

Effects of Climate Change on Vulnerability Profile of the State and Disaster Management

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Indicators of climate change

- Erratic weather pattern
- July 2007- 26% excess rainfall in the state within a short span of time
- Floods in June and Sept 2008.
- Floods in Sept- 2011
- 3 days of excessive rainfall over Subarnarekha basin brought a record flood in the lower catchments in June 2008
- Tornado type of wind disturbance in monsoon period
- More than 400 mm of rainfall in 48 hours in Cuttack city
- Rains have become excessive and sudden, bringing in huge amount of water to the catchments in short periods

Increased Vulnerability

- Frequency and intensity of tropical cyclones have increased
- Excessive rainfalls in short span of time result in flash flood type of phenomenon even in plains
- Rise in sea level will not only affect the coastal tracts but also the estuarine systems
- The diverse landscape of coastal Orissa will be the most vulnerable
- The low elevation flat topography will be highly vulnerable
- The vulnerability factor relating to landslide will increase with change in rainfall pattern

Impacts of climate change

- Physical impact
- Economic impact
- Social effects

WIND & CYCLONE ZONES OF ORISSA

20 0 20 40 60 80 100 Kilometers



- Very High Damage Risk Zone-B(50 m/s)
- High Damage Risk Zone(47 m/s)
- Moderate Damage Risk Zone-A(44 m/s)
- Moderate Damage Risk Zone-B(39 m/s)

Expected Maximum Tidal Surge

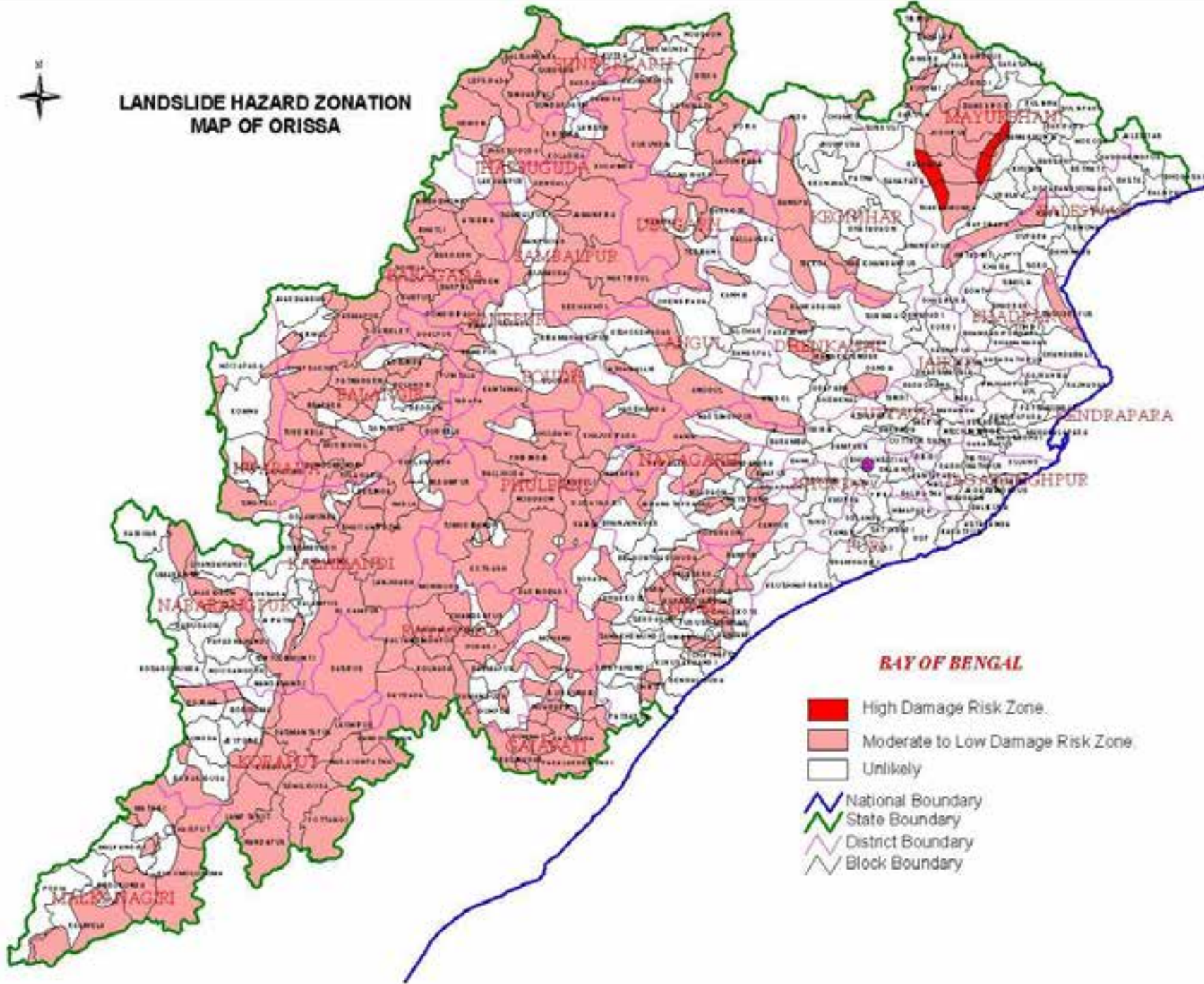


BMTPC , Govt. of India (2006)

