

# Chapter - I

## Introduction

Orissa is located on the eastern seaboard of India between 170 49' and 220 36' North latitudes and between 81036' and 87018' East longitudes. It spreads over an area of 1,55,707 sq km. Administratively, the State is divided into 30 districts, 58 sub-divisions, 314 blocks and 103 urban local bodies. With population of 4.19 crore as per the 2011 census (provisional), the average density of population comes to 269 per sq km. with significantly higher density in the coastal areas compared to the interior parts. It has a 480 km coastline. Major river systems are the Mahanadi, the Brahmani, the Baitarani, the Subarnarekha, the Budhabalanga, the Vansadhara, the Rushikulya, the Nagabali, the Indravati, Kolab and the Bahuda. The geo-climatic conditions of the State make it vulnerable to multiple disasters such as flood, cyclone, drought, heat wave, hailstorm, lightning, fire, earthquake and tsunami. The table below indicates the incidence of major disasters in the State during last 16 years.

<b>Year</b>	<b>Calamity</b>	<b>Districts Affected</b>
1995	Floods & Cyclone	23
1996	Drought	28
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)	12
2007	Floods (Aug. & Sept.)	15
2008	Floods (June & September )	21
2009	Flood & Heavy rain	17
	Drought / Pest Attack	18
2010	Flood & Heavy rain	06
	Drought	17
	Unseasonal Cyclonic Rain	24

## Chapter – II

### Rainfall 2010

The district-wise annual rainfall from January to December with percentage of deviation is given in the table below.

#### District-wise rainfall for the year 2010

Sl.	DISTRICT	JAN.			FEB.			MAR.			APRIL		
		Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.
1	Angul	1.8	12.6	-85.6	0.0	27.1	-100.0	25.5	24.3	5.0	0.8	27.2	-97.1
2	Balasore	0.0	14.7	-100.0	0.0	31.8	-100.0	1.6	34.4	-95.4	1.6	62.2	-97.5
3	Bargarh	0.0	12.5	-100.0	0.0	19.1	-100.0	0.0	22.0	-100.0	0.0	20.0	-100.0
4	Bhadrak	0.0	11.8	-100.0	0.0	29.6	-100.0	0.0	36.1	-100.0	0.0	51.2	-100.0
5	Bolangir	9.1	8.6	5.9	0.0	13.2	-100.0	0.5	14.6	-96.6	1.4	13.4	-89.9
6	Boudh	3.0	17.0	-82.4	0.0	26.8	-100.0	0.0	22.4	-100.0	0.0	16.5	-100.0
7	Cuttack	3.2	9.9	-68.1	0.0	28.6	-100.0	4.3	24.7	-82.6	0.1	28.3	-99.7
8	Deogarh	2.4	14.1	-83.2	1.7	27.0	-93.7	4.1	20.6	-79.9	0.0	21.3	-100.0
9	Dhenkanal	0.0	10.5	-100.0	0.0	21.9	-100.0	9.1	33.7	-73.1	14.9	41.3	-64.0
10	Gajapati	32.7	8.1	303.7	1.2	23.0	-94.8	3.1	41.3	-92.6	20.6	65.2	-68.4
11	Ganjam	59.9	9.4	536.8	0.0	24.1	-100.0	0.0	32.6	-100.0	0.0	36.6	-100.0
12	Jagatsinghpur	39.3	14.5	170.7	0.0	21.7	-100.0	0.0	35.5	-100.0	0.0	25.4	-100.0
13	Jajpur	0.0	12.9	-100.0	0.3	25.1	-98.8	26.4	28.4	-7.2	3.2	46.1	-93.1
14	Jharsuguda	7.8	14.1	-44.7	0.0	22.9	-100.0	0.0	17.6	-100.0	0.0	15.1	-100.0
15	Kalahandi	4.3	10.3	-58.0	0.0	14.4	-100.0	1.2	23.7	-94.8	9.6	25.7	-62.6
16	Kandhamal	22.4	10.6	111.0	0.0	29.7	-100.0	13.3	28.0	-52.4	10.7	35.7	-70.1
17	Kendrapara	0.0	10.6	-100.0	0.0	30.2	-100.0	4.0	35.0	-88.6	0.0	33.9	-100.0
18	Keonjhar	0.0	14.6	-100.0	0.0	33.8	-100.0	15.8	33.1	-52.1	26.3	42.1	-37.5
19	Khordha	4.3	12.4	-65.3	0.7	24.3	-97.1	0.0	22.1	-100.0	0.6	28.0	-97.9
20	Koraput	0.0	5.7	-100.0	0.0	8.6	-100.0	0.0	18.3	-100.0	0.0	55.2	-100.0

21	Malkanagiri	0.0	2.7	-100.0	0.0	4.1	-100.0	0.0	8.9	-100.0	2.5	34.8	-92.9
22	Mayurbhanj	0.0	10.3	-100.0	0.5	28.0	-98.1	9.5	40.2	-76.4	18.0	52.5	-65.8
23	Nawarangpur	7.7	6.7	14.9	6.2	14.1	-56.1	14.2	15.1	-6.3	49.1	34.1	44.0
24	Nayagarh	16.4	11.7	40.1	6.3	28.6	-78.0	7.0	30.0	-76.7	3.6	39.9	-90.9
25	Nuapara	8.3	12.0	-30.7	0.0	14.6	-100.0	0.0	19.7	-100.0	6.4	21.8	-70.6
26	Puri	0.0	10.9	-100.0	2.6	25.4	-89.8	0.0	15.5	-100.0	0.0	18.5	-100.0
27	Rayagada	31.9	9.6	232.6	0.0	22.9	-99.8	3.2	38.0	-91.7	24.8	52.7	-53.0
28	Sambalpur	1.9	14.8	-87.2	2.8	24.5	-88.4	0.0	18.2	-100.0	0.0	16.5	-100.0
29	Sonepur	0.0	12.5	-100.0	0.0	17.2	-100.0	0.0	15.7	-100.0	2.2	15.4	-85.9
30	Sundargarh	3.1	15.1	-79.2	3.6	24.9	-85.5	0.9	16.0	-94.7	3.9	16.0	-75.4
<b>Total</b>		<b>259.4</b>			<b>26.0</b>			<b>143.5</b>			<b>200.1</b>		
<b>State Average</b>		<b>8.6</b>	<b>11.4</b>	<b>-24.1</b>	<b>0.9</b>	<b>22.9</b>	<b>-96.2</b>	<b>4.8</b>	<b>25.5</b>	<b>-81.2</b>	<b>6.7</b>	<b>33.1</b>	<b>-79.9</b>

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Sl.	DISTRICT	MAY			JUNE			JULY			AUGUST		
		Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.
1	Angul	98.6	52.9	86.4	87.4	225.1	-61.2	222.9	347.7	-35.9	233.4	357.5	-34.7
2	Balasore	200.6	108.5	84.9	93.3	221.5	-57.9	253.5	308.6	-17.9	176.7	332.1	-46.8
3	Bargarh	6.0	25.6	-76.6	161.9	205.6	-21.2	419.3	397.2	5.6	219.4	374.4	-41.4
4	Bhadrak	133.3	91.4	45.9	153.7	198.2	-22.5	224.7	293.6	-23.5	194.5	311.7	-37.6
5	Bolangir	44.7	27.8	60.9	69.3	202.8	-65.8	370.7	360.5	2.8	252.7	333.6	-24.3
6	Boudh	54.8	38.4	42.6	153.7	233.8	-34.3	261.6	418.5	-37.5	249.2	488.8	-49.0
7	Cuttack	152.5	71.5	113.3	221.9	210.0	5.7	278.5	308.3	-9.7	300.5	339.1	-11.4
8	Deogarh	72.0	41.9	71.9	147.4	242.4	-39.2	254.5	447.7	-43.2	288.2	443.4	-35.0
9	Dhenkanal	118.3	69.6	69.9	187.3	225.7	-17.0	212.1	317.9	-33.3	226.6	344.8	-34.3
10	Gajapati	130.9	107.8	21.4	132.9	199.7	-33.5	262.2	230.6	13.7	277.4	253.6	9.4
11	Ganjam	121.5	65.4	85.7	169.1	168.3	0.5	134.8	220.8	-39.0	350.0	246.8	41.8
12	Jagatsinghpur	96.4	78.0	23.6	144.3	202.3	-28.7	139.3	277.3	-49.8	270.3	379.1	-28.7
13	Jajpur	151.7	93.7	61.9	195.9	238.5	-17.9	161.1	350.9	-54.1	231.7	341.2	-32.1

