

CHAPTER - I

Introduction

Orissa is situated between 17.31^o to 20.31^o North latitude, 81.31^o East longitude covering an area of 1, 56,000 sq. KM. The Bay of Bengal forms the eastern boundary of State, which has a coast line of nearly 480 kms. The State is broadly divided into the following five natural regions basing on morphological peculiarities, geological, climatic and edaphic conditions.

- i) Coastal Plains
- ii) River Valley and Flood Plains
- iii) Rolling Uplands
- iv) Plateau
- v) Mountains

The climate of the State varies from moist, sub-humid to dry sub-humid. Agriculture in Orissa is mainly rain fed and depends on monsoon. Generally the State experiences average annual rainfall of 1451 mm. Out of which the average rain due to monsoon is 1144 mm from June to September measuring 80% of it. In absence of monsoon, it would be difficult to go for Kharif crops in Orissa.

The socio-economic structure of the State is characterized by high percentage of socially & economically disadvantaged population, low literacy, relatively low life expectancy, high infant mortality, low urbanization and over dependence on primary sector, particularly, on agricultural wage employment.

Orissa had encountered severe floods during 2003 in three phases. Every year the State experiences nature's fury in shape of floods / cyclones or droughts. Although several initiatives have been taken to prepare the community to meet the challenge posed by natural disasters, there is hardly any time left to complete the process. Before recovering fully from the impacts of disasters occurred during the last decade, the State faced a medium flood in north Orissa and drought condition mostly in western parts during 2004-05. These are the two calamities which grappled the State during the year under report in addition to occurrence of fire accidents, heat-wave, hailstorms, whirlwinds etc.

Calamities

- ✓ Floods/ Heavy Rain due to Depression
- ✓ Droughts
- ✓ Heat-wave
- ✓ Fire Accidents/ Lightning Deaths
- ✓ Boat Accidents
- ✓ Localized Hailstorms/ Whirl-winds
- ✓ Mild Tremor in the wake of Tsunami

Months of Occurrence

Calamities	Months
Floods	21st August to 26 August & 3rd October to 6th October
Drought (Affected to Kharif crops)	June to October
Heat-wave Conditions	March to June
Fire Accidents	March to June
Lightning Deaths	Mainly during Monsoon (June to October)
Hailstorms	April to June
Mild Tremor	26th December and 28th March

Rainfall, 2004

The major percentage of the annual rainfall i.e. 80% (1185 mm) is experienced from mid June to September last in the State every year. During 2004, the State experienced inadequate pre-monsoon rain. The rainfall in May was 26.6 mm which was less than 60% of normal rainfall (70.8 mm) for the month. Due to depression in the Bay of Bengal, there was a good spell of rainfall all over the State from 12th to 15th June. But from 16th June onwards there was no rainfall for two consecutive weeks which resulted in an unexpected dry spell and moisture stress condition.

Once again, monsoon became active from 29th June. As a result, good rainfall was experienced in the State. During July rainfall of 327.4 mm was recorded against the normal of 351.6 mm which was only 6.8 less than the normal. Again in August the monsoon was favourable for the State and there was excess rainfall at few places resulting a medium flood in the coastal districts i.e. Balasore, Bhadrak, Jajpur, Mayurbhanj flooding agriculture lands in some part of these districts. The actual rainfall recorded during August was 334.7 mm against the normal of 335.6 mm which was (-) 0.3% less than the normal. This rainfall helped a great extent to the paddy cultivation all over the State. Although there was a dry spell during last part of August but it did not continue for a longer period.

Depressions in Bay of Bengal in the 2nd week of September and also in 1st week of October resulted in good rain all over the State during that period. Baring a few districts, the State in general experienced normal rainfall during the period from May to October. The district wise monthly average rainfall is shown at **Table-1**.

RAINFALL_2004

(Rainfall in mm.)

