

# **Coal Movement for Power Plants through Inland Water Transport**

**Inland Waterways Authority of India**

27<sup>th</sup> November, 2009

# Present Scenario

- Thermal Power Plants main source of energy (70%) in India
- At least 11 TPS located in the vicinity of Ganga (NW 1) & Brahmaputra (NW 2)
- So far, railways dominant mode of transport for coal – whether domestic or imported
- Shortfall in wagon availability along with 120% line occupancy ratio on Eastern, South Eastern & East Coast railway routes pose major transport bottleneck
- CEC study reveals negligible coal stock at plants impacting electricity generation
- Power shortage has caused production loss of about Rs.43,000 crore in 2008-09\*
- Indians spend over Rs.30,000 crore every year to run their power back up systems
- \* Study by MAIT & Emerson Network Power

# Coal shortage for NTPC plants in WB & Bihar

- CEA reports reveal that Farakka & Kahalgaon STPS are facing coal shortage due to inadequate coal availability in linked ECL mine (Rajmahal)
- Against requirement of 27 MMT p.a, present supply 17 MMT p.a by ECL
- This can at best go up to 24 MMT p.a – clear shortfall of 3 MMT p.a
- Due to Andal – Santhia single-line section, railways could not supply more than 7 rakes per day from other sources including imported coal
- NTPC has reported annual coal shortfall of 1.2 MMT for Farakka & 1.6 MMT for Kahalgaon STPS to IWAI
- Unit -6 of Farakka (500 MW) to be commissioned by Dec.2010 & those of Barh from 2013 onwards
- Coal demand & supply gap likely to worsen despite best efforts of CIL

# NTPC power plants

- **International Coal Ventures Pvt. Ltd. (ICVL)** – a JV company of CIL, NTPC, SAIL, RINL, NDMC – seriously scouting for coal mines in Australia, Indonesia etc.
- Import of 28 MMT of thermal coal permitted in current year of which NTPC allowed to import 12.5 MMT
- In 2008 - 09, orders for import of 8.2 MMT of thermal coal for NTPC power plants were placed but only 5.4 MMT could be received
- Dependence on imported coal likely to continue

# Present status of NW 1

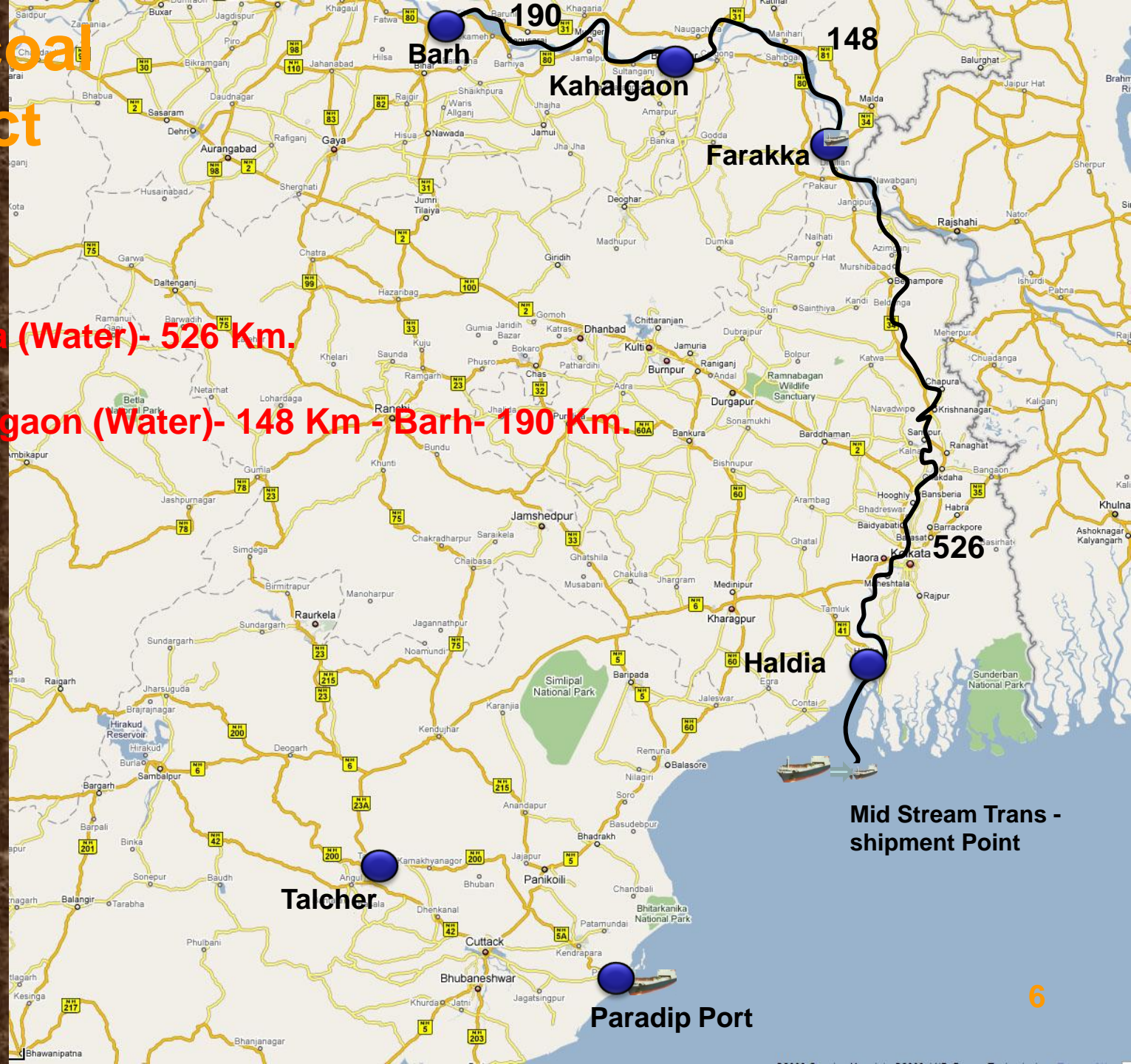
- Investments over last ten years in NW 1 by IWAI have led to –
  - 2.5 – 3 m LAD Haldia to Farakka
  - 2.0 m LAD from Farakka to Varanasi
  - 1.5 m LAD from Varanasi to Allahabad
- LAD of 2.5 – 3 m available for 210 days in entire stretch & with more dredgers, can become possible for at least 300 days
- Night navigation facilities up to Varanasi by March & Allahabad by Dec.2010
- To facilitate safe navigation, DGPS station at Bhagalpur operational & those proposed at Katwa, Patna & Varanasi likely to become operational by March 2011
- Stage set for movement of bulk cargo on NW 1

