



ORISSA FLOODS

2006

MEMORANDUM



Revenue & Disaster Management Department
Government of Orissa



Government of Orissa

MEMORANDUM

on

Floods 2006

Revenue & Disaster Management Department

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CHAPTER - I

Introduction

Introduction

Orissa is prone to multiple natural disasters due to its geo-physical location. The State is visited by one or other calamities almost each year. Orissa has experienced nature's fury time and again. Situated on the coast of the Bay of Bengal, the State is extremely vulnerable to multiple hazards, most of which are water/wind-related. In 1998, more than two thousand people fell to the severest heat wave of the last century. The State suffered a severe drought in the same year too. In 1999, nearly nine thousand human lives were lost and millions were rendered homeless in the super cyclone, one of the gravest calamities of the millennium. Since then the State has been ravaged by droughts and floods every successive year. It faced a drought in 2000, severe floods in 2001, drought in 2002, extensive floods in 2003 and medium floods during 2004 and 2005.

The socio-economic vulnerability of the people turns these hazards into disasters. With nearly 90% of the population living in disaster-prone areas and about 66% below the poverty line, the coping mechanism of the State and its people is constantly under severe strain. Although several initiatives have been taken to prepare the community against natural disasters, there is hardly any time left to complete the process. The frequency and gravity of the disasters give little scope to reap the benefits of these initiatives. The focus of the State keeps shifting between reconstruction and preparedness on the one hand and relief and rehabilitation on the other.

In the above back drop, the floods came in three phases during the current year till the third week of August. The calamity season of the State is yet to be over. Nature only knows what else it has got to offer in the coming months. These floods have wrought havoc in western and southern parts of the State perhaps after many years. Besides, the incessant heavy rains

coupled with landslides and flash floods had added to the miseries and agonies of the population in affected areas.

1.1. Geo-climatic Conditions

The unique geo-climatic conditions of the State make it disaster-prone. The land surface of the State slopes from west to east. Its rivers, originating from the hills of Orissa, Chhatisgarh or Jharkhand run eastward, flow through the State before falling into the Bay of Bengal. Some of the rivers also flow through the neighbouring States of West Bengal or Andhra Pradesh.

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

1.2. Rainfall Pattern

The average annual rainfall of Orissa is 1482 mm. The south-west monsoon causes 75% to 90% of the annual rainfall. The State receives maximum rainfall during the period from 15th June to 15th October. Scanty/excess or erratic rainfall causes disasters, seriously affecting lives and livelihoods of the inhabitants of the State.

1.3. River System

The state of Orissa is having seven major river systems like the Mahanadi, Brahmani, Baitarani, Subarnarekha, Budhabalang, Rushikulya and Vanshadhara. Further, Nagavali, Indravati, Kolab, Bahuda and Jambhira are some of the other major tributaries and distributaries of the state. Figure 1.1 depicts the river system in the State.

River System of ORISSA



[Figure 1.1]

The Mahanadi is the largest river of the State with a catchments area of about 1.41 lakh sq km. of which about 65 thousand sq km. lie in Orissa. The total length of the river is about 851 km and the length of the river in Orissa is 494 km. Jeera, Ong, Tel, Hariharjore, Surubalijore, Manjore, Bagh, Salki, Brutang, Kusumi and Kuanria are the major tributaries downstream of Hirakud. The main branches of the river are Kathjodi, Devi, Kuakhai, Kushabhadra, Daya, Bhargavi, Birupa, Chitrotpala and Paika. Some of the branches of the Mahanadi meet the branches of the Brahmani, making it a complex system. Figure 1.2 shows the Mahanadi river system.

MAHANADI RIVER SYSTEM



[Figure 1.2]

These natural water bodies can hardly hold the large volume of floodwater, which passes through these channels due to heavy precipitation in the catchments. As a result, breaches occur, inundating villages, roads and paddy fields for days, even weeks together. Thus floods have become endemic in the State.

1.4. A Decade of Disasters

The Table 1.1 indicates how the State has been devastated by disasters in last twelve successive years.

Year	Calamity	Districts Affected
1994	Floods	17
1995	Floods	23
1996	Drought	28
1997	Drought	16
1998	Drought	26
1999	Super Cyclone	14
2000	Drought	29

2001	Severe Floods	24
2002	Drought	29
2003	Severe Floods	23
2004	Floods	5
2005	Floods	17
2006	Floods	26 [continuing]

[Table 1.1]

1.5. History of Floods

The rivers, which have helped in the development of the economy of the State, have also caused distress and miseries to people through floods. In the recent past, floods have wrought havoc in different parts of the State in 1975, 1982 2001 and 2003. Of these, the Mahanadi basin has experienced high floods in 1982, 2001 and 2003. Details of past big floods are at Table 1.2.

Year	Month	Duration
1958	July	13 days
1959	September	9 days
1961	July	10 days
1980	September	12 days
1982	August	6 days
1991	August	10 days
1999	October/November	10 days
2001	July	19 days
2003	August/ September	19 days

[Table 1.2]



[Floods Malkangiri]

Flood 2006

The state has experienced flood situations in three phases coupled with heavy to very heavy downpour during current Monsoon till date. The floods in July'06 wrought havoc in 18 districts of the state. Before normalcy was restored, heavy to very rainfall in the first week of August 2006 triggered yet another flood situation in 11 districts. Again due to another depression in Bay of Bengal from 11th August, 11 districts were affected. Except Brahmani, all other six major river systems were in spate during the period. The districts affected by floods and heavy rain in three phases are mentioned below.

<i>Duration of flood</i>	<i>Name of the affected district</i>
1) First week of July	- Bolangir, Boudh, Gajapati, Ganjam, Kalahandi, Khordha, Koraput, Nayagarh, Rayagada, Subarnapur, Balasore, Kandhamal, Nawarangpur, Kendrapara, Bhadrak, Jagatsinghpur, Puri, Nuapada.
2) First week of August	- Balasore, Bhadrak, Mayurbhanj, Jajpur, Gajapati, Rayagada, Koraput, Malkangiri, Dhenkanal, Kendrapara, Jagatsinghpur.
3) Second week of August	- Subarnapur, Puri, Keonjhar, Angul, Sambalpur, Bargarh, Nawarangpur, Bhadrak, Mayurbhanj, Jajpur and Balasore.

Pest Attack

Besides flood situation, 4 districts namely Nuapada, Bargarh, Malkangiri and Subarnapur were partly affected due to pest attack causing damage to Kharif crops of 4571 hectares of land. This is another calamity; the state has to experience during current monsoon.

Unprecedented features

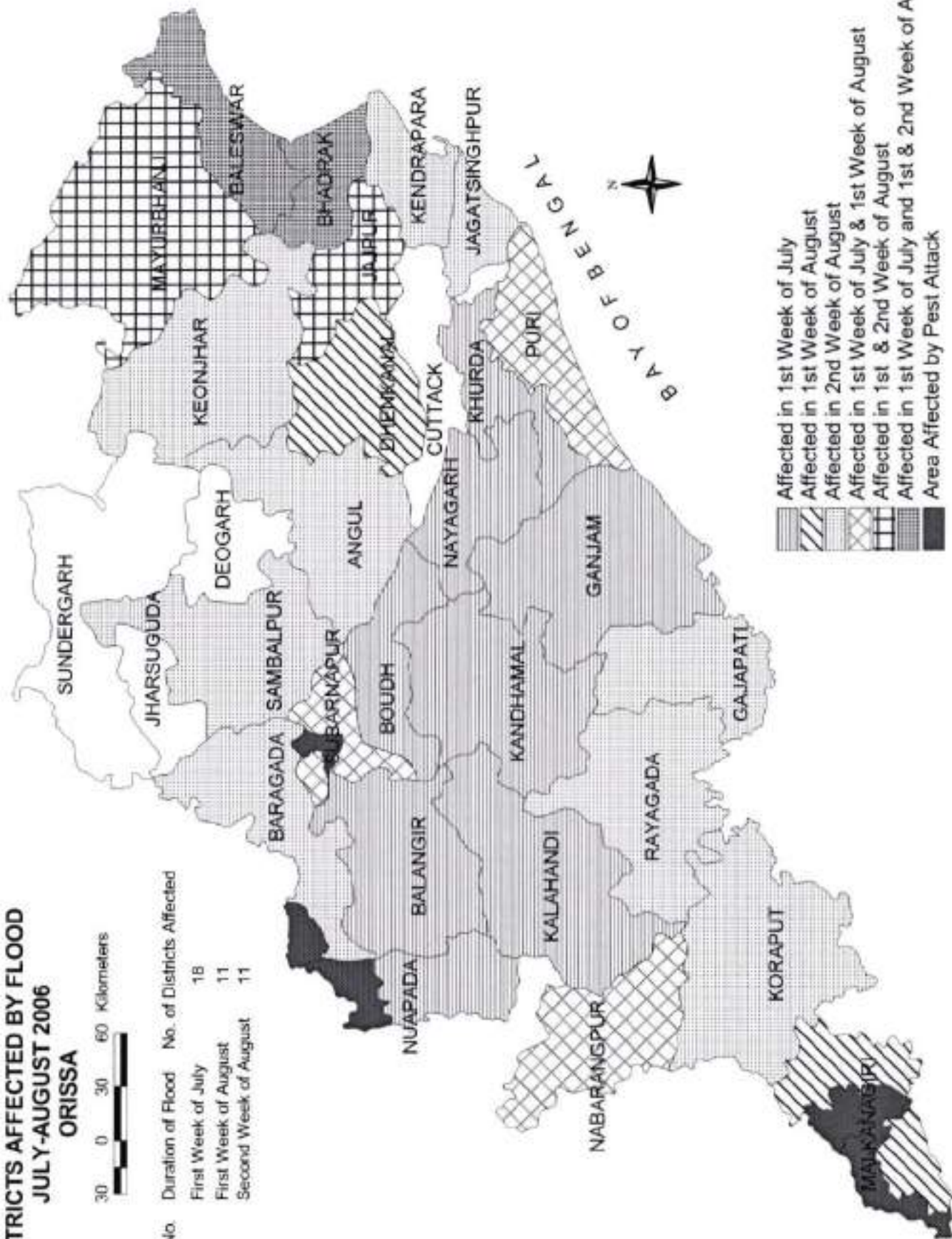
1. Whereas Orissa experiences maximum of 2 to 3 low pressures / depressions during July and August, this year is floods have been caused by four situations of depression and four of the depressions have just passed by. While submitting this memorandum it would be pertinent to mention that we are again in the throes of a low pressure likely to be a depression. Coastal Orissa is already reeling under floods.
2. Thus, the extent of damage would be much more than we have projected in this report because every day such report is flowing in from far corners of the State. Against normal rainfall of about 794 mm by end August, we have already received more than 1000 mm so far.
3. The aberration in this years flood situation is that major floods and inundation of large areas as well as severe damage to communications or infrastructures and residences of population have happened in areas which never had a history of major floods. These are the districts of Koraput, Malkangiri, Rayagada, Nawarangpur, Kalahandi, Bolangir and Subarnapur, all of whom are KBK districts and Gajapati district predominantly inhabited by tribals and poor people. The most vulnerable sections of people of the state have been affected by this.
4. Another happening, which has taken all by surprise, is the extensive landslides in the hilly districts, mostly in the KBK region, which not only paralyzed communication for sometime but has claimed many lives which had not happened before.

