



**Development of
National Waterway No.4**

**Inland Waterways Authority of India
Ministry of Shipping
Govt. of India**

Inland Waterways Authority of India

IWAI set up in October 1986

IWAI mandated, *inter alia*, to take up

- Development of Fairway and Infrastructure for navigation & regulation of NWs
- Promotion of Inland Water Transport
- Techno- economic feasibility studies
- Proposals for declaration of NWs
- Advise the Central Govt on IWT matters
- Assistance to States in IWT development



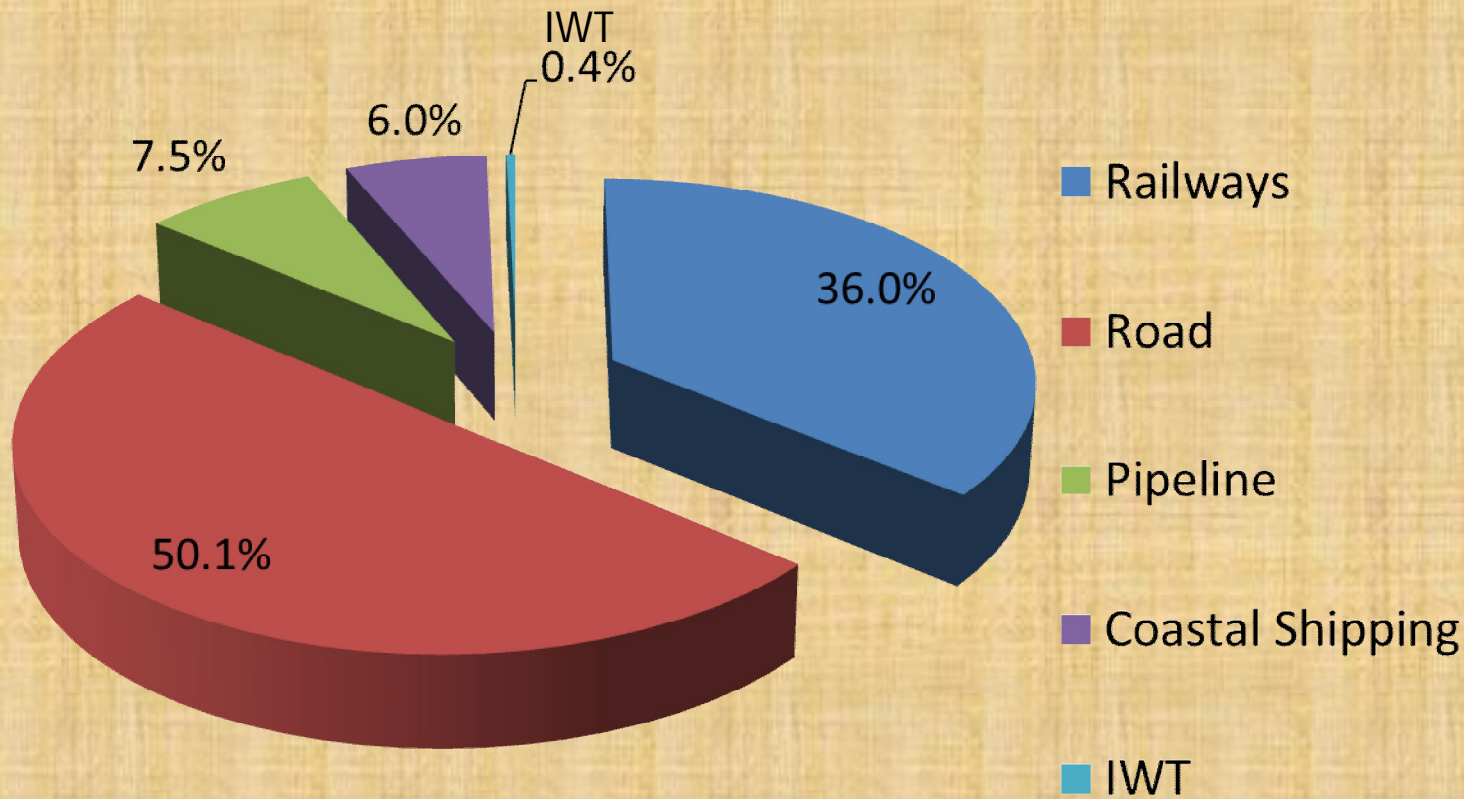
Organisational setup of IWAI

- Directorate Office at Kolkata, Patna, Kochi & Guwahati.
- Sub Offices at Allahabad, Varanasi, Bhagalpur, Farakka, Swaroopganj and Haldia on NW- 1.
- Dhubri & Dibrugarh on NW- 2.
- Kollam on NW- 3
- Chennai & Vijaywada on NW-4
- Bhubaneshwar on NW-5
- Training Institute at Patna (National Inland Navigation Institute)

Advantages of IWT mode

- Fuel efficient, environment friendly and cost effective mode of transport.
- Provides an alternate mode for port- hinterland connectivity
- Provides modal shift
- Best suited for
 - Bulk goods (Coal, Cement, Ores, Stone chips, Food grains, Fertilizers etc)
 - Hazardous goods (POL, Chemicals etc)
 - Over Dimensional cargo and project cargo
 - Containerized cargo to be transported long distances
- Reduction in road and rail congestion, pollution and accidents
- Reduction in Wastage, theft and pilferage

Modal Share in India (2007-08)



- Rlys had 88% share in 1951; now only 36%
- Roads share went up from 11% in 1951 to 50%

