



Flood Disaster Preparedness and Response: Issues and Challenges-Odisha Floods

Coastal Characteristics of Odisha

480 km Coast Line

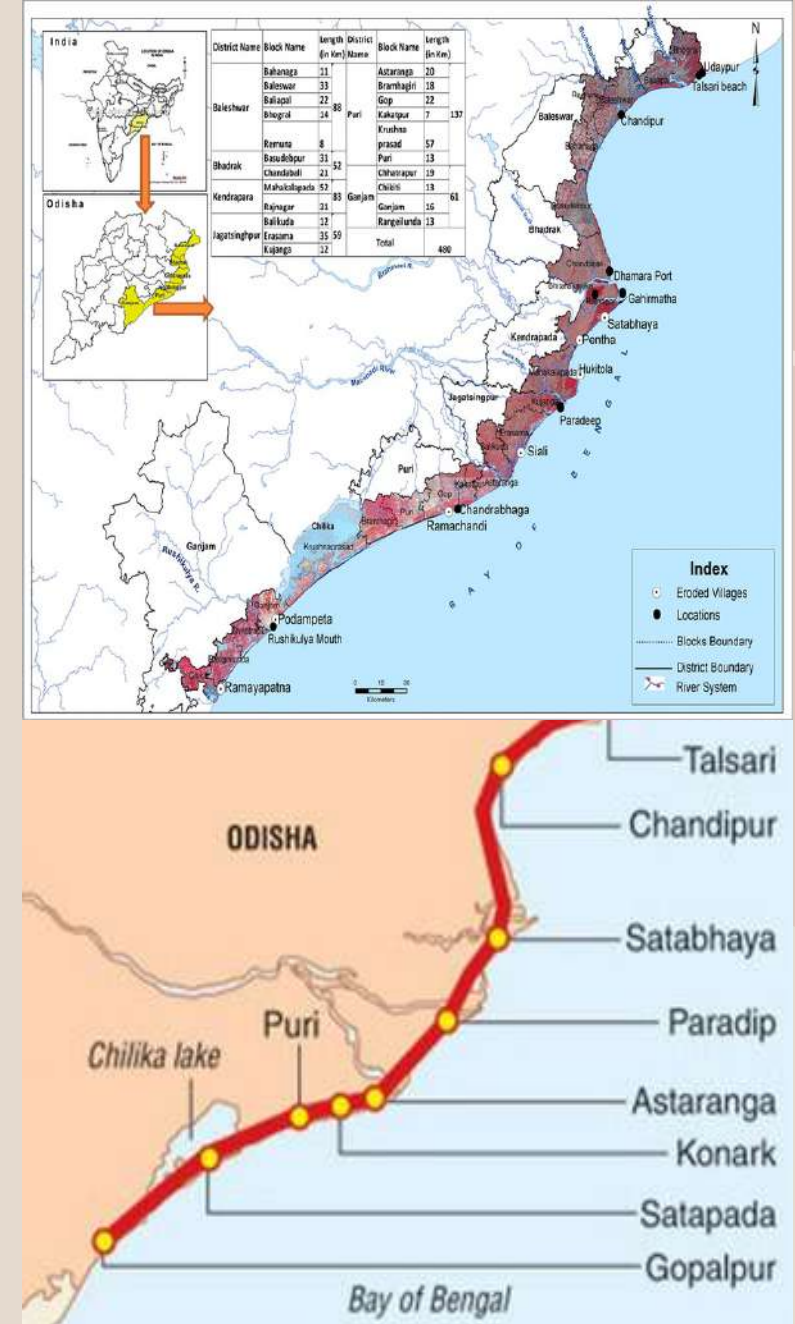
Flat terrain and low lying areas near the coast

Branching of rivers into delta before outfall to the Bay of Bengal.

