

MEMORANDUM

Orissa Floods : 2008



Special Relief Commissioner, Orissa
Revenue & Disaster Management Department
Government of Orissa



Government of Orissa

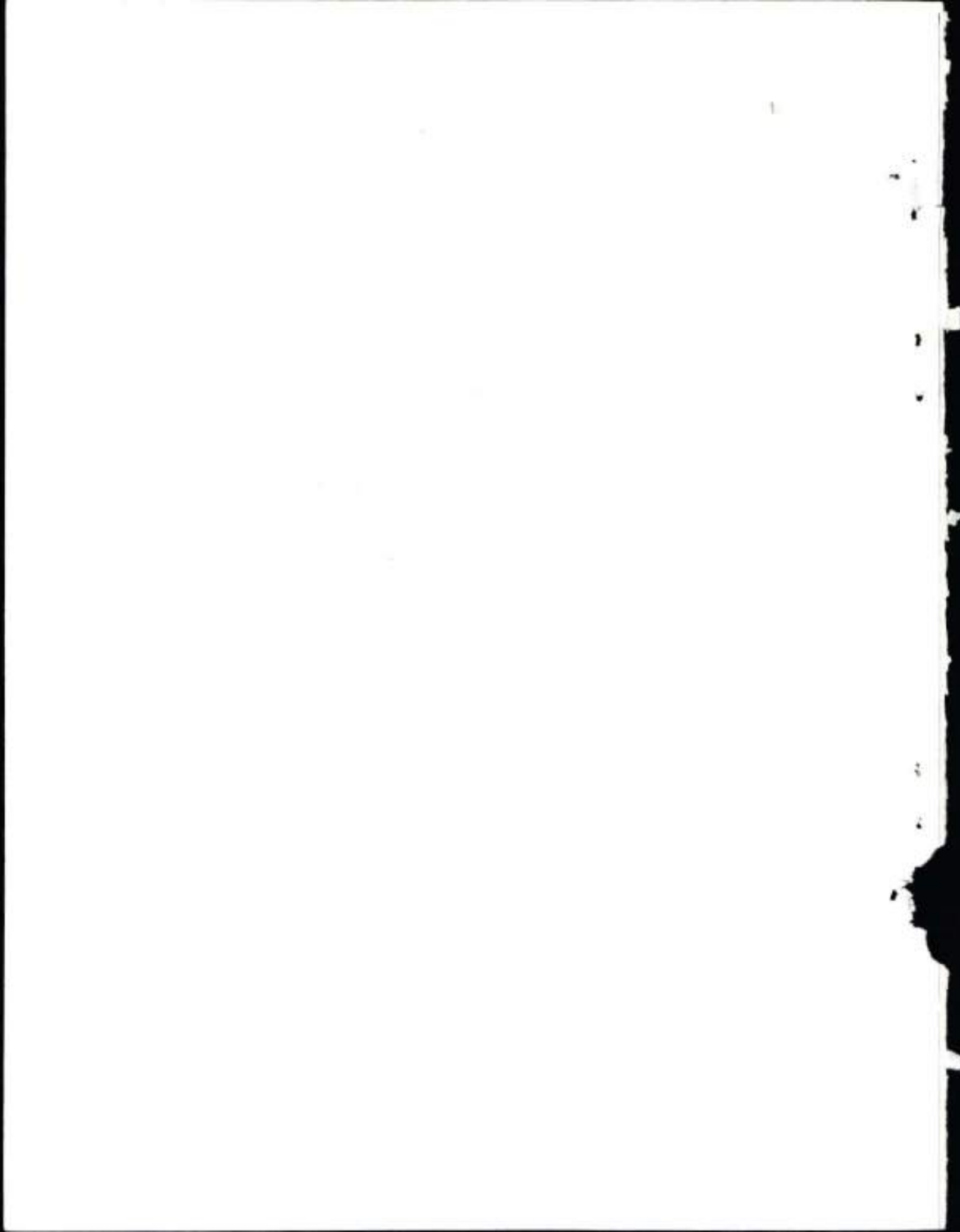
MEMORANDUM

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ADMINISTRATIVE MAP OF ORISSA





CHAPTER - I

Introduction



Multiple Disasters

Orissa being situated on the eastern coast of Bay of Bengal is extremely vulnerable to multiple hazards. The table below indicates how the state has been devastated by natural disasters in last 15 successive years.

Year	Calamity	Districts Affected
1994	Floods	17
1995	Floods & Cyclone	23
1996	Drought	28
1997	Drought	16
1998	Drought	26
1999	Super Cyclone	14
2000	Drought	29
2001	Floods	24
2002	Drought	29
2003	Floods	23
2004	Floods	05
2005	Floods	15
2006	Floods	27
2007	Floods (July)	12
2007	Floods (Aug. & Sept.)	15
2008	Floods	21

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 to battle against natural disasters, there is hardly any time left to complete the process. The frequency and the gravity of the disasters give little scope to reap the benefits of these initiatives. The focus of the State keeps shifting between repair/reconstruction and preparedness on the one hand and relief and rehabilitation on the other.



The analysis of the history of Natural Disasters shows that Orissa has been a regular victim of natural disasters like floods, cyclones and drought almost every alternative year. This is because of its vulnerable geo-physical location.

Extreme rainstorms which have caused the unprecedented flood situation in the major river basins of the state indicate towards an erratic geo-climatic condition. Atmospheric scientists all over the world from the resource and think tank institutions agree that extreme rain events and shifting of seasons would become more common on a warmer planet. The computer simulation also endorses the hypothesis. The study taken up by the Indian Institute of Tropical Meteorology indicates that the rise in temperature would be far more in northern India than the peninsular part. Global modeling suggests that precipitation in the country may be about 8-10% more than the annual average. But the real problem will be in sharp rise in intensity of precipitation in a short span of time which will be critical to India's food production and disaster scenario. The global warming and climate change is a reality which needs to be accepted in the light of the changed weather pattern and extreme weather events leading to catastrophic conditions like floods and water logging. In view of this, new approaches in management of disasters need to be incorporated to reduce the human misery.

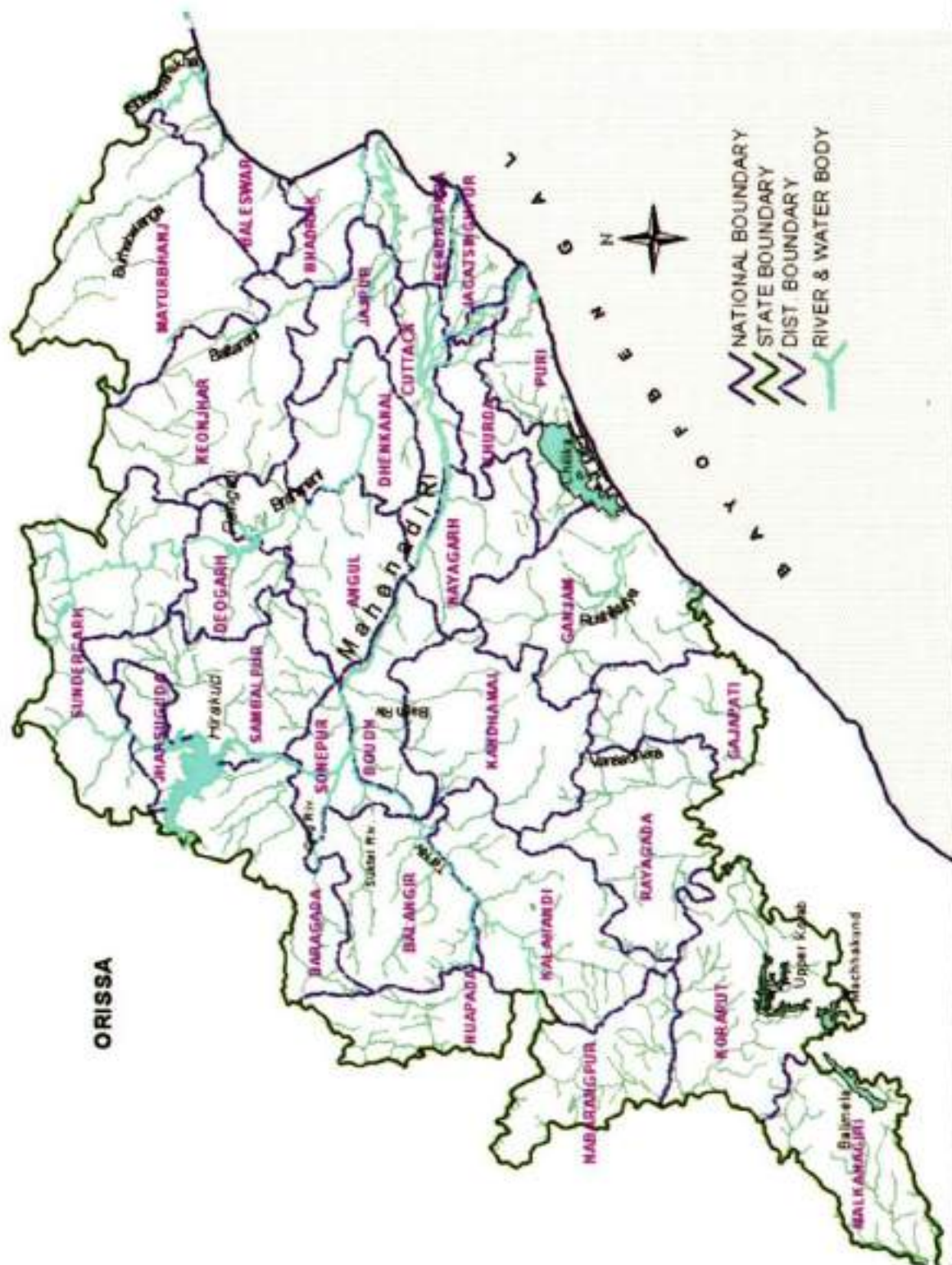
Due to excessive rainfall in the catchments of Subarnarekha, Budhabalang and Baitarani over a spell of three days (15-18 June, 2008), the rivers were flowing almost two meters above the danger level inundating vast tracts of arable land and human settlements. Widespread rainfall in the vast catchments of Mahanadi system along with other major rivers of the districts during 16th-19th September, 2008 caused a massive flow of about 15.82 lakh cusec of water at Naraj, the delta head of Mahanadi. The low elevation flat topography of Orissa accentuated the high flow of water submerging substantial parts of the state. The shallow continental shelf combined with tidal currents aggravated the flood situation by reducing the flow of water into the sea.

Given this backdrop, the floods of the current year i.e. 2008 was exceptional and a calamity of rare severity.

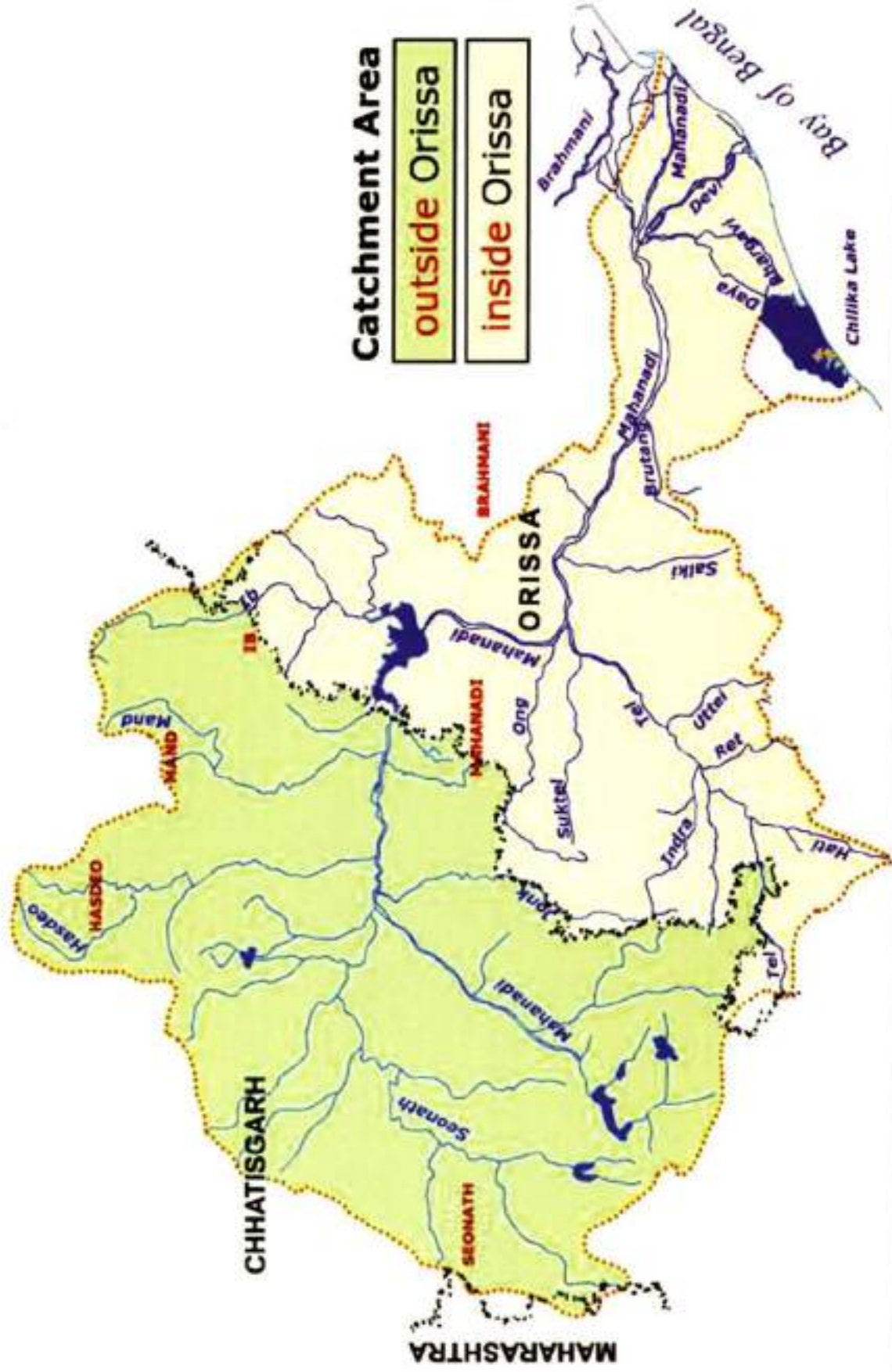
River System

The river system of Orissa comprises the Mahanadi, Brahmani, Baitarani, Subarnarekha, Vansadhara, Nagabali, Indravati, Kolab, Bahuda, Jambhira and other tributaries and distributaries.

RIVER SYSTEM OF ORISSA



CATCHMENT AREAS OF THE RIVER MAHANADI





Mahanadi River System

The Mahanadi is the biggest river in Orissa and is the 6th biggest river in the country.

The river Mahanadi in its onward journey from erosional plains bifurcates into a number of branches and sub-branches, forming the Mahanadi delta, covering an area of 9063 sq. km before out-falling into the Bay of Bengal. The major branches and sub-branches of river Mahanadi are the Kathjori, the Birupa, the Kuakhai, the Kushabhadra, the Bhargavi, the Daya, the Sirua, the Biluakhai, the Devi, the Chitrotpala, the Luna, the Karandia, the Paika and the Badagenguti. The Daya and the Bhargavi fall into the Chilika Lake while the other branches and sub-branches of river Mahanadi fall into Bay of Bengal.

Mahanadi being the largest river in the State covers catchment area of 141600 sq.km. The basin of Mahanadi covers 65628 Sq.km i.e. about 42% of the total geographical area of the State. The Mahanadi, a major east flowing river of the peninsular river system, originates near Pharasiya village of Rainpur district of Chhatishgarh State. This drains an area of 1,41,600 sq. km and has a length of 851 km. The major tributaries of river Mahanadi in Orissa are Ib, Ong, Tel, Suktel, Jira etc. Major branches of river Mahanadi are Kathajori, Birupa, Kuakhai, Devi, Luna etc.

Hirakud dam constructed in 1957 across Mahanadi in Sambalpur District with a reservoir spread over 746 sq. km and live storage capacity of 5.37×10^9 cum acts as the lone structure to moderate the downstream floods. The Hirakud Dam across Mahanadi near Sambalpur drains an area of 83400 Sq.Km.

The floods-2008 (15.822 lakh cusecs) is almost of the highest order of the same magnitude as in floods-1982 (15.84 lakh cusecs) which was only from the contributions of downstream catchments and nil contribution from the Hirakud Dam.

The contribution of tributaries in the downstream of the Hirakud Dam becomes hazardous and prone to high floods. In last 51 years from 1958 to 2008, 19 occasions of high floods above 10 lakh cusecs have been observed, out of which only in 3 occasions the flood was due to Hirakud Dam release, whereas, in rest 16 occasions the floods (including 2008 floods) were due to the contribution from the downstream catchments.

The total length of protective embankments provided in all river basins is 6515 Km out of which Puri, Kendrapara, Cuttack and Jagatsinghpur districts are having embankments of 1133 Km, 1033 Km, 713 Km, and 597 Km respectively. There are 1952 spurs and 253 Km of stone packing in embankment of the river system.

The details of the river embankments are as follows:

**River Embankments**

Sl. No.	Name of the river system	Capital Embankment (C.E.)	Other Agricultural Embankment (O.A.E.)	Test Relief Embankment (T.R.E.)	Saline Embankment	Total
1	Vamsadhara	4.98	1.70	82.91		89.59
2	Rushikulya		486.46		30.00	516.46
3	Mahanadi	1281.10	1205.78	428.69	961.72	3877.29
4	Brahmani	144.21	218.67	258.35	323.20	944.43
5	Baitarani	127.87	122.13	184.54	161.80	596.34
6	Burhabalanga		20.50	144.85	12.95	178.30
7	Subernarekha	30.00	28.70	225.60	28.00	312.30
	Total	1588.16	2083.94	1324.94	1517.67	6514.71

History of High Floods

In the past, floods have brought havoc in different parts of the State many times. Out of these, the Mahanadi basin has experienced high floods in 1982,2001,2003,2006 and this year 2008.Details of high floods are given below.

Year	Month	Duration (In Days)	Peak Discharge at Naraj (in lakh cusecs)
1958	July	13	12.00
1959	September	9	12.55
1961	July	10	12.85
1980	September	12	12.07
1982	August	6	15.84
1991	August	10	12.71
2001	July	19	14.09
2003	Aug/Sept.	19	13.50
2006	August	12	12.83
2008	September	15	15.82



Floods 2008

The Ministry of Home Affairs, Government of India has termed the September floods as an "Unprecedented Flood" vide their letter No.11011 / 2008 MHA-DM-I Dt.20.09.08.

The floods that occurred both in June 2008 and September 2008 are unprecedented for the fact that all river systems of the State caused floods. The floods of June 2008 is a calamity of severe nature. The water level recorded in the Subarnarekha exceeded all the past records. The floods in June'08 affected five districts namely Balasore, Bhadrak, Jajpur, Mayurbhanj and Keonjhar. There was hardly any breathing gap the State came under the grip of yet another devastating flood in September 2008 in the Mahanadi River System.

The current flood in September 2008 is due to heavy rainfall in the upper as well as in lower catchments of the Mahanadi River System resulting out of the effect of a deep depression in the Bay of Bengal from 16th to 21st September 2008. The magnitude and severity of the floods in this system have even surpassed the ferocities of 1982 and 2001 floods which were known to be highest floods in the system.

The comparative statement of highest river levels in Mahanadi river system is given below which indicates the magnitude of present floods.

River	Places	Danger level	2008	2001	1982
Mahanadi	Khairmal	109.00	108.31	-	-
	Naraj	26.41	27.18	27.22	27.61
Kathajodi	Bellevue	22.50	26.70	24.40	28.75
Kushabhadra	Nimapara	10.76	11.40	11.13	11.60
Devi	Alipingala	11.76	13.05	12.90	12.85



Massive devastation has occurred in the most populous districts namely Cuttack, Jagatsinghpur, Kendrapara, Puri, Khurda, Nayagarh, Boudh, Kalahandi, Subarnapur and Bolangir. Normal life as well as communication systems was totally paralyzed in these districts. More than 1000 villages were completely inundated and marooned.

Other rivers like Baitarani, Vamsadhara were in spate during August 2008 affecting a few districts. Further, during September of the current year, 19 districts namely, Angul, Bargarh, Bhadrak, Bolangir, Boudh, Cuttack, Nuapada, Gajapati, Jagatsinghpur, Jajpur, Kalahandi, Kendrapara, Keonjhar, Khurda, Nayagarh, Puri, Rayagada, Sambalpur and Subarnapur have been seriously affected.

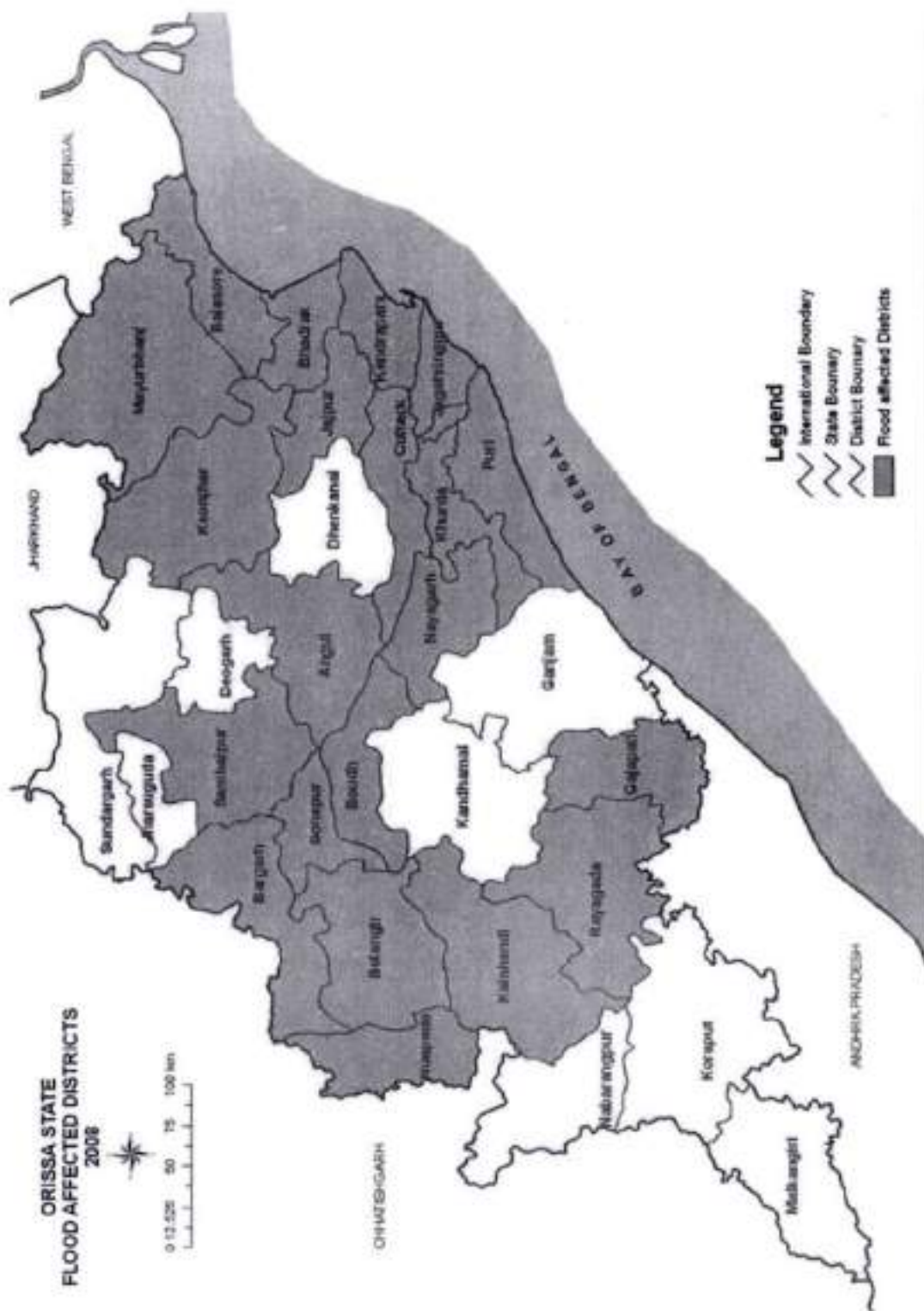
The floods caused extensive damage to natural resources, physical infrastructure and livelihood. It has adverse impact on the social fabric of the flood affected areas. The resilience of the affected people has been put to test and it will take years to recover from the losses sustained and trauma undergone.

A map showing the Districts affected by floods 2008 highlights the gravity of the situation.

ORISSA STATE
FLOOD AFFECTED DISTRICTS
2008



0 12.5 25 50 75 100 km







CHAPTER - II

Cause & Occurrence



IMD Forecast/Satellite Imagery

September

- i) On 16.09.08 at 1230 Hours, IMD informed that the depression over North West Bay of Bengal moved North Westerly direction and intensified into a deep depression over the same area and lay centred at about 130 km southeast of Chandabali. System likely to intensify further and move in a West northwesterly direction and cross Orissa coast near Chandbali by 16/9/2008 afternoon/ evening.
- ii) The depression moved West North Westerly and lay over North Orissa near Keonjhar at 08.30 Hours on 17.09.08.
- iii) The deep depression over North Orissa near Jharsuguda moved West North Westwards and lay centered at 08.30 hours on 18.09.08 over North Chhatisgarh.

Under the influence of this deep depression, the Districts along the Mahanadi River System received heavy to very heavy rain.

June

- i) On 16th June at 08.30 Hours, a depression formed over North Bay of Bengal about 300 km of Balasore. The system was likely to move in a North-Westerly direction.
- ii) On 17th June, this depression lay centered at 08.30 Hours at about 80 kms North North East of Kolkata.

Under its influence, the North Orissa received heavy to very heavy rain.

The satellite picture & tracking of the system in June and September are given in the next pages.



