CHAPTER III

CHALLENGES OF THE PORT SECTOR IN INDIA

The major ports in India are faced with infrastructure constraints such as low drafts, conventional and manual operations, and limitations of storage area resulting in pre-berthing delays and slow turnaround of vessels/cargo from the port, which add to the cost of landed cargo. Ports also require logistics support in the hinterland as well as road and rail networks for evacuating goods. Port expansion without adequate support in terms of logistics is not truly meaningful. India urgently needs to enhance road and rail connectivity to the ports. The existing networks are inadequate and are bottlenecks for the movement of goods. Although Maritime Transportation constitutes a critical infrastructure for the social and economic development of the nation, the emphasis on the development of infrastructure in Indian Ports is inadequate, and the sector is plagued by congestion and capacity constraints.

In addition to the lack of sufficient hinterland connectivity, especially due to inadequate rail and road connectivity at a number of ports hindering competition, the regulatory framework governing the Indian Port sector, comprising of many regulators and multiple legislations, is also complex and needs simplification to enhance integration and better co-ordination. Although the Government of India has taken steps to try and co-ordinate new port development in key strategic hubs and encourage private investment in ports, the major challenges faced by the Port sector in India include the lack of adequate infrastructure facilities, low level of containerization, Public-Private participation issues, low labour productivity, complex regulatory mechanisms, lack of trained manpower, lack of co-ordination among the organs of the port, and problems related to safety and security.

The objective of this chapter is to analyze the issues and challenges confronting Indian Ports. The information presented is based on the discussions of the researcher with maritime administrators, senior officials of the port trust and experts in the maritime field. As far as possible, the secondary sources of information, have been cited in the chapter.
Regulatory Challenges

The Tariff Authority for Major Ports (TAMP) regulates tariff structure for major ports while non-major ports have the flexibility to define their own tariff structure. Although the government had plans to introduce the Port Regulatory Authority Bill 2011, aimed at leveling the playing field between major and non-major ports, state governments are of the view that the bill infringes on their jurisdiction.

However, on July 31, 2013, the Ministry of Shipping (MoS) announced new guidelines for setting of market linked tariffs in major ports, which will be applicable to projects bid out since. While these new guidelines will apply prospectively to projects awarded going forward, the existing private operators and major port trusts continue to be governed by the tariff guidelines of 2005 and 2008, which are seen to have certain inherent flaws. The incumbent private terminal operators have persistently demanded that they must be migrated to similar guidelines which allow market linked tariffs subject to certain ceilings.

The private sector would also like the tariffs deregulated completely with regulations of competition being guided by the existing Competition Commission. Further, private players would rather have the public port authority focus on landlord functions such as long-term planning, infrastructure development, asset management, regulatory functions such as maritime safety, environment protection and fair competition, and coordination among governmental agencies, maritime organizations, etc. Thus there is discrimination between major and non-major ports with respect to the tariff setting mechanism.153

The port sector like several other infrastructure segments lacks an independent regulator. Under the present system, the port authority grants contracts or concessions and also performs the function of the regulating body for resolving disputes or addressing issues. However, to ensure fair decision-making, it is necessary to have an independent regulator.

The fact that minor ports are not regulated by the central government, but by the respective state governments or authorities, further compounds the problem. Therefore, a central regulatory authority governing all ports in the country, ensuring similar regulations across Indian ports, would aid port development and port users. The objective of the Indian Ports Bill 2011 is to place both major and non-major ports under one regulator, however; the bill has faced stiff opposition from the maritime states.

The Tariff Authority for Major Ports (TAMP), currently follows the cost-plus approach to fix tariff rates. There is a 16 per cent cap on (Return on Capital Employed) ROCE, which does not take into account factors such as operational efficiencies or improvement in service quality parameters like the speed of evacuation, etc. The cost-plus approach also ignores tax, which is one of the real costs to the operator. In addition, the method of calculating depreciation by the regulator to set tariffs is also left ambiguous.