# NTPC coal project

Distances

Haldia - Farakka (Water)- 526 Km.

Farakka - Kahalgaon (Water)- 148 Km - Barh- 190 Km.



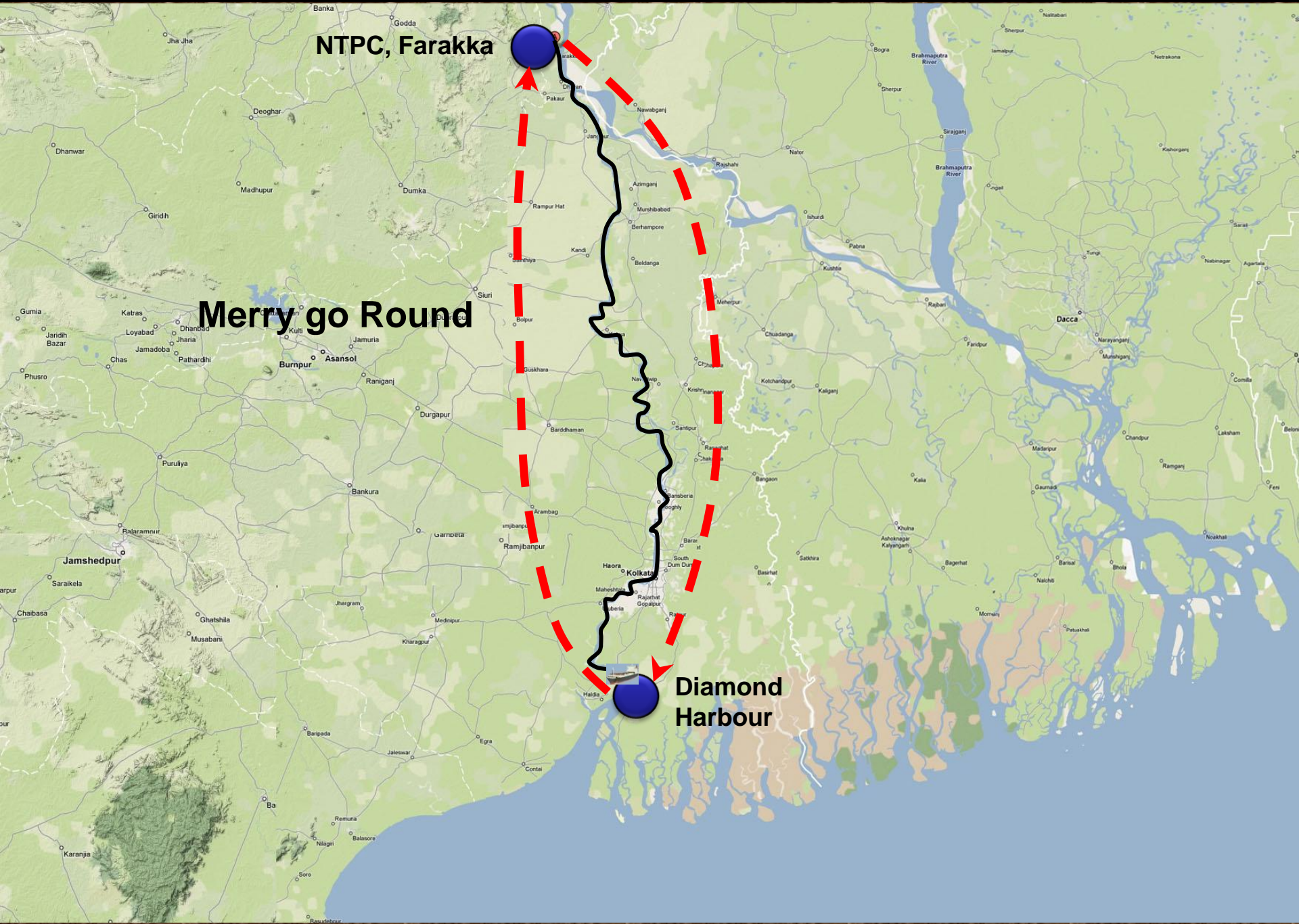
Mid Stream Trans -  
shipment Point

# Logistics Solution for Coal



**Mid Stream Transshipment Point**

# Logistics Solution for Coal



**NTPC, Farakka**

**Merry go Round**

**Diamond Harbour**



# Logistics Solution for Coal



Tildanga

New Farakka

Conveyer Belt

NTPC Plant, Farakka

NH 34

NH 34

NH 34

# Project Details

- 43 Barges (1500 m.t.) - Rs.258 crore
- Trans-shipper – Rs.115 crore
- Material Handling equipments – Rs.206 crore
- Terminals – Rs. 33 crore
- Other costs - Rs. 48 crore
- Total - **Rs.660 crore**

# Cost Comparison

- IWT cost per m.t. at Farakka – Rs.650
- Comparative Railway cost per m.t. - **Rs.650**
- IWT cost per m.t. at Kahalgaon – Rs.935
- Comparative Railway cost per m.t. - Rs.1170  
(Paradip to Kahalgaon)
- IWT cost includes savings of Rs.225 per m.t. from use of Panmax vessels & return cargo of fly ash

# Coal Movement through IWT- Critical issues

- MoU between IWAJ & NTPC signed in Sept. 2008
- Feasibility study by IL&FS
  - coal received at Trans-shipper placed at Sagar Islands
  - can be taken to Farakka & Kahalgaon through IWT
  - at rates competitive with present payments
- Transportation can commence 18 months from date of signing of contract
- **Bottleneck: a long term contract for supply of coal through IWT for about 7-10 yrs. required from NTPC as supplier needs to invest Rs.600 crore+**
- For imported coal, NTPC / its agents will need to firm up long term coal import contracts
