>
6	Deogarh	81								<b>81</b>
<b>Total</b>		<b>284</b>	<b>106</b>	<b>52</b>	<b>1376</b>	<b>59</b>	<b>1</b>		<b>101</b>	<b>1979</b>

### Damage to Public Properties (loss in Rs. in lakh)

Sl.	District	WR	RD	Works (R&B)	PR & DW	H&UD	S & ME	H & FW	F & ARD	Total Loss (Rs. in lakh)
1	Jajpur	1840.94	286.00	40.00	808.21	-	-	-	21.62	2996.77
2	Balasore	2985.00	594.45	351.00	-	-	-	-	-	3930.45
3	Sundargarh	19.30	130.30	151.50	477.00	372.00	-	-	-	1150.10
4	Bhadrak	947.97	621.00	-	909.27	-	-	-	3.5	2481.74
5	Kendrapara	-	-	355.00	489.30	100.37	0.50	14.50	-	959.67
6	Deogarh	17.74	-	-	-	-	-	-	-	17.74
<b>Total</b>		<b>5810.95</b>	<b>1631.75</b>	<b>897.5</b>	<b>2683.78</b>	<b>472.37</b>	<b>0.5</b>	<b>14.5</b>	<b>25.12</b>	<b>11536.47</b>

### Floods in August 2017

Flash floods occurred in Nawarangpur District during 27<sup>th</sup> to 29<sup>th</sup> August 2017 due to heavy rainfall. 86 villages were affected. 109 private houses were damaged due to this flood. Public properties amounting to Rs.917.50 lakh were damaged.

### Damage to Public Properties

Sl.No.	Name of the Deptt.	Damaged/Washed out	In No.s	Total Loss (In Lakhs)
1	Rural Works Division, Nabarangpur	PMGSY	11	219
		Roads	3	57
	Sub-total		14	276.00
2	R&B Division, Nabarangpur	Roads	9	280
		Sub-Total		9
3	PR & DW Deptt.			
i	Kosagumuda Block	Roads	26	117
		Godown	1	5
	Sub-total		27	122.00
ii	Tentulikhunti Block	Culvert & its approaches	3	11
		Road & guard wall	3	22
		Bridge with & guard wall	1	10
	Sub-total		7	43.00

iii	Nabarangpur Block	Culvert & morrum road	3	33.00
		Roads (earthen, morrum & metal)	4	41.00
	Sub-total		7	74.00
iv	Nandahandi Block	Approach roads	25	116.5
		Residential quarters	6	6.00
	Sub-total		31	122.50
Grand total		95	917.50	

### Release of Funds out of SDRF:

Funds out of State Disaster Response Fund (SDRF) were released to Districts towards House Building Assistance, Assistance for Clothing & Utensils, De-silting of Agriculture Land (Sand Cast Assistance), Replacement of livestock & animals, Assistance for Affected Rural artisans under handicraft sectors.

### Release of Funds to Collectors for Flood 2017 (in Rs.)

Sl.	District	HBA	Clothing	Utensils	Sand Cast	Repair of Boat & Net	GR in Kind
1	Rayagada	5,45,11,800	7,27,200	8,08,000	1,14,01,022	-	234683
2	Koraput	8,00,000	-	-	-	-	-
3	Malkangiri	5,00,000	7,200	8,000	-	-	-
4	Kalahandi	2,15,00,000	2,01,600	2,24,000	1,29,71,747	1,40,000	1028940
5	Nawarangpur	17,00,000	7,200	8,000	9,33,788	-	-
6	Balasore	2,68,300	-	-	-	-	6891047
7	Bhadrak	32,000	-	-	-	-	-
8	Sundargarh	5,60,700	5,400	6,000	10,490	-	105535
9	Deogarh	2,46,400	-	-	-	-	-
10	Kendrapara	2,85,300	5,400	6,000	-	-	-
11	Jajpur	-	-	-	-	-	1939210
	<b>Total</b>	<b>8,04,04,500</b>	<b>9,54,000</b>	<b>10,60,000</b>	<b>2,53,17,047</b>	<b>1,40,000</b>	<b>1,01,99,415</b>

Sl.	District	TC	OC	Green Fodder	Replacement of animals	Artisan & Handicraft	Repair of Primary School Building
1	Rayagada	-	-	-	1025000	746200	3584764
2	Jajpur	215866	11700	32000	-	-	-
	<b>Total</b>	<b>215866</b>	<b>11700</b>	<b>32000</b>	<b>1025000</b>	<b>746200</b>	<b>3584764</b>

Similarly, Funds were released to different departments towards immediate repair of public utilities damaged due to floods.

**Funds Released to Department towards immediate repair/restoration of Public Utilities.**

Sl. No.	Department	Purpose	Amount (Rs. in lakh.)
1	Water Resources	Repair of river/canal embankments	2.94
		Repair of MIPs	336.70
2	Women & Child Development	Repair of AWC buildings	19.00
3	Panchayati Raj & Drinking Water	Repair of Pipe Water Supply Projects	20.50
		Repair of GP/PS roads in Rayagada, Kalahandi, Nabarangpur&Balasore districts.	1453.96
4	Energy	Repair/ restoration of power supply	120.37
5	Works	Repair/Restoration of damaged roads	1229.36
6	Rural Development	Repair of rural roads in Rayagada,Kalahandi,Nabarangpur&Koraput districts.	249.19
<b>TOTAL</b>			<b>3432.02</b>

**Human Casualty, 2017  
(Flood/Drowning/Wall Collapse/Land Slide)**

Sl	District	Human Casualty	Cause of Death
1	Kalahandi	2	Land Slide / Flood
3	Malkangiri	1	Wall Collapse
4	Bhadrak	2	Drowning

5	Jajpur	4	Flood
6	Koraput	1	Boundary Wall Collapse
7	Puri	1	Wall Collapse

## Heavy Rain in October, 2017

Due to the impact of heavy rainfall due to depression over Bay of Bengal, 25 blocks of 8 districts namely, Balasore, Jagatsinghpur, Jajpur, Khordha, Mayurbhanj, Nayagarh, Puri and Rayagada received heavy rain on 20.10.2017. The list of Blocks along with amount of rainfall occurred is mentioned below.

