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**Terminal & Port Infrastructure:  
Connectivity & Data Transparency**

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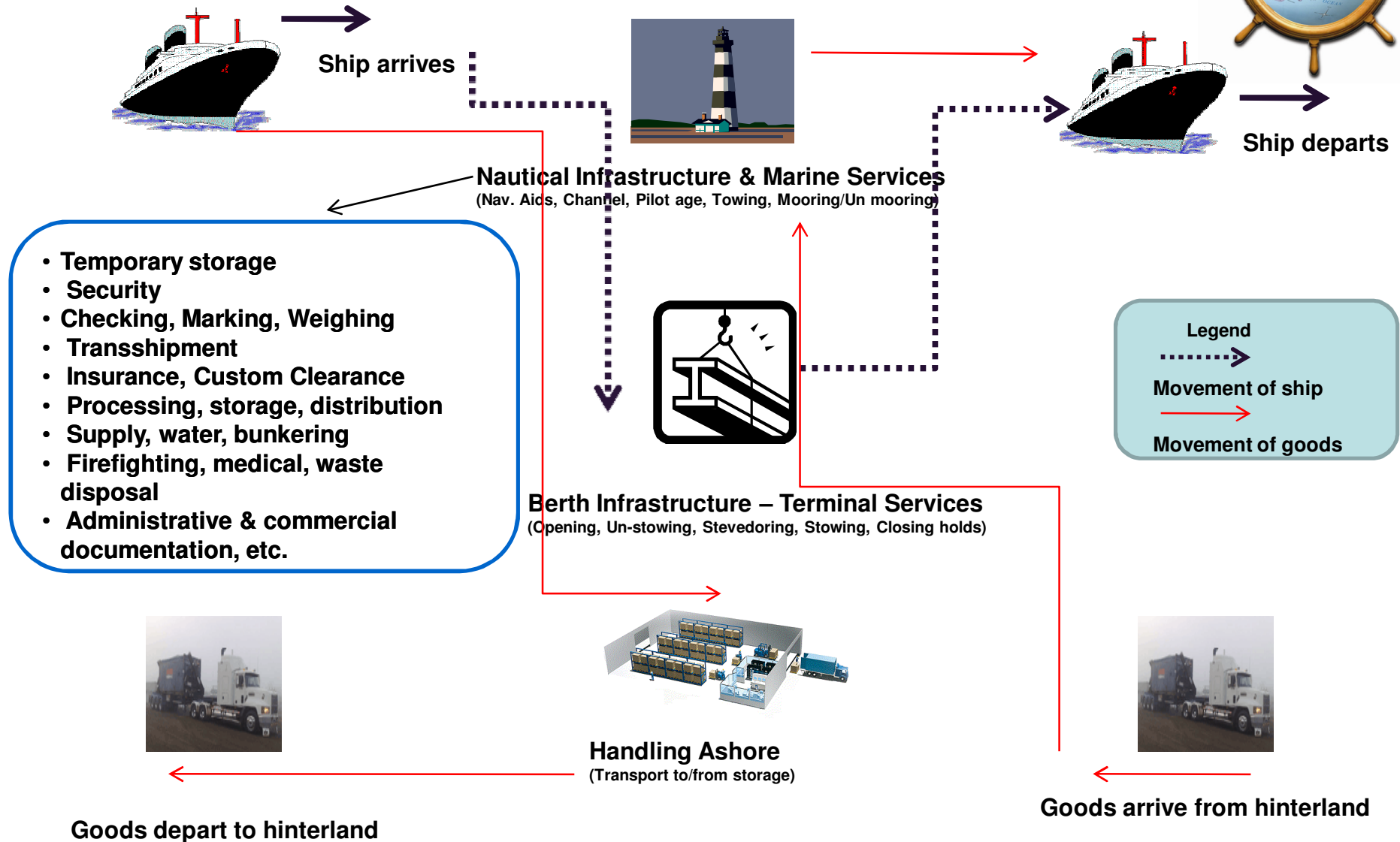
# Ports & their Functions



- To a mariner Port is place for ships to **load & unload** freight & passengers safely.
- To a shipper or passenger, a port is the **interface** between land & water transport.
- To the national economist, a port is a **gateway** to all the benefits of international trade
- To the port manager, the port is a **business** that can be used, if well managed to profit.
- To a supply chain manager it is one step in the total **process**.