Fertile agriculture Land

Thickly populated habitations. Coastal population is nearly 36% of the population of the State

Livelihood support of coastal People -
Agriculture, Fishing, Animal Husbandry



Occurrence of Flood in different river basins over last 6 Years

Year	River Basin	Month
2016	Subarnarekha Basin	August, September
2017	Baitarani	July, October
2018	Budhabalanga	September, October
	Subarnarekha	August, September, October
2019	Baitarani	September
2020	Mahanadi	August, September
	Brahmani	August
	Baitarani	August
	Budhabalanga	August
	Subarnarekha	August
2022	Mahanadi	August
	Subarnarekha	August

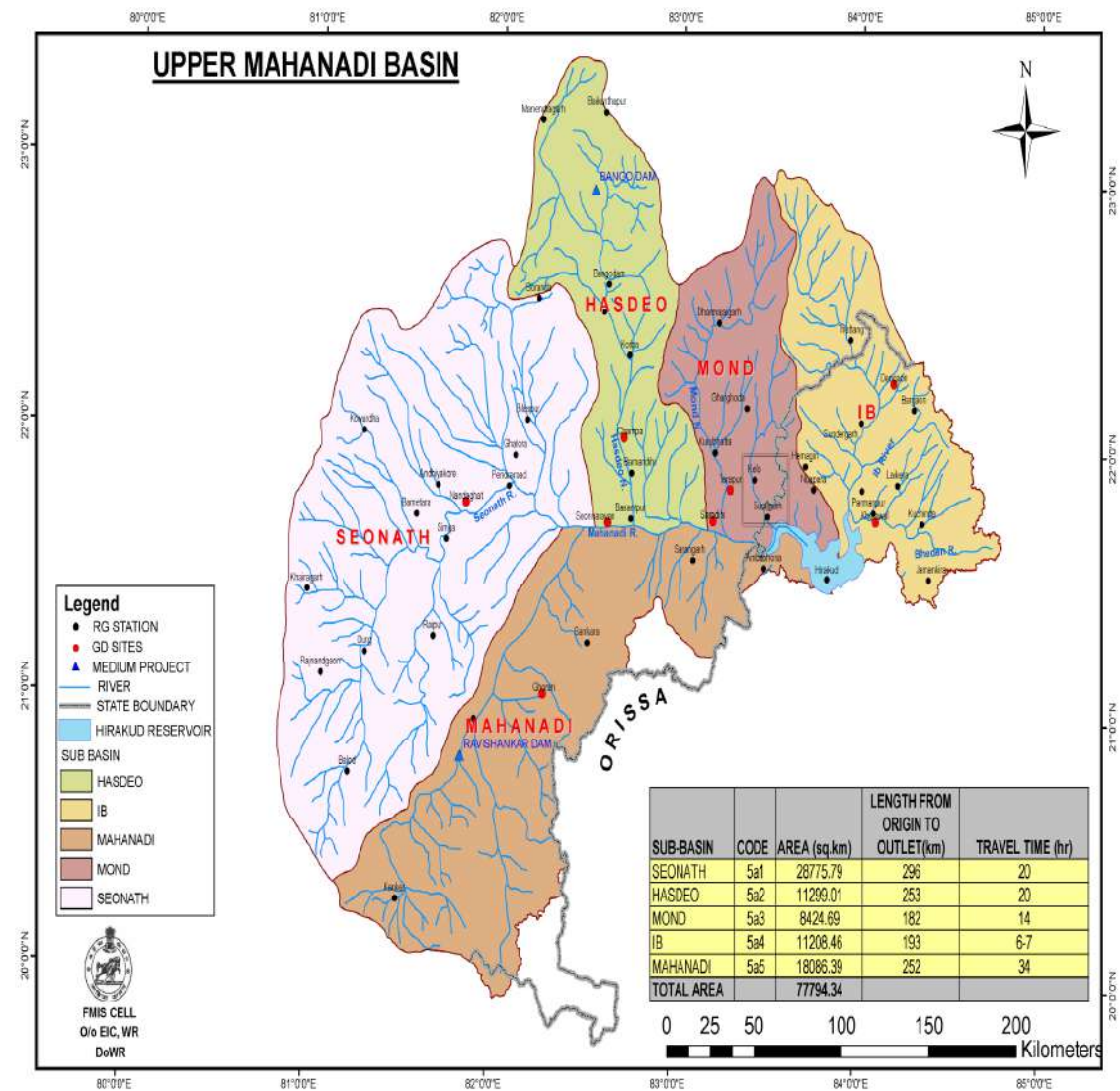
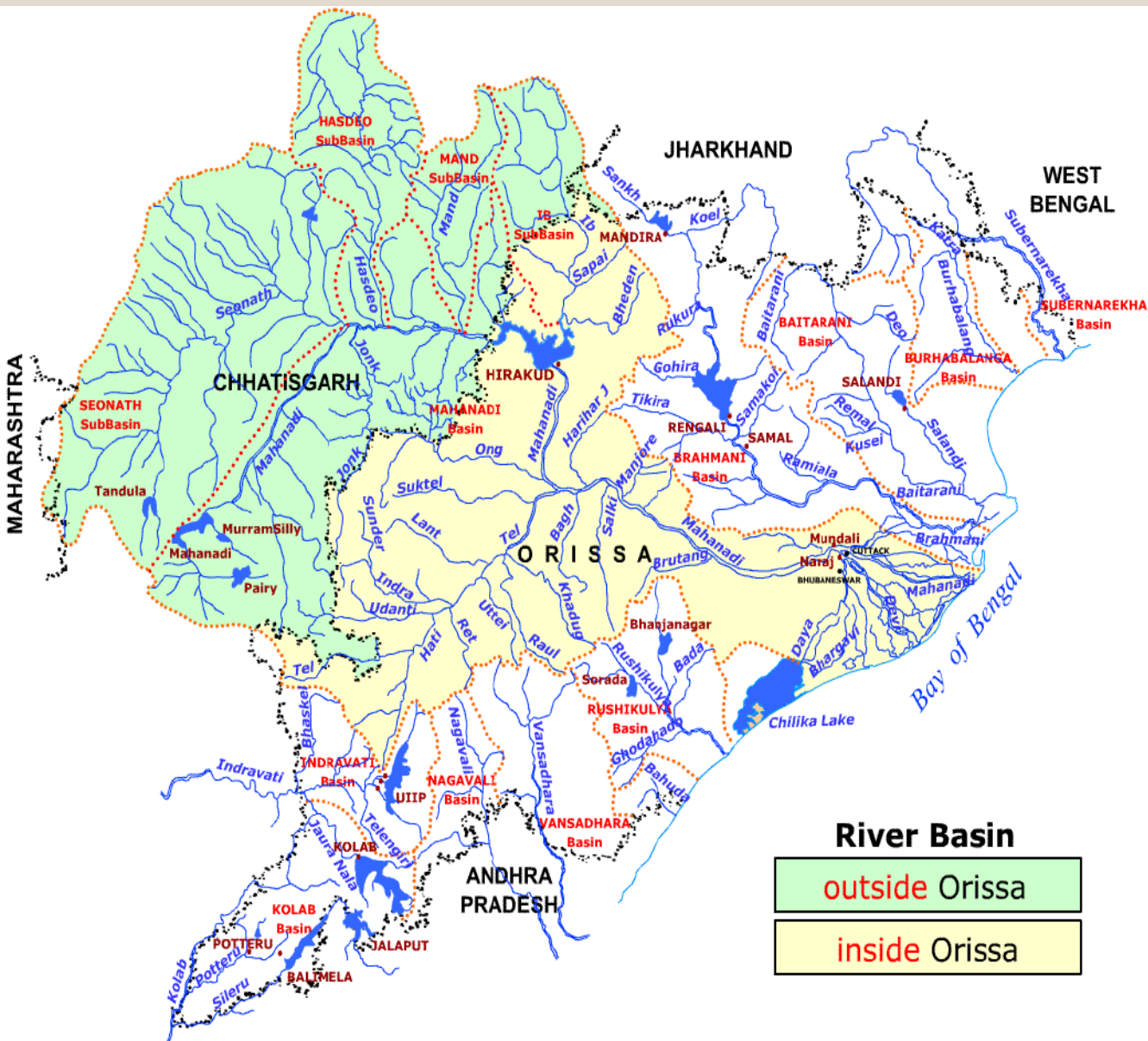
State's Vulnerability to Flood