### Occurrence of Heavy Rain

Sl.	District	Block	Rainfall in MM (20.10.2017)
1	Balasore	Balasore	182.0
		Remuna	172.0
		Nilagiri	138.4
		Soro	146.0
		Simulia	138.0
2	Jagatsinghpur	Tirtol	200.0
		Ersama	190.0
3	Jajpur	Jajpur	152.0
		Dasrathpur	162.0
		Barachana	153.0
4	Khordha	Banapur	143.0
		Bolagarh	135.0
		Chilika	207.0
		Tangi	180.0
5	Mayurbhanj	Khunta	217.2
		G.B.Nagar	217.2
6	Nayagarh	Ranpur	140.4
7	Puri	Brahmagiri	167.0
		Delanga	167.0
		Gop	187.3
		Kakatpur	138.3

		Kanas	274.0
		Pipili	170.0
		Puri	161.0
8	Rayagada	Chandrapur	150.0

### No. of Houses Damaged due to Heavy Rain on 20.10.2017

Sl. No.	District	Fully Damage		Severely Damage		Partially Damage	Hut	Cow Shed	Total
		Pucca	Kutcha	Pucca	Kutcha				
1	Balasore	-	5	-	33	386	11	12	447
2	Jagatsinghpur	-	-	-	-	-	-	-	-
3	Jajpur	-	-	-	-	107	11	13	131
4	Puri	-	3	-	25	300	6	32	366
5	Khordha	-	-	-	-	511	2	12	528
6	Mayurbhanj	-	-	-	-	84	17	10	111
7	Nayagarh	-	-	-	-	439	-	-	439
8	Rayagada	-	-	-	-	-	-	-	-
<b>TOTAL</b>		-	<b>8</b>	<b>3</b>	<b>58</b>	<b>1316</b>	<b>45</b>	<b>67</b>	<b>1494</b>

### Release of Funds out of SDRF (in Rs.) towards HBA for Heavy Rain

Sl.	District	Date of Occurrence of Heavy Rain	No. of Houses Damaged	HBA	Clothing	Utensils
1	Balasore	20.10.2017	447	49,19,300	9000	10000
2	Jajpur	20.10.2017	131	4,14,800		
3	Mayurbhanj	20.10.2017	111	3,59,500		
4	Nayagarh	20.10.2017	439	14,04,800	30600	34000
5	Puri	20.10.2017	366	37,14,600	5400	6000
6	Khordha	20.10.2017	528	16,84,200		
7	Nawarangpur	27 to 29 Sept 2017	109	4,47,500	1800	2000
	<b>Total</b>		<b>2131</b>	<b>1,29,44,700</b>	<b>46,800</b>	<b>52,000</b>

## Un-seasonal Rain due to Cyclonic Depression (October, November & December 2017)

Due to effect of cyclonic depression in the Bay of Bengal, heavy rain lashed over many parts of Odisha during November & December, 2017. This untimely rain caused extensive damage to the standing paddy crops and non-paddy crops like vegetables, pulses, oil seeds & maize.

### October, 2017

An area of 723.61 hectare in 79 villages under 16 GPs of Brahmagiri Block of Puri district were damaged to the extent of 33% and above due to un-seasonal rain in 10th October 2017.

### November, 2017

An area of 393760.191hectares of crop area in 14941 villages 133 Blocks and 259 wards under 39 ULBs of 19 Districts were damaged to the extent of 33% and above due to un-seasonal rain in November 2017.

The district wise area of crop loss is given below.

### Damage to Crops due to Un-seasonal Cyclonic Rain during November-2017

Sl. No.	District	No. of affected Blocks	No. of affected GPs	No. of affected Villages	No. of affected ULBs	No. of affected Wards	Sown area damaged to the extent of 33% and above ( inHect.)		
							Rainfed	Irrigated	Total
1	2	3	4	5	6	7	8	9	10
1	Balasore	4	6	12	0	0	21.69	19.60	41.29
2	Bhadrak	7	203	1148	4	50	20079.49	10904.22	30983.71
3	Boudh	2	26	336	0	0	785.80	955.00	1740.80
4	Cuttack	5	131	627	1	5	7307.86	476.74	7784.60
5	Dhenkanal	1	6	8	0	0	43.27	0.00	43.27
6	Gajapati	5	84	520	2	15	1258.35	538.84	1797.19
7	Ganjam	22	488	2853	15	72	28785.17	68448.01	97233.18
8	Jagatsinghpur	5	121	742	0	0	3074.00	2787.70	5861.70
9	Jajpur	8	210	1034	2	23	42609.62	9483.00	52092.62
10	Kandhamal	4	34	195	1	2	282.17	29.51	311.68
11	Kendrapara	4	124	731	1	17	67195.18	9150.00	76345.18
12	Keonjhar	9	112	634	0	0	3276.11	920.34	4196.45
13	Khordha	10	172	1268	4	18	36131.57	5697.70	41829.27
14	Koraput	2	13	35	0	0	88.04	45.73	133.77
15	Mayurbhanj	17	276	1983	1	2	6229.956	834.945	7064.901