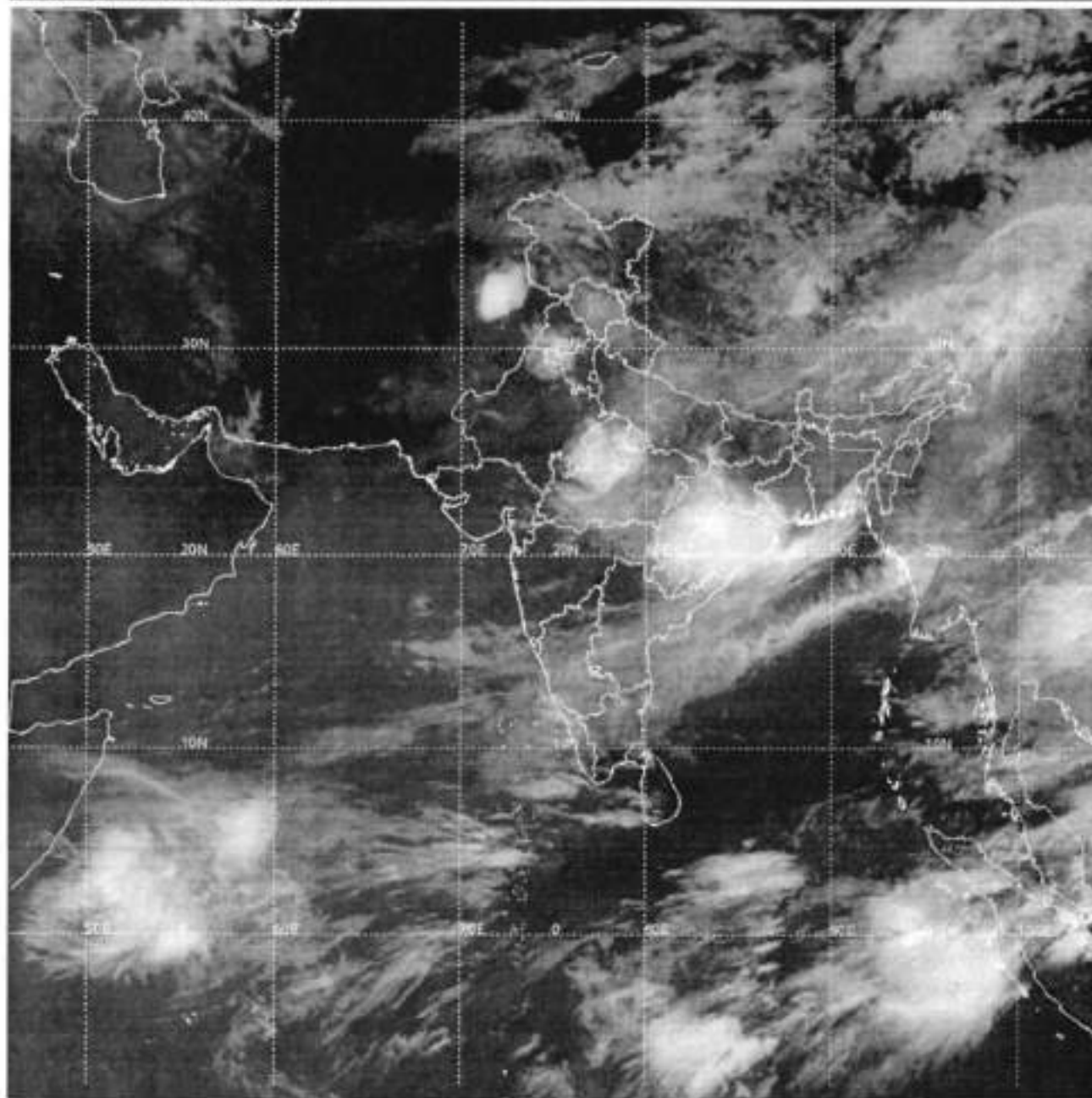
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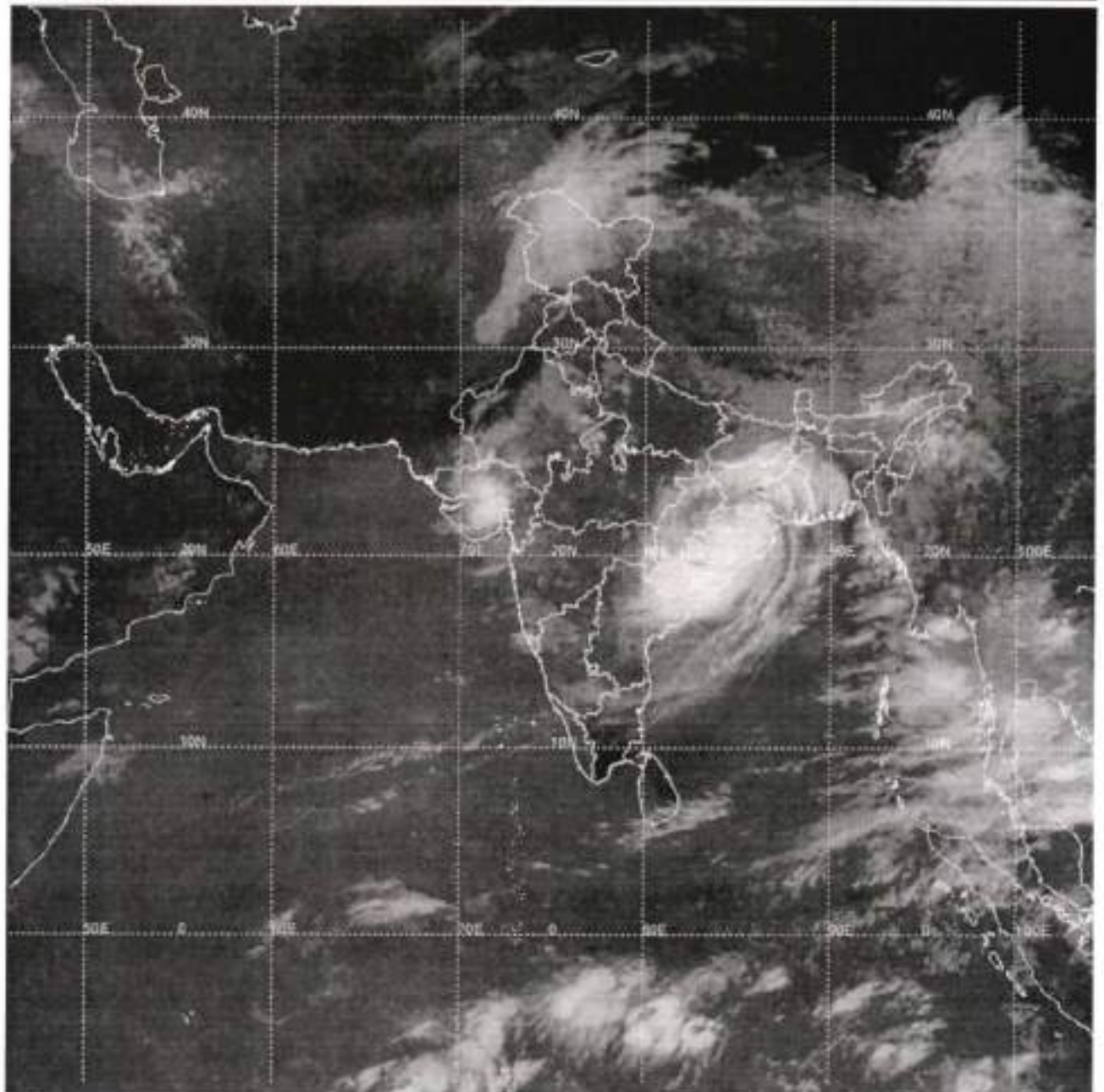
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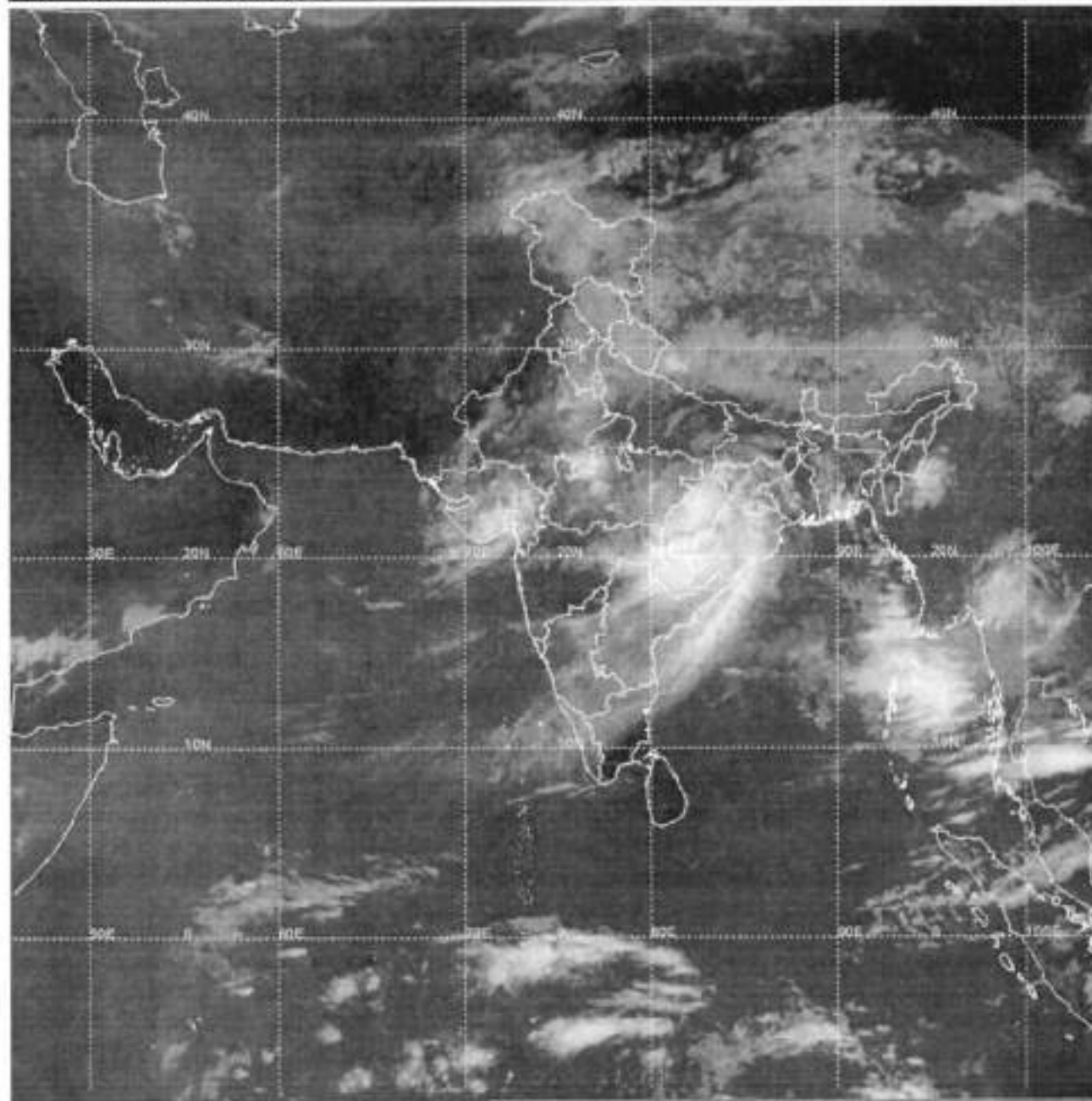
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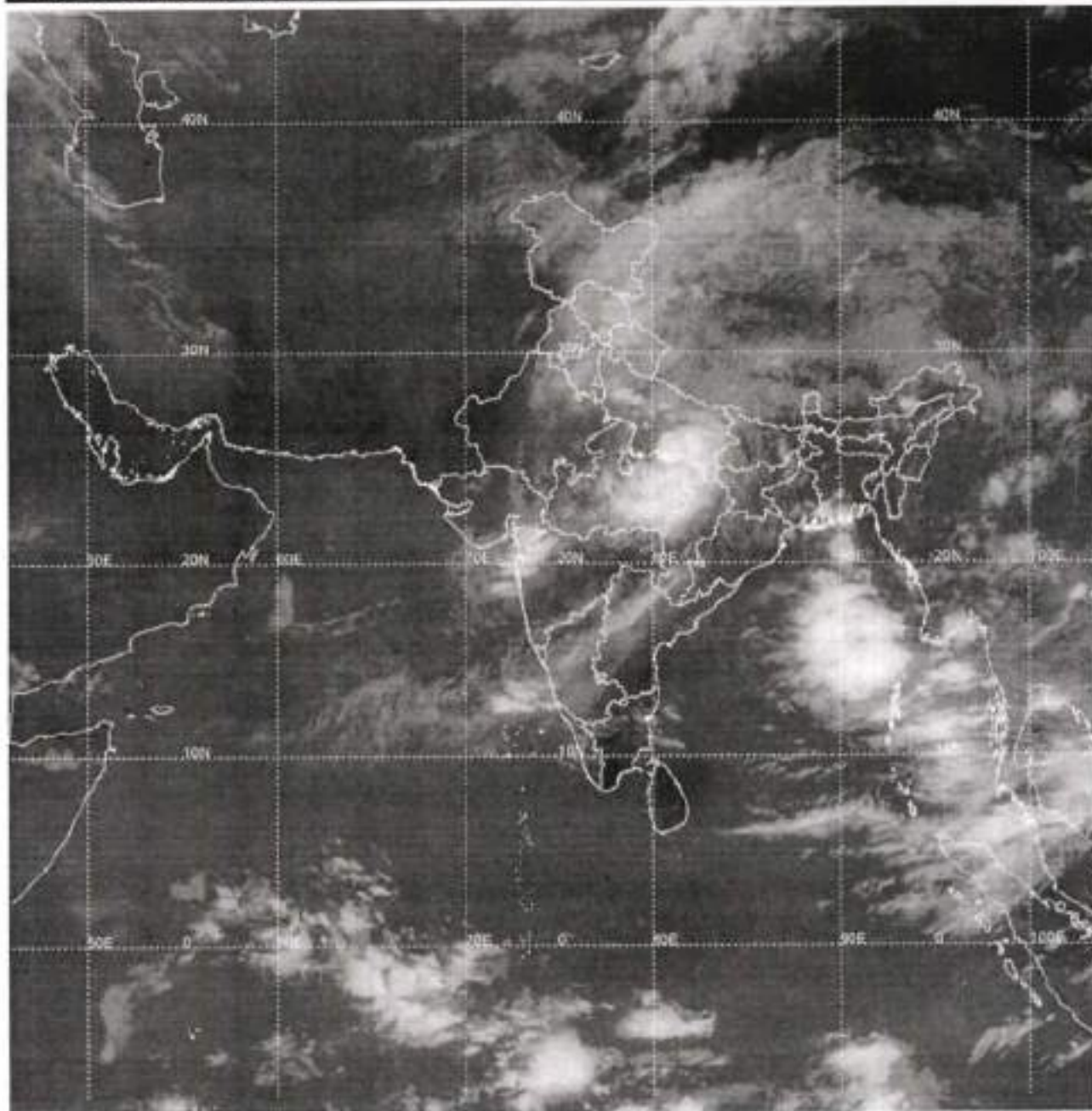
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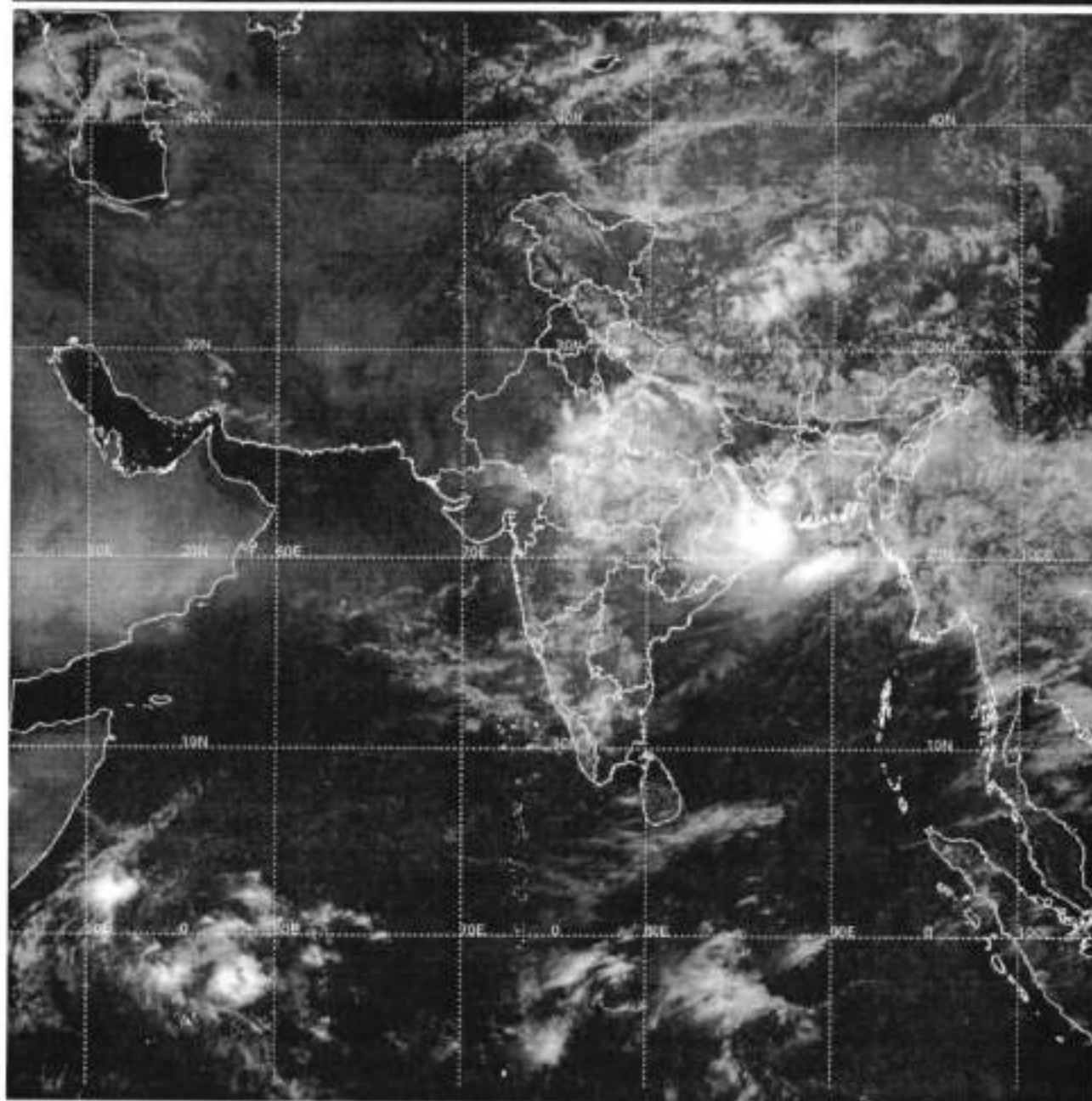
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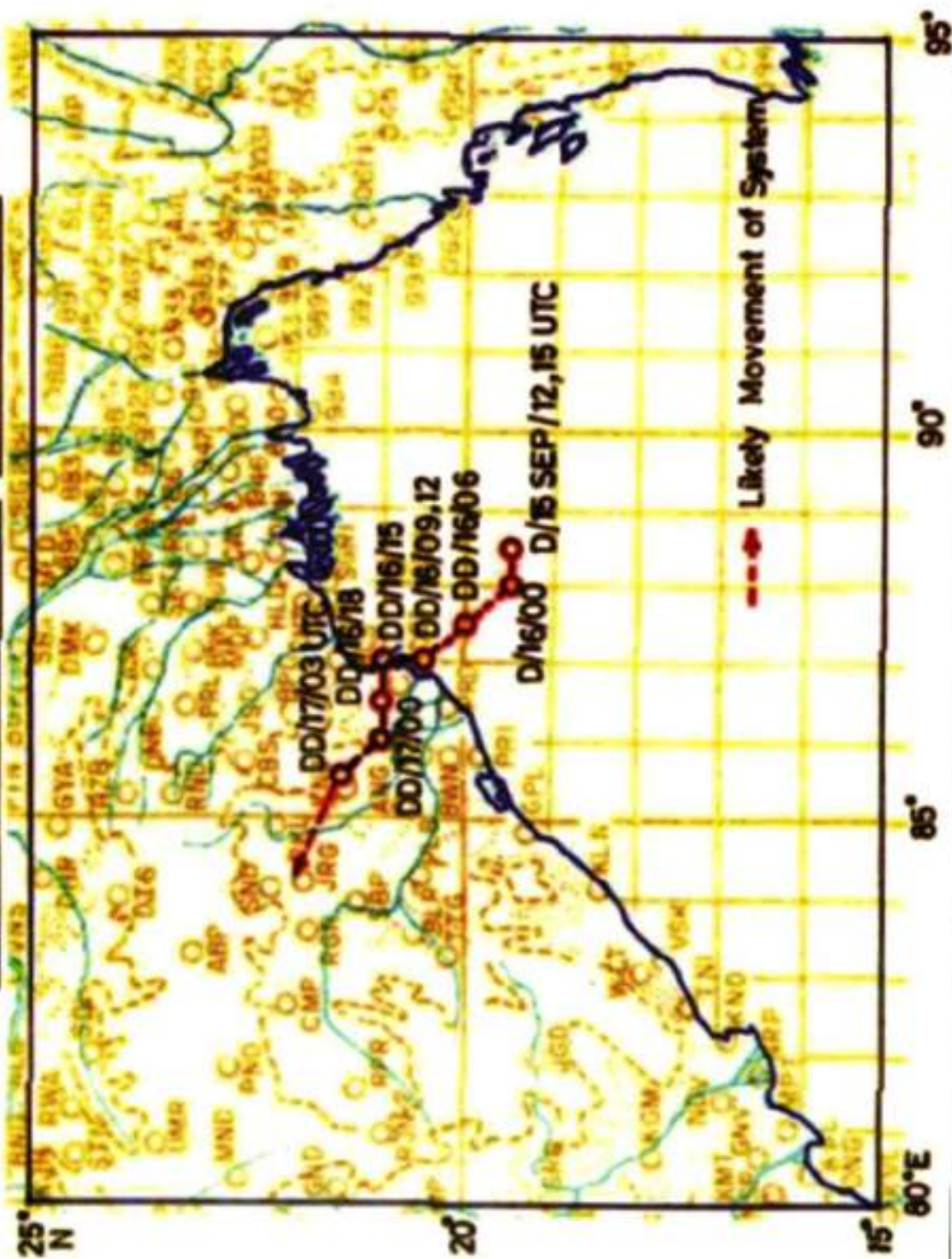
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TRACK OF DEEP DEPRESSION 15 -17 SEPT. 2008





Rainfall

Heavy rainfall occurred in the lower as well as upper catchment areas in the Mahanadi River System from 16th September 2008. During this period, the Districts like Kalahandi, Bolangir, Bargarh, Sambalpur, Subarnapur, Boudh, Nayagarh, Cuttack, Angul, Kendrapara, Jagatsinghpur, Puri and Jajpur, which are located in the lower catchment of Mahanadi River System, received heavy rainfall and caused severe floods in these districts. The average rainfall of these districts from dt.15.09.08 to dt.22.09.08 is given below:

Sl. No.	District	DATE								Total [mm]
		15th	16th	17th	18th	19th	20th	21st	22nd	
1	Angul	18.1	37.0	52.1	80.5	0.0	0.0	0.2	16.1	204.0
2	Baragarh	1.9	26.3	65.5	92.8	16.9	0.0	0.0	0.0	203.3
3	Bhadrak	34.0	37.4	109.0	5.0	0.7	0.0	6.2	7.2	199.5
4	Bolangir	8.7	23.1	128.8	196.8	37.4	1.4	0.0	1.5	397.8
5	Boudh	4.7	20.3	60.0	161.7	7.3	0.0	0.0	3.7	257.7
6	Cuttack	24.5	54.2	139.1	18.5	0.2	0.0	0.0	20.5	252.2
7	Gajapati	4.7	22.4	33.1	20.4	0.0	0.0	1.4	27.0	108.9
8	Jagatsinghpur	34.6	79.5	114.4	3.3	1.0	0.0	1.9	30.4	265.0
9	Jajpur	21.8	50.4	218.1	27.7	0.0	0.0	3.1	15.8	336.9
10	Kalahandi	4.8	66.4	117.8	172.0	6.6	1.6	2.5	3.8	375.4
11	Kendrapara	36.9	87.7	193.2	3.2	0.9	5.2	11.1	21.1	359.3
12	Keonjhar	12.4	32.0	76.4	49.1	1.2	0.9	3.8	14.3	190.2
13	Khordha	19.4	46.7	61.9	10.2	2.0	0.0	7.3	17.5	165.0
14	Nayagarh	21.4	50.2	64.2	20.0	0.4	0.1	6.8	11.0	174.2
15	Puri	23.1	42.1	48.7	2.6	0.5	0.0	0.0	0.0	116.9
16	Rayagada	4.6	66.9	53.4	67.2	0.2	6.7	8.9	7.0	214.9
17	Sambalpur	16.8	19.6	46.2	195.9	10.9	0.3	0.0	0.2	289.8
18	Subarnapur	0.2	17.0	107.7	152.3	16.3	0.0	0.0	1.7	295.2

Rivers

Due to heavy rainfall from 18th September'08 to 20th September'08, the water level had risen in the river Mahanadi, Brahmani, Baitarani, Budhabalanga, Kushabhadra, Devi for which floods occurred in these rivers affecting the downstream areas of the districts. The water level of different rivers is given below:



River	Forecast station	Danger Level	Warning Level	Water Level in Mtrs			
				18 th Sept.	19 th Sept.	20 th Sept.	21 st Sept.
Mahanadi	Naraj	26.41	25.41	26.50	27.10	27.18	27.01
Devi	Alipingal	11.76	10.85	9.84	12.80	13.05	12.54
Kushabadra	Nimapada	10.76	9.85	6.00	10.98	11.40	11.10
Brahmani	Jenapur	23.00	22.00	22.70	22.64	21.76	21.78
Baitarani	Anandapur	38.36	37.45	38.48	37.21	36.17	35.90
	Akhuapada	17.83	16.83	18.84	18.68	17.66	17.28
Burhabalanga	N.H-5 (Govindpur)	8.13	7.21	7.46	7.06	6.34	5.46
Subarnarekha	Rajghat	10.36	9.45	9.51	9.52	9.12	8.53
	Jamsholaghat	49.15	48.10	47.44	47.24	46.74	46.40
Vamsadhara	Gunupur	84.00	83.00	84.05	82.68	82.29	82.67
	Kashinagar	54.60	53.60	56.55	54.80	54.20	54.53
Rushikulya	Purushottampur	16.83	15.83	16.80	16.10	15.35	15.10

September 2008 floods

A cyclonic storm with vigorous monsoon rainfall lashed the western, southern and coastal Orissa from 15.09.08 to 18.09.08. The deep depression formed from 16.09.08 over Bay of Bengal moved in a north westerly direction from Chandbali to Keonjhar and Jharsuguda from 16.09.08 to 18.09.08 and thereafter crossed over to Chhatisgarh causing heavy rainfall over different river basins namely Mahanadi, Brahmani, Baitarani, Rushikulya and Vamsadhara.

River Tel, Suktel, Ong and other tributaries in the downstream of Hirakud dam experienced heavy rainfall.

During the period from 15.09.08 to 18.09.08 rainfall of 200 mm and more were recorded. Some of the peak rainfalls, basin-wise, are furnished below.



Name of river basin	Sl. No.	Name of Station	16.09.08	17.09.08	18.09.08
Mahanadi (Up stream of Hrakud)	1.	Deogaon	6.0	28.6	150.8
	2.	Jamadapalli	24.8	37.0	229.6
	3.	Parmanpur	6.8	28.8	236.0
Mahanadi (Down stream of Hrakud)	1.	Bolangir	34.0	185.2	204.0
	2.	Bhawanipatna	48.0	172.0	132.0
	3.	Baliguda	18.0	241.0	186.0
	4.	Kantamal	22.0	100.0	259.0
	5.	Kesinga	12.6	114.0	233.0
	6.	M. Rampur	112.0	200.0	200.0
	7.	Patnagarh	0.0	118.8	270.0
	8.	Tikabali	43.0	212.0	182.0
	9.	Titilagarh	3.4	128.2	250.8
Upper Brahmani	1.	Pallahara	51.0	35.0	130.0
	2.	Ramala	21.0	48.5	131.0
Lower Brahmani	1.	Telkoi	98.0	42.0	100.0
	2.	Jenapur	59.8	300.4	15.4
Baitarani	1.	Rajkanika	66.0	230.0	4.0
	2.	Akhupada	38.2	314.8	10.4
Rushikulya	1.	Daringbadi	39.0	191.0	105.0
	2.	Bhanjanagar	24.0	85.0	32.0
Vamsadhara	1.	Kotragarh	46.6	154.0	233.0
	2.	Kutragarah	69.6	71.2	115.4

Average weighted rainfall in Mahanadi basin

	16.09.08	17.09.08	18.09.08	19.09.08
U/S of Hrakud dam. Average Rainfall in mm.	7.92	12.20	63.20	57.00
D/S of Hrakud dam. Average Rainfall in mm.	16.37	108.60	153.00	16.00

River Gauge Data

The tributaries and branches of Mahanadi and other rivers experienced high floods during this period which can well be judged from the river gauge readings furnished below.



Name of River	Period	Peak Gauge	Date/Time	Highest Recorded Level
Baitarani river at Akhuapada (D.L. - 17.83 m)	17.09.08 to 19.08.08	18.84 mtr.	18.09.08/1600 hrs.	21.95 m. / 16.08.1960
Rushikulya river Purushottampur (D.L - 16.835 m)	18.09.08	16.85 mtr.	18.09.08/1200 hrs.	19.60 m. / 04.11.1990
Vamsadhara river at Kashinagar (D.L - 54.60 m)	17.09.08 to 19.09.08	56.60 mtr.	18.09.08/0400 hrs.	58.93 m. / 18.09.1980
Mahanadi / Naraj I.B - 26.41 m.	18.09.08 to 23.09.08	27.18 mtr.	20.09.08/1200 hrs	27.60 m. / 31.08.82
Devi river at Alipingal D.L. - 11.76 m.	19.09.08 to 23.09.08	13.05 mtr.	20.09.08/0500 hrs	13.05 mtr. / 20.09.08
Kushabhadra river at Nimapara D.L - 10.76 mtr.	19.08.08 to 22.08.08	11.40 mtr.	20.09.08/0800 hrs	11.60 mtr. / 31.08.82

About two third area of Mahanadi delta remained inundated for more than a fortnight causing severe inconvenience to public. A sample satellite map of 23.9.08 shows the same as follows:

June'08 Floods

Due to vigorous monsoon, the northern Orissa experienced heavy rainfall during the period from 15.06.08 to 19.06.08. The river Subarnarekha, Jalaka, Burhabalanga and Baitarani were flooded. The rainfall exceeded 200 mm at many places and peak rainfall of 597.08 mm recorded at Fekoghat which resulted an unprecedented floods in river Subarnarekha. The flood water touched 12.69 m at Rajghat against danger level of 10.36 m while the previous recorded highest level was 12.38 m on 07.07.2007. The water level in Subarnarekha stayed over the danger level for about 88 hours from 17.06.08 to 21.06.08. It constantly passed over Mayurbhanaj and Balasore districts keeping them under inundation. Similarly the river Jalaka, Burhabalanga and Baitarani basin also experienced heavy floods. The peak rainfall data and river gauge data are furnished below.