- Government will need to permit NTPC to import 3 MMT coal through IWT for Farakka & Kahalgaon; Fuel Transport Agreement (FTA) for 10 yrs

# Way Forward for NTPC project

- Global bid will attract logistics players who will make the requisite investment in mega trans-shippers, barge operations & terminal facilities
- Facilities provided by IWAI such as fairway, night navigation facilities will be described in bid document
- Floating of tender, award of contract & payment could be through NTPC or its agents
- Parties to bid for bringing coal from coal mine / trans-shipper to coal stack yard of Farakka & Kahalgaon STPS
- NTPC to make investment in setting up coal handling facilities on river terminal at Kahalgaon & Barh
- Fly ash as return cargo for export (to Bangladesh) from power plants will further improve viability

# Other Benefits

- 3 MMT (2.1 btkm) for Farakka / Kahalgaon alone will give fuel savings of Rs.84 crore and other economic savings of Rs.306 crore per annum

(Arrived on the basis of NCAER -2008 Report)

- NTPC coal transportation project may pave the way for similar movement for other existing / upcoming power plants – domestic or imported
- Private investment of about Rs.5000 crore can take place in next five years in barges, trans-shippers, loading / unloading facilities
- Generation of additional power

**THANK YOU  
FOR YOUR  
CONSIDERATION**

# Details of IWT Freight Cost

( In Rs. Per m.t.)

S.N.	Particulars	Farakka	Kahalgaon
1	Barge Movement	625	770
2	Trans-shipper	90	140
3	Material handling (O&M)	135	210
4	Terminal costs	25	40
	<b>Total</b>	<b>875</b>	<b>1160</b>



# Existing Transport Cost to NTPC

( In Rs. Per m.t.)