16	Nawarangpur	1	3	4	0	0	3.64	0.00	3.64
17	Nayagarh	8	157	994	2	21	19976.28	4816.30	24792.58
18	Puri	11	249	1437	3	27	24489.66	15462.82	39952.48
19	Rayagada	8	78	381	3	7	811.08	740.80	1551.88
<b>TOTAL</b>		<b>133</b>	<b>2493</b>	<b>14941</b>	<b>39</b>	<b>259</b>	<b>262448.936</b>	<b>131311.255</b>	<b>393760.191</b>

### Unseasonal Rain in December

Similarly, due to effect of heavy rainfall on the impact of Cyclonic Depression over Bay of Bengal during 9<sup>th</sup>& 10<sup>th</sup> December 2017, an area of 10854.74 hectares in 850 Villages under 155 Gram Panchayats of 9 Blocks sustained crop loss of 33% and above in 3 districts namely Jagatsinghpur, Jajpur and Puri.

Sl. No.	District	No. of affected Blocks	No. of affected GPs	No. of affected Villages	Sown area damaged between 33% and above		
					Rainfed	Irrigated	Total
1	2	3	4	5	6	7	8
1	Jagatsinghpur	3	69	498	3248.00	2188.00	5436.00
2	Jajpur	2	34	134	1844.00	305.00	2149.00
3	Puri	4	52	218	2575.74	694.00	3269.74
<b>Total</b>		<b>9</b>	<b>155</b>	<b>850</b>	<b>7667.74</b>	<b>3187.00</b>	<b>10854.74</b>

In order to ameliorate the sufferings of affected farmers, Agriculture Input Subsidy as per SDRF norms was provided to the affected farmers who sustained crop loss of 33% and above & Rs.6,800/- per hectare for rainfed areas and Rs.13,500/- per hectare for irrigated areas.

Rs.374.74 crore out of SDRF was placed with the Collectors of the affected districts for payment of Agriculture Input Subsidy to affected farmers who sustained crop loss of 33% and above. Out of this allotment, Rs.116.79 crore has been surrendered by Collectors. As such, out of Rs.257.96 crore with the Collectors, an amount of 237.79 crore was disbursed to 9,19,898 farmers. The district wise area of crop loss due to unseasonal rain and disbursement of Agriculture Input Subsidy is as mentioned below.



Sl. No.	District	Funds placed (Rs.)	Funds surrendered by District (Rs)	Funds with District after surrender (Rs)	Amount disbursed	No. of
1	2	3	4	5	6	7
1	Balasore	412000		412000	407935	202
2	Bhadrak	283748000	108255400	175492600	126773549	57650
3	Boudh	18236000		18236000	12437172	5474
4	Cuttack	56130000	3534677	52595323	52595323	26884
5	Dhenkanal	294000		294000	294000	154
6	Gajapati	15831000	5181951	10649049	10649049	6176
7	Ganjam	1119787000	349871800	769915200	767468987	261328
8	Jagatsinghpur	110161400	55720321	54441079	53973037	33708
9	Jajpur	434421200	153764800	280656400	281159137	90893
10	Kandhamal	2317000	248800	2068200	2068205	1338
11	Kendrapara	580452000	183537889	396914111	387631028	111110
12	Keonjhar	34702000		34702000	28011885	21721
13	Khordha	322614000	65329500	257284500	253109154	100914
14	Koraput	1216000	520978	695022	695022	361
15	Mayurbhanj	149254000	103669723	45584277	45584277	26787
16	Nawarangpur	25000	200	24800	24780	6
17	Nayagarh	200859000	31383000	169476000	141335605	90293
18	Puri	402162000	106884000	295278000	198919128	81655
19	Rayagada	14832972		14832972	14796940	3244
<b>TOTAL</b>		<b>3747454572</b>	<b>1167903039</b>	<b>2579551533</b>	<b>2377934213</b>	<b>919898</b>

## CHAPTER – IV

### Drought

The South West Monsoon, which usually sets in around 10<sup>th</sup> of June, touched some parts of coastal Odisha on 12<sup>th</sup> June 2017 and covered the entire State on 17<sup>th</sup> June, 2017. The State experienced deficient rainfall of 3.7 percent in the month of June, rainfall remained close to normal in July, deficient rainfall of 17.4 percent in August, 19.4 percent in September and surplus rainfall of 46 percent in October, 2017 from the long term average rainfall. The cumulative average rainfall of the State from June to October 2017 accounts for deficit of 5.0 percent.

Month	Normal	Rainfall in MM	
		Actual	Deficiency in %
June	216.5	208.4	-3.7
July	339.9	339.7	-0.1
August	356.0	294.0	-17.4
September	231.9	187.0	-19.4
October	114.7	167.5	46.0

### Impact on Kharif Crops

As there was good rain in some parts of the State in June and July, the farmers broadcasted the paddy seeds in medium and low lands. Paddy seeds were also sown in nursery bed to take up transplanting operation. But the rainfall in the month of August and September was mostly not adequate to take up the agricultural operations in a smooth manner. As a result the crop coverage is less than the achievement during the corresponding period of last year. Due to deficient rainfall in the month of August and September, operations like beushaningof broadcasted paddy and weeding could not be taken up in most of the cases.