The current status of ports in India does not offer a level-playing field for major and minor ports. Despite natural hinterland advantages available to non-major ports, a high tariff structure has often been used.

The Maritime Agenda 2010-20 and a Parliamentary Committee headed by B.K. Chaturvedi had recommended that all ports in the country be brought under a single regulator with a quasi-judicial mandate for settling disputes. In this direction, the MoS introduced the Indian Ports Bill, 2011 to bring in major and minor ports under one regulator. The maritime states have, however, vehemently opposed the recommendation.
Clearances have posed significant problems for port projects. Environmental clearances for a port project take at least one and a half years. The Mega container terminal project at Chennai faced impediments due to delays in securing environmental clearances. The project also suffered setbacks due to poor response from the qualified bidders and the Port authorities were dissatisfied with the revenue sharing ratio offered. The coal and iron ore export terminal at Mormugao Port is also facing delays due to environmental issues. The problem with environmental clearance in ports is that, it is obtained after projects are bid out to private parties, and this usually takes a long time to fructify.

The Projects awarded on a PPP basis have always fallen short of the targets largely due to the long lead time taken for the environment and other statutory clearances.

The road-port and rail-port connectivity projects are also faced with issues such as, tedious and lengthy clearance processes that deter the private sector. Further, there are different ministries involved, which more or less work in isolation, making the whole process cumbersome.

Major ports have adequate rail and road connectivity. On the other hand, operators at non-major ports, face rail connectivity as one big challenge.

Several documents are required for clearing goods being exported from India by sea, and the clearance of all export-related procedures is time consuming. The documents required for clearance of export goods include: i. Commercial Invoice; ii. Shipping Bill; iii. Packing List; iv. Shippers’ Declaration; v. Purchase Order; vi. Statutory Declaration Form (SDF); vii. Importer Exporter Code (IEC); Authorized Dealer Code (ADC); and viii. Application for Removal of Excisable Goods for Export by Sea/Air/Post (AR).
It takes nine days to prepare the documents, two days for customs clearances, three days for ports handling and four days for inland transportation. This is significantly more than the average requirement for Organization for Economic Cooperation and Development (OECD) countries. Trade procedures need to be simplified by improving coordination between customs and port authorities.\textsuperscript{154}

**Challenges of Infrastructure**

Ports are themselves a crucial physical and service infrastructure for the shipping trade and economy at large; however, to be an efficient infrastructure service provider, the port establishment needs to have in place its own physical and logistics support infrastructure. These in turn determine what type of ships and commodities a port can efficiently handle.

The kind of infrastructure that a port has or would need would, of course, differ widely from port to port depending on what type of trade or cargo a port is likely to handle. While most ports perform certain common functions relating to handling of ships and cargo, each port is however, unique in terms of its location, size and importance in the national and global economy and the advantages and disadvantages that follow from it.

Port infrastructure encapsulates a complex aggregation of physical assets and cargo-handling facilities coupled with navigational aids, vessel traffic management and berthing of incoming vessels that call on ports. The port infrastructure basically enables port management to deliver a wide range of services and act as an effective interface between sea and surface modes of transport.

With the bulk of the global trade volumes transported by liner vessels of various types, the level of service efficiency in handling of such vessels and the costs of port services have begun to have a critical bearing on the competitiveness of a country’s global trade.

\textsuperscript{154} \texttt{<http://www.quantaco.com/download/Bonnici\%20India\%20presentation.pdf>} [Accessed on 12-May-2014]
Port service efficiencies are, however, most often a direct function of the economies of scale achieved in terms of various port infrastructure facilities and how they are operated, which together determine the operational capabilities of a port. While most ports are widely different from one another in many respects, they do share certain common infrastructure elements.\textsuperscript{155}

From FY 2007-11, about 165 mt of capacity was added at the major ports while cargo traffic had increased by a similar figure. According to international standards, capacity should be 30 per cent in excess of traffic to provide efficient services and lower the average turnaround and pre-berthing time. The capacity of ports has been consistently enhanced to meet growing traffic needs.