Sub optimal utilization of IWT is a great economic opportunity loss to the country



Modal split in other countries

Mode	China	USA	EU
Road	28.0%	39.0%	76.6%
Railway	63.0%	52.3%	17.7%
Air	0.3%	0.5%	0.1%
IWT	8.7%	8.3%	5.6%
Total	100.0%	100.0%	100.0%

Source: World Bank Report on sustainable development of IWT in China- 2009



National Waterways & other Important Waterways

□ National Waterways

- NW-1, Ganga (1620 km).
- NW-2, Brahmaputra (891 km).
- NW-3, West Coast Canal system (205 km).
- NW-4, Godavari, Krishna rivers & Kakinada-Puducherry canal system (1078 km).
- NW-5, Brahmani & Mahanadi delta river & East Coast Canal (588 km).
- ❖ **Total length of declared NWs – 4382 Km.**
- Barak river (121 km) proposed as NW-6.
- Indo- Bangladesh Protocol routes connects NW-1, NW-2 & NW-6.





National Waterway-1

Ganga – Bhagirathi – Hooghly river system

Haldia(Sagar island) – Allahabad –1620 km



Declared
Road
Rail
Important places

Farakka Coal Transportation Project

- IWAI developed fairway of 3.0 m LAD in Haldia- Farakka stretch of NW- 1.
- NTPC gave firm commitment of transportation of 3MMT per annum of imported coal through IWT for seven years for their Farakka Plant
- A project developed by IWAI & NTPC and Jindal ITF Ltd. selected (through open bidding) as 'operator' for coal transportation
- JITF made investment of Rs 600 cr in infrastructure—trans-shipper, barges, jetty and conveyor belt system at Farakka
- with private investment Coal transportation to Farakka Plant commenced in October, 2013