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DISTRICTS AFFECTED BY FLOOD JULY-AUGUST 2006 ORISSA



Sl. No.	Duration of Flood	No. of Districts Affected
1	First Week of July	18
2	First Week of August	11
3	Second Week of August	11



CHAPTER - II

Cause

2.1. Cause & Occurrence

2.1.1. IMD FORECAST

July

As per IMD report on synoptic situation of 30.06.06, a low pressure area has been formed over North Bay of Gangetic West Bengal and Orissa Coast and the Centre of low pressure area lies across U.P., Bihar, Jharkhand and Orissa. On 01.07.06 the weather condition was worsened. IMD had reported that the low pressure area formed on 30.06.06 concentrated into a deep depression.

The storm showed its true behaviour on 02.07.06. As per IMD report, the deep depression formed over North West Bay lay centred at 17.30 hrs. IST, within half a degree of latitude 20.5° N and longitude 89.0° E, about 150 Km South East of Balasore. The system moved in a West North Westerly direction and crossed Paradeep and Digha on 3rd July, 2006. Extremely heavy rainfall warning was issued to all districts.

Again on 3rd July 2006, IMD has reported that the depression over North West Bay of Bengal moved westwards and crossed Orissa coast between Paradeep and Chandbali at around 20.30 hrs. IST on 02.07.06. It entered at 08.30 hrs. IST of 03.07.06 near latitude 20.5° N and longitude 85.5° E close to Cuttack. It was likely to move in West North Westerly direction. Under the influence of the depression, heavy to very heavy rainfall (7-25 cm) at few places and isolated extremely heavy rainfall (more than 25 cm) were likely to occur over Orissa during next 24 hours. With a possible wind speed ranging between 45 to 55 Kms per hour along and off Orissa Coast, the fishermen were advised not to venture into the sea. Signal number three (LC-III) was hoisted at Gopalpur, Puri, Paradeep and Chandbali Ports.

August

Similarly, low pressure area developed on 1st August over north west Bay of Bengal was concentrated into a depression and lay centered at 8.30 hours IST of 02.08.06 within half a degree of latitude 20.5° N and longitude 87.5° E at about 100 km East South East of Chandbali. The system moved slightly westwards and lay centered at 17.30 hrs IST of 03.08.06 near Latitude 19.5° N and longitude 84.0° E about 100km North West of Gopalpur. Under its effect very to very heavy rainfall in South & North Orissa and isolated extremely heavy rainfall (more than 25 cm) had occurred over Orissa during next 24 hours. With a possible wind speed ranging between 50 to 60 Kms per hour along and off Orissa Coast, the fishermen were advised not to venture into the sea. Signal number three (LC-III) was hoisted at Gopalpur, Puri, Paradeep and Chandbali Ports.

A similar type of depression again developed over Bay of Bengal adjoining to the Orissa Coast on 11/12th August causing heavy to very heavy rainfall in coastal plain as well as in some of the western districts of the State.

2.1.2. Rainfall

Heavy to very heavy rainfall occurred in almost all parts of the state from 1st July to 5th July and again from 14th July to 16th July over coastal districts. The rainfall in various districts from 2nd to 4th July is shown at Table -2.1.

Average Rainfall in mm

Name of the District	02.07.06	03.07.06	04.07.06
Bolangir	46.4	54.6	154.4
Boudh	55.7	30.7	80.1
Gajapati	51.0	213.0	27.8
Ganjam	69.9	165.0	31.3
Kalahandi	45.2	236.2	307.8

Khordha	102.1	148.7	18.9
Koraput	18.3	142.9	57.1
Nayagarh	57.5	97.1	55.8
Rayagada	39.1	256.4	96.3
Subarnapur	27.0	27.1	73.5
Balasore	15.1	36.2	25.4
Kandhamal	94.6	139.8	161.5
Nawarangpur	22.3	268.4	232.1
Kendrapara	65.5	35.1	8.4
Bhadrak	22.4	208.0	12.4
Jagatsinghpur	128.1	72.0	9.3
Puri	156.1	156.5	5.1
Nuapada	0.4	106.2	169.1

[Table-2.1]

Heavy to very heavy rainfall from 1st August to 5th August occurred in almost all parts of coastal districts and southern districts due to effect of deep depression. Monsoon during 1st week of August became most unkind to particularly Southern districts like Koraput, Malkangiri & Rayagada. The average rainfall figure of these districts is mentioned below in Table-2.2.

Average Rainfall in mm

Name of the District	02.08.06	03.08.06	04.08.06
Balasore	18.3	21.2	9.6
Bhadrak	37.0	18.0	10.0
Mayurbhanj	29.3	15.6	9.6
Jajpur	76.0	14.9	8.3
Gajapati	36.6	110.0	53.5
Rayagada	68.6	86.1	31.7
Koraput	64.1	141.0	170.2
Malkangiri	20.5	129.4	261.2
Dhenkanal	66.5	16.8	14.0
Kendrapara	96.3	15.2	7.4
Jagatsinghpur	71.3	16.4	12.3

[Table-2.2]

Again, heavy to very heavy rainfall from 11th August to 13th August occurred in almost all parts of coastal districts and some of the western districts due to effect of deep depression. The average rainfall figure of these districts is mentioned below in Table-2.3.

Average Rainfall in mm			
Name of the District	11.08.06	12.08.06	13.08.06
Subarnapur	4.6	114.2	199.0
Puri	1.0	162.3	63.0
Keonjhar	16.2	15.9	24.1
Angul	0.0	34.8	108.5
Sambalpur	17.3	46.5	105.5
Baragarh	1.0	88.8	169.5
Nawarangpur	9.7	9.1	16.9
Bhadrak	11.3	10.5	12.7
Balasore	8.0	26.5	10.7
Jajpur	23.6	34.1	15.2
Mayurbhanj	16.8	15.4	11.9

[Table-2.3]

2.2. July Flood

Heavy monsoon rainfall lashed the Western, Southern as well as coastal Orissa along with cyclone storm during the period from 02.07.2006 to 04.07.2006 causing flood in catchments area of Lower Mahanadi Basin/Vansadhara Basin/Rushikulya Basin. The deep depression caused over Raipur in Chhatisgarh on 04.07.2006 caused heavy to very heavy rainfall (around 300 mm.) in above basins. All the rivers/nallahs in above basins were made to flow over the danger level by which vast areas were inundated. As a result,

- Vast agricultural land with standing crops got sand cast.
- River/canal embankments at many places breached or damaged.
- Canal structures were also badly damaged at few places.
- Roads/bridges were also severely hit by the floods.

A. LOWER MAHANADI BASIN

The Lower Mahanadi Basin consists of a no. of sub-basins of the tributaries of Mahanadi which mainly contribute for occurrence of floods in Mahanadi in addition to the outflow from the Hirakud Reservoir. This time the Sub-basin received heavy downpour and yielded high floods in the tributaries which created havoc in the catchments. Details basin/sub-basin wise flood situation are described below.

1. RIVER HATI (SUB-BASIN) -

The river was in spate for 3 days from 02.07.06 to 04.07.06 due to heavy down pour in its catchments. The river was flowing at level 195.63 m. well above the danger level i.e. 193.96 m., submerging the low level bridge on nallah near Junagarh on 04.07.2006. Due to flood in this river the canal system of Upper Indravati Project both right and left were heavily damaged. Rainfall recorded at Junagarh was 132 mm, 307.4 mm on 03.07.06 & 04.07.06 respectively. The release of tailrace channel of Indravati power house at Mangalpur barrage i.e. up stream of Hati basin was 7500 cusec which was significant in comparison to flood discharge of 52,000 cusecs in river Hati, whereas its safe carrying capacity is 30,000 cusecs.

2. River Udanti (Sub-basin)

Due to floods in Udanti, Khariar belt of Nuapada district and parts of Bolangir were affected. The rainfall recorded at Khariar was 144.80 mm and the water level in the river was 204.97 m. against Danger Level of 203.778 m. recorded at Masigaon.

3. River UNDER & Tanjore (Sub-basin)

The part of Bolangir district was severely affected by the high flood of both the rivers. The observed river flow of UNDER and TANJORE were 98.60 m. and 97.00 m. against the Danger Level of 97.00 m. and 96.30 m. recorded at Sangamunda and Diaton on 04.07.2006 respectively. Due to the submergence of the agriculture land, the standing crops were damaged.

4. River Tel (Sub-basin)

River Tel is a tributary to river Mahanadi which meets near Sonapur, down stream of Hirakud reservoir and gives major contribution to the flood in Lower Mahanadi part.

Due to heavy rainfall the river discharged a peak flow of 8.55 lakh cusecs on 04.07.2006 creating flood havoc in Kalahandi, Bolangir & Sonapur districts. All along the course, the river Tel flew at level higher than the danger level as recorded at different gauge stations on 04.07.2006 as stated below in Table-2.4.

Sl.	Name of River	Location of Gauge	Danger Level in m.	HFL in m.
1	Tel	Crossing of Golmunda Distributaries (Tel Aqua duct)	231.35	233.70
2	Tel	S.H. Crossing	229.85	232.20
3	Tel	Hati confluence near Mankadasola	203.35	204.20
4	Tel	Kesinga Railway Bridge	176.85	178.06

[Table-2.4]



[Floods Malkangiri]

5. MAHANADI BASIN

The flood water of Tel along with the discharge from the intermediate catchments created flood situation in Delta area during the period from 05.07.06 to 07.07.06. The peak discharge of 8.80 lakh cusecs passed Mundali on 06.07.06 at 0600 hours. This had inundated the lower area of Delta causing bank erosion, breaches in canals and embankments of the district of Kendrapara, Jajpur, Jagatsinghpur, Cuttack, Puri and Khordha. The detail of flood flow position is given below in Table-2.5 for different distributaries of Mahanadi.

River Stage Position of Mahanadi

RIVER	GAUGE STATION	DANGER LEVEL (DL)	WARNING LEVEL (WL)	RECORDED WATER LEVEL (RWL)	DATE & TIME	REMARK
MAHANADI	NARAJ (IB)	26.41 M.	25.41 M.	25.78 M.	05.07.06/1000 HR.	ABOVE WL
	NARAJ (IB)			26.21 M.	06.07.06/1100 HR.	ABOVE WL
KATHJORI	BELLEVUE	22.50 FT.		18.70 FT.	06.07.06/0900 HR.	BELOW DL
KUSABHADRA	NIMAPARA	10.78 M.	9.85 M.	9.00 M.	06.07.06/1100 HR.	BELOW WL
DEVI	ALIPINGAL	11.76 M.	10.85 M.	10.35 M.	06.07.06/1100 HR.	BELOW WL

[TABLE-2.5]

DL - DANGER LEVEL , WL - WARNING LEVEL

B. VAMSADHARA BASIN

The depression of 02.07.06 moving in North West direction caused extremely heavy rainfall in the catchments of river Vamsadhara as a result of which the flood water raised to up to 56.36 mtr. Against the danger level of 54.60 m. At Kashinagar and remained above danger level for about 57 hours from 02.07.06 to 05.07.06. The enormous flood discharge in Vansadhara inundated the vast area for a long period creating high flood situation in Rayagada and Gajapati districts.

C. RUSHIKULYA BASIN

The heavy torrential rain from 02.07.06 to 04.07.06 ran down from the catchments of Rushikulya River creating a high flood that topped the banks causing ingress of flood water to the agricultural field and homestead land of Ganjam district resulting high flood situation. The high flood rose up

to 17.40 m against its danger level of 16.84 m. at Purushottampur and remained as such for about 17 hours.