(Rainfall in mm)

Name of river basin	Sl. No.	Name of Station	16.06.08	17.06.08	18.06.08
Subarnarekha	1.	Bhograi	48.0	185.0	115.0
	2.	Fekoghat	125.0	93.40	597.8
	3.	Jaleswar	38.0	249.0	288.0
	4.	Rajghat	76.4	248.6	280.6
	5.	Rairangpur			319.0
Burahabalanga	1.	Balasore	107.4	213.6	132.8
	2.	Balimundali	90.4	116.4	145.4
	3.	Baripada	111.2	136.0	245.2
	4.	Jaypur	119.6	119.8	101.4
	5.	NH5, Govindpur	146.2	138.0	94.4
Baitarani	1.	Champua	0.2	80.2	160.2
	2.	Ghatagaon	23.4	82.8	123.2
	3.	Jhumpura	0.0	67.2	173.5
	4.	Joshipur	0.0	172.0	191.2
	5.	Karanjia	0.0	106.0	192.0

River Gauge Position

River	Period	Peak Gauge	Date/Time	Highest Recorded Level
Subarnarekha river at Rajghat (D.L-10.36 m)	15.06.08 to 21.06.08	12.69 mtr.	19.06.08/0400 hrs.	12.69 m. / 19.06.2008
Baitarani river at Anandapur (D.L - 38.36 m)	17.06.08 to 19.06.08	40.18 mtr.	18.06.08/1300 hrs	41.80 m. / 19.08.75
Baitarani river at Akhuapada (D.L. - 17.83 m)	15.06.08 to 21.06.08	19.63 mtr.	19.06.08/0200 hrs.	21.95 m. / 16.08.1960

Reservoir Position

The tributaries of Mahanadi River like Tel, Suktel, Hati, Udanti etc. were in spate causing devastation in Bolangir, Sonepur and Kalahandi districts. To make the situation worse, there was heavy rainfall in the upper catchments of Mahanadi river in the neighbouring



Chhatisgarh State. The Hirakud reservoir started receiving more than 8 lakh cusecs of water from Chhatisgarh State and the flood water had to be discharged into the Mahanadi river as the level approached the Full Reservoir Level (FRL) i.e 630 feet.

The intensity of rainfall can be well imagined from the above mentioned weighted average rainfall of upstream and downstream of Hirakud Dam. The tributaries of the Mahanadi in the downstream of Hirakud i.e. Tel, Ong, Suktel and Jira experienced high floods. Heavy downpour led to flowing of these rivers over danger levels causing floods in western and coastal Districts. River Tel discharged a record peak of 11.92 lakh cusecs to the Mahanadi. With this discharge of water from the Tel and other tributaries, the mighty Mahanadi created floods in delta areas. The peak flood discharge at Mundali i.e delta head was 15.82 lakh cusecs on 20.09.08. The contribution of Hirakud dam to this peak flow at Mundali was 2.76 lakh cusecs. Also due to enormous inflow into the reservoir, the level of dam was maintained nearing FRL at 630.00 ft for safety of the dam. The water level of Hirakud reservoir was kept at 627.00 ft on 15.09.08 within the rule curve limits. The inflow into the reservoir increased from 17th September from 54,000 cusecs to a peak of 7.51 lakh cusecs on 20.09.08. On 18th September at 1300 hrs the reservoir level was 629.75 ft with an inflow of 3.41 lakh cusecs. The outflow from Hirakud reservoir was gradually increased matching to the inflow considering the safety of dam and flood situation in delta area. Mundali has recorded a peak discharge of 15.81 lakh cusecs at 0100 hrs on 20th Sept. 2008 in which the contribution of Hirakud dam was 2.76 lakh cusecs i.e the discharge of Hirakud at 1300 hrs of 18.9.2008 as the travel time from Hirakud to Mundali is 36 hours. The peak inflow at Hirakud was recorded 7.91 lakh cusecs on 20.09.08.

The inflow and outflow of water of Hirakud Reservoir was as follows:

Date	Water level (in ft.)	Inflow (lakh cusecs)	Out flow (lakh cusecs)	No. of Gate opened
19.09.08	630.00	5.78	5.78	33
20.09.08	629.81	7.51	7.90	46
21.09.08	629.75	6.14	6.14	33
22.09.08	628.71	2.59	3.23	18



Downstream flood water of Hirakud reservoir coupled with huge inflow from the neighbouring State devastated Cuttack, Jagatsinghpur, Kendrapara, Jajpur, Puri and Khurda Districts in the Mahanadi basin. It is worth mentioning that the safe carrying capacity of Mahanadi river system is around 9 lakh cusecs at delta head (Naraj / Mundali) against which the peak discharge went upto 15.82 lakh cusecs approximately on 19th & 20th September 2008, which is at par with the severe floods that occurred in the year 1982.

Discharge to Coastal Plain

The volume of water discharged at Mundali causes floods in Mahanadi delta areas. The water discharges at Khairmal, Barmul and Mundali in Mahanadi river system since 19.08.08 are as follows.

Date	Discharge in lakh cusec		
	Khairmal	Barmul	Mundali
19.09.08	11.72	12.00	15.64
20.09.08	9.30	11.45	15.82
21.09.08	7.58	10.47	12.83
22.09.08	9.66	10.38	14.09

Breaches

Due to floods, heavy damages occurred to river and canal embankments, service roads on embankments, drainage channels, M.I. Projects, Lift Irrigation Points and field channels. All necessary preventive measures were taken at identified vulnerable points along river embankments prior to floods. Because of this, breaches were avoided in delta area up to 14.00 lakh cusecs of flood water discharge. As the water discharge crossed 15.00 lakh cusecs, a large number of breaches occurred in embankments. Saline embankments were also damaged due to rough tidal action of Bay of Bengal. There are 511 nos. of breaches in river/saline embankments and 1391 nos. of breaches in canal embankments. About one third area of Mahanadi delta remained inundated for more than a fortnight. The breaches that occurred in river / canal embankments submerged human habitation and vast area of the agricultural land.



Inundated Images

Vast areas of land remained submerged for a long time. This fact may be visualized from the maps prepared on the basis of satellite images. The images taken on the different dates indicate the inundation. Orissa Remote Sensing Application Center (ORSAC), in collaboration with National Remote Sensing Agency (NRSA) prepared inundation maps of worst affected Districts on 20th and 29th September. These inundation maps are shown in visual accounts in chapter-X.



CHAPTER - III

IMPACT



Socio Economic Impact

The unprecedented floods that occurred in September 2008, affected about 45 lakh people in 145 Block, 29 urban Local bodies, 1880 GPs and 8026 villages in 19 Districts. 96 Human lives were lost. The standing crops in 3.85 lakh hectares damaged. The fishing community was severely affected due to huge loss of their boats and nets. The poor artisans lost their looms, equipments, accessories and raw materials. The farmers lost their live stock and sericulture firms. As such the individual economy of almost all sections of the community became extremely miserable and unprecedented in its extremity. It washed away the rural roads and Grampanchayat roads, damaged bridges, Govt. and private buildings and created many breaches in river embankment. Essential services like supply of safe drinking water, energy supply and health facility 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

Damages

Abstract of extent of Extent of damages due to floods is indicated below:

Damages	September	June
No. of Districts affected	19	6
Blocks affected	145	25
GPs affected	1880	277
Villages affected	8026	1768
ULBs affected	29	9
Population affected (In lakh)	45.23	14.94
Human lives lost	96	14
Houses damaged	212965	45,190



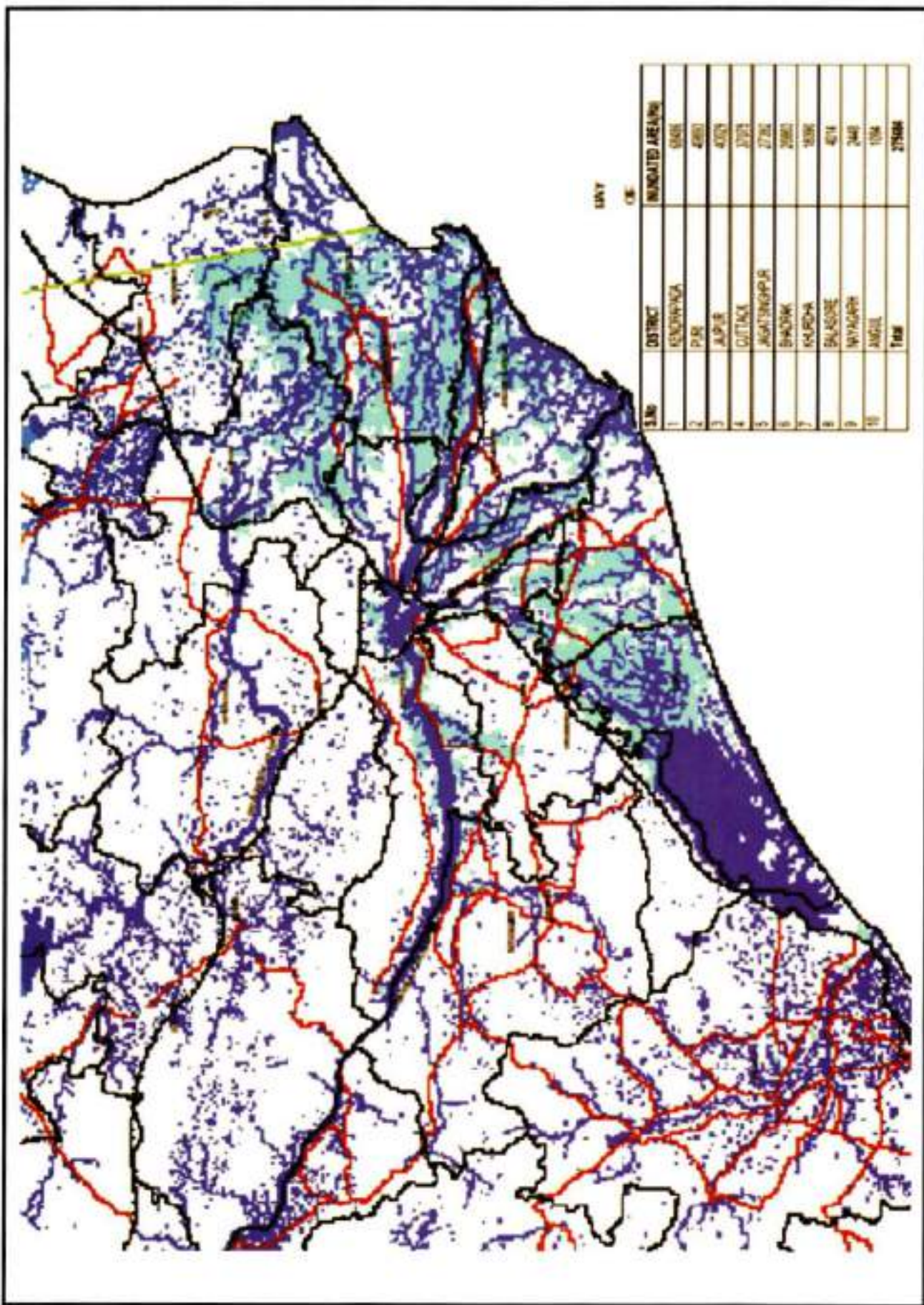
September Floods, 2008

Sl	District	Blocks Affected	GPs Affected	Villages Affected	ULBs Affected	Population Affected	Human Casualty	House Damage
1	Cuttack	14	219	820	04	759328	20	31810
2	Kendrapara	09	137	591	02	672195	16	58429
3	Jagatsinghpur	08	61	188	0	147400	10	8072
4	Puri	10	140	871	01	772275	08	34437
5	Jajpur	10	118	552	02	622348	10	6760
6	Nayagarh	03	18	115	0	79610	0	1019
7	Bolangir	14	185	661	0	355524	03	6739
8	Boudh	03	30	120	01	81097	0	2341
9	Sonepur	06	48	344	03	56000	0	24415
10	Angul	08	87	273	03	24000	02	2525
11	Baragarh	12	245	1091	03	71867	0	16841
12	Sambalpur	03	64	183	0	52340	07	2881
13	Khurda	10	82	460	05	338462	02	1760
14	Kalahandi	13	240	781	03	20000	05	5981
15	Rayagada	11	141	411	01	183000	06	307
16	Gajapati	01	02	03	01	607	0	0
17	Nuapara	05	15	351	0	33646	0	5641
18	Bhadrak	04	47	209	0	252991	04	2518
19	Keonjhar	01	01	02	0	900	03	489
Total		145	1880	8026	29	4523590	96	212965

June Floods, 2008

Due to floods in June 2008, 14.94 lakh people of six districts namely Balasore, Bhadrak, Jajpur, Keonjhar, Kendrapara and Mayurbhanj were affected. The detail damages are given below.

Sl	District	Blocks Affected	GPs Affected	Villages Affected	ULBs Affected	Population Affected	Human Casualty	House Damage
1	Balasore	5	115	1114	4	942959	10	38077
2	Bhadrak	4	49	222	-	261569	1	1437
3	Jajpur	3	28	142	1	106902	-	231
4	Mayurbhanj	7	40	125	4	50000	2	5445
5	Keonjhar	3	12	72	-	46696	1	
6	Kendrapara	3	33	93	-	86620	-	
Total		25	277	1768	9	1494746	14	45190



SRVY
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S.No	DISTRICT	INDICATED AREA
1	KANDHAMLA	9400
2	PAR	4800
3	APUR	4000
4	GUTTAL	3000
5	AGATANGPUR	2700
6	BALAKA	2000
7	KALAPHA	1800
8	BALAKORE	4000
9	MYAGARI	2400
10	ANGUL	1000
	Total	27500



Human Casualty

110 persons lost their lives due to wall collapse, drowning etc. in the flood-affected districts. Following table shows the district-wise details.

Sl.	District	Human Casualty		
		September	June	Total
1.	Cuttack	20	0	20
2.	Kendrapara	16	0	16
3.	Jagatsinghpur	10	0	10
4.	Puri	08	0	08
5.	Jajpur	10	0	10
6.	Bolangir	03	0	03
7.	Angul	02	0	02
8.	Sambalpur	07	0	07
9.	Khurda	02	0	02
10.	Kalahandi	05	0	05
11.	Rayagada	06	0	06
12.	Bhadrak	04	01	05
13.	Keonjhar	03	01	04
14.	Balasore	0	10	10
15.	Mayurbhanj	0	02	02
Total		96	14	110

Loss of livestock

1375 milch animals, 302 draught animals and 50163 poultry birds lost lives due to floods.

Name of the District	No of Livestock / Birds lost				
	Milch Animal		Draught Animal		Poultry Birds
	Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony	
Bargarh	1	8	18		9
Bolangir	2	36	-		
Boudh	16				
Cuttack	61	296	104		35500
Jagatsinghpur	9	8	12		11004
Jajpur	18	120	9	13	1500
Kalahandi	5	46	3	3	
Kendrapara	15	35	12		
Khurda	2				
Nayagarh	18	24	29		
Puri	26	61	24		
Nuapada	42	385	43	32	2150
Balasore	38	103			
TOTAL	253	1122	254	48	50163



House Damage

Sl.	District	Fully Damaged		Severely Damaged		Partially damaged	Huts damaged	Total
		Pucca	Kutcha	Pucca	Kutcha			
1	Angul	2	158		308	2057	0	2525
2	Balasore	64	2297	108	6527	24917	4164	38077
3	Bargarh		896		3040	12384	521	16841
4	Bhadrak	1	88		303	3563		3955
5	Bolangir		701		6038			6739
6	Boudh	1	224	26	779	1266	45	2341
7	Cuttack	68	2725	515	4567	19304	4631	31810
8	Jagatsinghpur	1	141	11	1797	5105	1017	8072
9	Jajpur		287		860	5267	577	6991
10	Kalahandi		326	5	864	4714	72	5981
11	Kendrapara	6	3596	127	12950	35644	6106	58429
12	Keonjhar		7		75	402	5	489
13	Khurda	9	57	9	205	1480		1760
14	Mayurbhanj		450		1790	2705	500	5445
15	Nayagarh		38		104	877		1019
16	Nuapada		875		1021	3745		5641
17	Puri	0	1785	121	6637	17644	8250	34437
18	Rayagada		28		138	141		307
19	Sambalpur	1	189		256	2435		2881
20	Subarnapur		1073	4	3586	19752		24415
TOTAL		153	15941	926	51845	163402	25888	258155



Crop Damage

About 385133.7 hectares of Kharif crop of small and marginal farmers have sustained crop-loss more than 50% due to floods.

Sl.	Districts	Crop Area Affected [in Hect.]	Total agricultural area where croploss is > 50%
1	Cuttack	96573.68	92573.68
2	Kendrapara	64994.00	59994.00
3	Jagatsinghpur	15129.00	14829.00
4	Puri	72458.00	67458.00
5	Jajpur	29521.41	28521.41
6	Nayagarh	7913.00	4913.00
7	Bolangir	15381.00	11381.00
8	Boudh	12327.00	10327.00
9	Sonepur	7776.00	5776.00
10	Angul	7179.58	4179.58
11	Khurda	31168.00	26168.00
12	Kalahandi	17977.00	13977.00
13	Nuapara	3546.00	2546.00
14	Bhadrak	13020.00	10020.00
15	Balasore	49854.00	32298.00
16	Mayurbhanj	172.00	172.00
Total		444989.7	385133.7



Sand Cast

Agricultural land of 14059.31 hectares has been sand cast. The district-wise sand cast position is given below.

Sl.	District	Total Area under sandcast (in Hect.)
1	Cuttack	469
2	Kendrapara	626
3	Jagatsinghpur	100
4	Puri	350
5	Jajpur	20
6	Nayagarh	92
7	Bolangir	2401
8	Sonepur	3059
9	Angul	975.40
10	Baragarh	0.832
11	Sambalpur	0.465
12	Khurda	58.92
13	Nuapara	2546
14	Bhadrak	103.74
15	Balasore	102
16	Kalahandi	3154.95
Total		14059.31



Population affected

The floods in Mahanadi, Vamsadhara, Subarnarekha, Baitarani, Budhabalanga and Jalaka rivers caused havoc and brought miseries to the people of 21 districts during September and June. About 45.23 lakh and 14.94 lakh people were affected in districts during September and June respectively as mentioned below.

Sl.	Districts	Population Affected	
		September	June
1.	Cuttack	759328	
2.	Kendrapara	672195	86620
3.	Jagatsinghpur	147400	
4.	Puri	772275	
5.	Jajpur	622348	106902
6.	Nayagarh	79610	
7.	Bolangir	355524	
8.	Boudh	81097	
9.	Sonepur	56000	
10.	Angul	24000	
11.	Baragarh	71867	
12.	Sambalpur	52340	
13.	Khurda	338462	
14.	Kalahandi	20000	
15.	Rayagada	183000	
16.	Gajapati	607	
17.	Nuapara	33646	
18.	Bhadrak	252991	261569
19.	Keonjhar	900	46696
20.	Balasore	--	942959
21.	Mayurbhanj	--	50000
Total		4523590	1494746



Livestock Affected

22.84 Lakh livestock were affected due to high floods in September. The District-wise affected livestock are given in following table.

Sl.	District	Livestock Affected			Total
		Large	Small	Poultry	
1	Cuttack	267679	144301	105056	517036
2	Kendrapara	148227	68888	50755	267870
3	Jagatsinghpur	57016	30807	25378	113201
4	Puri	247833	79808	252975	580616
5	Jajpur	187327	71581	64695	323603
6	Nayagarh	17867	12409	8083	38359
7	Bolangir	13401	10267	--	23668
8	Boudh	10181	9485	--	19666
9	Sonepur	11985	6841	3920	22746
10	Angul	15000	7456	3250	25706
11	Baragarh	319	8	9	336
12	Sambalpur	8324	4334	2608	15266
13	Khurda	57070	15253	6200	78523
14	Kalahandi	38492	22754	19748	80994
15	Gajapati	5940	1377	--	7317
16	Nuapara	372	489	125	986
17	Bhadrak	100083	29405	37289	166777
18	Keonjhar	918	350	227	1495
Total		1184034	515813	580318	2284165

Loss of livelihood

Due to floods, 2545 sericulture farmers were affected. The district-wise affected weavers and sericulture farmers are given in the following tables.



Sl.	Name of the District	No. of Farmers Affected	Area in Hect. Muga (Hc.)	Area in Hect. Mulberry / Eri / Tussar (Hc.)	Total
1	Cuttack	30	-	26	26
2	Kendrapara	130	-	26	26
3	Jagatsinghpur	157	-	32	32
4	Jajpur	44	44	-	44
5	Nayagarh	36		15	15
6	Angul	290	205	34	239
7	Mayurbhanj	680	660	08	668
8	Sambalpur	15	10	02	12
9	Dhenkanal	104	58	19	77
10	Kalahandi	52	-	13	13
11	Deogarh	11	09	02	11
12	Keonjhar	996	290	29	319
Total		2545	1276	206	1482

Traditional Crafts

9350 Artisans belonging to 8 districts have been affected due to floods. Extensive damages have been caused to their equipment. 4605 Artisans have also lost their raw materials. The district-wise detail is given below.

Sl.	Name of the District	No. of equipments fully damaged	No. of beneficiaries	Set of raw material fully damaged	No. of beneficiaries
1	Bhadrak	115	115	60	60
2	Kendrapara	2830	2830	1830	1830
3	Jagatsinghpur	1210	1210	293	293
4	Puri	183	183	183	183
5	Nayagarh	101	101	12	12
6	Khurda	159	159	159	159
7	Cuttack	4540	4540	1856	1856
8	Balasore	212	212	212	212
Total		9350	9350	4605	4605

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

2450 Loom equipment and accessories of 2450 beneficiaries have been damaged due to this floods and need replacement.

Yarn and other materials like dyes and chemicals of 2612 looms have been washed away by the floods.



Sl.	Name of the District	No. of beneficiaries	No. of looms & accessories fully damaged	Set of raw material fully damaged
1	Angul	342	342	342
2	Jajpur	5	5	5
3	Subarnapur	283	283	322
4	Kendrapara	257	257	392
5	Bolangiri	253	253	253
6	Puri	82	82	82
7	Boudh	491	491	493
8	Khordha	3	3	3
9	Cuttack	454	454	497
10	Balasore	280	280	223
Total		2450	2450	2612

Damage to Nets and Boats of Fishermen

1579 country boats and fishing nets have been fully damaged. Similarly 4761 boats & nets have been partially damaged due to floods. The district-wise position is given in the following table.

Sl. No	Name of the District	Boat & Net Units	
		No. of Units fully damaged	No. of Units partially damaged
1	Angul	4	16
2	Bhadrak	68	143
3	Boudh	85	173
4	Cuttack	222	319
5	Gajapati		32
6	Jagatsinghpur	19	1144
7	Jajpur	108	
8	Kalahandi	90	680
9	Kendrapara	285	155
10	Keonjhar	4	5
11	Khurda		120
12	Nayagarh	42	436
13	Puri	139	251
14	Sambalpur	15	8
15	Sonepur	474	1197
16	Balasore	24	82
Total		1579	4761



CHAPTER - IV

Damage to Public Infrastructure



Road Sector

PWD Roads

209 nos. of breaches occurred in PWD roads. 3243.333 Km of PWD roads having 869 Culverts have also been damaged. These roads are used as important relief lifelines during natural calamities. The district-wise details are given below:

Sl No.	Name of the District	No. of breaches	Length of road damaged in Km	No. of culverts damaged	No of culverts washed away
1	Angul	-	233.890	103	-
2	Balasore	50	174.60	28	5
3	Baragarh	-	45.00	52	-
4	Bhadrak	-	34.100	-	-
5	Bolangir	16	81.000	81	7
6	Boudh	-	45.000	1	1
7	Cuttack	26	452.778	5	1
8	Gajapati	3	134.300	55	-
9	Jagatsinghpur	6	47.500	4	-
10	Jajpur	3	324.890	24	-
11	Kalahandi	11	137.289	137	-
12	Kendrapara	38	240.361	61	1
13	Keonjhar	1	138.155	38	-
14	Khurda	7	143.480	53	1
15	Nayagarh	-	44.00	12	-
16	Nuapada	20	158.775	108	-
17	Puri	7	287.225	29	2
18	Rayagada	12	263.330	34	-
19	Sambalpur	-	37.390	2	-
20	Subarnapur	7	68.200	27	2
21	Mayurbhanj	2	152.07	15	-
TOTAL		209	3243.333	869	20

**b) Rural Roads**

1863 rural roads of length 5485.345 km have been badly damaged due to floods. 56 culverts on rural roads have been washed away and 1009 culverts have been damaged extensively. The detailed damage position is given below.

Sl No.	Name of the District	No. of Roads damaged	Length of Road damaged (In Kms)	No of Breaches	Length of Breaches (In mtr)	No of CD/ Bridge damaged	No of CD/ Bridge washed away
1	Angul	24	62.9	30	412.00	43	3
2	Bhadrak	88	217.5	36	279	21	1
3	Bolangir	76	265.95	15	117	25	0
4	Boudh	41	183.9	13	50	20	0
5	Cuttack	238	727.495	180	2116	0	0
6	Gajapati	42	149	24	675	17	0
7	Jagatsinghpur	93	157.753	62	1428	85	1
8	Jajpur	156	331.96	182	1082	99	11
9	Kalahandi	108	245.06	221	2542	119	5
10	Kendrapara	169	796.808	139	2179	89	9
11	Keonjhar	28	188.2	19	190	0	0
12	Phulbani	31	122.175	12	565	17	4
13	Puri	185	409.274	181	3849	205	7
14	Rayagada	74	212.4	115	1470	45	7
15	Sambalpur	25	107.02	0	0	11	0
16	Sonepur	43	42.8	4	550	2	0
17	Nayagarh	73	204.65	0	0	23	0
18	Khurda	102	266.2	68	317	87	5
19	Nuapada	42	21.8	25	853	24	0
20	Balasore	161	618.24	12	64	55	0
21	Mayurbhanj	64	154.26	26	104	22	3
Total		1863	5485.345	1364	18842	1009	56

c) Panchayat Roads

19007 Gram Panchayat and Panchayat Samiti roads having length of 17734.42 km have been badly damaged due to floods. 7725 culverts on these damaged roads have been badly affected. The detailed damage position is given below.



Sl No.	Name of the District / Division	No. of Road damaged	Length of breaches in Km.	Length of road damaged in Km	No. of culverts damaged	No of culverts washed away
1	Angul	56	-	23.393	1	0
2	Baragarh	640	3.04	545.520	58	15
3	Bhadrak	598	227.61	642.465	147	28
4	Bolangir	905	13.928	1001.169	41	0
5	Boudh	120	1.252	117.550	48	1
6	Cuttack	2972	109.228	1253.346	332	108
7	Gajapati	11	-	14.100	0	0
8	Jagatsinghpur	718	10.091	217.575	65	6
9	Jajpur	1179	0.273	332.834	94	2
10	Kalahandi	993	45.06	1218.176	139	47
11	Kendrapara	1212	95.516	627.235	132	85
12	Keonjhar	06	1.00	7.000	6	0
13	Khurda	1419	0.989	948.255	114	8
14	Nayagarh	293	2.126	63.260	18	2
15	Nuapada	448	43.806	39.660	16	11
16	Puri	2997	6.701	4910.970	5645	4
17	Rayagada	306	17.647	1169.890	10	3
18	Sambalpur	216	8.812	165.900	4	21
19	Subarnapur	1051	126.908	909.800	192	59
20	Balasore	2626	25623	3337.00	212	18
21	mayurbhanj	241	9.63	189.32	56	7
Total		19007	979.847	17734.42	7300	425

c) Urban Roads

616.58km of urban roads and 131 culverts have been damaged. Urban drains of length 130.45 km have also been damaged. The Urban Local Body-wise details are given below.