- State is extremely vulnerable to flood
- Eleven major river systems (Subarnarekha, Budhabalang, Baitarani, Brahmani, Mahanadi, Rshikulya, Vanshadhara, Nagabali, Indravati, Kolab and Bahuda)
- Hilly areas experience flash floods
- Flooding in delta continues for longer duration
- Discharge of water is further delayed during full moon / new moon period
- 27 districts were affected by flood in 2006
- Inter-state rivers - issues

11 Major River Systems of the State



The Mahanadi River System



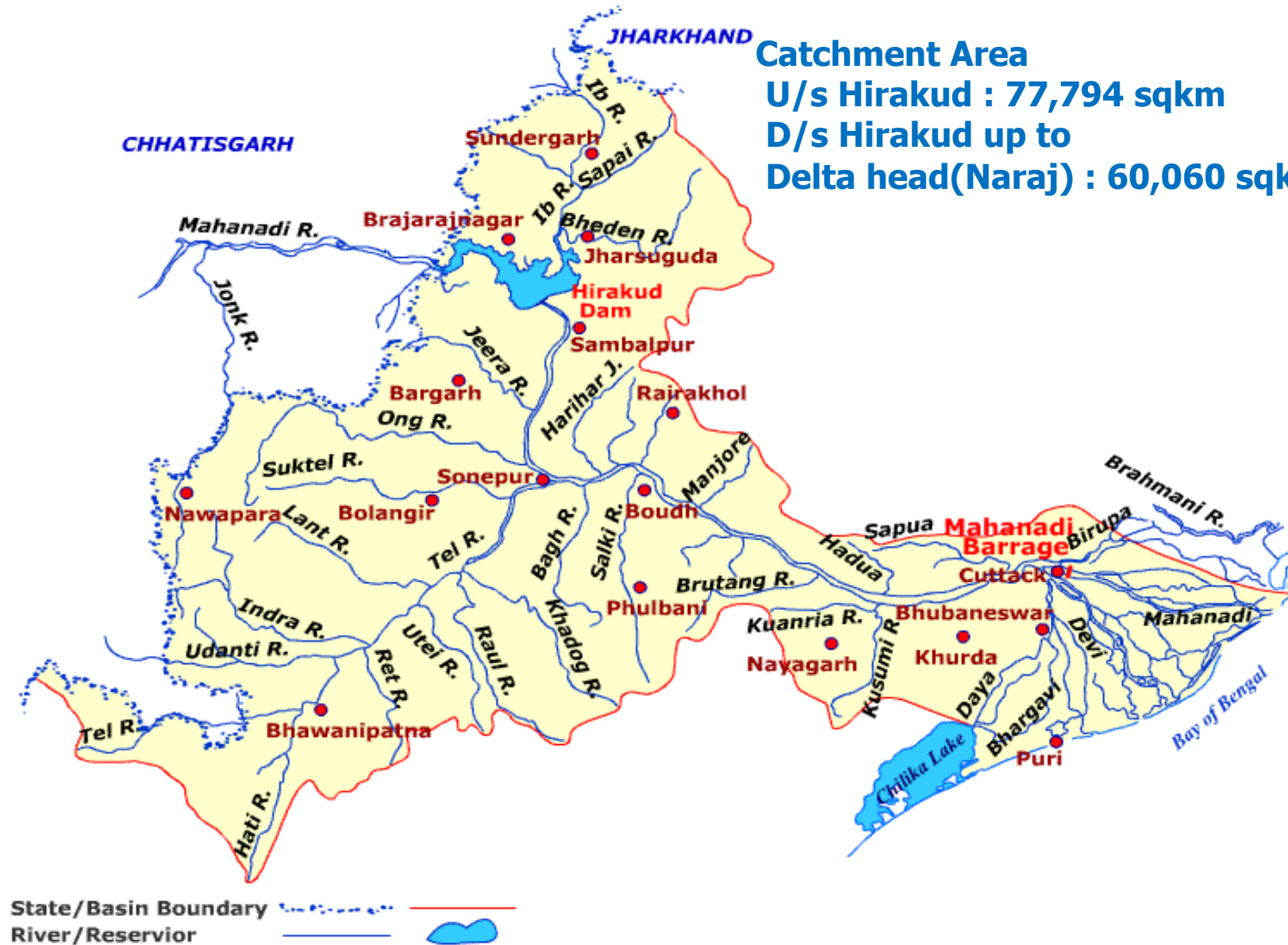
The Mahanadi Basin (Odisha)

