

MEMORANDUM

Orissa Floods, July 2007



Special Relief Organisation
Revenue & Disaster Management Department
Government of Orissa



Government of Orissa



MEMORANDUM

ON

FLOODS – JULY 2007

Prepared & compiled by

**Special Relief Commissioner, Orissa
Revenue & Disaster Management Department**

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Chapter-I



Introduction

Introduction

The unique geo-climatic conditions of Orissa make the state vulnerable to various natural disasters like flood, cyclone, fire, hailstorm, drought and even earthquake. The Mahanadi, Baitarani, Brahmanani, Subarnarekha, Rushikulya and other river systems and their tributaries cause major floods. Cyclones associated with storm surges inundate vast areas of land along coastal Orissa. A high percentage of land area comes under the seismic vulnerability zone. The recent tsunami on 26th December, 2004 indicates that Orissa coast is also prone to that disaster. Recurrent natural calamities have been a major stumbling block in the path of socio-economic development of the State. In the face of such daunting odds, the people of Orissa have exhibited remarkable resilience.

1.1 Geo-climatic Condition

The State experiences four main seasons, of which summer and rainy seasons are the most crucial. An extended summer followed by scanty or erratic rainfall results in drought situations. Excessive precipitation causes floods. Depressions in the Bay of Bengal mostly towards the end of the monsoon, in the month of October, may result in cyclonic storms.

The land surface of the State slopes from west to east. Its rivers originating from the hills of Orissa, Chhatisgarh and Jharkhand run eastward and flow through the State before falling into the Bay of Bengal. Some of the rivers also flow through the neighboring states of West Bengal or Andhra Pradesh. Floods are frequent and devastating. Almost 80% of the annual rainfall is concentrated over a short monsoon period of 3 months. Recent experience shows frequent formation of depressions during the period of July to September and there were as many as 13 depressions during 2006. This combined with factors like flow of water from the western part of the State, upper catchment areas of the neighbouring states of Chhattisgarh and Jharkhand, flat coastal belts with poor drainage, high degree of siltation of rivers, lack of systematic treatment of upper catchment, breaching and spilling over embankments causes severe floods in river basins and delta areas. Further, heavy and

intensive rains in hilly areas cause flash floods, while the coastal areas are inundated by tidal surges during cyclones. Damages due to floods are caused mainly by the Mahanadi, the Brahmani and the Baitarani which have common delta, where flood water intermingle, and when in spate simultaneously, wreak considerable havoc. Rivers like Subarnarekha, Vamsadhara, Rushikulya and Budhabalang also cause floods. Orissa faced major floods during the years 2001, 2003 and 2006.

1.2 Special Features of Fire, Heat wave and Lightning

Hazards like fire and lightning frequently occur throughout the year. A good number of people succumb to death due to lightning. Average causality per year due to lightning comes to 220. Similarly, fire hazards bring miseries to the poor & vulnerable sections of the society.

1.3 Decade of Disasters

Orissa has been ravaged by recurrent floods, cyclones, and droughts during past several years, many of which had turned to be severe. Nearly 70% of its people are periodically exposed to these extreme events and the annual average economic losses associated with these disasters have increased geometrically over the years. Table-1.1 indicates recent occurrence of disasters in the State.

Year	Calamity	Districts affected
1997	Drought	16
1998	Drought	26
1999	Super Cyclone / Flood	14
2000	Drought	29
2001	Flood	24
2002	Drought	29
2003	Flood	23
2004	Flood	5
2005	Flood	17
2006	Flood	27
2007	Flood/ Heavy rain (till 15 th July)	12

(Table-1.1: Recent disasters affecting Orissa)

1.4 Flood & Heavy Rain - 2007

Flood: Due to continuous heavy downpour over upper & lower catchments of river Subarnarekha, Jalaka, Baitarani, Budhabalanga and their tributaries from 4th to 6th July, flood wrought havoc in five districts namely Balasore, Bhadrak, Jajpur, Keonjhar and Mayurbhanj in the first week of July. Storm surge and saline inundation affected parts of Kendrapara district during the said period.

Heavy Rain: Heavy rainfall was experienced during the last week of June due to deep depression over the Bay of Bengal affecting the districts of Koraput, Kandhamal, Nayagarh, Ganjam, Sundargarh and Angul.

Event wise details are given in Table-1.2.

Event	Period	Affected Districts
Flood	1 st week of July	Balasore, Bhadrak, Jajpur, Keonjhar, Mayurbhanj & Kendrapara (storm surge)
Heavy Rain	Last Week of June (Dt.26.6.07 to 29.6.07)	Koraput, Kandhamal, Nayagarh, Sundargarh, Angul & Ganjam

(Table-1.2: Districts affected by flood and heavy rain during June/ July, 2007)

The map of the affected districts is given in Figure-1.1.



Fig-1.1

Districts affected by Heavy rain, Flood & Storm Surge Orissa

Chapter-II

Cause & Occurrence

Cause & Occurrence

Depressions in the Bay of Bengal in the first week of July caused widespread rainfall in different parts of the state and upper and lower catchment areas of different river basins leading to flood, which affected Balasore, Bhadrak, Jajpur, Kendrapara, Keonjhar and Mayurbhanj. Heavy rain in the last week of June affected Angul, Ganjam, Kandhamal, Koraput, Nayagarh, and Sundergarh districts. Formation of depressions and their impacts are indicated below.

2.1 Low Pressures and Depressions

27th June

A low pressure area formed over Northwest Bay of Bengal off Orissa Coast. The system was likely to concentrate into a depression, cross the Orissa coast on 29th and move in a West North westerly direction across Orissa, Chhatisgarh and Madhya Pradesh. (Figure-2.1)

28th June

The depression over the North West and adjoining West Central Bay of Bengal remained practically stationary. It further intensified into a deep depression and lay centered at 0830 Hrs near latitude 18.5° N and longitude 87.0 degree E about 200 KM South East of Puri. It was likely to intensify further and move in a West-North Westerly direction and cross Orissa Coast between Gopalpur and Paradeep close to Puri by midnight.

The deep depression over North West and adjoining West Central Bay of Bengal moved west wards and lay centered at 17.30 hours IST of 28th June '07 over the same area near latitude 19.0 degree N and longitude 86.0 degree E about 100 km South of Puri. It was likely to intensify further and move in a west north westerly direction and cross Orissa coast between Gopalpur and Paradeep, South of Puri near Chilka by 28.06.07 midnight. (Figure-2.2)

4th July

The low pressure area over North East Bay of Bengal off Bangladesh coast concentrated into a depression and lay centred at 0830 Hrs IST near latitude 20.0° N and longitude 89.5° E over Bangladesh coast about 270 KM East North East of Balasore.

5th July

The depression over Bangladesh & neighborhood moved West North Westwards and lay centered at 0830 hours IST near latitude 23.0° N and longitude 88.0° E about 50 KM north of Kolkata. The system was likely to move in West North Westerly direction.

Under the influence of the depressions during June & July, IMD warned that heavy to very heavy rainfall (more than 25 CM) were likely to occur over Orissa with a possible wind speed ranging between 45-55 KM per hour along and off Orissa coast. The fishermen in coastal districts were advised not to venture into the open sea. Signal number three (LC-III) was hoisted at Gopalpur, Puri, Paradeep and Chandbali Ports. Satellite imageries of depressions in the first week of July are given in Figure-2.3 to Figure-2.5.

2.2 Rainfall

The average annual rainfall of the state is 1464.1mm, which includes 326.1mm expected between June 1 and July 10. But in 2007, the state received 26% excess rainfall (410.2mm) during this period. Heavy to very heavy rainfall occurred in Balasore, Bhadrak, Jajpur, Kendrapara, Keonjhar, Mayurbhanj, Angul, Ganjam, Kandhamal, Koraput, Nayagarh and Sundargarh. Rainfall in the districts on different dates is given in the table-2.1

Average Rainfall in mm.

District	JUNE'07			JULY'07			
	28	29	30	4	5	6	7
Angul	8.5	11.2	29.6	5.6	10.1	35.4	53.9
Balasore	28.7	58.4	16.7	40.9	30.8	91.6	44.4
Bhadrak	20.8	30.2	1.9	1.7	7.6	40.1	34.2
Ganjam	34.8	39.1	25.2	0.2	0.0	0.2	1.3
Jajpur	15.6	38.6	4.5	6.6	19.6	31.9	35.0
Kandhamal	8.9	48.8	128.7	0.2	0.3	0.6	31.7
Kendrapara	14.7	18.0	2.4	11.6	7.4	11.4	9.8
Keonjhar	10.8	26.0	15.4	8.1	13.3	125.3	106.9
Koraput	46.1	155.5	24.9	0.0	3.9	3.5	16.6
Mayurbhanj	5.1	34.0	13.7	18.9	52.4	159.1	58.9
Nayagarh	36.2	55.2	43.7	0.0	0.0	2.8	6.8
Sundargarh	0.4	1.5	6.3	6.0	15.5	71.9	134.5

(Table-2.1: Rainfall in different districts)

2.3 Situation in River Basins

2.3.1 Subarnarekha Basin

Subarnarekha basin experienced heavy rainfall during the period from 4.7.07 to 7.7.07. Rainfall to the magnitude of 200 mm and more occurred at many places in the catchment area of Subarnarekha basin as mentioned below.

Station	Rainfall in MM.				
	4.7.07	5.7.07	6.7.07	7.7.07	Total
Bhograi	135.4	41.0	122.0	19.0	317.4
Fekoghat	152.6	147.0		0.8	300.4
Ghatosila	27.8	139.4	226.6	15.0	408.8
Jaleswar	120.5	75.0	104.0	38.0	337.5
Jamshedpur	77.6	143.6	241.8	32.4	495.4
Jamsolaghat	24.6		266.6	11.2	302.4
Rairangpur			210.0	36.0	246.0
Rajghat	69.0	84.4	201.4	35.4	390.7
Ranchi	66.3	21.9	70.2	46.9	205.3

(Table-2.2: Rainfall in catchment area of Subarnarekha)

Such heavy rain within a short period caused a deluge in Subarnarekha and the flood water touched 12.38 m against the warning level of 9.45 m and danger level of 10.36 m at Rajghat and remained steady above the warning level for about 54 hours from 6.7.07 to 9.7.07. The flood inundated parts of Balasore and Mayurbhanj districts. The problem was aggravated due to inflow of water from adjoining Midnapur district of West Bengal.

2.3.2 Jalaka Basin

Jalaka River-a small rivulet- experienced heavy flood due to the uninterrupted rainfall for consecutive 4 days from 4.7.07 to 7.7.07 and continued to flow above danger level of 5.50 m with water level reaching the peak of 7.40 m on 7.7.07. The flood inundated vast areas of Basta Block in Balasore district with propelling effect.

2.3.3 Budhabalanga Basin

Due to heavy precipitation from 4.7.07 to 7.7.07, the river Budhabalanga experienced a flood that topped the warning level of 7.21m at NH5, Govindpur and touched 7.74 m and remained above warning level for more than 36 hours. It affected parts of Balasore and Mayurbhanj districts. The rainfall experienced over Budhabalanga basin during the same period is mentioned below:

Station	Rainfall in MM.				
	4.7.07	5.7.07	6.7.07	7.7.07	Total
Balasore	28.6	37.1	97.9	51.6	215.2
Balimundali	20.2	57.4	105.8	39.2	222.6
Bangiriposi	17.2	55.0	142.8	9.2	224.2
Baripada	26.8	135.6	189.0	28.4	379.8
Bonth		2.0	52.0	38.0	92.0
Chandanpur	9.8	49.8	155.4	8.4	223.4
Jaipur	18.2	46.6	124.4	43.0	232.2
NH5 G.pur	23.0	38.4	108.8	44.6	214.8
Nilagiri	19.0	26.0	76.0	35.0	156.0
Soro	13.0	16.0	71.0	49.0	149.0
Udala		34.0	146.0		180.0

(Table-2.3: Rainfall over Budhabalanga basin)

2.3.4 Baitarani Basin

Due to effect of deep depression, heavy rainfall was experienced over upper and lower catchments of Baitarani from 4th July to 7th July. As a result, the river experienced a severe flood that topped the danger level 17.83 m at Akhuapada and touched 19.96m and remained above danger level for more than 48 hours. Parts of Bhadrak, Jajpur and Keonjhar were most affected. The rainfall recorded in the Baitarani river basin is mentioned below:

Station	Rainfall in MM.			
	5.7.07	6.7.07	7.7.07	Total
Akhuapada	28.8	42.6	31.8	103.2
Anandpur	17.4	86.8	61.4	165.6
Champurua	13.2	153.8	88.6	255.6
Chandbali	8.6	25.5	11.4	45.5
Ghatagaon	5.0	165.0	65.0	235.0
Jajpur	14.0	21.0	19.0	54.0
Jhumpura	11.0	206.2	161.8	379.0
Jashipur	-	208.2	-	208.2
Karanjia	12.0	99.0	126.0	237.0
Keonjhar	7.4	175.2	84.4	267.0
Rajkanika	6.0	19.0	15.0	40.0
Swampatna	5.4	150.7	107.8	263.9
Thakurmunda	16.4	163.0	72.2	251.6

(Table-2.4: Rainfall over Baitarani basin)

Comparative position of water levels in different rivers during the period from 5th July to 8th July 2007 (in metres) is indicated below.