The basin and sub-basin wise rainfall recorded from 02.07.06 to 04.07.06 is shown vide Table-2.6

Rainfall data

NAME OF BASIN	SL.	NAME OF STATION	02.07.06	03.07.06	04.07.06
MAHANADI	1	ALIPINGAL	145.4	70.6	21.8
	2	BANPUR	72.0	255.0	4.0
	3	KHARIAR	0.0	144.8	
	4	MUNDALI	119.8	74.8	15.6
	5	NIMAPARA	155.2	91.6	3.6
	6	PURI	273.2	231.8	0.2
TEL SUB-BASIN	1	BELGAON	77.8	31.6	242.6
	2	BHAWANIPATNA			300.0
	3	BOLANGIR	72.8	30.6	114.0
	4	JUNAGARH		132.0	307.4
	5	KESINGA	1.4	154.0	271.0
HATI SUB-BASIN	1	JUNAGARH		132.0	307.4
UDANTI SUB-BASIN & INDRA	1	KHARIAR		144.8	
UNDER SUB-BASIN	1	BELGAON	77.80	31.60	242.60
	2	TITILAGARH		75.40	
VANSADHARA	1	BISAM CUTTACK		224.6	
	2	GUDARI	34.4	218.4	90.8
	3	GUNUPUR	34.8	275.4	34.0
	4	KOTRAGARH		226.0	
	5	KOTRAGUDA	26.4	161.6	101.6
	6	MOHANA	106.8	156.4	36.8
	7	R-UDYAGIRI		252.0	
	8	RAYGADA		299.0	80.0

RUSHIKULYA	1	ASKA	64.0	162.0	31.0
	2	BHANJIJANAGAR	51.0	162.0	58.0
	3	CHHATRAPUR	106.0	228.0	13.0
	4	GOPALPUR	92.9	187.6	19.5
	5	MADHABRIDA	58.0	175.6	29.4
	6	PURUSHOTTAMPUR	72.0	190.6	18.6

[Table-2.6]

The huge flood water of Tel and Hati inundated a vast area of Kalahandi and Bolangir district. It caused damage to the roads, bridges at places, agricultural fields and paralyzing communication system at many important places like Bhawanipatna, Bolangir and Junagarh etc.

Similarly due to flood in Vamsadhara and Rushikulya 3 southern districts were affected. The affected districts are Rayagada, Gajapati and Ganjam. The district Rayagada is worst affected. Land slide, washing out of road structure and disruption of communication and inundation of vast area were the main damage feature to mention. The flood although occurred for a small period but has given a deep scar.

D. SUBARNAREKHA BASIN

Monsoon being vigorous over the Northern Orissa, Subarnarekha basin experienced heavy rainfall during the period from 14.07.06 to 16.07.06. Rainfall to the magnitude of 100 mm. and more at many places brought flood in Subarnarekha. The flood water touched 10.20 m. against the warning level of 9.45 m. and danger level of 10.36 m. at Rajghat and remained steady above warning level for about 45 hours from 17.07.06 to 19.07.06. The flood inundated parts of Balasore and Mayurbhanj districts.

E. JALAKA SUB-BASIN

Jalaka River "a small rivulet" suffered from heavy flood due to the uninterrupted break of monsoon for consecutive 3 days from 14.07.06 to 16.07.06 and continued to flow above danger level of 5.50 m. with water level reaching the peak of 6.58 m. The flood inundated vast areas of Basta

Block. The rainfall data collected at different rain gauge stations in Subarnarekha basin from 14.07.06 to 16.07.06 is mentioned below in Table-2.7.

Rainfall data					
Name of Basin		NAME OF STATION	RAINFALL IN MM.		
			14.07.06	15.07.06	16.07.06
SUBARNAREKHA	1	BHOGRAI	4.0	115.0	5.0
	2	FEKOGHAT	0.0	123.2	61.4
	3	GHATSILA	20.4	44.6	114.2
	4	JALESWAR	67.0	94.0	143.0
	5	JAMSHEDPUR	12.3	38.2	139.0
	6	JAMSOLAGHAT	4.8	59.0	95.0
	7	RAJGHAT	58.6	69.0	88.6
			TOTAL FOR 3 DAYS		
			124		
			184.6		
			179.2		
			304		
			189.5		
			158.8		
			216.2		

[Table-2.7]

The heavy floods in Jalaka River affected the village like Mathani, Pegarapada and Sibgunthia etc. of Basta Block.

2.3. AUGUST FLOOD

2.3.1. Cause

Catastrophic rainfall due to vigorous monsoon and subsequently deep depression over Orissa, particularly over North and South districts during the period 27.07.06 to 04.08.06, brought disastrous flood from as many as 4 basins like Subarnarekha, Baitarani, Vansadhara, Kolab & Indravati basin. The affected vast areas of the State within 10 districts namely Mayurbhanj, Balasore, Bhadrak, Jajpur, Rayagada, Koraput, Malkangiri, Gajapati, Kendrapara, Dhenkanal and Jagatsinghpur received damage to river banks, canal banks, roads and irrigation structures.

1. Subarnarekha Basin

Subarnarekha River received a second flood within a very short span on 30.07.06 to 03.08.06 due to heavy rainfall within its basin. The river

crossed its danger level i.e. 10.36 m on 30.07.06 and touched the peak at 12.00 m at Rajghat on 31.07.06. It continued to flow above danger level for 2 days causing flood situation in Balasore and Mayurbhanj districts.

2. Baitarani Basin

Due to the heavy precipitation for the low pressure concentrated into a depression from 30.07.06 to 03.08.06, the river Baitarani experienced a disastrous flash flood that topped the danger level 17.83 m. at Akhuapada and touched 18.26 m mark remaining as such for 3 days. Districts like Bhadrak and Jajpur were most affected.

3. Vansadhara Basin

Floods came in river Vamsadhara for the second time from 02.08.06 to 05.08.06 within a span of about one month and continued to flow above its danger level for about 86 hours all along its course. The flood water touched 84.91m and 55.96m against danger level of 84.00 m. and 54.60 m. at Gunupur and Kashinagar respectively causing inundation of vast areas of Rayagada and Gajapati districts.

4. Kolab & Indravati Basin

The deep depression of 02.08.06 crossed south Orissa coast between Puri and Gopalpur on 03.08.2004 and on 04.08.06 the depression was centered at 100 Kms. North-North East of Jagdalpur. Consequently heavy down pour of the order of 200 mm. and more occurred at many places in Kolab & Indravati catchments. This made the hilly rivers and tributaries to overflow their banks and thereby creating disasters flood in districts of Koraput, Malkanagiri and Nawarangpur. The rainfall for the period 01.08.06 to 04.08.06 was of high order of 317.00 mm.

Also due to such heavy falls, influx of huge inflow into the Kolab, Machhkund, Indravati and Balimela reservoirs occurred. The reservoir water level rose rapidly and within few hours became closed to full reservoir levels. This necessitated operation of spillway gates of some of reservoirs. This caused floods in few southern districts. The position of reservoirs during this period is given below in Table-2.8.

Position of reservoirs during 02.08.06 to 05.08.06

RESERVOIR	WATER LEVEL	INFLOW (CUMEC)	OUTFLOW (CUMEC)	GATE OPENED	DATE	HOUR
U. KOLAB	853.69 M.	333.74	32.23	NIL	02.08.06	0800
	857.79 M.	2522.22	2000	2 NOS.	04.08.06	0800
U. INDRAVATI	635.80 M.	440.34	45.58	NIL	02.08.06	0700
	639.90 M.	2149.53	6.57	NIL	04.08.06	0630
	641.40 M.	389.36	271.85	1 NO.	07.08.06	1500
JALAPUT	2732.0 FT	109.28	NIL	NIL	03.08.06	0800
	2747.6 FT	3929.17	135.97	NIL	04.08.06	0800
BALIMELA	1460.0 FT	6368	45.78	NIL	03.08.06	0800
	1478.3 FT	4432	55.26	NIL	04.08.06	0730
	1488.4 FT	4416.13	39.24	NIL	05.08.06	0730

[Table-2.8]

The districts namely Malkanagiri, Koraput and Nawarangpur were severely affected. The flood not only inundated vast areas and disrupted communication but also eroded many river banks, canal banks, breaches and rain cuts occurred in roads and causeways and many irrigation structures got damaged.

2.3.2. FLOOD IN MALKANAGIRI DISTRICT

Due to arrival of cyclonic storm from 02.08.06 to 05.08.06 in the Eastern and Southern part of Orissa heavy rainfall occurred in the entire catchments of Kolab and Sabari river basins, which finally meet Godavari River. Due to this heavy rainfall rain water from the catchments of 17,700 Sq Km. and release of flood water from Kolab reservoir on 04.08.06. The entire flood plains in Malkangiri got submerged which lasted for 4 days. The flood contribution in the catchment is as follows.

Name of River System	Discharge
Kolab river system	70,000 Cusec
Saptadhara & Pongam river system	85,000 Cusec
Satiguda & Potteru river system	95,000 Cusec
Sabari river	1, 25,000 Cusec
Total:	3, 25,000 Cusec

Due to the combined discharge of 3,25,000 Cusec at Saberi mouth near Motu in Podia Block of Malkangiri district, flood inundation occurred in the flood plains of Malkangiri district in all the 5 Blocks. At the same time there was flood in Godabari River in Andhra Pradesh for which the flood water of Saberi River to Godabari River could not be released speedily. Due to retention of flood water in Malkangiri plains, severe damages were caused to the public utilities like canal embankments, bridges, roads and other structures etc.

The basin wise rainfall data from 28.07.06 to 04.08.06 of different rain gauge stations are in Table-2.9.

		Rainfall							
Name of Basin	Name of Station	28/07	29/07	30/07	31/07	01/08	02/08	03/08	04/08
Subarnarekha	Bhograi	18.0	40.0	75.0	0.0		13.0		
	Fekoghat	7.6	72.8	28.4	0.0		10.2		
	Ghatsila	4.6	62.6	123.4	2.0		23.6		
	Jaleswar	2.0	57.0	63.0	0.0		17.0		
	Jamshedpur	13.6	80.0	50.4	65.6	40.8	15.1		
	Jamsolaghat	12.0	24.8	86.8	0.0		8.8		
	Rairangpur		58.0		0.0		62.0		
	Rajghat	14.6	38.2	55.4	0.0		15.4		
	Ranchi	0.0	15.7	64.1	4.1				
Baitarani	Akhuapada	21.4	2.4	4.2	0.0	140.8	36.0	17.0	
	Anandapur	7.8	24.8	5.0	0.0	97.0	51.0	10.0	
	Champurua	10.6	21.8	52.0	0.0	33.6	50.2	2.6	
	Jajpur	3.0	1.0		8.0	80.0	36.0	12.0	
	Joshiapur	4.4	69.2		0.0	44.8	39.6	8.4	
	Keonjharagarh	33.2	10.2		0.0	120.6	40.6	19.8	
	Rajkanika	60.0	12.0		0.0	60.0	67.0	23	
	Swampatna	2.0	24.0	49.6	0.0	105.6	29.2	18.2	
	Thakurmunda	14.0	23.6	49.0	0.0	88.2	19.4	7.2	
Vamsadhara	Gotta Barrage	21.4	3.4	2.0	0.6			139.0	116.4
	Gudari	5.2	8.4	25.6	0.0	23.8	84.6	69.8	18.6
	Gunupur	80.5	3.8	18.0	0.2	18.4	54.4	130.0	85.2
	Kalingapatnam				4.5			109.6	
	Kotragarh	9.3	21.4		0.0	5.4	156.0	67.6	16.2
	Kashinagar	17.6	3.8	5.6	0.0	10.2	21.6	121.6	50.2
	Kotráguda	17.2	10.8	5.4	0.0	40.4	103.0	65.6	9.2
	Mahendragarh	3.4	6.8	13.4	1.8	31.4	39.0	75.2	60.6

Kolab & Indravati Basin	R-Udyagiri		11.4		1.6	77.4	73.0	155.6	119.0
	Raygada	12.1	1.0	30.1	0.0	29.1	34.0	92.3	36.3
	Indravati					5.2	64.2	245.4	90.6
	U. Kolab					64.1	78.0	241.4	224.0
	Jeypur					0.0	92.6	233.8	224.2
	Koraput					1.0	89.0	225.0	208.0
	Malkangiri							138.0	
	Nawarangpur						35.0	154.0	66.0
	Pottangi						52.0	200.0	317.0
	Umerkote						17.0	120.0	45.0

[Table-2.10]



[Floods in Malkangiri]

CHAPTER - III

Impact

JULY - FLOOD

3.1. Extent of Damages

Heavy rains and floods during 1st and 2nd week of July caused extensive damages, which are indicated in Table-3.1 below.

