



BULK CARGO HANDLING TECHNOLOGY

J.M.BAXI & CO.

TRANSHIPMENT AT ANCHORAGE

M/s. Sea Bulk has already given a presentation on Transshipment operations at Anchorage. We would like to inform our friends out here that M/s. J.M.Baxi & Co. are doing similar operations with Floating Cranes capable of discharging from Panamax/Cape size Vessels with a discharge rate of 10,000- 30,000 Tons Per Day at West Coast of India over a decade.



OVERVIEW OF IWA & NTPC MODEL

- Loaded vessel call at Diamond Harbour/Sagar
 - Mid stream transshipment
- Movement of Coal directly from Mid stream to Farakka/Kahalgaon plant without moving through haldia port.



IWA & NTPC MODEL

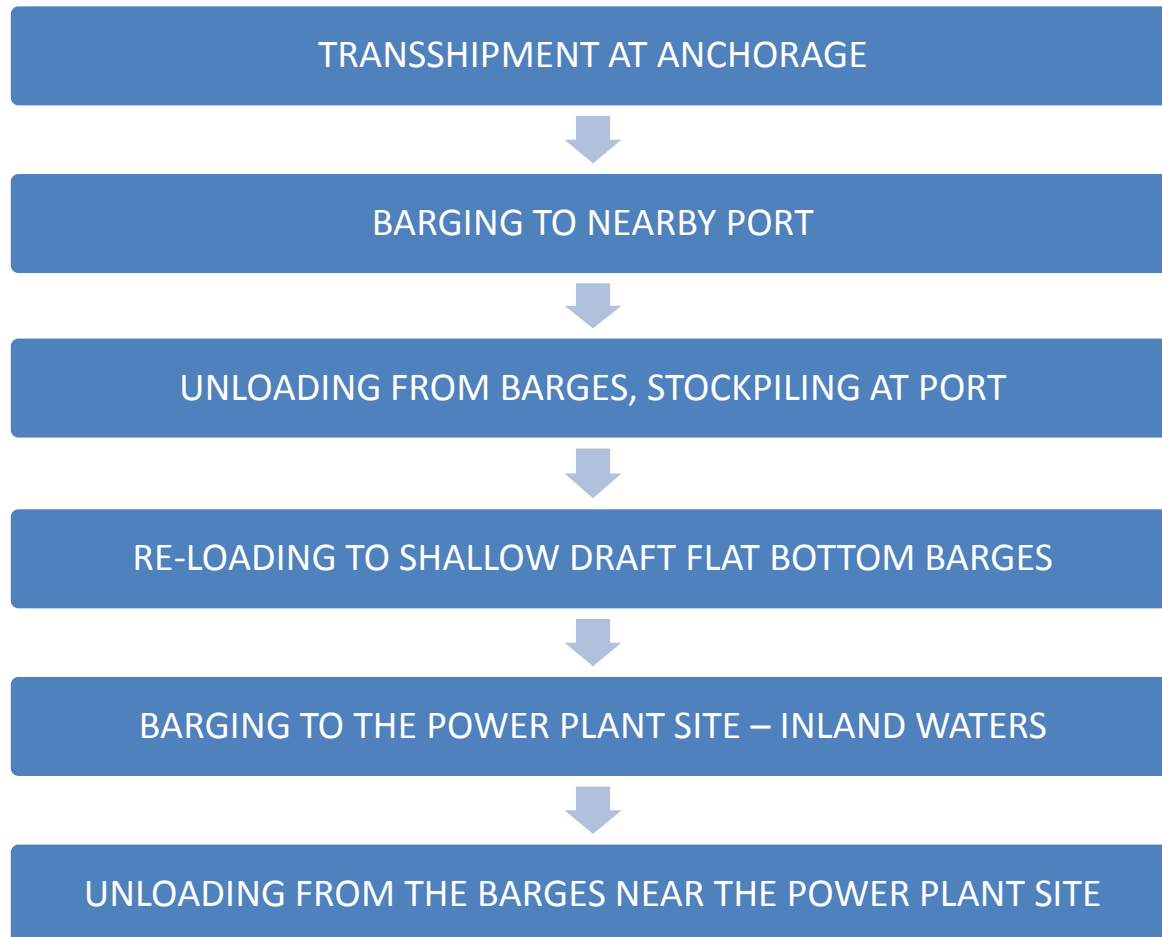
Advantages

- No double handling of cargo at Haldia Port, thereby minimizing handling loss and handling cost.
- Less Port Dues incurred at Haldia Port.
- No additional shore infrastructure to be developed at port of haldia.

Disadvantages

- High capital investment i.e. about Rs. 660 crore.
- No contingency plan incase there is a prolong navigational channel blockage.
- Only one vessel can be handled at a time.
- In case of foul weather no operation is possible.
- High operational cost of transshiper.
- Due to draft restrictions at Diamond Harbor/Sagar only Handymax Vessels can be handled.

J.M.BAXI & CO. MODEL



J.M.B & CO. MODEL

Advantages

- Less capital investment i.e. about Rs. 350 crore (2 Floating Cranes, Barge fleet of about 30 nos. ranging from 1600-6000 DWT, Industrial Excavators etc.)
- In case of channel blockage & Foul weather in river, cargo can be connected to plant via Rail/Road.
- More than one vessel can be handled simultaneously
- Since there is no draft restriction at Sandheads vessels of capesize can easily be handled.