## **Drought Monitoring**

### **Crop Weather Watch Group (CWWG):**

A committee of Crop Weather Watch Group constituted under the Chairmanship of Agriculture Production Commissioner, Department of Agriculture and Farmers' Empowerment with the following members to monitor the progress of Kharif Crops 2017 on weekly basis. The members of the Committee during 2017 were as follows:-

- 1) Agriculture Production Commissioner, Chairman
- 2) Principal Secretary to Govt., Department of Agriculture & FE
- 3) Principal Secretary to Govt., Water Resources Department
- 4) Principal Secretary to Govt. Co-operation Department
- 5) Special Relief Commissioner, Odisha
- 6) Director of Agriculture & Food Production, Odisha
- 7) Director of Horticulture, Odisha
- 8) Addl. Secretary to Govt., Department of Agriculture & FE (Nodal Officer)
- 9) Director of Economics & Statistics, Odisha
- 10) Director, India Meteorological Department, Bhubaneswar
- 11) Professor, Agro-Meteorology, Odisha University of Agriculture and Technology
- 12) Managing Director, OAIC Ltd.
- 13) Managing Director, OSSC Ltd.
- 14) Agriculturist

Regular reviews were also taken up at different levels including that of Chief Secretary, Hon'ble Revenue Minister and Hon'ble Chief Minister. The Revenue Divisional Commissioners and the Collectors monitored the situation within their respective Revenue Divisions and Districts respectively.

## **Mitigation measures taken by the State Government**

In response to the severe drought situation, the State Government announced a comprehensive package for mitigation of the drought situation as follows:

- Agriculture input subsidy will be provided to the small and marginal farmers who have sustained crop loss of 33% and above @ Rs. 6,800/- per hectare of land in rainfed /non-irrigated areas and Rs. 13,500/- per hectare of land in areas under assured irrigation. Agriculture input subsidy will also be provided to farmer other than small and marginal farmers at the same rates subject to a ceiling of two hectare per farmer. The assistance shall be provided to the actual cultivators.
- Farmers affected by drought in Kharif shall be provided fresh finance for Rabi cultivation during current Rabi season, which has commenced from 01.10.2017.
- Short Term Kharif loans advanced in the affected areas during Kharif, 2017 having crop loss of 33% and above shall be converted into Medium Term (Conversion) loans.
- The due date of Kharif short Term loans advanced in the affected areas shall be extended up to 30.09.2018 to facilitate conversion of such loans in to Medium Term (Conversion) loans.
- Government of India will be requested to provide interest incentive of 3% for Medium Term (Conversion) loans i.e. at par with crop loans for prompt paying farmers.
- District administration shall keep a close watch on money lenders and other unscrupulous elements causing financial hardship to the farmers and police will initiate tough action against such elements under the Odisha Money Lenders Act and various sections of the Cr.P.C. The SPs will have the responsibility to proactively do this. DIGs will review the matter.
- 1.25 lakh pulse minikits, 0.5 lakh oilseed minikits and 0.25 lakh vegetable minikits will be supplied to the farmers for the Rabi Programme in the affected villages.
- 5000 pump sets shall be provided with 50% subsidy limited to Rs.15000/- to the farmers. Besides, availability of pump sets in different Agro Service

Centres shall be published to enable the farmer to higher the same to save their standing crops.

- Odisha Lift Irrigation Corporation shall take immediate steps to repair the Lift Irrigation points (LI Points) in all the affected villages on priority. Steps shall be taken to operate all LI Points during Rabi season. Energy Department shall energise the LI Points immediately. The district level committees constituted to revive defunct LI Points should start the work immediately and complete the same by 31st December.
- Steps should be taken to energise all pending Deep Bore Wells on priority.
- MGNREGA works will be taken up by the Panchayati Raj Department to establish water harvesting structures/de-silting of field channels, diversion weirs, etc. Our Government will provide 50 days of additional work in drought affected areas.
- Landless, marginal and small farmers in the drought affected GPs of 70 blocks will be supported with livelihood support in terms of backyard poultry. At the same time a focused approach will be adopted to take up intensive fodder cultivation in these GPs through distribution of suitable fodder kits.
- 50% remission in respect of cess on land revenue will be given to farmers where the crop loss is 33% or more. Collection of the remaining amount will be deferred to the next financial year without levying any interest. Collection of water rate in drought affected villages is waived for the current year.
- Tuition fees and examination fees in Government and aided schools and Colleges in drought affected areas shall be waived.
- The Government has undertaken exemplary works for protection of the interest of the farmers affected by previous disasters. It will continue to work in a dedicated manner to mitigate the difficulties experienced by the farmers in the drought affected areas.

The concerned Departments of the Government and the Collectors of the affected Districts were instructed to implement the package announced by the Government to assist the affected farmers.

## **Drought Declaration**

Prior to 2016, declaration of drought was as per the provisions of paragraph-28 & 29 read with Annexure-V and VI of the Odisha Relief Code. Drought declaration was mainly based on the Crop Cutting Experiment. But in December 2016, the "Manual for Drought Management 2016" came into force by the Ministry of Agriculture & Farmers Welfare, Government of India and the Ministry has requested all the States to declare drought strictly as per the provisions of the Manual. But as per the provisions of the Drought Manual, 2016, the data on various parameters like SPI, PASM, MAI, SFI, RSI and GWDI were not available for assessment of the impact of drought in the State. Then a high level meeting was held under the chairmanship of the Hon'ble Minister, Revenue & Disaster Management along with the Hon'ble Minister, Agriculture & Farmers Empowerment, Hon'ble Minister, Food Supplies and Consumer Welfare, Co-operation and Secretaries of the concerned Departments. As per the decision of the meeting, the District Collectors were directed to conduct joint field enquiry through Revenue and Agriculture field functionaries and report the situation.

A State level Inter-Departmental Team headed by the Special Relief Commissioner also visited the severely affected Bolangir, Bargarh and Nuapada districts to ascertain the actual field situation for the instance of the Government.