COMMENCEMENT OF UNLOADING OF OGV



LOADING OF BARGES AT SANDHEADS



LOADED BARGE ON ITS WAY TO FARAKKA



BARGE BERTHING



BARGE UNLOADING OPERATION



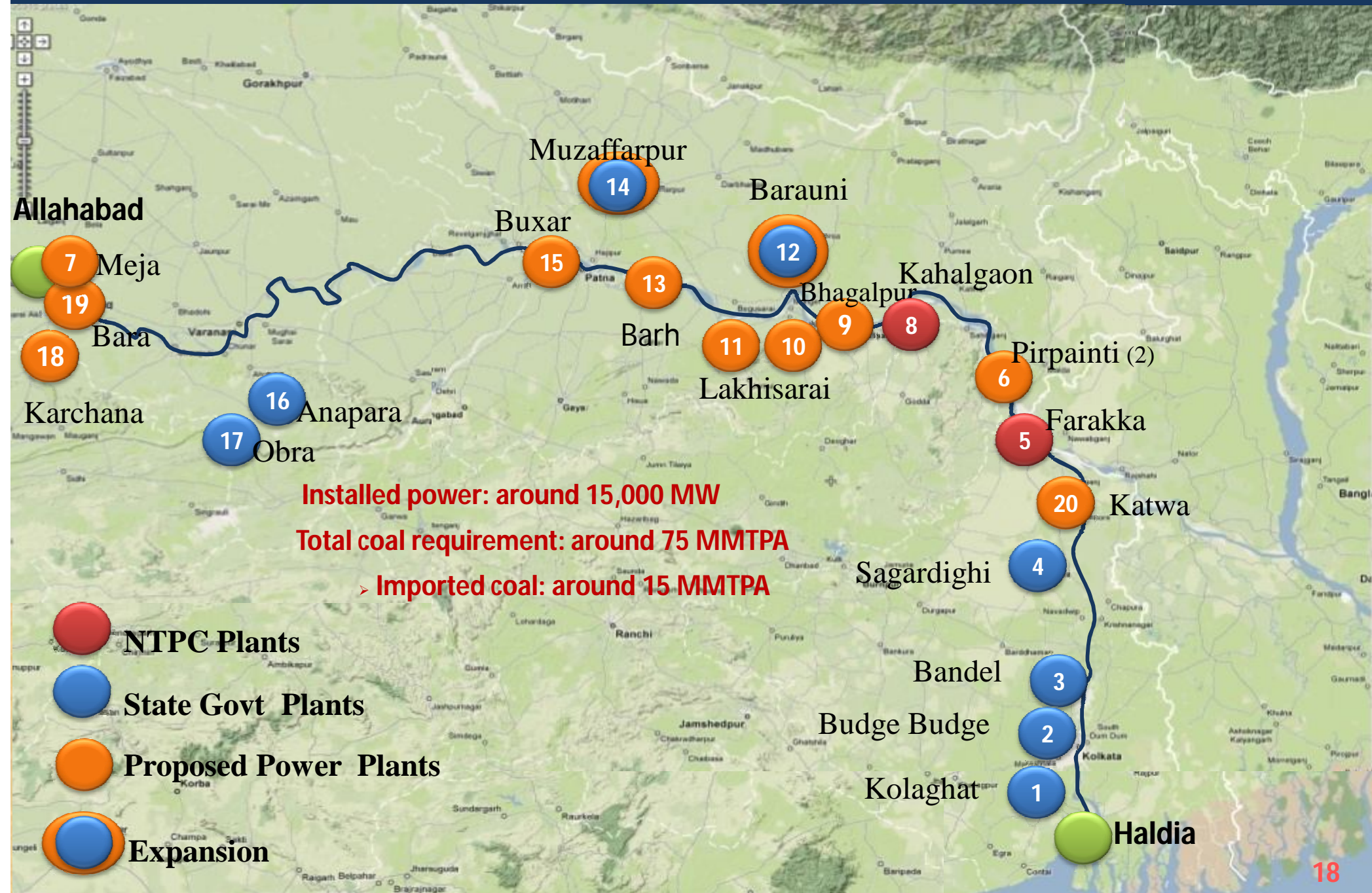
COAL DELIVERY AT NTPC STACK YARD



Schematic Layout – Fixed Infrastructure Farakka



Potential for coal: Thermal power plants along NW-1





ODC movement



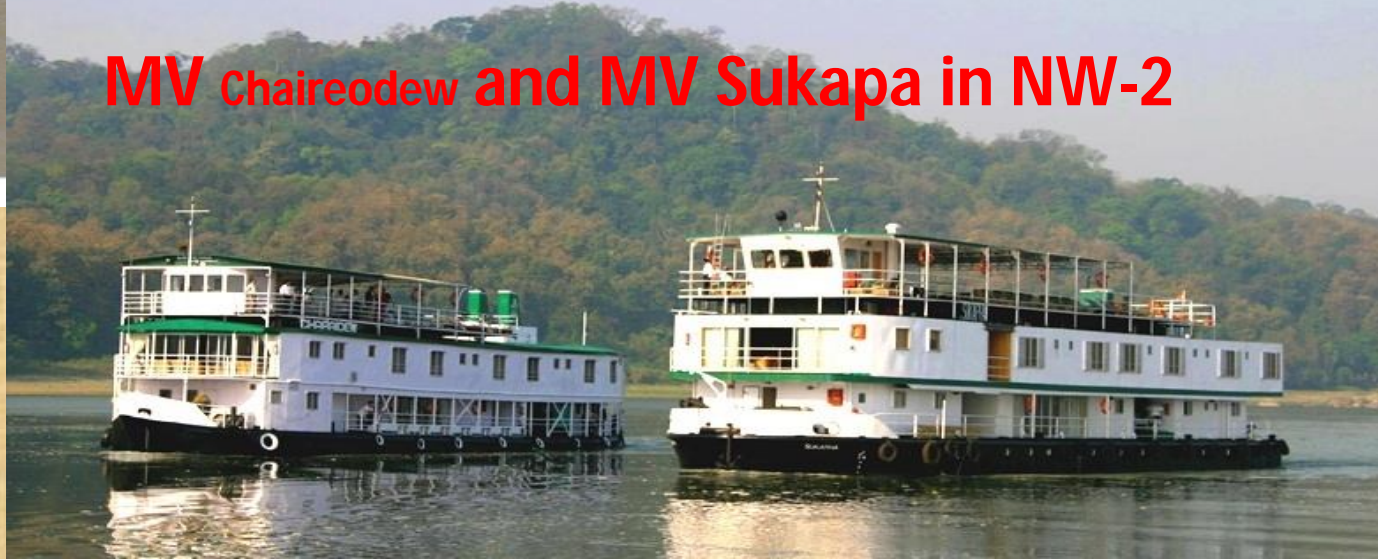
MV Paramhansa in NW-1



RV Bengal Pandaw in NW-1



MV Chaireodew and MV Sukapa in NW-2



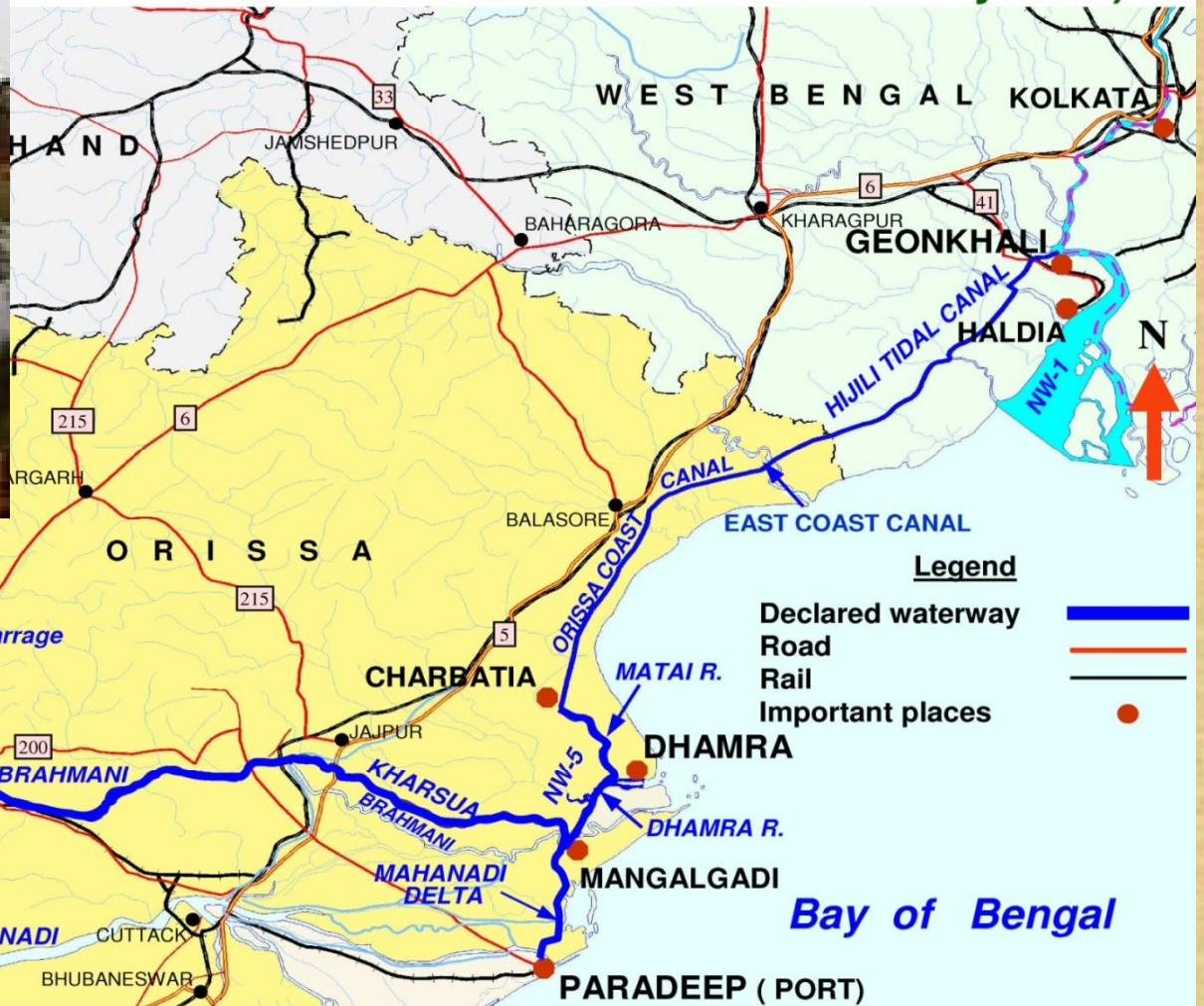


Ro-Ro operation

Liquefied
Ammonia
barge



National Waterway-5 (with Brahmani and Mahanadi delta river system)