*“Port has variety of functions that meets the needs of its many stakeholders in different ways.”*

# Appraising Port Functions



# Port Development Model



Model	Infrastructure	Superstructure	Cargo handling
Public Service Port	Public	Public	Public
Private Service Port	Private	Private	Private
Tool Port	Public	Public	Private
Landlord Port	Public	Private	Private

# Port Development Model Analysis

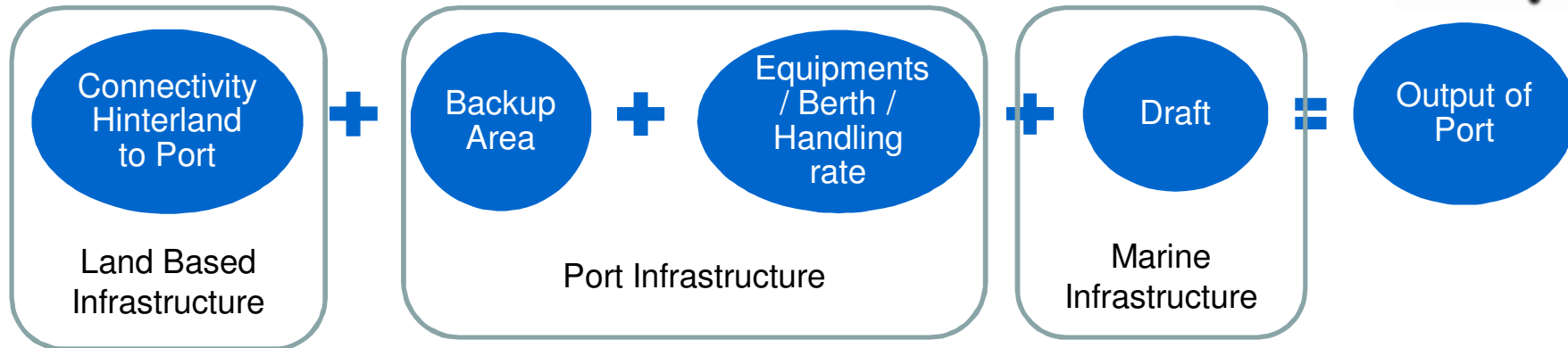


	<b>Strengths</b>	<b>Weaknesses</b>
<b>Landlord Port</b>	<ul style="list-style-type: none"> <li>• Cargo Handling in Private Hands</li> <li>• Strong Market Leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Conflict of Ambitions</li> <li>• Over capacity.</li> <li>• Possible footloose operations</li> </ul>
<b>Tool Port</b>	<ul style="list-style-type: none"> <li>• Large investments</li> <li>• No redundancy</li> </ul>	<ul style="list-style-type: none"> <li>• Double entity</li> <li>• Conflict of interest – Management &amp; Operations</li> </ul>
<b>Public Port</b>	<ul style="list-style-type: none"> <li>• Unity of command &amp; management</li> <li>• Long-term View</li> </ul>	<ul style="list-style-type: none"> <li>• Private sector out of the port business.</li> <li>• High Political Influence</li> </ul>
<b>Private Port</b>	<ul style="list-style-type: none"> <li>• No Political Influence</li> <li>• High Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Monopoly</li> <li>• Possible deviation from the core business to more profitable activities.</li> </ul>