Having taken into account the conditions as arising from rainfall deficiency, decline in the availability of ground and surface water, poor crop conditions, ascertained the distress situation that is likely to develop in the area affected by these conditions through crop field verifications and on the basis of reports available from the Collectors of the concerned districts, the State Government declared 6021 villages of 1103 Gram Panchayats under 70 Blocks and 84 wards of 11 ULBs of 15 Districts as drought affected where the farmers have sustained crop loss of 33% and above for Autumn/Kharif Paddy during Kharif 2017. The list of the affected districts is as follows.

**List of districts declared as drought affected  
duringkharif 2017**

Sl. No.	District	No. of affected Blocks/ Tahasils	No. of affected GPs	No. of affected Villages	No. of affected ULBs	No. of affected Wards	Amount of Input Subsidy released to Districts (in Rs.)	Total area with damage of 33% and above
1	2	3	4	5	6	7	8	9
1	Angul	7	81	343	0	0	63322825	11741.50
2	Balangir	14	316	1709	5	59	686080832	100894.24
3	Bargarh	10	182	925	2	3	717023900	105444.69
4	Boudh	3	44	646	0	0	68705160	10103.70
5	Deogarh	1	3	6	0	0	450334	96.00
6	Dhenkanal	8	167	735	0	0	155947356	26428.88
7	Jajpur	1	1	2	0	0	1054000	155.00
8	Kalahandi	5	38	155	1	3	29117600	4282.00
9	Kandhamal	1	10	44	0	0	1209720	177.90
10	Keonjhar	1	6	32	0	0	6902000	854.00
11	Khorda	1	5	11	0	0	156600	55.00
12	Nayagarh	4	27	157	0	0	31171200	4584.00
13	Nuapada	5	129	618	3	19	400639225	61448.62
14	Sambalpur	6	63	486	0	0	36354092	5346.19
15	Subarnapur	3	31	152	0	0	23252300	3936.34
<b>TOTAL</b>		<b>70</b>	<b>1103</b>	<b>6021</b>	<b>11</b>	<b>84</b>	<b>2221387144</b>	<b>335548.06</b>

A report on "Drought 2017" containing drought declaration notification of the State along with other reports has been forwarded to the Additional Secretary (Drought Management) and Central Drought Relief Commissioner, Department of Agriculture, Co-operation and Farmers Welfare , Govt. of India, KrishiBhawan, New Delhi.

### **Relief and Rehabilitation**

An amount of 222.139 crore was released towards Agricultural Input Subsidy to the affected districts for disbursement to 520688 no. of farmers who have sustained crop loss of 33% and above due to drought in 2017.

## CHAPTER – V

### Pest Attack

Conducive crop weather situation created by unsustainable human activities along with the impact of climate change triggers the chances of pest attack in various crops. The State of Odisha did also experience the menace of pest attack in Kharif-2017.

#### Declaration of Pest Attack

Based on the reports received from different Collectors, the State Government have declared 142723.18 hectares of crop area in 8394 villages of 1944 GPs under 152 blocks and 150 wards under 36 ULBs of 24 districts as affected due to pest attack where farmers have sustained crop loss to the extent of 33% and above due to pest attack during 2017-18.

An amount of 136.436 crore was released towards Agricultural Input Subsidy to the affected districts for disbursement to 294717 no. of farmers who sustained crop loss of 33% and above due to pest attack. The list of the affected districts is as follows.

#### LIST OF DISTRICTS DECLARED AS AFFECTED DUE TO PEST ATTACK DURING KHARIF 2017

SI No.	District	No. of affected Blocks/ Tahasils	No. of affected GPs	No. of affected Villages	No. of affected ULBs	No. of affected Wards	Amount of Input Subsidy released to Districts (in Rs.)	Total area with damage of 33% and above
1	2	3	4	5	6	7	8	9
1	Angul	1	2	3	0	0	54400	8.00
2	Bargarh	11	183	671	3	11	548876498	44969.85
3	Bhadrak	7	41	84	3	6	1681500	914.80
4	Bolangir	14	272	1128	2	7	43055170	5389.80
5	Boudh	3	46	295	0	0	3621240	380.80
6	Deogarh	3	30	81	0	0	3574221	501.02
7	Dhenkanal	1	1	1	0	0	90900	8.00



8	Gajapati	5	50	183	1	7	8905631	1631.00
9	Ganjam	16	325	1643	6	14	164670947	20010.04
10	Jajpur	2	4	6	0	0	302600	44.50
11	Jharsuguda	5	78	335	3	12	68793844	9780.92
12	Kalahandi	12	253	1159	3	9	97480060	10031.42
13	Keonjhar	7	31	41	0	0	564450	77.47
14	Khordha	6	24	60	0	0	1870840	442.60
15	Koraput	5	81	378	2	5	8341806	1794.40
16	Mayurbhanj	10	54	129	0	0	1257734	158.72
17	Nawarangpur	8	56	126	2	5	1275050	166.71
18	Nayagarh	3	15	60	1	9	20547036	2877.77
19	Nuapada	5	87	278	3	17	32000047	3090.89
20	Puri	2	3	4	0	0	91800	33.00
21	Raygada	9	96	489	1	2	14456535	1471.27
22	Sambalpur	9	116	815	3	33	287057592	30188.66
23	Subarnapur	6	93	421	3	13	54400400	8545.54
24	Sundargarh	2	3	4	0	0	1399600	206.00
<b>TOTAL</b>		<b>152</b>	<b>1944</b>	<b>8394</b>	<b>36</b>	<b>150</b>	<b>1364369901</b>	<b>142723.18</b>

## CHAPTER- VI

### Fire Accident and other Disasters

As many as 107 persons lost their lives due to fire accidents during the year 2017-18. Steps were taken to provide ex-gratia assistance @ Rs 4,00,000/- per deceased to Next of kins out of the SDRF. Besides, funds were provided to different Collectors for disbursement of house building assistance along with assistance for clothing and utensils as per the Norms of Assistance from SDRF.