Sl. No.	DISTRICT	JAN.			FEB.			MAR.			APRIL.			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL		
		Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	Total (Actual)	Normal	% of Dev.	TOTAL (Actual)	Normal	% of Dev.						
1	Angul	4.7	15.5	-69.8	5.3	30.8	-82.7	23.7	18.7	26.7	58.2	28.8	102.1	37.2	59.5	-37.5	130.9	208.9	-37.4	434.4	382.0	13.7	417.8	333.0	25.5	125.3	220.6	-43.2	102.3	93.6	9.3	0.0	25.2	-100.0	0.0	4.5	-100.0	1339.8	1421.1	-5.7
2	Balasore	0.0	17.1	-100.0	0.0	30.6	-100.0	4.2	34.3	-87.9	36.9	53.1	-30.5	77.8	105.1	-26.0	260.4	218.2	19.3	326.1	332.6	-2.0	387.7	313.8	23.6	231.4	243.1	-4.8	266.1	171.0	55.6	0.0	42.3	-100.0	0.0	7.2	-100.0	1590.5	1568.4	1.4
3	Bargarh	3.2	14.3	-77.6	1.8	24.4	-92.5	0.0	16.4	-100.0	0.0	17.6	-100.0	0.0	30.9	-100.0	199.6	218.7	-12.6	334.9	469.6	-28.7	331.3	430.9	-23.1	89.9	224.3	-59.9	62.3	61.6	1.1	0.0	14.7	-100.0	0.0	3.6	-100.0	1022.9	1527.0	-33.0
4	Bhadrak	0.0	17.1	-100.0	3.0	30.6	-100.0	10.2	34.3	-70.3	99.2	53.1	86.9	44.8	105.1	-57.4	206.3	218.2	-5.5	346.3	332.6	4.1	308.9	313.8	-1.6	202.0	243.1	-16.9	216.4	171.0	26.5	0.0	42.3	-100.0	0.0	7.2	-100.0	1437.1	1568.4	-8.4
5	Bolangir	0.0	13.9	-100.0	15.5	18.2	-14.6	1.9	13.9	-86.6	11.5	18.7	-38.8	12.2	29.1	-58.2	311.6	233.7	33.3	335.4	391.7	-14.4	248.4	407.1	-39.0	99.1	232.0	-57.3	86.0	65.6	31.1	0.0	15.9	-100.0	0.0	3.7	-100.0	1121.5	1443.5	-22.3
6	Boudh	8.5	13.0	-34.6	36.4	27.6	31.9	5.3	25.1	-78.8	32.9	35.5	-7.4	41.2	66.0	-37.6	239.3	239.1	0.1	510.5	390.8	30.6	350.3	373.8	-6.3	151.2	260.3	-41.9	81.0	127.2	-36.3	0.0	31.8	-100.0	0.0	6.9	-100.0	1456.7	1597.1	-8.8
7	Cuttack	2.5	13.7	-82.0	7.0	27.5	-74.5	2.8	20.8	-86.3	62.6	34.2	83.1	35.6	86.5	-58.9	126.7	222.3	-43.0	309.1	351.8	-12.1	359.7	315.8	13.9	208.7	229.2	-8.9	284.2	147.4	92.8	0.0	46.7	-100.0	0.0	5.4	-100.0	1398.9	1501.3	-6.8
8	Deogarh	1.9	14.3	-86.7	3.2	24.4	-87.0	0.7	16.4	-95.9	2.0	17.6	-88.6	18.0	30.9	-41.6	82.8	218.7	-62.1	261.4	469.6	-44.3	353.3	430.9	-18.0	87.2	224.3	-61.1	58.2	61.6	-5.5	0.0	14.7	-100.0	0.0	3.6	-100.0	868.7	1527.0	-43.1
9	Dhenkanal	3.1	15.5	-79.8	17.9	30.8	-42.0	11.4	18.7	-39.2	30.8	28.8	7.0	23.1	59.5	-61.2	145.2	208.9	-30.5	331.4	382.0	-13.3	226.4	333.0	-32.0	113.8	220.6	-48.4	143.3	93.6	53.0	0.0	25.2	-100.0	0.0	4.5	-100.0	1046.3	1421.1	-26.4
10	Gajapati	9.6	10.8	-11.6	9.8	22.2	-55.9	15.0	21.3	-47.7	145.8	42.3	177.4	45.1	76.8	-60.8	169.9	169.2	0.4	296.5	221.6	33.8	150.6	242.4	-37.9	137.7	229.6	-40.0	286.8	179.8	59.5	14.5	68.6	-78.9	0.0	11.0	-100.0	1281.0	1295.6	-1.1