1.	No. of Districts Affected	18
2.	Name of the Affected District	Boudh, Gajapati, Ganjam, Kalahandi, Koraput, Rayagada, Kandhamal, Nawarangpur, Bolangir, Khordha, Nayagarh, Sonepur, Balasore, Puri, Nuapada, Kendrapara, Bhadrak, Jagatsinghpur
3.	No. of Blocks Affected	92
4.	No. of GPs Affected	799
5.	No. of Village Affected	6135
6.	No. of ULBs / Wards Affected	6
7.	Population Affected	13,08,090
8.	No. of Human live lost	38
9.	No. of Live stock Affected	137,959
10.	No. of Cattle / livestock lost	137
11.	Crop Area Affected (in Hect.)	1,26,502
12.	Crop Area Sand cast	15,313
13.	No. of houses damaged	37,058

[Table-3.1]

3.2. Human Casualty

38 persons lost their lives due to wall collapse, drowning, boat-capsize, cyclonic storm, landslide etc. in the flood affected districts. Table-3.2 shows the district wise details.

Sl.	District	Human Casualty
1.	Gajapati	10
2.	Ganjam	1
3.	Koraput	2
4.	Kalahandi	3
5.	Rayagada	8
6.	Nawarangpur	2

7.	Bolangir	1
8.	Khorda	1
9.	Nayagarh	3
10.	Bhadrak	5
11.	Jagatsinghpur	1
12.	Puri	1
Total		38

[Table-3.2]

3.3. Loss of Livestock

Flood 2006 caused loss of 137 nos. of livestock in the affected districts.

3.4. House Damage

As per preliminary report about 37,058 no. of houses have been damaged. The process of assessment is under progress. Some of those have been washed away; some others were fully or severely damaged. The district wise figure on house damage is given in Table 3.3.

Sl.	District	No. of Houses Damaged
1.	Boudh	282
2.	Gajapati	3855
3.	Ganjam	141
4.	Kalahandi	8550
5.	Koraput	1070
6.	Rayagada	10729
7.	Kandhamal	1157
8.	Nawarangpur	2422
9.	Nuapada	453
10.	Bolangir	5085
11.	Sonepur	769
12.	Balasore	2
13.	Puri	1813
14.	Khordha	730
Total		37058

[Table-3.3]

3.5. Crop Damage

About 1,26,502 hectares of Kharif crop have been damaged due to heavy rain / flood and storm surge. 15,313 hectares of paddy land have been sand cast. About 48217 hectares of paddy land sustained crop loss of 50% or more. The district wise crop damage is given in the Table 3.4.

Sl.	District	Crop area affected (in hectare)	Crop area affected (more than 50%)	Crop Area Sand cast
1.	Boudh	3210	875	113
2.	Gajapati	2242	579	188
3.	Ganjam	28377	8364	80
4.	Kalahandi	24696	11951	11192.4
5.	Koraput	6248	58	47
6.	Rayagada	2515	1499	422
7.	Kandhamal	1525		
8.	Nawarangpur	3188	550	1464
9.	Nuapada	388	185	157
10.	Bolangir	6366	2237	1477.6
11.	Khorda	22570	924	
12.	Nayagarh	3914	305	
13.	Sonepur	2190	1979	172
14.	Balasore	560	3602	
15.	Puri	13473	13473	
Total		126502	48217	15313

[Table-3.4]



[Fully Damaged house of a Tribal]

3.6. Loss of livelihood

Due to storm surge and flood during July, extensive damage has been caused to fishing community. Fishermen belonging to coastal districts have lost their boats and nets.

3.7. Disruption of Communication

Floods in July 2006 had caused severe disruption to road communication. 122 no. of breaches occurred in 127 no. of PWD roads of length 1142.47 Km. 893 breaches occurred in 846 rural roads. 10 CD works (R&B) washed away. 298 CD works of Works Department have been damaged. 221 nos. of PMGSY roads have been badly damaged.

3.8. Drinking water problem

Most of the Drinking water sources in rural and urban areas have been severely damaged. Rural Water Supply System as well as Urban Water Supply System has been badly affected due to heavy rain and flood. 60 pipe water supply projects have been damaged extensively during this flood.

3.9. Lift Irrigation Points

754 no. of Lift Irrigation Points have been affected in five districts. The district wise list is given below in Table-3.5.

Sl.	District	No. of LIPs Damaged
1.	Sonepur	54
2.	Bolangir	129
3.	Nawarangpur	58
4.	Kalahandi	151
5.	Rayagada	367
Total		754

[Table-3.5]

3.10. Flood Embankments / Minor Irrigation Projects

Due to floods and heavy rains during July, heavy damage occurred to the river / saline and canal embankments. 216 no. of breaches occurred in river / saline embankments. 306 no. of breaches occurred in canal embankments. 835 no. of Minor Irrigation projects out of 2720 MIPs have been severely damaged due to heavy rain / flood in July 2006.

AUGUST FLOOD

3.11. Extents of Damages

Extensive damages have been occurred due to flash flood and storm surge causing out of continuous torrential rainfall in Southern & Coastal Orissa. The detail is given in Table 3.6.

1.	No. of Districts Affected	11
2.	No. of Blocks Affected	34
3.	No. of GPs Affected	217
4.	No. of Village Affected	2076
5.	No. of ULBs / Wards Affected	2
6.	Population Affected	539368
7.	No. of Human live lost	11
8.	No. of Live stock Affected	69135
9.	No. of Cattle / livestock lost	1315
10.	Crop Area Affected (in Hect.)	129585
11.	Crop Area Sand cast	12630
12.	No. of Houses Damaged	12272

[Table-3.6]

3.12. Human Casualty

11 persons lost their lives due to wall collapse, landslide, drowning, etc. in the flood affected districts. Table 3.7 shows the district wise details.

Sl.	District	Human Casualty
1.	Jajpur	1
2.	Koraput	5
3.	Malkangiri	5
Total		11

[Table-3.7]

3.13. Loss of Livestock

This time, flood caused loss of 1315 livestock in two districts namely Koraput and Malkangiri.

3.14. Crop Damage

About 53, 855 hect crop area both paddy and non-paddy in 11 districts have been damaged due to August 2006 flood. The district wise crop damage is given in the Table-3.8.

Sl.	District	Crop Area Damaged		
		Paddy	Non-paddy	Total
1.	Jagatsinghpur	4410		4410
2.	Jajpur	2270	75	2345
3.	Kendrapara	6700	221	6921
4.	Mayurbhanj	220.0	10	230
5.	Koraput	2080	1579	3659
6.	Malkanagiri	16000	730	16730
7.	Rayagada	502	410	912
8.	Gajapati	465	2217	2682
9.	Bhadrak	3271	45	3316
10.	Balasore	5502	7148	12650
Total		41420	12435	53855

[Table-3.8]

3.15. Disruption of Communication

Heavy rain / Flood in August 2006 had caused extensive damage to roads of Malkanagiri, Koraput and Rayagada district. This is the 2nd time

damage to roads in Koraput and Rayagada district. 440.57 Km. of PWD roads was damaged, 28 breaches occurred in 58 no. PWD roads, 32 CD works were severely damaged. Similarly 455 breaches occurred in 506 rural roads.

3.16. Drinking water problem

Due to storm surge and flood in August, there is extensive damage to Urban Water Supply System as well as Rural Water Supply System. 11 Pipe Water Supply System has been damaged in 8 affected districts. Most of the tube wells were submerged in flood / rain water.

3.17. House Damage

About 10,594 no. of houses suffered damage as per the report received till date in 4 districts namely Balasore, Mayurbhanj, Koraput and Malkanagiri. The process of assessment to damage houses is under process. The report of damaged houses in four districts is mentioned in Table-3.9 below.

Sl.	District	No. of Houses Damaged
1.	Balasore	3467
2.	Mayurbhanj	500
3.	Koraput	4758
4.	Malkangiri	3547
Total		12272

[Table-3.9]

3.18. Lift Irrigation Points (LIPs)

A number of Lift Irrigation Projects were damaged by the flood during 1st week of August. 586 no. of Lift Irrigation Points were damaged in Balasore, Bhadrak, Mayurbhanj and Koraput district. The Table-3.10 below shows district wise damage of LIPs.

Sl.	District	No. of LIP Damaged
1.	Balasore	226
2.	Bhadrak	78
3.	Mayurbhanj	23
4.	Koraput	259
	Total	586

[Table-3.10]

The damage to LIPs in Malkanagiri District have not yet assessed as the flood water has not receded yet.

3.19. Flood Embankments

- i) This is the 2nd time, extensive damage to river / canal embankments occurred due to storm surge and flood. 68 no. of breaches occurred in river / saline embankments. Also 157 no. of breaches occurred in canal embankments.
- ii) Similarly 195 no. of Minor Irrigation Projects have been damaged during August 2006.

Third Phase Flood (11.08.06 to 19.08.06)

Due to deep depression over Bay of Bengal, again heavy to heavy rain fall has been occurred all over the State. As a result 11 districts namely, Subarnapur, Puri, Keonjhar, Angul, Sambalpur, Balasore, Bargarh, Nawarangpur, Bhadrak, Mayurbhanj and Jajpur have been again affected by flood / heavy rain. This flood is still continuing. As per preliminary report, the detailed extent of damage so far is mentioned in the Table 3.11.

1.	No. of Districts Affected	11
2.	No. of Blocks Affected	20
3.	No. of GPs Affected	47
4.	No. of Village Affected	408
5.	No. of ULBs / Wards Affected	3
6.	Population Affected	130062
7.	No. of Human live lost	14
8.	Crop Area Affected (in Hect.)	40844
9.	No. of Houses Damaged	6033

[Table-3.11]

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[Devastation of Private Houses]

CHAPTER - IV

Response

JULY FLOOD

4.1. Rescue

Depression warning and heavy rainfall messages alongwith flood warnings were transmitted to the districts well in advance. People from low lying areas were shifted to safer places. 52 nos. of boats were engaged for evacuation of people. 13369 persons were evacuated. Three (3) units of Orissa Rapid Action Forces (ODRAF) were deployed in three severely affected districts (Bolangir, Koraput and Ganjam) for relief and rescue operation.

4.2. Emergent Relief & Relief Camps

Evacuated persons were kept in temporary shelters. They were provided with adequate quantity of dry food and cooked food through free kitchen centres. 52 relief camps were opened. 10,536 persons were kept in relief camps.

Emergent relief in shape of rice 979.84 Qtl., Chuda 131.80 Qtl. and Juggery 18.79 Qtl. were provided to the persons in affected areas. Beside these materials polythene, candles, biscuits, kerosene oil etc. were provided to the affected persons. The detail distribution of Emergent relief (district wise) is given in Table 4.1.

(Material in Qtl.)