River	Place	Warning level	Danger level	Water Level in July			
				5 th	6 th	7 th	8 th
Subarnarekha	Jamsolaghat	48.32	49.16	45.58	53.90	53.30	53.30
	Rajghat	9.45	10.36	7.90	12.22	12.38	11.98
Budhabalanga	Baripada	29.70	30.92	23.42	28.72	26.98	23.96
	NH5 Govindpur	7.21	8.13	3.74	5.50	7.74	6.90
Baitarani	Anandpur	37.45	38.36	33.73	39.38	39.80	37.58
	Akhuapada		17.83	15.60	17.60	19.96	19.04
Jalaka	Balasore		5.5	6.14	6.75	7.40	6.75

(Table-2.5: Water level in different rivers)



Fig-2.1

Meteosat Satellite Imagery showing depressions/ Well marked Low pressure dated 27.06.2007

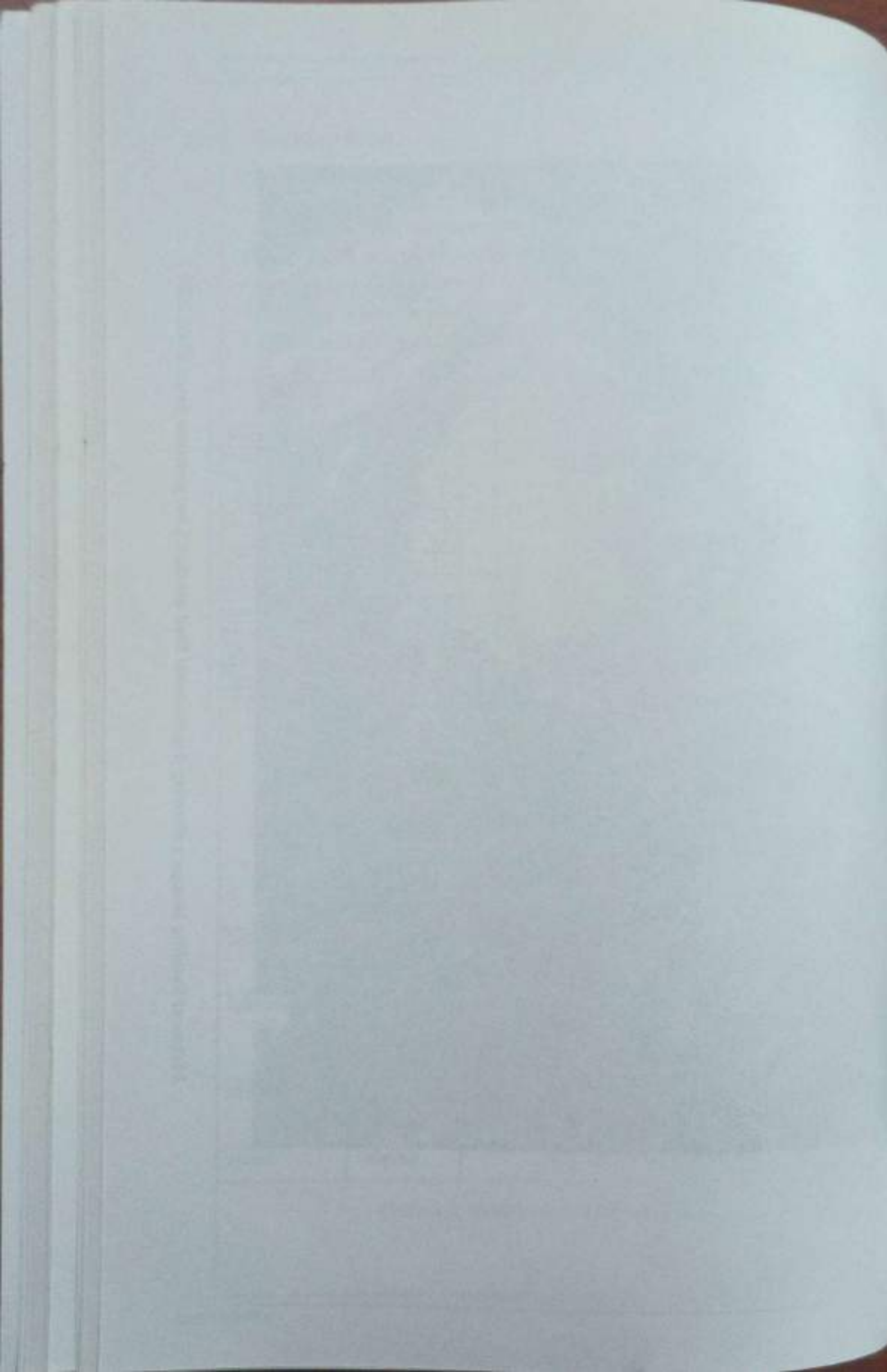




Fig-2.2

Meteosat Satellite Imagery showing depressions/ Well marked Low pressure dated 28.06.2007





Fig-2.3

Meteosat Satellite Imagery showing depressions/ Well marked Low pressure dated 04.07.2007





Fig-2.4

Meteosat Satellite Imagery showing depressions/ Well marked Low pressure dated 05.07.2007





Fig-2.5

Meteosat Satellite Imagery showing depressions/ Well marked Low pressure dated 06.07.2007



Chapter-III

Impact

3.1 Impact

The flood of July 2007 is a calamity of severe nature. The water level recorded in the Subarnarekha exceeded all the past records. The flood caused extensive damage to natural resources, physical infrastructure and livelihood. It had adverse impact on the social fabric of the flood affected areas. The resilience of the affected people has been put to test and it will take years to recover from the losses sustained and trauma undergone.

3.2 Extent of Damages

Floods and heavy rains during last week of June and 1st week of July caused extensive damages in twelve districts. Abstract of extent of damages are indicated below:

1.	No. of Districts affected	Flood - 6 Heavy rain - 6 Total - 12
2.	Names of the affected Districts	Flood - Balasore, Bhadrak, Jajpur, Kendrapara, Keonjhar, Mayurbhanj Heavy rain - Angul, Ganjam, Kandhamal, Koraput, Nayagarh, Sundergarh
3.	Blocks affected	Flood - 25 Heavy rain - 21 Total - 46
4.	GPs affected	Flood - 243 Heavy rain - 61 Total - 304
5.	Villages affected	Flood - 1,745 Heavy rain - 120 Total - 1,865
6.	ULBs affected	Flood - 5
7.	Population affected	Flood - 13.32 lakh
8.	Human lives lost	32
9.	Livestock affected	7.16 lakh
10.	Cattle / Livestock lost	19,495
11.	Crop Area affected	1.21 lakh hectare
12.	Crop Area Sand cast (in hect.)	556
13.	Houses damaged	Fully - 2,611, Severely - 6,742, Partially - 18,457 Total - 27,810

(Table-3.1: Abstract of impact of flood and heavy rain, 2007)

3.3 Human Casualty

32 persons lost their lives due to drowning, wall collapse, swept away due to flood / heavy rain. The district wise break up is as follows.

Sl.	Districts	Human Casualty
1.	Balasore	20
2.	Bhadrak	06
3.	Jajpur	01
4.	Keonjhar	01
5.	Angul	02
6.	Koraput	01
7.	Nayagarh	01
Total		32

(Table-3.2: Human Casualty)

3.4 Loss of livestock

As many as 19,495 livestock perished in Balasore district due to flood.

Sl.	Type	Number
1.	Big animals	105
2.	Small animals	278
3.	Poultry	19,112
Total		19,495

(Table-3.3: Loss of livestock)

3.5 House Damage

As per preliminary reports received, about 27,810 houses have been damaged. The process of detailed assessment is under progress. The district wise house damages are given below:

Sl.	Districts	Fully	Severely	Marginally	Total
1.	Balasore	2,010	4,711	9,315	16,036
2.	Bhadrak	122	789	4,090	5,001
3.	Jajpur	43	132	608	783
4.	Keonjhar	384	892	4,127	5,403
5.	Mayurbhanj	52	218	317	587
Total		2,611	6,742	18,457	27,810

(Table-3.4: House Damage in different districts)

3.6 Crop Damage

About 1,20,761 hectares of Kharif crop have been damaged due to flood and storm surge in six districts as mentioned below during 1st week of July.

(Area in hectare)

Sl.	Districts	Crop Area Affected
1.	Balasore	55,457
2.	Bhadrak	24,430
3.	Jajpur	2,512
4.	Kendrapara	8,407
5.	Keonjhar	8,955
6.	Mayurbhanj	21,000
Total		1,20,761

(Table-3.5: Crop area affected in different districts)

Out of the crop area affected, 57,989.64 hectares of crop area have sustained crop loss of more than 50%. Agricultural land of area 556 hectares has been sand cast. The district wise sand cast position is given below.

Balasore - 312 hect

Jajpur - 116 hect

Bhadrak - 128 hect

3.3 Population affected

The flood in Subamarekha, Baitarani, Budhabalanga and Jalaka rivers caused havoc and brought miseries to the people of Balasore, Bhadrak, Keonjhar and Mayurbhanj districts. About 13.32 lakh people were affected in six districts as mentioned below. Inhabitants were marooned for days together.

Sl.	Districts	Population Affected
1.	Balasore	8,44,211
2.	Bhadrak	2,45,459
3.	Jajpur	1,06,756
4.	Kendrapara	47,880
5.	Keonjhar	68,215
6.	Mayurbhanj	20,000
Total		13,32,521

(Table-3.6: People affected due to floods)

Out of 1,745 villages affected about 1,004 villages were marooned for days together and miseries of the marooned people multiplied. Communication to the affected area was cut off. It was not possible to provide emergent relief to the marooned people by boat. The State Govt. decided to provide relief in the shape of dry food like chuda & gur and other immediate necessities like candles, biscuits, match box etc by air-dropping from 8th to 10th July in Balasore district.

3.4 Loss of livelihood

Due to flood, 285 traditional craftsmen of Balasore district have been affected causing damage to their equipments and raw materials. 347 handloom weavers of the district have been affected during this flood. Similarly, 821 sericulture farmers have been affected.

3.5 Damage to Nets and Boats of Fishermen

12 country boats and 74 fishing nets have been fully damaged due to flood and deep depression during 1st week of July.

3.6 Damage to infrastructure

3.6.1 Road Sector

a) PWD Roads:

204 PWD roads (length 1321.63 kms) have been damaged during this flood. 106 breaches have been occurred in the damaged roads. Seven (07) culverts have been washed away and 363 culverts have been damaged due to flood and heavy rain. District-wise details are given below.

Sl. No	District	Roads damaged	Breaches	Length of road damaged in Km	Culverts damaged	Culverts washed away
1	BHADRAK	22	04	194.29	41	
2	BALASORE	35	24	214.69	41	02
3	KEONJHAR	23	21	254.69	54	03
4	MAYURBHANJ	34	10	101.23	47	02
5	JAIPUR	14	13	52.53	-	
6	GANJAM	23	01	118.7	3	
7	PURI	01	-	0.48	-	
8	KORAPUT	13	33	88.50	92	
9	SUNDARGARH	08	-	47.00	4	
10	NAYAGARH	13	-	79.20	39.00	
11	KENDRAPARA	18	-	170.32	42	
	Total	204	106	1321.63	363	07

(Table-3.7: Damage to PWD roads)

b) Rural Roads

572 rural roads of length 2,015 kms have been badly damaged due to flood and heavy rain during first week of June and first week of July. 858 breaches have been occurred in such damaged roads. 24 culverts of rural roads have been washed away and 774 culverts have been damaged extensively. The detailed damage position is given below.

Sl. No.	Name of the District	Roads damaged	Breaches occurred	Length of Road damaged (In Kms)	Culverts damaged	Culverts washed away
1	Balasore	186	489	636.760	278	10
2	Bhadrak	30	89	112.900	44	-
3	Jajpur	51	86	133.870	33	04
4	Keonjhar	97	59	342.630	187	05
5	Mayurbhanj	111	53	535.420	132	05
6	Kendrapara	08	01	15.000	01	-
7	Angul	05	01	10.000	01	-
8	Ganjam	41	27	90.000	40	-
9	Koraput	41	51	138.643	58	-
10	Kandhamal	02	02	0.000	-	-
Total		572	858	2015	774	24

(Table-3.8: Damage to rural roads)

c) Panchayat Roads

4361 Panchayat roads of length 5066.67 kms have been badly damaged due to flood and heavy rain during first week of June and first week of July. 251 culverts on these damaged roads have been badly affected. The detailed damage position is given below.

Sl. No.	Name of the District	Roads damaged	Length of Road damaged (In Kms)	Culverts damaged
1	Balasore	2,821	3039.100	-
2	Bhadrak	343	406.550	92
3	Jajpur	230	222.530	-
4	Keonjhar	772	1206.360	159
5	Mayurbhanj	195	192.130	-
Total		4,361	5,066.67	251

(Table-3.9: Damage to Panchayat roads)

c) Urban Roads

Due to heavy flood and heavy rain during 1st week of July, the roads of urban areas have been extensively damaged. 157.34 kms of urban roads and 22 culverts have been damaged. Urban drains of length 10.83 kms have also been damaged. The district-wise details are given below.

Sl. No	Name of the District	Length of Road damaged (In Km)	Culverts damaged	Length of drain damaged (In Km)
1	Balasore	27.47	-	-
2	Jajpur	28.36	-	4.06
3	Keonjhar	49.52	05	6.77
4	Mayurbhanj	51.99	17	-
Total		157.34	22	10.83

(Table-3.10: Damage to Urban roads)

3.6.2 Drinking Water Supply Works

a) Rural Water Supply

Six piped water supply systems and 4,708 tube wells have been damaged due to continuous inundation of flood water. The district-wise damage position is given below.

Sl. No.	Districts	Tube wells damaged	Platforms damaged	PWS damaged	Stand posts damaged
1.	Balasore	1,559	260	2	20
2.	Bhadrak	846	130	-	-
3.	Mayurbhanj	132	30	-	-
4.	Keonjhar	1,378	90	2	-
5.	Jajpur	793	-	1	10
6.	Sundargarh	-	-	1	10
Total		4,708	510	6	60

(Table-3.11: Damage to Rural Water Supply)

b) Urban Water Supply

511 tube wells and 28 pump houses were damaged in urban areas as shown below.

Sl. No.	Districts	No. of Tube wells damaged	No. of Pump house damaged
1.	Balasore	150	04
2.	Bhadrak	40	05
3.	Mayurbhanj	120	04
4.	Keonjhar	35	05
5.	Jajpur	166	10
Total		511	28

(Table-3.12: Damage to Urban Water Supply)

3.6.3 Irrigation

a) Minor Irrigation

1,121 breaches in main canals and 3,713 breaches in branch canal embankments occurred due to high flood in Baitarani, Subarnarekha and Budhabalanga rivers.

Sl. No.	Nature of damage	No. of breaches / Structure	Total length of breaches in mtr.
1	Main Canal	1,121	3,119
2	Branch Canal	3,713	10,429
3	Masonry Structure	1,374	-
Total		6,208	13,548

(Table-3.13: Damage to minor irrigation projects)

b) River and Canal Embankment

Due to heavy flood in Subarnarekha, Baitarani, Budhabalanga and Jaleswar, 182 breaches of length of 13.36 kms occurred in river and canal embankment. 272 breaches in canal embankments and 385 breaches in river embankments have occurred during this flood. The district-wise breach position is given below.