14	Jharsuguda	1.2	27.9	-95.7	214.6	218.8	-1.9	269.2	385.8	-30.2	336.4	382.9	-12.1
15	Kalahandi	99.5	41.8	138.1	98.3	240.4	-59.1	449.0	327.7	37.0	378.9	355.4	6.6
16	Kandhamal	127.2	67.8	87.6	138.1	207.9	-33.6	354.8	325.1	9.1	294.4	330.8	-11.0
17	Kendrapara	92.3	94.2	-2.0	96.5	208.3	-53.7	225.6	317.1	-28.9	182.1	333.3	-45.4
18	Keonjhar	124.0	94.8	30.8	164.6	241.4	-31.8	271.3	318.0	-14.7	235.5	343.6	-31.5
19	Khordha	132.0	60.7	117.5	239.7	196.2	22.2	193.1	304.9	-36.7	344.1	320.6	7.3
20	Koraput	70.0	81.9	-14.6	102.6	206.8	-50.4	390.1	375.6	3.8	326.4	393.6	-17.1
21	Malkangiri	44.0	49.1	-10.4	201.9	212.2	-4.9	672.1	465.7	44.3	413.9	472.8	-12.5
22	Mayurbhanj	128.4	101.2	26.9	134.3	265.8	-49.5	189.0	337.3	-44.0	158.2	359.9	-56.1
23	Nawarangpur	131.8	66.1	99.4	87.1	251.8	-65.4	518.9	356.6	45.5	616.6	407.5	51.3
24	Nayagarh	133.5	58.8	127.0	268.4	203.5	31.9	222.7	288.5	-22.8	314.2	288.2	9.0
25	Nuapara	41.8	31.2	34.1	85.3	210.3	-59.4	345.8	347.1	-0.4	277.3	327.8	-15.4
26	Puri	141.8	62.1	128.4	124.8	188.0	-33.6	162.0	292.0	-44.5	358.4	297.9	20.3
27	Rayagada	97.7	87.8	11.2	144.6	195.3	-26.0	392.5	259.5	51.3	313.8	273.7	14.7
28	Sambalpur	21.3	32.3	-34.2	193.9	221.0	-12.2	293.9	429.5	-31.6	229.5	442.4	-48.1
29	Sonepur	43.0	29.3	46.8	137.0	217.4	-37.0	328.5	399.6	-17.8	222.0	408.9	-45.7
30	Sundargarh	36.3	40.6	-10.6	155.6	237.4	-34.5	250.7	386.4	-35.1	252.0	393.9	-36.0
<b>Total</b>		<b>2847.0</b>			<b>4505.1</b>			<b>8724.3</b>			<b>8524.0</b>		
<b>State Average</b>		<b>94.9</b>	<b>63.3</b>	<b>49.9</b>	<b>150.2</b>	<b>216.5</b>	<b>-30.6</b>	<b>290.8</b>	<b>339.9</b>	<b>-14.4</b>	<b>284.1</b>	<b>356.0</b>	<b>-20.2</b>

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Sl.	DISTRICT	SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL [Jan. to Dec.]		
		Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.	Actual	Normal	% of Dev.
1	Angul	162.4	217.5	-25.3	74.2	86.3	-14.1	8.1	20.4	-60.2	35.5	3.3	974.6	950.5	1401.9	-32.2
2	Balasore	305.6	267.6	14.2	198.6	170.5	16.5	5.8	34.6	-83.4	27.2	5.5	393.9	1264.3	1592.0	-20.6
3	Bargarh	166.3	222.6	-25.3	48.8	52.8	-7.7	25.4	10.4	144.4	25.4	5.1	398.4	1072.5	1367.3	-21.6
4	Bhadrak	222.9	216.8	2.8	312.8	145.3	115.3	13.8	37.3	-63.1	22.1	4.9	351.3	1277.7	1427.9	-10.5
5	Bolangir	269.1	237.4	13.4	52.3	68.4	-23.6	17.8	7.2	146.6	26.9	2.3	1069.3	1114.4	1289.8	-13.6
6	Boudh	226.2	244.8	-7.6	72.5	90.5	-19.9	19.5	21.1	-7.4	24.9	4.4	465.2	1065.3	1623.1	-34.4
7	Cuttack	170.0	229.2	-25.8	207.1	125.6	64.9	33.5	45.0	-25.5	18.9	4.1	361.5	1390.5	1424.3	-2.4

8	Deogarh	120.1	228.2	-47.4	35.2	84.4	-58.3	0.5	8.0	-93.3	22.9	3.5	554.3	949.1	1582.5	-40.0
9	Dhenkanal	185.6	220.6	-15.9	121.4	104.4	16.3	9.5	36.2	-73.8	42.8	2.2	1846.0	1127.4	1428.8	-21.1
10	Gajapati	221.2	237.9	-7.0	262.8	168.6	55.9	78.7	61.8	27.4	82.7	5.7	1350.0	1506.2	1403.3	7.3
11	Ganjam	198.9	216.3	-8.1	233.3	177.7	31.3	136.2	71.1	91.6	73.1	7.1	930.1	1476.8	1276.2	15.7
12	Jagatsinghpur	154.4	241.4	-36.1	282.6	151.1	87.0	50.8	80.4	-36.9	31.8	7.9	301.9	1208.9	1514.6	-20.2
13	Jajpur	198.4	238.0	-16.7	224.8	140.2	60.3	24.1	41.0	-41.2	34.8	3.9	791.0	1252.2	1559.9	-19.7
14	Jharsuguda	101.7	210.7	-51.7	20.0	54.9	-63.6	1.6	7.7	-79.2	26.5	4.4	501.4	979.0	1362.8	-28.2
15	Kalahandi	291.1	204.6	42.3	170.7	74.0	130.7	10.0	10.9	-8.7	29.8	1.6	1760.1	1542.4	1330.5	15.9
16	Kandhamal	340.6	239.1	42.5	143.3	117.7	21.7	46.4	31.0	49.8	42.1	4.5	835.0	1533.3	1427.9	7.4
17	Kendrapara	201.4	237.3	-15.1	380.0	183.7	106.9	34.6	67.2	-48.6	33.9	5.2	551.7	1250.4	1556.0	-19.6
18	Keonjhar	228.4	241.1	-5.3	103.0	101.3	1.6	7.8	20.5	-61.7	36.7	3.4	978.7	1213.5	1487.7	-18.4
19	Khordha	227.3	234.5	-3.1	237.5	149.3	59.1	64.0	50.4	27.0	46.3	5.0	826.0	1489.6	1408.4	5.8
20	Koraput	383.6	256.3	49.7	148.2	126.1	17.5	82.2	32.6	152.3	30.2	6.5	365.1	1533.2	1567.2	-2.2
21	Malkangiri	330.3	281.2	17.4	59.4	109.5	-45.7	70.8	23.6	199.8	25.2	3.0	740.5	1820.0	1667.6	9.1
22	Mayurbhanj	236.7	262.0	-9.6	85.5	114.1	-25.1	7.8	21.6	-64.0	27.7	7.3	279.3	995.6	1600.6	-37.8
23	Nawarangpur	453.4	225.6	101.0	233.2	168.6	38.3	49.1	18.7	162.5	39.1	4.6	749.1	2206.3	1569.5	40.6
24	Nayagarh	231.5	226.8	2.1	174.6	134.5	29.8	46.7	39.0	19.7	53.4	4.8	1011.7	1478.2	1354.3	9.2
25	Nuapara	225.3	214.5	5.0	79.1	68.9	14.8	3.6	15.3	-76.5	42.9	3.2	1240.6	1115.8	1286.4	-13.3
26	Puri	253.1	243.2	4.1	283.4	181.6	56.0	123.5	67.3	83.6	63.5	6.4	891.5	1513.1	1408.8	7.4
27	Rayagada	216.2	199.1	8.6	179.5	109.7	63.6	43.3	32.9	31.6	44.5	4.7	846.0	1491.9	1285.9	16.0
28	Sambalpur	146.7	224.7	-34.7	48.2	54.7	-11.9	4.7	12.7	-63.3	35.5	4.4	707.8	978.4	1495.7	-34.6
29	Sonepur	219.5	228.0	-3.7	36.0	59.8	-39.8	27.1	11.4	138.0	33.4	3.3	913.1	1048.7	1418.5	-26.1
30	Sundargarh	149.2	211.5	-29.4	42.2	67.7	-37.6	8.3	8.7	-4.9	39.8	4.2	846.5	945.6	1422.4	-33.5
<b>Total</b>		<b>6837.0</b>			<b>4549.9</b>			<b>1055.2</b>			<b>1119.1</b>			<b>38790.7</b>		
<b>State Average</b>		<b>227.9</b>	<b>231.9</b>	<b>-1.7</b>	<b>151.7</b>	<b>114.7</b>	<b>32.2</b>	<b>35.2</b>	<b>31.5</b>	<b>11.7</b>	<b>37.3</b>	<b>4.5</b>	<b>729.0</b>	<b>1293.0</b>	<b>1451.2</b>	<b>-10.9</b>

## Rainfall during Monsoon 2010

The State experienced average deficient rainfall of 31.1 percent in June, 14.7 percent in July, 21.0 percent in August and 2.4 percent in September, 2010 from the long term average rainfall. The cumulative average rainfall of the State from June to September 2010 accounts for deficit of 17.3 percent. The blockwise analysis of the cumulative rainfall from 1<sup>st</sup> June to 30<sup>th</sup> September 2010 indicates that out of 314

Blocks in the State, 29 Blocks received rainfall of less than 50% and 98 Blocks received rainfall of 50-75% of the long-term average. Remaining 187 Blocks received rainfall of more than 75% of the long-term average.