Sl.	District	Rice	Chuda	Juggery
1.	Boudh	172.22	9.68	1.80
2.	Gajapati	3.00	1.91	0.38
3.	Ganjam	0.50	12.00	1.94
4.	Kalahandi	459.48	11.43	2.05
5.	Koraput		38.00	3.80
6.	Rayagada	107.89	10.00	1.35
7.	Nawarangpur		22.65	2.00
8.	Bolangir	158.93	10.10	3.80
9.	Khorda	21.57	10.78	1.07
10.	Sonepur	56.25	5.25	0.60
	Total	979.84	131.8	18.79

[Table-4.1]

4.3. Health and Sanitation

Adequate quantity of essential drugs like halogen tablets, antibiotics, paracetamol tablet, anti-snake venom injection, bleaching powder have been supplied to all affected areas. Health control rooms have been functioning round the clock in District Head Quarters and State Head Quarters. Medical Teams have been deployed in the affected areas. Essential medicines and vaccines have been distributed to prevent outbreak of any epidemics.

4.4. Drinking Water

Due to floods / heavy rain, most of the drinking water sources inundated. Adequate numbers of halogen tablets have been distributed among the affected people. 790 no. of tube wells and 153 no. of wells have been disinfected.

4.5. Animal Care

137959 no. of livestock were affected due to such flood. The affected animals were shifted to safer places and were provided cattle feed. Mobile Veterinary Teams have been deployed in the affected areas. 30 MT of cattle feed has been distributed in flood affected areas.

4.6. Assistance to Farmers

Steps have been taken to supply seeds in 50% subsidized rate to the small and marginal farmers of affected areas. Programme of supply of seeds at subsidized rate is still continuing. Till date 6394.70 Qtl. of paddy seeds and 439.18 Qtl. of non-paddy seeds have been supplied to all affected districts. During this period, 4571 hectare of Kharif crop of Nuapada, Subarnapur and Baragarh district have been affected due to pest attack. Steps have been taken to provide pesticides and sprayers in subsidized rate to the affected farmers.

Besides this assistance in terms of sand cast subsidy @ Rs.5000/- will be given to farmers (whose crops were sand cast) after recession of flood water.

AUGUST FLOOD

4.6. Rescue

Cyclonic storm warning and heavy rainfall messages were communicated to all Collectors well in advance. 82 no. of boats were engaged in relief and rescue operation. About 8068 no. of persons were evacuated. The detail of persons evacuated is shown below in Table-4.2.

Sl.	District	No. of persons evacuated
1.	Balasore	2043
2.	Bhadrak	500
3.	Mayurbhanj	500
4.	Gajapati	25
5.	Malkangiri	5000
Total		8068

[Table-4.2]

Two units of ODRAF team were deployed in Balasore district for rescue operation.

4.7. Emergent Relief

Evacuated persons were provided with dry foods as well as cooked food through free kitchen at 40 centres. Emergent relief in shape of rice 3081.32 Qtl., Chuda 603.14 Qtl. and Juggery 62.72 Qtl. have provided to affected people of maroon villages. Besides this other relief materials like polythene, candles, biscuits were also provided to flood victims.

4.8. Health Care and Drinking Water

46 no. of Medical Team were deployed to flood affected areas for treating of affected people in order to prevent break out of epidemics. 14 medical centres were opened. 8169 no. of ORS packets, 127185 no. of Halogen tablet were distributed to affected people. 936 tube wells & 541 wells were disinfected.

4.9. Animal Care

This time 6 nos. of Veterinary Team were engaged in affected areas. Vaccinations have been made and essential veterinary drugs were distributed. 3,42,944 no. of vaccination were done. 4889 nos. of cattle have been treated. 100 MT of cattle feed, 12 Qtl. of green fodder were distributed on the flood affected district.

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[Distribution of Emergent Relief]

CHAPTER - V

Damage Assessment

5.1. Emergent Relief

- a) For providing emergent to 18.36 lakh affected people in shape of rice, chuda, Jaggery and other items such as biscuits, milk powder, candles, match boxes, salt, kerosene oil etc. are to be provided which will cost about **Rs. 1.51 crore**.
- b) Nearly **0.55 lakh** houses have been damaged by floods for which H.B. Assistance is to be provided as per the CRF norms, for this purpose, an amount of **Rs. 7.90 crore** is required.
- c) Death toll has gone up to 59. An amount of **Rs. 0.295 crore** is required for payment of ex-gratia @Rs.50, 000 each.
- d) An amount of **Rs.1.05 crore** is urgently required to meet the transportation charges of relief materials, medicines and medical teams, cattle feed etc. from the State capital and district headquarters to the affected areas.
- e) Agricultural land which has been affected due to the large number of breaches in the embankments. Estimated area of agricultural land affected is around 2.51 lakh hectares. As a result 16500 hectares of land have become unfit for agriculture due to sand cast. **Rs.8.25 crore** is required for desilting the land and clearance of debris.
- f) Assistance to the families whose houses have been washed away or collapsed and who have lost their clothes and utensils is to be provided at the rate of revised norm of CRF expenditure. An amount of **Rs.1.45 crore** is required for this purpose.
- g) A total 142 boats were placed in the service for relief and rescue measures. Out of which 53 boats were from State Port Engineering Organisation and 16 from ODRAF. 52 power boats and 21 country boats were hired from Private Agencies for which a sum of **Rs.0.20 crore** is required to meet the hire charges & cost of POL etc.
- h) Out of 0.55 lakh houses damaged due to flood, minimum 29,000 families required temporary shelter materials. Hence an amount of

Rs.1.16 crore is required for providing them with temporary shelter materials.

- i) Out of 18.36 lakh people affected by this flood, 22,546 nos. of old, infirm and destitute children are provided cooked foods in the free kitchens run by district administration. To provide them relief under free kitchen programme for 10 days in the prescribed scale, an amount of **Rs. 0.35 crore** is required.
- j) 547 MT of cattle feed is needed for the affected live-stocks. For this an amount of **Rs.0.10 crore** is required.

The total requirements come to Rs.22.265 crore. Table-5.1 gives the details.

FUNDS FOR ADMINISTRATION OF PURE RELIEF BY SPECIAL RELIEF COMMISSIONER		
Sl.	Emergent Relief Measures	Amount (Rs. In core)
1	Emergent Relief	1.51
2	HB Assistance	7.90
3	Ex-gratia	0.295
4	Search and Rescue Measures (Hiring & Deployment of Boats and Cost of POL etc.)	0.20
5	Transportation charges of relief materials for different Districts.	1.05
6	Sand cast	8.25
7	Temporary Shelter	1.16
8	Clothing & utensils for 29,000 families whose houses have been washed away or fully collapsed	1.45
9	Relief for the old infirm destitute children (free kitchen)	0.35
10	Cattle feed for affected live stocks	0.10
Total		22.265

[Table-5.1]

5.2. Crop Damage

As per preliminary report the paddy crop in area of 40256 hectares and non paddy crop in area of 7961 hectares were affected more than 50% during July flood 30.6.2006 to 3.7.2006. The value of crop loss is Rs. 43.00 crore. There is a requirement of Input subsidy of **Rs. 6.23 crore** for assistance to the affected farmers where crop loss is more than 50%.

During August flood, paddy crop of 41420 hecets. and 12435 hect. Of non-paddy crop were damaged more than 50%. The crop loss in terms of money value is estimated to be Rs.46.00 crore. There will be subsidy requirement of Rs. 8.07crore.

Due to pest attack in July, 2006, 3384 hect. Of crop area were damaged more than 50% in the districts namely Nuapada, Bargarh and Sonepur, there is a subsidy requirement amounting to Rs.33.84 lakh for this purpose.

Also there was an extensive damage to Govt. Agricultural farms and Water Harvesting structure. The total loss is estimated at Rs. 1.05 crore and Rs. 15.40 crore respectively. Hence, Rs.16.45 crore is required for repair/restoration of such infrastructure.

5.3. Health & Sanitation

All kinds of health measures have already been taken in the flood affected areas. Adequate quantities of medicine and disinfectant have been provided to health institutions. An amount of Rs. 7.35 crore is required for preventive and curative measures. Table-5.2 shows the details requirement of funds for preventive & curative measures.

Sl.	Items	Amount Required (Rs. in crore)
1.	Medicines and disinfectants	6.45
2.	Mobility(operational cost)	0.50
3.	IEC Activities	0.15
4.	Contingencies	0.25
	Total	7.35

[Table-5.2.]

5.4. Drinking Water Supply

5.4.1. Rural Water Supply

Large number of drinking water sources in rural area has been inundated and many of them have suffered damage by Floods/heavy rain in July & August, 2006.

During the month of July, drinking water supply systems in rural areas were affected in 11 districts namely, Bolangir, Snapper, Karamu, Rayagada, Boudh, Purl, Kalahandi, Gajapati, Ganjam, Nuapada and Kendrapara. Similarly during the month of August these systems in 11 districts namely Balasore, Bhadrak, Mayurbhanj, Jajpur, Karamu, Malkangiri, Ganjam, Kendrapara, Jagatsinghpur, Cuttack and Kandhamal were affected. Mainly piped water supply system, and hand pumps, tube wells were affected by flood. In most cases pump houses pipe lines and intake wells were damaged. In few cases the platforms of food pump tube wells have been damaged. For immediate restoration the disinfection of tube wells by applying the disinfection of tube wells by applying bleaching powder have been carried out. In some cases drinking water was supplied to the affected rural people through water tankers.

The cost of repair / restoration of pipe water supply system and hand pump tube wells come to Rs.610.20 lakh.

5.4.2. Urban Water Supply

Several Water Supply Systems have been damaged during July & August, 2006. To bring these systems to normally, an amount of Rs.402.22 lakh is required. The details of the damaged system and amount required for restoration are shown in Table-5.3

Sl.No.	Water Supply System	Amount required (Rs. in lakh)
1.	Bolangir	126.22
2.	Koraput	6.30
3.	Berhampur	28.50

4.	Bhanjanagar	17.60
5.	Cuttack	33.85
6.	Baripada	4.35
7.	Puri	12.50
8.	Bhubaneswar	30.60
9.	Rourkela	67.90
10.	Sambalpur	74.40
	Total	402.22

[Table-5.3]

5.5.1. Fishery and Animal Resources

Live stock provides a major source of supplementary income for large majority of rural house holds and the sector is therefore highly livelihood intensive. The livestock sector has significant contribution to the state economy. The unprecedented floods during July & August have severely affected the livestock and Poultry population in 10 districts namely Ganjam, Gajapati, Balasore, Jajpur, Mayurbhanj, Kendrapara, Koraput, Kalahandi, Malkangiri, Rayagada.

In order to meet various existing and emerging challenges both during the floods and post flood period, the following actions have been carried out.

- Dispatch of medicines and vaccines.
- Conduction of Health Camps.
- Vaccination of livestock in the affected district.
- Services through mobile van
- Distribution of cattle feed
- Disposal of carcasses to avoid epidemic.

The loss and damage caused due to flood needs immediate attention to reduce further disruption. The service Delivery system is to be restored through additional support in terms of conducting health check up. Vaccination of animals against contagious diseases(HS, BQ, PPR), curative treatment to sick animals, promotion of fodder cultivation, vitamin and

mineral supplementation to overcome stress and breeding problems, repair and restoration of Departmental infrastructure.

5.5.2 Medicines and Vaccination

It is proposed to make mobile clinics for rendering curative health care services 15 days after recession of flood. For this purpose 225 Mega Health Camps in flood affected districts will be organized.

Besides, due to scarcity of fund land fodder starvation and other stress factors, breeding problems may arise. This requires a planned management of infertility problems for which it is proposed to conduct 30 infertility management camps per district totaling to 300 infertility camps.