Sl No.	Name of the ULB	Length of drain damaged (in Km)	Length of road damaged in Km	No. of culverts damaged
1	Banki	11.70	39.30	
2	Kendrapada	2.45	16.25	
3	Jajpur	4.00	10.70	
4	Subarnpur	5.20	5.45	8
5	Kesinga	0.05	1.73	1
6	Vyasnagar	4.70	58.88	
7	Patanagarh	1.14	3.35	14
8	Pattamundai		9.97	20
9	Boudhgarh		4.28	
10	Athamallik	4.00	17.90	2
11	Bhawanipatna		4.04	
12	Titilagarh	0.31	5.04	1
13	Nimapara		9.50	
14	Pipili	25.00	42.00	40
15	Raygarha		12.47	
16	Puri	4.00	3.38	
17	Nayagarh	0.470	8.31	3
18	Angul	4.90	14.70	
19	Tarava		8.70	
20	Berpaill		5.00	
21	Gudari	12.00	9.00	
22	Athagarh	0.15	2.70	
23	Bhubaneswar	1.41	34.00	
24	Jaleswar	18.00	128.50	6
25	Udala	5.39	2.00	4
26	Soro		19.00	3
27	Baripada		56.88	20
28	Balasore	7.12	9.21	
29	Karanjia	1.35	9.05	
30	Rairangpur		1.77	9
31	Cuttack	12.98	36.17	
32	Balugaon		1.10	
33	Khurda	4.13	3.95	
34	Kashinagar		2.54	
35	Sambalpur		5.60	
36	Bolangir		5.16	
37	Nilagiri		9.00	
	TOTAL	130.45	616.58	131



Embankment Roads

428.90 km of 255 roads in river and canal embankments have been damaged due to floods. The district-wise detail is as follows.

Sl. No.	Name of the District	ROAD			
		River/Saline embankments		Canal Embankments	
		No.	Length in Km'	No.	Length in Km'
1	Bhadrak	6	1.64	5	1.50
2	Balasore	0	0.00	9	4.50
3	Boudh	0	0.00	12	22.99
4	Bolangir	7	16.20	3	3.05
5	Baragarh	1	1.50	0	0.00
6	Cuttack	6	9.00	7	16.50
7	Ganjam	5	7.00	59	73.25
8	Jagatsinghpur	1	2.50	14	28.38
9	Jajpur	3	3.50	2	2.50
10	Khurda	6	8.50	9	4.70
11	Kendrapara	18	34.54	14	7.50
12	Nayagarh	1	0.50	3	2.30
13	Puri	29	87.35	30	57.20
14	Rayagada	1	3.00	0	0.00
15	Sonepur	0	0.00	4	29.30
Total		84	175.23	171	253.67



Drinking Water Supply Works

a) Rural Water Supply

266 Rural piped water supply systems and 26370 tube wells have been damaged due to continuous inundation of flood water. 5576 platforms of tube wells have been damaged.

The district-wise damage position is given below.

Sl No.	Name of the District/Division	No. of Tube wells damaged	No of Platforms damaged	No of Rural Pipe water supply system damaged
1	Angul	292	58	2
2	Balasore	2893	579	4
3	Bolangir	1200	240	29
4	Boudh	460	92	8
5	Cuttack	6241	1248	54
6	Gajapati	32	6	1
7	Jagatsinghpur	5032	1006	26
8	Jajpur	1827	670	9
9	Kalahandi	239	48	4
10	Kendrapara	3351	670	35
11	Keonjhar	50	10	2
12	Khurda	772	154	15
13	Nayagarh	472	94	22
14	Nuapada	89	18	15
15	Puri	2651	530	23
16	Subarnapur	276	55	6
17	Dhenkanal	61	12	6
18	Mayurbhanj	432	86	5
Total		26370	5576	266

Irrigation

a) Minor Irrigation

858 MI Projects have been damaged due to floods in the State. The district-wise list is given below.



Sl No.	Name of the District/Division	Number of the MIP damaged
1	Cuttack	123
2	Khurda	128
3	Gajapati	57
4	Boudh	78
5	Kalahandi	77
6	Nuapara	11
7	Rayagada	56
8	Bolangir	95
9	Sambalpur	65
10	Bargarh	61
11	Keonjhar	89
12	Angul	11
13	Balasore	7
	TOTAL	858

b) River and Canal Embankment

Due to heavy floods in Mahanadi, Subarnarekha, Baitarani, Budhabalanga, Rushikulya, Badanadi, Vamsadhara, Hati and Jalaka, 651 breaches occurred in river and saline embankment. 1276 breaches in canal embankments have occurred during floods. The district-wise breach position is given below.

**River Embankment**

Sl No.	Name of the District/Division	No. of breach	Length of breach (in Km.)	No of partial damages
1	Angul	0	0.00	35
2	Balasore	173	24.15	322
3	Baragarh	0	0.00	19
4	Bhadrak	65	28.87	282
5	Bolangir	22	7.44	51
6	Boudh	0	0.00	32
7	Cuttack	45	3.23	389
8	Gajapati	0	0.00	26
9	Jagatsinghpur	25	2.12	259
10	Jajpur	27	0.94	311
11	Kalahandi	0	0.00	23
12	Kendrapara	208	20.28	390
13	Keonjhar	0	0.00	52
14	Khurda	3	0.39	77
15	Nayagarh	1	0.02	81
16	Nuapada	0	0.00	6
17	Puri	51	2.31	310
18	Rayagada	7	0.32	30
19	Sambalpur	0	0.00	109
20	Sonepur	22	0.57	8
21	Mayurbhanj	2	0.80	11
	TOTAL	651	91.44	2823

**Canal Embankments**

Sl No.	Name of the District	No. of breaches	Length of breach (in Km.)	No of partial damages	Length partial damages (in Km.)
1	Anugul	0	0.00	33	9.57
2	Balasore	31	13.71	18	36.53
3	Bargarh	33	22.45	187	133.01
4	Bhadrakh	86	11.38	160	41.64
5	Bolangir	9	3.02	41	22.99
6	Boudh	20	1.79	20	32.55
7	Cuttack	173	16.22	291	239.66
8	Gajapati	0	0.00	0	0.00
9	Jagatsingpur	15	1.66	109	54.96
10	Jajpur	26	0.63	141	26.77
11	Kalahandi	322	12.04	118	58.02
12	Kendrapara	197	3.08	108	271.84
13	Keonjher	1	0.24	98	77.49
14	Khurda	99	6.87	96	33.03
15	Nayagarh	0	0.00	26	2.24
16	Nuapara	0	0.00	146	120.48
17	Puri	243	10.36	228	247.54
18	Rayagada	0	0.00	0	0.00
19	Sambalpur	0	0.00	75	127.67
20	Sonepur	21	30.55	60	36.39
TOTAL		1276	134.003	1955	1572.374

c) Drainage System

1332.52 km of drainage systems in different rivers have been congested by debris and vegetative materials. Debris and vegetative materials have to be cleared for smooth flow of water. Division-wise details are given below:



Sl. No.	Name of Division	No. of work	Length of drainage system where debris and vegetative materials are to be removed (in Km.)
1	2	4	5
1	Drainage Division, Bhubaneswar.	168	448.31
2	Drainage Division, Berhampur	74	24.93
3	Drainage Division, Cuttack	196	477.30
4	Mahanadi barrage Division, Cuttack	31	72.57
5	Drainage Division, Chandikhol	60	71.32
6	Drainage Division, Balasore	129	238.09
Total		658	1332.52

Primary Education

School Buildings

2241 Primary School buildings damaged due to this floods. The district-wise detail is as below.

Sl. No.	Name of District	No. of the Damaged school
1	Angul	59
2	Balasore	500
3	Bolangir	90
4	Baragarh	10
5	Boudh	40
6	Cuttack	66
7	Dhenkanal	26
8	Gajapati	64
9	Jajpur	367
10	Jagatsinghpur	24
11	Kendrapada	524
12	Keonjhar	3
13	Kalahandi	18
14	Khurda	32
15	Mayurbhanj	60
16	Nayagarh	58
17	Nuapada	10
18	Puri	211
19	Sambalpur	30
20	Sonepur	49
Total		2241

**PHC / CHC**

237 PHC / CHC buildings of following districts have been damaged due to the current floods.

No.	Name of the District	No. of PHC / CHC damaged
1	Balasore	18
2	Bolangir	2
3	Bhadrak	10
4	Cuttack	33
5	Gajapati	1
6	Jajpur	16
7	Jagatsinghpur	18
8	Kalahandi	19
9	Kendrapara	56
10	Khurda	21
11	Mayurbhanj	5
12	Nayagarh	4
13	Puri	30
14	Rayagada	1
15	Sambalpur	1
16	Subernapur	2
TOTAL		237



Community Assets owned by Panchayats

Panchayat Ghars

659 Panchayat ghars/ community halls of different Gram Panchayats and Panchayats Samities have been damaged due to floods. The district-wise detail is as below.

Sl No.	Name of the District	No. of Panchayat Ghar/Community Hall damaged
1	Angul	1
2	Baragarh	41
3	Bhadrak	39
4	Bolangir	59
5	Boudh	30
6	Cuttack	69
7	Jagatsinghpur	12
8	Jajpur	59
9	Kalahandi	1
10	Kendrapara	20
11	Keonjhar	1
12	Khurda	127
13	Nayagarh	4
14	Nuapada	1
15	Puri	14
16	Sambalpur	9
17	Subarnapur	56
18	Balasore	116
	TOTAL	659



CHAPTER - V

Response



During September Floods

Rescue and Evacuation

430856 people were evacuated to safer places and kept in temporary shelters during the floods.

Sl	District	People evacuated		
		By boat	By vehicle	Total
1	Cuttack	55007	60292	115299
2	Kendrapara	73202	0	73202
3	Jagatsinghpur	17350	21229	38579
4	Puri	52357	0	52357
5	Jajpur	5490	0	5490
6	Nayagarh	12394	9606	22000
7	Bolangir	300	14223	14523
8	Boudh	18804	5300	24104
9	Sonepur	22823	60	22883
10	Angul	12952	0	12952
11	Baragarh	405	2601	3006
12	Sambalpur	1305	0	1305
13	Khurda	4434	0	4434
14	Kalahandi		1500	1500
15	Rayagada		980	980
16	Keonjhar		900	900
17	Balasore	16100	11210	27310
18	Mayurbhanj	6300	3732	10032
Total		299223	131633	430856



Free kitchen

Evacuated people were provided with adequate quantities of dry food and cooked food through free kitchen centers. 1118 free kitchen centers were opened covering 416395 beneficiaries. District-wise details are given below:

Sl.	District	Free kitchen centres opened	duration of operation of relief camps (in days)	Beneficiaries covered
1	Cuttack	125	7	78861
2	Kendrapara	298	7	197806
3	Jagatsinghpur	1	7	800
4	Puri	39	8	13725
5	Jajpur	62	4	9177
6	Nayagarh	14	2	11000
7	Bolangir	32	2	10753
8	Boudh	68	2	20196
9	Sonepur	34	3	12113
10	Angul	35	2	12952
11	Sambalpur	4	3	1821
12	Khurda	2	4	584
13	Kalahandi	11	3	1500
14	Rayagada	2	2	130
15	Gajapati	1	3	312
16	Nuapara	42	4	6423
17	Keonjhar	2	2	900
18	Balasore	325	4	27310
19	Mayurbhanj	21	2	10032
Total		1118	71	416395

Deployment of Boats

For rescue and relief operation, 54 power boats with 162 crew of ODRAF / State Fire Service, 43 boats with 215 crew of NDRF, 25 Boats with 100 crew of BSF, 5 Boats with 50 Crew of Navy (INS Chilika) were pressed into action. In addition, 78 Boats with 140 crew of State Port Engineering Organization were deployed. Besides, 1810 boats owned by private individuals were utilized for rescue and relief operation.

Rescue Operation

The flood situations became grim on 20th & 21st September. A large chunk of areas became



marooned. All five units of ODRAF (Orissa Disaster Rapid Action Force) were deployed in Cuttack, Balasore, Bhadrak, Jajpur & Mayurbhanj districts for rescue and relief operation.

Emergent Relief

In view of the intensity of the high floods and devastation, emergent relief was sanctioned for a period of 15 days for the marooned people of the flood affected Districts. Emergent relief in shape of rice, chuda and guda was distributed in the flood affected villages. In addition to that dry food, candles, matchboxes, kerosene and other essential materials were distributed.

The quantum of emergent relief has been enhanced from 500 gm to 1.00 Kg per adult and from 250 gm to 500 gm per child per day. The rate of emergent relief per beneficiary is within the rate prescribed in the CRF norms i.e. Rs.20/- per adult per day and Rs.15/- per child per day.

Ready to eat for Affected Children

Children and infants in the flood affected areas were provided with nutritious baby food for a period of 15 days at a package worth of Rs225/- per child.

Air-dropping

i) September, 2008

The helicopters of Indian Air Force were requisitioned from Ministry of Defence in order to facilitate the air-dropping of food packets in the marooned areas for flood victims. 75,000 food packets have been air-dropped through IAF MI Helicopters in Kendrapara, Cuttack, Jagatsinghpur and Puri Districts.

ii) June, 2008

The helicopters of Indian Air Force were requisitioned from Ministry of Defence in order to facilitate the air-dropping of food packets in the marooned areas for the flood victims. 50,000 food packets were air-dropped through IAF MI Helicopters in Balasore District.



Closure of schools

Schools were suspended in the flood affected areas of Cuttack, Jagatsinghpur, Kendrapra, Jajpur, Puri, Khurda, Nayagarh, Sonepur, Boudh, Bolangir Districts. The schools in these areas were used as relief camps and free kitchen centers.

Temporary Shelter Materials

83242 families were provided with polythene sheets for temporary shelter since houses were damaged either fully or severely.

Sl.	District	No. of families provided with polythene sheets
1	Angul	468
2	Balasore	13160
3	Bargarh	4457
4	Bhadrak	392
5	Bolangir	6739
6	Boudh	1075
7	Cuttack	12506
8	Jagatsinghpur	2967
9	Jajpur	1724
10	Kalahandi	1267
11	Kendrapara	22785
12	Keonjhar	87
13	Khurda	280
14	Mayurbhanj	2740
15	Nayagarh	142
16	Nuapada	1896
17	Puri	5282
18	Rayagada	166
19	Sambalpur	446
20	Subarnapur	4663
Total		83242



Health & Sanitation

In order to prevent outbreak of epidemics, 172 medical teams were deployed in the flood affected Districts and 559 Medical Relief Centres were opened. 332121 ORS packets, 3629933 Halogen tablets were distributed. District -wise details are given below.

Sl	District	Medical Mobile Teams Deployed	Medical Centers opened.	ORS	Halogen Tablets
1.	Cuttack	20	94	13394	568206
2.	Kendrapara	04	117	76397	536900
3.	Jagatsinghpur	26	43	143703	910273
4.	Puri	13	89	9087	882360
5.	Jajpur	12	62	7316	109182
6.	Nayagarh	06	16	420	92400
7.	Bolangir	04	01	500	20782
8.	Boudh	09	33	--	20000
9.	Sonepur	09	09	12200	20800
10.	Angul	03	07	124	4000
11.	Sambalpur	--	--	--	18000
12.	Khurda	26	20	3153	165670
13.	Kalahandi	15	08	--	70000
14.	Gajapati	01	06	25	2500
15.	Bhadrak	04	07	3450	35300
16.	Keonjhar	--	--	--	2000
17.	Balasore	15	44	41352	148000
18.	Mayurbhanj	5	3	21000	23560
Total		172	559	332121	3629933



Drinking Water

Adequate arrangements were made for supply of safe drinking water in the flood affected areas. 103 water tankers and 129 mobile vans were deployed. 4949700 water pouches were distributed. District-wise details are mentioned below.

Sl	District	Tankers Deployed	Water Pouches Distributed	Mobile Vans Deployed
1	Cuttack	09	1334700	30
2	Kendrapara	11	1215000	13
3	Jagatsinghpur	10	492000	12
4	Puri	18	894900	10
5	Jajpur	03	239000	10
6	Nayagarh	01	162000	03
7	Bolangir		25000	17
8	Boudh		10000	02
9	Sonepur			03
10	Angul		2000	
11	Baragarh		400	04
12	Khurda	02	165000	06
13	Gajapati		5000	
14	Bhadrak		27700	02
15	Balasore	14	377000	10
16	Mayurbhanj	35	0	7
Total		103	4949700	129



Disinfection of Drinking Water Sources

Sl	District	Wells Disinfected	Tube Wells Disinfected	PWS System Disinfected	Bleaching Power Distributed(inBags)
1	Cuttack	1207	6948	31	529
2	Kendrapara		2807	21	343
3	Jagatsinghpur	63	4910	11	533
4	Puri	138	1260	10	230
5	Jajpur		1351	09	77
6	Nayagarh	204	587	22	73
7	Bolangir		3364	18	122
8	Boudh	162	850		72
9	Sonepur	10	876	02	81
10	Angul		292	01	15
11	Baragarh		610		52
12	Sambalpur		12	10	
13	Khurda	365	772	08	180
14	Kalahandi		305	04	66
15	Rayagada				
16	Gajapati		200	01	50
17	Nuapara		89	12	125
18	Bhadrak		693		55
19	Keonjhar		50	02	175
20	Balasore	1250	1816		
Total		2149	25976	162	2778



Animal Care

Affected animals were shifted to safer places. 272 veterinary teams were deployed in the flood affected areas. 4.31 lakh livestock have been treated and vaccinated. 30867.67 MT of cattle feed of high quality was distributed. The district-wise position is mentioned below.

Sl. No	Name of the District	No. of cattle camps	No. of large animals affected	Cattle feed supplied @1.33 Kg per day for 15 days (In MT)	No. of small animals affected	Cattle feed supplied @0.66 Kg per day for 15 days (In MT)	Total cattle feed supplied (In MT)	No. of mobile veterinary team deployed	No. of livestock treated
1	Jajpur	470	187327	3737.17	71581	708.65	4445.83	12	68149
2	Boudh	120	10181	203.11	9485	93.90	297.01	3	1031
3	Kendrapara	566	148227	2957.13	68888	681.99	3639.12	38	63626
4	Bhadrak	209	100083	1996.66	29405	291.11	2287.77	11	7751
5	Bolangir	598	13401	267.35	10267	101.64	368.99	3	4938
6	Cuttack	820	267679	5340.20	144301	1428.58	6768.78	49	127427
7	Jagatsinghpur	188	57016	1137.47	30807	304.99	1442.46	17	29083
8	Kalahandi	781	38492	767.92	22754	225.26	993.18	21	8574
9	Angul	274	15000	299.25	7456	73.81	373.06	5	3110
10	Keonjhar	2	918	18.31	350	3.47	21.78	2	897
11	Nayagarh	115	17867	356.45	12409	122.85	479.30	9	20349
12	Sonepur	244	11985	239.10	6841	67.73	306.83	7	3396
13	Puri	883	243833	4864.47	79808	790.10	5654.57	44	27647
14	Khurda	401	57070	1138.55	15253	151.00	1289.55	5	20615
15	Bargarh	1041	319	6.36	8	0.08	6.44	7	68
16	Sambalpur	10	8324	166.06	4334	42.91	208.97	3	645
17	Gajapati	2	5940	118.50	1377	13.63	132.14	2	847
18	Nuapada	29	372	7.42	489	4.84	12.26	4	267
19	Balasore	982	88994	1602	59330	534	2136	18	42850
20	Mayurbhanj	1	158	2.8	92	0.83	3.63	12	152
Total		7736	1273186	25226.28	575235	5641.37	30867.67	272	431422



CHAPTER - VI

Assistance sought for

**Ex-gratia Payment to the families of deceased persons: [Para-1(a) of CRF Norms].**

110 persons died due to floods in the State in 2008. The District-wise human casualty and amount disbursed as per revised CRF Norms for payment of ex-gratia assistance to the families of deceased persons are given in table below:

(Rs. in Lakh)

Sl.	District	No. of Death cases	Amount spent as per CRF Norms @ Rs.1.00 lakh per death case
1.	Cuttack	20	20.00
2.	Kendrapara	16	16.00
3.	Jagatsinghpur	10	10.00
4.	Puri	08	08.00
5.	Jajpur	10	10.00
6.	Bolangir	03	03.00
7.	Angul	02	02.00
8.	Sambalpur	07	07.00
9.	Khurda	02	02.00
10.	Kalahandi	05	05.00
11.	Rayagada	06	06.00
12.	Bhadrak	05	01.00
13.	Keonjhar	04	05.00
14.	Balasore	10	10.00
15.	Mayurbhanj	02	02.00
Total		110	110.00

**Amount disbursed for payment ex-gratia assistance for loss of limbs to the persons:***[Para-1 (b) of CRF Norm]*

2 persons have lost limbs due to the floods in Kendrapara District. An amount of Rs.70,000 @Rs.35,000 per each has been paid as ex-gratia assistance to the persons.

Amount disbursed for treatment of Grievous Injury: *[Para-1 (c) of CRF Norm]*

11 persons were grievously injured by the floods. The injured persons were provided with assistance @ Rs.2500/- per person for treatment of injury. A total amount of Rs.37,500/- has been spent for the purpose.

(Rs. in Lakh)

Sl.No	District	No. of Persons	Amount spent @Rs.2500/-
1	Kendrapara	07	0.175
2	Puri	02	0.150
3	Jajpur	01	0.025
4	Bhadrak	01	0.025
Total		11	0.375

Clothing and utensils for families: *[Para-1 (e) of CRF Norms]*

About 83242 families whose houses have been fully damaged or severely inundated for a period more than 7 days have been provided with clothing and utensils. The district-wise expenditure for this purpose is given below:



(Rs. in Lakh)

Sl.	District	Clothing		Utensils		Total Amount spent
		No. of family	Amount spent @ Rs.1000/- per family	No. of family	Amount spent @ Rs. 1000/- per family	
1.	Angul	468	4.68	468	4.68	9.36
2.	Balasore	13160	131.6	13160	131.6	263.2
3.	Bargarh	4457	44.57	4457	44.57	89.14
4.	Bhadrak	392	3.92	392	3.92	7.84
5.	Bolangir	6739	67.39	6739	67.39	134.78
6.	Boudh	1075	10.75	1075	10.75	21.5
7.	Cuttack	12506	125.06	12506	125.06	250.12
8.	Jagatsinghpur	2967	29.67	2967	29.67	59.34
9.	Jajpur	1724	17.24	1724	17.24	34.48
10.	Kalahandi	1267	12.67	1267	12.67	25.34
11.	Kendrapara	22785	227.85	22785	227.85	455.7
12.	Keonjhar	87	0.87	87	0.87	1.74
13.	Khurda	280	2.8	280	2.8	5.6
14.	Mayurbhanj	2740	27.4	2740	27.4	54.8
15.	Nayagarh	142	1.42	142	1.42	2.84
16.	Nuapada	1896	18.96	1896	18.96	37.92
17.	Puri	5282	52.82	5282	52.82	105.64
18.	Rayagada	166	1.66	166	1.66	3.32
19.	Sambalpur	446	4.46	446	4.46	8.92
20.	Subarnapur	4663	46.63	4663	46.63	93.26
Total		83242	832.42	83242	832.42	1664.84

Gratuitous Relief for families in dire need of immediate sustenance after a calamity:
[Para-1 (f) of CRF Norms]

5516614 persons of 1103362 families who were in dire need of immediate sustenance after the floods were provided with Gratuitous Relief for 15 days @Rs.20/- per adult per day and @Rs.15/- per child per day. The total expenditure incurred towards providing gratuitous relief comes to Rs.14890.08 lakh. The district-wise expenditure for this purpose is given below:



(Rs. in Lakh)

Sl	District	Villages Affected	ULBs Affected	Population	Population affected		Expenditure incurred towards food for 15 days		Total
				Affected	Adult	Children	@Rs. 20 per adult	@Rs. 15 per child	
1	Cuttack	820	4	759328	455597	303731	1366.79	683.40	2050.19
2	Kendrapara	591	2	672195	396595	275600	1189.79	620.10	1809.89
3	Jagatsinghpur	188		147400	85492	61908	256.48	139.29	395.77
4	Puri	871	1	772275	478811	293464	1436.43	660.30	2096.73
5	Jajpur	552	2	622348	336068	286280	1008.20	644.13	1652.33
6	Nayagarh	115		79610	54135	25475	162.40	57.32	219.72
7	Bolangir	661		355524	216870	138654	650.61	311.97	962.58
8	Boudh	120	1	81097	44603	36494	133.81	82.11	215.92
9	Sonepur	344	3	56000	33040	22960	99.12	51.66	150.78
10	Angul	62	3	24000	15120	8880	45.36	19.98	65.34
11	Baragarh	1091	3	71867	40964	30903	122.89	69.53	192.42
12	Sambalpur			52340	27217	25123	81.65	56.53	138.18
13	Khurda	460	5	338462	216616	121846	649.85	274.15	924.00
14	Kalahandi	781	3	20000	12200	7800	36.60	17.55	54.15
15	Rayagada	411	1	183000	113460	69540	340.38	156.47	496.85
16	Gajapati	3	1	607	352	255	1.06	0.57	1.63
17	Nuapara	351		33646	19851	13795	59.55	31.04	90.59
18	Bhadrak	209		252991	151795	101196	455.38	227.69	683.08
19	Keonjhar	2		900	576	324	1.73	0.73	2.46
20	Balasore	1114	4	942959	575205	367754	1725.61	827.44	2553.05
21	Mayurbhanj	125	4	50065	29038	21027	87.11	47.31	134.42
Total		8871	37	5516614	3303605	2213009	9910.8	4979.27	14890.08

**Supplementary Nutrition: [As per Para-2 of CRF Norms]**

340031 children were provided with adequate nutritious food to supplement their health. The total expenditure for this purpose is Rs131.22 lakh @ Rs. 2.00 per children per day. The calculation is mentioned below:

Sl.	District	No. of children Affected	No. of Days	Amount spent @ Rs.2.00 per person per day (Rs. in lakh)
1	Cuttack	49395	15	14.82
2	Kendrapara	88615	15	26.58
3	Puri	82018	15	24.61
4	Bolangir	4758	15	1.43
5	Sonepur	6156	15	1.85
6	Angul	2045	15	0.61
7	Khurda	7284	15	2.19
8	Nuapara	703	15	0.21
9	Balasore	97943	30	58.76
10	Mayurbhanj	1114	7	0.16
Total		340031		131.22

Assistance to Small and Marginal farmers**Cost of desilting of agricultural land: Subsidy for sand cast [Para-3(a) of CRF Norms]**

14059.31 hectares of agriculture land have been sand cast due to this floods. An amount of Rs.843.56 lakh is spent for removal of sand to make the land fit for agriculture purpose.



(Rs. in Lakh)

Sl.	District	Total Area under sandcast (in Hect.)	Amount spent @ Rs.6000/- per hect.(Rs. in lakh)
1	Cuttack	469	28.14
2	Kendrapara	626	37.56
3	Jagatsinghpur	100	6.00
4	Puri	350	21.00
5	Jajpur	20	1.20
6	Nayagarh	92	5.52
7	Bolangir	2401	144.06
8	Sonepur	3059	183.54
9	Angul	975.40	58.52
10	Baragarh	0.832	0.05
11	Sambalpur	0.465	0.03
12	Khurda	58.92	3.54
13	Nuapara	2546	152.76
14	Bhadrak	103.74	6.22
15	Balasore	102	6.12
16	Kalahandi	3154.95	189.30
Total		14059.31	843.56

Desilting / Restoration / Repair of fish farms: [Para-3 (c) of CRF Norms]

7921.21 hectares of fish farms belonging to 16379 small and marginal farmers have been damaged. An amount of Rs.475.29 lakh is required for restoration of above farms.