Month	Normal	Rainfall in MM	
		Actual	Deficiency in %
June	216.5	149.1	- 30.6%
July	339.9	290.3	- 14.4%
August	356.0	281.2	- 20.2%
September	226.4	231.9	-1.7

The State experienced prolonged dry spells during these months. The details are as follows:

Month	Phase	Period of dry spell	Duration (No. of days)	Total rainfall during the spell (in mm)
June	1 <sup>st</sup> Dry spell	1 <sup>st</sup> June to 13 <sup>th</sup> June	13	26.61
	2 <sup>nd</sup> Dry spell	15 <sup>th</sup> June to 23 <sup>rd</sup> June	09	27.61
	3 <sup>rd</sup> dry spell	27 <sup>th</sup> June to 29 <sup>th</sup> June	03	13.8
		<b>Sub-Total</b>	<b>25</b>	<b>68.02</b>
July	1 <sup>st</sup> dry spell	8 <sup>th</sup> July to 11 <sup>th</sup> July	04	17.7
	2 <sup>nd</sup> dry spell	13 <sup>th</sup> July to 23 <sup>rd</sup> July	11	51.4
	3 <sup>rd</sup> dry spell	27 <sup>th</sup> July to 31 <sup>st</sup> July	05	31.1
		<b>Sub-Total</b>	<b>20</b>	<b>100.2</b>
August	1 <sup>st</sup> dry spell	7 <sup>th</sup> August to 26 <sup>th</sup> August	20	91.6
	2 <sup>nd</sup> dry spell	28 <sup>th</sup> & 29 <sup>th</sup>	02	10.0
		<b>Sub-Total</b>	<b>22</b>	<b>101.6</b>
September	1 <sup>st</sup> dry spell	1 <sup>st</sup> & 2 <sup>nd</sup>	02	4.9
	2 <sup>nd</sup> dry spell	4 <sup>th</sup> Sept to 6 <sup>th</sup> Sept.	03	23.6
	3 <sup>rd</sup> dry spell	9 <sup>th</sup> Sept. to 14 <sup>th</sup> Sept.	06	35.4
	4 <sup>th</sup> dry spell	20 <sup>th</sup> Sept. to 30 <sup>th</sup> Sept.	11	23.7
		<b>Sub-Total</b>	<b>22</b>	<b>87.6</b>
<b>Total</b>			<b>89 days</b>	<b>357.42</b>

## Chapter - III

### Occurrence of Natural Calamities 2010-11

In the financial year 2010-11, the State experienced the following natural calamities:

- Floods & Heavy Rain
- Drought
- Unseasonal Cyclonic Rain
- Hailstorm
- Fire Accidents
- Lightning
- Heat-Wave

#### i. **Floods 2010**

During the current year, heavy rainfall was experienced during July 24<sup>th</sup> - 27<sup>th</sup> in Southern Orissa especially in the Districts of Rayagada, Koraput and Malkangiri triggering flash floods in rivers in Southern Districts. Again, the Southern and Western Districts of the State received heavy to very heavy rainfall due to formation of a low pressure area over Bay of Bengal on 4<sup>th</sup> August 2010. Torrential rain was experienced in most parts from 4<sup>th</sup> to 6<sup>th</sup> of August 2010. Quite a few Blocks recorded close to 500 mm rainfall in two days (5-6 Aug 2010). Dabugaon Block under Nabaragpur District recorded rainfall of 486 mm in a single day and 601 mm in two days. The Blocks which recorded rainfall of more than 150 mm in two days (5<sup>th</sup> and 6<sup>th</sup> of August, 2010) in the Southern Districts are indicated below.

<b>Distrcit</b>	<b>Block</b>	<b>5<sup>th</sup> Aug 10</b>	<b>6<sup>th</sup> Aug 10</b>	<b>Total</b>
Kalahandi	Bhawanipatna	140.0	165.0	305.0
	Th. Rampur	<b>250.0</b>	<b>208.0</b>	<b>458.0</b>
	Junagarh	123.0	120.0	243.0
	<b>Kalampur</b>	<b>270.0</b>	<b>198.0</b>	<b>468.0</b>
	Jaipatna	227.0	103.0	330.0
	Koksara	<b>195.0</b>	<b>130.0</b>	<b>325.0</b>
	Dharmagarh	85.0	115.0	200.0

Nabarangpur	Nabarangpur	180.0	89.0	269.0
	Nandahandi	<b>270.0</b>	62.0	332.0
	Tentulikhunti	<b>283.0</b>	81.0	364.0
	Papadahandi	<b>242.0</b>	90.0	332.0
	Kosamguda	<b>266.0</b>	<b>153.0</b>	<b>419.0</b>
	<b>Dabugaon</b>	<b>486.0</b>	<b>115.0</b>	<b>601.0</b>
	Umerkote	180.0	141.0	321.0
	Raighar	108.0	166.0	274.0
	<b>Jharigam</b>	<b>305.0</b>	<b>191.0</b>	<b>496.0</b>
	Chandahandi	92.0	145.0	237.0
Koraput	Dasmantpur	135.0	40.0	175.0
	Jeypore	137.8	49.2	187.0
	Kotpad	<b>204.0</b>	54.0	258.0
	Kundra	107.0	51.0	158.0
	Baipariguda	102.0	79.0	181.0

As a result of heavy downpour in the catchments, Hati, Bhaskel, Saberi, Kolab, Indravati & Vansadhara Rivers in Southern parts of the State faced high flooding. Six Districts namely Nabarangpur, Koraput, Kalahandi, Boudh, Rayagada and Malkangiri were severely affected by the floods.

### Extent of Damages

No. of Districts affected	6 (Nabarangpur, Koraput, Kalahandi, Boudh, Rayagada & Malkangiri)
Blocks affected	23
GPs affected	262
Villages affected	889
Population affected	89,700
Human lives lost	14
Livestock Affected	29,067
Livestock Casualty	1,454
Houses Damaged	5,402
Crop submerged	Paddy- 23,686hect, Non paddy – 6,526 hect.
Crop area under sand cast	3,670.37 hect.



The District-wise details are as follows:

District	Block	GPs	Villages	Population Affected	Human Casualty	Livestock Affected
Boudh	03	19	144	420	0	0
Kalahandi	09	145	426	40,500	0	7,610
Koraput	01	06	37	17,447	4	12,381
Malkangiri	01	01	01	239	1	0
Nabarangpur	06	74	252	29,752	5	9,076
Rayagada	03	17	29	1,342	4	0
<b>Total</b>	<b>23</b>	<b>262</b>	<b>889</b>	<b>89700</b>	<b>14</b>	<b>29,067</b>

### Human Casualty

14 persons lost their lives due to floods and wall collapse under the impact of heavy rain accompanied by cyclonic wind.

### Loss of livestock

1454 nos. of livestock perished due to floods in August 2010.

District	Animals lost			
	Big	Small	Poultry	Total
Koraput	19	17	60	96
Nabarangpur	99	225	1,034	1,358
<b>Grand Total</b>	<b>118</b>	<b>242</b>	<b>1,094</b>	<b>1,454</b>

### House Damage

5402 houses were damaged in floods and heavy rain. The district wise list is given below.

District	House Damage				
	Fully	Severely	Partially	Hut	Total
Kalahandi	114	117	1,925	1	2,157
Koraput	456	129	856	0	1,441
Malkangiri		10			10
Nabarangpur	905	104	723	62	1,794
<b>Grand Total</b>	<b>1,475</b>	<b>360</b>	<b>3,504</b>	<b>63</b>	<b>5,402</b>

### Sand Cast

Agricultural areas of 3670.37 hectare have been sand-cast due to flood.

Sl. No	Districts	Area under sand cast (in hect.)
1	Kalahandi	2,168.83
2	Nabarangpur	1,501.54
<b>Total</b>		<b>3,670.37</b>

## Damage to Public Utilities

### PWD Roads

362.5 Kms of 52 nos. PWD roads were damaged due to floods. 45 breaches and 174 culverts occurred in these roads. The District wise position is mentioned below.

Sl.	District	No. of Roads Damaged	Length of road damaged in Km.	No. of breaches occurred	No. of CDs damaged
1	Nawarangpur	11	136.310	15	52
2	Koraput	07	39.00	05	35
3	Kalahandi	15	112.09	06	41
4	Boudh	04	4.90	04	13
5	Malkangiri	02	5.00	01	07
6	Rayagada	13	65.30	14	26
<b>Total</b>		<b>52</b>	<b>362.5</b>	<b>45</b>	<b>174</b>

### Rural Roads

302 nos. of rural roads and PMGSY roads have been severely damaged due to such floods. Total 425 nos. of breaches occurred in Rural roads in the Districts affected by floods. The District wise position is mentioned below.