Catchment Area

U/s Hirakud : 77,794 sqkm

D/s Hirakud up to

Delta head(Naraj) : 60,060 sqkm



The Hirakud Dam

Arial View



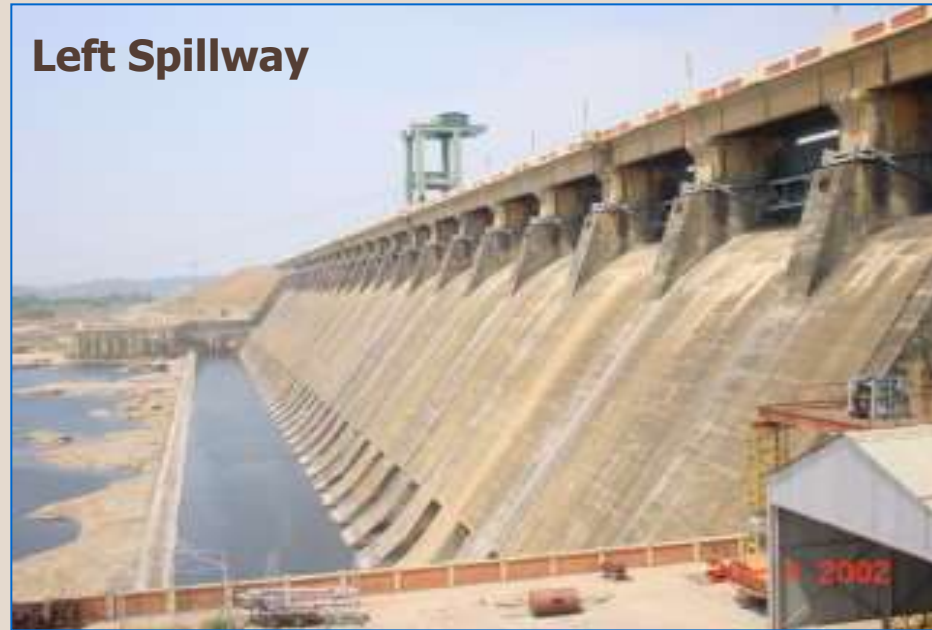
FEATURES :