Sl.	District	No. of fish farms	Total Area of fish farms (hect)	No. of small marginal farmers	Amount required @ Rs.6000/- per hect.(Rs. in lakh)
1	Bhadrak	73	34.38	73	2.06
2	Bolangir	422	445.8	420	26.75
3	Boudh	30	51	27	3.06
4	Cuttack	1676	446.6	1676	26.80
5	Gajapati	18	233.12	589	13.99
6	Jagatsinghpur	956	182.3	956	10.94
7	Jajpur	23	6.8	23	0.41
8.	Kalahandi	307	1216.95	2135	73.02
9	Kendrapara	4906	626	4906	37.56
10	Keonjhar	2	1	2	0.06
11	Khurda	436	155	436	9.30
12	Nayagarh	98	900.67	194	54.04
13.	Nuapada	110	1834.95	310	110.10
14	Puri	2594	910	2594	54.60
15	Sambalpur	9	39	18	2.34
16	Sonepur	41	97.04	34	5.82
17	Balasore	2556	740.6	1986	44.44
Total		14257	7921.21	16379	475.29

**Agriculture input subsidy where crop loss 50% and above: [Para-3(e) of CRF Norms]**

Out of 444989.7 hectares of affected crop land, 385133.7 hectares of cropped area have sustained crop loss more than 50%. An amount of Rs.10635.37 lakh is spent towards providing input subsidy to the affected farmers.

Sl.	Districts	Crop Area Affected [in Hect.]	Total agricultural area where crop loss is > 50%
1	Cuttack	96573.68	92573.68
2	Kendrapara	64994.00	59994.00
3	Jagatsinghpur	15129.00	14829.00
4	Puri	72458.00	67458.00
5	Jajpur	29521.41	28521.41
6	Nayagarh	7913.00	4913.00
7	Bolangir	15381.00	11381.00
8	Boudh	12327.00	10327.00
9	Sonepur	7776.00	5776.00
10	Angul	7179.58	4179.58
11	Khurda	31168.00	26168.00
12	Kalahandi	17977.00	13977.00
13	Nuapara	3546.00	2546.00
14	Bhadrak	13020.00	10020.00
15	Balasore	49854.00	32298.00
16	Mayurbhanj	172.00	172.00
Total		444989.7	385133.7



(Rs. in Lakh)

Sl.	Name of the district	Area affected 50% & above			Expenditure incurred			Total
		Irrigated [in hect.]	Rainfed [in hect.]	Perennial	Irrigated @Rs.4000/- per hectare	Rainfed @Rs.2000/- per hectare	Perennial @ Rs.6000/ per Hect.	
1	Cuttack	38143	54418	12.68	1525.72	1088.36	0.76	2614.84
2	Kendrapara	19555	40439		782.2	808.78	0.00	1590.98
3	Jagatsinghpur	6160	8669		246.4	173.38	0.00	419.78
4	Puri	42461	24997		1698.44	499.94	0.00	2198.38
5	Jajpur	2569	25943	9.41	102.76	518.86	0.56	622.18
6	Nayagarh	70	4843		2.8	96.86	0.00	99.66
7	Bolangir	2056	9325		82.24	186.50	0.00	268.74
8	Boudh	2882	7445		115.28	148.90	0.00	264.18
9	Sonepur	1250	4526		50	90.52	0.00	140.52
10	Angul		3890	289.58	0	77.80	17.37	95.17
13	Khurda	20422	5697	49.00	816.88	113.94	2.94	933.76
14	Kalahandi	1397	12580		55.88	251.60	0.00	307.48
17	Nuapara	558	1988		22.32	39.76	0.00	62.08
18	Bhadrak		10020		0	200.40	0.00	200.40
19	Balasore	10440	18386	419.00	417.60	367.72	25.14	810.46
20	Mayurbhanj	92	43	37	3.68	0.86	2.22	6.76
Total		148055	233209	816.67	5922.2	4664.18	48.99	10635.37

Input subsidy to farmers other than small & marginal farmers: [Para-4 of Revised CRF Norms]

Crops in 20025 hectares of irrigated land and 21366 hectares of non-irrigated lands of farmers other than small and marginal farmers have sustained crop loss of more than 50% due to the floods. An amount of Rs.1228.32 lakh is spent for providing input subsidy to affected farmers.



(Rs. in Lakh)

Sl.	District	Kharif Crop					
		No of Farmers	Irrigated area in hect	Amount spent @ Rs.4000/- per hect.	Rainfed Area in hect.	Amount spent @ Rs.2000/- per hect.	Amount
1	Cuttack	4622	14165	566.60	8945	178.90	745.5
2	Jajpur	1820	186	7.44	1353	27.06	34.5
3	Boudh	3738	1228	49.12	2138	42.76	91.88
4	Khurda	3345	1934	77.36	1187	23.74	101.1
5	Kalahandi	2795	323	12.92	2180	43.60	56.52
6	Subarnapur	5212	980	39.20	3821	76.42	115.62
7	Balasore	3627	1209	48.36	1742	34.84	83.20
Total		25159	20025	801	21366	427.32	1228.32

Assistance to Small & Marginal Sericulture farmers: [Para-5 of Revised CRF Norms]

1276 hectares of Muga crop and 206 hectares of Eri crop have sustained crop loss more than 50%. An amount of Rs.36.02 lakh is spent for providing input subsidy to 630 affected beneficiaries.



Sl.	Name of the District	No. of Farmers Affected	Area in Hect. Muga (Hc.)	Area in Hect. Mulberry / Eri / Tussar (Hc.)	Total	Expenditure Incurred @ Rs.2000/- per ha. of Mulberry/ Eri / Tussar and Rs. 2500/- for Muga		Total
						Muga @ Rs.2500/- per ha	Mulberry / Eri / Tussar @ Rs.2000/- per ha.	
1	Cuttack	30	-	26	26	0	0.52	0.52
2	Kendrapara	130	-	26	26	0	0.52	0.52
3	Jagatsinghpur	157	-	32	32	0	0.64	0.64
4	Jajpur	44	44	-	44	1.1	0	1.1
5	Nayagarh	36		15	15	0	0.3	0.3
6	Angul	290	205	34	239	5.125	0.68	5.805
7	Mayurbhanj	680	660	08	668	16.5	0.16	16.66
8	Sambalpur	15	10	02	12	0.25	0.04	0.29
9	Dhenkanal	104	58	19	77	1.45	0.38	1.83
10	Kalahandi	52	-	13	13	0	0.26	0.26
11	Deogarh	11	09	02	11	0.225	0.04	0.265
12	Keonjhar	996	290	29	319	7.25	0.58	7.83
Total		2545	1276	206	1482	31.9	4.12	36.02

Replacement of draught / milch animals: [Para-7(1) of Revised CRF Norms]

15 nos. of buffalos / cow, 1019 nos. of sheep / goat, 254 nos. of camel / horse / bullocks, 48 nos. of calf / donkey / pony and 50163 nos. of poultry birds have been lost due to the floods. The total expenditure for replacement of these animals comes to Rs.50.16 lakh. The detailed calculation is given below:



Name of the District	No of Livestock / Birds lost					No of animals qualifying for relief grant (i.e., subject to ceiling of 1 large milch animal or 4 small milch animals or 1 large draught animal or 2 small draught animal per household			
	Milch Animal		Draught Animal		Poultry Birds	Milch Animal		Draught Animal	
	Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony		Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Angul						0	0	0	0
Bargarh	1	8	18		9	1	3	13	0
Bhadrak						0	0	0	0
Bolangir	2	36				2	28	0	0
Boudh	16					16	0	0	0
Cuttack	61	296	104		35500	42	169	84	0
Gajapati						0	0	0	0
Jagatsinghpur	9	8	12		11004	9	8	12	0
Jajpur	18	120	9	13	1500	18	111	9	13
Kalahandi	5	46	3	3		4	39	3	3
Kendrapara	15	35	12			15	35	12	0
Keonjhar						0	0	0	0
Khurda	2					2	0	0	0
Nayagarh	18	24	29			11	18	22	0
Puri	26	61	24			58	274	22	0
Rayagada						0	0	0	0
Sambalpur						0	0	0	0
Sonepur						0	0	0	0
Nuapada	42	385	43	32	2150	6	25	7	32
Balasore	38	103				38	103		
TOTAL	253	1122	254	48	50163	222	813	184	48



Name of the District	Expenditure incurred (Milch animals @ Rs.10000 for large animal , Rs.1000 for small animals & Draught animals @ Rs 10,000 for large animal, Rs. 5000 for small animals)				Poultry @ 30/- per bird subject to a ceiling of assistance of Rs.300/- per beneficiary household.	Total expenditure (11+12+13+14+15)
	Milch Animal		Draught Animal		Poultry Bird	
	Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony		
(1)	(11)	(12)	(13)	(14)	(15)	(16)
Angul	0	0	0	0	0	0
Bargarh	10000	3000	130000	0	270	143270
Bhadrak	0	0	0	0	0	0
Bolangir	20000	28000	0	0	0	48000
Boudh	160000	0	0	0		160000
Cuttack	420000	169000	840000	0	900	1429900
Gajapati	0	0	0	0	0	0
Jagatsinghpur	90000	8000	120000	0	1200	219200
Jajpur	180000	111000	90000	65000	300	446300
Kalahandi	40000	39000	30000	15000	0	124000
Kendrapara	150000	35000	120000	0	0	305000
Keonjhar	0	0	0	0	0	0
Khurda	20000	0	0	0	0	20000
Nayagarh	110000	18000	220000	0	0	348000
Puri	580000	274000	220000	0	0	1074000
Rayagada	0	0	0	0	0	0
Sambalpur	0	0	0	0	0	0
Sonepur	0	0	0	0	0	0
Nuapada	60000	25000	70000	160000	300	315300
Balasore	380000	103000				383000
TOTAL	2220000	813000	1840000	240000	2970	5015970



Provision of fodder / feed concentrate in the cattle camps: [Para-7 (ii) of Revised CRF Norms]

30867.67 MT cattle feed has been provided to 1273186 large animals and 575235 small animals @Rs.20 per day per large animal and Rs.10 per day per small animal. Expenditure has been incurred to the tune of Rs.4630.15 lakh for the purpose.

Sl. No	Name of the District	No. of cattle camps	No. of large animals affected	Cattle feed supplied @1.3Kg per day for 15 days (in MT)	No. of small animals affected	Cattle feed supplied @0.66Kg per day for 15 days (in MT)	Total cattle feed supplied (in MT)	Expenditure incurred (Rs. in lakh) @ Rs.15000 per MT
1	Jajpur	470	187327	3737.17	71581	708.65	4445.83	666.87
2	Boudh	120	10181	203.11	9485	93.90	297.01	44.55
3	Kendrapara	566	148227	2957.13	68888	681.99	3639.12	545.87
4	Bhadrak	209	100083	1996.66	29405	291.11	2287.77	343.16
5	Bolangir	598	13401	267.35	10267	101.64	368.99	55.35
6	Cuttack	820	267679	5340.20	144301	1428.58	6768.78	1015.32
7	Jagatsinghpur	188	57016	1137.47	30807	304.99	1442.46	216.37
8	Kalahandi	781	38492	767.92	22754	225.26	993.18	148.98
9	Angul	274	15000	299.25	7456	73.81	373.06	55.96
10	Keonjhar	2	918	18.31	350	3.47	21.78	3.27
11	Nayagarh	115	17867	356.45	12409	122.85	479.30	71.89
12	Sonepur	244	11985	239.10	6841	67.73	306.83	46.02
13	Puri	883	243833	4864.47	79808	790.10	5654.57	848.19
14	Khurda	401	57070	1138.55	15253	151.00	1289.55	193.43
15	Bargarh	1041	319	6.36	8	0.08	6.44	0.97
16	Sambalpur	10	8324	166.06	4334	42.91	208.97	31.35
17	Gajapati	2	5940	118.50	1377	13.63	132.14	19.82
19	Nuapada	29	372	7.42	489	4.84	12.26	1.84
20	Balasore	982	88994	1602	59330	534	2136	320.40
21	Mayurbhanj	1	158	2.8	92	0.83	3.63	0.54
Total		7736	1273186	25226.28	575235	5641.37	30867.67	4630.15

**Assistance to fishermen: [Para-8 (a) of Revised CRF Norms]**

1579 boats and nets have been fully damaged and 4761 boats and nets have been partially damaged due to floods. An amount of Rs.237.40 lakh is spent for providing assistance to the affected fishermen. The district-wise details are given below:

(Rs. in Lakh)

Sl. No	Name of the District	Boat & Net Units fully damaged		Boat & Net Units partially damaged		Total
		No. of Units damaged	Expenditure @Rs.7500	No. of Units damaged	Expenditure @Rs.2500	
1	Angul	4	0.30	16	0.40	0.70
2	Bargarh					0.00
3	Bhadrak	68	5.10	143	3.57	8.67
4	Bolangir					0.00
5	Boudh	85	6.37	173	4.32	10.69
6	Cuttack	222	16.65	319	7.97	24.62
7	Gajapati			32	0.80	0.80
8	Jagatsinghpur	19	1.42	1144	28.60	30.02
9	Jajpur	108	8.10			8.10
10	Kalahandi	90	6.75	680	17.00	23.75
11	Kendrapara	285	21.37	155	3.87	25.24
12	Keonjhar	4	0.30	5	0.12	0.42
13	Khurda			120	3.00	3.00
14	Nayagarh	42	3.15	436	10.90	14.05
15	Nuapada					0.00
16	Puri	139	10.42	251	6.275	16.70
17	Rayagada					0.00
18	Sambalpur	15	1.12	8	0.200	1.32
19	Sonepur	474	35.55	1197	29.92	65.47
20	Balasore	24	1.80	82	2.05	3.85
	Total	1579	118.40	4761	119.00	237.40

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

309.52 Hectare fish seed farms in 4 Districts have been affected due to floods. The total requirement of input subsidy to fish seed farmers @ Rs.4000/- per hectare comes to Rs.12.32 lakh.



(Rs. in Lakh)

Sl.	District	No. of fish seed farms affected	Area in hectared	Amount required for input subsidy @ Rs.4000/- per hectare
1	Cuttack	9	15.70	0.63
2	Kendrapara	12	10.00	0.40
3	Sonepur	14	32.00	1.28
4	Mayurbhanj	620	251.82	10.01
Total		655	309.52	12.32

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

9350 Artisans belonging to 8 Districts have been affected due to floods. Extensive damages have been caused to their equipment. 4605 Artisans have also lost their raw materials. An amount of Rs.279.10 lakh is spent for providing subsidy to them as per the revised CRF Norms. The district-wise detail is given below.

Sl.	Name of the District	No. of equipments fully damaged	No. of beneficiaries	Amount spent @Rs.2000/-	Set of raw material fully damaged	No. of beneficiaries	Amount spent @Rs.2000/-	Total
1	Bhadrak	115	115	2.30	60	60	1.20	3.50
2	Kendrapara	2830	2830	56.60	1830	1830	36.60	93.20
3	Jagatsinghpur	1210	1210	24.20	293	293	5.86	30.06
4	Puri	183	183	3.66	183	183	3.66	7.32
5	Nayagarh	101	101	2.02	12	12	0.24	2.26
6	Khurda	159	159	3.18	159	159	3.18	6.36
7	Cuttack	4540	4540	90.80	1856	1856	37.12	127.92
8	Balasore	212	212	4.24	212	212	4.24	8.48
Total		9350	9350	187.00	4605	4605	92.10	279.10



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

2450 Loom equipment and accessories of 2450 beneficiaries have been damaged due to this floods and need replacement. An amount of Rs.49.00 lakh is spent for providing assistance to the beneficiaries.

Yarn and other materials like dyes and chemicals of 2612 looms have been washed away by the floods. An amount of Rs.52.24 lakh is spent for providing assistance to the beneficiaries.

Sl.	Name of the District	No. of beneficiaries	No. of looms & accessories fully damaged	Amount spent @Rs.2000/-	Set raw material fully damaged	Amount spent @Rs.2000/-	Total
1	Angul	342	342	6.84	342	6.84	13.68
2	Jajpur	5	5	0.1	5	0.10	0.2
3	Subarnapur	283	283	5.66	322	6.44	12.1
4	Kendrapara	257	257	5.14	392	7.84	12.98
5	Bolangiri	253	253	5.06	253	5.06	10.12
6	Puri	82	82	1.64	82	1.64	3.28
7	Boudh	491	491	9.82	493	9.86	19.68
8	Khordha	3	3	0.06	3	0.06	0.12
9	Cuttack	454	454	9.08	497	9.94	19.02
10	Balasore	280	280	5.60	223	4.46	10.06
Total		2450	2450	49.00	2612	52.24	101.24

Assistance for repair / restoration of damaged houses: [Para-10 of revised CRF Norms]

258155 houses have been damaged due to floods out of which 16094 houses have been fully damaged and 52771 houses severely damaged. 163402 Houses have been partially damaged. This apart, 25888 Huts have also been damaged. An amount of Rs.5943.66 lakh is spent for providing assistance for repair / restoration of the damaged houses of affected people. The detail expenditure as per revised CRF Norms is given below:



Sl.	District	Fully Damaged				Severely Damaged			
		Pucca	Amount @ Rs.25000/-	Kutcha	Amount @ Rs.10000/-	Pucca	Amount @ Rs.5000/-	Kutcha	Amount @ Rs.2500/-
1	Angul	2	0.5	158	15.80		0.00	308	7.70
2	Balasore	64	16	2297	229.70	108	5.40	6527	163.18
3	Bargarh		0	896	89.60		0.00	3040	76.00
4	Bhadrak	1	0.25	88	8.80		0.00	303	7.58
5	Bolangir		0	701	70.10		0.00	6038	150.95
6	Boudh	1	0.25	224	22.40	26	1.30	779	19.48
7	Cuttack	68	17	2725	272.50	515	25.75	4567	114.18
8	Jagatsinghpur	1	0.25	141	14.10	11	0.55	1797	44.93
9	Jajpur		0	287	28.70		0.00	860	21.50
10	Kalahandi		0	326	32.60	5	0.25	864	21.60
11	Kendrapara	6	1.5	3596	359.60	127	6.35	12950	323.75
12	Keonjhar		0	7	0.70		0.00	75	1.88
13	Khurda	9	2.25	57	5.70	9	0.45	205	5.13
14	Mayurbhanj		0	450	45.00		0.00	1790	44.75
15	Nayagarh		0	38	3.80		0.00	104	2.60
16	Nuapada		0	875	87.50		0.00	1021	25.53
17	Puri	0	0	1785	178.50	121	6.05	6637	165.93
18	Rayagada		0	28	2.80		0.00	138	3.45
19	Sambalpur	1	0.25	189	18.90		0.00	256	6.40
20	Subarnapur			1073	107.30	4	0.20	3586	89.65
TOTAL		153	38.25	15941	1594.1	926	46.30	51845	1296.17



Sl.	District	Partially		Huts		TOTAL
		Nos.	Amount @ Rs.1500/-	Nos.	Amount @ Rs.2000/-	
1	Angul	2057	30.86	0	0.00	54.86
2	Balasore	24917	373.76	4164	83.28	871.32
3	Bargarh	12384	185.76	521	10.42	361.78
4	Bhadrak	3563	53.45		0.00	70.08
5	Bolangir		0.00		0.00	221.05
6	Boudh	1266	18.99	45	0.90	63.32
7	Cuttack	19304	289.56	4631	92.62	811.61
8	Jagatsinghpur	5105	76.58	1017	20.34	156.75
9	Jajpur	5267	79.01	577	11.54	140.75
10	Kalahandi	4714	70.71	72	1.44	126.6
11	Kendrapara	35644	534.66	6106	122.12	1347.98
12	Keonjhar	402	6.03	5	0.10	8.71
13	Khurda	1480	22.20		0.00	35.73
14	Mayurbhanj	2705	40.58	500	10.00	140.33
15	Nayagarh	877	13.16		0.00	19.56
16	Nuapada	3745	56.18		0.00	169.21
17	Puri	17644	264.66	8250	165.00	780.14
18	Rayagada	141	2.12		0.00	8.37
19	Sambalpur	2435	36.53		0.00	62.08
20	Subarnapur	19752	296.28		0.00	493.43
Total		163402	2451.08	25888	517.76	5943.66

Emergency supply of drinking water in rural areas and urban areas [Para-11 of CRF Norms]

For emergency supply of drinking water through water tankers and water pouches an amount of Rs.137.82 lakh has been spent.



(Rs. in Lakh)

Sl	District	Tankers Deployed	Water Pouches Distributed	Mobile Vans Deployed	Amount spent
1	Cuttack	09	1334700	30	27.85
2	Kendrapara	11	1215000	13	24.90
3	Jagatsinghpur	10	492000	12	9.77
4	Puri	18	894900	10	18.65
5	Jajpur	03	239000	10	5.19
6	Nayagarh	01	162000	03	3.42
7	Bolangir		25000	17	1.00
8	Boudh		10000	02	0.28
9	Sonepur			03	0.04
10	Angul		2000		0.04
11	Baragarh		400	04	0.06
12	Khurda	02	165000	06	3.50
13	Gajapati		5000		0.10
14	Bhadrak		27700	02	0.61
15	Balasore	14	377000	10	31.71
16	Mayurbhanj	35	0	7	10.70
Total		103	4949700	129	137.82

Provision of medicines, disinfectants, insecticides for prevention of outbreak of epidemics: [Para-12 of revised CRF Norms]

An amount of Rs.1721.70 lakh has been spent towards cost of medicines, disinfectants and insecticides for providing health care measures to affected people and prevention of outbreak of epidemics.

Medical Care for cattle & poultry against epidemics: [Para-13 of revised CRF Norms]

11,84,034 large and 5,15,813 small animals and 5,99,365 poultry birds were affected in 19 Districts where the floods occurred. 33.71 lakh doses of vaccine (in single and multiple doses) were administered to the livestock and poultry in the flood-affected Districts. During the floods, about 3.48 lakh animals were also treated from different diseases. The details of the cost incurred on purchase of vaccines and medicines of different kinds are indicated below:



Sl. No.	Type of vaccine / medicine with quantity	Total Cost (in Rs.)
a)	Vaccines	
1.	4,13,390 doses of vaccine for Haemorrhagic Septicaemia (H.S) @Rs.1/- per dose	4,13,390.00
2.	2,75,790 doses of vaccine for Black Quarter (B.Q) @Rs.1/- per dose	2,75,790.00
3.	3,94,600 doses of vaccine for Foot and Mouth Disease (FMD) @Rs.7.20/- per dose	28,41,120.00
4.	6,000 doses of vaccine for Anthrax disease @Rs.1/- per dose	6,000.00
5.	1,31,200 doses of vaccine for Peste-de-Petits Ruminant (PPR) disease for sheep and goats @Rs.1/- per dose	1,31,200.00
6.	17,500 doses of vaccine for Entero Toxaemia (ENT) disease for sheep and goats @Rs.1/- per dose	17,500.00
7.	7,000 doses of vaccine for Goat Pox disease for goat @Rs.1/- per dose	7,000.00
8.	27,400 doses of R2B vaccine for Ranikhet Disease (RD) in poultry @Rs.0.15/- per dose	4,110.00
9.	1,000 doses of F1 vaccine for Ranikhet Disease (RD) in poultry @Rs.0.15/- per dose	1,50.00
Total (Vaccines)		36,96,260.00
b)	Medicines	
1	Curative / supportive treatment and Deworming for 1,96,635 large animals @Rs.100/- per animal	196,63,500.00
2.	Curative / supportive treatment and Deworming for 1,31,055 small animals @Rs.50/- per animal	65,52,750.00
3.	Curative / supportive treatment and Deworming for 19,371 poultry birds @Rs.5/- per animal	96,855.00
Total (Medicines)		263,13,105.00
(Vaccines + Medicines) Total (a) + (b)		300,09,365.00



Thus, a total amount of Rs.300,09,365/- or Rs.3.09 crore was expended on purchase of vaccines and medicines for being supplied to the field during the period of the floods.

The livestock in the flood-affected areas become highly susceptible to different contagious and infectious diseases owing to the unhygienic conditions during the floods, which resulted in the outbreak of various livestock and poultry diseases. The stress due to starvation also increases the susceptibility of the animals to different diseases. In order to reduce morbidity and mortality of the livestock, it is essential to organize Animal Treatment Camps for rendering curative health care services in the flood-affected Districts. Hence, 400 animal treatment camps, 500 infertility camps and 1500 deworming camps were organised in the flood-affected districts to treat animals with a multi-pronged approach so as to remove the burden of disease and reduce chances of mortality. The details of the expenditure for organizing treatment camps in the 19 flood-affected Districts are given below:

(Amount in Rupees)

Sl. No	Activity	Total no. of camps	Cost of medicine per camp	Cost of POL per camp	Contingent expenditure per camp	Total Cost
1	Animal Treatment Camps	400	28,000	1000	1000	120,00,000
2	Infertility Camps	500	13,000	1000	1000	75,00,000
3	De-worming Camps	1500	6,000	500	500	105,00,000
Total		2400				300,00,000

Evacuation of affected people: [Para-14 of revised CRF Norms]

131633 persons were evacuated by means of hired vehicle to safer places. An amount of Rs.142.25 lakh has been spent towards cost of POL and hire charges of vehicle.



Sl	District	People evacuated			Amount spent for hire charges and POL charges of vehicle
		By boat	By vehicle	Total	
1	Cuttack	55007	60292	115299	85.52
2	Kendrapara	73202	0	73202	0
3	Jagatsinghpur	17350	21229	38579	23.54
4	Puri	52357	0	52357	0
5	Jajpur	5490	0	5490	0
6	Nayagarh	12394	9606	22000	5.21
7	Bolangir	300	14223	14523	12.87
8	Boudh	18804	5300	24104	3.00
9	Sonepur	22823	60	22883	0.02
10	Angul	12952	0	12952	0
11	Baragarh	405	2601	3006	1.13
12	Sambalpur	1305	0	1305	0
13	Khurda	4434	0	4434	0
14	Kalahandi		1500	1500	0.53
15	Rayagada		980	980	0.29
16	Keonjhar		900	900	0.35
17	Balasore	16100	11210	27310	6.34
18	Mayurbhanj	6300	3732	10032	3.45
Total		299223	131633	430856	142.25

Hiring of boats for carrying immediate relief and saving life: [Para-15 of revised CRF Norms]

606 power boats and 1460 country boats were engaged in relief and rescue operation in the flood-affected Districts. 131954.3 Qtl. of relief materials were transported by boats. 299223 people were evacuated by boats. A sum of Rs.177.47 lakh has been spent towards hiring charges and cost of POL etc. for boats. The details are given below.



(Rs. in Lakh)

Sl.	District	No. of boats hired			No. of days	Hire cost of power boat @Rs.2200 per day	Hire cost of country boat @Rs.900 per day	Total hire cost
		Power	Country	Total				
1	Jajpur	15	117	132	5	1.65	5.27	6.92
2	Bhadrak		20	20	5	0.00	0.90	0.90
3	Subernapur		149	149	2	0.00	2.68	2.68
4	Kendrapara	149	443	592	5	16.39	19.94	36.33
5	Sambalpur		11	11	2	0.00	0.20	0.20
6	Bolangir		2	2	1	0.00	0.02	0.02
7	Jagatsinghpur	89	163	252	5	9.79	7.34	17.13
8	Puri	62	224	286	7	9.55	14.11	23.66
9	Nayagarh	12	62	74	3	0.79	1.67	2.47
10	Boudh	2	60	62	2	0.09	1.08	1.17
11	Khurda	16	39	55	5	1.76	1.76	3.52
12	Cuttack	9	107	116	7	1.39	6.74	8.13
13	Bargarh		12	12	1	0.00	0.11	0.11
14	Angul		47	47	2	0	0.85	0.85
15	Balasore	252		252	4	22.16		22.16
16	Mayurbhanj		4		4		0.15	0.15
Total		606	1460	2062	60	63.57	62.82	126.4



Sl.	District	Quantity of relief materials transported in Qtl.	No. of persons evacuated	POL Cost (in lakh)	Total expenditure
1	Jajpur	17566.22	5490	1.50	8.42
2	Bhadrak	4000.00			0.90
3	Subernapur		22823		2.68
4	Kendrapara	67845.45	73202	14.90	51.23
5	Sambalpur		1305		0.20
6	Bolangir	10.00	300		0.02
7	Jagatsinghpur	7755.65	17350	8.90	26.03
8	Puri	9442.98	52357	8.68	32.34
9	Nayagarh	1132.44	12394	0.72	3.19
10	Boudh	917.00	18804	0.08	1.25
11	Khurda	4579.93	4434	1.60	5.12
12	Cuttack	17645.00	55007	1.60	9.73
13	Bargarh		405		0.11
14	Angul	220.00	12952		0.85
15	Balasore	810	16100	13.10	35.26
16	Mayurbhanj	29.59	6300	0	0.15
	Total	131954.3	299223	51.08	177.47

Provision for temporary accommodation, food, clothing and medical care

[Para-16 of revised CRF Norms]

a) 1118 relief camps were opened to accommodate 4,16,395 people who were evacuated by different means. An amount of Rs.1538.53 lakh was spent towards cost of providing temporary accommodation, food, clothing and medical cares in the relief camps. The district-wise detail is given below.