S.No.	Particulars	Haldia- Kahalgaon	Paradip - Kahalgaon
1	Railway Freight	488.40	804.00
2	Port Charges	370.00	366.00
	<b>Total</b>	<b>858.40</b>	<b>1170.00</b>

70% of Kahalgaon's imported coal comes via Paradip

# NTPC coal project

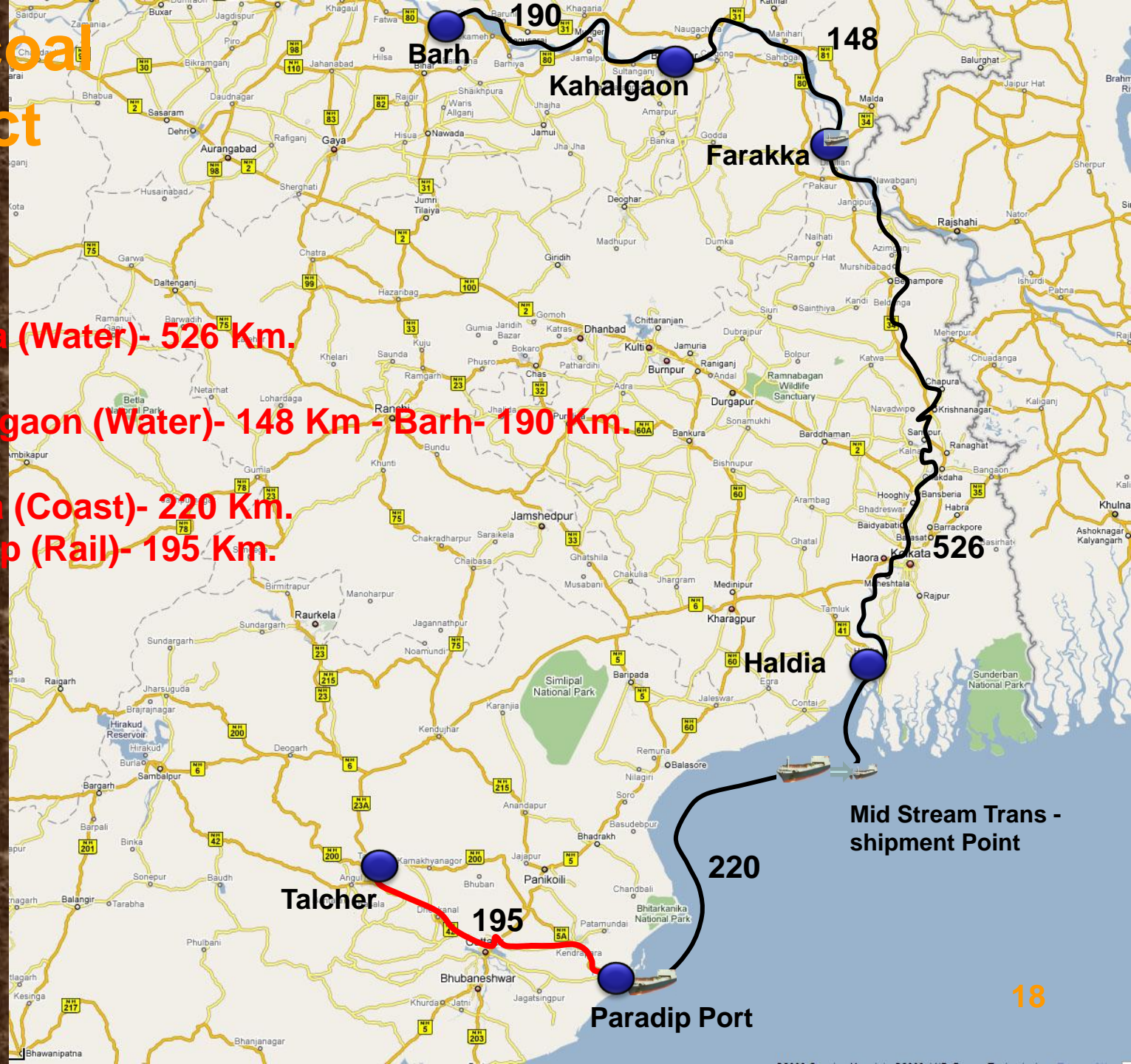
## Distances

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Paradip - Haldia (Coast)- 220 Km.

Talcher - Paradip (Rail)- 195 Km.



# Movement of Domestic coal

- IWT also offers possibility for taking coal from Mahanadi coal fields to Farakka & Kahalgaon if coal made available at Paradip
  - Rail link – Talcher to Paradip -195 km.
  - Coastal link – Paradip to Haldia – 220 km.
- IWT can also be used to transport coal to Jogighopa and then by rail to Bongaigaon TPS in Assam
- Separate Feasibility Study for the same being undertaken