#### Details of Loss of Property due to Fire Accident and Assistance provided during the year 2017-18

[ inRs. ]

Sl. No.	Name of the District	No. of accident	No. of villages affected	No. of families affected	Approximate value of properties lost	No. of persons died	No. of cattle died	HBA & Others Relief provided
1	2	3	4	5	6	7	8	9
1	Angul	288	237	489	2,10,03,900	4	35	1,19,16,200
2	Balasore	260	196	259	6,86,66,500	2	0	71,12,400
3	Bargarh	26	26	62	35,65,000	1	0	33,25,600
4	Bhadrak	332	273	439	4,88,25,520	3	17	1,84,68,600
5	Balangir	31	31	60	32,04,000	6	0	27,94,900
6	Boudh	50	50	113	72,91,700	0	0	17,88,400
7	Cuttack	446	277	476	1,78,71,800	1	5	74,06,800
8	Deogarh	25	25	36	16,38,000	1	0	4,43,000
9	Dhenkanal	292	184	470	2,60,30,200	3	0	84,76,700
10	Gajapati	31	27	41	27,95,000	1	0	66,700
11	Ganjam	271	261	589	1,10,80,416	2	0	24,94,110
12	Jagatsinghpur	281	197	275	67,26,683	2	27	12,29,700
13	Jajpur	362	233	362	1,55,09,000	10	30	54,06,550
14	Jharsuguda	5	5	7	4,20,000	0	0	24,400
15	Kalahandi	16	12	16	6,05,000	1	0	1,21,300
16	Kandhamal	57	45	73	41,82,000	0	0	6,90,100
17	Kendrapada	425	257	429	1,63,36,800	6	7	50,69,900
18	Keonjhar	179	92	179	54,95,901	8	0	29,50,000

19	Khordha	26	22	63	48,78,400	10	1	56,15,600
20	Koraput	69	61	64	8,09,300	6	0	1,69,300
21	Malkangiri	8	8	9	3,11,500	0	0	37,800
22	Mayurbhanj	538	259	343	1,88,52,584	17	3	98,37,000
23	Nawarangpur	79	79	107	24,94,900	3	0	19,73,700
24	Nayagarh	166	140	322	1,48,41,000	0	0	18,50,100
25	Nuapara	14	13	14	2,85,500	3	0	8,00,000
26	Puri	311	251	343	1,00,54,100	7	14	21,37,680
27	Rayagada	38	43	161	50,75,800	0	1	22,19,700
28	Sambalpur	8	8	17	1,13,250	8	0	57,800
29	Subarnapur	42	42	95	9,80,000	1	0	4,00,700
30	Sundargarh	1	1	1	0	1	0	4,00,000
<b>Total</b>		<b>4677</b>	<b>3355</b>	<b>5914</b>	<b>319943754</b>	<b>107</b>	<b>140</b>	<b>105218106.700</b>

## Hailstorm

As many as 11 districts namely Sambalpur, Mayurbhanj, Malkangiri, Keonjhar, Dhenkanal, Bolangir, Jajpur, Angul, Kandhamal, Kalahandi and Bargarh were affected due to hailstorm accompanied by whirlwind and 9 persons lost their lives under the impacts of the disaster during the year 2017-18. Steps were taken for payment of ex-gratia @ Rs.4.00 lakh to next of kins of each of the deceased. Besides, funds were placed with the concerned Collectors for payment of assistances like agriculture input subsidy, house building assistance, assistance for clothing and utensils to the affected people as per the Norms of assistance from SDRF.

## Landslide

Landslide occurred in the month of March in Mayurbhanj district. One person died due to that incident. Steps were taken to provide ex-gratia assistance @ Rs 4,00,000/- from SDRF to the Next of kins of the deceased.

# **CHAPTER - VII**

## **State Specific Disasters**

### **Heat Wave**

#### **Preparatory measures on Heat wave**

In 2017, heat-wave condition prevailed in the State in the months of April, May and June. In order to encounter such condition, the State Government undertook various preparedness/ preventive measures as follows:

- Public Awareness Campaign through electronic and print media was undertaken. Civil Society Organizations and PRI members were involved in awareness campaign and other measures to tackle the situation arising out of Heat Wave. The general public were made alert to the set of "Do's and Don'ts" issued by Health & Family Welfare Department through print and electronic media.
- Women & Child Development Department launched public awareness campaign with special focus on children, pregnant and lactating mothers in order to protect them from dehydration. Similarly, Fisheries and Animal Resources Department launched public awareness campaign on protection of animal resources the heat wave. School & Mass Education Department issued suitable instructions for orientation of the school children on heat wave preventive measures.
- Water scarcity areas were identified in advance and supply of water for drinking and other uses through tanker to those areas was ensured.
- "PaniyaJalaJogana Kendra" were opened by Urban Local Bodies/ Gram Panchayats at market places, bus stands and other congregation points. Construction/ repair of vats were also ensured for roaming livestock. Provision of drinking water in all Schools and Colleges were made instantly. Wherever required, tube wells inside the school campus were also repaired to ensure uninterrupted drinking water supply. The timing of classes and examinations in schools & colleges during summer were rescheduled and conducted between 6.30 am and 10.30 am.
- Life saving medicines, saline, ORS was stored in dispensaries, PHCs, CHCs and District Headquarters Hospitals sufficiently to meet the crisis. Special arrangement was made and separate beds were earmarked for treatment of heat stroke patients in different hospitals. The ESI Dispensaries were also asked to treat the general public as additional measures.
- The officers of Forest & Environment Department were asked to assess the availability of water for animals in reserved/ protected forests and make necessary additional provision, where necessary. Drinking water was

provided through tanker to human habitations facing water scarcity inside reserved forests.