Sl. No.	District	River Embankment		Canals		River Embankment		Canals	
		Breaches		Breaches		Partial Damages		Partial damages	
		No.	Length in Km.	No.	Length in Km.	No.	Length in Km.	No.	Length in Km.
1	Balasore	117	9.72	29	1.00	89	162.57	01	0.03
2	Bhadrak	34	1.45	70	2.03	85	47.99	55	35.87
3	Jajpur	11	1.45	-	-	180	108.62	16	16.68
4	Keonjhar	03	0.18	132	1.39	16	38.06	64	14.59
5	Mayurbhanj	17	0.56	41	0.69	15	0.75	06	0.04
Total		182	13.36	272	5.11	385	357.98	142	67.21

(Table-3.14: Damage to irrigation projects)

There has been damage to stone pitching of embankment as per details given below.

Sl. No.	District	Length of scouring needs stone pitching in Km.
1	Balasore	12.58
2	Bhadrak	15.0
Total		27.58

(Table-3.15: Stone pitching of embankment)

c) Drainage System

Due to heavy flood and rain, drainage clearance in the rivers has been badly affected. 725.678 km of drainage system in rivers have been

affected by debris and vegetative material. This debris and vegetative material has to be cleared before the next flood. District details are given below:

Sl.No.	District	No. of Works	Length in Km. for removal of debris & vegetative materials etc. from drainage system
1	Balasore	191	243.818
2	Bhadrak	141	395.98
3	Jajpur	26	85.88
Total		358	725.678

(Table-3.15: Damage to drainage systems)

3.6.4 Primary School Building

335 primary school buildings have been damaged during this flood. The district-wise position is given below.

Sl. No.	Districts	Primary Schools damaged
1.	Balasore	146
2.	Bhadrak	43
3.	Mayurbhanj	03
4.	Keonjhar	106
5.	Jajpur	37
Total		335

(Table-3.16: Damage to primary schools)

3.6.5 Primary Health Center

Nine PHC buildings of Balasore and Keonjhar districts have been damaged due to flood. As a result, the health services have been jeopardized.

Sl. No.	Districts	PHC Buildings damaged
1.	Balasore	05
2.	Keonjhar	04
Total		09

(Table-3.17: Damage to PHC buildings)

3.6.6 Community Assets

300 Panchayat buildings and 27 community centers in rural areas have been damaged during the recent flood.

Sl. No.	Districts	Panchyat Ghars damaged
1.	Balasore	271
2.	Bhadrak	22
3.	Jajpur	07
Total		300

(Table-3.17: Damage to Panchayat buildings)

Sl. No.	Districts	Community Halls damaged
1.	Mayurbhanj	08
2.	Keonjhar	16
3.	Jajpur	02
4.	Angul	01
Total		27

(Table-3.17: Damage to community buildings)

3.7 Socio-Economic Impact

As indicated above, the flood/heavy rain affected 13,32,521 people in 46 blocks, 5 urban local bodies, 304 gram Panchayats and 1865 villages in 12 districts. 32 human lives were lost. Crops in 1,20,761 hectare damaged. The fishing community was severely affected with loss of boats and nets. It washed away rural roads, damaged bridges and government and private buildings. Essential services like water, electric supply and health facilities were disrupted severely. The damage to tangible assets includes damage to houses and settlements, damages to public properties like power supply, irrigation, agriculture and plantations, roads, educational and medical institutions, telecommunication, tourism sector and damage to crops. Communication to many areas like Batiapal and

Bhograi was cut off. Even water routes to some parts could not be used due to heavy currents. The extent of water inundation due to floods can be judged from the satellite pictures provided by NRSA given in Figure 3.1 to Figure 3.7

But most importantly, the damages include loss of human life & livestock and social disruptions. The flood has negated the developmental gains, pushed the economy of the districts affected since the districts lie in the lower side of the Human Development Index as would be evident from the following table.

Sl	District	Health Index	Income Index	HDI
1	Balasore	0.442	0.466	0.559
2	Bhadrak	0.673	0.463	0.646
3	Jajpur	0.333	0.499	0.540
4	Kendrapara	0.596	0.466	0.626
5	Keonjhar	0.340	0.547	0.530
6	Mayurbhanj	0.782	0.489	0.530
7	State	0.468	0.545	0.579

(Table-3.6: HDI of districts)

It is needless to say that different sections of society are affected differently by a disaster on account of their vulnerability and coping capacities. To highlight the impact in worst affected Balasore district, it may be indicated that as many as 8,44,211 persons were affected and different sections of society as indicated below were affected.

Tahasil	Households	Cultivators	Agricultural labourers	Marginal workers
Baliapal	24,716	26,799	17,092	12,150
Basta	22,183	30,980	27,073	20,252
Jaleswar (includes Bhograi)	58,868	62,474	53,543	45,065
Total	1,05,767	1,20,253	97,708	77,467

(Table-3.7: Social profile of flood impact in Balasore district)

The plight of the people can be judged from the fact that these areas were affected by consecutive floods in 2003, 2005 and 2006. The water level in Subarnarekha was the highest ever recorded and the peak water level remained constant for hours together aggravating the plight of the marooned people. The river Subarnarekha does not have distributaries and capital embankments. It has only test relief embankments at a few places. The vast mass of flood water engulfed the habitation areas for days together cutting off road communication and lifeline supplies. The density of population of the District (532 per square kilometer) is more than double of the state average of 236. Since the areas affected are densely populated by weaker and marginal sections of the society, the magnitude of impact in real terms is very high. This analysis applies to the other flood affected districts mutatis mutandis.



Source: DSC, NRSA

Fig-3.1

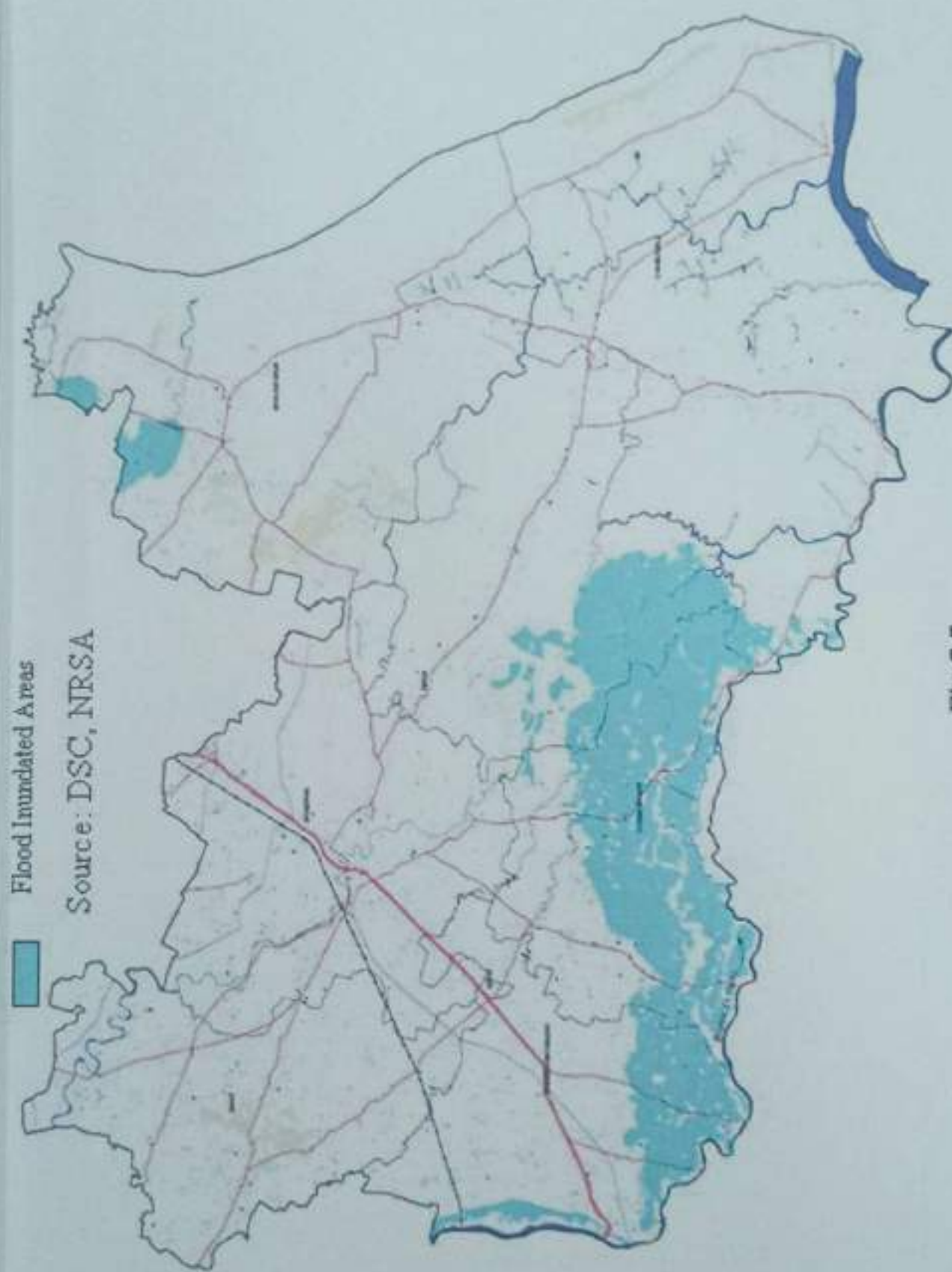
Flood Inundated Areas in Balasore District, Orissa
Based on the Analysis of Radarsat data of 6th July 2007



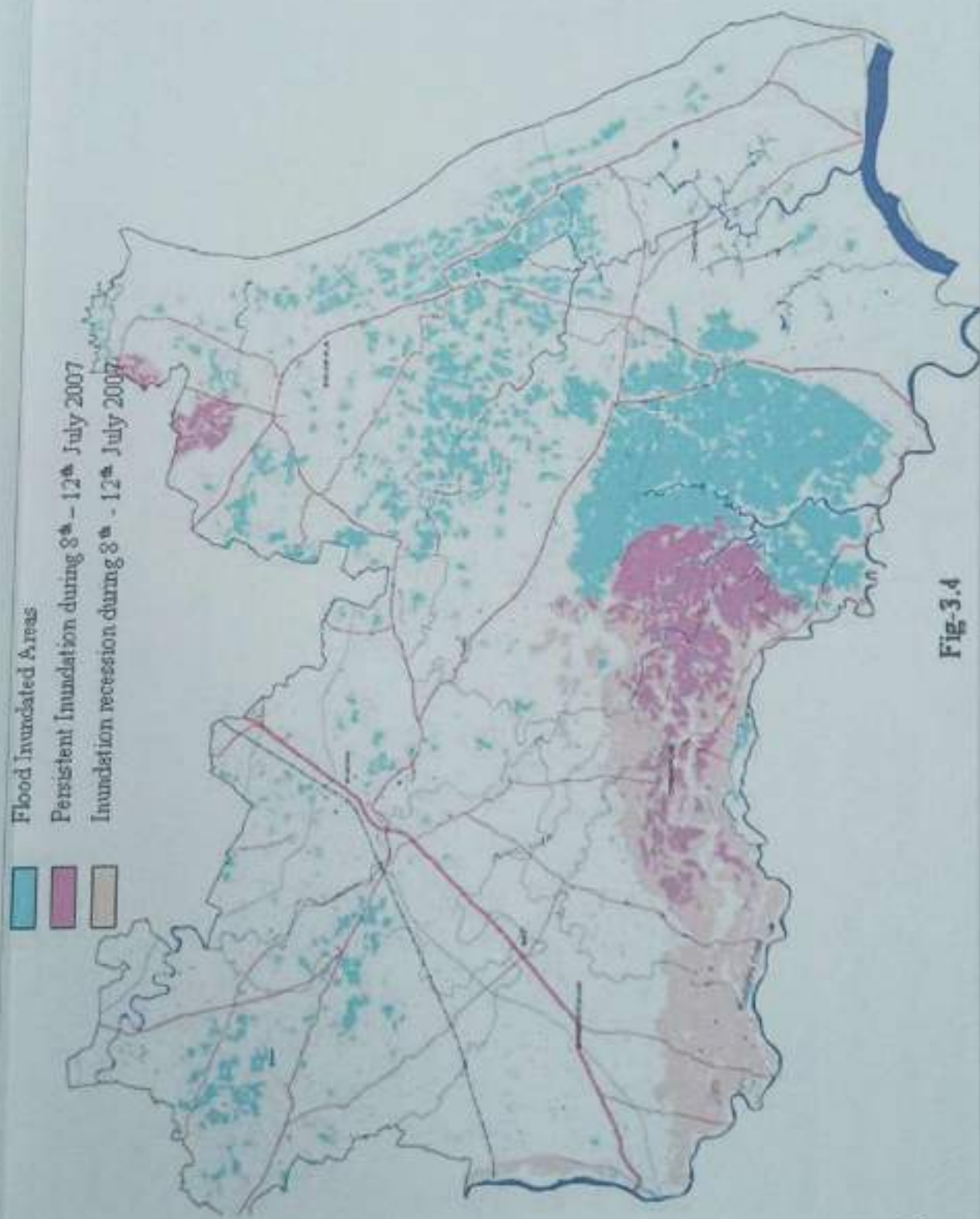


Fig-3.2

**Flood Inundated Areas in Part of Balasore District, Orissa
Based on the Analysis of Radarsat data of 13th July 2007**



Flood Inundated Areas in Bhadrak District, Orissa
Based on the Analysis of IRS P6 Awifs data of 8th July 2007



Source: DSC, NRSA

Fig-3.4

Flood Inundated Areas in Bhadrak District, Orissa
Based on the Analysis of Radarsat data of 8th - 12th July 2007