# Nodes of Infrastructure for Port



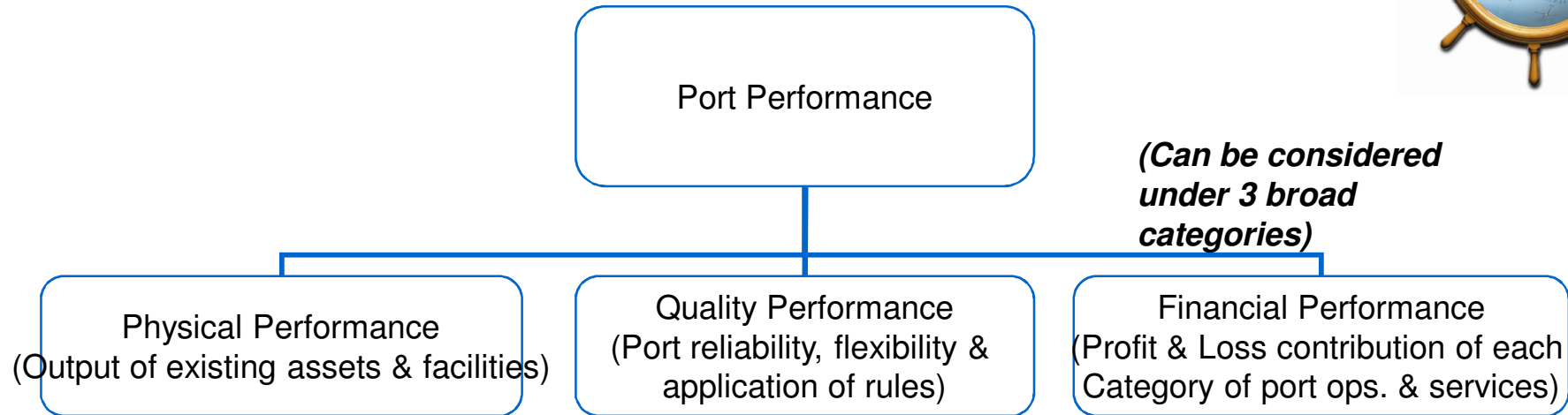
- Success of port is a function of all the 3 major Nodes
- **Minimum capacity** of any node determines **Capacity of Port**



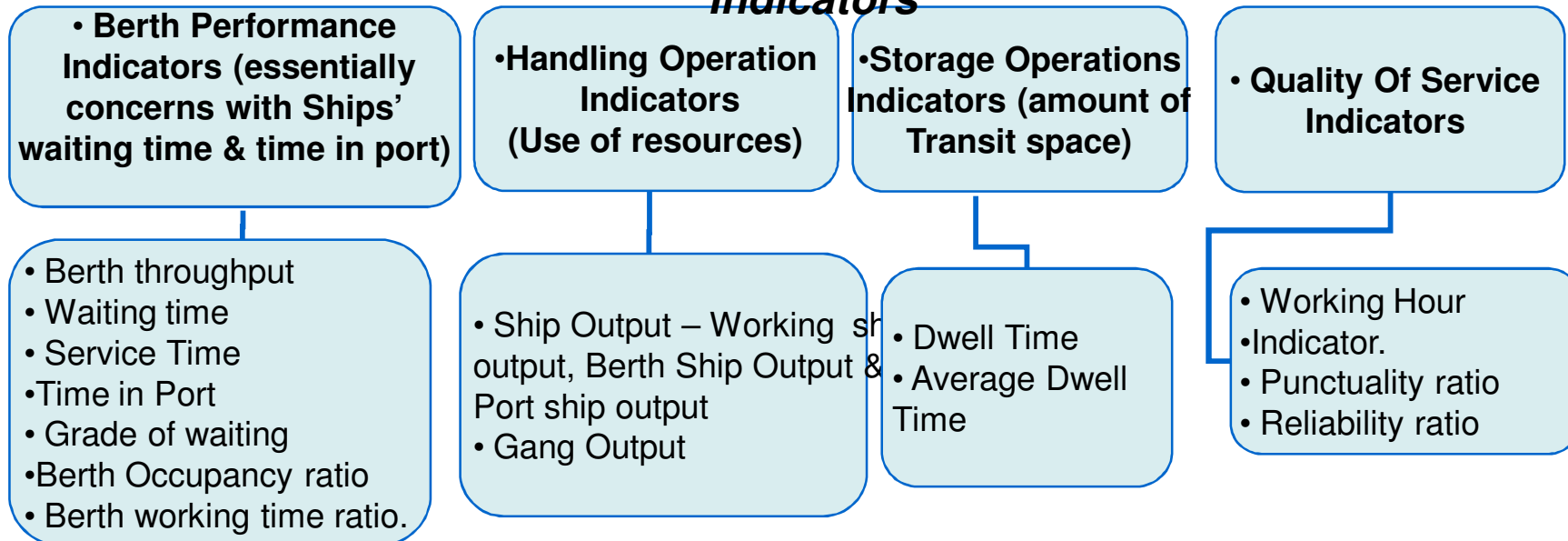
**Ports in India have failed to get all nodes right at a single point of Time**