River distance	
Canal: Geonkhali - Charbatia	217 km
Matai river	
Charbatia - Dhamra	40 km
Brahmani, kharsua & Dhamra river system	
Talcher - Dhamra	265 km
Mahanadi delta river	
Mangalgadi - Paradeep	101 km
Total length	623 km

Development cost- Rs 4210 cr (2010 prices)



Action taken for development of new NWs (Contd....)

- NW- 5 – being developed
 - ❖ An MoU among Govt. of Odisha, Paradip Port and Dhamra Port Co. Ltd. signed by IWAI on 30th June, 2014 for development of 332 km stretch
 - ❖ Development of 201 km from Pankopal to Ports of Paradip and Dhamra in the Phase I.
 - ❖ 131 km stretch between Talcher and Pankopal/Jokadia in the IInd Phase
 - ❖ Main component of the projects – fairway of required depth and width, navigational aid, terminals
 - ❖ WAPCOS engaged to revise the Detailed Project Report for these stretches, final report by March 15.

National Waterway -4

National Waterway No.4 consisting of canal system from Kakinada to Puducherry alongwith Godavari and Krishna river system was declared as National Waterway w.e.f 25.11.2008

- Total length of waterway - 1078 km
- Andhra Pradesh – 888 Km
- Tamil Nadu – 188 Km
- Puducherry – 2 Km





Development cost- Rs 1515 cr
 (2010 prices)