Sl. No.	Name of the district	Average No. (in a day) of relief camps	Average duration of operation of relief camps	Average No. of people accommodated per day in the relief camps	Expenditure incurred on (Rs. in lakh)				
					Temporary accommodation	Food	clothing	Medical care	Total expenditure
1	Cuttack	125	7	78861	70.97	115.93	102.52	9.46	298.88
2	Kendrapara	298	7	197806	178.03	290.77	257.15	21.77	747.72
3	Jagatsinghpur	1	7	800	0.72	1.18	1.04	0.08	3.02
4	Puri	39	8	13725	12.35	23.06	17.84	1.51	54.76
5	Jajpur	62	4	9177	8.26	7.71	11.93	0.92	28.82
6	Nayagarh	14	2	11000	9.90	4.62	14.30	1.43	30.25
7	Bolangir	32	2	10753	9.68	4.52	13.98	1.29	29.46
8	Boudh	68	2	20196	18.18	8.48	26.25	2.63	55.54
9	Sonepur	34	3	12113	10.90	7.63	15.75	1.69	35.97
10	Angul	35	2	12952	11.66	5.44	16.84	2.2	36.13
11	Sambalpur	4	3	1821	1.64	1.15	2.37	0.31	5.46
12	Khurda	2	4	584	0.53	0.49	0.76	0.12	1.90
13	Kalahandi	11	3	1500	1.35	0.95	1.95	0.26	4.51
14	Rayagada	2	2	130	0.12	0.05	0.17	0.11	0.45
15	Gajapati	1	3	312	0.28	0.20	0.41	0.13	1.01
16	Nuapara	42	4	6423	5.78	5.40	8.35	1.16	20.69
17	Keonjhar	2	2	900	0.81	0.38	1.17	0.22	2.58
18	Balasore	325	4	27310	84.19	19.66	32.77	6.00	142.62
19	Mayurbhanj	21	2	10032	20.06	3.61	12.54	2.51	38.72
Total		1118	71	416395	445.41	501.23	538.09	53.8	1538.53

b) 83242 families whose houses have been either washed away or severely damaged were provided with polythene sheets for use as temporary shelter materials. The total amount spent @Rs.1000/- per family is Rs.832.42 lakh. The district-wise detail is given below.



(Rs. in Lakh)

Sl.	District	No. of families provided with polythene sheets	Amount spent
1.	Angul	468	4.68
2.	Balasore	13160	131.6
3.	Bargarh	4457	44.57
4.	Bhadrak	392	3.92
5.	Bolangir	6739	67.39
6.	Boudh	1075	10.75
7.	Cuttack	12506	125.06
8.	Jagatsinghpur	2967	29.67
9.	Jajpur	1724	17.24
10.	Kalahandi	1267	12.67
11.	Kendrapara	22785	227.85
12.	Keonjhar	87	0.87
13.	Khurda	280	2.8
14.	Mayurbhanj	2740	27.4
15.	Nayagarh	142	1.42
16.	Nuapada	1896	18.96
17.	Puri	5282	52.82
18.	Rayagada	166	1.66
19.	Sambalpur	446	4.46
20.	Subarnapur	4663	46.63
Total		83242	832.42

Air-dropping of essential supplies: - [Para-17 of revised CRF Norms]

Four IAF Helicopters were engaged for air-dropping of essential commodities for relief operation. 75000 food packets were airdropped in the marooned areas by 101 sorties. 7 persons have been rescued by winching. Approximately Rs.250.00 lakh is required for payment of bills of Indian Air Force.



Repair / restoration of immediate nature of the damaged infrastructure in eligible sectors:

- [Para-18 of revised CRF Norms]

A sum of Rs.221937.64 lakh is required for repair/restoration of immediate nature of the damaged infrastructure in eligible sectors.

Illustrative list of activities which are of immediate nature are given below.

i) Roads and bridges

PWD Roads:

An amount of Rs35772.00 lakh is required for immediate repair and restoration of 209 breaches and 869 culverts in 3243.333 Kms of PWD roads damaged due to such floods. These roads used as important relief lifelines during natural calamities. The district wise details are given below:

Sl No.	Name of the District	No. of breaches	Cost for repair / restoration	Length of road damaged in Km	Cost for immediate repair	No. of culverts damaged	No of culverts washed away	Approx cost for immediate repair of culverts	Total cost
1	Angul	-	0	233.89	262.5	103	-	237.5	500
2	Balasore	50	1370	174.6	1805	28	5	497	3672
3	Baragarh	-	0	45	245	52	-	255	500
4	Bhadrak	-	0	34.1	950	-	-	0	950
5	Bolangir	16	200	81	1575	81	7	1125	2900
6	Boudh	-	0	45	685	1	1	15	700
7	Cuttack	26	295	452.778	4315	5	1	640	5250
8	Gajapati	3	45	134.3	76.45	55	-	95	216.45
9	Jagatsinghpur	6	72	47.5	1488	4	-	40	1600
10	Jajpur	3	32	324.89	1228	24	-	140	1400
11	Kalahandi	11	100	137.289	1150	137	-	1050	2300
12	Kendrapara	38	370	240.361	2106	61	1	424	2900
13	Keonjhar	1	15	138.155	640	38	-	45	700
14	Khurda	7	115	143.48	2561.6	53	1	893.4	3570
15	Nayagarh	-	0	44	165	12	-	135	300
16	Nuapada	20	240	158.775	1025	108	-	705	1970
17	Puri	7	122	287.225	2489.05	29	2	432.5	3043.55
18	Rayagada	12	130	263.33	350	34	-	220	700
19	Sambalpur	-	0	37.39	380	2	-	20	400
20	Subarnapur	7	22	68.2	642	27	2	336	1000
21	Mayurbhanj	2	22	152.07	1103	15	-	75	1200
Total		209	3150	3243.333	25241.60	869	20	7380.40	35772.00

**Rural Roads**

Total 1863 nos. of breaches occurred in Rural roads in the following Districts affected by floods. An amount of Rs. 37561.78 lakh is required for immediate restoration of these roads. These roads are important for rescue and relief management. The detailed requirement is given below:

Sl No.	Name of the District	No. of Roads damaged	Length of Road damaged (In Kms)	No of Breaches	Length of Breaches (In mtr)	No of CD/ Bridge damaged	No of CD/ Bridge washed away	Amount Required for immediate restoration
1	Angul	24	62.9	30	412.00	43	3	305.90
2	Bhadrak	88	217.5	36	279	21	1	1593.70
3	Bolangir	76	265.95	15	117	25	0	558.90
4	Boudh	41	183.9	13	50	20	0	946.50
5	Cuttack	238	727.495	180	2116	0	0	7458.00
6	Gajapati	42	149	24	675	17	0	407.33
7	Jagatsinghpur	93	157.753	62	1428	85	1	3249.00
8	Jajpur	156	331.96	182	1082	99	11	3933.57
9	Kalahandi	108	245.06	221	2542	119	5	1029.92
10	Kendrapara	169	796.808	139	2179	89	9	5647.00
11	Keonjhar	28	188.2	19	190	0	0	367.90
12	Phulbani	31	122.175	12	565	17	4	629.00
13	Puri	185	409.274	181	3849	205	7	3440.31
14	Rayagada	74	212.4	115	1470	45	7	766.54
15	Sambalpur	25	107.02	0	0	11	0	314.10
16	Sonepur	43	42.8	4	550	2	0	607.75
17	Nayagarh	73	204.65	0	0	23	0	932.00
18	Khurda	102	266.2	68	317	87	5	2583.35
19	Nuapada	42	21.8	25	853	24	0	325.45
20	Balasore	161	618.24	12	64	55	0	2243.01
21	Mayurbhanj	64	154.26	26	104	22	3	222.55
Total		1863	5485.345	1364	18842	1009	56	37561.78

Urban Roads

Road length of 616.58 km has been damaged in urban areas. 131 culverts on these roads have also been extensively damaged. Those 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. 7983.47 lakh. The details are given below:



(Rs. in Lakh)

Sl No.	Name of the ULB	Length of drain damaged (in Km)	Cost for immediate restoration	Length of road damaged in Km	Cost for immediate repair	No. of culverts damaged	Cost for immediate repair of culverts	Total cost
1	Banki	11.70	118.00	39.30	302.50			420.50
2	Kendrapada	2.45	22.64	16.25	191.42			214.06
3	Jajpur	4.00	25.00	10.70	107.00			132.00
4	Subampur	5.20	32.00	5.45	34.00	8	10.00	76.00
5	Kesinga	0.05	0.60	1.73	31.50	1	1.50	33.60
6	Vyasnagar	4.70	41.50	58.88	180.50			222.00
7	Patanagarh	1.14	7.00	3.35	66.50	14	37.00	110.50
8	Pattamundai			9.97	198.00	20	3.00	201.00
9	Boudhgarh			4.28	47.00			47.00
10	Athamalik	4.00	8.00	17.90	160.00	2	5.00	173.00
11	Bhawanipatna			4.04	46.80			46.80
12	Titilagarh	0.31	7.00	5.04	72.40	1	0.50	73.40
13	Nimapara			9.50	95.00			95.00
14	Pipili	25.00	60.00	42.00	180.00	40	20.00	260.00
15	Raygarha			12.47	162.70			162.70
16	Puri	4.00	45.00	3.38	49.00			94.00
17	Nayagarh	0.470	8.63	8.31	54.35	3	4.13	67.11
18	Angul	4.90	23.00	14.70	147.00			170.00
19	Tarava			8.70	136.00			136.00
20	Barpali			5.00	43.55			43.55
21	Gudari	12.00	10.50	9.00	84.50			95.00
22	Athagarh	0.15	2.00	2.70	38.50			40.50
23	Bhubaneswar	1.41	16.00	34.00	1083.50			1099.50
24	Jaleswar	18.00	396.00	128.50	640.75	6	13.00	1039.75
25	Udala	5.39	80.00	2.00	8.00	4	2.00	90.00
26	Soro			19.00	39.80	3	5.00	44.80
27	Baripada			56.88	646.50	20	76.50	713.00
28	Balasore	7.12	144.80	9.21	159.00			303.80
29	Karanja	1.35	17.55	9.05	131.95			149.50
30	Rairangpur			1.77	32.50	9	53.50	39.00
31	Cuttack	12.98	427.00	36.17	672.16			1099.16
32	Balugaon			1.10	24.00			24.00
33	Khurda	4.13	58.00	3.95	74.00			132.00
34	Kashinagar			2.54	42.00			42.00
35	Sambalpur			5.60	81.00			81.00
36	Bolangir			5.16	118.24			118.24
37	Nilagiri			9.00	94.00			94.00
	TOTAL	130.45	1550.22	616.58	6275.62	131	231.13	7983.47

**Panchayat Roads**

17734.42 km of 19007 nos. of Panchayat roads have been damaged due to the floods. These roads are extensively used in rural areas for carrying relief materials during disaster. The total requirement of funds for immediate repair of these roads comes to Rs.41371.34lakh. The details are given below:

(Rs. in Lakh)

Sl No.	Name of the District / Division	No. of Road damaged	Length of breaches in Km.	Cost of repair of breaches	Length of road damaged in Km	Cost for immediate repair
1	Angul	56	-	0.00	23.393	117.88
2	Baragarh	640	3.04	35.98	545.520	227.27
3	Bhadrak	598	227.61	38.65	642.465	1320.95
4	Bolangir	905	13.928	103.90	1001.169	329.20
5	Boudh	120	1.252	4.42	117.550	112.28
6	Cuttack	2972	109.228	527.61	1253.346	8484.96
7	Gajapati	11	-	0.00	14.100	28.50
8	Jagatsinghpur	718	10.091	262.09	217.575	1264.24
9	Jajpur	1179	0.273	10.42	332.834	3191.20
10	Kalahandi	993	45.06	139.03	1218.176	307.38
11	Kendrapara	1212	95.516	335.03	627.235	1703.70
12	Keonjhar	06	1.00	3.50	7.000	9.50
13	Khurda	1419	0.989	12.91	948.255	2571.07
14	Nayagarh	293	2.126	29.99	63.260	633.40
15	Nuapada	448	43.806	34.24	39.660	211.01
16	Puri	2997	6.701	228.25	4910.970	5145.85
17	Rayagada	306	17.647	116.39	1169.890	306.78
18	Sambalpur	216	8.812	149.06	165.900	256.51
19	Subarnapur	1051	126.908	352.41	909.800	1482.43
20	Balasore	2626	256.23	456.32	3337.00	6546.68
21	Mayurbhanj	241	9.63	172.65	189.32	312.52
Total		19007	979.847	3012.85	17734.42	34563.31



Sl No.	Name of the District / Division	No. of culverts damaged	No of culverts washed away	Cost for immediate repair of culverts	Total cost
1	Angul	1	0	2.20	120.08
2	Baragarh	58	15	90.45	353.70
3	Bhadrak	147	28	301.00	1660.60
4	Bolangir	41	0	36.89	469.99
5	Boudh	48	1	28.00	144.70
6	Cuttack	332	108	290.05	9302.62
7	Gajapati	0	0	0.00	28.50
8	Jagatsinghpur	65	6	40.60	1566.93
9	Jajpur	94	2	326.95	3528.57
10	Kalahandi	139	47	212.68	659.09
11	Kendrapara	132	85	121.65	2160.38
12	Keonjhar	6	0	4.00	17.00
13	Khurda	114	8	62.65	2646.63
14	Nayagarh	18	2	27.84	691.23
15	Nuapada	16	11	19.62	264.87
16	Puri	5645	4	257.60	5631.70
17	Rayagada	10	3	11.15	434.32
18	Sambalpur	4	21	9.10	414.67
19	Subarnapur	192	59	154.91	1989.75
20	Balasore	212	18	1741.50	8744.50
21	Mayurbhanj	56	7	56.34	541.51
Total		7330	425	3795.18	41371.34

Embankment Roads

428.90 km of 255 roads in river and canal embankments have been damaged due to floods. An amount of **Rs. 2025.50 lakh** is required for immediate repair / restoration of the above river/canal embankment roads.



(Rs. in Lakh)

Sl. No.	Name of the District	ROAD						Total Amount in lakhs
		River/Saline embankments			Canal Embankments			
		No.	Length in Km'	Amount required	No.	Length in Km'	Amount required	
1	Bhadrak	6	1.64	30.00	5	1.50	25.00	55.00
2	Balasore	0	0.00	0.00	9	4.50	45.00	45.00
3	Boudh	0	0.00	0.00	12	22.99	126.00	126.00
4	Bolangir	7	16.20	40.00	3	3.05	11.00	51.00
5	Baragarh	1	1.50	3.00	0	0.00	0.00	3.00
6	Cuttack	6	9.00	30.00	7	16.50	53.00	83.00
7	Ganjam	5	7.00	25.00	59	73.25	287.50	312.50
8	Jagatsinghpur	1	2.50	10.00	14	28.38	34.00	44.00
9	Jajpur	3	3.50	40.00	2	2.50	15.00	55.00
10	Khurda	6	8.50	46.00	9	4.70	27.00	73.00
11	Kendrapara	18	34.54	259.00	14	7.50	68.00	327.00
12	Nayagarh	1	0.50	5.00	3	2.30	45.00	50.00
13	Puri	29	87.35	486.00	30	57.20	294.00	780.00
14	Rayagada	1	3.00	5.00	0	0.00	0.00	5.00
15	Sonepur	0	0.00	0.00	4	29.30	16.00	16.00
Total		84	175.23	979.00	171	253.67	1046.50	2025.50

ii) Drinking Water Supply Works

A. Rural Water Supply:

26370 tube wells, 5576 platforms and 266 rural piped water supply systems have been damaged due to the floods. Provision of safe and potable drinking water for the flood victims was crucial to prevent water borne diseases. An amount of **Rs767.36 lakh** is already spent for immediate repair and restoration of tube wells and rural piped water supply systems. District-wise expenditure position is indicated below:



(Rs. in Lakh)

Sl No.	Name of the District/Division	No. of Tube wells damaged	Amount spent repair	No of Platforms damaged	Amount spent for repair	No of Rural Pipe water supply system damaged	Amount spent for repair	Total cost
1	Angul	292	1.46	58	0.29	2	6.00	7.75
2	Balasore	2893	14.46	579	2.89	4	26.59	43.94
3	Bolangir	1200	6.00	240	1.20	29	49.38	56.58
4	Boudh	460	2.30	92	0.46	8	8.80	11.56
5	Cuttack	6241	31.20	1248	6.24	54	98.00	135.44
6	Gajapati	32	0.16	6	0.03	1	0.32	0.51
7	Jagatsinghpur	5032	25.16	1006	5.03	26	77.70	107.89
8	Jajpur	1827	16.76	670	3.35	9	29.32	49.43
9	Kalahandi	239	1.20	48	0.24	4	14.91	16.35
10	Kendrapara	3351	16.76	670	3.35	35	76.63	96.74
11	Keonjhar	50	0.25	10	0.05	2	5.03	5.33
12	Khurda	772	3.86	154	0.77	15	50.23	54.86
13	Nayagarh	472	2.36	94	0.47	22	41.52	44.35
14	Nuapada	89	0.45	18	0.09	15	16.80	17.34
15	Puri	2651	13.26	530	2.65	23	54.60	70.51
16	Subarnapur	276	1.38	55	0.27	6	29.60	31.25
17	Dhenkanal	61	0.31	12	0.06	6	6.00	6.37
18	Mayurbhanj	432	2.16	86	0.43	5	8.57	11.16
	Total	26370	139.49	5576	27.87	266	600	767.36

B. Urban Water Supply

Rs.1475.68 lakh is already spent for immediate repair of water supply system in the affected urban areas as detailed below.



(Rs. in Lakh)

Sl. No	Name of the ULB	Amount spent for immediate repair of Tubewell	Amount spent for immediate repair of Platform	Amount spent for immediate repair of Pump houses	Amount spent for immediate repair of Pipe lines	Amount spent for disinfection	ULB Total
1	Bhubaneswar	4.20	13.00	161.10	66.60	28.20	373.10
2	Jatni	1.00	4.00	18.00	0.00	0.00	23.00
3	Khurda	1.60	0.00	25.00	0.00	0.00	26.60
4	Balugaon	0.50	0.00	0.00	0.00	0.00	0.50
5	Banapur	0.50	0.00	0.00	0.00	0.00	0.50
6	Puri	0.00	3.00	85.20	2.10	0.00	90.30
7	Pipili	1.83	0.80	13.50	0.00	0.00	16.13
8	Nimapara	0.86	0.40	1.50	0.00	0.00	2.76
9	Konark	0.58	0.40	3.00	0.00	0.00	3.98
10	Nayagarh	0.00	0.00	12.05	0.00	0.00	12.05
11	Khandapada	0.00	0.00	3.71	0.00	0.00	3.71
12	Cuttack	26.00	0.00	112.77	54.20	0.00	192.97
13	Athagarh	5.00	0.00	18.79	2.70	0.00	26.49
14	Choudwar	8.00	0.00	22.80	8.65	0.00	39.45
15	Banki	10.25	1.80	62.21	0.00	0.30	74.56
16	Kendrapara	1.00	0.00	92.37	0.00	0.00	93.37
17	Pattamundai	0.00	0.00	9.24	4.50	2.00	15.74
18	Atthamallick	2.21	0.00	72.54	2.00	0.00	76.75
19	Baripada	0.00	0.00	5.00	0.00	0.00	5.00
20	Rairangpur	0.00	0.00	3.00	2.00	0.00	5.00
21	Bhadrak	0.00	0.00	6.00	1.00	0.00	7.00
22	Basudevpur	0.00	0.00	4.00	1.00	0.00	5.00
23	Balasore	0.00	0.00	10.00	0.00	0.00	10.00
24	Jaleswar	2.00	2.00	11.00	15.00	0.00	30.00
25	Soro	0.00	0.00	5.00	0.00	0.00	5.00
26	Joda	0.00	0.00	7.70	0.00	0.00	7.70
27	Barbil	0.00	0.00	12.00	0.00	0.00	12.00
28	Bolangir	2.41	2.00	60.94	11.00	3.65	80.00
29	Titilagarh	0.00	0.00	38.12	0.00	0.00	38.12
30	Patnagarh	0.00	0.00	10.25	4.00	0.00	14.25
31	Sonepur	0.50	1.50	6.00	0.00	0.00	8.00
32	Binika	0.50	1.50	4.00	0.00	0.00	6.00
33	Tarava	0.90	1.50	8.50	2.10	0.00	13.00
34	Boudh	3.10	0.00	14.90	1.00	0.00	19.00
35	Khariar Road	0.00	0.00	12.30	0.00	0.00	12.30
36	Bhawanipatna	0.00	1.05	62.50	0.00	0.00	63.55
37	Kesinga	1.40	2.40	43.25	5.00	0.00	52.05
38	Junagarh	0.00	0.60	10.15	0.00	0.00	10.75
Total		74.34	35.95	1148.39	182.85	34.15	1475.68



iii) Irrigation

River and Canal Embankments:

651 breaches occurred in river embankments of different rivers. Besides breaches, partial damage has been caused to 2823 nos. of sites in river embankments. Similarly, 1276 breaches occurred in different canal embankments. River and canal embankments are also used as roads by the public and administration for transport of relief materials. An amount of **Rs.75065.86 lakh** is required for immediate closure of breaches and repair of partial damaged sites as detailed below.

RIVER EMBANKMENTS

(Rs. in Lakh)

Sl No.	Name of the District/Division	No. of breach	Length of breach (in Km.)	Cost for immediate restoration	No of partial damages	Cost for immediate repair	Total cost
1	Angul	0	0.00	0	35	262.09	262.09
2	Balasore	173	24.15	952.95	322	5028.83	5981.78
3	Baragarh	0	0.00	0	19	115.50	115.50
4	Bhadrak	65	28.87	246.708	282	3276.70	3523.41
5	Bolangir	22	7.44	1409.76	51	689.04	2098.80
6	Boudh	0	0.00	0	32	640.46	640.46
7	Cuttack	45	3.23	1976.304	389	9571.78	11548.09
8	Gajapati	0	0.00	0	26	666.60	666.60
9	Jagatsinghpur	25	2.12	1535.16	259	7172.56	8707.72
10	Jajpur	27	0.94	311.256	311	3307.46	3618.71
11	Kalahandi	0	0.00	0	23	335.68	335.68
12	Kendrapara	208	20.28	1955.092	390	7064.42	9019.51
13	Keonjhar	0	0.00	0	52	469.92	469.92
14	Khurda	3	0.39	302.28	77	1750.45	2052.73
15	Nayagarh	1	0.02	12.54	81	1021.15	1033.69
16	Nuapada	0	0.00	0	6	108.24	108.24
17	Puri	51	2.31	469.5504	310	6125.16	6594.71
18	Rayagada	7	0.32	132	30	642.84	774.84
19	Sambalpur	0	0.00	0	109	748.31	748.31
20	Sonepur	22	0.57	1268.52	8	48.84	1317.36
21	Mayurbhanj	2	0.80	22.48	11	1.54	24.02
	TOTAL	651	91.44	10594.6	2823	49047.57	59642.17

**CANAL EMBANKMENTS**

Sl No.	Name of the District	No. of breaches	Length of breach (in Km.)	Cost for immediate restoration	No of partial damages	Length partial damages (in Km.)	Cost for immediate repair	Total cost
1	Anugul	0	0.00	0.00	33	9.57	71.00	71.00
2	Balasore	31	13.71	73.50	18	36.53	26.50	100.00
3	Bargarh	33	22.45	301.90	187	133.01	924.03	1225.93
4	Bhadrakh	86	11.38	174.10	160	41.64	466.50	640.60
5	Bolangir	9	3.02	43.50	41	22.99	112.50	156.00
6	Boudh	20	1.79	95.90	20	32.55	166.50	262.40
7	Cuttack	173	16.22	618.27	291	239.66	2028.02	2646.29
8	Gajapati	0	0.00	0.00	0	0.00	0.00	0.00
9	Jagatsingpur	15	1.66	259.20	109	54.96	190.10	449.30
10	Jajpur	26	0.63	66.60	141	26.77	414.46	481.06
11	Kalahandi	322	12.04	755.08	118	58.02	480.78	1235.86
12	Kendrapara	197	3.08	321.65	108	271.84	1459.80	1781.45
13	Keonjher	1	0.24	5.00	98	77.49	224.10	229.10
14	Khurda	99	6.87	621.43	96	33.03	436.20	1057.63
15	Nayagarh	0	0.00	0.00	26	2.24	53.50	53.50
16	Nuapara	0	0.00	0.00	146	120.48	660.18	660.18
17	Puri	243	10.36	730.92	228	247.54	1802.64	2533.56
18	Rayagada	0	0.00	0.00	0	0.00	0.00	0.00
19	Sambalpur	0	0.00	0.00	75	127.67	1100.86	1100.86
20	Sonepur	21	30.55	274.97	60	36.39	464.00	738.97
TOTAL		1276	134.003	4342.02	1955	1572.374	11081.67	15423.69

Minor Irrigation

Rs.5681.22 lakh is required for immediate repair of damaged Minor Irrigation Projects as detailed below.



Sl No.	Name of the District/Division	Number of the MIP damaged	Amount required for immediate repair in Lakh Rs.
1	Cuttack	123	954.52
2	Khurda	128	881.50
3	Gajapati	57	212.45
4	Boudh	78	507.50
5	Kalahandi	77	509.25
6	Nuapara	11	82.50
7	Rayagada	56	200.50
8	Bolangir	95	564.75
9	Sambalpur	65	517.75
10	Bargarh	61	247.00
11	Keonjhar	89	659.00
12	Angul	11	179.50
13	Balasore	7	165.00
	TOTAL	858	5681.22

Drainage Systems

Rs.4127.83 lakh is required for immediate removal of debris & vegetative materials etc. from drainage system as detailed below. (Rs. in Lakh)

Sl. No.	Name of Division	No. of work	Length of drainage system where debris and vegetative materials are to be removed (in Km.)	Amount required (Rs. in lakh)
1	2	4	5	6
1	Drainage Division, Bhubaneswar.	168	448.31	470.45
2	Drainage Division, Berhampur	74	24.93	220.00
3	Drainage Division, Cuttack	196	477.30	945.10
4	Mahanadi barrage Division, Cuttack	31	72.57	800.00
5	Drainage Division, Chandikhol	60	71.32	570.20
6	Drainage Division, Balasore	129	238.09	1122.08
	Total	658	1332.52	4127.83



Primary Education

School Buildings

Rs.5123.71 lakh is required for immediate repair of 2241 Primary School buildings damaged due to flood as detailed below

(Rs. in Lakh)

Sl. No.	Name of District	No. of the Damaged school	Approx. cost (Rs. in lakhs)
1	Angul	59	149.75
2	Balasore	500	1315.00
3	Bolangir	90	82.81
4	Baragarh	10	28.90
5	Boudh	40	17.75
6	Cuttack	66	235.48
7	Dhenkanal	26	24.17
8	Gajapati	64	27.80
9	Jajpur	367	1014.70
10	Jagatsinghpur	24	387.00
11	Kendrapada	524	991.32
12	Keonjhar	3	4.00
13	Kalahandi	18	51.00
14	Khurda	32	32.70
15	Mayurbhanj	60	73.40
16	Nayagarh	58	123.50
17	Nuapada	10	20.00
18	Puri	211	389.50
19	Sambalpur	30	80.00
20	Sonepur	49	74.93
TOTAL		2241	5123.71

**PHC / CHC**

237 PHC/CHC have been damaged due to the current floods. **Rs.567.01 lakh** is required for immediate repair and restoration of the PHC/CHC buildings.