Similarly, Water logging, swampy and muddy soil condition and contaminated pasture will influence as important predisposing factor for gastro intestinal parasitic problems. This will lead to heavy calf mortality production and loss of draught animals' power. Hence, it is proposed to organize 225 such camps. For all the purpose, the total cost for medicine e, mobile clinics and transportation comes to **Rs.94.65 lakh**. The detail calculation is in the Table-5.4.

Sl.	Activity	Total nos. of camps	No. of district	Medicine cost per camp (in Rs.)	POL per vehicle (in Rs.)	Contingency per camp (in Rs.)	Total cost (in Rs.)
1.	Animal Health Check-up camp	225	10	20000	500	500	4725000
2.	Infertility camp	300	10	10000	1000	300	3390000
3.	Mass deworming camp	225	10	5000	500	500	1350000
	Total	750	30	35000	2000	1300	9465000

[Table-5.4]

5.5.3. Vaccination of Animals

Stress due to flood has decreased the immunity status of livestock in flood affected areas, which will make them more prone and susceptible to various contagious and infectious diseases. In order to avoid post biological disaster in terms of disease epidemic immunization of animal against the important diseases is required. Vaccination of cattle, buffalo with a HS, BH and PPR vaccine is the need of the time. The small ruminants like sheep and goat needs to be immunized against Enterotoxaemia and PPR diseases. An amount of Rs. 27.9 lakhs will be required for vaccination.

5.5.4. Compensation for death of livestock

In the 10 affected districts, 172 large animal and 127 small animals have died during July/August flood. These farmers have suffered loss due to death of their livestock. The compensation @ Rs.5, 000/- per large animal and Rs.500/- per small animal comes to Rs.9, 23,500/-. Total requirement for the Animal Resource Sectors is shown in Table-5.5.

Sl.	Activity	Amount Required (Rs. In lakh)
1.	Animal Health Care (Medicine)	94.65
2.	Vaccination	27.90
3.	Compensation to farmers	9.23
Total		131.78

[Table-5.5]

5.6. Fisheries Sector

5.6.1. Damage & Loss

Due to flood / heavy rain during July & August, the economic condition of affected people of fishing community has been suffered. Fisheries Sector has been adversely affected in 10 districts. The most affected districts are Malkangiri, Balasore, Rayagada, Kalahandi & Gajapati.

Due to the above damage the rural fishermen / fish farmers have been severely affected. The flood has caused on irreparable damage to weaker section of the society, especially the women SHGs. An amount of Rs.1335.00 lakh is required to compensate the above loss.

5.6.2. Post Flood Measures

The damages caused to this sector need immediate attention and post flood measures will ensure removal of distress prevailing among poverty stricken rural areas. The restoration measures to the damaged infrastructure and curative measures to the standing crop i.e broad stock fish fry, fingerlings and prawns etc. to be supplemented to over come the stress.

The culturable water areas in the flood affected districts are either over flooded or partially inundated by flood water in various degrees. Therefore, there is an immediate need for their disinfections by medicines namely C.I.F.A.X. / LIME / KMnO₄. The prophylactic dosage of C.I.F.A.X. is one ltr. per hectare / metres which will be the best solution to tide over the situation. The fund requirement is estimated at Rs.744.15 lakh.

Thus total requirement for fisheries Sector is Rs2079.15 lakh which is shown at Table-5.6.

Sl.	Interventions	Requirement (Rs. in lakh)
	Assistance to Fisherman	
1.	(a) Repair / replacement of boat & net	250.00
	(b) Input subsidy to farmers	85.00
2.	Medicines	744.15
3.	Restoration of Fish farm	225.00
4.	Loss to Fisherman habitation	205.00
5.	Repair/Restoration of Fishery building	140.00
6.	Repair/Restoration of Marine infrastructure	430.00
	Total	2079.15

[Table-5.6]

5.7. Water Resources

5.7.1. Lift Irrigation

In the current floods 1340 Lift Irrigation projects are reported to have been affected in 9 districts (Sonepur, Bolangir, Nawrangpur, Kalahandi, Rayagada, Balasore, Bhadrak, Mayurbhanj, & Koraput) causing serious damage to the Head works and distribution system of the L.I. Projects. The cost of repair and restoration of the affected L.I. projects comes to Rs.1141.80 lakh. The district wise break up of requirement is shown in Table-5.7.

(Amount in lakh)

Sl.	District	LI Projects Damaged	Amount Required for restoration
1.	Subarnapur	54	21.09
2.	Bolangir	124	73.96
3.	Nawarangpur	58	15.96
4.	Kalahandi	151	154.43
5.	Rayagada	367	670.20
6.	Balasore	226	121.38
7.	Bhadrak	78	25.00
8.	Mayurbhanj	23	17.80
9.	Koraput	259	41.98
	Total	1340	1141.80

[Table-5.7]

5.7.2. Minor Irrigation Projects.

Extensive damage has been caused to 1029 Minor Irrigation Projects in 24 districts the requirement of fund for repair/restoration of these projects comes to Rs.6407.60 lakh, the district wise requirement is given in Table-5.8.

Sl.	District	MIP Damaged	Requirement (Rs. in lakh)
1.	Balasore	31	105.00
2.	Bhadrak	13	41.00
3.	Bolangir	66	174.00
4.	Boudh	20	206.00
5.	Cuttack	33	196.00
6.	Gajapati	63	403.50
7.	Ganjam	264	1763.50
8.	Jajpur	37	183.00
9.	Kalahandi	77	539.00
10.	Kandhamal	28	224.00
11.	Kendrapara	2	8.00
12.	Khurda	46	203.30
13.	Koraput	51	343.70
14.	Malikangiri	16	77.50
15.	Mayurbhanj	47	299.20
16.	Nawarangpur	36	197.20
17.	Nayagarh	34	111.50
18.	Nuapada	22	141.70
19.	Puri	2	10.00
20.	Rayagada	64	821.00
21.	Subarnapur	12	38.50
22.	Keonjhar	39	233.00
23.	Angul	19	54.00
24.	Dhenkanal	7	24.00
Total		1029	6407.60

[Table-5.8.]

5.7.3. Flood & Canal Embankments

Large scale damages to irrigation/flood control structures/drainage systems have been occurred due to water logging and flood in rivers Vansadhara, Rusikulya, Baitarani, Subarnarekha, Lower Mahanadi, Hati and their tributaries. Due to deep depression over Bay of Bengal, the upper catchments as well as lower catchments of major rivers of state received heavy down pour. As a result, Water flooded in the area for 3 days. 725 no.

of breaches in river/canal/saline embankment took place. Besides these, infrastructures of Drainage system of length 535.20 Km have been severely damaged.

The required amount for restoration to the damages to river and canal embankments, drainage systems is Rs.18144.35 lakh. Table-5.9 gives details.

Sl.	Detail of Repair / Restoration	Amount Required (Rs. in lakh)
1.	Repair / Restoration of River / Saline embankment and canals	16372.62
2.	Repair to drainage system	1771.73
	Total	18144.35

[Table-5.9]

5.8. Connectivity

5.8.1. Rural Roads

The flood in July & August had caused extensive damage to rural road net work maintained by R.D. Department. The assessment made so far reveals that 1352 no. of breaches occurred in 1374 no. of damaged roads. It is necessary that the damaged roads and CD works are to be restored immediately for clearance of relief line. The amount required for repair/restoration of above roads is Rs.16326.87 lakhs. The district wise detail is given in Table-5.10.

Sl.	District	No. of Roads damaged	No. of Breach occurred	Amount required for immediate restoration (Rs. in lakh)
1.	Balasore	98	190	1420.00
2.	Mayurbhanj	12	02	120.10
3.	Bhadrak	69	142	694.00
4.	Bolangir	66	36	320.80
5.	Boudh	11	30	198.00

6.	Dhenkanal	84		350.00
7.	Gajapati	49	158	1454.90
8.	Ganjam	215	180	2549.35
9.	Jajpur	51	29	266.00
10.	Kalahandi	82	168	1361.16
11.	Kendrapara	81		515.00
12.	Keonjhar	70	07	720.00
13.	Khurda	24	07	149.25
14.	Koraput	106	50	1369.00
15.	Malkangiri	24	39	158.00
16.	Nawarangpur	57	20	334.00
17.	Nayagarh	16	12	251.00
18.	Nuapada	20	15	152.58
19.	Kandhamal	55	80	1124.60
20.	Puri	77	148	1709.95
21.	Rayagada	55	24	666.28
22.	Sonepur	20	01	148.90
23.	Jagatsinghpur	32	14	294.00
Total		1374	1352	16326.87

[Table-5.10]

5.8.3. Major District Roads & Bridges

Extensive damage has been occurred to major roads, bridges and cross drainage works in Ganjam, Gajapati, Koraput, Rayagada, Koraput, Malkangiri, Kalahandi districts. Due to Land slide arising out of heavy rainfall in Gajapati and Rayagada districts. Following major roads have been damaged during July & August, 2006.

- Adagaon - Bolangir Road.
- Paralakhemundi - Kesinga Road.
- Bhawanilpatna - Kesinga Road (Pipalnala Bridge washed away).
- Chatigada-Narla-Rampur Road (Sandula & Kutei bridge washed away).
- Karsara Bridge
- Balandapada - Pairaja Road.
- Parbatipur-Laxmipur Road
- Sanasourapalli - Phulkara Road.

- Rosanga - Chhamunda Road.
- Rayagada - Koraput Railway road.
- Rayagada - Berhampur State Highway.
- Rayagada - Koraput State Highway.
- Koraput - Laxmipur - Rayagada - Gunupur(Sankesh - 2 Bridges washed away)
- Kapasira - Kantamal Road.
- Batachapali - Ghastapada Road.
- Chatan - Mathani -Basta Road.
- Bhadra - Aradi road.
- Paralakhemundi - Kashinagar Road.
- Kashinagar - Khandara Road.
- Chhatrapur - Bijipur Road.
- Chandapa - Muniguda Road.
- Sikarpani - Songutra Road.
- Ramtaguda - Bisamkatak Road.
- Basta - Ballapal Road.
- Jaleswar - Bhogarai Road.
- Khajuripada - Nuagarh Road
- Motu - Malkangiri Road.

The total requirement for repair /restoration of 670 nos. of roads is Rs.350.03 crore. Table-5.11. indicates the district wise details.

Sl.	District	No. of roads damaged	Length of road damage in Km.	No. of CDs damaged	No. of CDs washed away	Amount required for restoration (Rs. in crore)
1.	Rayagada	26	398.30	106	6	20.75
2.	Kalahandi	15	129.66	74		22.58
3.	Bolangir	18	275.00	13		4.99
4.	Subarnapur	9	98.70	11		4.16
5.	Boudh	6	32.00	9	3	5.3
6.	Kandhamal	17	141.00	62		14.98
7.	Khurda	185	190.95	17		63
8.	Puri	30	258.77	62	2	40
9.	Nayagarh	16	155.60	33		9.35
10.	Ganjam	62	286.40	44	1	26.5
11.	Gajapati	7	24.00	7		4.5
12.	Koraput	29	174.00	89	7	11.5

13.	Cuttack	63	415.00	57		19.61
14.	Jajpur	33	124.55	40	2	12
15.	Jagatsinghpur	27	247.90			10
16.	Dhenkanal	13	135.70	52		9.87
17.	Kendrapara	28	76.55	10		12
18.	Baragarh	10	57.73			3.7
19.	Mayurbhanj	15	138.95	22		12.14
20.	Nuapara	12		25		1.05
21.	Keonjhar	20	133.20	37		8.66
22.	Balasore	3	43.95	3		1.03
23.	Malkangiri	5	25.75	4		5.64
24.	Bhadrak	5	100.00	1		2.51
25.	Angul	16	139.79	67	13	24.21
Total		670	3803.45	845	34	350.03

[Table-5.11]

5.8.4. Municipal Roads.

Heavy rains and flood have damaged public properties (roads and bridges) in 31 Urban local bodies. These roads were worst affected due to water logging. An amount of Rs. 6083.15 lakh is required for the repair of roads/bridges to bring those into pre-flood condition. Details are given in Table-5.12.