- Provision of portable water and ORS packets were made available in publictransport vehicles. During severe heat wave condition, timings of public transport services were rescheduled and plying of buses during peak hour i.e. between 11.00 AM to 3.00 PM was restricted.
- The timing for engagement of labourers/ workmen at worksites was rescheduled. No work was executed during peak hours form 11.00 am to 3.30 pm. The employers were advised to make necessary arrangements for supply of drinking water, ORS packets and provision of rest shed at the worksite.
- The Energy Department issued instructions to the Distribution Companies to maintain uninterrupted power supply during summer months.
- Panchayati Raj Institutions in the districts were also impressed upon to remain alert to meet the exigencies.
- The control rooms at the State level and the District level were functioning round the clock during the period of heat wave.
- A meeting of the District Disaster Management Authority were convened to discuss and plan out different preparedness measures to be taken different officials/ agencies to manage the possible heat wave and water scarcity situation in the district.

Despite all the measures taken by the Government, as many as 43 persons lost their lives due to sunstroke during the year 2017. Steps were taken to provide ex-gratia assistance @ Rs.50,000/- to each of the bereaved families from SDRF. The district-wise number of human casualties is given below:

Sl. No.	Name of the District	No. of Death
1	Angul	4
2	Balangir	1
3	Bargarh	3
4	Bhadrak	2
5	Dhenkanal	5
6	Ganjam	4
7	Jharsuguda	1
8	Kalahandi	1
9	Kendrapara	1

10	Keonjhar	2
11	Khordha	1
12	Mayurbhanj	5
13	Sambalpur	7
14	Sundargarh	3
15	Balasore	1
16	Boudh	1
17	Deogarh	1
Total		43

## Lightning

As many as 465 persons lost their lives due to lightning in 30 districts during the year 2017-18. Steps were taken to provide ex-gratia assistance @ 4,00,000/- per deceased to Next of Kins of the victims from SDRF. The district-wise number of human casualties is indicated below:

Sl. No	Name of the District	No. of death
1	Angul	15
2	Bolangir	06
3	Bargarh	13
4	Balasore	36
5	Bhadrak	23
6	Boudh	03
7	Cuttack	25
8	Deogarh	05
9	Dhenkanal	15
10	Ganjam	33
11	Gajapati	03
12	Jagatsinghpur	10
13	Jajpur	23
14	Jharsuguda	08
15	Kalahandi	08

Sl. No	Name of the District	No. of death
16	Kandhamal	04
17	Kendrapara	20
18	Keonjhar	32
19	Khurda	12
20	Koraput	12
21	Malkanagiri	05
22	Mayurbhanj	54
23	Nawarangpur	19
24	Nayagarh	10
25	Nuapara	13
26	Puri	17
27	Rayagada	10
28	Sambalpur	10
29	Sonepur	-
30	Sundergarh	21
<b>TOTAL</b>		<b>465</b>

## Boat Accident

As many as 4 persons lost their lives due to boat capsizing in 4 districts during the year 2017-18. Ex-gratia assistance @ 4,00,000/- per deceased has been provided to Next of kin of the victims from the SDRF. The district-wise number of human casualties is given below:

Sl.	Name of the District	No. of Death
1.	Angul	1
2.	Bhadrak	1
3.	Kendrapara	1
4.	Koraput	1
<b>Total</b>		<b>4</b>

## Drowning

As many as 820 persons lost their lives due to drowning in 30 districts during the year 2017-18. Steps have been taken to provide ex-gratia assistance @ 4,00,000/- per deceased to Next of Kins of the victims from SDRF. The district-wise number of human casualties is given below:

Sl.	District	No. of Death
1	Angul	25
2	Balangir	12
3	Balasore	88
4	Bargarh	17
5	Bhadrak	66
6	Boudh	-
7	Cuttack	28
8	Deogarh	6
9	Dhenkanal	28
10	Gajapati	3
11	Ganjam	40

12	Jagatsinghpur	27
13	Jajpur	69
14	Jharsuguda	7
15	Kalahandi	13
16	Kandhamal	3
17	Kendrapara	48
18	Keonjhar	62
19	Khorda	15
20	Koraput	37
21	Malkangiri	6
22	Mayurbhanj	64
23	Nabarangpur	30
24	Nayagarh	14
25	Nuapada	6
26	Puri	34
27	Rayagada	7
28	Sambalpur	36
29	Subarnapur	6
30	Sundargarh	23
<b>Total</b>		<b>820</b>

## Heavy Rain

One person of Kalahandi district lost his life due to landslide on account of Heavy Rain during the year 2017-18. Ex-gratia assistance @ 4,00,000/- per deceased has been provided to Next of kins of the victims from SDRF.