Sl No.	Name of the District	No. of PHC / CHC damaged				Amount Required for repair / restoration
		Allopathic	Homeopathic	Ayurvedic	Total	
1	Balasore	12	4	2	18	32.25
2	Bolangir	1	-	1	2	32.73
3	Bhadrak	4	4	2	10	17.91
4	Cuttack	31	2	-	33	102.85
5	Gajapati	1	-	-	1	3.00
6	Jajpur	15	-	1	16	33.50
7	Jagatsinghpur	16	-	2	18	52.00
8	Kalahandi	19	-	-	19	41.00
9	Kendrapara	46	3	7	56	100.36
10	Khurda	20	1	-	21	31.00
11	Mayurbhanj	4	1	-	5	8.00
12	Nayagarh	3	-	1	4	6.50
13	Puri	24	2	4	30	89.91
14	Rayagada	1	-	-	1	5.00
15	Sambalpur	1	-	-	1	10.00
16	Subernapur	2	-	-	2	1.00
TOTAL		200	17	20	237	567.01

**Community Assets owned by Panchayat****Panchayat Ghars**

Rs.858.26 lakh is required for immediate repair of 659 Panchayat ghars damaged as detailed below.

(Rs. in Lakh)

Sl No.	Name of the District	No. of Panchayat Ghar/Community Hall damaged	Cost for immediate restoration
1	Angul	1	2.0
2	Baragarh	41	24.6
3	Bhadrak	39	67.1
4	Bolangir	59	40.5
5	Boudh	30	28.5
6	Cuttack	69	113.0
7	Jagatsinghpur	12	20.2
8	Jajpur	54	159.3
9	Kalahandi	1	2.0
10	Kendrapara	20	26.6
11	Keonjhar	1	0.5
12	Khurda	127	166.1
13	Nayagarh	4	18.5
14	Nuapada	1	0.1
15	Puri	14	21.5
16	Sambalpur	9	2.2
17	Subarnapur	56	37.9
18	Balasore	116	127.66
	TOTAL	659	858.26

Anganwadi Centres

956 Anganwadi Centres have been damaged due to the floods. The Anganwadi centres have important role in rendering essential service under ICDS and are being used as centre for rural gathering especially during the time of natural calamity. If the Anganwadi centres are not repaired quickly, children between 0 to 6 years, pregnant and lactating mothers will suffer from irregular and inadequate service from ICDS. Hence an amount of Rs.860.05 lakh is required for immediate repair of the Anganwadi Centres damaged as detailed.

Sl No.	Name of the District	No. of Anganwadi centres damaged	Amount required for immediate restoration
1	Angul	1	0.20
2	Baragarh	161	101.50
3	Bolangir	15	3.00
4	Boudh	48	126.25
5	Cuttack	25	55.20
6	Jagatsinghpur	11	20.00
7	Gajapati	11	46.00
8	Jajpur	149	189.00
9	Kalahandi	241	75.50
10	Kendrapara	43	42.00
11	Khurda	41	52.50
12	Nayagarh	18	9.50
13	Nuapada	9	37.30
14	Subarnapur	60	23.10
15	Balasore	105	63.00
16	Nayurbhanj	18	12.00
	Total	956	860.05

**Repair and restoration of power supply (Para 18 of revised CRF norms): -**

Power supply has been severely affected due to heavy rain and floods. An amount of Rs.2696.57 lakh has already been spent for immediate restoration of power supply to the affected villages. The district wise expenditure position is as below.

(Rs. in Lakh)

Sl	Name of the district	No. of primary sub-stations damaged	8/9 mtrs. Pole damaged	33 KV lines damaged (in Km)	11 KV lines damaged (in Km)	LT lines damaged (in Km)	Distribution Transformers damaged (in no.)	Expenditure incurred for immediate repair (Rs.in lakh)
1	Kendrapara	2	0	10.00	53.4	244.50	26	131.47
2	Jagatsinghpur	1	0	0.50	30.00	168.00	17	68.50
3	Cuttack	1	0	1.00	23.00	27.75	56	363.56
4	Khurda	0	0	5.00	12.50	17.80	41	150.46
5	Nayagarh	0	0	1.00	2.00	1.00	0	10.21
6	Puri	0	0	20.00	389.00	33.50	39	273.26
7	Bolangir	49	0	3.80	22.80	9.000	13	249.95
8	Subarnapur	35	0	1.30	26.00	8.40	21	208.05
9	Kalahandi	9	0	0.50	19.20	13.65	34	141.12
10	Nuapada	7	0	0	13.00	10.00	0	72.62
11	Balasore	221	293	0	17.4	0	0	191.43
12	Bhadrak	0	378	0	39.44	0.70	0	32.22
13	Jajpur	0	466	0	65.34	0	0	40.89
14	Keonjhar	0	229	0	31.35	0	13	37.25
15	Gajapati	5	0	0	0.30	0.25	0	5.78
16	Rayagada	6	0	0	0	0.50	0	3.70
17	Boudh	52	0	1.60	33.4	10.75	0	86.80
18	OPTCL	Immediate repair of EHT lines & sub-stations in above districts						629.30
TOTAL								2696.57

Replacement of damage medical equipment and lost medicines: - (Para 19 of Revised CRF Norm)

Medical equipments and medicines of Govt. Hospitals/health centres amounting to Rs.68.56 lakh have damaged and lost due to this floods. The district wise requirement for replacement of damaged medical equipment and lost medicines is given below.



Sl.	District	Requirement (Rs. In lakh)
1.	Balasore	10.00
4.	Jajpur	2.50
7	Puri	6.41
8	Cuttack	7.35
9	Kendrapara	10.00
15	Khurda	10.00
18	Sambalpur	2.00
Total		68.56

Operational cost for Ambulance Service, Mobile Medical Team and Temporary Dispensaries: - (Para 20 of Revised CRF Norm)

Rs.50.09 lakh has been spent towards POL, hiring charges of vehicles used by Mobile Medical Teams, Ambulances and Paramedical Staff deployed in flood-affected areas to provide essential medical facilities.

Sl.	District	Operational cost(of POL) for Ambulance service, Mobile Medical Teams, and Temporary dispensaries (Rs. In lakh)
1.	Balasore	8.88
2.	Mayurbhanj	1.50
3.	Bhadrak	1.00
4.	Jajpur	2.00
5	Keonjhar	0.30
6	Jagatsinghpur	2.00
7	Puri	5.00
8	Cuttack	5.00
9	Kendrapara	5.00
10	Nayagarh	1.00
11	Subarnapur	1.00
12	Boudh	0.50
13	Kalahandi	2.00
14	Gajapati	1.00
15	Khurda	5.41
16	Angul	1.00
17	Bolangir	0.50
18	Sambalpur	5.00
19	Rayagada	2.00
Total		50.09



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. An amount of Rs.16.61 lakh has been spent for the purpose.

Abstract of Assistance sought for as per the revised CRF Norms

Sl.	Item	Extent of damage	Scale of assistance (Rupees)	Total assistance sought (Rs. in lakh)
1.	Gratuitous Relief			
(a)	Ex-Gratia payment to families of deceased persons.	110	1.00 lakh	110.00
	* No. of persons died			
(b)	Ex-Gratia payment for loss of a limb or eyes.	2	0.35 lakh	0.70
	* Total No. of persons lost their limb or eyes			
(c)	Grievous injury requiring hospitalization for more than a week.	12	2500	0.375
	* No. of persons with grievous injuries			
(d)	Relief for the old, in firm and destitute, children.			
	* No. of old, in firm and destitute, children affected			
(e)	Clothing and utensils for families whose house have been washed away / fully destroyed due to a natural calamity.	83242	1000 for clothing and 1000 for utensils	1664.84
	* No. of houses fully destroyed / damaged (both pucca & kuchha)			
(f)	Gratuitous Relief for families in dire need of immediate sustenance			
	* No. of beneficiaries	5516614	20 per adult 15 per child for 15 days	14890.08
2.	Supplementary nutrition			
	* No of children affected	340031	2.00 per child for 15 days	131.22
3.	Assistance to Small and Marginal Farmers (SMF) for			
(a)	Desilting etc.			
	* Total area (belonging to SMF) requiring desilting.	14059.31 hect.	6000/- per hect.	843.56
	* No. of SMF beneficiaries			
(b)	Removal of debris in hill areas.			
	* Total quantity of debris required to remove.			
	* No. of SMF beneficiaries			
(c)	Desilting / Restoration / Repair of fish farms.			
	* Total area of fish firm (belonging to SMF)	7921.21 hect.	6000/-	475.29
	* No. of SMF beneficiaries	16379		



(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 in hect.	444989.7		
	# Irrigated			
	# Rain fed.			
	* Percentage of SMF in the State			
	* Total affected area belonging to SMF, with crop loss of more than 50%			
	# Irrigated	148055	4000/-	5922.20
	# Rain fed.	233209	2000/-	4664.18
	* No. of SMF beneficiaries.			
(ii)	Perennial crops.			
	* Total affected area with crop loss of more than 50% belonging to SMF (Crop wise)	816.67	6000/-	48.99
	* No. of SMF beneficiaries.			
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	41391		
	* Total affected area up to 2 hectares.			
	# Irrigated	20025	4000/-	801.00
	# Rain fed.	21366	2000/-	427.32
	# Perennial crops			
	* No. of beneficiaries (other than SMF)	25159		
5.	Assistance to sericulture farmers			
	* Total area belonging to SMF having sericulture crop	1482		
	# Muga	1276	2500/-	31.9
	# Eri	206	2000/-	4.12
	# Mulberry			
	* No. of beneficiaries (other than SMF)			



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.			
	* No. of days for which assistance is sought.			
	* Rate of minimum wages in the State for unskilled labourers.			
	* No. of affected districts covered by plan schemes with elements of employment generation viz, NREGP, SGRY etc.			
	* Food grains available under NREGP, SGRY etc.			
	* Net requirements of funds from CRF / NCCF and food grains from special component of SGRY.			
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 SMF died.			
	# Big animals.	507	10000/-	50.16
	# Small animals.	1170	1000/-	
	# Poultry birds.	50163	30/-	
	* No. of beneficiaries.			
(ii)	Provision of fodder in cattle camps.			
	* Total quantity of fodder provided.	30867.67 MT	Actual cost Rs.15000 per MT	4630.15
	* Cost of fodder.			
	* No. of cattle camps.	7736		
	* No. of animals in camps.	1848421		
(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.			
	* Total quantity of fodder transported outside cattle camps.			
	* Approximate cost of transportation.			
	* No. of SMF benefited.			
(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) (Fully damaged)	Country Boat		
	# Amount			
	# Number	1579	7500/-	118.40
	* No. of Dugout-Canoe			
	# Amount			
	# Number			
	* Catamaran			
	# Amount			
	# Number			
	* Boat & Nets partially damaged			
	# Amount			
	# Quantity	4761	2500/-	119.00
(b)	Input subsidy for fish seed farm.			
	* Total area of fish seed farms affected.	309.52 hect.	4000/-	12.32
	* No. of beneficiaries.	655		
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	9350	2000/-	187.00
	* No. of beneficiaries.	9350		
(ii)	For raw material.			
	* Quantity of raw materials.	4605 sets	2000/-	92.10
	* No. of beneficiaries.	4605		
(b)	For Handloom Weavers			
(i)	Repairs/replacement of loom equipments and accessories.			
	* No. of equipments.	2450	2000/-	49.00
	* No. of beneficiaries.	2450		
(ii)	Purchase of yarn and other materials.			
	* Quantity of yam and other materials.	2612sets	2000/-	52.24
	* No. of beneficiaries.	2612		



10.	Assistance for repair / restoration of damaged houses.			
(a)	Fully damaged houses (where the house is beyond repair and needs to be reconstructed)	16094		
(i)	Pucca House (No.)	153	25000/-	38.25
(ii)	Kuchha House (No.)	15941	10000/-	1594.10
(b)	Severely damaged houses	52771		
(i)	Pucca (No.)	926	5000/-	46.30
(ii)	Kuchha House (No.)	51845	2500/-	1296.17
(c)	Partially Damaged Houses (where the damage is minimum of 15%)- (No.)	163402	1500/-	2451.08
(d)	Hut	25888	2000/-	517.76
11.	Emergency supply of drinking water in rural areas and urban areas.			
	* Total quantity of drinking water supplied.		Actual cost	137.82
	# In rural areas.			
	# In urban areas.			
12.	Provisions of medicines, disinfectants, insecticides for prevention of outbreak of epidemics.		Actual cost	1721.70
	* Types and quantity of medicines.			
	* No. of beneficiaries.			
13.	Medical care for cattle and poultry against epidemics.			
	* Total No. of animals benefited.			
	# Big animals	1184034	Actual cost	600.09
	# Small animals.	515813		
	# Poultry birds.	599365		
14.	Evacuation of people affected / likely to be affected.			
	* No. of people evacuated.	430856	Actual cost	142.25
	• Means of transportation (By boat)	299223		
	• By vehicle	131633		
15.	Hiring of boats for carrying immediate relief and saving life.			
	* No. and types of boats hired.	Power - 606 Country - 1460	Power - Rs.2200/- per day,	
	* Average hiring cost per boat.			177.47
	* Quantity of relief materials carried by boats.	131954.3 Qtl.	Country- Rs.900/- per day	
	* No. of people evacuated by boats.	291765		



16.	Provision for temporary accommodation, food, clothing, medical care etc. of people affected/evacuated.		Actual cost	
	* Total Qty			
	# Food			501.23
	# Clothing			538.09
	# Medical Care			53.8
	# Others			
	** No. of persons provided shelters.	416395		445.41
	** No. of relief camps opened.	1118		832.42
	** No. of Families provided with polythene sheets as temporary shelter	83242		
17.	Air dropping of essential supplies.			
	* Total quantity air dropped.	750 MT		250.00
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		221937.64
	# 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.		Actual cost	68.56
	* 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		Actual cost	50.09
	* No. of days			
	* Total number of kms / covered by the Ambulances / medical teams.			
	* Average cost of POL per ltr.			



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 ODRAF units		Actual POL cost	16.61
	* No. of people rescued.			
24.	Disposal of dead bodies / carcasses.			
	* Number of dead bodies disposed.			
	* Number of carcasses disposed.			
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 Hqrs.			
	Grand Total			268742.985

or say Rs.2687.43 crore



CHAPTER - VII

Calamity Relief Fund



As per recommendations of the 12th Finance Commission, the Calamity Relief Fund has been constituted with the contribution of Central and State Government at a ratio of 75: 25. The ceiling of CRF for the State of Orissa for the year 2008-09 has been fixed at Rs.328.97 Crore.

Center's share	-	246.73 Crore
State's share	-	82.24 Crore
Total	-	328.97 Crore

The Calamity Relief Fund is to be utilized for the purpose of providing immediate relief to the affected areas and population only on items of expenditure and as per norms contained in the guidelines issued by Government of India. Expenditure on immediate restoration of infrastructure which are intrinsically connected with relief operation and connectivity with the affected area and population can also be met out of CRF.

The National Calamity Contingency Fund is to deal with Natural Calamities of most severe in nature considered by Government of India and requiring funds by the State Government in excess of the balance available in the CRF.

Funds available

1.	Opening balance in CRF account (both CRF and NCCF) as on 01.04.2008	95.52
2.	CRF releases during the year 2008-2009 (Central & State share)	
	# 1 st Installment of current year [State + Central]	164.485
	# 2 nd Installment of current year, if any [State + Central]	164.485
	# Advance Contribution for 2009-10 (Centre + State)	84.75
3.	NCCF releases during the year 2008-09 if any	98.87
4.	Total funds available in CRF Account (1+2+3)	608.11

In terms of the above prescribed procedure, the instant floods of September, 2008 has been considered as the calamity of severe nature and Government of India have sanctioned advance assistance of Rs.98.87 crore out of NCCF for flood mitigation measures pending visit of Inter Ministerial Central Team and recommendations of HLC.



Out of the available resource of **Rs.608.11** crore, a sum of **Rs.168.88** crore has been spent towards calamities like drought, cyclone, fire, floods and hailstorm etc. In this context, it may be mentioned that a very high flood occurred in the month of June covering 4 Districts of the State causing massive devastation and for providing immediate relief and rescue to the affected people as much as **Rs.139.25** crore has been spent out of CRF.

This apart, **Rs.15.29** crore has also been spent towards training etc. as provided under the norms of CRF.

For the instant floods of September 2008, a total sum of **Rs.415.38** crore has already been spent for providing immediate relief and rescue to the affected people.

Rs. in crore

Item	Expenditure incurred
Gratuitous Relief	122.03
Supplementary nutrition	0.72
Emergent Relief (Free kitchen / Temporary accommodation)	13.50
Drinking water supply	1.00
Transportation and POL	3.23
Ex-gratia	1.10
Graveous injury	0.01
House Building Assistance	59.44
Temporary shelter material	8.40
Clothing at utensils	16.65
Human Health Care	15.22
Cattle care	6.09
Cattle feed	43.09
Input subsidy	109.63
Assistance to Fisherman	2.37
Assistance to Artisan	3.65
Assistance to Sericulture Farmers	0.36
Sandcast subsidy	8.43
Assistance for replacement of draught / milch animals	0.46
Total	415.38



The details of CRF / NCCF account in the prescribed format is as follows.

CRF / NCCF Account -2008 - Orissa		
		[Rs. in crore]
1	Opening balance in CRF account (both CRF and NCCF) as on 01.04.2008	95.52
2	CRF releases during the year 2008-2009 (Central & State share)	
	# 1st installment of current year [State + Central]	164.485
	# 2nd installment of current year, if any[State + Central]	164.485
	# Advance Contribution for 2009-10 (Centre+State)	84.75
3	NCCF releases during the year 2008-09 if any	98.87
4	Total funds available in CRF Account (1+2+3)	608.11
5	Expenditure incurred on calamities other than floods during 2007-08	
	# Avalanches	0.00
	# Cyclone	0.05
	# Cloud Burst	0.00
	# Drought	20.24
	# Earthquake / Tsunami	0.00
	# Fire	2.95
	# Hailstorm	1.78
	# Landslides	0.00
	# Pest Attacks	0.00
	# Floods 2008 [June]	139.25
	Sub-total	168.88
6	Expenditure incurred on training during 2008-2009	0.27
7	Expenditure incurred upto 10% on procurement of search and rescue equipments etc. during 2008-2009	15.02
8	Expenditure incurred on instant heavy rains/ floods of September -2008.	415.38
9	Total expenditure incurred on all calamities (5+6+7+8 +9)	599.55
10	Balance available in CRF account (4-10)	8.56*

* Balance of Rs.8.56 crore out of CRF has been kept reserved to meet any eventuality on account of occurrence of any natural calamity like fire, hailstorm, cyclone etc. during the remaining period of the financial year.

Moreover, the Engineering Departments have incurred expenditure to the tune of Rs.831.90 crore towards restoration of connectivity and relief line to the affected area as well as public utilities strictly adhering to the norms and guidelines of CRF. The Department-wise details are given in the next page.

In anticipation of receipt of assistance from Government of India out of NCCF, the Departments have already incurred the above expenditure for restoration of immediate nature of damaged infrastructure to restore the relief lines and other life sustenance measures.

The Mahanadi Basin can be divided into two distinct reaches for flood management purposes. They are Upper Mahanadi and Mahanadi Delta. The area upstream of Mundali



Rs. in crore		
Sl.	Sector	Expenditure incurred
1	PWD Roads	92.83
2	Rural Roads	86.31
3	Urban Roads	48.52
4	Panchayat Roads	260.24
5	Embankment Roads	11.15
6	Rural Water Supply	7.66
7	Urban Water Supply	8.36
8	River Embankment	178.72
9	Canal Embankment	54.21
10	Minor Irrigation Projects	23.21
11	Clearance of Drainage Channels	18.37
12	Primary School Buildings	15.84
13	Primary Health Centres	2.05
14	Community Halls	1.15
15	Anganwadi Centres	2.13
16	Electrical Lines	21.15
Total		831.90

Barrage, the head of delta, intercepting a catchment area of about 132100 sqkm is called the Upper Mahanadi and the rest 9034 sq.km. is called the Mahanadi Delta.

Downstream of Mundali river Mahanadi branches and sub-branches into a number of rivers forming the Mahanadi delta covering an area of 9034 sq.km. About two third of the Mahanadi delta i.e. 8344 sq.km covering the most populous Districts namely Cuttack, Kendrapara, Jagatsinghpur, Puri, Jajpur and Khordha was inundated for more than a fortnight affecting 3482 villages of 757 Gram Panchayats. Due to severe inundation, the village roads of these districts were extensively damaged and the inter village road network was completely disrupted due to large number of breaches on these roads.

Besides, other rivers like Subarnarekha, Baitarani, Budhabalanga and Vansadhara, which were also in spate, cover large parts of Orissa. This unprecedented flood has caused extensive damage to the village roads and Panchayat roads, which are the artery of rural Orissa. These roads are primarily used for carrying relief materials for the marooned people in villages during flood. A total of 17734.42 km of village, Panchayat and Panchayat Samiti roads were severely damaged. 979.85 km of these roads at different places have been completely washed away due to breaches. Unless these roads were immediately repaired, it would not have been possible to restore normal livelihood activities in rural areas.

The Government has incurred expenditure to the tune of **Rs.260.24 crore** towards immediate restoration of these roads within 45 days, adhering strictly to the norms and guidelines of CRF. It was absolutely necessary to restore communications and relief lines in these affected Districts.

Thus an amount of **Rs 1247.28 crore (Rs 415.38 crore+Rs 831.90 crore)** has already been spent on account of relief and immediate repair/restoration of public infrastructures. In the meantime, the State Government have arranged a loan of Rs.150.00 crore from the Orissa Contingency Fund subject to recouping after receipt of assistance from Government of India and has been provided to the concerned Department as a token grant.



CHAPTER - VIII

Flood Management

(New Imperatives and Issues)



New Imperatives

The concept of disaster management has undergone a paradigm shift from relief, restoration and rehabilitation to planning, preparedness and prevention. In addition to this, the concept of multi-stakeholder approach involving Government International and local NGOs, Civil Society and the community is given a concrete shape by addressing the complex issues of disaster management in the State. Some initiatives undertaken for better management of high floods are mentioned below.

Preparedness Activities

- Holding of special preparatory meeting on 2nd August, 2008 in connection with the Mahanadi river system under the Chairmanship of Hon'ble Minister Revenue and Disaster Management, emphasizing actionable points:
- Officers of the Special Relief Organization led by Additional Relief Commissioner and Joint Relief Commissioner visited flood prone Cuttack, Kendrapara, Jagatsinghpur, Jajpur, Ganjam, Keonjhar, Bhadrak, Balasore and Puri Districts to take stock of the flood preparedness in relation to deployment of boats, pre positioning of foodstuff and cattle feed, strengthening of weak & vulnerable points in the river/canal embankments etc.
- Timely information on Low pressure/ Depression to all Collectors/ Departments / Blocks / Tahashil / Gram Panchayats:
- Instruction to District Collectors to hold advance preparedness meeting:
- Authorization to District Collectors for requisition of all type of boats (country and motorized) for rescue and relief operation:
- Instruction to all Divisional Commissioners to strengthen the Control Room at the Divisional Level:
- Preposition of foodstuff in inaccessible, vulnerable and strategic locations:
- Restriction of plying of mineral loaded vehicles on Duburi-Paradeep road for smooth transportation of relief materials:
- Advance placement of funds for both stocking of foodstuff and transportation purposes:
- Detailed and continuous IEC activities in Newspapers/ Electronic and Print Media to create awareness among people:



- Requisition of Helicopters of the IAF for relief and rescue:
- Requisition of Boats of NDMA for relief and rescue:
- Issue of high alert to Cuttack, Puri, Kendrapara, Jagatsinghpur:
- Evacuation of people of low lying areas of Cuttack, Puri, Kendrapara, Jagatsinghpur to nearby school buildings and cyclone shelters:
- Coordination with the IMD, Flood Cell of DoWR, CWC and with the authority of the Hirakud Dam Division:
- Mobilization of ODRAF units:
- Deployment of senior officers as per the Incident Command System(ICS):
- Suspension of schools for use of school buildings as temporary shelters :
- 1000 MT polythene has been procured to meet the urgent need of the people during floods.

OTHER INITIATIVES

- The top level engagement in the disaster management has provided a better dimension to the management of the high floods. Visit of the Head of the Government to the Control Room (SEOC) provided an orientation appropriate to the seriousness of the crisis.
- The deputation of senior officers to the affected Districts under ICS with enough delegation of authority ensured a decentralized approach, which facilitated the on-the-spot decision making mechanism.
- An optimal use of resources within the state during floods is the hallmark of flood management.
- The concept of "GATE-WAY DISTRICT" is again further fine-tuned. The district administration of Balasore, Sambalpur, Cuttack, Baragarh, Khordha and Nayagarh played major roles in mobilizing support for the affected districts.
- Panchayati Raj Institutions (PRIs) played key role in relief and rescue operation.
- Prioritizing the problem locations and focusing on the worst hit areas and population is the essence of disaster management. Use of GIS-based scientific tools helped in identifying the problem locations in advance.



- Involvement of Public Sector Undertakings (PSUs) in flood management is a new approach.
- Daily press briefing by the administration helped proper dissemination of information.
- Daily situation report on floods to Government of India and through web-site helped also proper dissemination of information.

Issues

Shelter for the Shelterless (IAY):

2 lakh houses have been damaged in the floods. It is necessary to provide shelter to these people under IAY.

Flood Shelters:

This flood highlighted the necessity of construction of large number of community buildings, which could serve as shelters for both human beings and livestock during emergencies. It is necessary to construct multi-storeyed floods shelters in the areas prone to high floods. At least 50 floods shelters will be constructed in the most flood prone areas. The total requirement of funds is Rs.50.00 crore.

Long Term reconstruction:

After Natural Calamities of severe nature, we seek central assistance for repair / restoration of the damaged infrastructure through Memorandum. The MHA, Government of India have observed that funds for long term reconstruction to damaged infrastructure due to natural calamity cannot be provided from NCCF. Expenditure on long term restoration and reconstruction of infrastructure damaged during natural calamities is to be met from plan funds and not from CRF / NCCF. The financial assistance for long term reconstruction and rehabilitation of damaged infrastructure is decided by the Inter Ministerial Committee (IMC) in consultation with planning Commission and Ministry of Finance. As regards funding pattern of financial assistance, this will be passed on the State Government as ACA, under State Plan at 30:70 grant and loan ratio for General Category State and 90:10 for Special Category States.

It is observed that the State is a regular victim of natural disasters like floods, cyclones and drought almost every alternative year. This is because of its vulnerable geographical location. Hence, the State Orissa should be considered as one of the Special Category



States. Hence, while providing financial assistance for long term repair reconstruction purposes due to natural calamities, grant and loan ratio i.e. 90:10 may be considered for this State.

Formation of New ODRAF Units:

The Orissa Disaster Rapid Action Force (ODRAF) units of the State play an important role in search, relief & rescue operation during a natural calamity. Their services are important in disaster management. Such units are well equipped with emergency equipment. Presently, the State has five ODRAF units which are not adequate for the State for deployment in the affected areas in a Calamity of severe nature. Hence, there is a proposal for further creation of another five units of ODRAF for better management of disasters. For this an amount of Rs 37.50 crore is required for setting up of further ODRAF units and strengthening of such units.

Financial Assistance for damaged Kutcha House

As per the CRF norms of assistance, the financial assistance for damaged Pucca house has been enhanced from Rs.10000/- to Rs.25000/-. But the same for Kutcha houses has been revised from Rs.6000/- to Rs.10000/-. In the fitness of things, the rate of assistance for Kutcha houses should have been atleast Rs.15000/-. This disproportionate revision is creating public dissatisfaction, particularly among the poorer sections of the society. The above facts may be taken into consideration.



CHAPTER - IX

Conclusion



The Ministry of Home Affairs, Government of India vide FAX Message No.11011 /15/ 2008 MHA-DM-I Dated 20.09.08 has clearly stated, "River Mahanadi at the flood forecasting site Alipingal Devi in District Jagatsinghpur has crossed into an Unprecedented Flood situation from 'High Flood situation' at early hours of today i.e.20.09.2008". (*Annexure - 'A'*)

The discharge of flood water in the current floods in the Mahanadi river system is at par with the discharge of flood water of floods 1982 and in both the events more than 15.80 lakh cusec of flood water has flown in its delta causing huge devastation to infrastructure, standing crops and human life. Since 1982, twenty six years have passed and the population and habitation profiles have dramatically changed.

Like the river Mahanadi, the floods in river Subarnarekha during June 2008 had exceeded all past records. The water level touched 12.69 m at Rajghat against danger level of 10.36 m while the previous recorded highest level was 12.38 m on 7th July 2007. The water level in Subarnarekha stayed over the danger level (10.36 m) for about 88 hours from 17.06.08 to 21.06.08. As such, the unprecedented floods in the river Mahanadi and Subarnarekha are the highest ever floods in the respective basins since independence. Therefore, the impact of the current floods has been greater, since the affected population and habitations is much higher in number.