Sl	Probable Maximum Storm Surge (PMSS)	
1	Balasore Coast	11 m
2	Bhadrak Coast	9.5 m
3	Kendrapada Coast	8.5 m
4	Jagatsinghpur Coast	6.5m
5	Puri / Ganjam Coast	4.0 m



LANDSLIDE HAZARD ZONATION MAP OF ORISSA



11 Major River Systems of the State

N
RIVER MAP
ORISSA



Present Condition



- **Most of the saline embankments can not protect coastal land from high storm surges.**
- **These are to be raised and strengthened.**
- **New saline embankments are to be constructed in the gaps to cover entire coastal area.**

**Nagar Saline Enbankment (Nimapara
Irrigation Division)**

TEMPORARY PROTECTED SITE NEAR PENTHA (Sea facing Embankment)



**TEMPORARY PROTECTED SITE NEAR PENTHA
(Sea facing Embankment)**





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PVC

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NET WEIGHT : 25 KG.

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NET WEIGHT

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Ramayapatna, Ganjam



Ramayapatna, Ganjam

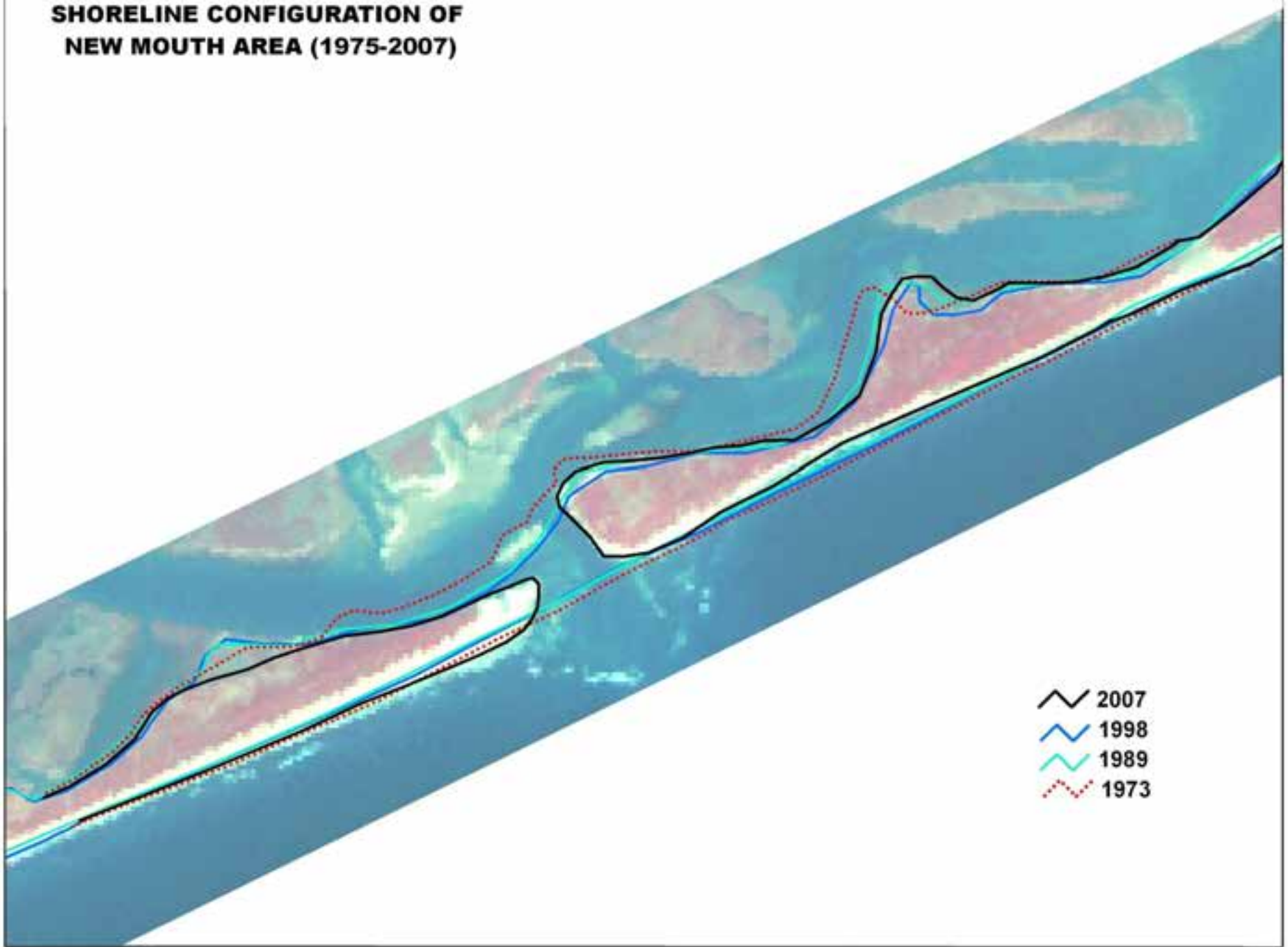


Sea eating away the coastal dunes:
Ganjam coast





**SHORELINE CONFIGURATION OF
NEW MOUTH AREA (1975-2007)**



Satellite data of Chilka mouth region on year 2007