## Snake bite

As many as 824 persons lost their lives due to snake bite in 30 districts during the year 2017-18. Steps have been taken to provide ex-gratia assistance @ 4,00,000/- per deceased to Next of Kin of the victims from SDRF. The district-wise number of human casualties is given below:



<b>Sl.</b>	<b>Name of the District</b>	<b>No. of persons died</b>
1	Angul	38
2	Balangir	10
3	Balasore	93
4	Bargarh	17
5	Bhadrak	46
6	Boudh	5
7	Cuttack	43
8	Deogarh	19
9	Dhenkanal	41
10	Gajapati	3
11	Ganjam	81
12	Jagatsinghpur	12
13	Jajpur	39
14	Jharsuguda	4
15	Kalahandi	12
16	Kandhamal	7
17	Kendrapara	31
18	Keonjhar	53
19	Khordha	26
20	Koraput	15
21	Malkangiri	7
22	Mayurbhanj	72
23	Nabarangpur	24
24	Nayagarh	19
25	Nuapada	11
26	Puri	32
27	Rayagada	3
28	Sambalpur	22
29	Subarnapur	5
30	Sundargarh	34
<b>Total</b>		<b>824</b>

## CHAPTER – VIII

### State Disaster Response Fund (SDRF)

During the year 2017-18 a total amount of Rs. 2275.25 crore was available in SDRF for expenditure. Out of the above, an amount of Rs. 1003.60 crore has been spent to meet the expenditure on different approved Natural Calamities, procurement of search and rescue equipments and capacity building activities as detailed below.

#### Status of Expenditure from SDRF Account 2017-18 for State of ODISHA (As on 31.03.2018)

[Rs. in crore]

1	Opening Balance (As on 01.04.2017)	1451.25
2	SDRF releases during the year 2017-18 (Central & State Share)	
	# 1 <sup>st</sup> Installment of current year [State + Central Share]	412.00
	# 2 <sup>nd</sup> Installment of current year, if any [State + Central Share]	412.00
3	NDRF releases during the year 2017-18:	0.00
4	<b>Total funds available in SDRF Account (1+2+3)</b>	<b>2275.25</b>
5	Expenditure incurred on calamities	
	# Avalanches	-
	# Cloud Burst	-
	# Cyclone	380.82
	# Drought	254.68
	# Earthquake	-
	# Fire	21.68
	# Flood	61.14
	# Hailstorm	0.94
	# Landslides	0.08

	# Pest attack	149.96
	# Tsunami	-
	# Cold Wave	-
	<b>Sub-Total</b>	<b>869.30</b>
<b>Expenditure incurred during 2017-18</b>		
6	Expenditure incurred from SDRF up to 10% on procurement of search and rescue equipments etc.	31.42
7	Expenditure incurred from SDRF up to 5 % on Capacity Building Activities	25.68
8	Expenditure incurred from SDRF up to 10 % on State Specific disasters	77.20
9	Total expenditure incurred on all calamities (5+6+7+8)	<b>1003.60</b>
10	<b>Balance available in SDRF Account (4 - 9)</b>	<b>1271.65</b>

## Appendix-XII

### Statement showing item-wise details of expenditure incurred as per approved items and norms of SDRF/NDRF

(Rupees in Lakh)

Code No.	Items	Calamity												
		Avalanche	Cloud burst	Cyclone	Drought	Earthquake	Fire	Flood	Hailstorm	Landslide	Pest Attack	Tsunami	Cold wave/frost	State Specific Calamity
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Gratuitous Relief													
(a)	Ex-gratia payment to families to deceased persons													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	253.500	5.500	8.000	8.000	0	0	0	7428.000
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Total no. of beneficiaries	0	0	0	0	0	64	2	2	2	0	0	0	1857
(b)	Ex-gratia payment for loss of a limb or eyes													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Total no. of beneficiaries	0	0	0	0	0	0	0	0	0	0	0	0	0
(c)	Grievous injury requiring hospitalization													



















10	Assistance for repair/ restoration of damaged houses													
(a)	Fully damaged/ destroyed Pucca houses													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	57.196	0	0	0	0	0	0	35.503
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Number	0	0	0	0	0	62	0	0	0	0	0	0	522
(b)	Fully damaged/ destroyed Kutcha houses													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	576.269	767.543	0	0	0	0	0	14.809
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Number	0	0	0	0	0	607	754	0	0	0	0	0	15
(c)	Severely damaged houses													
(i)	Severely damaged Pucca houses													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	6.997	0	0	0	0	0	0	0
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Number	0	0	0	0	0	135	0	0	0	0	0	0	0
(ii)	Severely damaged Kutcha houses													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	200.435	3.057	0	0	0	0	0	0





	norms													
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) No. of persons provided shelters	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iv) No. of relief camps opened	0	0	0	0	0	0	0	0	0	0	0	0	0
	(v) Average cost per person/per day	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Air dropping of essential supplies													
	(i) No. of sorties	0	0	0	0	0	0	0	0	0	0	0	0	0
	(ii) Quantity (in MTs) dropped	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Repair/restoration of immediate nature of the damaged infrastructure in eligible sectors													
(a)	Roads & Bridges													
	(i) As per SDRF/NDRF norms	0	0	0	0	0	0	2953.010	0	0	0	0	0	0
	(ii) Outside the norms	0	0	0	0	0	0	0	0	0	0	0	0	0
	(iii) Cumulative length of roads repaired (in KMs)	0	0	0	0	0	0	0	0	0	0	0	0	0
(b)	Drinking water supply													









(ii) No. of persons trained	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Procurement of essential Search, Rescue and Evacuation equipments including Communication equipments													
Cost of equipments procured	0	0	0	0	0	0	3141.834	0	0	0	0	0	0
<b>TOTAL</b>	<b>0.000</b>	<b>0.000</b>	<b>38759.191</b>	<b>26033.914</b>	<b>0.000</b>	<b>2426.361</b>	<b>10322.934</b>	<b>93.667</b>	<b>8.000</b>	<b>14995.893</b>	<b>0.000</b>	<b>0.000</b>	<b>7720.334</b>

□□□□□