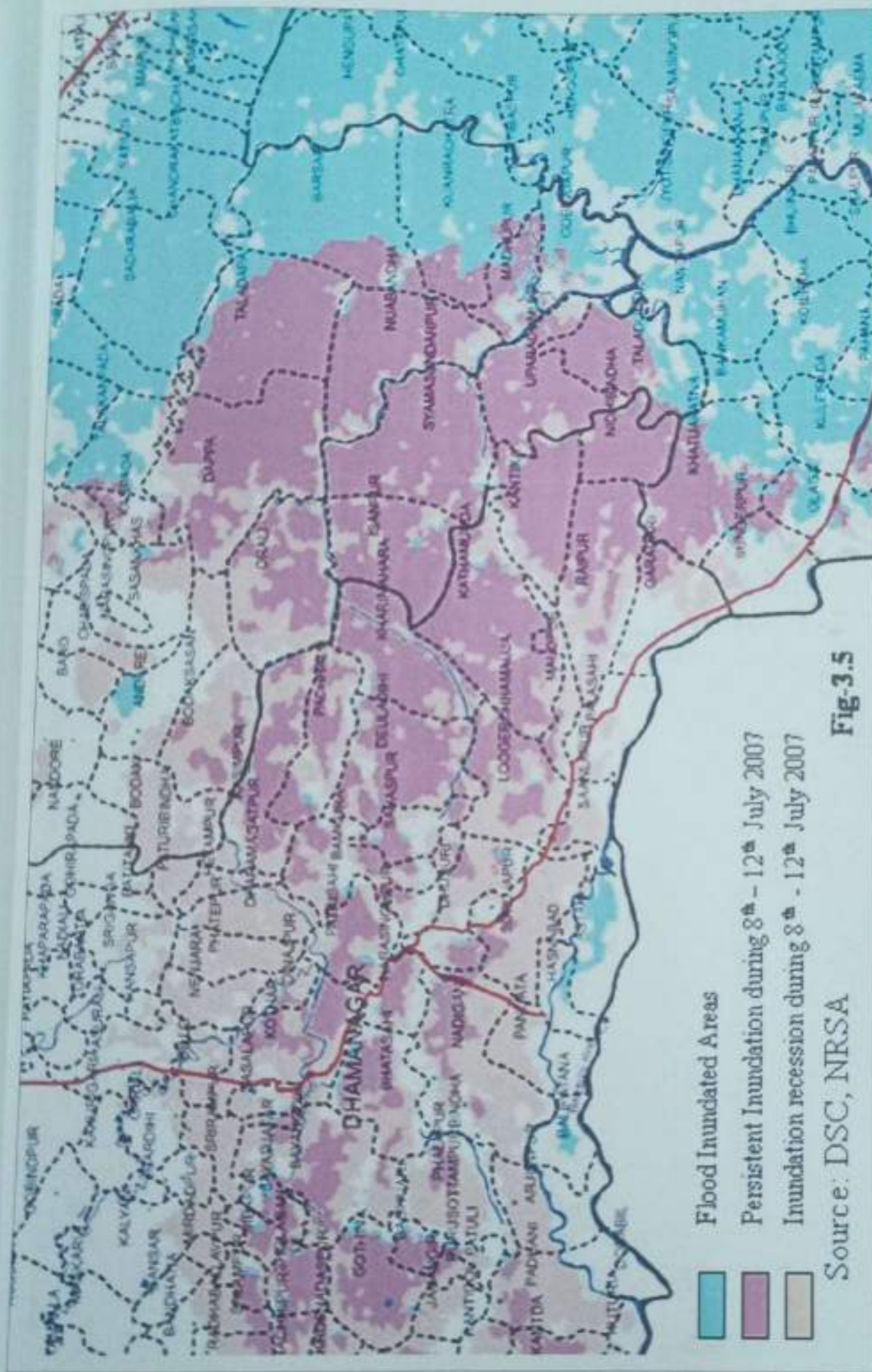


Fig-3.5

Source: DSC, NRSA

Flood Inundated Areas in part of Bhadrak District, Orissa
Based on the Analysis of Radsat data of 8th - 12th July 2007



Flood Inundated Areas in part of Bhadrak District, Orissa
Based on the Analysis of Radarsat data of 13th July 2007



Fig. 8.1

Source: 2001, 2002



Source : DSC, NRSA

Fig-3.7

Flood Inundation areas of Jajpur District, Orissa
Based on the analysis of radarsat data of 8th July, 2007



Chapter-IV

Response

4.1 Response

Meetings of District Natural Calamity Committees were held twice this year in all the Districts under the chairmanship of the Collectors to review flood preparedness measures. The meeting of the State Natural Calamity Committee was held on 31st May, 2007 under the chairmanship of the Hon'ble Chief Minister to finalize response plans of Departments at the state level.

Warnings issued by the IMD were communicated and the concerned Districts administrations were put on alert. Adequate advanced preparatory measures such as warning communication to vulnerable areas, fishermen, meetings to review preparedness, activation of response plans of different Departments along with evacuation of people & livestock, wherever required, were taken up.

Specific preparedness review meetings were conducted in the Districts of Balasore, Bhadrak, Jagatsinghpur, Kendrapara and Jajpur on 3rd July, 2007. Officers were deputed from Orissa State Disaster Mitigation Authority (OSDMA) to such meetings to assist the Districts administrations of the above districts to review the contingency plans of different line departments and review compliance of the decisions taken in the meetings of the District Natural Calamity Committees. Relief materials were pre-positioned in vulnerable areas likely to be cut-off. Senior District level officers were kept in charge of different Blocks and they were stationed in their respective areas prior to occurrence of floods to streamline warning, evacuation and relief activities.

4.2 Rescue and Evacuation

Flood warnings were transmitted to the field areas. People from low lying areas were shifted to safer places. All the five units of Orissa Rapid Action Forces (ODRAF) consisting of 55 power boats with 40HP outboard engines were deployed in Balasore, Bhadrak and Jajpur districts for rescue operation. 376 boats were engaged for evacuation of people. 70,290 persons were evacuated to safer places. The district wise details are mentioned below:

Sl.	District	People evacuated	Boats
1.	Balasore	51,343	282
2.	Bhadrak	2,785	35
3.	Jajpur	1,523	40
4.	Keonjhar	8,462	10
5.	Mayurbhanj	6,177	09
Total		70,290	376

(Table-4.1: Evacuation of people and deployment of boats)

Evacuated persons were provided with adequate quantities of dry food and cooked food through free kitchen centers. 242 free kitchen centers were opened and these covered 1,28,736 beneficiaries. District wise details are given below:

Sl.	District	Free kitchen centres opened	Beneficiaries covered
1.	Balasore	203	1,14,555
2.	Bhadrak	07	2,785
3.	Keonjhar	21	8,396
4.	Mayurbhanj	11	3,000
Total		242	1,28,736

(Table-4.2: Free Kitchen Centres)

4.3 Emergent Relief

34,686.77 quintals of Rice, 2,876.11 quintals of Chuda, and 232.93 quintals of Gur have been distributed among the marooned people of different districts as shown below.

(Quantity in quintals)

Sl.	District	Rice	Chuda	Gur
1.	Balasore	26,426.22	2,173.86	152.97
2.	Bhadrak	6,151.00	380.00	21.00
3.	Jajpur	1,150.55	158.05	31.71
4.	Keonjhar	920.00	65.20	11.75
5.	Mayurbhanj	39.00	99.00	15.50
Total		34,686.77	2,876.11	232.93

(Table-4.3: Distribution of Emergent assistance)

4.4 Air Dropping

The water level in the river Subarnarekha did not recede and continued to flow over the warning level for 54 hours. Road communication was cut off and water routes could not be used for transportation of relief materials due to high currents. In view of the above facts, it was decided to take up air dropping with the help of Indian Air Force. 7,560 packets of dry food (570 quintals) along with candles, matchbox and biscuits were air dropped in worst affected blocks i.e. Baliapal, Basta, Bhograi & Sadar with the help of two Mi 17 Helicopters from 8th to 10th July, under the direct supervision of the Special Relief Commissioner, Orissa.

4.5 Temporary Shelter Materials

9,353 families were provided with polythene sheets for temporary accommodation as their houses were fully or severely damaged.

4.6 Health & Sanitation

In order to prevent outbreak of epidemics, 59 medical teams were deployed in Balasore, Bhadrak, Jajpur, Keonjhar and Mayurbhanj districts and 180 Medical Relief Centres were opened. 4,58,248 ORS packets, 44,93,900 Halogen tablets were distributed. District wise details are given below.

Sl	District	Medical Teams Deployed	Medical Centers opened.	ORS	Halogen Tablets
1.	Balasore	24	28	2,93,512	21,93,656
2.	Bhadrak	13	21	89,213	12,35,073
3.	Jajpur	03	75	32,353	5,20,768
4.	Keonjhar	09	25	15,302	2,52,063
5.	Mayurbhanj	10	31	27,868	2,92,340
Total		59	180	4,58,248	44,93,900

(Table-4.4: Distribution of Emergent assistance)

4.7 Drinking Water

Arrangements were made for supply of safe drinking water in the flood affected areas. 14 water tankers were deployed in Balasore and Keonjhar districts. 2,09,700 water pouches were distributed. 4,708 Tube wells and 758 open wells have been disinfected. District-wise details are mentioned below.

Sl	District	Tankers Deployed	Water Pouches Distributed	Open Wells Disinfected	Tube Wells Disinfected
1	Balasore	08	56,000	110	1,559
2	Bhadrak	-	50,000	367	846
3	Jajpur	-	90,800	-	793
4	Keonjhar	06	12,900	281	1,378
5	Mayurbhanj	-	-	-	132
Total		14	2,09,700	758	4,708

(Table-4.5: Drinking water arrangements)

4.8 Animal Care

Affected animals were shifted to safer places. 71 cattle camps were opened. 53 veterinary teams were deployed in the flood affected areas. 7.16 lakh livestock have been treated and vaccinated. 250 MT of cattle feed have been distributed.

Chapter-V

Assistance sought for

Assistance sought for

5.1 Ex-gratia Payment to the families of deceased persons (Para-1(a) of CRF Norms.

32 persons died due to flood & heavy rain in the State during this spell. The District wise deaths and amount required as per revised CRF Norms for payment of ex-gratia assistance to the families of deceased persons are given in table below:

Sl.	District	No. of Death cases	Amount required in Rs. lakh as per CRF Norms @ Rs.1.00 lakh per death case (Rs. in Lakh)
1.	Balasore	20	20.00
2.	Bhadrak	6	6.00
3.	Jajpur	1	1.00
4.	Keonjhar	1	1.00
5.	Angul	2	2.00
6.	Koraput	1	1.00
7.	Nayagarh	1	1.00
Total		32	32.00

(Table-5.1: Requirement of funds for ex-gratia)

5.2 Ex-gratia payment for loss of limbs or eyes.

(As per Para-1 (b) of CRF Norms) of Balasore district one person has lost his limbs during this flood. An amount of Rs.35,000/- is required for payment of ex-gratia to the bereaved person.

5.3 Amount required for treatment of Grievous Injury (Para-1 (C) of CRF Norm)

One person of Balasore has been admitted to hospital for treatment of his injury during flood. Rs.7,500/- is required for payment to the person for treatment of his injury.

5.4 Clothing and utensils for families (Para-1 (e) of CRF Norms).

About 3,411 families have been provided with clothing and utensils, as

their houses have been washed away or severely destroyed. The district wise requirement of funds for this purpose is given below:

(Rs. in lakh)

Sl.	District	Clothing		Utensils		Total Amount required
		No. of family	Amount required @ Rs. 1000/- per family	No. of family	Amount Required @ Rs. 1000/- per family	
1.	Balasore	2,810	28.10	2810	28.10	56.20
2.	Bhadrak	122	1.22	122	1.22	2.44
3.	Jajpur	43	0.43	43	0.43	0.86
4.	Keonjhar	384	3.84	384	3.84	7.68
5.	Mayurbhanj	52	0.52	52	0.52	1.04
Total		3,411	34.11	3411	34.11	68.22

(Table-5.2: Requirement of funds for supply of clothing and utensils)

5.5 Supplementary Nutrition (As per Para-2 of CRF Norms)

1,16,272 children were affected due to flood in Balasore & Keonjhar district. They will be provided adequate nutritious food to supplement their health. The total requirement for this purpose will be Rs. 22.72 lakh @ Rs.2.00 per child per day. The calculation is mentioned below:

Sl.	District	No. of children Affected	No. of Days	Amount Required @ Rs. 2.00 per person per day (Rs. in lakh)
1.	Balasore	1,12,542	10	22.50
2.	Keonjhar	3730	3	0.22
Total		1,16,272		22.72

(Table-5.3: Requirement of funds for supplementary nutrition)

5.6 Cost of desilting (Subsidy for sand cost (Para-3(a) of CRF Norms)

556 hectares of Agriculture land have been sand cast due to this flood. An amount of Rs.33.36 lakh is required for extract of sand to make the land fit for agriculture purpose.

5.7 Desilting / Restoration / Repair of fish farms (Para-3 (c) of CRF Norms)

402.95 hectares of fish farms belonging to 2228 small and marginal farmers have been damaged. An amount of Rs.24.18 lakh is required for restoration of above farms.

Sl.	District	Small and marginal farmers	Total Area of fish farms (hect)	Amount required @ Rs.6000/- per hect.(Rs. in lakh)
1.	Balasore	2227	402.85	24.17
4.	Keonjhar	1	0.10	0.01
Total		2228	402.95	24.18

(Table-5.4: Requirement of funds for repair of fish farms)

5.8 Agriculture input subsidy where crop loss 50% and above (Para-3(e) of CRF Norms)

2,00,220 SMF beneficiaries with an area of 45,237.64 hectares of cropped area have sustained crop loss more than 50%. An amount of Rs.1,319.69 lakh is required towards providing input subsidy to the affected farmers.

(Rs. in lakh)

Sl.	Districts	SMF Beneficiaries	Crop loss more than 50%				
			Affected Area Irrigated (in hect.)	Amount required @ Rs.4000/- per hect.	Affected area Rainfed (in hect.)	Amount Required @ Rs.2000/- per hect.	Total Amount Required
1.	Balasore	178343	17509	700.36	19095.64	381.91	1082.27
2.	Bhadrak	15200	3125	125.00	3054	61.08	186.08
3.	Jajpur	1369	63	2.52	540	10.80	13.32
4.	Keonjhar	926	50	2.00	175	3.50	5.50
5.	Mayurbhanj	4382	-	-	1626	32.52	32.52
Total		2,00,220	20,747	829.88	24,490.64	489.81	1,319.69

(Table-5.5: Requirement of funds for input subsidy to farmers)

Perennial Crop

202 hectares of perennial crop belonging to 1,477 small farmers have sustained crop loss of more than 50%. The District wise details along with requirement of funds for providing input subsidy are given below.