The aggregate capacity of major ports as at the end of FY 2014 was 800.52 MTPA as against 744.91 MTPA in FY 2013 and 696.53 MTPA at the end of FY 2012. Capacity utilization of major ports fell to 73 per cent during FY13 and further to 69.39 per cent in FY 14 after remaining above 80 per cent during the previous five years. There is a high concentration of activity at Mumbai, JNPT, Kandla and Ennore. In fact, Mumbai is working at more than 132 per cent capacity while JNPT has a capacity utilization of 94.61 per cent.\textsuperscript{156}

\textsuperscript{155} i-maritime, (2003), \textit{India Port Report}, Navi Mumbai, i-maritime consultancy, p.37
\textsuperscript{156} Update on Indian Port Sector (2014), Transport Research Wing, Ministry of Shipping, Government of India, New Delhi, p.38
### Table 3.1

*Capacity Utilization of Major Ports in India during 2013-14*

<table>
<thead>
<tr>
<th>Name of the Port</th>
<th>Capacity (Million Tonnes)</th>
<th>Traffic (Million Tonnes)</th>
<th>Capacity Utilization (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolkata Dock System</td>
<td>17.14</td>
<td>12.87</td>
<td>75.09</td>
</tr>
<tr>
<td>Haldia Dock Complex</td>
<td>49.75</td>
<td>28.51</td>
<td>57.31</td>
</tr>
<tr>
<td>Paradip</td>
<td>108.8</td>
<td>68</td>
<td>62.5</td>
</tr>
<tr>
<td>Visakhapatnam</td>
<td>88.92</td>
<td>58.5</td>
<td>65.79</td>
</tr>
<tr>
<td>Ennore</td>
<td>31</td>
<td>27.34</td>
<td>88.19</td>
</tr>
<tr>
<td>Chennai</td>
<td>86.04</td>
<td>51.11</td>
<td>59.4</td>
</tr>
<tr>
<td>Tuticorin</td>
<td>42.06</td>
<td>28.64</td>
<td>68.09</td>
</tr>
<tr>
<td>Cochin</td>
<td>49.66</td>
<td>20.89</td>
<td>42.07</td>
</tr>
<tr>
<td>New Mangalore</td>
<td>77.77</td>
<td>39.37</td>
<td>50.62</td>
</tr>
<tr>
<td>Mormugao</td>
<td>36.65</td>
<td>11.74</td>
<td>32.03</td>
</tr>
<tr>
<td>J. L. Nehru</td>
<td>65.88</td>
<td>62.33</td>
<td>94.61</td>
</tr>
<tr>
<td>Mumbai</td>
<td>44.53</td>
<td>59.18</td>
<td>132.9</td>
</tr>
<tr>
<td>Kandla</td>
<td>102.32</td>
<td>87.01</td>
<td>85.04</td>
</tr>
<tr>
<td><strong>ALL PORTS</strong></td>
<td><strong>800.52</strong></td>
<td><strong>555.5</strong></td>
<td><strong>69.39</strong></td>
</tr>
</tbody>
</table>

*Source: Update on Indian Port Sector (31st March, 2014) MoS, GOI*

The capacity of the port to clear cargo is referred to as port capacity while port traffic refers to the volume of import or export cargo handled by the port. The traffic is in excess of the capacity in certain Indian ports such as Mumbai and Jawaharlal Nehru Port Trust, which reflects congestion, higher turn-around times of the ships and pre-berthing detention and consequently poor port performance.\(^{157}\) When traffic handled at a port is in excess of the capacity it means that, ships have to wait for berths instead of berths having to wait for ships.

For instance, the assessed total capacity available at Mumbai port in March 2014 was 44.53 million tonnes against which the port handled a total traffic of 59.18

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91

million tonnes. This leads to serious problems of maintenance, frequent breakdown of cargo handling equipment leading to their underutilization and additional demand on the port’s storage capacity.