11	Ganjam	8.3	10.8	-23.0	19.2	22.2	-13.6	9.7	21.3	-57.5	85.3	42.3	101.7	16.0	76.8	-79.2	84.0	169.2	-50.4	261.2	221.6	17.9	173.4	242.4	-28.5	118.6	229.6	-48.3	203.7	179.8	13.3	0.0	68.6	-100.0	0.0	11.0	-100.0	979.4	1295.6	-24.4
12	Jagatsinghpur	3.3	13.7	-76.3	5.5	27.5	-80.0	0.5	20.8	-97.6	65.0	34.2	86.8	15.6	86.5	-81.9	93.8	222.3	-56.0	245.0	351.8	-30.4	375.8	315.8	19.0	142.6	229.2	-37.8	256.4	147.4	73.9	0.0	46.7	-100.0	0.0	5.4	-100.0	1203.4	1501.3	-19.8
13	Jajpur	0.0	13.7	-100.0	20.6	27.5	-25.1	7.0	20.8	-66.3	32.0	34.2	-6.4	45.7	86.5	-47.2	195.0	218.7	-10.8	316.0	351.8	-10.2	371.7	315.8	17.7	178.5	229.2	-22.1	252.2	147.4	71.1	0.0	46.7	-100.0	0.0	5.4	-100.0	1418.7	1501.3	-5.5
14	Jharsuguda	6.2	14.3	-56.6	1.4	24.4	-94.3	0.4	16.4	-97.6	13.8	17.6	-21.6	2.6	30.9	-91.6	131.8	222.3	-40.7	306.2	469.6	-34.8	555.2	430.9	28.8	108.2	224.3	-51.8	96.4	61.6	56.5	0.6	14.7	-95.9	0.0	3.6	-100.0	1222.8	1527.0	-19.9
15	Kalahandi	12.3	11.5	6.6	5.1	15.4	-67.0	5.1	13.6	-62.6	28.9	23.7	21.9	23.8	33.7	-29.2	451.5	228.3	97.7	412.0	343.5	19.9	503.8	384.6	31.0	166.1	220.9	-24.8	134.9	81.9	64.7	0.0	17.9	-100.0	0.0	3.2	-100.0	1743.4	1378.2	26.5
16	Kandhamal	17.0	13.0	4.7	22.7	27.6	-17.7	8.2	25.1	-67.5	86.4	35.5	143.3	31.5	66.0	-52.2	260.8	239.1	9.1	402.9	390.8	3.1	288.2	373.8	-22.9	219.7	260.3	-15.6	207.8	127.2	63.4	0.0	31.8	-100.0	0.0	6.9	-100.0	1545.2	1597.1	-3.2
17	Kendrapara	0.0	13.7	-100.0	2.8	27.5	-89.9	0.0	20.8	-100.0	14.3	34.2	-58.1	24.0	86.5	-72.3	177.1	222.3	-20.4	241.7	351.8	-31.3	430.0	315.8	36.2	203.1	229.2	-11.4	290.3	147.4	96.9	0.0	46.7	-100.0	0.0	5.4	-100.0	1383.2	1501.3	-7.9
18	Keonjhar	1.0	22.2	-95.5	4.5	38.0	-88.3	1.8	23.0	-92.3	61.0	43.3	40.8	33.1	88.9	-62.7	177.3	209.5	-15.4	260.0	391.8	-33.6	317.1	335.3	-5.4	135.8	233.0	-41.7	101.7	112.7	-9.8	0.0	31.7	-100.0	0.0	5.1	-100.0	1093.2	1534.5	-28.8
19	Khordha	0.0	14.2	-100.0	0.0	26.2	-100.0	0.0	19.7	-100.0	42.4	26.8	58.2	17.5	67.2	-74.0	93.6	207.0	-54.8	292.1	310.8	-6.0	238.3	300.3	-20.6	144.2	244.7	-41.1	227.2	167.0	36.0	0.0	57.9	-100.0	0.0	7.3	-100.0	1055.3	1449.1	-27.2
20	Koraput	20.7	6.7	208.6	0.0	11.3	-100.0	3.8	16.2	-76.9	24.3	53.4	-54.5	48.3	75.0	-35.6	329.7	205.8	60.2	331.5	351.1	-5.6	329.4	380.3	-13.4	158.0	262.1	-39.7	144.0	116.5	23.6	12.1	35.8	-66.2	0.0	7.6	-100.0	1401.6	1521.8	-7.9