Sl.	District	No. of Roads Damaged	Length of road damaged in Km.	No. of breaches occurred	No. of CDs damaged
1	Boudh	05	12.00	03	02
2	Kalahandi	75	102.125	62	53
3	Koraput	34	32.20	43	49
4	Malkangiri	61	233.12	54	63
5	Nawarangpur	98	79.71	247	187
6	Rayagada	29	29.56	16	05
<b>Total</b>		<b>302</b>	<b>488.715</b>	<b>425</b>	<b>359</b>

## Panchayat Roads

678.222 km of 722 nos. of Panchayat roads have been damaged due to the floods.

Sl.	District	No. of Roads Damaged	Length of road damaged in Km.
1	Boudh	02	23.15
2	Kalahandi	164	238.11
3	Koraput	149	146.51
4	Malkangiri	03	26.47
5	Nawarangpur	348	185.632
6	Rayagada	56	58.35
<b>Total</b>		<b>722</b>	<b>678.222</b>

## River and Canal Embankments

Breaches occurred in river embankments of Indravati River due to flash flood. Besides breaches, partial damage has been caused to 36 nos. of sites in river embankments. Similarly, 372 breaches occurred in canal embankments.

Name of the Irrigation Division	Affected District	No. of immediate repair/ restoration works already done
Kalahandi Irrigation Division	Kalahandi, Nawarangpur & Koraput	50
Upper Indravati Right Canal Division	Kalahandi	319
Upper Indravati Left Canal Division	Kalahandi	29
<b>Total</b>		<b>398</b>

## Minor Irrigation (Lift)

256 nos. of Minor Irrigation Projects (Lift) have been damaged due to the floods.

Sl.	District	No. of projects Damaged
2	Kalahandi	64
3	Koraput	32

4	Malkangiri	2
5	Nawarangpur	121
6	Rayagada	37
<b>Total</b>		<b>256</b>

## Response

### Rescue & Evacuation

- ODRAF teams with power boats and emergency equipment were deployed in Nabarangpur, Koraput and Kalahandi Districts for search and rescue operation. 992 persons were rescued and shifted to safer places.
- Fire brigades with emergency equipments were also deployed for rescue operation.
- 3 persons, who were stranded in river Saberi during flash flood in Malkangiri District, were rescued with the help of Navy Helicopters.

### Free Kitchen

- 26 free kitchen centres were opened and 24,871 persons were provided with cooked foods during flood.

District	No. of Centers	Beneficiaries covered
Kalahandi	14	8,229
Koraput	06	1,285
Nabarangpur	06	15,357
<b>Total</b>	<b>26</b>	<b>24,871</b>

### Emergent Relief

- Emergent relief was distributed for a period ranging between 3 and 30 days for the affected people of the flood affected areas of Nabarangpur, Koraput and Kalahandi Districts.

District	No. of Days	Village
Kalahandi	30	Kaudola village under Koksara Block
Koraput	03	37 villages of Kotpad Block
Nabarangpur	19	41 villages under Kosagumuda Block

- Quantity of food stuff distributed:

District	Rice in Qtl	Chuda (flattened rice) in Qtl	Gud in Qtl	Dal in Qtl.	Beneficiaries Covered
Kalahandi	1,736.06	9.9	0.9	95.27	38,845

Koraput	435.25	49.00	06.00	0	17,417
Nabarangpur	1,575.88	177.50	15.75	176.35	15,357
<b>Total</b>	<b>3,747.19</b>	<b>236.40</b>	<b>22.65</b>	<b>271.62</b>	<b>71,619</b>

In addition to the above staple food items, dry foods, candles, matchboxes, kerosene and other essential materials were also distributed.

### **Cattle Feed**

84 MT of concentrated cattle feed were provided to Nabarangpur (44 MT), Koraput (20MT) and Kalahandi (20MT) & distributed to 30,459 nos. affected cattle.

### **Temporary Shelter Material**

Polythene sheets were provided for temporary shelter, whose houses were damaged due to flood.

Nabarangpur – 1,478 pcs.

Kalahandi – 1,437 pcs

Koraput - 580 pcs

### **Health and Sanitation Measures**

- 31 medical teams consisting doctors and paramedical staff were deployed in the flood affected areas. Halogen Tablets & ORS packets were provided to flood victims.
- Water pouches were provided to marooned people. Wells and Tube Wells were disinfected.

### **Animal Care**

- 13 veterinary teams were deployed for cattle care. 1,580 cattle were treated.

### **Administrative Measures**

- ✓ Special Relief Commissioner sent a team of officials headed by Joint Commissioner Relief to the flood affected areas of Koraput, Nabarangpur and Kalahandi Districts to oversee the relief & restoration work.
- ✓ The team reviewed progress of enumeration of damages to private and public properties with the field level officials for early disbursement of assistances and restoration of damaged infrastructure.

- ✓ District Administrations were instructed to distribute house building assistance, sand cast assistance, ex-gratia assistance, assistance for clothing & utensils, animal husbandry assistance, agriculture input subsidy through A/C Payee Cheques to the beneficiaries.

## **Funds Released out of SDRF**

### **a) Pure relief measures**

<b>Purpose</b>	<b>Funds Released (Rs in Lakh)</b>
Food Assistance	81.20
House Building Assistance	286.39
Sand cast assistance	184.78
Ex-Gratia	14.00
Clothing & Utensils	44.85
Cattle feed	13.34
Assistance for loss of draught / milch animals	8.35

### **b) Repair /Restoration of Infrastructures**

An amount of Rs 27.76 crore was released to the Departments mentioned below towards immediate repair/restoration of damaged infrastructures.

<b>Department</b>	<b>Funds Released (Rs in crore)</b>
R.D	8.30
W.R	11.85
Works	7.61
<b>Total</b>	<b>27.76</b>

### **Declaration of Flood Affected villages**

In pursuance of the provisions contained in Pragraph-79 of the Orissa Relief Code, Government have declared that 889 villages covered under 262 GPs of 23 Blocks and 13 wards of 4 Urban Local Bodies (ULBs) in respect of 6 District as affected by Floods during 2010 vide Notification No.IVF-120/2010- 19665/R & DM Dt.07.05.2011.

## ii. DROUGHT 2010

As indicated earlier, the average rainfall of the State remain deficient during June, July, August and September by 30.6%, 14.4%, 20.2% % 1.7% respectively. During this period dry spell prevailed for 89 days. Out of 314 blocks rainfall in 29 blocks was less than 50% and that of 99 blocks was between 50% and 75%. As a result, most parts of the State faced moisture stress conditions.

Although the distribution of rainfall in the month of June was quite sporadic and inadequate, the farmers broadcasted the paddy seeds in medium and low lands. Paddy seeds were also shown in nursery bed to take up transplanting operation. But the rainfall in the month of July was not adequate to take up the agricultural operations in a smooth manner. Although, coverage under paddy and other crops during the year was near normal, due to deficient rainfall, operations like beushaning of broadcasted paddy, weeding could not be taken up in most of the cases.

The rainfall received in the month of August was quite inadequate to take up beushaning and other agricultural operations in the field. In the month of September, first two weeks recorded very less rainfall. In absence of adequate rainfall, the paddy fields were full of weeds and plants were stunted and turned yellow without any prospect of revival.

### Coverage of different crops during Kharif 2010

(area in '000 Hect )

Crop	Normal Area	Area covered last year	Area covered this year
Paddy (HYV)	3,185	3,233.24	3,268.68
Paddy (Local)	953	374.88	327.45
<b>Total Paddy</b>	<b>4,138</b>	<b>3,608.12</b>	<b>3,596.13</b>
Maize (HYV)	155	180.86	201.64
Maize (Local)	41	35.68	34.75
<b>Total Maize</b>	<b>196</b>	<b>216.54</b>	<b>236.43</b>
Ragi	184	180.88	175.88
Jowar	9	9.00	8.92
Bajra	3	2.78	3.37
Small Millets	21	17.72	15.69
<b>Total Cereals</b>	<b>4,551</b>	<b>4,035.04</b>	<b>4036.42</b>
Mung	226	242.68	226.98
Biri	271	286.96	273.71
Arhar	134	132.92	135.37
Other Pulses	69	88.10	79.09
<b>Total Pulses</b>	<b>700</b>	<b>750.66</b>	<b>715.15</b>

Groundnut	89	87.68	82.15
Til	233	211.53	193.12
Castor	11	9.82	8.39
Niger	98	89.25	85.85
Sunflower	1	0.52	0.44
<b>Total Oilseeds</b>	<b>432</b>	<b>398.80</b>	<b>369.95</b>
Jute	11	9.12	9.46
Mesta	22	17.29	16.01
Sunhemp	9	7.39	7.95
Cotton	54	54.00	74.37
<b>Total Fibres</b>	<b>96</b>	<b>87.80</b>	<b>107.79</b>
<b>Total Vegetables</b>	<b>281</b>	<b>292.00</b>	<b>601.13</b>
<b>Total Spices</b>	<b>73</b>	<b>73.00</b>	<b>101.11</b>
<b>Gross Area</b>	<b>6,133</b>	<b>5,637.30</b>	<b>5,931.55</b>

The effects of scanty and erratic rainfall on Kharif crops are:-

- i) Heavy weed infestation and poor plant stand in autumn paddy
- ii) Late transplanting of medium and later paddy with aged seedlings
- iii) Drying of grains and panicles and reduction in production of autumn rice
- iv) Poor plant stand, reduced growth and tillering of late varieties

## **Drought Monitoring**

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

A committee of Crop Weather Watch Group constituted under the Chairmanship of Agriculture Production Commissioner, Orissa with the following members monitored the progress of Kharif 2010 crops on weekly basis. The committee held its meeting each Monday.