Port Superstructure (Land side & Intermodal extension)	Berth Infrastructure (shore Interface)	Nautical Infrastructure (Sea or water connection)
Logistics & Value added services <ul style="list-style-type: none"> <li>• Cargo storage &amp; processing</li> <li>• Information processing.</li> <li>• Estate &amp; rental services</li> <li>• Repair services</li> <li>• Other logistics &amp; value added services.</li> </ul>	Terminal Services <ul style="list-style-type: none"> <li>• Berthing</li> <li>• Tie-up services</li> <li>• Stevedoring &amp; wharf handling</li> <li>• Bunkering &amp; supply</li> <li>• Quay transfer operations.</li> </ul>	Marine Services <ul style="list-style-type: none"> <li>• Conservancy &amp; protection</li> <li>• Access &amp; navigation</li> <li>• Pilot age &amp; towage</li> <li>• Vessel traffic management</li> <li>• Dredging &amp; maintenance</li> </ul>

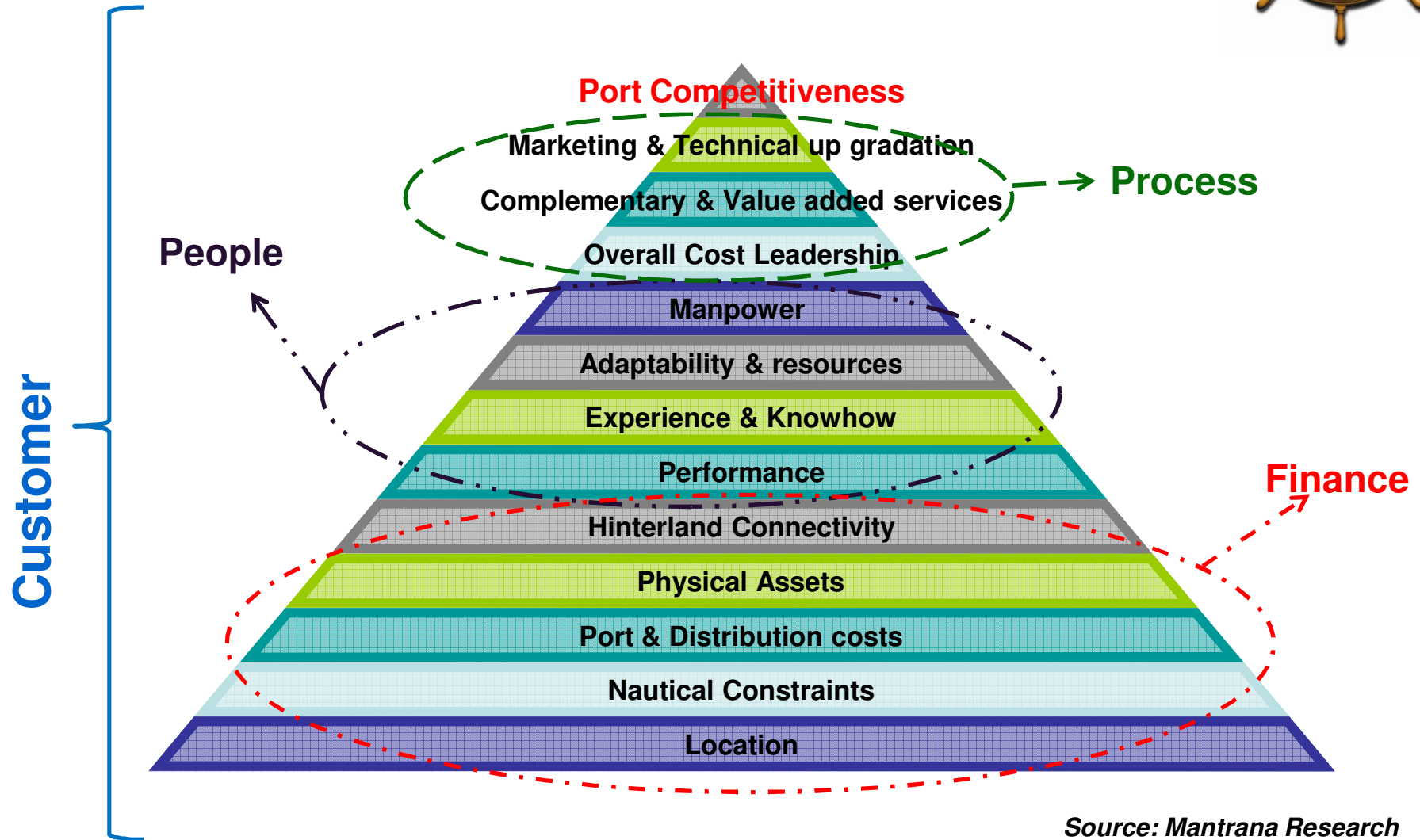
# Port Performance



## Indicators



# Port Competitiveness – Decision factors







## Indian Scenario

## The concerns



- Poor Infrastructure
  - Lack of long term view on Port Infrastructure
  - Investments on wrong location (i.e. that are in cities, cannot be expanded beyond certain limit)
  - Too much regulation – TAMP
  - Shortage of storage space.
- Connectivity – Both on Road Rail
- Lack of Dedicated freight corridors
- High investment costs & limitations of existing infrastructure.
- Lack of skilled labor
- High risk investment & Political/bureaucratic hindrances