Sl.	Urban Local Bodies	Requirement (Rs. in lakh)
1.	Bhubaneswar	3920.00
2.	G. Udayagiri	14.10
3.	Phulbani	44.00
4.	Subarnapur	47.10
5.	Balimela	100.00
6.	Deogarh	110.00
7.	Malkangiri	46.00
8.	Junagarh	21.70
9.	Gudari	15.00
10.	Basudevpur	32.00
11.	Rayagada	233.00
12.	Nayagarh	26.60

13.	Kesinga	25.90
14.	Koraput	
15.	Kotpad	218.95
16.	Jeypore	
17.	Sunabeda	
18.	Polsara	10.00
19.	Banki	50.00
20.	Jatani	200.00
21.	Cuttack	78.25
22.	Nawarangpur	55.00
23.	Berhampur	505.00
24.	Kantabanhi	30.00
25.	Purusottampur	25.00
26.	Chikiti	21.70
27.	Kharlar Road	60.00
28.	Kharlar	93.90
29.	Ummerkote	59.00
30.	Biramitrapur	30.00
31.	Buguda	10.95
Total		6083.15

[Table-5.12.]

5.8.5. Panchayati Roads

Due to heavy downpour during July, & August, 2006 there has been substantial damage to Panchayati Raj properties. This includes PS/GP roads, G.P Office buildings and other village roads, Primary School buildings and water bodies. As per preliminary report, 9674 no. of GP/PS roads and 2397 no. of GP/PS Primary School buildings were damaged.

The total cost of repair/restoration of such properties belonging to P.R. Department is estimated at Rs. 10825.23 lakh. The district wise details are at Table-5.13.

Sl.	District	No. of GP / PS roads damaged	No. of GP / PS School buildings damaged	Amount required for restoration (Rs, in lakh)
1.	Bhadrak	74	10	432.00
2.	Balasore	835	122	900.45
3.	Bolangir	425	157	421.12
4.	Boudh	28	15	260.00
5.	Ganjam	120	85	233.00
6.	Gajapati	650	380	1214.00
7.	Jajpur	121	35	151.00
8.	Jagatsinghpur	72	25	150.00
9.	Koraput	700	112	257.80
10.	Kalahandi	1785	467	2904.83
11.	Khordha	275	117	586.00
12.	Kendrapara	183	9	301.40
13.	Kandhamal	179	259	243.55
14.	Malkangiri	1050	145	432.10
15.	Mayurbhanj	40	15	57.20
16.	Nayagarh	92	71	246.00
17.	Nuapada	250	20	261.00
18.	Nawarangpur	550	82	866.18
19.	Puri	520	25	293.60
20.	Rayagada	1700	239	550.00
21.	Subarnapur	25	7	64.00
Total		9674	2397	10825.23

[Table-5.13.]

5.9. Damage to Buildings

5.9.1. Rural Development Department

As per preliminary report, Rs.1941.90 lakh is required for repair / restoration of damaged buildings of Rural Development Department. The 1257 no. of buildings of R.D. Department in Ganjam, Gajapati, Kalahandi, Rayagada, Angul and Koraput districts have been damaged due to flood. Table-5.14 indicates the details.

Damaged Building of RD Department

Sl.	District	No. of Building Damaged	Amount Required for repair / restoration (Rs. in lakh)
1.	Ganjam	142	269.00
2.	Gajapati	500	435.00
3.	Kalahandi	218	200.00
4.	Rayagada	121	135.85
5.	Angul	196	793.70
6.	Koraput	80	108.35
Total		1257	1941.90

[Table-5.14]

5.9.2. Works Department

Similarly, buildings belong to Works Department including Non-Res and Residential building were damaged due to heavy down pour/flood and land slide in 14 districts. 3366 no. of buildings have been damaged. Rs.4580.05 lakh is required for repair of above buildings. Table-5.15 shows the details.

(Rs. in lakh)

Sl.	District	No. of buildings affected			Amount required for restoration		
		Non-Res.	Res.	Total	Non-Res.	Res.	Total
1.	Ganjam	102	158	260	450.40	335.50	785.90
2.	Kandhamal	43	190	233	150.00	140.00	290.00
3.	Boudh	30	97	127	124.00	85.00	209.00
4.	Rayagada	71	195	266	97.65	143.20	240.85
5.	Koraput	110	718	828	349.00	605.25	954.25
6.	Kalahandi	34	232	266	86.00	102.30	188.30
7.	Puri	64	403	467	291.10	308.90	600.00
8.	Kendrapara	15	38	53	29.00	27.60	56.60
9.	Bolangir	60	374	434	247.95	235.25	483.20
10.	Subarnapur	16	97	113	32.00	63.00	95.00
11.	Mayurbhanj	6	21	27	16.30	22.45	38.75
12.	Khurda	24	51	75	97.50	108.00	205.50
13.	Nayagarh	55	77	132	188.50	132.00	320.50
14.	Malkangiri	15	70	85	94.20	18.00	112.20
Total		645	2721	3366	2253.60	2326.45	4580.05

[Table-5.15]

5.9.3. Veterinary Department

168 Veterinary Dispensary buildings and 759 Live Stock Aid Centre (LAC) are damaged which repair within the total needs cost amounting to Rs.1558.50 lakhs. 40 VDS and 499 LACs require reconstruction, as these are totally washed away, with a total requirement of Rs.1777.00 lakh. Due to excessive rain and prolonged water logging six fodder farms and 2 LBD farms are damaged extensively. The total cost of such farm for repair comes to Rs.100.00 lakh. Thus, total cost of repair of building under FARD Department is Rs.3435.50 lakh. Total requirement of funds for restoration of buildings is shown in Table-5.16

Sl.	Department	Amount Required (Rs. in lakh)
1.	Rural Development	1941.90
2.	Works	4580.05
3.	Fishery and Animal Resource Development	3435.50
	Total	9957.45

[Table-5.16.]



[Supply of Kerosene]

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CHAPTER - VI

Calamity Relief Fund

Calamity Relief Fund

6.1. Release of Funds

6.1.1. Rescue & Relief

For immediate relief, rescue and restoration, following funds were released out of CRF to different Collectors. Table-6.1. shows the details.

(Amount in lakh)

Sl.	Interventions	Amount released
1.	H. B. Assistance	386.94
2.	Ex-gratia	11.00
3.	Temp. shelter	1.88
4.	Transportation charges	5.79
5.	Cost of food materials	6.42
6.	Cattle feed	2.70
7.	Sand cast subsidy	199.32
8.	Disposal of carcasses	0.20
9.	Flood contingency	0.80
Total		615.05

[Table-6.1.]

6.1.2. Immediate repair & restoration

A large no. of public infrastructures like drinking water supply system, river embankments, roads were damaged extensively due to flood / heavy rain. As a result, relief and rescue operation have been disrupted for a long time. Funds have been sanctioned to different line Departments for assistance to farmers, restoration of connectivity and flood embankments etc. The details are given in the Table-6.2.

(Amount in lakh)

Sl.	Department	Interventions	Amount
1.	Health & Family Welfare	Medicines and Disinfectants	100.00
2.	Water Resources	Closure of Breaches in Flood Embankments & MIPs	1959.00

3.	Works	Connectivity	1217.00
4.	Rural Development	Connectivity	1000.00
5.	Agriculture	Input Subsidy	515.84
6.	Rural Development	Drinking Water Supply	231.84
7.	Housing & Urban Development	Drinking Water Supply	188.67
Total			5213.35

[Table-6.2.]

6.2. CRF Position

At the beginning of the year 2006-07, there was an unspent balance of Rs. 1.98 crore under CRF / NCCF. This amount will be available to the CRF account through the 1st supplementary Budget Provision of the State.

Apart from this, the corpus of CRF for this year is **Rs. 310.24 crore** with the sharing of Centre and State Govt at a ratio of 75:25 which has been provided in the State Budget. Out of this a sum of **Rs. 155.12 crore** towards the first installment has been made available for expenditure so far. Thus, the total amount available at present for expenditure under different calamity mitigation measures is **Rs.157.10 crore**.

Out of the above amount a sum of **Rs.152.19 crore** has so far been released for expenditure towards relief and restoration work pertaining to different calamities. Now there is a balance of **Rs. 4.91 crore** only.

To manage the current floods an advance expenditure of **Rs.52.13 crore** has been made towards immediate flood relief measures and immediate restoration works.

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CHAPTER - VII

Assistance Sought For

7.1. Assistance Sought for

In view of the huge damage to crops and public utilities, the funds available under CRF are not at all adequate to meet the requirement as assessed earlier. Hence, assistance out of NCCF is urgently sought for to meet the challenge.

Abstract of assistance sought for, item wise and department wise are given in Table-7.1 & Table -7.2 respectively.

ABSTRACT OF REQUIREMENT DEPARTMENT WISE

Sl.	Department	Purpose	Requirement (Rs. in lakh)
1.	Agriculture	Input Subsidy: 1463.84 Restoration of WHS: 105.00 Restoration of Farms: 1540.00	3108.84
2.	Health	Health Measures - 735.00	735.00
3.	Rural Development	Drinking Water: 610.20 Roads: 16326.87 Buildings: 1941.90	18878.97
4.	Fisheries & Animal Resources	A.R.D Sector : 2079.15 Fisheries Sector : 3567.28	5646.43
5.	Panchayati Raj	Repair of Roads/School Buildings: 10825.23	10825.23
6.	Water Resources	Flood Embankment: 18144.35 Minor Irrigation 6407.60 Lift Irrigation Points: 1141.80	25693.75
7.	Works	Roads: 35003.00 Buildings: 4580.05	39583.05
8.	Housing & Urban Development	Drinking water supply: 402.22 Roads, Buildings & other Infrastructure: 6083.15	6485.37
9.	Special Relief	Immediate Relief- 2226.50	2226.50
Grand Total			113183.14

[Table-7.1.]

ABSTRACT OF ITEM WISE INTERVENTIONS SOUGHT

Sl.	Interventions	Item No. of the Revised Norms	Immediate Requirement (Rs. in lakh)
1.	Ex-gratia	1 (a)	29.50
2	Relief for old infirm/destitute	1 (d)	35.00
3	Clothing & Utensils	1 (e)	145.00
4.	Desilting and clearance of debris due to sand cast and landslide	3 (a)	825.00
5.	Assistance to SF/MF in shape of input subsidy	3 (d) (I)	1463.84
6	Assistance for repair/restoration of damage houses	8 (a), (b), (c)	790.00
7	Hiring of boats for carrying relief and rescue	13	20.00
8.	Provision for temporary accommodation, food etc. & TC	14	372.00
9	Provision of medicines, disinfectants etc.	10	735.00
10	Provision of fodder	5(ii)	10.00
11	Assistant to Fishermen for loss of net & boat	6 (a)	335.00
11	Medical care for cattle	11	875.93
12	Emergency supply of drinking water in rural areas & transportation of drinking water in Urban areas	9	1012.42
13	Repair / restoration of immediate nature of the damaged infrastructures in social sector.	16	
	a) Community owned assets(MIP/LIP)		7549.40
	b) School buildings		10825.23
	c)Communication(Roads)		57413.02
	d)Flood embankments/drainage system		18144.35
	e)Buildings		10097.45
	f)Water harvesting structure		1540.00
	g)Agricultural farms		105.00
	h)Marine structures		860.00
	Grand Total		113183.14

[Table-7.2.]