- i) Secretary, Agriculture Department
- ii) Secretary, Water Resources Department
- iii) Special Relief Commissioner, Orissa
- iv) Director of Agriculture & Food Production
- v) Director of Economics & Statistics
- vi) Director of Horticulture
- vii) Director, India Meteorological Centre, Bhubaneswar
- viii) Agro Meteorologist, Orissa University of Agriculture and Technology
- ix) Managing Director, OSSC Ltd.
- x) Agriculturist, Agriculture Department (Nodal Officer)



**b) NADAMS Report**

Under National Agricultural Drought Assessment and Monitoring System (NADAMS) project, assessment of agricultural drought and crop condition is carried out during kharif season and monthly reports are brought out for each State from June to November every year. The agricultural condition is monitored at State/District level using coarse resolution (1.1 km) NOAA AVHRR data on a daily basis for the entire country. Moderate resolution IRS Advanced Wide Field Sensor AWiFS/WiFS data are analyzed for District/Sub-District level assessment in selected States. Further, MODIS 250m, 500m derived Normalized Difference Vegetation Index (NDVI), Normalized Difference Water Index (NDWI) and Short Wave Angle Slope Index (SASI) and the AMSR-E soil moisture Climate Prediction Centre's precipitation and District level weekly rainfall from the IMD are also interpreted to complement the assessment.

The National Remote Sensing Centre, Hyderabad in its Drought Monitoring Report for August 2010 indicated that 13 Districts of Orissa namely Mayurbhanj, Balasore, Keonjhar, Bhadrak, Jajpur, Jagatsinghpur, Kendrapada, Dhenkanal, Angul, Sambalpur, Jharsuguda, Sundargarh and Deogarh were under close watch. Further, as per the report for the month of September and October 2010 released on 7<sup>th</sup> October and 4<sup>th</sup> November 2010 respectively, 10 Districts of Orissa were shown as drought affected.

**c) High Level Meetings**

- Hon'ble Chief Minister took review meetings with high level officers on crop loss situation on 18.08.10, 22.09.10 & 30.09.10.
- Chief Secretary also took review meeting with high level officials to take stock of the situation on 16.09.10.

**d) Monitoring by RDCs & Collectors**

All Revenue Divisional Commissioners and Collectors were instructed to monitor the situation by conducting frequent tours and meetings with Revenue and Agricultural Field Level Officers and submit weekly report to Special Relief Commissioner. The Collectors of the affected Districts were instructed to convene special meeting of the District Level Natural Calamity Committee to review the situation and to take necessary drought mitigation measures.

### Drought Monitoring & Information System by CWWG & Collectors

Parameters		By CWWG at State Level	By Collectors at District level
Meteorological	Monsoon Rainfall	weekly	Daily
	Dry Spell during Sowing	weekly	Daily
	Dry Spell during crop growth period	weekly	Daily
Hydrological	Ground water flow	weekly	Daily/Fortnightly
	Soil moisture deficit	weekly	Fortnightly
	Water availability in Reservoir	weekly	Fortnightly
Agricultural	Delay in sowing	weekly	Weekly
	Sown area	weekly	Weekly
	Condition of crop	weekly	Weekly

### Drought Declaration by State Government

On the basis of crop cutting experiment reports submitted by the Collectors, the State Govt. Government in Revenue and Disaster Management Department declared **10,674** villages of **112** Blocks and **112** wards of **16** Urban Local Bodies covering **17** Districts as Drought affected having sustained crop loss of 50% and above during the year 2010 (Kharif).

### No. of villages having Crop loss of 50% and above (Kharif-2010)

SI	District	No of Blocks affected	No of ULBs affected	No of G.P.s affected	No of villages having crop loss of 50% and above	No of wards having crop loss of 50% and above	Total
1	Angul	8	2	210	1752	24	1776
2	Balasore	5	0	27	202	0	202
3	Bargarh	6	0	92	418	0	418
4	Bhadrak	5	0	57	386	0	386
5	Bolangir	12	0	124	358	0	358
6	Boudh	3	0	44	515	0	515
7	Deogarh	3	0	34	293	0	293
8	Dhenkanal	6	0	128	280	0	280

9	Jajpur	2	0	12	43	0	43
10	Jharsuguda	5	3	77	294	15	309
11	Kendrapada	2	0	59	208	0	208
12	Keonjhar	6	1	70	282	1	283
13	Mayurbhanj	21	2	280	2924	18	2942
14	Puri	1	0	4	19	0	19
15	Sambalpur	9	4	125	1091	30	1121
16	Subarnapur	1	0	13	174	0	174
17	Sundargarh	17	4	248	1435	24	1459
<b>Total</b>		<b>112</b>	<b>16</b>	<b>1604</b>	<b>10674</b>	<b>112</b>	<b>10786</b>

### Appraisal to Government of India

(i) The State experienced 50% deficient rainfall in 55 Blocks during June and July 2010. Through a preliminary report, the Joint Secretary, Ministry of Agriculture, Government of India was informed vide Special Relief Commissioner's letter No. 2008 dated 20 August 2010 on the rainfall status of the State.

(ii) In Special Relief Commissioner's letter No.2160 dated 8 September 2010, the Joint Secretary, Ministry of Agriculture, Government of India was informed that 15 out of 30 Districts have rainfall deficit of 25-50 percent or above which is quite alarming and leading to drought like situation in the State.

(iii) In letter No.2433/SR dated 12 October, 2010, Government of India was requested to provide central assistance of **Rs.1516.74 crore** out of NCCF for drought relief measures.

### Mitigation measures taken by the State Government

In response to the severe drought situation, the State Government have announced a comprehensive package for mitigation of the drought situation. The package includes-

1. Agriculture input subsidy will be provided to the small and marginal farmers who have sustained crop loss of 50% and above @ Rs.2000 per hectare of land in rainfed/ non-irrigated areas and Rs.4000 per hectare of land in areas under assured irrigation. Agriculture input subsidy will also

be provided to farmers other than small and marginal farmers at the same rates subject to a ceiling of one hectare per farmer. In case of successive calamities, the subsidy shall be provided to farmers other than small & marginal farmers up to two hectares per farmer.

2. Under Jalanidhi Scheme, 50,000 private Lift Irrigation Points will be installed by June 2011.
3. 50% subsidy subject to ceiling of Rs.15,000 will be provided to farmers for procuring plastic/ PVC/ HDPE pipes for carrying water for irrigation.
4. Defunct Lift Irrigation Points will be revived to make them operational in the drought affected areas. Working Lift Irrigation points will be made operational throughout the State. Rs.10.50 crore has already been sanctioned for the purpose. Further funds shall be provided as per requirement.
5. On payment of 50% of arrear electricity dues, power reconnection will be provided to Lift Irrigation Points within three days. Secretary, Energy Department and Secretary, Water Resources Department will review the progress of revival of Lift Irrigation Points every week.
6. The renovation of Minor Irrigation Projects, check dams, and other works relating to the Department of Water Resources will be started immediately.
7. 2000 check dams will be constructed by June 2011. Priority will be given to drought affected areas.
8. 50% subsidy will be provided on purchase of pump sets up to 7.5 HP.
9. 75% subsidy will be provided for installing paddle operated / low lift pumps for irrigation.
10. Construction of temporary sand bundhs across flowing nulahs, streams and rivers to divert water for irrigation has already started and funds have already been sanctioned in favour of the Collectors. More funds will be made available depending on progress of work.
11. Diesel subsidy will be given as per demand under the Government of India guidelines/ norms in drought affected areas.