- Location : Hirakud (Sambalpur)
- Catchment Area : 83,400 Sq.Km

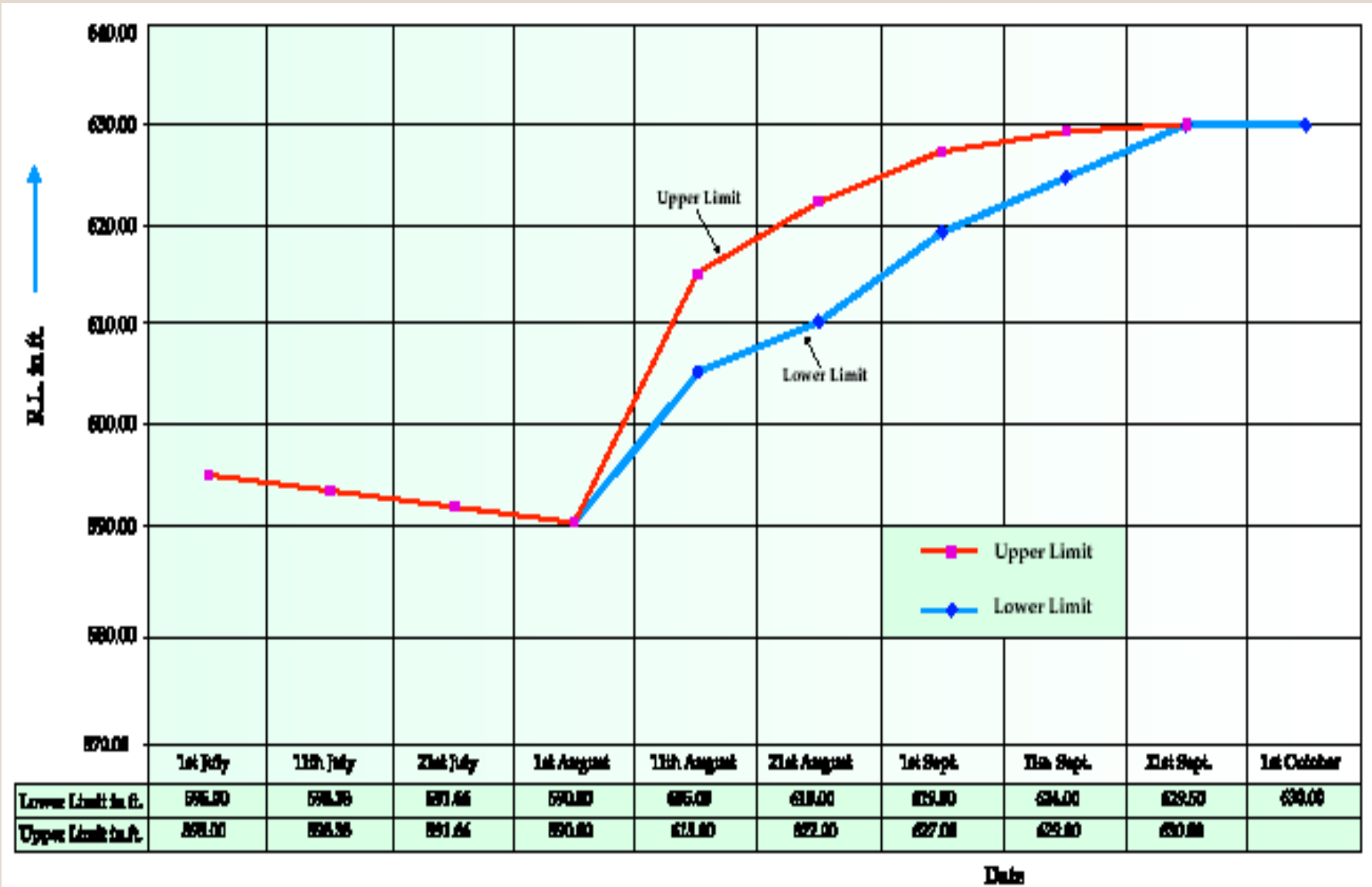
OBJECTIVES :

- Flood Control : Variable space
- Irrigation: 1,59,000 ha CCA
- Power Generation : 307.5 MW
(Installed Capacity)

Left Spillway



RULE CURVE OF OPERATION (Hirakud Reservoir)



Annual Rainfall

- Average Annual Rainfall of State-1451.2 mm
- Maximum – 1667.6 mm (Malkangiri)
- Minimum - 1276 mm(Ganjam)
- South-West Monsoon breaks in Orissa around 10th June and withdraws in Mid October
- More than 75% of annual rainfall is received during June to September (1144.3mm)
- 8 to 10 depressions occur during this period which cause most of the rainfall

Flooding Pattern

- No response time in case of flash floods
- Unprotected rivers like The Budhabalanga & The Baitarani witness frequent flooding
- Mahanadi & Subarnarekha rivers have large catchment area in neighbouring States- Rainfall in other state create flood
- The Mahanadi has Hirakud dam travel time from dam to delta-head is almost 48 hrs.
- Rainfall in Lower catchments alone can create flood situation
- Flood in River Brahmani could be very dangerous- Rengali Dam - High flood seen in 2011 after long gap
- The Vanshadhara- Frequently crosses danger mark at Kashinagar
- Frequent floods are also been observed in recent years