Sl No	District	No of farmers	Area Affected in Ha	Amount required (@ Rs.6,000/- per ha) Rs in Lakh
1	Balasore	530	52	3.12
2	Bhadrak	288	28	1.68
3	Jajpur	502	45	2.70
4	Keonjhar	69	30	1.80
5	Mayurbhanj	88	47	2.82
Total		1477	202	12.12

(Table-5.6: Requirement of funds for input subsidy for perennial crop farmers)

5.9 Input subsidy to farmers other than small & marginal farmers :- (Para-4 of Revised CRF Norms).

12,550 hectare of Agriculture land belonging to 8,376 farmers other than small and marginal farmers sustained crop loss more than 50% for the second consecutive year. An amount of Rs.419.21 is required for providing input subsidy to the affected farmers.

(Rs. in lakh)

Sl.	District	Kharif Crop					
		No. of Farmers	Irrigated Area hect.	Amount required @ Rs.4000/-/ha	Rainfed Area hect.	Amount required @ Rs.2000/-/ha	Amount
1.	Balasore	5151	646	25.84	3620.3	72.41	98.25
2.	Bhadrak	84	2935	117.4	2934	58.68	176.08
Total		5,235	3,581	143.24	6,554.30	131.09	274.33

(Table-5.7: Requirement of funds for input subsidy to other farmers)

District	Perennial Crop		
	No. of Farmer	Horticulture permanent area hect.	Amount required @ Rs. 5000/- per hectare (Rs. in lakh)
Balasore	3141	1414.70	144.88

(Table-5.8: Requirement of funds for input subsidy for perennial crops)

5.10 Assistance to Small & Marginal Sericulture farmers:- (Para-5 of Revised CRF Norms)

403 hectares of Muga crop and 139.6 hectares of Eri crop have sustained crop loss more than 50%. An amount of Rs.12.87 lakh is required for providing input subsidy to the affected 821 nos. of beneficiaries.

5.11 Employment Generation: (Para 6 of Revised CRF Norms)

In order to generate employment potentialities in the flood affected areas of Balasore district for a period of 30 days @ 10 days per labourer per month for 25,733 landless agricultural labourers, 38,600 MT of food grain under Special Component of SGRY and Rs.1814.00 lakh towards matching cash component are required immediately.

5.12 Replacement of draught animals (Para-7(1) of Revised CRF Norms)

105 big animals like cows, bullocks, 278 small animals like sheep, goats and 19,112 poultry birds were washed away due to flood in Balasore, Keonjhar and Mayurbhanj district. The total requirement for replacement of these animals comes to Rs.30.13 lakh. The detailed calculation is given below:

Sl.	District	Big Animal		Small Animal		Poultry Birds		Total Amount Required (Rs. in lakh)
		Lost / dead	Amount @ Rs.10000/- per animal	Lost / Dead	Amount @ Rs.1000/- per animal	Lost / Dead	Amount @ Rs. 30/- per Bird	
1.	Balasore	105	10.50	249	2.49	535	0.16	13.15
2.	Keonjhar	-	-	29	0.29	-	-	0.29
3.	Mayurbhanj	-	-	-	-	18577	5.57	5.57
Total		105	10.50	278	2.78	19112	5.73	19.01

(Table-5.9: Requirement of funds for replacement of draught animals)

5.13 Provision of fodder in the Cattle Camps:- (Para-7 (2) of Revised CRF Norms)

250 MT of cattle feed was provided to affected cattle's in the flood affected areas. The cost of 250 MT of cattle feed comes to Rs. 25.00 lakh.

SL.	District	Cattle camps	Animals in Camp	Qty. of cattle feed provided (In MT)	Amount required (Rs. in lakh)
1.	Balasore	38	11262	160.00	16.00
2.	Bhadrak	12	2816	40.00	4.00
3.	Jajpur	12	2112	30.00	3.00
4.	Mayurbhanj	9	1408	20.00	2.00
Total		71	17598	250.00	25.00

(Table-5.10: Requirement of funds for cattle feed)

5.14 Supply of fodder outside cattle camp :- (Para-7 (v) of Revised CRF Norms)

566 MT cattle feed have been transported and supplied outside the cattle camps to the livestock of 23,400 small and marginal farmers. An amount of Rs.1.25 lakh is required on this account.

5.15 Assistance to fishermen: - (Para-8(a) of Revised CRF Norms)

12 boats and 74 nets have been lost due to this flood. An amount of Rs.6.45 lakh is required for providing assistance to the affected fishermen. The district wise details are given below:

(Amount Rs. in lakh)

Sl.	District	Boats damaged		Nets damaged		Total Amount Required
		Nos.	Amount @ Required Rs.7,500/-	Nos.	Amount @ Required Rs.7,500/-	
1.	Balasore	10	0.75	20	1.50	2.25
2.	Jajpur	2	0.15	54	4.05	4.20
Total		12	0.90	74	5.55	6.45

(Table-5.11: Requirement of funds for assistance to fishermen)

5.16 Input subsidy for fish seed farm: - (Para-8(b) of revised CRF Norms)

75 tanks with an area 6.64 Hect of fish seed farm in Bhadrak district were affected due to high flood in river Baitarani. The total requirement for input subsidy to fish seed farmer @ Rs.4000/- per hectare comes to Rs.0.27 lakh.

5.17 Assistance to Artisans in handicrafts sector by way of subsidy for repair / replacement of damaged equipments (Para-9(a) of CRF Norms).

a) Traditional Crafts

285 Artisans have been affected due to flood in Balasore district. Extensive damages have been caused to their equipment and raw materials. An amount of Rs.11.40 lakh is required for giving subsidy to them as per the revised CRF Norms.

b) Handloom Weavers (Para-9(b) of CRF Norm)

347 loom equipment and accessories of 347 beneficiaries of Balasore district have been damaged due to this flood and need replacement. An amount of Rs.6.94 lakh is required for this purpose.

Yarn and other materials like dyes and chemicals of 267 looms of Balasore District have been washed away by this flood. An amount of Rs.5.34 lakh is required for purchase of above materials.

5.18 Assistance for repair / restoration of damaged houses (Para-10 of revised CRF Norms).

27,810 houses have been damaged due to flood in five districts. Out of this 2,611 houses have been fully damaged, where as 6,742 houses have been severely damaged, 18,457 houses have been marginally damaged. An amount of Rs.709.61 lakh is required for providing assistance for repair / restoration of the damaged houses of the affected people. The detailed requirement as per revised CRF Norms is given below:

Sl.	District	Fully Damaged				Severely Damaged				Partially Damaged		Total Requirement (Rs. in lakh)
		No. of Pucca Houses	Amount required @ 25000/-	No. of Kuchha Houses	Amount Required @ 10,000/-	No. of Pucca House	Amount Required @ 5000/-	No. of Kuchha Houses	Amount Required @ 2500/-	No. of Houses	Amount Required @ Rs. 1500/-	
1.	Balasore	-	-	2010	201.00	-	-	4711	117.77	9315	139.72	458.49
2.	Bhadrak	10	2.50	112	11.20	65	3.25	724	18.10	4090	61.35	96.40
3.	Jajpur	-	-	43	4.30	-	-	132	3.30	608	9.12	16.72
4.	Keonjhar	-	-	384	38.40	-	-	892	22.30	4127	61.90	122.60
5.	Mayurbhanj	-	-	52	5.20	-	-	218	5.45	317	4.75	15.40
Total		10	2.50	2601	240.10	65	3.25	6677	166.92	18457	276.84	709.61
Fully Damaged - 2,601, Severely Damaged - 6,677, Partially Damaged - 18,457												

(Table-5.12: Requirement of funds for HB assistance)

5.19 Emergency supply of drinking water in rural areas and urban areas (para-11 of CRF Norms).

35,09,800 ltr. of drinking water have been supplied in flood affected areas. Rs.15.90 lakh has been spent for the above purpose.

Sl.	District	Quantity of water supplied in ltr.	Amount Spent (Rs. in lakh)
1.	Balasore	1906000	6.02
2.	Bhadrak	100000	3.50
3.	Jajpur	90800	1.82
4.	Keonjhar	1413000	4.56
Total		3509800	15.90

(Table-5.13: Requirement of funds for drinking water supplied)

5.20 Provision of medicines, disinfectants, insecticides for prevention of out break of epidemics (Para-12 of revised CRF Norms)

Following medicines, disinfectants and insecticides have been procured and used for health care measures of the flood affected people for prevention of outbreak of epidemic.

Bleaching powder	-	791 bag of 25 Kg. Each
Halogen Tablet	-	44,93,900
H ₂ S Strip	-	4,741

ORS Packet	-	4,58,248 pkts.
Phenyl	-	4,000 ltr.
Inj. ASV	-	1,364 vials
Quinolone, Tetra & Doxy, Cotrim	-	12,42,000 tablets
Metronidazole, Tinadazole	-	11,97,500 tablets
Antipyretic	-	10,67,000 tablets
Antihistaminic	-	10,00,000 tablets
IV Fluid	-	1,10,100 bottles

An amount of Rs.124.52 lakh have been spent towards cost above medicines for providing health care measures to 7,66,110 affected people.

5.21 Medical Care for cattle & poultry against epidemics :- (Para-13 of revised CRF Norms)

7.16 lakh livestock (4.10 lakh big, 1.24 lakh small & 1.82 lakh birds) of flood affected districts have been treated and vaccinated during this flood. The requirement @Rs.100/- per big animal, Rs.50/- per small animal and Rs.10/- per bird is Rs.490.23 lakh.

5.22 Evacuation of affected people :- (Para-14 of revised CRF Norms)

70,290 affected people have been evacuated to the safer places by Govt. vehicle and hire boats. An amount of Rs.4.56 lakh has been spent towards cost of POL and hire charges of boat.

5.23 Hiring of boats for carrying immediate relief and saving life: - (Para-15 of revised CRF Norms)

376 boats were engaged in relief and rescue operation in the flood affected districts. A sum of Rs.33.23 lakh has been spent towards hire charges and cost of POL etc. for the boats. The details are given below.

(Rs in lakh)

Sr.	District	No. of Boats	Avg. hiring cost per boat Rs.	Total hiring charge Rs.	POL charges Rs.	Total Amount required Rs.	Qty. of Relief Material Carried (Qtl.)	No. of people evacuated
1.	Balasore	282	Rs.2000/-	5.64	19.74	25.38	11,483	51,343
2.	Bhadrak	35		0.7	1.84	2.54	4178	95
3.	Jajpur	40		0.8	2.80	3.6	5213	
4.	Konjhar	10		0.2	0.70	0.9	59	36
5.	Mayurbhanj	9		0.18	0.63	0.81	77	180
Total		376		7.52	25.71	33.23	21,010	51,654

(Table-5.14: Requirement of funds for boats hired)

5.24 Provision for temporary accommodation, food, clothing and medical care (Para-16 of revised CRF Norms)

- a) The following quantity of dry food materials were distributed among the flood affected people.

Rice	-	3468.68 MT
Chuda	-	287.61 MT
Gur	-	23.29 MT

An amount of Rs.422.68 lakh has been spent towards cost of the food materials and transportation etc.

- b) 9,353 families, whose houses have been either washed away or severely damaged, were provided with temporary shelter materials. The total amount spent @Rs.800 per family is Rs.74.82 lakh
- c) 242 free kitchen centers opened in the flood affected areas. 1.29 lakh beneficiaries have been provided with cooked food. A sum of Rs.19.35 lakh has been spent for this purpose.

5.25 Air Dropping of essential supplies: - (Para-17 of revised CRF Norms)

570 Qtls. of food materials have been air dropped in the flood areas of Balasore District. An amount of Rs.102.00 lakh is required towards helicopter hire charges and cost of food materials.

5.26 Repair / restoration of immediate nature of the damaged infrastructure in eligible sectors : - (Para-18 of revised CRF Norms)

A sum of Rs.24784.10 lakh is required for repair/restoration of immediate nature of the damaged infrastructure in eligible sectors.

Illustrative lists of activities, which may be considered as works of immediate nature, are given below.

i) Roads and bridges

PWD Roads:

An amount of Rs. 2045.71 lakh is required for immediate repair and restoration of 106 breaches and 370 culverts in 204 PWD roads damaged due to such heavy flood and rain. These roads play as important relief life lines during natural calamities. The district wise details are given below:

(Rs. in Lakh)										
Sl. No.	Name of the District	No of roads damaged	No of Breaches	Approx. cost of restoration of breach works	Length of road damaged in Km.	Approx. cost of immediate repair	No of Culverts damaged	No. of Culverts washed away	Approx. cost for immediate repair of culverts	Total cost
1	BHADRAK	22	4	18.40	194.29	163.90	41		134.50	318.80
2	BALASORE	35	24	32.00	214.69	325.00	41	02	94.00	481.00
3	KEONJHAR	23	21	23.61	254.69	39.03	54	03	35.42	118.05
4	MAYURBHANJ	34	10	19	101.23	300	47	02	12	331.00
5	JAJPUR	14	13	22.30	52.53	77.26				99.56
6	GANJAM	23	01	0.25	118.7	240	03		4.5	244.75
7	PURI	01			0.48	7.00				7.00
8	KORAPUT	13	33	56.25	88.50	30.00	92		20.00	106.25
9	SUNDARGARH	08			47.00	27.30	04		4.00	31.30
10	NAYAGARH	13			79.20	117.00	39.00		33.00	150.00
11	KENDRAPARA	18			170.32	159.00	42		21.00	180.00
	Total	204	106	171.81	1321.63	1515.49	363	07	358.42	2045.71

(Table-5.13: Requirement of funds for repair of PWD roads)

Rural Roads

Total 2015.22 km length of breach occurred in rural roads in the following districts affected by flood and heavy rain. An amount of Rs. 3836.00 lakh is required for immediate restoration of these roads. These roads are crucial for rescue and relief management. The detailed requirement is given below:

(Rs. in Lakhs)

Sr. No.	Name of the District	No of Roads damaged	No of Breaches occurred	Cost for Imme-diate repair of breaches	Length of Road damaged (in Kms)	Cost for Imme-diate repair of roads	No. of culverts damaged	No. of Culverts washed away	Cost for Imme-diate repair of Culverts	Total cost
1	Balasore	186	489	338.00	636.760	1209.00	278	10	388.00	1934.00
2	Bhadrak	30	89	45.00	112.900	258.00	44	0	85.00	391.00
3	Jajpur	51	86	42.00	133.870	169.00	33	4	43.00	253.00
4	Keonjhar	97	59	30.00	342.630	351.00	187	5	219.00	600.00
5	Mayurbhanj	111	53	27.00	535.420	240.00	132	5	32.00	298.00
6	Kendrapara	8	1	2.00	15.000	30.00	1	0	1.00	33.00
7	Angul	5	1	1.00	10.000	10.00	1	0	1.00	12.00
8	Ganjam	41	27	10.00	90.000	90.00	40	0	43.00	144.00
9	Koraput	41	51	54.00	138.643	95.00	58	0	20.00	169.00
10	Kandhamal	2	2	2.00	0.000	0.00	0	0	0.00	2.00
Total		572	858	551	2015.22	2452.00	774	24	835.00	3836.00