12. Pre-Rabi and Rabi seeds such as Groundnut, Mung, Biri, Mustard and Sunflower will be made available at subsidised rates.
13. Kharif short term loans will be re-phased in drought affected areas.
14. Loan for Rabi will be available at the rate of 3% in drought affected areas.
15. Wage employment programmes and farm ponds under “Mo Pokhari” scheme will be started in every village in individual lands of small and marginal farmers. Wage employment will be provided to job seekers up to 200 days on demand. These works would start immediately from 1<sup>st</sup> October 2010.
16. Food assistance @ 1 kg per adult and 500 gram per child shall be provided to people in dire need of immediate sustenance up to 60 days, as assessed by the Collectors.
17. Rs.15 crore has been provided to Rural Development Department and Rs.11.50 crore to Housing & Urban Development Department for provision of safe drinking water in water scarcity areas during summer. Adequate tankers will be deployed to provide drinking water.
18. Farmers in the drought declared villages, where crop loss is 50% or more will be allowed 50 % remission on compulsory basic water rate.
19. School fees and school examination fees in Government schools in drought affected areas shall be waived.
20. 50% remission in respect of cess on land revenue will be given to farmers where the crop loss is 50% or more. Collection of the remaining amount will be deferred to the next financial year without levying any interest.

### **Submission of Memorandum to Government of India**

The State Government submitted Memorandum on Natural Calamities 2010 to Ministry of Home Affairs, as well as to Ministry of Agriculture, Government of India vide letter no 2584/2585 Dt.11.11.2011 seeking Central Assistance of Rs.1589.19 crore, which includes Central Assistance for Drought of 2010 & outstanding release of funds for flood 2008. The sector wise assistance sought for is mentioned in the following table.

**ABSTRACT OF REQUIREMENT OF FUNDS FROM GOVERNMENT OF INDIA  
FOR DROUGHT 2010**

Sl.	Sector	Purpose	Amount
			(Rs. in Crore)
1	Agriculture	Agriculture input subsidy	157.57
		Soil conservation / Drought proofing measures	40.00
		Provision of subsidised seed	6.25
		Provision of diesel pumps	20.00
		Diesel subsidy	50.00
		Installation of private lift irrigation points	20.00
		Provision of sprayers and pesticides	4.25
		<b>Sub-total</b>	<b>298.07</b>
2	Cooperation	Waiving of crop loan interest	<b>76.19</b>
3	Water Resources	Revival of minor irrigation projects (Lift & Flow)	103.08
		Construction of check dams	100.00
		<b>Sub-total</b>	<b>203.08</b>
4	Food Security	Gratuitous Relief	137.66
		Emergency Feeding	25.00
		Supplementary Nutrition	17.59
		<b>Sub-total</b>	<b>180.25</b>
5	Drinking Water Supply	Rural water supply	182.00
		Urban water supply	22.25
		<b>Sub-total</b>	<b>204.25</b>
6	Animal Resources	Provision of fodder	214.55
		Cattle Health measure	5.65
		<b>Sub-total</b>	<b>220.20</b>
7	Health Measures	Provision of medicines	<b>6.02</b>
8	Calamity Fund Release	CRF- Outstanding release for Flood 2008	<b>401.13</b>
<b>Grand Total</b>			<b>1589.19</b>

**Visit of Central Team (For Drought 2010)**

The Inter-Ministerial Central Team led by Shri S.K.G. Rahate, Joint Secretary, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India visited the drought affected areas of the State from 22 November to 26 November 2011 and realized the severity of drought situation.

### **iii. Unseasonal Rain due to Cyclonic Depression**

A cyclonic low pressure was formed in the West-central Bay of Bengal around 04 December 2010 which intensified into depression, moved North-westwards and crossed Andhra Pradesh Coast near Bapatla in the early morning of the 8 December 2010. Then the system further moved north-westwards weakened into a well marked low pressure area and continued to lie over Central and then North Andhra Pradesh till it dissipated on 10 December 2010. Under influence of the system, heavy rain with wind severely affected the States of Tamilnadu, Andhra Pradesh and Orissa.

#### **Rainfall**

Under the influence of the cyclonic depression, the entire State received heavy rain during the period from 6 to 10 December 2010 in 1<sup>st</sup> Spell. Again a second spell of rain was received in many parts of the State from 13 to 14 December 2010. The cumulative rainfall of different Stations ranged up to 168 mm during this period.

#### **Impact on Crops**

Normally rains act as nectar for agriculture. In normal times i.e. Monsoon period, this quantum of rain would have been extremely beneficial to crops but the same amount of rain is sufficient enough to destroy the crops when it is ripe. The latter happened in the present case and the untimely rain acted as poison and damaged the ripe crops extensively. Due to the untimely rain, standing paddy crops and harvested crops stacked on the paddy field and threshing floor as well as non-paddy crops like Vegetables, Pulses, Oil seeds & Maize were heavily damaged.

#### **Winter Paddy**

This is the most affected in terms of area and value. The standing crops were severely affected due to water logging and the yield were rendered unfit for consumption. The harvested paddy stacked on the field and threshing yards was also damaged due to soaking for three days runoff and in situ sprouting.

#### **Rabi Crop**

Areas where autumn paddy had failed or had already been harvested, rabi crop like mug, mustard, dal were sown. The unseasonal rain damaged the said crop entirely.

## **Rabi Vegetable Crop**

Standing vegetable crops sustained damage severely.

## **Extent of Damage**

As per report submitted by the Collectors, standing and harvested crops suffered more than 50% loss in around 12 lakh hectares of crop area under both paddy and non-paddy in 24 Districts. Taking into account the loss of crop to the extent of 50% and above in nearly 12 lakh hectares of crop land and average yield, the value of crops lost comes to Rs.6000 crore.

## **Appraisal to Government of India:**

- (i) The Chief Secretary, Orissa in his D. O. letter No.2829 dated 14 December 2010 apprised the Cabinet Secretary, Government of India that the un-seasonal rain which occurred during 6th-10th December 2010 due to the effect of the Cyclonic circulation in the Bay of Bengal has destroyed the harvested crops as well as the crops to be harvested in large scale in most parts of the State. The loss suffered due to the current un-seasonal rain in addition to crop loss due to drought has been widespread and extensive for which immediate assistance for sustenance of such farm-families at this juncture is of crucial importance.
- (ii) Hon'ble Minister, Revenue & Disaster Management, Orissa in his D. O. letter No.2818/MR&DM dated 12 December 2010 addressed to Union Minister for Agriculture, Government of India intimated that adding to the plight of the farmers of the State affected by the drought, incessant cyclonic rain from 6<sup>th</sup> to 10<sup>th</sup> December 2010 caused by the deep depression in the Bay of Bengal played havoc by destroying both harvested and standing paddy, vegetable and other winter crops in a large scale. Pending visit of the Central Team, it was requested to release Rs.500 crore as a special package out of National Disaster Response Fund (NDRF) for assisting the affected farmers due to the untimely cyclonic rain.
- (iii) A preliminary Memorandum on crop loss by the cyclonic rain was sent to the Ministry of Home Affairs, Government of India vide letter No. 2891 dated 21 December 2010 of Special Relief Commissioner, Orissa. The Government of India was requested to depute an Inter-Ministerial Central Team for an on the



spot assessment of the damages. It was also requested that pending visit of the Central Team, an adhoc release of Rs.500 crore may be made for agriculture input subsidy, food assistance and fodder.

## Submission of Memorandum to Government of India

The State Government submitted Memorandum on Natural Calamities 2010 to Ministry of Home Affairs, as well as to Ministry of Agriculture, Government of India vide letter no 2895/2896 Dt.23.12.2011 seeking Central Assistance of Rs.2616.00 crore, which includes Central Assistance for unseasonal cyclonic rain, Drought of 2010 & outstanding release for flood 2008. The sector wise assistance sought for is mentioned in the following table.

### ABSTRACT OF REQUIREMENT OF FUNDS FROM GOVERNMENT OF INDIA

Sl.	Sector	Purpose	Amount
			(Rs. in Crore)
<b>A. Unseasonal rain due to cyclonic depression</b>			
1	Agriculture	Agriculture input subsidy	422.91
		Additional assistance to Self-help Groups	10.00
2	Co-operation	Differential interest support on account of conversion of short-term agricultural Kharif loans to medium term conversion loans	150.00
		Interest subvention	85.00
3	Food Security	Gratuitous relief	155.46
		Emergency feeding	36.00
		Supplementary nutrition	6.82
4.	Animal Resources	Provision of fodder	160.81
Total			1027.00
<b>B. Outstanding release for Drought 2010</b>			1188.06
<b>C. Outstanding release for Flood 2008 (500 cr. – 98.87 cr.)</b>			401.13
<b>Grand Total</b>			<b>2616.19</b>

### **Visit of Central Team (For unseasonal cyclonic rain 2010)**

An Inter-Ministerial Central Team led by Shri Pankaj Kumar, Joint Secretary, Ministry of Agriculture, Government of India visited the State from 28.12.2010 to 31.12.2010 for an on the spot assessment of the damages to crops and requirement of assistance in the wake of un-seasonal rain occurred in December 2010

### **Measures taken by Government**

In view of the situation, in Special Relief Commissioner's letters No.2794 dated 8 December 2010 and No.2811 dated 09.12.2010, all the Collectors were instructed to assess the damages caused due to unseasonal heavy cyclonic rain.