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CHAPTER - VIII

Conclusion

CONCLUSION

It is needless to state that the state could not come out of the clutches of disaster in any of the past. Multiple Disasters over the years have been playing a crucial role on the shattered economy of the people and State. Hence, special attention of Govt. Of India is earnestly sought for to make the relief and restoration measures in the State more meaningful and effective. But without financial support from GOI it could not be made possible, as the available funds under CRF at present is not at all sufficient to meet the requirements.

On the basis of the damage assessment and requirements highlighted in the previous chapters, the State Govt. through this memorandum seeks;

- *Financial Assistance of Rs. 1131.83 crore for continuance of relief & mitigation measures.*
- *Immediate repair and restoration of Road Communication and flood embankments.*
- *Immediate repair of drinking water supply systems.*

Hence, the Government of India may consider sanction of Rs.1131.83 Crore out of NCCF for immediate restoration and relief measures in the flood affected areas of the State.

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CHAPTER - IX

Visual Accounts

DAMAGE TO ROADS DUE TO LAND SLIDE



DAMAGE TO ROADS DUE TO LAND SLIDE



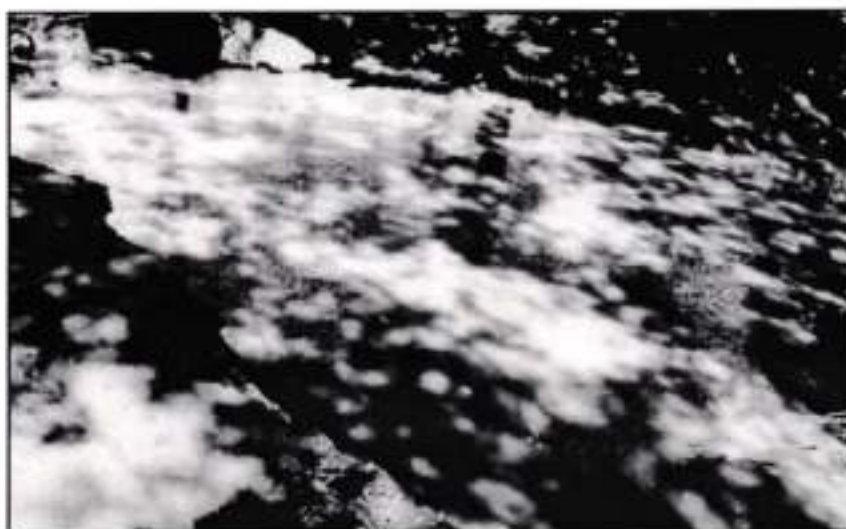
DAMAGE TO ROADS/STATE HIGHWAYS



DAMAGE TO ROADS/STATE HIGHWAYS



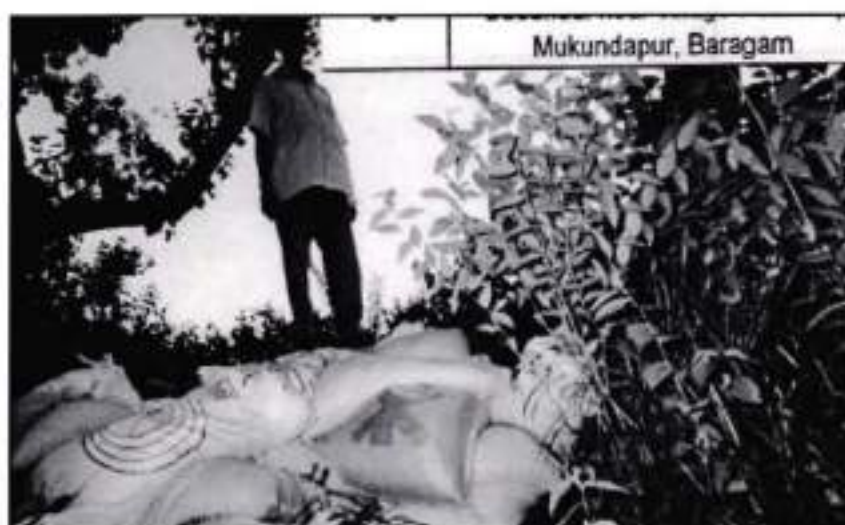
DAMAGE TO ROADS/STATE HIGHWAYS



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO RIVER/CANAL EMBARKMENT



DAMAGE TO WATER SUPPLY SUSTEM



DAMAGE TO WATER SUPPLY SUSTEM



DAMAGE TO WATER SUPPLY SUSTEM



DAMAGE TO WATER SUPPLY SUSTEM



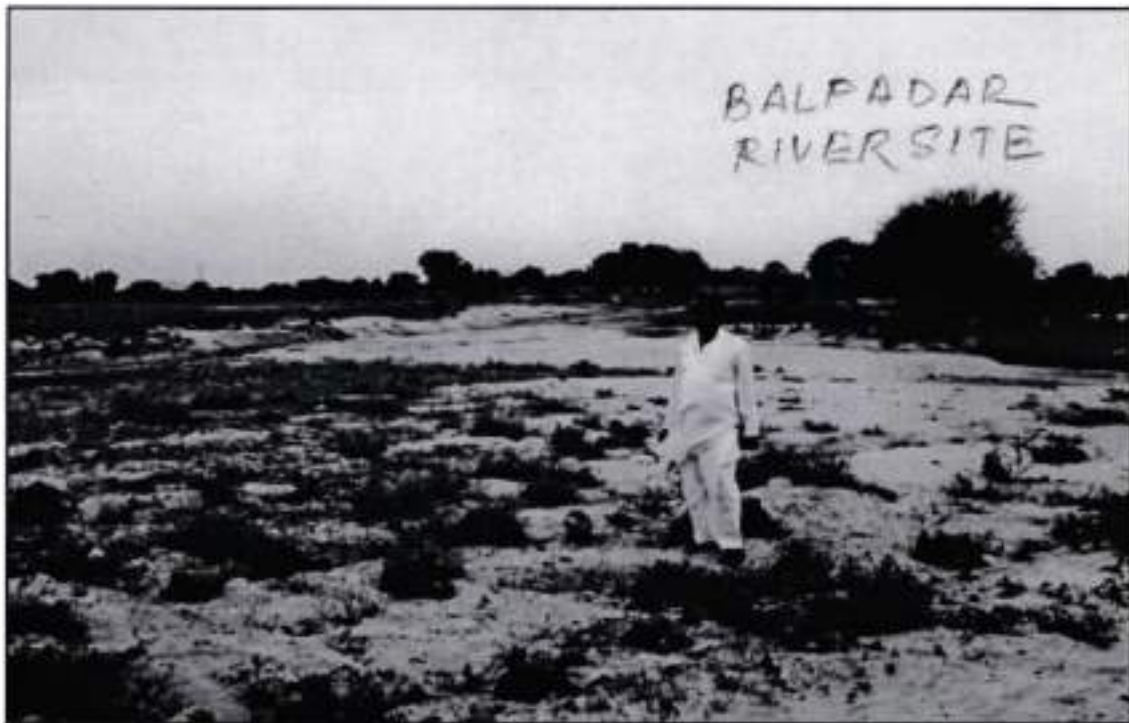
DAMAGE TO INFRASTRUCTURE OF ULBS



DAMAGE TO INFRASTRUCTURE OF ULBS

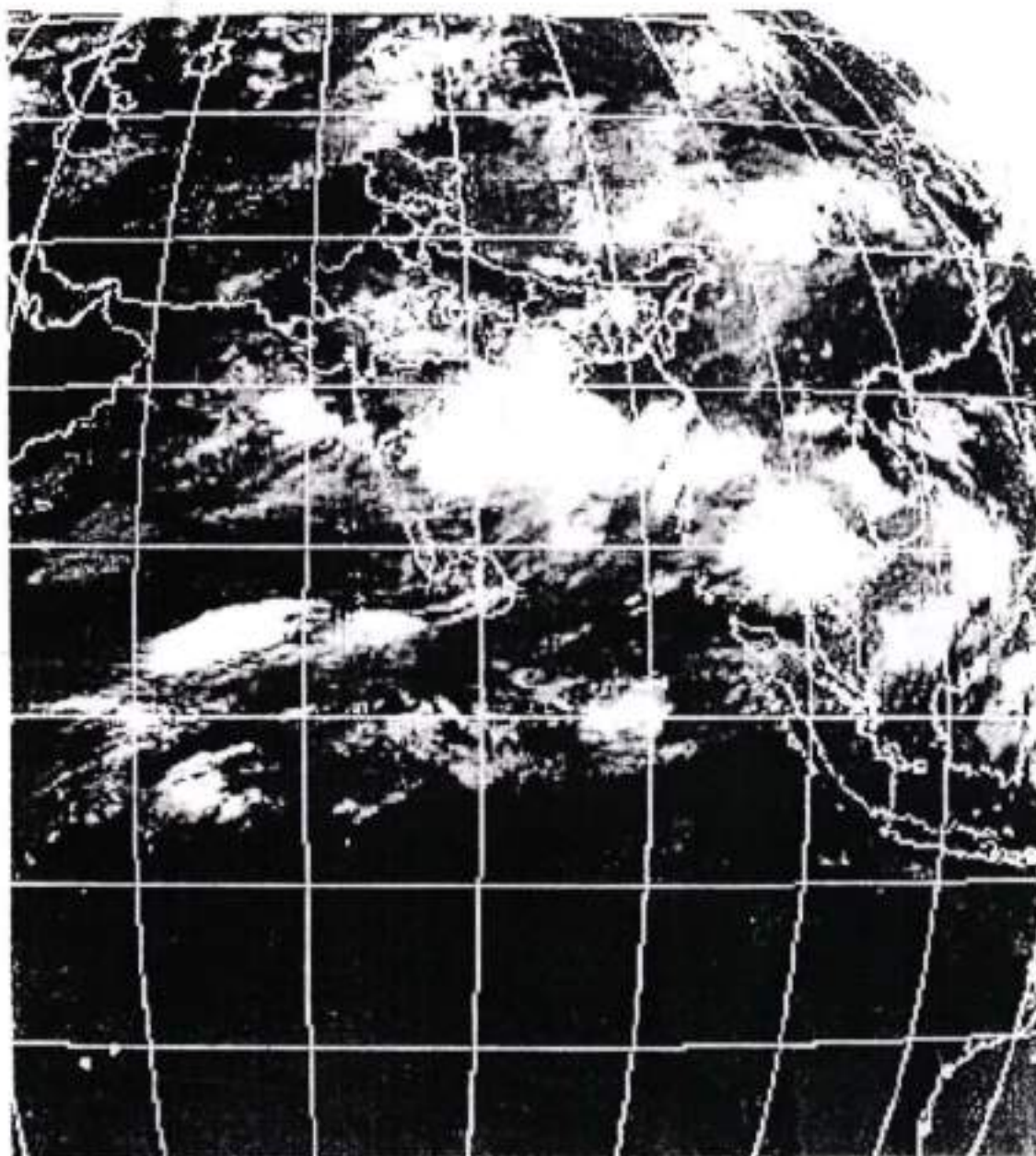


SAND CAST IN AGRICULTURAL LAND



Satellite Imagery

Date: 01/07/06



Satellite Imagery
Date: 01/08/06
Time: 11:30 AM hrs IST



Satellite Imagery
Date: 03/08/06
Time: 11:38 AM IST



Satellite Image
Date: 12/01/06
Time: 11:55 AM hrs IST