(Table-5.14: Requirement of funds for repair of rural roads)

Urban Roads

Road length of 157.34 km have been damaged in urban areas. 22 culverts on these roads have also been extensively damaged. These roads are used to ferry relief materials from the towns to rural areas. The total requirement of funds for immediate repair of these roads and culverts comes to Rs.1059.12 lakh. The details are given below:

(Rs. in Lakhs)

Sl. No.	Name of the District	Length of Road damaged (in Km)	Cost for immediate repair of roads	No. of culverts damaged	Cost for immediate repair of Culverts	Length of drain damaged	Cost for immediate repair of drains	Total cost
1	Balasore	27.47	101.47					101.47
2	Jagpur	28.36	145.05			4.06	20.00	165.05
3	Keonjhar	49.52	219.80	5	15.00	6.77	61.20	296.00
4	Mayurbhanj	51.99	484.50	17	12.10			496.60
Total		157.34	950.82	22	27.10	10.83	81.20	1059.12

(Table-5.15: Requirement of funds for repair of urban roads)

Panchayat Roads

5,066.67 km of 4361 Panchayat roads have been damaged. These roads are extensively used in rural areas for carrying relief materials during disaster period. The total requirement of funds for immediate repair of these roads comes to Rs.7516.37 lakh. The details are given below:

(Rs. in lakh)

Sl. No.	Name of the District	No of Roads damaged	Length of Road damaged (in Kms)	Cost for immediate repair of roads	No. of culverts damaged	Cost for immediate repair of Culverts	Total cost
1	Balasore	2821	3039.100	4031.43			4031.43
2	Bhadrak	343	406.550	1340.55	92	226.95	1567.50
3	Jagpur	230	222.530	357.60			357.60
4	Keonjhar	772	1206.360	857.22	159	148.37	1005.59
5	Mayurbhanj	195	192.130	554.25			554.25
Total		4361	5066.67	7141.05	251	375.32	7516.37

(Table-5.16: Requirement of funds for repair of rural roads)

ii) Drinking Water Supply Works

A. Rural Water Supply:

An amount of Rs.43.95 lakh is required for immediate repair and restoration of 4708 tube wells damaged severely. Provision of safe and potable drinking water for the flood victims was crucial to prevent water borne diseases. District wise requirement of funds is indicated below:

(Rs. in lakh)

Sl. No.	Districts	No. of tube-wells damaged	Unit Cost for Repair	Amount required for repair	No. of Platforms damaged	Unit Cost for Repair	Amount required for repair	Total Cost
1.	Balasore	1559	500	7.80	260	4000	10.40	18.20
2.	Bhadrak	846	500	4.23	130		5.20	9.43
3.	Mayurbhanj	132	500	0.66	30		1.20	1.86
4.	Keonjhar	1378	500	6.89	90		3.60	10.49
5.	Jajpur	793	500	3.97				3.97
Total		4708	2500	23.55	510	4000	20.4	43.95

(Table-5.17: Requirement of funds for rural water supply)

Similarly, Rs.71.90 lakh is required for immediate repair of 6 rural piped water supply schemes in the affected districts as shown below.

(Rs. in lakh)

Sl. No	Districts	No. of RPWS damaged	Amount required for repair	No. of Standpost damaged	Amount required for repair	Total Cost
1.	Bhadrak	02	0.8	20	0.2	23.0
2.	Sundergarh	01	0.7	10	0.1	11.8
3.	Keonjhar	02	3.1	20	0.2	25.3
4.	Jajpur	01	0.7	10	0.1	11.8
Total		06	5.3	60	0.6	71.9

(Table-5.18: Requirement of funds for rural piped water supply scheme)

B. Urban Water Supply:

Rs. 581.27 lakh is required for immediate repair of 511 tube wells in the affected urban areas as detailed below.

(Rs. in lakh)

Sl. No.	Districts	Tube-wells damaged	Amount required for repair	No. of Pump house damaged	Amount required for repair	Total Cost
1.	Balasore	150	0.45	4	5.80	160.25
2.	Bhadrak	40	0.12	5	2.30	47.42
3.	Mayurbhanj	120	0.45	4	7.94	132.39
4.	Keonjhar	35	0.11	5	4.70	44.81
5.	Jajpur	166	0.50	10	19.90	196.4
Total		511	1.63	28	40.64	581.27

(Table-5.19: Requirement of funds for urban water supply)

iii) Irrigation

River and Canal Embankments:

182 breaches occurred in river embankments of Subernarekha, Baitarani, Budhabalanga, Jalaka and their tributaries. Besides these breaches, partial damage has been caused to 375.98 km of river embankments. Similarly, 272 breaches occurred in different canal embankments having length of 357.98 km. River and canal embankments are also used as roads by the public and administration for transport of relief materials. An amount of Rs. 3099.33 lakh is required for immediate closure of breaches and repair of embankments as detailed below.

(Rs. in Lakh)

Sl. No.	District	River Embankment				Canals			
		No.	Length in Km	Unit cost/ km	Amount required	No.	Length in Km	Unit cost/ km	Amount required
1	Balasore	117	9.72	56.03	249.84	29	1.00	32.86	36.70
2	Bhadrak	34	1.45		228.50	70	2.03		55.25
3	Jajpur	11	1.45		189.00				
4	Keonjhar	3	0.18		3.00	132	1.39		38.20
5	Mayurbhanj	17	0.56		78.20	41	0.69		37.80
Total		182	13.36		748.54	272	5.11		167.95

(Table-5.20: Requirement of funds for breaches/ embankments)

Sl. No.	District	River Embankment				Canals				Total Cost
		Partial Damages				Partial damages				
		No.	Length in Km.	Unit cost /Km	Amount required	No.	Length in Km.	Unit cost /Km	Amount required	
1	Balasore	89	162.57	5.70	831.47	0	0.03	2.13	2.00	1120.01
2	Bhadrak	85	47.99		422.90	55	35.87		75.35	782.00
3	Jajpur	180	108.62		625.78	16	16.68		21.54	836.32
4	Keonjhar	16	38.06		64.00	64	14.59		35.00	140.20
5	Mayurbhanj	15	0.75		95.60	6	0.04		9.20	220.80
Total:		385	357.98		2039.75	141	67.20		143.09	3099.33

(Table-5.21: Requirement of funds for repair of embankments/ canals)

Stone pitching of Embankment

An amount of Rs.2710.60 lakh is required for stone pitching in river Subarnarekha, Baitarani, and Budhabalang in Balasore and Bhadrak districts. Details are given below.

(Rs. in lakh)

Sl. No.	Name of the District	Length of scouring needs stone pitching in Km.	Unit cost	Amount required
1	Balasore	12.58	169.36	2130.6
2	Bhadrak	15.0	38.667	580.0
Total		27.58		2710.6

(Table-5.22: Requirement of funds for stone pitching of embankments)

Minor Irrigation

Rs.637.41 lakh is required for immediate repair of 6208 breaches in minor irrigation projects as detailed below.

(Rs. in lakh)

Sl. No.	Nature of damage	No. of breaches / Structure	Total length of breaches in mtr.	Cost per mtr.	Amount required for immediate repair
1	Main Canal	1,121	3,119	0.06	187.14
2	Branch Canal	3,713	10,429	0.03	312.87
3	Masonry Structure	1,374	-	0.10	137.40
Total		6,208	13,548		637.41

(Table-5.23: Requirement of funds for repair of breaches)

Drainage Systems

Rs.2,082.30 lakh is required for immediate removal of debris & vegetative materials etc. from drainage system as detailed below.

(Rs. in lakh)

Sl. No.	Name of District	No. of Works	Length in Km.	Unit Cost	Required for removal of debris & vegetative materials etc. from drainage system
1	Balasore	191	243.818	4.23	1,031.6
2	Bhadrak	141	395.98	1.72	679.70
3	Jajpur	26	85.88	4.32	371.00
Total		358	725.678	10.27	2,082.3

(Table-5.24: Requirement of funds for removal of debris)

iv) Primary Education**School Buildings**

Rs.389.58 lakh is required for immediate repair of 335 primary schools damaged as detailed below

(Rs. in lakh)

Sl. No.	Districts	No. of Primary Schools damaged	Amount required for repair
1.	Balasore	146	192.23
2.	Bhadrak	43	50.50
3.	Mayurbhanj	3	2.00
4.	Keonjhar	106	106.95
5.	Jajpur	37	37.90
Total		335	389.58

(Table-5.25: Requirement of funds for repair of school buildings)

v) Primary Health Centre

Rs.389.58 lakh is required for immediate repair of 335 primary schools damaged as detailed below

(Rs. in lakh)

Sl. No.	Districts	No. of PHC Buildings damaged	Amount required for repair
1.	Balasore	05	10.12
2.	Keonjhar	04	7.23
Total		09	17.35

(Table-5.26: Requirement of funds for repair of primary school buildings)

vi) Community Assets owned by Panchayats

Panchayat Ghars

Rs.325.27 lakh is required for immediate repair of 300 Panchayat ghars damaged as detailed below

(Rs. in lakh)

Sl. No.	Districts	No. of Panchayat Ghars damaged	Amount required for repair
1.	Balasore	271	253.27
2.	Bhadrak	22	55.0
3.	Jajpur	7	17.0
Total		300	325.27

(Table-5.27: Requirement of funds for repair of Panchayat buildings)

Community Hall

Rs.9.50 lakh is required for immediate repair of 27 community halls damaged as detailed below

(Rs. in lakh)			
Sl. No.	Districts	No. of Community Hall damaged	Amount required for repair
1.	Mayurbhanj	08	1.00
2.	Keonjhar	16	6.80
3.	Jajpur	02	1.20
4.	Angul	01	0.50
Total		27	9.50

(Table-5.28: Requirement of funds for repair of community hall)

- 5.27 Repair and restoration of power supply (Para 18 of revised CRF norms):-**
Power supply has been severely affected due to the flood and heavy rain. An amount of Rs.358.44 lakh is required for immediate restoration of power supply to the affected villages of 5 districts as mentioned below:

(Rs.in lakh)

Sl.No.	District	Amount required for restoration of power supply
1	Balasore	254.85
2	Mayurbhanj	21.08
3	Bhadrak	29.79
4	Jajpur	11.20
5	Keonjhar	41.52
Total		358.44

(Table-5.29: Requirement of funds for restoration of power supply)

- 5.28 Replacement of damage medical equipments and lost medicines :-** (Para 19 of Revised CRF Norm)
Medical equipments and medicines amounting to Rs.5.13 lakh of 4 health centers of Balasore and Bhadrak districts have been damaged and lost due to this flood.
- 5.29 Operational cost for Ambulance Service, Mobile Medical Team and Temporary Dispensaries :-** (Para 20 of Revised CRF Norm)
Rs.0.65 lakh have been spent towards POL cost of 59 Mobile Medical Teams deployed in flood affected areas which covers 12766 Km.
- 5.30 Cost of Search and Rescue measures:-** (Para 23 of revised CRF norms)
Five ODRAF units were engaged for search and rescue operation in the flood affected areas. 18,645 persons have been rescued. An amount of Rs.48.31 lakh has been spent for this purpose.
- 5.31 Disposal of carcasses/ dead bodies:-** (Para 24 of revised CRF norms)
12 dead bodies and 106 carcasses have been disposed off in the flood affected areas. A sum of Rs.0.12 lakh has been spent for this purpose.

Abstract of Assistance sought for as per the revised CRF Norms.

No.	Item	Extent of damage	Scale of assistance (Rupees)	Total assistance sought (Rs. in lakh)	Remarks
1.	Gratuitous Relief				
(a)	Ex-Gratia payment to families of deceased persons.	32	100000	32.00	
	* No. of persons died				
(b)	Ex-Gratia payment for loss of a limb or eyes.	1	35000	0.35	
	* Total No. of persons lost their limb or eyes				
(c)	Grievous injury requiring hospitalization for more than a week.	1	7500	0.075	
	* No. of persons with grievous injuries				
(d)	Relief for the old, infirm and destitute, children.				
	* No. of old, infirm and destitute, children affected				
(e)	Clothing and utensils for families whose house have been washed away / fully destroyed due to a natural calamity.	3411	2000	68.22	
	* No. of houses fully destroyed / damaged (both pucca & kuchha)				
2.	Supplementary nutrition	112542 for 10 days, 3730 for 3 days	Rs.2/- per day	22.72	
	* No of children affected				
3.	Assistance to Small and Marginal Farmers (SMF) for				
(a)	Desilting etc.				
	* Total area (belonging to SMF) requiring desilting.	556 hect.	6000	33.36	
	* No. of SMF beneficiaries	812			
(b)	Removal of debris in hill areas.				
	* Total quantity of debris required to removed.				
	* No. of SMF beneficiaries				
(c)	Desilting / Restoration / Repair of fish farms.				
	* Total area of fish farm (belonging to SMF)	402.95 hect	6000	24.18	

	* No. of SMF beneficiaries	2228		
(d)	Loss of substantial portion of land caused by landslide, avalanche, change of course of rivers.			
	* Total area Agricultural land lost belonging to SMF			
	* No. of beneficiaries.			
(e)	Agriculture input subsidy where crop loss was 50% and above			
(i)	For agriculture crops, horticulture crops and annual plantation crops.			
	* Total affected area with crop loss of more than 50%			
	# Irrigated			
	# Rainfed.			
	* Percentage of SMF in the State	84		
	* Total affected area belonging to SMF, with crop loss of more than 50%	45237.64 hect.		1319.69
	# Irrigated	20747 hect.	4000	829.88
	# Rainfed.	24490.64 hect.	2000	489.81
	* No. of SMF beneficiaries.	200220		
(ii)	Perennial crops.			
	* Total affected area with crop loss of more than 50% belonging to SMF (Crop wise)	202 ha	6000	12.12
	* No. of SMF beneficiaries.	1477		
4.	Input subsidy to farmers other than small & Marginal Farmers in case of severe natural calamity occurring for second consecutive year (or subsequent year)			
	* Total affected area with crop loss of more than 50% belonging to farmers other than SMF	12550		
	* Total affected area upto 2 hectares.			
	# Irrigated	3581.0	4000	143.24
	# Rainfed.	6554.3	2000	131.08
	# Perennial crops	2414.7	6000	144.88
	* No. of beneficiaries (other than SMF)	8376		
5.	Assistance to sericulture farmers			
	* Total area belonging to SMF having sericulture crop			
	# Muga	403 hect.	2500	10.08
	# Eri	139.6 hect.	2000	2.79
	# Mulberry			
	* No. of beneficiaries (other than SMF)	821		