Stretches of National Waterway - 4

- 1) Kakinada Canal (Kakinada to Rajahmundry) : 50 km
- 2) Godavari river (Bhadrachalam to Rajahmundry) : 171 km
- 3) Eluru Canal (Rajahmundry to Vijayawada)
 - a) Godavari Eluru Canal(Rajahmundry to Eluru) : 74 Km
 - b) Krishna Eluru Canal (Eluru to Vijayawada) : 65 Km
- 4) Krishna river (Wazirabad to Vijayawada) :157 km
- 5) Commamur Canal (Vijayawada to Pedaganjam) : 113 km
- 6) North Buckingham Canal (Pedaganjam to Chennai) : 316 km
- 7) South Buckingham canal (Chennai to Marakkanam) : 110 km
- 8) Marakkanam to Puducherry through Kaluvelly tank : 22 km

Total : 1078



Estimated cost for development of NW-4 for class-II waterways (2010 price index)

S.No.	Description of the work	Rs. in crore
1.	Land acquisition of 1707 Ha	391
2.	Dredging for 19.85 Million cub.mtr	333
3.	Cross drainage works	23
4.	Modification of locks	499
5.	Modification of bridges	71
6.	Construction of terminals	144
7.	Navigational aids	24
8.	Protection measures	5
9.	Facilities to local people for ferry service etc	25
	Total	1515
10	Annual recurring expenditure	58

Efforts made to Develop NW-4

- DPR through M/s WAPCOS completed in 2010
- Detailed hydrographic survey for assessing hydrological and morphological condition of the following stretches completed:
 - a) Godavari River (Rajahmundry to Bhadrachallam)
 - b) Kakinada Canal (Rajahmundry to Kakinada)
 - c) Godavari Eluru Canal (Rajahmundry to Eluru)
 - d) North Buckingham Canal (Rajahmundry to Ennore)
- Detailed hydrographic survey in the stretches NBC (Krishnapatnam to Pedaganjam) and Commamur canal (Pedaganjam to Vijayawada) are in progress.
- Action already taken for conducting hydrographic survey in the balance stretches Krishna Eluru Canal (Vijayawada to Eluru) and Krishna River (Vijayawada to Wazirabad).

Proposed Action Plan for developing NW-4

- a) In consultation with AP Govt. in Oct'2014, NW4 in AP to be developed in three phases.
- 1st phase:- North Buckingham Canal from Ennore Sea Mouth to Pedaganjam for 300 Km .
 - 2nd phase:- Commamur , Eluru and Kakinada canal from Pedaganjam to Kakinada on the assurance of adequate water for 302 Km.
 - 3rd phase:- Development of river portion of 328 km (Krishna and Godavari of NW-4) on completion of ongoing construction of dams with navigation locks.
- b) To be developed as class III waterways for movement of 500T vessels with bottom width of 38m and 2.5 water depth .
- c) Navigation clearances as per the class III standard to be maintained for the bridges across the waterway

Efforts made to Develop NW-4(Cont..)

- a) In consultation with A.P Govt in Oct 2014, NW-4 in AP to be developed in three phases.
- 1st phase:- North Buckingham Canal from Ennore Sea Mouth to Pedaganjam for 300 km.
 - 2nd phase:- Commamur, Eluru and Kakinada canal from Pedaganjam to Kakinada on the assurance of adequate water for 302 km.
 - 3rd phase:- Development of river portion of 328 km (Krishna and Godavari of NW-4) on completion of ongoing construction of dams with navigation locks.
- b) To be developed as class III Waterways for movement upto 1000Ton vessels with bottom width of 38m, top width of 45 m and water depth of 2.5m
- c) Navigation clearances as per the class III standard to be maintained: 7m vertical and 35m horizontal

Land Acquisition & Bridges And Locks That Need Modification

S.No	Stretch	Total no. of existing bridges	Bridges that requires modification	Total existing locks	Locks that requires modification	Land to be acquired (ha)
1.	Kakinada canal	19	19	6	6	222.55
2.	Godavari river	3				
3.	Eluru canal	81	47	5	5	524.3
4.	Krishna river	1				
5.	Commamur canal	38	32	7	7	497.85
6	North Buckingham Canal	39	17	23	23	129.9+75.62 6
	Total	181	80	41	18	1450.2226