Capacity constraints such as low draft, insufficient space on berths and storage area are further compounded by India’s 25 per cent level of containerization, which is far below the global average of 60-70 per cent. Furthermore, the average time for clearing import/export cargo at ports in India is about 19 days, compared to 3-4 days in Singapore. As shippers seek alternative cargo gateways, a spill-over of cargo from major ports to medium-sized, non-major ports are occurring. The lack of capacity at the ports and consequent congestion and delays are reflected in the poor performance of the major ports. The Table below provides some measures of the performance of Indian ports during 2012-13 and 2013-14.

Table 3.2

**Selected Performance Indicators of Major Ports in India during 2012-13 and 2013-14**

<table>
<thead>
<tr>
<th>Performance Metric</th>
<th>Average for Major Ports in 2012-13</th>
<th>Average for Major Ports in 2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-berthing dwell time (Port Account) (in days)</td>
<td>1.79 days</td>
<td>0.29</td>
</tr>
<tr>
<td>Turnaround time (in days)</td>
<td>4.29 days</td>
<td>3.87</td>
</tr>
<tr>
<td>Output per ship-berth-day (in tonnes)</td>
<td>11,812 tonnes</td>
<td>14,149</td>
</tr>
</tbody>
</table>

*Source: Update on Indian Ports Sector (30th September 2014), MoS, GOI*

However, it must be mentioned that it is not possible to compare Indian Ports with top international Ports simply because the concept of pre-berthing detention in world class ports does not exist as the capacity is much more than the actual traffic and the planning is also done on those lines. Hence, there is no question of any ship waiting
at anchorage. In contrast, on average ships have to wait for more than 2 days to get a berth at an Indian port.\textsuperscript{158}

It is possible, however, to draw a comparison, however, between major Indian Ports and PSA Singapore for handling of container ships. The average turn-around time for container vessels at major Indian ports is 1.77 days compared to just 0.50 days at Singapore port. The average cargo dwell time for containers at major Indian ports is 3.78 days while it is just 0.60 days for Singapore. Even though the performance of a port on handling of bulk cargo can be different from containers, these numbers do give an idea of the gap between the performance of Indian ports and world-class ports.

Pre-berthing detention is directly related to congestion at the port and hence the lack of capacity. Average turn-around time is the time required to load, discharge and service a vessel. The major factors that drive vessel turn-around time is the amount of traffic to be loaded or unloaded (again related to capacity), distance from anchor point to the berth, efficiency of the port authority in piloting or tugging the vessel, and most significantly, the efficiency of the terminal operator in handling the vessel. Average output per ship-berth day is related to the last factor affecting vessel turnaround time – the efficiency of the terminal operator in handling the vessel. The composition of traffic at the port also affects output and must be considered. In addition to capacity constraints, even in terms of cargo-handling equipment such as wharf cranes, mobile cranes, and forklift trucks, utilization at many major ports is substantially low resulting in increased turnaround time of vessels as well as cargo handling costs.

The port entrance channel is an artificially created navigational path, which provides required water depths for the ships to enter the allocated berth slots in the port area. It is created through dredging of the seabed as per the required depth, width and length specifications. Deeper and wider approach channels in a port enhance the capability of port to handle larger sized and more number of ships, which in turn help lower the total cargo shipment costs by enabling larger parcel size

\textsuperscript{158} Maritime Agenda 2010-2020. <www.shipping.nic.in,> Accessed on [18-12-2011], p.96
of shipments. This is true in respect of most commodity freight segments, especially in dry bulk commodities like coal and iron ore, which are more economical to handle in capesize vessels, besides container cargo, where the bulk of the global traffic volume is handled by large cellular ships.