Disadvantages

- Double handling and hence possibility of more cargo loss and extra cost.
(However, cargo loss can be reduced by using modern handling systems and cost implications have a negligible impact on the overall cost)

TRANSSHIPMENT AT ANCHORAGE

- Panamax/Cape size fully laden vessels arrive at Sandheads anchorage which is about 65 Nautical Miles (NM) from Haldia Port.
- Mother Vessel will discharge at Sandheads till a draught of 10 meters is achieved and then shifted to Sagar which is about 30 NM from Haldia Port for further discharge.
- For discharge of the vessel , it is proposed to use a Small Waterplane Area Twin Hull (SWATH) Floating Crane.



TRANSSHIPMENT AT ANCHORAGE_(CONTD.)

- Small Waterplane Area Twin Hull (SWATH):
 - Semi Submersible Floating Platform capable of operating at open sea in varied wind & wave climate that occur during the Foul Weather period, thereby providing a stable platform for operating the crane within its prescribed parameters of 2° Trim and 5° Heel.



BARGING TO HALDIA PORT (CONTD.)

- Barge Requirements:
 - We need barges of below specifications for transfer of cargo from Mother Vessel to port.
 - Twin Screw Self Propelled Barges
 - Barge size of 3000-6000 DWT
 - Length: Ranging from 75-92 meters
 - Beam: Ranging from 16-20 meters.



BARGING TO HALDIA PORT (CONTD.)

- Keeping in mind the distance between Sandheads/Sagar and Haldia Port.
- It is estimated that about 6 barges totalling to about 25,000-30,000 DWT will be required
- Due to Navigational restrictions consequent to lock gate, it is suggested that a barge loading/unloading facility with above specifications be developed outside the lock gate area.



DISCHARGING OF BARGES AT PORT

- During discharge of the barge we need to use high end modern industrial excavators which can give 1000 TPH/ machine, so that a 6000 Ton Barge can be completed with 3-4 hours with 2 such machines.
- Conveyors System: We can also consider the use of conveyors for both discharging and loading operations depending on the storage area/location.
- This facility will ensure quick barge turnaround, minimize handling costs and environmental pollution.



INLAND RIVER BARGING



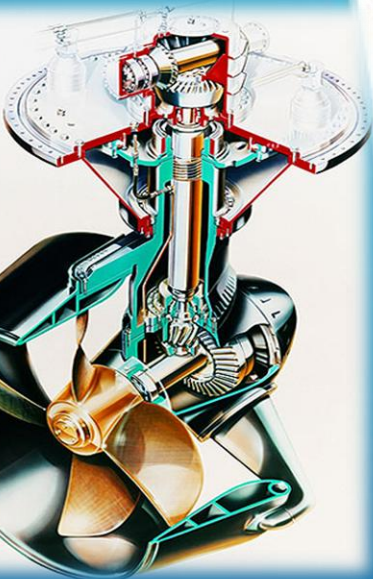
- Since the available draught is 2.2-2.5 meters for navigation the barges operated for this purpose should be to the below specifications:

- Flat Bottom/shallow draft schottel propelled barges with DWT of about 1000-1500 DWT. The number of barges required will depend on the exact location of plant and navigational distance from the barge loading point at port.



INLAND RIVER BARGING (CONTD.)

- SCHOTTEL Rudderpropeller System provides superior propulsion as it converts the engine or motor power into optimum thrust and also provides 360 degree rotation of the underwater assembly, enabling utilization of the full propulsive power for maneuvering the vessel. In addition the propellers are retractable, which ensures that they will not be damaged if for any reason the vessel has to sit on the river bed/quay side.



INLAND RIVER BARGING (CONTD.)

- Benefits of SCHOTTEL
 - Better Manoverability
 - Control over sharp turns
 - Positive response
 - Retractable Propellers

UNLOADING FROM THE BARGES NEAR THE POWER PLANT SITE

- Unloading of Barges at plant site jetty and movement of cargo to the plant stockpile
- Requirements include:
 - Barge Jetty of about 200 meters.
 - Sufficient backup area at Jetty for cargo stockpile.
 - Excavators for cargo discharge from barges.
- Note: Cargo can be shifted from Jetty to plant either by tipper/dumper trucks or via conveyor systems running upto the stockpile of the power plant.

SUPPORT FROM PORT

- From Kolkata Port
 - 200 meters Barge Jetty with 30-40 acres of back up land for storage of cargo preferably outside Haldia Port lock gate
 - This can be developed as Public Private Partnership or on BOT basis.
 - Minimum Draught of -6 meters from jetty to the main navigational channel to be available at all times.
 - Round the clock navigation permissions for barge operations.

SUPPORT FROM INLAND WATER AUTHORITY

- Maintaining a draft of -2.5 meters round the year in designated Inland Waters.
- Fixation of required navigational aids for empty and loaded barges (two way traffic).
- Permission and facilities for night navigations.
- Concession on operational tariffs

SUPPORT FROM INLAND WATER AUTHORITY (CONTD.)

- Waterfront with sufficient draught and back up for construction of jetty for handling barges nearest to the plant location.
- These facilities can be created by joint venture between plant owner and/or IWA and/or logistics provider.

CONCLUSION

- Therefore, Anchorage Operations combined with Inland Water Ways has high potential to provide uninterrupted logistics solutions for cargo movement at cost effective prices by removing the existing bottlenecks in the present supply chain of power plants.



THANK YOU