21	Malkangiri	8.6	6.7	28.4	0.0	11.3	-100.0	0.0	16.2	-100.0	9.3	53.4	-82.6	30.6	75.0	-59.2	408.2	205.8	98.3	307.4	351.1	-12.5	461.4	380.3	21.3	173.7	262.1	-33.7	184.4	116.5	58.3	4.7	35.8	-86.8	0.0	7.6	-100.0	1588.2	1521.8	4.4
22	Mayurbhanj	0.0	21.9	-100.0	3.8	35.5	-89.3	9.6	29.8	-67.8	75.2	47.3	59.0	49.8	96.7	-48.5	208.4	235.2	-11.4	213.3	426.4	-50.0	393.7	375.5	4.8	185.2	232.3	-20.3	155.2	113.6	36.6	0.0	27.4	-100.0	0.0	6.6	-100.0	1294.3	1648.2	-21.5
23	Nawarangpur	27.7	6.7	313.0	9.5	11.3	-16.0	1.9	16.2	-88.1	46.7	53.4	-12.6	38.2	75.0	-49.1	407.9	205.8	98.2	399.0	351.1	11.0	389.3	380.3	2.4	222.8	262.1	-15.0	144.9	116.5	24.3	4.7	35.8	-86.8	0.0	7.6	-100.0	1692.4	1521.8	11.2
24	Nayagarh	3.3	14.2	-77.1	18.4	26.2	-29.9	5.0	19.7	-74.6	73.5	26.8	174.3	20.4	67.2	-69.7	147.7	207.0	-28.7	424.5	310.8	36.6	207.3	300.3	-31.0	127.6	244.7	-47.9	199.1	167.0	19.2	0.0	57.9	-100.0	0.0	7.3	-100.0	1226.7	1449.1	-15.3
25	Nuapara	4.4	11.5	-61.7	3.0	15.4	-80.5	0.0	13.6	-100.0	4.8	23.7	-79.7	3.8	33.7	-88.7	255.4	228.3	11.9	221.4	343.5	-35.6	202.2	384.6	-47.4	102.2	220.9	-53.7	70.4	81.9	-14.0	0.0	17.9	-100.0	0.0	3.2	-100.0	867.6	1378.2	-37.1
26	Puri	0.0	14.2	-100.0	6.2	26.2	-76.4	0.0	19.7	-100.0	63.1	26.8	135.4	25.8	67.2	-61.6	79.5	207.0	-61.6	259.9	310.8	-16.4	247.6	300.3	-17.6	147.0	244.7	-39.9	214.9	167.0	28.7	0.0	57.9	-100.0	0.0	7.3	-100.0	1044.0	1449.1	-28.0
27	Rayagada	13.5	6.7	100.8	4.9	11.3	-56.6	9.7	16.2	-40.4	97.5	53.4	82.6	35.7	75.0	-52.4	242.3	205.8	17.7	341.6	351.1	-2.7	285.9	380.3	-24.8	100.5	262.1	-7.5	170.6	116.5	46.5	2.3	35.8	-93.6	0.0	7.6	-100.0	1304.4	1521.8	-14.3
28	Sambalpur	3.9	14.3	-72.5	3.9	24.4	-84.1	9.7	16.4	-40.8	41.9	17.6	138.0	0.2	30.9	-99.3	116.0	218.7	-47.0	387.6	469.6	-17.5	540.8	430.9	25.5	144.2	224.3	-35.7	69.3	61.6	12.5	0.0	14.7	-100.0	0.0	3.6	-100.0	1317.5	1527.0	-13.7
29	Sonepur	5.4	13.9	-61.0	2.3	18.2	-87.6	2.4	13.9	-83.0	35.6	18.7	90.3	16.7	29.1	-42.7	163.3	233.7	-30.1	401.9	391.7	2.6	259.1	407.1	-36.4	121.5	232.0	-47.6	107.7	65.6	64.2	0.0	15.9	-100.0	0.0	3.7	-100.0	1115.9	1443.5	-22.7
30	Sundargarh	4.2	19.9	-78.7	1.9	36.7	-94.7	0.4	19.3	-98.1	12.7	20.1	-37.0	0.9	41.1	-97.8	120.2	250.9	-52.1	327.0	480.2	-31.9	487.7	458.2	6.4	126.2	223.9	-43.6	65.8	75.9	-13.3	0.3	16.1	-98.0	0.0	5.3	-100.0	1147.4	1647.6	-30.4
Total		173.1			235.5			150.1			1393.4			815.1			6015.8			9838.0			10192.1			4471.9			4883.6			39.2			0.0			38207.9		
State Average		5.8	14.0	-58.8	7.9	25.9	-70.1	5.0	21.4	-																														