- Delays in Infrastructure development projects

## Port Connectivity – Major Ports



Port	Traffic (Mn Tons)	Road	Railway	Hinterland
Kolkata Port Trust	12.5	NH-2, NH-6 & NH-34	Majherhat Junction	Entire Eastern India & two land-locked neighbouring countries. Nepal and Bhutan
Haldia Dock Complex	34.9	NH-6 , NH-41	Rajgoda, Panskura	North Bengal & North Eastern States, Nepal & Bhutan
Paradip Port Trust	56.0	NH-5, SH-12	Cuttack	Jharkhand, Madhya Pradesh, Orissa, Andhra Pradesh, Uttar Pradesh, Chhattisgarh, Bihar & West Bengal
Visakhapatnam Port Trust	68.0	NH-5	Chennai-Howrah	Orissa, Chhattisgarh, Maharashtra & Karnataka
Ennore Port Ltd.	11.0	NH-4, NH-5 & NH-45	Chennai-Kolkata-Gudur	Karnataka, Andhra Pradesh
Chennai Port Trust	61.5	NH-4, NH-5 & NH-45	Chennai Fort	Karnataka, Andhra Pradesh
Tuticorin Port Trust	25.7	NH-7, NH-7A & NH-45B	Tuticorin Harbour	Kerala, Karnataka & Andhra Pradesh
Cochin Port Trust	17.9	NH-17, NH-47 & NH-49	Ernakulam Junction	Karnataka, Tamilnadu
New Mangalore Port Trust	31.6	NH-13, NH-17 & NH-48	Mangalore	Maharashtra, Kerala and Tamilnadu
Mormugao Port Trust	50.0	NH-17, NH-17A & NH-17B	Vasco Da Gama	Karnataka, Maharashtra
Mumbai Port Trust	54.6	NH-3, NH-4, NH-8 & NH-17	Raoli Junction, Wadala	Entire North-West India & West Bengal
Jawaharlal Nehru Port Trust	64.3	NH-4B, NH-17 & SH-54	Panvel	Entire North, Central & North-West India
Kandla Port Trust	81.9	NH-8A	Palanpur, Gandhidham	Entire North, Central & North-West India