However, barring the case of ports (like Mundra, Kakinada, Gangavaram) which have a natural deep draft that do not require an artificially dredged channel, most ports in India are shallow draft ports, which require the depth of the approach channel to be artificially created and subsequently maintained on a regular basis. However, as global maritime trade is witnessing dramatic increases in ship sizes and the economies of scale in bulk cargo; and container cargo movements increasingly favour large sized parcel movements, the ports are under pressure to provide the required facilities to shipping lines or lose their share of cargo traffic to other ports.

In the Indian port sector, lack of the adequate draft at the port entrance channel is one of the key strategic development issues that needs to be addressed at a macro planning level for the port sector. The government and the port authority have so far been the key nodal agencies that have invested in the creation of this marine infrastructure at various ports. Dredging an approach channel is a highly capital-intensive activity that involves massive amounts of displacement, and the cost of dredging is highly sensitive to the type of seabed to be dredged. While dredging of loose sand beds is relatively cheaper, dredging of hard rock beds could be highly costly and involves expensive equipment and technology for blasting. As the profile of vessels calling at various ports widely differs, the design specifications for approach channels need to be planned meticulously, factoring in the expected returns on investment in terms of likely growth of port traffic and expected earnings from port operations.

A number of major ports in India were established at a time when liquid and dry bulk cargo trade were carried out by smaller ships (in the handy size, Handymax vessels) which do not require very deep drafts or which could manage to enter the ports using the tidal windows. However, as dry bulk and container ship sizes have
grown, ports that are unable to handle these large ships have begun to lose their cargo to other ports.

**Issues related to Dredging**

The dredging of marine and inland water channels is essential for creating and maintaining navigability at an optimal level. The demand for dredging is growing in India on account of port infrastructure development to cater to increasing international trade, the use of larger vessels and increased focus on coastal shipping and inland water transport. Currently, Indian ports on an average have lower channel draught depth of 7-17 metres (m) in comparison to international standards of 12-23 m.\(^{159}\)

Though the dredging capacity of the country has increased, it is insufficient to meet the growing demand. Insufficient contract volumes and their irregularity have, in the past, stymied the development of this segment. Further, the presence of a large government-owned entity – Dredging Corporation of India (DCI) makes it difficult for new players to establish themselves in the Indian market. The influx of foreign players in the industry is adding new capacity, but the challenges faced by domestic players need to be addressed to expand indigenous capability.

The development of new berths and deepening of the ports approach channel require large volumes of dredging of the seabed and involve sizeable investment. While different degrees of technological sophistication in terms of the requirement of dredging vessels and other dredging equipment are needed in different projects, the bulk of the demand for dredging actually flows from two categories of dredging in the port sector – namely capital dredging and maintenance dredging. Ports provide the mainstay of demand for the dredging industry, accounting for the bulk of the turnover of dredging companies. However, economies of scale in the dredging industry require support also in terms of many other non-port related dredging activities such as dredging for inland waterways, reclamation of sea land,

\(^{159}\) India Infrastructure Research, Ports in India, New Delhi, 2012, p.159
construction of bridges, etc. Broadly, the dredging market in Indian port sector can be categorized into two segments:

**Capital Dredging**

Capital Dredging can be termed as the dredging of new or approach channels, construction of new berths and other marine-side infrastructures like single buoy moorings (SBMs), jetties and wharfs etc., which require an artificial draft to be created at the time of establishing the facility. However, since most of the Indian major ports were established several decades ago and existing drafts of these ports are often inadequate for contemporary larger vessels to call on them, capital dredging projects need to be undertaken for deepening the existing draft of the existing approach channel and berths.

**Maintenance Dredging**

Maintenance dredging, unlike capital dredging, is a recurring activity in ports, which is undertaken to maintain specified draft levels due to the problem of high siltation. Maintenance dredging is particularly quite intensive in riverine ports of Kolkata and Haldia in India, with annual dredging volumes being as high as 20 million cubic meters and involves expenditure that is disproportionately high compared to the earnings of the port from its cargo operations.  