Hon'ble Chief Minister, Orissa in a meeting on 8 December 2010, reviewed the situation and issued direction to the Collectors to assess the situation and send their reports by 15 December 2010.

On 12 December 2010, Hon'ble Chief Minister of Orissa, Hon'ble Minister, Revenue & Disaster Management, Orissa and Chief Secretary visited several affected Districts and realised about the devastating situation created by the above unusual weather event.

On 13 December 2010, the situation was reviewed by the Hon'ble Chief Minister through video conferencing with the Collectors of the Districts.

After receipt of the reports from the Collectors, the matter was discussed in a high level meeting chaired by Hon'ble Chief Minister, Orissa and decision was taken on different relief measures to be taken up by the Government.

The State Government announced the following package of assistance to ameliorate the sufferings of the affected farmers.

1. Subject to the ceiling laid down in the norms of CRF/SDRF, ex-gratia assistance @ Rs.2,000/- per hectare shall be provided to the affected farmers who have suffered crop loss of more than 50% due to heavy un-seasonal cyclonic rains. This is over and above the Agricultural Input Subsidy.
2. Agricultural Input Subsidy shall be provided to the affected farmers, as per the norms of CRF/SDRF.

3. The minimum assistance to any affected farmer shall not be less than Rs.1000/- by administering both ex-gratia assistance and Agricultural Input Subsidy.
4. The eligible amount will be paid to the actual cultivators.
5. Short-term Agricultural Kharif Crop Loans of the affected farmers shall be converted into Medium Term Conversion loans repayable over a period of three years. Interest on such loans shall be charged at a reduced rate of 5% against the normal rate of 9% per annum.
6. Crop loans during the current Rabi season shall be made available to the affected farmers at 5% interest which will be reduced to 3% in case of timely repayment.
7. Three lakh pulses kits and two lakh vegetable seed mini kits will be distributed to the affected farmers free of cost.
8. 50% remission in respect of cess on land revenue & compulsory basic water rate will be given to farmers where the crop loss is 50% or more. Collection of the remaining amount will be deferred to the next financial year without levying any interest.
9. School fees and school examination fees up to High School level in Government Schools shall be waived in the affected areas.
10. Additional seed money of Rs.5000/- will be given to the affected SHGs in the affected areas who have taken up cultivation and sustained crop loss.
11. Government of India has been requested for relaxation of FAQ norms for procurement of paddy in the affected areas.
12. Provision of fodder in cattle camps shall be made wherever necessary.

#### **iv. Fire Accidents**

Most of the people of the state are socially and economically backward, live in villages in thatched houses, which are prone to fire. Fire accidents generally occur during summer and it causes unpredictable loss of life and properties.

District wise loss of life and properties due to fire accident during the period under report is given below.

### Loss of life and property due to Fire Accident during the year 2010-11

Sl. No.	Name of the District	No. of accident	No. of villages affected	No. of families affected	Approx. value of properties lost	No. of persons died	No. of cattle died
1	2	3	4	5	6	7	8
1	Angul	225	225	480	8794800	1	
2	Balasore	593	266	593	21906400		
3	Bargarh	46	39	82	542200		
4	Bhadrak	534	79	965	11069900	4	
5	Bolangir	44	49	75	804100		
6	Boudh	110	105	491	8165000		1
7	Cuttack	322	237	544	8059500		
8	Deogarh	25	19	153	341000		
9	Dhenkanal	204	258	155	15538700	1	6
10	Gajapati	64	52	247	2820200		
11	Ganjam	586	1153	1340	31797600	1	3
12	Jagatsinghpur	456	357	476	12060900		
13	Jajpur	424	292	424	9049000		
14	Jharsuguda	1	1	1	55000		
15	Kalahandi	11	11	13	310000		
16	Kandhamal	146	103	154	2333000		
17	Kendrapara	411	257	566	12473500	1	1
18	Keonjhar	183	119	152	3690600		
19	Khordha	175	175	478	8508900		
20	Koraput	108	108	234	2700000		
21	Malkanagiri	40	38	40	578300		
22	Mayurbhanj	163	101	163	17936500		
23	Nawarangpur	104	100	124	1782300		
24	Nayagarh	141	132	397	6378500		
25	Nuapara	19	19	19	496740		
26	Puri	289	251	465	6976400		
27	Rayagada	40	40	103	1268300		6
28	Sambalpur	40	40	68	1910300		
29	Subarnapur	95	95	292	7299000	1	
30	Sundargarh	Nil					
<b>Total</b>		<b>5599</b>	<b>4721</b>	<b>9294</b>	<b>205646640</b>	<b>9</b>	<b>16</b>

## v. Lightning

The number of death due to lightning, compared to other disasters, is high in Orissa. It occurs throughout the year. 227 persons lost their lives during the year 2010-11 due to lightning district-wise breakup is given below.

Sl.	Districts	No. of deaths
1	Angul	12
2	Balasore	7
3	Bargarh	11
4	Bhadrak	6
5	Bolnagir	7
6	Boudh	2
7	Cuttack	7
8	Deogarh	2
9	Dhenkanal	15
10	Gajapati	1
11	Ganjam	15
12	Jagatsinghpur	5
13	Jajpur	15
14	Jharsuguda	6
15	Kalahandi	7
16	Kandhamal	1
17	Kendrapara	6
18	Keonjhar	19
19	Khurda	5
20	Koraput	7
21	Malkangiri	-
22	Mayurbhanj	18
23	Nawarangpur	8
24	Nayagarh	4
25	Nuapada	4
26	Puri	-
27	Rayagada	11

28	Sambalpur	7
29	Sonepur	5
30	Sundargarh	14
	<b>Total</b>	<b>227</b>

## vi. Hailstorm

Due to hailstorms 9 districts were affected during the year 2010-11. **Rs.88,63,780** has been provided to Collectors of Balasore, Bargarh, Boudh, Jagatsinghpur, Jharsuguda, Kendrapara, Khurda, Sambalpur and Sundargarh districts out of CRF for disbursement of House Building Assistance, Ex-gratia assistance, Input subsidy and other assistances. The district-wise details are given in the table below.

### Hail Storm (2010-11)

Sl. No.	Districts	Date of Occurrence	Nature of Calamity	No. of Blocks affected	No. of GPs affected	No. of villages affected	Casualty	
							Human	Cattle
1	2	3	4	5	6	7	8	9
1	Balasore	26.05.2010	Hailstorm	1	1	1	1	
2	Bargarh	24.05.2010	Hailstorm	1	14	48	2	
		07.05.2010	Hailstorm	2	3	3		
3	Boudh	25.05.2010	Hailstorm	2 NAC-1	15	22		
4	Jagatsinghpur	15.03.2011	Hailstorm	3	3	3	3	
5	Jharsuguda	24.05.2010	Hailstorm	5 Municipality-2	21	88	2	
6	Kendrapara	15.03.2011	Hailstorm	2	2	2	2	
7	Khurda	24.05.2010	Hailstorm	1	1	1	1	
8	Sambalpur	24.05.2010	Hailstorm	4	9	82	1	
9	Sundargarh	24.05.2010	Hailstorm	1	1	2	2	
	<b>Total</b>			<b>22 NAC-1 Municipality-2</b>	<b>70</b>	<b>252</b>	<b>14</b>	

Contd..

Sl. No.	Districts	No. of House damaged				Crop damage more than 50% (in hect.)	Relief Assistance Provided		
		Fully	Severely	Margi-nally	Total		House Building Assistance	For input subsidy on crop loss	Total amount released
1	2	10	11	12	13	14	15	16	17
1	Balasore								1,00,000
2	Bargarh			66	66	194.51	1,06,500	7,78,280	8,84,780
			18	138 Hut-10	166		2,72,000		2,72,000
4	Jagatsinghpur								3,00,000
5	Jharsuguda		165	1911	2076		32,81,500		34,81,500
6	Kendrapara								2,00,000
7	Khurda								1,00,000
8	Sambalpur								1,00,000
9	Sundargarh								2,00,000
	<b>Total</b>		<b>183</b>	<b>2115 Hut-10</b>	<b>2308</b>	<b>194.51</b>	<b>36,60,000</b>	<b>7,78,280</b>	<b>58,38,280</b>

## vii. Heat wave

The death toll as mentioned below due to heat-wave year-wise since 1998 gives a clear picture regarding the calamity.