During peak floods in the Mahanadi river system on 23rd September 2008, the Union Home Minister made an aerial survey of the flood affected areas accompanied, among others, by the Vice-chairman, National Disaster Management Authority (NDMA) and Secretary, Border Management, Government of India. Realising the gravity and magnitude of the devastation, the Home Minister, Government of India had announced financial assistance amounting to Rs.500 crore to the State towards immediate relief and restoration. Subsequently, the Union Home Minister reiterated the Government of India's commitment for such assistance vide his letter No.V-23566/HMP/2008 dated 29th September 2008 addressed to Hon'ble Chief Minister, Orissa. (*Annexure - 'B'*)

Anticipating receipt of assistance from Government of India, the State Government has spent Rs.415.38 crore for providing assistance to the flood victims. In addition, the State Government has spent Rs.831.90 crore for immediate repair and restoration of relief lines and communication till date. So far, Government of India has sanctioned only Rs.98.87 crore out of National Calamity Contingency Fund (NCCF) vide letter No.F-23(2)



FCD/2008-36 dated 8th October 2008 towards relief necessitated by natural calamities of severe nature on "on account" basis pending report of the Central Team, consideration thereof by the HLC and its recommendations.

A total financial assistance of **Rs. 2687.43 crore** out of CRF/ NCCF is required to complete the process of relief and restoration measures caused due to floods 2008.

State Government by this Memorandum seeks the following assistance from the Government of India;

- A total financial assistance of **Rs. 2687.43 crore** out of CRF/ NCCF is required to complete the process of relief and restoration measures caused due to floods 2008 which is a calamity of rare severity.
- Special allocation of **2 lakh IAY houses** for flood victims of BPL category, whose houses have been damaged due to floods, may be sanctioned for the flood affected households.
- Immediate repair and qualitative restoration of the affected National Highways to the appropriate technical standard.
- Appropriate interventions by the Ministry of Rural Development and Ministry of Urban Affairs and Poverty Alleviation to address drinking water issues in the flood affected areas.
- As per the commitment of the Government of India, the balance amount of **Rs.401.13 crore** (Rs.500 crore - Rs.98.87 crore) may immediately be sanctioned out of NCCF in favour of the State pending visit of the Central Team, consideration by the HLC and its recommendations at par with similarly placed States on the same principle.
- Hence an Inter Ministerial Central Team may be deputed immediately to the State for assessment of damage and sanction the balance amount so that the immediate repair and rerstoration works will be completed before onset of Monsoon 2009, which is barely seven months away.

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

**ANNEXURE-A**

9307/84 20.9.08
 FAX MESSAGE
 CHIEF SECRETARY, ORISSA
 RELIEF COMMISSIONER, ORISSA
 DIRECTOR (NDM-I), MHA, NORTH BLOCK, NEW DELHI
 NO. 101/2008.MHA.DM-I DTD 20.09.2008
 UNPRECEDENTED FLOOD SITUATION

SPECIAL RELIEF COMMISSIONER
 OFFICE

20 SEP 2008

MAHANADI AT THE FLOOD FORECASTING SITE ALIPINGAL DEVI IN
 DISTRICT JAGATSINGHPUR HAS CROSSED INTO AN "UNPRECEDENTED FLOOD
 SITUATION" FROM "HIGH FLOOD SITUATION" AT EARLY HRS OF TODAY I.E.
 20.09.2008. IT WAS FLOWING AT A LEVEL OF 13.05M WITH A STEADY TREND,
 WHICH IS 0.15M BELOW ITS PREVIOUS HFL OF 12.90M (17.07.2001) AND 1.29M
 ABOVE DANGER LEVEL OF 11.76M. IT IS ANTICIPATED THAT THE WATER LEVEL WILL
 BE STEADY FURTHER FOR FEW MORE HOURS AND THEN FALL. THE FORECAST IS
 12.50M BY 2400 HOURS OF TODAY, AND IT MAY FALL FURTHER.

THE GOVERNMENT OF ORISSA IS REQUESTED TO KEEP A CLOSE WATCH ON
 THE SITUATION AND TAKE ALL NECESSARY PRECAUTIONARY MEASURES (.) IT IS ALSO
 REQUESTED THAT MHA MAY BE KEPT INFORMED ABOUT ANY DEVELOPMENTS IN THE
 REGARD AT MHA CONTROL ROOM TELEPHONE NUMBERS 23092923, 23093563 AND
 FAX 23093750, 23092698.

(PANKAJ PETER SHAH)
 DUTY OFFICER,
 CONTROL ROOM, MHA
 FAX-011-23093750

Copy to: RESIDENT COMMISSIONER, ORISSA, AT NEW DELHI

Copy for information to: Sr. PPS to HS/Secretary (BM)/ PS to JS (DM-I)

**ANNEXURE-B**

Dear Shri Patnaik ji,

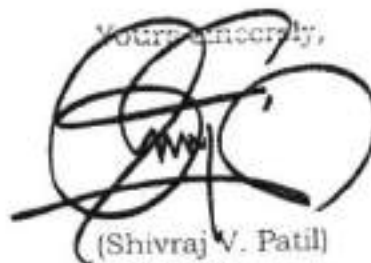
Please refer to the copy of your fax letter dated September 20, 2008 addressed to Hon'ble Prime Minister, requesting for sanction of Rs.1,500 crores out of NCCF and declaration of Floods 2008, Orissa as a national calamity.

In this connection, as you are aware, at the instance of the Hon'ble Prime Minister, an announcement of providing Rs.500 crores for relief and rehabilitation has been made during my recent visit to Orissa.

It was also explained in the same meeting that on receiving a plan for rehabilitation and after knowing the contribution that would be made by the State, the same would be examined by the competent bodies at the national level, i.e. the Planning Commission and the NDMA, for appropriate decision.

With regards,

Yours sincerely,


(Shivraj V. Patil)

Urgent
Revenue
m.p.
CHIEF MINISTER
Orissa

10/10/08
Commissioner, Public Works Deptt.
Revenue & Disaster Management Deptt.

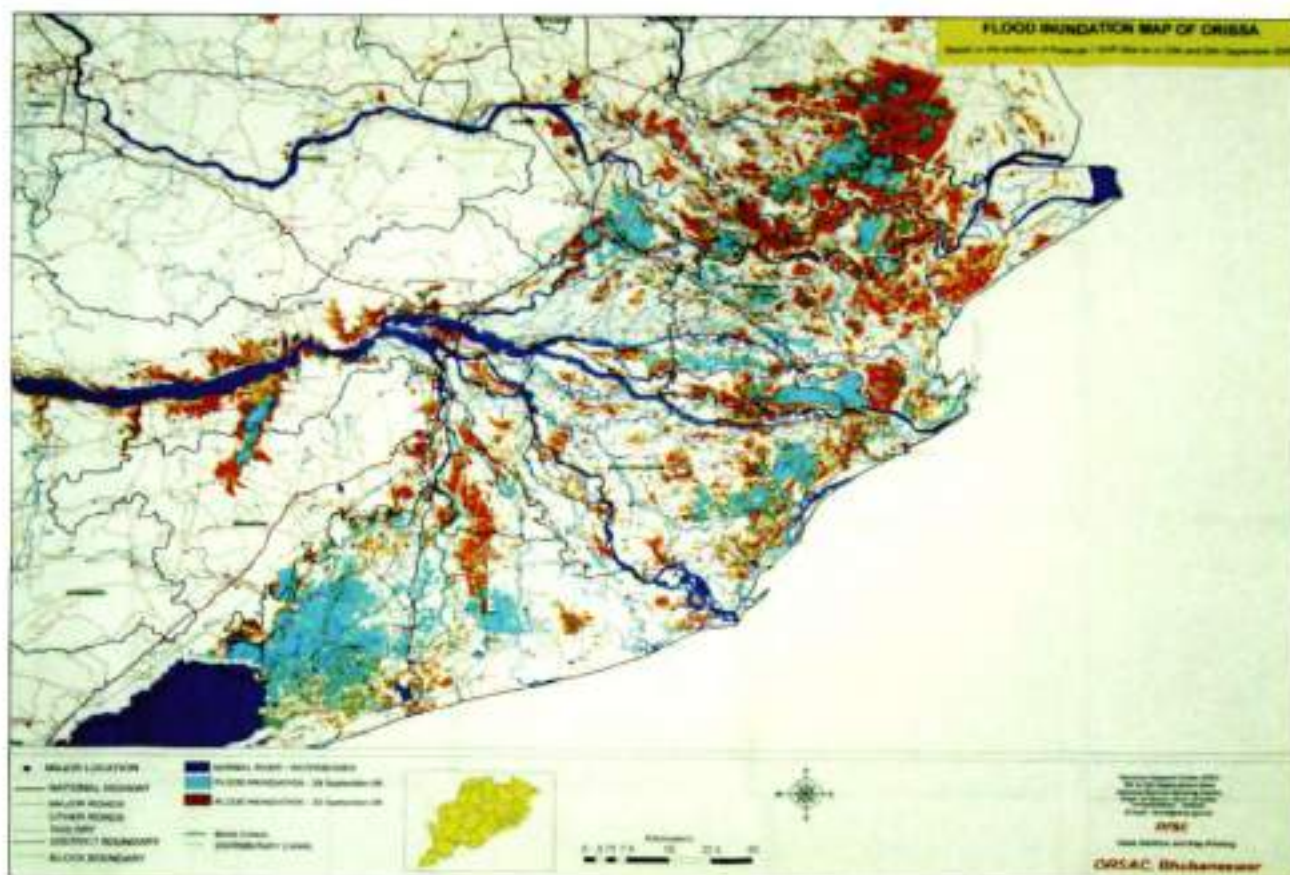
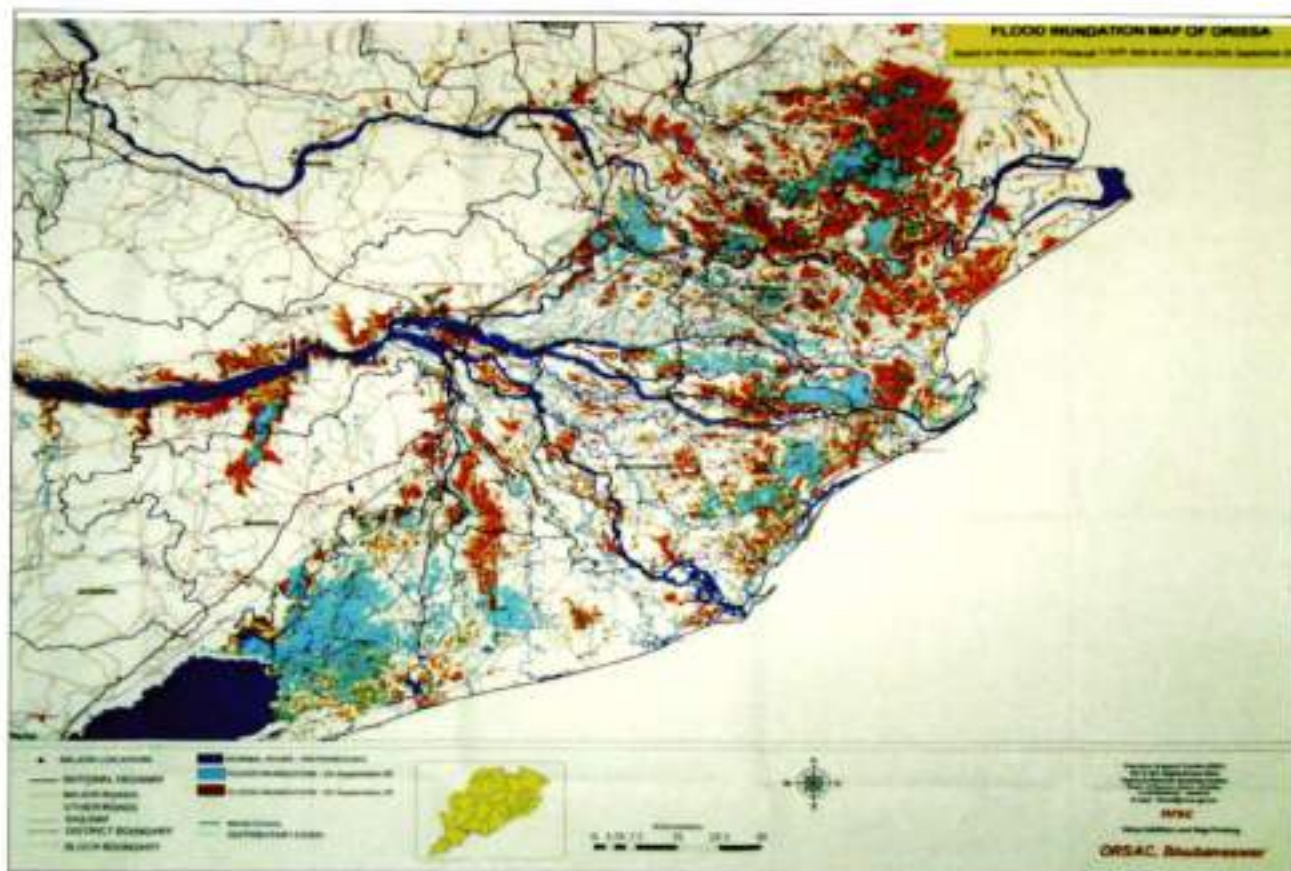
Shri Naveen Patnaik,
Chief Minister of Orissa,
Bhubaneswar.

SRC



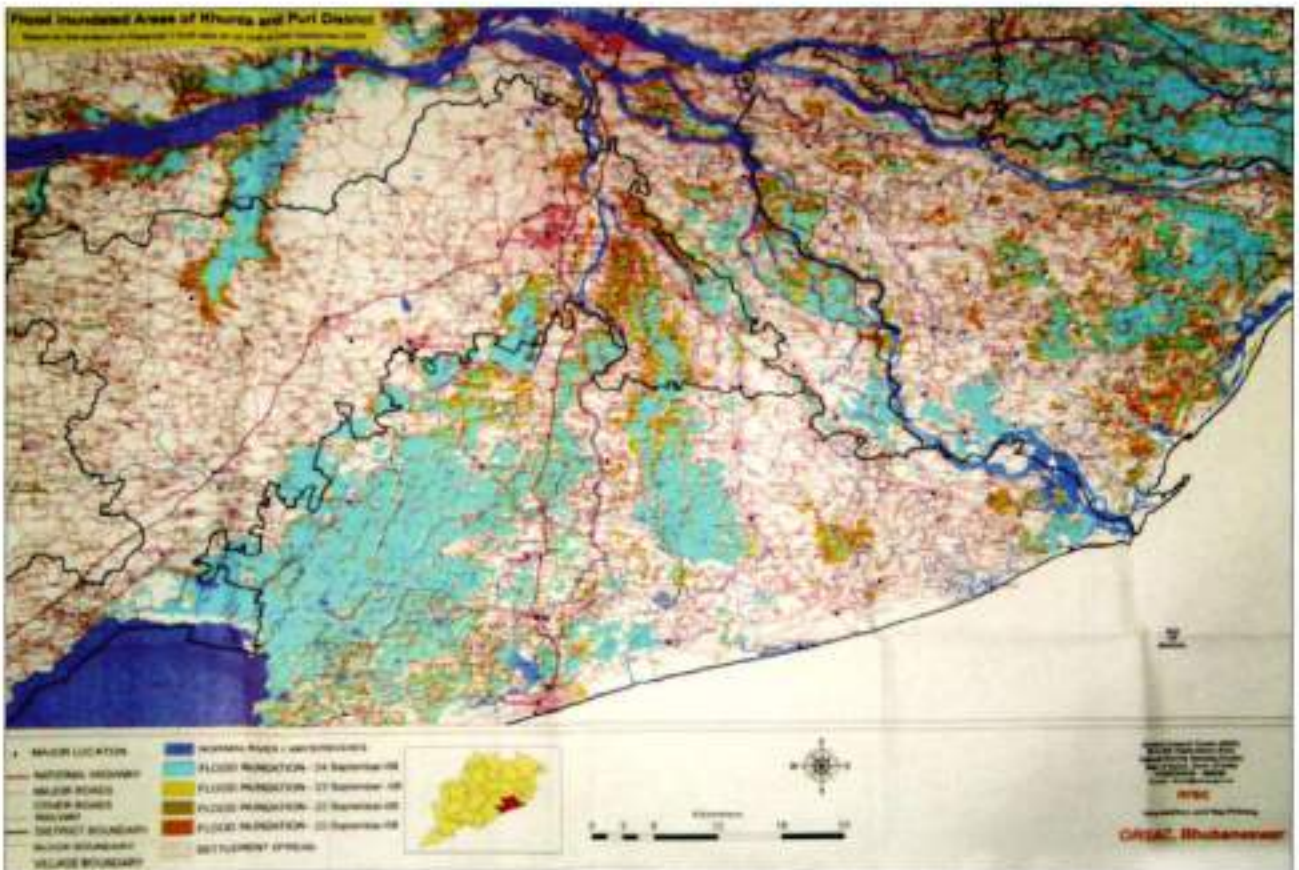
CHAPTER - X

VISUAL ACCOUNTS

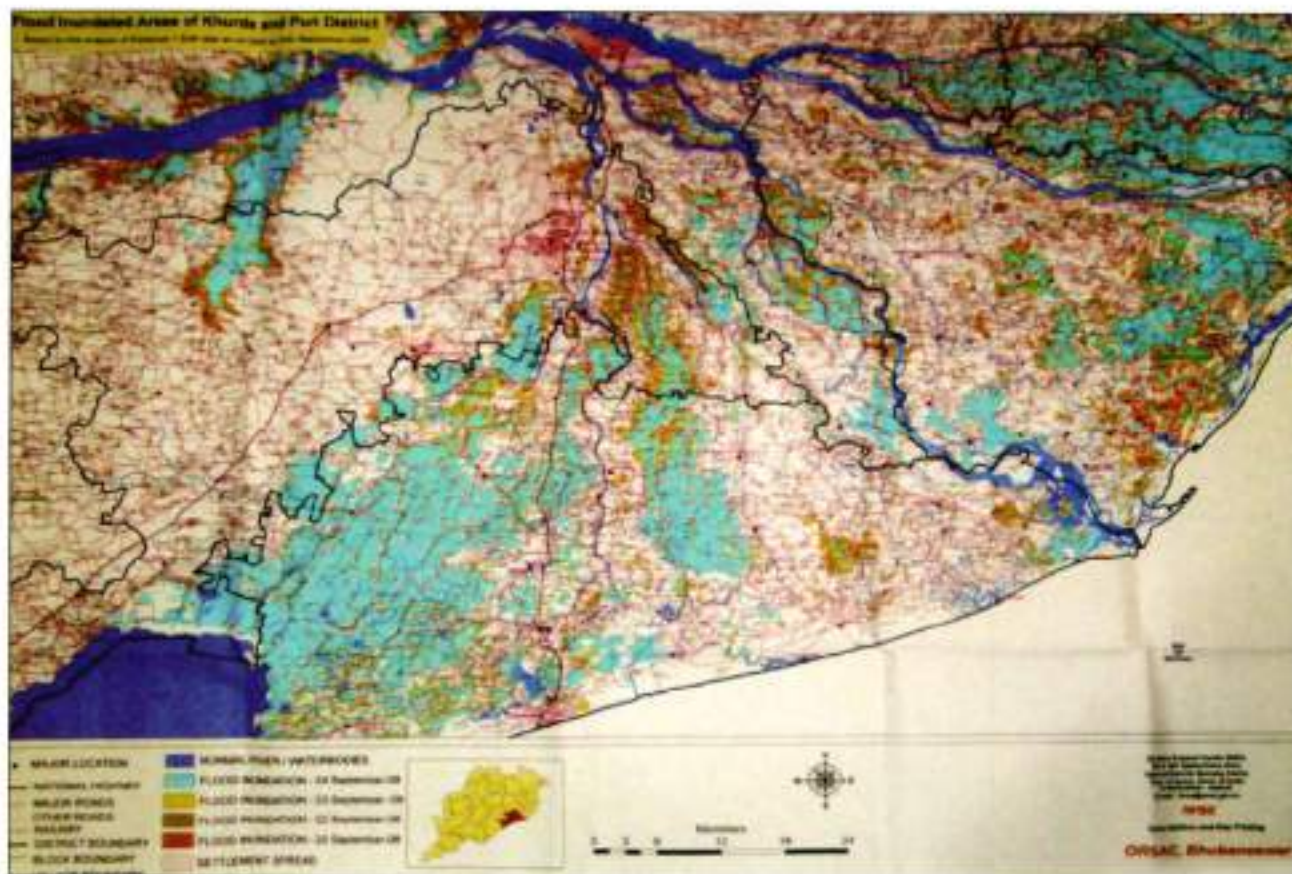


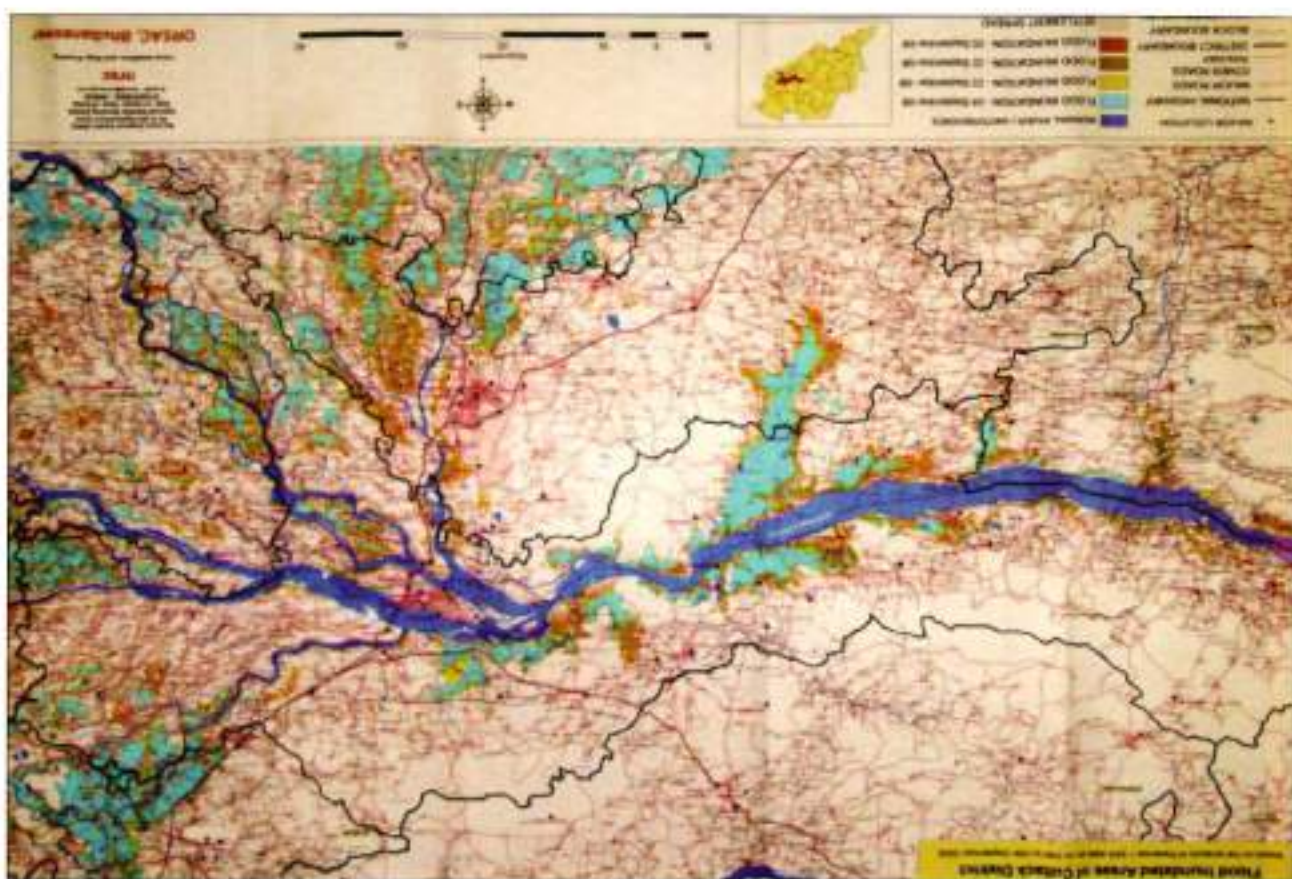


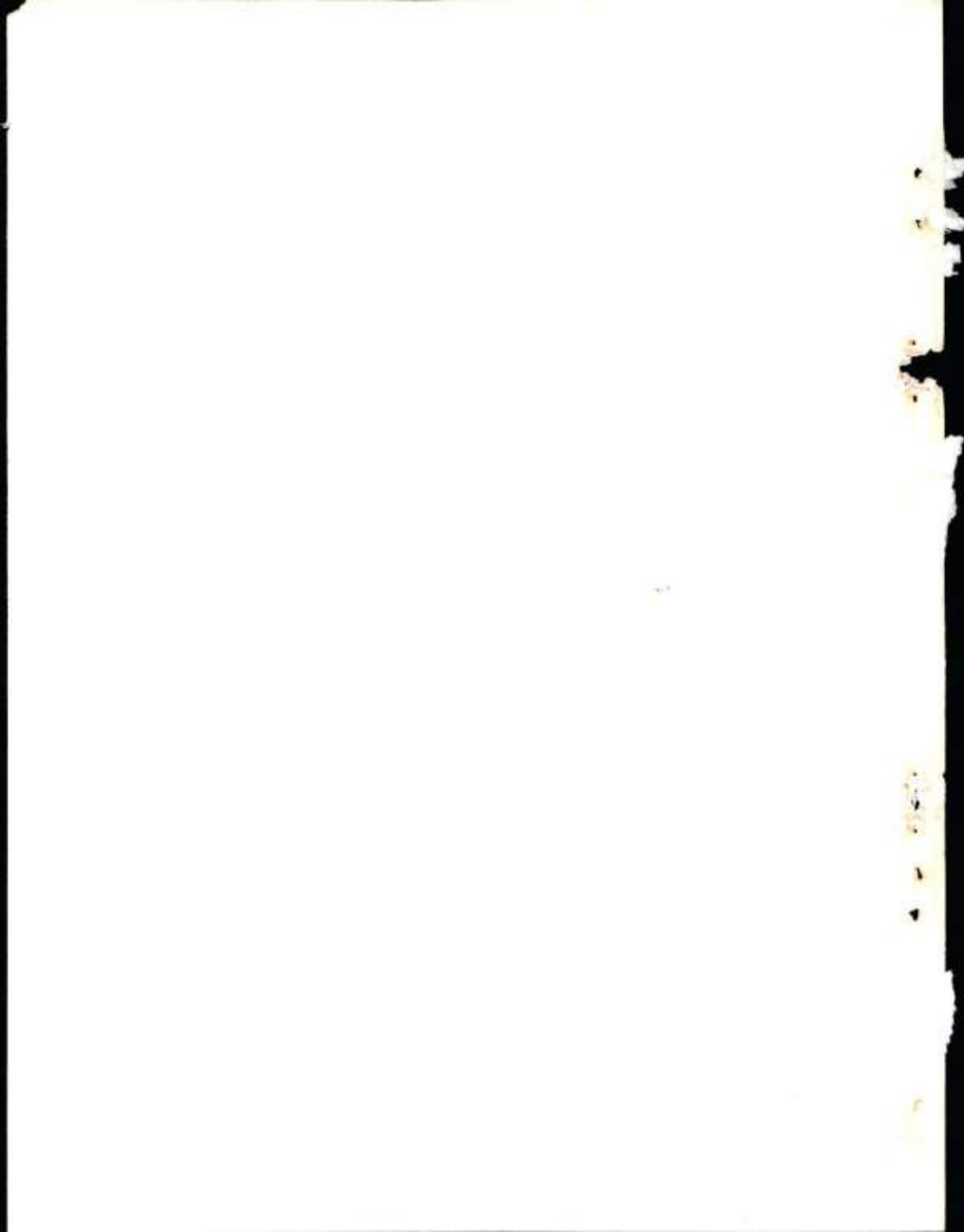














Special Relief Organisation
Government of Orissa