One of the most important features of a modern and efficient port is to provide a deep draught channel to accommodate and navigate large vessels. In this regard, dredging (both capital and maintenance) assumes a critical role. As mentioned earlier, capital dredging is carried out to create new harbours, new berths, waterways, or to deepen existing facilities in order to handle larger vessels. It is usually done using cutter suction dredgers (CSDs) or large trailing suction hopper dredgers (TSHDs). Maintenance dredging is carried out to maintain navigational waterways or channels and to maintain the holding capacity of reservoirs or lakes. It is usually done using TSHDs.

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160 i-maritime, (2003), *India Port Report*, Navi Mumbai, i-maritime consultancy, p.41
Draughts at the major ports in India have historically been low ranging between 7 m and 17 m both as a result of poor dredging practices and a heavy rundown of silt from inland water channels. Internationally, the top container ports have a minimum draught of 14 m, and some of these have enhanced their draught levels even more to accommodate Super Post-Panamax size and above vessels. The Ministry of Shipping (MoS) plans to have a minimum draught of 14m at all major ports and 17 m at all hub ports by 2020.

Table 3.3

Draughts at Major Indian Ports in 2011

<table>
<thead>
<tr>
<th>Port</th>
<th>Draught at channel</th>
<th>Draught at berths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolkata Dock System (KDS)</td>
<td>7.9</td>
<td>7.1 to 13.7</td>
</tr>
<tr>
<td>Haldia Dock Complex (HDC)</td>
<td>6.7</td>
<td>Depends on tidal variations</td>
</tr>
<tr>
<td>Paradip</td>
<td>12.8</td>
<td>11.0 to 13.5</td>
</tr>
<tr>
<td>Visakhapatnam</td>
<td>10.7 (IH), 20.0 (OH)</td>
<td>9.75 to 17</td>
</tr>
<tr>
<td>Chennai</td>
<td>18.6 (IH), 19.2 (OH)</td>
<td>8.5 to 17.4</td>
</tr>
<tr>
<td>V O Chidambaranar (VOC)</td>
<td>10.4</td>
<td>8.6 to 10.9</td>
</tr>
<tr>
<td>Cochin</td>
<td>12.8</td>
<td>9.14 to 12.5</td>
</tr>
<tr>
<td>New Mangalore</td>
<td>15.4</td>
<td>7.0 to 14.0</td>
</tr>
<tr>
<td>Mormugao</td>
<td>14.4</td>
<td>12.0 to 14.1</td>
</tr>
<tr>
<td>Mumbai</td>
<td>10.9</td>
<td>6.1 to 14.3</td>
</tr>
<tr>
<td>JNPT</td>
<td>11</td>
<td>12.0 to 13.5</td>
</tr>
<tr>
<td>Kandla</td>
<td>11.6, 23.5 (OOT)</td>
<td>9.1 to 12.5</td>
</tr>
</tbody>
</table>

The major challenges and issues that affect dredging in India are discussed in the following section.

There are over 30 companies in India operating in the dredging sector. However, due to limited availability of repair and maintenance facilities, dredger owners frequent ports in Colombo and Singapore for major and statutory repairs. The Indian Register of Shipping (IRS), which verifies vessels for seaworthiness, declassed four dredgers of the DCI because of old age and poor maintenance in 2012. This prohibits the vessels to be used for project work purposes. The MoS should either itself undertake the initiative or make it simpler for private/foreign dredging companies to set up base in India.

Dredging is a capital intensive undertaking because of the perennial nature of dredging requirements at certain ports. Financial institutions are wary of funding dredging projects. Governments in countries like the USA share the dredging cost, unlike in India. As per the US Water Resources Development Act, 1987, the federal government meets 90 per cent of the dredging costs and 10 per cent by the local port authority for a depth up to 20 feet. Further, for depths up to 45 feet, 75 per cent of the incremental maintenance dredging costs is borne by the federal government and the remaining by the local port authority.161

Beyond 45 feet, the cost is shared equally by the town authorities. Furthermore, lack of the subsidy also makes it more difficult for most of the port authorities to undertake dredging activities. Unlike other infrastructure projects such as roads and power, dredging does not generate direct revenue for the operators. Funding for maintenance dredging is more unlikely to attract financiers than capital dredging projects, which are part of Greenfield projects.