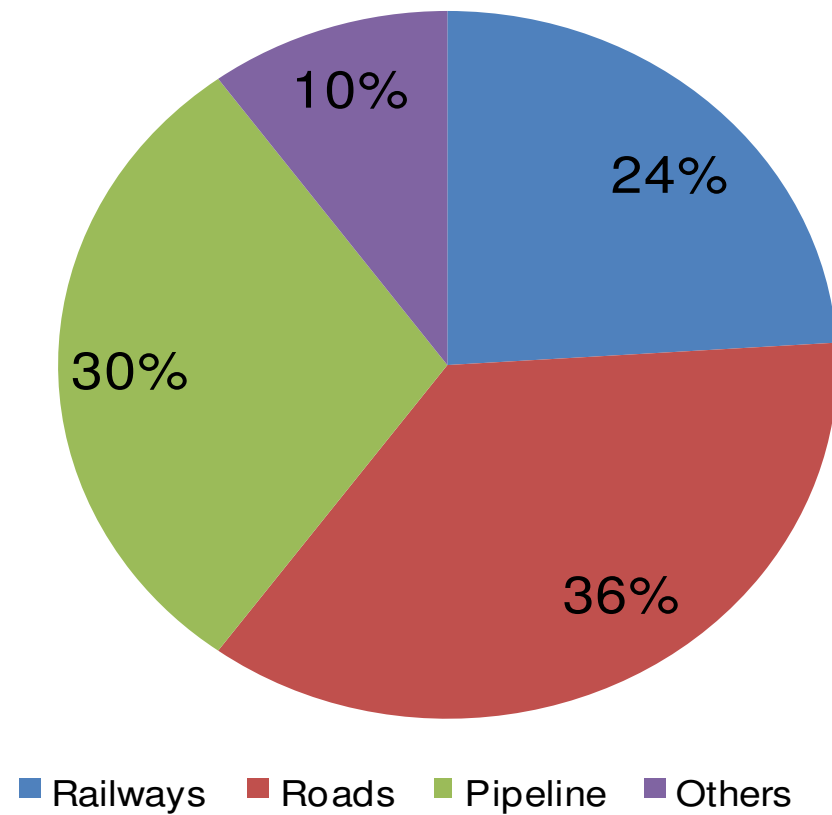
## Port Connectivity – Non-Major Ports



Port	Traffic (Mn Tons)	Road	Railway	Hinterland
Mundra	51.8	NH-8A	Adipur	Entire North, Central & North-West India
Pipavav	6.1	NH-8, NH-8D, NH-8E	Surendranagar	Entire North-West India
Gangavaram	13.95	NH-5	Chennai- Visakhapatnam-Howrah	Eastern, Western, Southern and Central India
Krishnapatnam	15.56	NH-5	Chennai–Kolkata	Karnataka, Tamilnadu



## Port Traffic Mode Share (% of Tons Handled)



# Infrastructure Planning, GOI

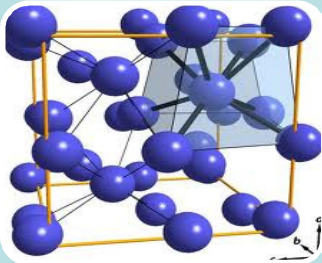


## Initiative:



- Construction of new berths through PPP. Concession agreement is being formulated.
- Empower major ports & prepare perspective plan for 20 years & action plan for 7 years
- Improving Rail-Road connectivity to Major ports & introducing several measures to simplify and streamline procedure related to security and customs are been initiated.
- Investment of over 50,000 crore Rs in port infrastructure

## Structure:



- Encourage the private sector to take the lead in port development activities and operations
- Many Major ports now operate largely as landlord ports - International port operators have been invited to submit competitive bid for BOT terminals on a revenue share basis.
- Significant investment on BOT basis by foreign players including Maersk (JNPT, Mumbai) and P & O Ports (JNPT, Mumbai and Chennai), Dubai Ports International (Cochin and Vishakhapatnam) and PSA Singapore (Tuticorin)