6.	Employment Generation (only to meet additional requirements after taking into account Funds available under Plan various Plan Schemes with elements of employment generation)				
	* No. of additional man days (per day) required to be generated in the wake of instant calamity.	7,72,000			
	* No. of days for which assistance is sought.	30 days @ 10 days for 3 months			
	* Rate of minimum wages in the State for unskilled labourers.		70		
	* No. of affected districts covered by plan schemes with elements of employment generation viz, NREGP, SGRY etc.	Balasore			
	* Food grains available under NREGP, SGRY etc.	Nil			
	* Net requirements of funds from CRF / NCCF and food grains from special component of SGRY.		23.50 per man day	1814.00 @ 38,600 MT food- grain @ 5 kg per man day for 772000 man days	
7.	Animal Husbandry Assistance to small and marginal farmers / agricultural labourers.				
(i)	Replacement of draught / milch animals or animals used for haulage.				
	* No. of animal belonging to SWF died.				
	# Big animals.	105	10000	10.50	
	# Small animals.	278	1000	2.78	
	# Poultry birds.	19112	30	5.73	
	* No. of beneficiaries.	2462			

(ii)	Provision of fodder in cattle camps.				
	* Total quantity of fodder provided.	250 MT	Rs.20/- big, Rs.10/- small	25.00	
	* Cost of fodder.	25.00 lakh			
	* No. of cattle camps.	71			
	* No. of animals in camps.	17598			
(iii)	Water supply in Cattle Camps.				
	* Total quantity of water supplied.				
	* Approximate cost.				
(iv)	Additional cost of medicines and vaccine (calamity related requirements).				
	* Total quantity of medicines and vaccine provided.				
	* No. of animal benefited.				
(v)	Supply of fodder outside the Camps.			1.25	
	* Total quantity of fodder transported outside cattle camps.	566 MT			
	* Approximate cost of transportation.	1.25 lakh			
	* No. of SWF benefited.	23400			
(vi)	Movement of useful cattle to other areas.				
	* No. of cattle moved outside of affected areas (indicate name of the districts)				
	* Approximate cost of movement.				
8.	Assistance to Fishermen.				
(a)	For repair / replacement of boats, nets and damaged or lost.				
	* Boat (Type of boats)	Country boat			
	# Amount		7500	0.90	
	# Number	12			
	* No. of Dugout-Canoe				
	# Amount				
	# Number				
	* Caramaran				
	# Amount				
	# Number				
	* Nets	Fishing Net			
	# Amount		7500	5.55	
	# Quantity	74			
(b)	Input subsidy for fish seed farm.				
	* Total area of fish seed farms affected.	6.64 hect.	4000	0.27	
	* No. of beneficiaries.	75			

9.	Assistance to artisans in handicrafts sector by way of subsidy for repair / replacement of damaged equipments.				
(a)	Traditional Crafts				
(i)	For damaged equipments				
	* No. of equipments	285	2000	5.70	
	* No. of beneficiaries.	285			
(ii)	For raw material.				
	* Quantity of raw materials.		2000	5.70	
	* No. of beneficiaries.	285			
(b)	For Handloom Weavers				
(i)	Repairs/replacement of loom equipments and accessories.				
	* No. of equipments.	347	2000	6.94	
	* No. of beneficiaries.	347			
(ii)	Purchase of yarn and other materials.				
	* Quantity of yarn and other materials.	For 267 Looms	2000	5.34	
	* No. of beneficiaries.	267			
10.	Assistance for repair / restoration of damaged houses.				
(a)	Fully damaged houses (where the house is beyond repair and needs to be reconstructed)	2611			
(i)	Pucca House (No.)	10	25000	2.50	
(ii)	Kuchha House (No.)	2601	10000	260.10	
(b)	Severely damaged houses	6742			
(i)	Pucca (No.)	65	5000	3.25	
(ii)	Kuchha House (No.)	6677	2500	166.92	
(c)	Partially Damaged Houses (where the damage is minimum of 15%)- (No.)	18457	1500	276.84	
11.	Emergency supply of drinking water in rural areas and urban areas.				
	* Total quantity of drinking water supplied.				
	# In rural areas.	35.10 lakh ltr.	Actual	15.90	
	# In urban areas.				

12.	Provisions of medicines, disinfectants, insecticides for prevention of outbreak of epidemics.	Type of quantity of medicine mentioned at para-19 of Chapter-V	Actual cost	124.52	
	* Types and quantity of medicines.				
	* No. of beneficiaries.	766110			
13.	Medical care for cattle and poultry against epidemics.				
	* Total No. of animals benefited.	7.16 lakh		490.23	
	# Big animals	4.10 lakh	100	410.20	
	# Small animals.	1.24 lakh	50	61.82	
	# Poultry birds.	1.82 lakh	10	18.21	
14.	Evacuation of people affected / likely to be affected.				
	* No. of people evacuated.	70290		4.56	
	* Means of transportation.	Govt. vehicle, boat			
15.	Hiring of boats for carrying immediate relief and saving life.				
	* No. and types of boats hired.	376 (172-Powerboat, 130-Big country, 74-Small country)	Rs.2000/-	7.52 lakh + 25.71 lakh for POL charges	
	* Average hiring cost per boat.				
	* Quantity of relief materials carried by boats.	21010			
	* No. of people evacuated by boats.	51645			
16.	Provision for temporary accommodation, food, clothing, medical care etc. of people affected/evacuated.	Rice-3468.68 MT, Chuda-287.61 MT, Guda-23.29 MT		422.68	
	* Total Qty				
	# Food				
	# Clothing				
	# Medical Care				
	# Others				
	xx No. of persons provided shelters.	9353 families	Rs.800/- per family	74.82	
	xx No. of relief camps opened.	242	Rs.20/- for adult, Rs.10/- per child	19.35	

17.	Air dropping of essential supplies.				
	* Total quantity air dropped.	570 Qtl.	Actual cost	102.00 (POL)	
18.	Repair restoration of immediate nature of the damaged infrastructure relating to communication, power, public health, drinking water supply, primary education and community owned assets in the social sector.				
	* Sector-wise details of repair / restoration undertaken.	Sector wise details of repair / restorations work of immediate nature is given at Para-25 of Chapter-V		24784.10	
	# In physical term (i.e. length of road affected, no. of bridges & culvert affected.				
	# Approved rates of State PWD for immediate repairs.				
19.	Replacement of damaged medical equipments and lost medicines of Government hospitals / health centres.				
	* Types & Qty of medical equipment damaged.	Equipments and medicine of 4 health centres	Actual cost	5.13	
	* Types & Qty. of medicines lost				
20.	Operational cost (of POL only) for Ambulance Service, Mobile Medical Teams and temporary dispensaries.				
	* No. of Ambulances / medical Teams put into service	59 (Mobile Medical Team)			
	* No. of days	12			
	* Total number of kms / covered by the Ambulances / medical teams.	12766			
	* Average cost of POL per ltr.		41	0.65	
21.	Cost of clearance of debris.				
	* Total qty. of debris removed.				
22.	Draining off flood water in affected areas.				
	* Approx. quantity of water drained.				
	* Means adopted for draining the water.				

23.	Cost of search and rescue measures.				
	* Search & rescue measures under taken by CDRF units.		Actual POL cost	48.31	
	* No. of people rescued.	18645			
24.	Disposal of dead bodies / carcasses.				
	* Number of dead bodies disposed.	12		0.12	
	* Number of carcasses disposed.	106			
25.	Training to specialist multi disciplinary groups / teams of the State personnel drawn from different cadres / services.				
	* No. of per persons trained.				
	# Government officials.				
	# Non Government officials.				
26.	Procurement of essential Search, Rescue and evacuation equipments including communication equipments subject to ceiling of 10% of the CRF allocation of the year.				
	* Type & Qty of equipment procured.				
27.	Installation of Public utility 4 digit code telephone (call not metered)				
	* Whether this number is functioning at State & district Hqs.				
	Grand Total			30669.655	

Say Rs.306.70 Crore
and 38,600
MT of food-grains

Chapter-VI

Calamity Relief Fund

Status of expenditure from Calamity Relief Fund (CRF) Account

Year : 2007-08

State : Orissa

Sl. No.	Item	Amount
1.	(I) Receipts Opening balance in CRF account as on 01.04.2007 (of financial year) (a) CRF (b) NCCF (c) Total	8.43
2.	CRF Releases made during instant financial year (Central and State share) (a) First Installment (b) Second Installment (c) Total	61.10 + 20.37 - 81.47
3.	NCCF releases during the instant financial year, if any	-
4.	Interest received on investments made as per the CRF scheme	-
5.	Total funds available in the CRF account (1+2+3+4)	89.90
6.	(II) Expenditure Expenditure incurred on approved natural calamities as per the scheme of CRF/NCCF (indicate calamity-wise expenditure)	56.59
7.*	Expenditure incurred on training to specialized teams of the state personnel	0.47
8.*	Expenditure incurred on procurement of search and rescue equipment etc. (as per extant approved item)	12.07
9.	Total expenditure incurred (6+7+8)	69.13
10.	Balance available in the CRF account of the instant financial year (a) CRF (b) NCCF (c) Total	20.77



As per extant items and norms of assistance from CRF / NCCF expenditure on these items are permissible upto 10% of the annual allocation.

Details of Point-2

Corpus of CRF for 2007-08	-	Rs.319.38 crore
State share	-	Rs.79.85 crore
Central share	-	Rs.239.53 crore

Out of the Central share due for 2007-08 a sum of Rs.58.66 crore advanced during 2006-07 has been deducted from the 1st instalment of Central share for 2007-08. Similarly corresponding State share of Rs.19.55 crore advanced during 2006-07 has also been deducted from the 1st instalment of 2007-08.

(Rs.In crore)

	Amount due	Advance sanctioned during 2006-07	Balance released during 2007-08
Central share	119.76	58.66	61.10
State share	39.92	19.55	20.37
Total			81.47

1st Instalment

Details of Point-6

Cyclone	-	Rs.0.01 crore
Drought	-	Rs.7.71 crore
Fire	-	Rs.0.49 crore
Flood's 2006	-	Rs.38.68 crore
Flood's 2007	-	Rs. 9.51 crore
Hailstorm	-	Rs.0.19 crore
Total	-	Rs.56.59 crore

Chapter-VII

Conclusion

Conclusion

It is evident from the facts mentioned that the flood of July 2007 is a calamity of severe nature. The water level in the rivers exceeded all previous records and continued to flow over danger level for quite a long period of time. The State experienced 26% excess rainfall than the State average during this period, and it was concentrated in a spell of 72 hours leading to seriously disproportionate inflow of water in the river systems, well beyond their carrying capacities.

Besides, heavy rainfall in the upper catchments of Subarnarekha in Jharkhand and West Bengal brought huge amount of flood water to the lower reaches of the river. With no containment system in Subarnarekha, lack of definite river embankments and proximity of the affected areas to the river mouth in the Bay of Bengal, the low elevation flat topography of the land was severely inundated. The shallow continental shelf combined with tidal currents aggravated the flood situation by reducing the flow of water into the sea.

Though floods are not new to the people of the affected area, a large part of Balasore District remained cut off from the mainland and remained marooned for days together. It may be further indicated that these areas are traditionally not inundated for such a long period. The currents were too fast to allow movement of power boats even with 40 HP capacity warranting aerial intervention through air dropping of food packets, though food stuff for three days were pre-positioned. The air dropping was most effective because of its timeliness and accuracy since GIS systems were used to pinpoint the exact locations of the marooned hamlets and habitations. This was highly appreciated by the Indian Air Force.

Due to effective and massive deployment of various categories of boats with trained personnel in search and rescue, human casualties have been minimized to a great extent. In the District of Balasore alone, as the floods broke out, 43 power boats of ODRAF, 232 community country boats and 07 mechanized fibre boats belonging to State Port Organization (SPO) were deployed at strategic locations for search and rescue. In the state as a whole, 55 power boats of five units of ODRAF, 17 mechanized boats of SPO and 304 country boats were engaged. A remarkable aspect of the effort was the rescue of stranded people during the night by

using tower lights and search lights. As a result 18,645 persons were rescued. 70,290 persons were evacuated to safer places. This is a clear pointer to the devastating and widespread nature of the calamity.

The density of population in the affected area (532 per sq km) is almost twice that of the State average (236 per sq km) and National average (324 per sq km). It constitutes vulnerable sections of the society like small and marginal farmers, agricultural labourers and poor artisans. The majority of the households having thatched roofs and mud walls were severely damaged by persistent inundation and water logging.

The natural resources, public and private properties, relief and communication lines including livelihoods have been affected severely. The coping capacity of the affected people has been adversely impaired and they might take years to recover from the losses sustained and trauma undergone.

In view of the forecast of IMD, officers from Orissa State Disaster Mitigation Authority (OSDMA) were sent to the Districts well in advance on 3rd July to assist the District Administrations in reviewing and accelerating preparedness activities.

Officers from OSDMA with Orissa Disaster Rapid Action Force (ODRAF) units and search and rescue equipment were deputed to the Districts on 6th July to support the District Administration in view of the anticipated calamity of rare nature. Since the flood situation escalated within hours and it was felt to be beyond the capacity of the District Administration to manage it on its own, the Special Relief Commissioner decided to camp in the District of Balasore along with experts and a team of officers from OSDMA and SRC to provide managerial and logistic support for the rescue and relief operations.

To meet the relief expenditure on account of floods-2006, Rs. 58.66 Crore was sanctioned as advance out of the central share of CRF for the year 2007-08, subject to adjustment during the current year. The said amount has already been exhausted in full during the year 2006-07. The State has been affected by disasters consecutively and the State has spent huge funds from its own resources also for reconstruction and preparedness activities. This is just the beginning of the disaster period of the current year and flood has occurred in the first week of July with

probability of further calamities. After adjustment of the above advance amount, funds available during 2007-08 will be quite inadequate to manage the requirements of the current flood and other natural calamities.