Site of new mouth opened on 01.08.2008









Expert team from OSDMA at Ramayapatna



Gopalpur, Ganjam



NOLIANUAGAON PROJECT SITE



SANA ARJIPALLI PROJECT SITE

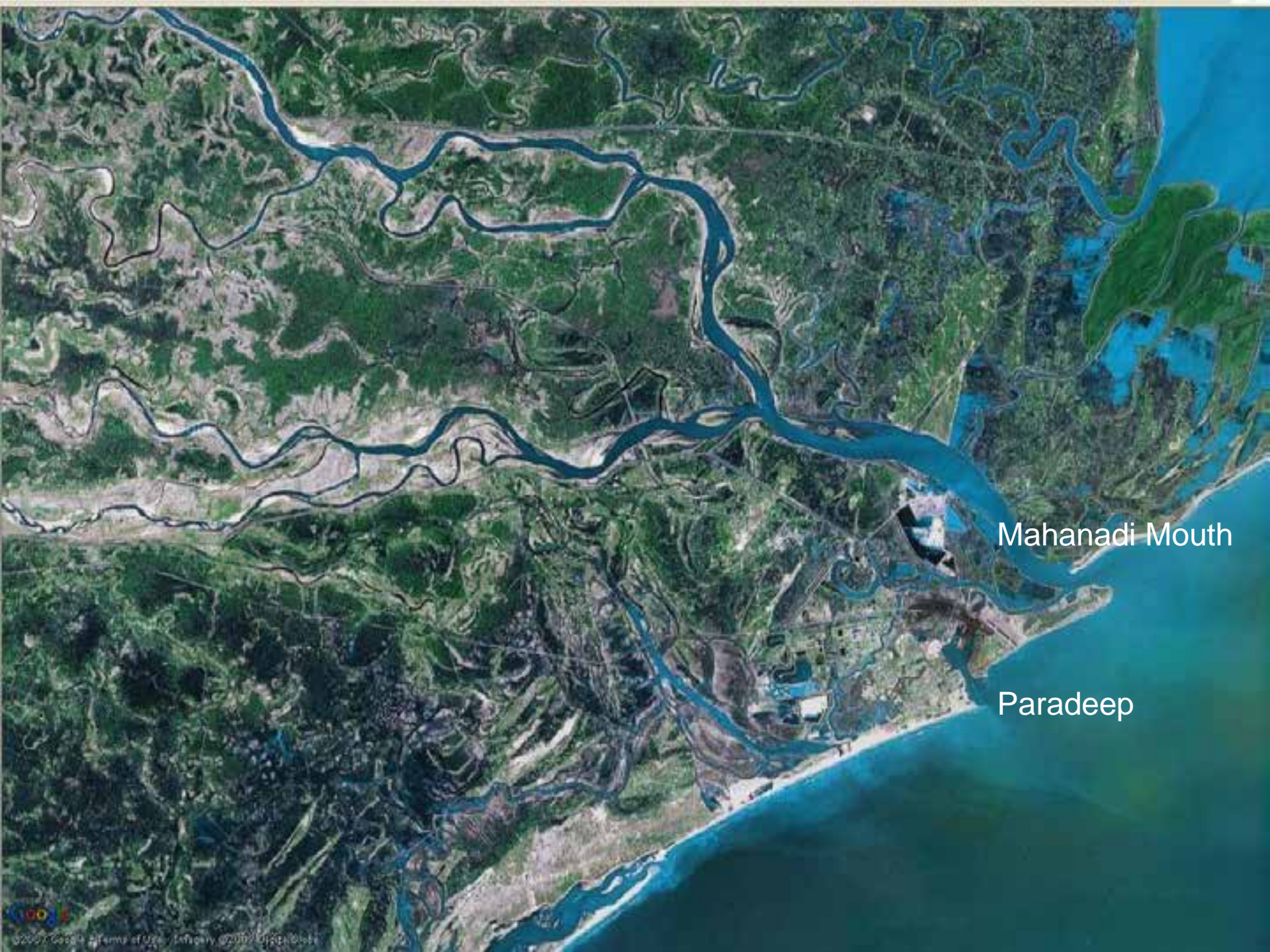


DHAMRA

Bhitarkanika
National Park

BAITARANI RIVER





Mahanadi Mouth

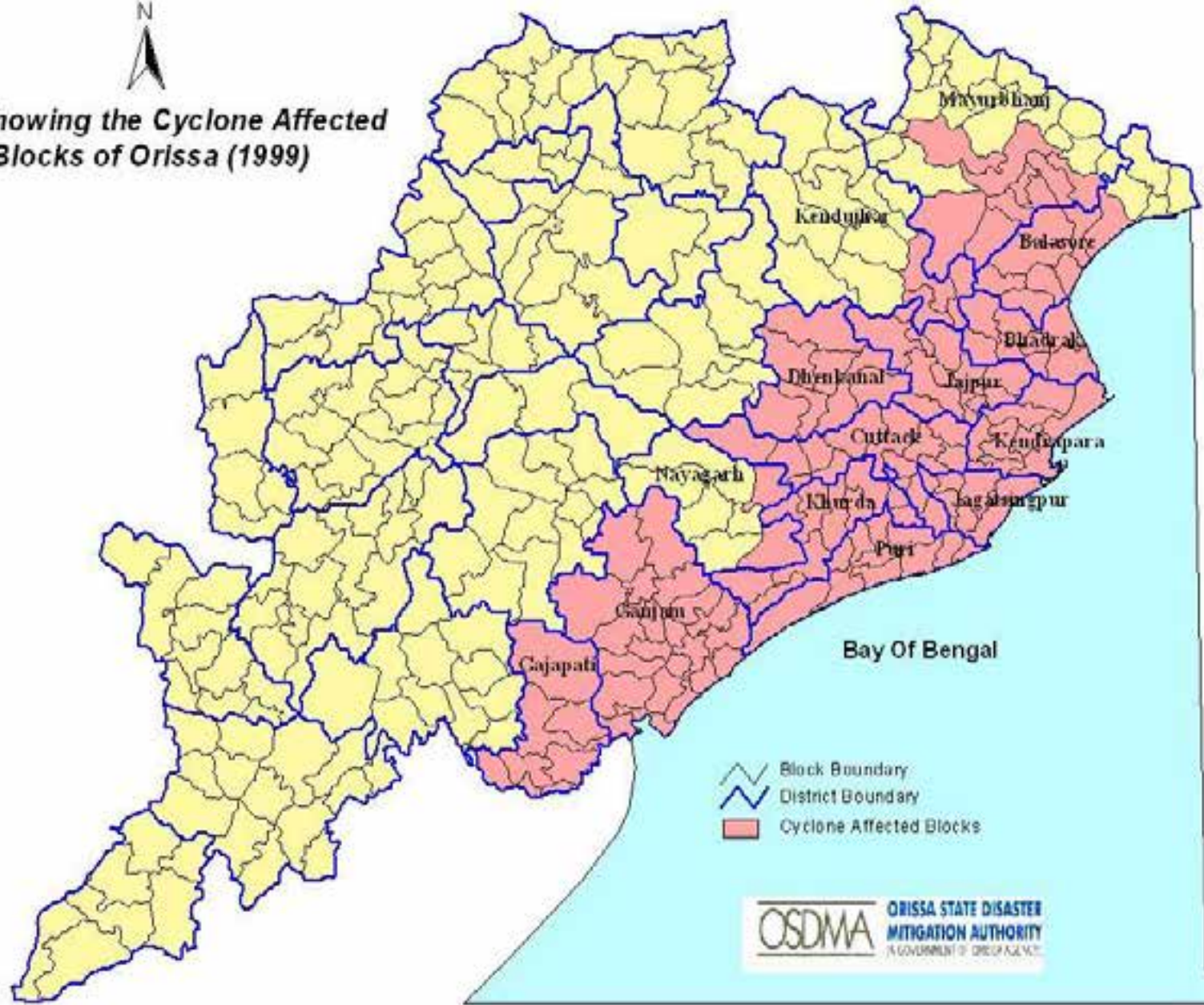
Paradeep



DEVI MOUTH



Map Showing the Cyclone Affected Blocks of Orissa (1999)



- Block Boundary
- District Boundary
- Cyclone Affected Blocks



MULTIPURPOSE CYCLONE SHELTER
ଏକମୁଖୀ ଚକ୍ରାନ୍ତ ଶେଲ୍ଟର



Ramp for the disabled & old



thank you