Year	Human Casualty
1998	2042
1999	91
2000	29
2001	25
2002	41
2003	67
2004	43
2005	236

2006	21
2007	47
2008	71
2009	89
2010	100

Poor people, farmers and workers mostly suffer from sunstroke and lose their lives. The State Government after the large number of deaths in 1998 started making concerted efforts to minimise the death toll and related suffering of the people on account of heat-wave conditions. The main activities to minimise the death toll and other sufferings because of heat-wave are through sustained awareness campaigns in the print & electronic media, prevention and response activities.

In 2010 the conditions of heat-wave existed in the State in the months of April, May and June. A number of preparedness/ preventive activities were undertaken by the State Government for management of heat-wave situation during 2010 some of which are given below:

1. On 3<sup>rd</sup> March, 2010 all Collectors were instructed to take all precautionary measures for mitigating the heat-wave situation.
2. Meetings under the chairmanship of Hon'ble Chief Minister and Hon'ble Minister, Revenue & Disaster Management, Orissa were held on 11<sup>th</sup> March 2010 and 26<sup>th</sup> April 2010 to review the preparedness activities of all concerned Departments against heat wave conditions and drinking water problem in water scarcity areas of the State.
3. The Collectors were instructed to hold District level meeting and take necessary measures to tackle the heat-wave situation. Necessary steps as per the proceedings of these District level meetings were undertaken.
4. IEC materials relating to heat-wave were prepared and published by OSDMA for general awareness of the public. Advertisements were given through local newspapers, radio and television channels by OSDMA as well as Health & Family Welfare Department for raising awareness of the people.
5. All India Radio, Doordarshan and other Television channels also organised discussion and other programmes for creating awareness among people.



6. Action plan for mitigating water scarcity problems in different towns and rural areas, where acute scarcity of drinking water is felt, was prepared. Adequate water tankers were deployed for supply of drinking water and defunct tube wells were replaced / repaired.
7. Essential medicines, saline and ORS packets were stored in the District Headquarters Hospitals, Community Health Centres and Primary Health Centres. Separate beds were earmarked for treatment of heat-stroke patients in the District Headquarters Hospitals.
8. The working hour for daily labourers was re-scheduled i.e. from 6 a.m. to 11 a.m. and 3.30 pm to 6 pm. Provision of drinking water was made at the works site.
9. Plying of buses during peak hours i.e. between 11.00 AM to 3.00 PM was restricted.
10. Power distributing companies were instructed to ensure uninterrupted power supply during the summer.
11. The time table of the schools was re-scheduled from 6.30AM to 10.30 AM. Provision of drinking water and first aid was made available at the examination centres. Tub wells inside the school campus were repaired.

Despite these measures of the State Government, the number of casualties due to sunstroke this year had exceeded those of the preceding four years. The District-wise number of human casualties due to sunstroke during the year 2010 is given below.

<b>Sl.</b>	<b>Name of the District</b>	<b>No. of persons died</b>
1	Angul	3
2	Balasore	5
3	Bargarh	10
4	Bhadrak	3
5	Bolangir	3
6	Cuttack	1
7	Dhenkanal	12
8	Ganjam	8
9	Jagatsinghapur	2

10	Jajpur	1
11	Kendrapada	3
12	Keonjhar	3
13	Khordha	6
14	Mayurbhanj	3
15	Nawaramgpur	1
16	Nayagarh	3
17	Nuapada	1
18	Sambalpur	6
19	Sundargarh	26
<b>Total</b>		<b>100</b>

Since heat-wave has, so far, not been notified as a natural calamity, the State Government undertook all required measures to tackle the situation out of its own fund. Ex-gratia assistance @ Rs.10,000/- is being provided to the bereaved families of the sunstroke victims from the Chief Minister Relief Fund by the State Government.

The State Government has repeatedly raised the issue for inclusion of heat-wave in the list of Natural Calamities before the Government of India and Finance Commission, which needs active consideration.

### **Drinking Water Problem**

Due to acute heat-wave conditions from April to June, all drinking water sources dried up considerably. As a result, drinking water scarcity problem was noticed in almost all districts. There was huge depletion of ground water level. Water tankers were deployed in scarcity pockets. An amount of Rs.14.50 crore to H & U.D. Department and Rs.3.00 crore to R. D. Department was released in order to combat drinking water scarcity problem.

## **Chapter - IV**

### **Management Information System**

Based on the verdict and observation of Supreme Court derived out of Writ Petition (Civil) No.196/2001, the Management Information System for Tracking Hunger and Malnutrition has been introduced from 2<sup>nd</sup> fortnight of January 2003 in the State. With the view to preventing death due to starvation or malnutrition and ensuring food security, the Government of Orissa have introduced this system for regular monitoring of malnutrition and hunger for ensuring food security with emphasis on followings:

1. Employment Generation Work
2. Food for Work
3. For vulnerable population
4. In scarcity pockets
5. In epidemic prone areas
6. Of Individual with prolonged illness
7. For Mothers and children with malnutrition
8. Social Security Net

Keeping in view the guidelines and format issued on these aspects, District Authorities collect required information from grass-root level (Gram Panchayat) and submit report to the Special Relief Commissioner twice every month at the end of each fortnight. On receipt of the information from the Collectors of the Districts, compilation and analysis work are done at level of Special Relief Commissioner and evaluation of the data is made as per the prescribed indicators. As monitoring authority, advice and guidance are given to the concerned Departments of Government and all Collectors for making necessary interventions on the basis of feedback from the field and submit regular compliance thereof. Thus, Management Information System has proved its utility for effective management of disaster.

## Chapter – V

### Assistance from Central Government

Considering the Memoranda submitted by the State Government, report of the Central Teams, recommendations of the Inter- Ministerial Group (IMG) thereon and the extant items & norms of assistance from CRF/SDRF and NDRF, the Government of India sanctioned and provided an assistance of Rs.560.17 crore to the State Government for management of drought and unseasonal rain of 2010. The details are as follows:

**Amount (in Crore Rs.)**

Assistance approved by High Level Committee (HLC)	(Rs.376.55 for Drought + Rs.438.87 for Unseasonal Rain)	815.42  (subject to adjustment of 75% of balance in the SDRF account of the State for the instant calamity)
(-) 75% of the funds available for instant calamities (Rs.246.26 crore)		184.695
Net out go from the NDRF		630.72
(-) Amount identified as excess against the adhoc releases made from NCCF		70.559
<b>Net release from NDRF for both the calamities</b>	<b>(Rs.258.69 crore for Drought + Rs.301.48 crore for Unseasonal rain)</b>	<b>560.17</b>

## Chapter - VI

### State Disaster Response Fund (SDRF)

Expenditure on account of different calamity mitigation measures are met out of SDRF at the State level. As per the procedures and norms prescribed by Government of India, the State Executive Committee headed by the Chief Secretary of the State administers the fund. The fund is constituted by the sharing of Central and State Government at the ratio of 75:25.

When a calamity of rare severity occurs and the funds available in the SDRF is not sufficient to meet the requirement, additional funds are sanctioned by the Government of India out of NDRF considering the magnitude of the calamity.

The position of both SDRF and NDRF is shown below.

#### RECEIPT/EXPENDITURE POSITION

2010-11

*(Rs. in lakh)*

Category of Funds	OB	Receipt	Total	Expenditure	Balance
CRF/SDRF	571.59	40209.00	<b>40780.59</b>	38531.59	2249.00
NCCF/NDRF	0	20000.00	<b>20000.00</b>	20000.00	0
<b>Total</b>	571.59	60209.00	<b>60780.59</b>	58531.59	2249.00

Though Rs.560.17 crore had been received out of NDRF towards Drought and un-seasonal cyclonic rain relief measures, an amount of Rs.200.00 crore only had been credited to the fund due to non-availability of Budget Provision.

#### UTILIZATION CERTIFICATE

Utilization Certificate amounting to Rs.171.51 crore has been sent to AG Orissa during the year under report against the funds provided to various Departments and Districts since 1999-00 till 2010-11.

	<b>District</b>	<b>Department</b>	<b>Total</b>
<b>CRF / SDRF</b>	1876.081	14177.999	16054.080
<b>NFCR / NCCF / NDRF</b>	8.543	1088.379	1096.922
<b>GRAND TOTAL</b>	<b>1884.624</b>	<b>15266.378</b>	<b>17151.002</b>

(1) An amount of Rs.4271.30 crore has been received from 1999-00 to 2010-11 under CRF/SDRF and NFCR / NCCF/NDRF. Out of which utilization certificate to the tune of Rs.3000.04 crore has already been furnished to AG, Orissa till 31.03.2011. The table below has shown the details.

*[Rs in crore]*

<b>Fund</b>	<b>Receipt 1999-2000 to 2010-11</b>	<b>UC Submitted 1999-2000 to 2010-11</b>	<b>Percentage</b>
CRF	2791.31	1783.44	63.90
NFCR/NCCF	1479.99	1216.60	82.20
<b>Total</b>	<b>4271.30</b>	<b>3000.04</b>	<b>70.20</b>

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