## Policy:



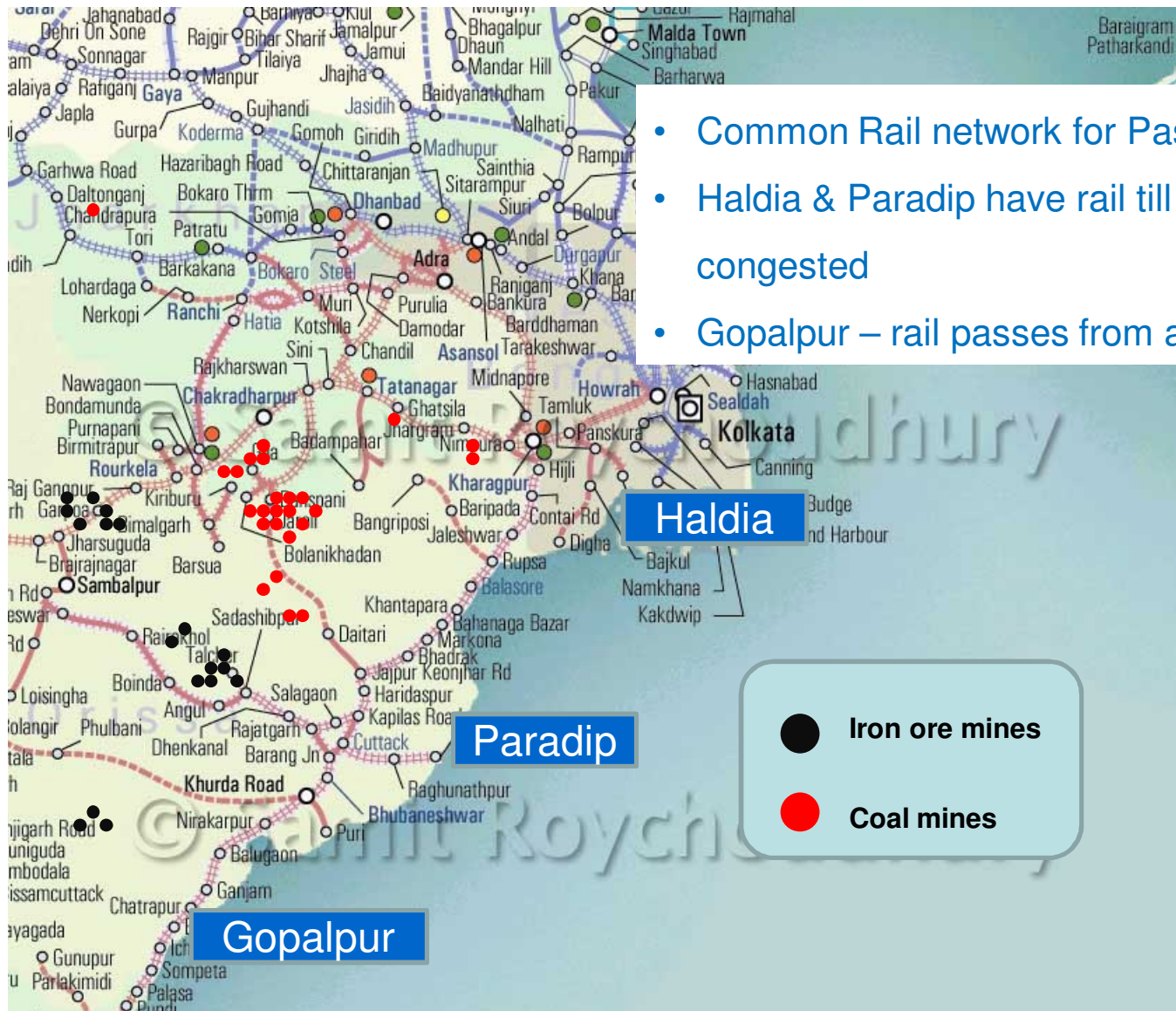
- 100% FDI under the automatic route is permitted for port development projects.
- 100% income tax exemption is available for a period of 10 years.
- Tariff Authority for Major Ports (TAMP) regulates the ceiling for tariffs charged by Major ports/port operators (not applicable to minor ports).
- A comprehensive National Maritime Policy is being formulated to lay down the vision and strategy for development of the sector till 2025