Flood Management

- Pre-flood arrangement
(Preparedness Measures)
- Response to the floods
- Post-flood arrangement
- (Rehabilitation and Reconstruction)

Preparedness Measures

- Meeting of the State and District Level Committees on Natural Calamities
- Functioning of the Control Rooms
- Closure of past breaches in embankments and arrangement for guarding of weak points
- Rain-recording and submission of rainfall reports
- Rainfall Monitoring Portal (www.ori.nic.in/rainfall)
- Communication of gauge-readings
- Preparation of maps and charts
- Assigning charge of Flood Circles
- Dissemination of weather reports and flood bulletins issued by the Meteorological Centre, Central Flood Forecasting Division of CWC at Bhubaneswar and Flood Cell of DoWR

Preparedness Measures (contd...)

- Dissemination of info to SP, EE (WR), Sub-Collector, Tahasildars, BDOs, Flood Circle Officers who will disseminate the same to people
- Dissemination through Media
- Deployment of boats at strategic points (Keeping SRC's power boat with crew ready, Pre-contract with private boat owners, etc)
- Installation of temporary Police Wireless Stations and temporary telephones in flood-prone areas
- Keeping all communication lines in order
- Storage of food in interior, vulnerable strategic and key areas
- Arrangements of dry food stuff and other necessities of life – Pre-contract

Preparedness Measures (contd...)

- Arrangements for keeping drainage clear
- Identification of flood shelters
- Temporary structures to be raised on high mounds in case of non-availability of pucca buildings to be used as flood shelter
- Training in flood relief work
- Organisation of relief parties
- Agricultural measures (Agriculture contingency plan)
- Health measures (Stocking of medicines, ORS, public health arrangement, arrangement for organizing medical teams)
- Veterinary measures (Pre-flood immunization, pre-positioning of medicines, ORS, arrangement for organizing medical teams)
- Review of pre-flood arrangements (by the end of June)

After high flood forecast: Check List

- Forecast disseminated
- Deployment of ODRAF, NDRF, Fire Services units is undertaken; Units from unaffected districts moved
- Coordination with GoI, MHA, NDMA, MoD, local Defence establishments for deployment of forces and keeping helicopter ready
- All preparedness measures are tightened
- Trigger Mechanism: All Dept/ Authorities at different levels rise to the occasion and act suo-motu
- Coordination meetings are held at fixed time & status of preparedness reviewed; repeated as long as required
- Presence of Govt. officials ensured; Leave cancelled; Holidays cancelled
- Offices in unaffected districts remain open to lend support
- Schools in affected areas closed but teachers remain to facilitate sheltering people in school

Action during and immediately after flood

- Evacuation & Rescue; Re-arrangement of deployment response forces
- Organize air-rescue/food airdropping if necessary
- Rearrangement of boats; organizing additional boats
- Shelter management (Kitchen, water, light, health & sanitation)
- Involving PRI/ SHG members & volunteers to organize free kitchen
- Emergent relief to people in distress
- Temporary shelter material assistance to those whose houses have been damaged
- Coordinating relief measures by civil society organizations to avoid duplication
- Close monitoring; Daily situation reports

Averting Casualty

- In very few cases, people were swept away in flood water; no major post-flood epidemic as well
- Major death is due to drowning and house collapse - Both are avoidable
- Some deaths occurred in the past due to accident of vehicles plying through submerged roads/ bridges
- Awareness to be enhanced- Keeping away from flood water is best way to be saved- Health awareness also vital
- People in vulnerable condition to be shifted to safety
- Submerged roads/ bridges to be closed to traffic
- Health & sanitation measures to be up-scaled
- Ensuring supply of safe drinking water is also important
- IEC activity helps

Evacuation, Response & Rescue





Thank You