- NB:
1. The figures are as per DPR submitted in 2010 for class II waterways (upto 500 tons)
 2. Two new navigation locks on river Godavari & Krishna are under construction for class-II waterways

Terminals Proposed to be developed

- ❑ Terminals facilities with connectivity to the nearest State/National Highway and Rail for handling of Bulk Cargo, General Cargo & Containers.
- ❑ Proposed Terminals are:
 - 1) Kakinada
 - 2) Rajahmundry
 - 3) Eluru
 - 4) Vijayawada
 - 5) Krishnapatnam
 - 6) Ennore

Responsibilities for developmental activities

- State Government
 - Delineation survey on both sides of the waterways for assessing the status on the availability of the land
 - Identification of land and acquisition for widening of the waterway, terminal facilities, navigation lock.
 - Demolition & re-construction of the existing navigation locks, cross structures i.e bridges with less navigational clearance, aqueduct.

Responsibilities for developmental activities

- IWAI
 - Hydrographic survey and Hydrology study.
 - Environment, CRZ, Forest and wild life clearances from the concerned authorities.
 - Dredging, excavation & opening of sea mouth.
 - Construction of terminal facilities.
 - Installation of navigational aids.

Action Plan

- Environment, CRZ, Forest & wild life clearances by June 2015.
- Detailed Hydrographic survey of remaining stretches by May 2015.
- Hydrology study for assessing availability of required water discharge by May 2015.
- Delineation survey to be complete by June 2015.
- Survey of cross structures for reconstruction by March 15
- Design & estimation of cross structures by Aug 2015

Action Plan

- Tender for dredging:
 - Rajahmundry-Elluru- May 2015
 - Elluru-Vijayawada- June 2015
 - Vijayawada-Pedaganjam- June 2015
 - North Buckingham Canal- July 2015
- Tender for construction of terminals:
 - Kakinada, Rajahmundry & Vijayawada- May 2015
 - Ennore, Krishnapatnam & Elluru- Aug 2015
- Tender for construction of cross structures by Sept 2015

Support from State Govt.

- Delineation survey.
- Acquisition of land.
- Ensuring adequate water in the irrigation canals.
- Clearance of environment, forest, wildlife & CRZ.
- Identification of area for dumping of dredged material.
- Maintenance of Law & Order during execution of the dredging.
- Construction/Modification of cross structures.
- Early completion of navigation locks for Pulichintala and Polavaram dams.
- Setting up of review and monitoring unit for timely implementation .To encourage IWT on the waterway through incentives for modal shift.





← Navigation Lock in Kakinada Canal

Tail reach in Kakinada Canal →





← Navigation Lock for Godavari Eluru Canal

Tail reach in Godavari Eluru Canal →





← Navigation Lock in North Buckingham Canal

NBC at Monapalem Bridge →



Integrated National Waterways Transportation Grid

- With an objective to link all the NWs with National Highways/ State Highways, Railways and Ports a study was done through RITES
- As per this study an indicative investment of Rs. 22763 crore is required to develop the infrastructure for fairway and road, rail and port connectivity
- Divertible traffic estimated as 159 million tonnes by 2022 (15% of total cargo in the corridors)
- Above investment will attract approx. Rs. 65600 crore public investment for vessel building and cargo movement by 2022

Jal Marg Vikas Project (World Bank assistance)

- A TEF study conducted through DHI to ensure 3 m LAD in Buxar- Allahabad stretch of NW-1 for commercial navigation up to Allahabad
- Based on World Bank inputs MoS posed a project for development of NW- 1 through World Bank assistance
- Total project cost Rs. 4200 crore (US \$ 700 million) in two phases. 50% World Bank loan, 50% from GBS of India
- DEA recommended the project to the World Bank for sanction of loan of US \$ 50 million under stage - 1

A photograph of a sunset over a body of water. The sun is low on the horizon, creating a bright orange and yellow glow in the sky and a reflection on the water. In the foreground, the dark silhouette of a boat with several people on board is visible on the water. The overall mood is peaceful and serene.

THANK YOU