The corpus of CRF for Orissa (2007-08) is Rs.319.38 crore, the central share being Rs.239.53 crore. Out of the central share, Government of India, have given an advance of Rs.58.66 crore during 2006-07, thus reducing the availability of funds for this year by an equivalent amount, as noted above.

Government of India have already been requested by the Chairman of the Committee for Administration of Calamity Relief Fund, Government of Orissa to restore the central share to our allocated level for 2007-08, over and above the amount requested in the Memorandum submitted to the inter-ministerial central team.

For management of the current floods, a sum of Rs.306.70 crore & 38,600 MT of foodgrains under special component of SGRY is required.

In view of the foregoing, the State Government through this Memorandum seeks the following assistance from the Government of India.

- ❏ Financial assistance of Rs.306.70 crore out of NCCF to complete the relief and immediate restoration measures caused due to floods 2007.
- ❏ Restoration of the CRF allocation for 2007-08 to Rs.319.38 crore, after adjusting the Central share of Rs.58.66 crore advanced during 2006-07 as a grant.
- ❏ Special allocation of 27,810 IAY houses for flood victims of BPL category, whose houses have been damaged due to floods.
- ❏ Immediate sanction of funds and foodgrains (38,600 MT) to start employment generation programmes for Landless Agricultural Labourers (LALs) in rural areas where agricultural crops have been ravaged by floods till harvest of the next crop.

State Government shall appreciate an immediate response from the Government of India in this regard.

Annexure

Visual Accounts

Continued on page 68 of Orissa Floods 2007
to the Orissa Floods 2007 Report

1907 Accounts



Bhadrak-Dhamnagar-Dobal-Sendhapur road 6.650 km in Bhadrak district



**Causeway at 16km of Bhadrak-Kothar-Aradi road
in Dhamnagar Block of Bhadrak District**

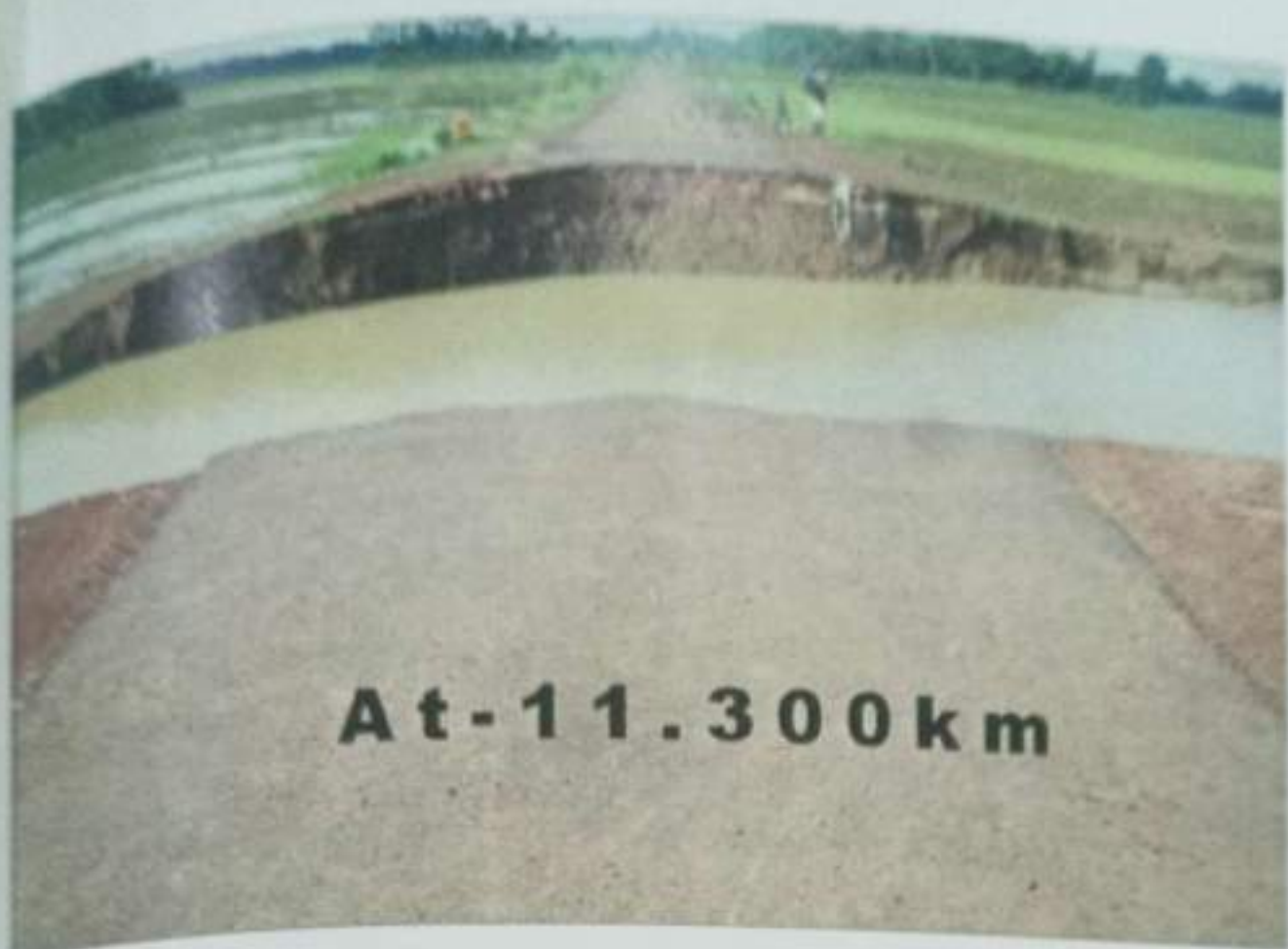




Restoration work at 3.550km of Dhamnagar-Sendhapur road in Bhadrak district



Dhamnagar-Dobhal-Sendhapur road at 2 km to 3km of Dhamnagar Block in Bhadrak District



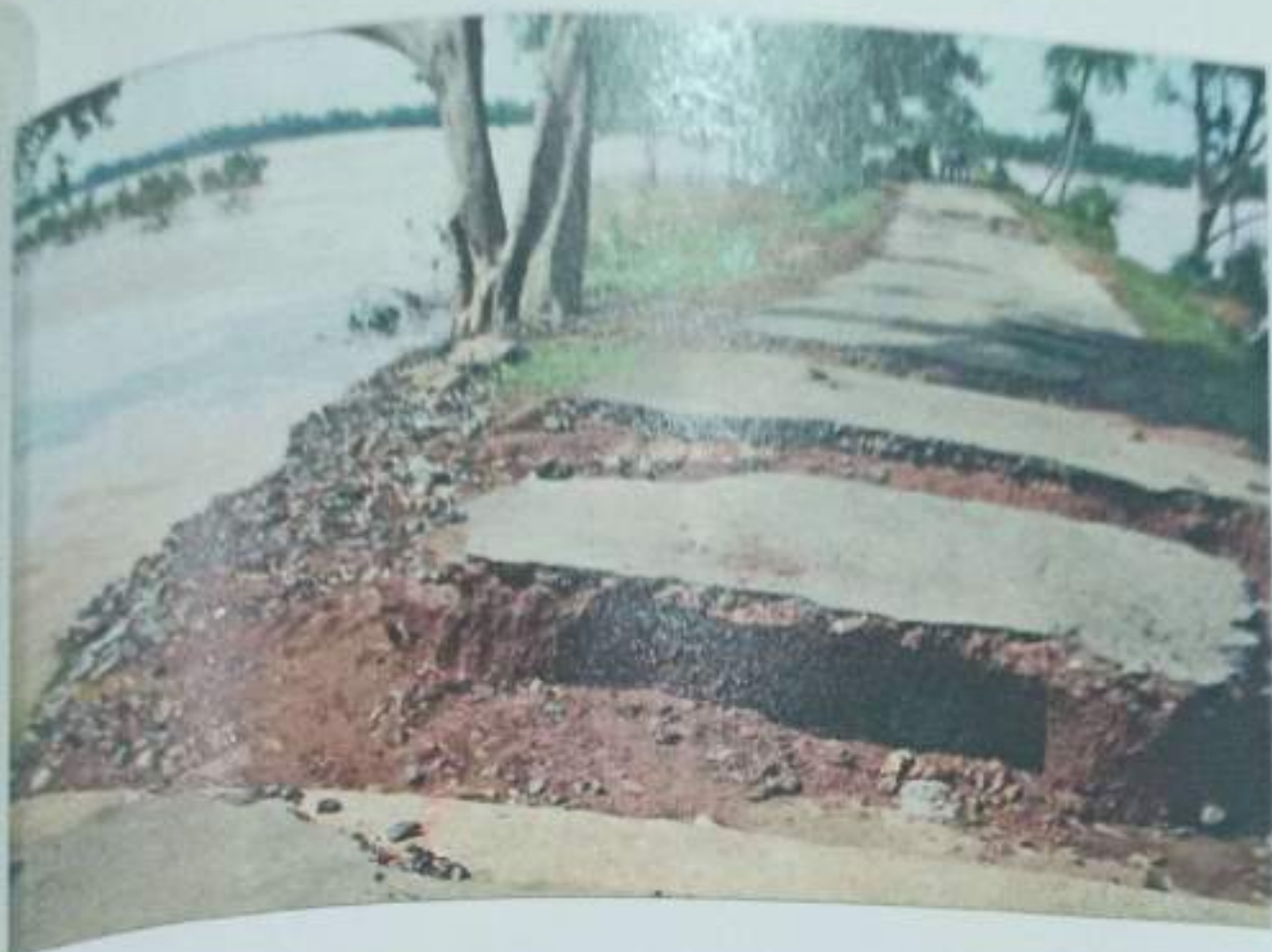
At - 11.300 km

Jaleswar-Paschimka road 11.300 km. in Baleswar district



At - 13.700 km

Jaleswar-Batagram Chandneswar road 13.700 km.



Dobal-Sendhapur road at 6.630km in Dhamnagar Block of Bhadrak District

At - 11.500 km.



Jaleswar - Paschimka road at 11.500 km. in Baleswar district





Jaleswar-Kuanrpur-bank scouring in Baleswar District



Jaleswar-Bazarsul Breach (60m)
On Subarnarekha right in Baleswar District





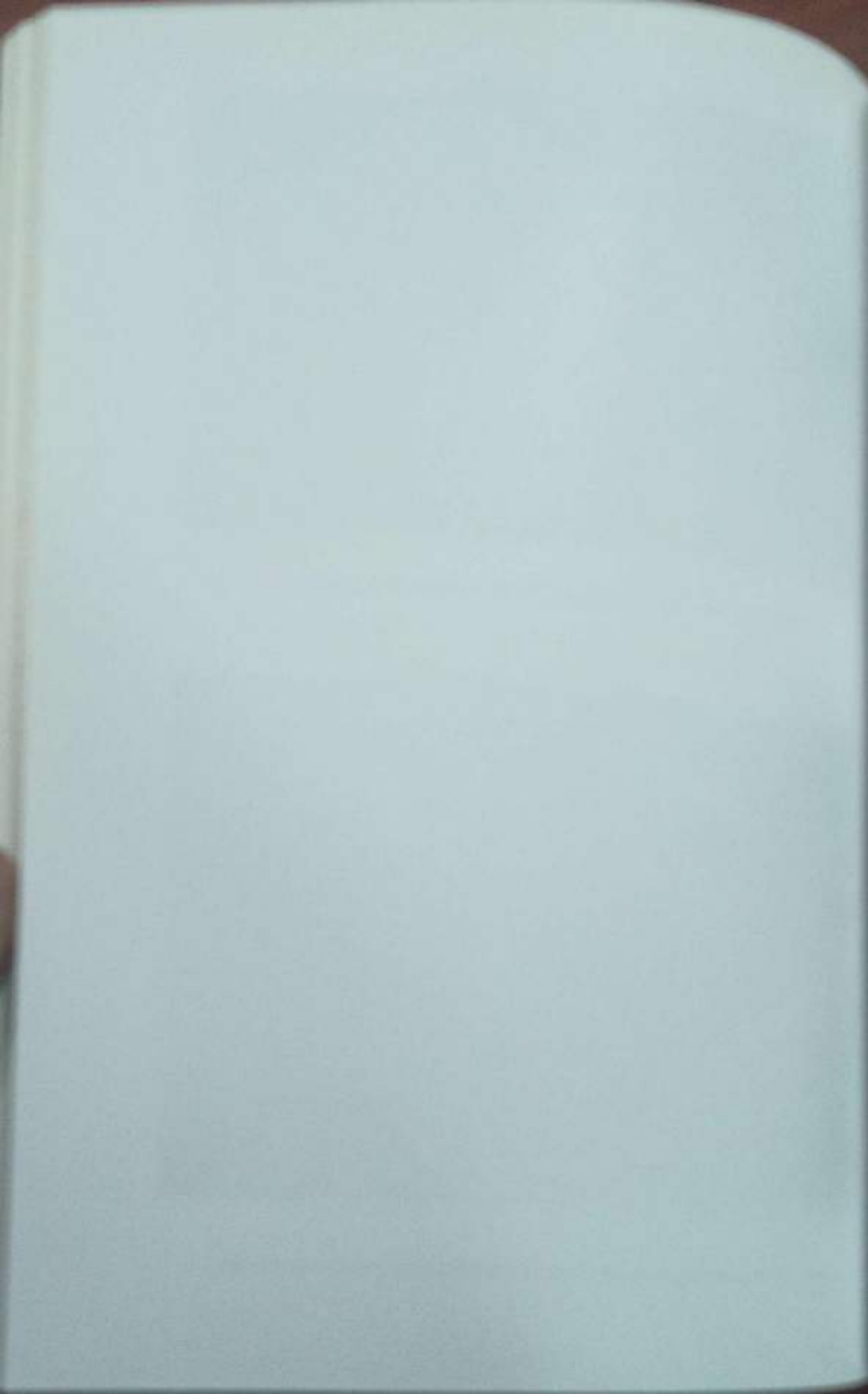
At - 11.375 km.

Jaleswar-Paschimka road 11.375 km. in Baleswar district



At - 14.400 km.

Jaleswar-Batagram Chandneswar road at 10.400 km. in Baleswar district





**Langaleswar Beherasahi bank scouring on
Subarnarekha right (1073m) in Baleswar District**



**Baliapal-Palapada flood embankment
in Baleswar District –Subarnarekha right**