*Source: infrastructure planning, GOI*



## Comparative Example on East Coast

# Rail Network – East Coast



- Common Rail network for Passenger & freight
- Haldia & Paradip have rail till port but are congested
- Gopalpur – rail passes from a distance





## **Haldia**

- Congested Railway line reaches port.
- Low draft cannot call large ships (Poor Marine Connectivity)

## **Paradip**

- Congested Railway line reaches port.
- Low draft cannot call large ships (Poor Marine Connectivity)

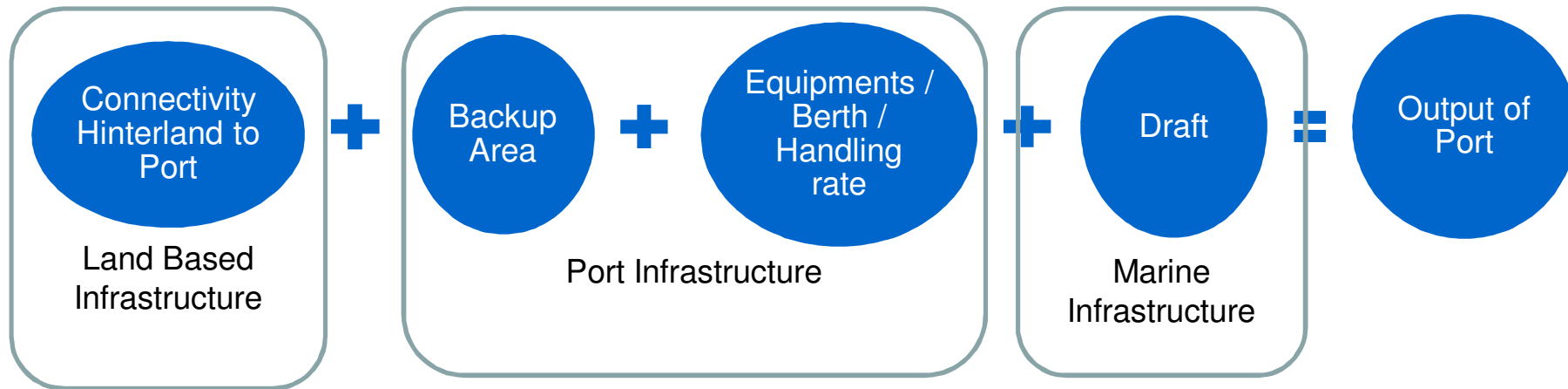
## **Gopalpur Port, India**

- Excellent Marine Connectivity
- Private developer, can get latest equipments installed
- Poor land connectivity

# Summary India



None of the Nodes has optimum planning



Land Based Infrastructure	Port Infrastructure	Marine Infrastructure	Output of Port
Not Bad	Good & Can be Improved	Bad	Haldia Port
Not Bad	Good & Can be Improved	Poor	Paradip Port
Very Bad	Good	Excellent	Gopalpur

## What is the Solution



### **Implied Task: -**

1. Minimizing transport distance - avoiding unnecessary journeys.
2. Good hinterland connectivity- upgrading more transport arteries and hubs.
3. Efficient & sustainable transport modes - Making optimum use of transport infrastructure.
4. Cross state border transport initiatives shifting more traffic to railways and inland waterways;

### **Main Task:-**

1. Define common performance measures.
  - KPI's
  - Turn Around Time of trucks, trains.
  - Documentation processing speed.
2. Custom & clearance speed.
3. Share common planning platform.
4. Identify bottlenecks with predictable speed.
5. Transparent in planning logistic movements with supply chain partners.
6. Co-Operative partnership.
  - Address common challenges
7. Integration of supply chains.
  - With data connectivity & transparency

## About Mantrana



- Undertakes research & consultancy on the Indian Maritime Sector
- Undertakes economic advisory on the following maritime segments
  - ✓Offshore Drilling & Logistics Sector
  - ✓Shipbuilding
  - ✓Shipping
  - ✓Ports & Logistics
- Following are key services provided by Mantrana Team
  - ✓Market Study
  - ✓Project Feasibility Study
  - ✓Business Plan
  - ✓Bid Advisory
  - ✓Due Diligence for investment



**Thank you for your Attention**

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