As shown in Table 3.3, significant variations exist between the draught levels at the entrance channel and at the berths. Ports such as Chennai, Cochin, New Mangalore, and Mormugao have a lower draught at berths as compared to the

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161 India Infrastructure Research, Ports in India, New Delhi, 2012, pp.169-170
entrance channel. Consequently, even though large ships can enter ports, they cannot harbour at existing berths.

There are very few training institutes in the country for dredging operations. The supply of trained manpower is not matched by the growing demand in the sector. The industry is facing a shortage of dredger masters, project managers and estimators. The setting up of training institutes with support from the government and port authorities could be a possible solution for this issue.

A large number of dredgers in the country, primarily those owned by the DCI, are over 20 years old. Of the 13 dredgers owned by the DCI, 10 are over 20 years old while six are over 30 years old. These vessels are inefficient in terms of fuel consumption and reliability. The number of breakdowns increases, leading to delays in dredging works.

Due to the emphasis on deeper draught at Indian ports, a significant amount of dredging is required in the coming years. However, with outdated technology and a rigid policy, it would be difficult for the sector to achieve the targets set in the Twelfth Plan. Some of the issues the port trusts should look into include, awarding long-term maintenance dredging contracts, guaranteed depth payments instead of In-situ, annuitisation of payments, and greater involvement of private players for managerial and technical expertise for dredging works.

Shipping

As on 31 December 2014, India had a fleet strength of 1205 vessels with GT of 10.30 million with the public-sector Shipping Corporation of India (SCI) having the largest share of 31.40 per cent. Of the 1205 vessels comprising India’s shipping fleet, 358 vessels with 9.09 million GT cater to India’s overseas trade while 847 vessels with 1.21 million GT cater to coastal trade.162

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When compared globally, Indian fleet size, measured in terms of million deadweight tonnage (DWT) constitutes a marginal share of 1.2 per cent of the global fleet. Nevertheless, increased activity is being seen in ship-building, ship-repair, and cruise shipping. Several private players have evinced interest in these segments. Inland water transport (IWT) and coastal shipping also have significant untapped potential but continue to languish because of lack of infrastructure, taxation and policy issues.

The Maritime Agenda 2010-20 envisages Indian seaborne trade to increase from about 600 million tonnes (mt) in 2008-09 to 2,134 mt in 2019-20. This growth in Indian overseas trade requires corresponding growth in the fleet. The Agenda envisages the Indian fleet tonnage to reach 130 million GRT by 2020. Consequently, the shipping sector in India is poised for growth in the times to come. However, certain bottlenecks in terms of an unfavorable tax regime, manpower issues, and ageing vessels need to be dealt with before this growth can be realized.

**Issues and challenges**

The shipping industry in India faces several challenges besides global issues like environmental concerns and increasing safety and security requirements.

The share of the Indian fleet in the carriage of India’s overseas trade has been continuously falling, even though the total cargo movement has increased. This is mainly attributed to the slow pace of growth of the Indian fleet as compared to the growth of India’s overall trade. Further, foreign shipping companies are allowed to carry Indian overseas cargo, without having to register their vessels in India. This issue has led many Indian shipping companies to set up subsidiaries abroad in countries such as Singapore, where the taxes are far lower than India. A drain on the foreign exchange in terms of payment of freight charges occurs due to continued slippages in the share of Indian shipping in the carriage of India's overseas trade.

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163 Indian Shipping Statistics, 2013, Government of India, Ministry of Road Transport and Highways, Transport Research Wing, New Delhi, p.ii
164 Maritime Agenda 2010-2020, Ministry of Shipping, Government of India, New Delhi. p.304
The same foreign exchange could otherwise be used for other high priority imports or for building up indigenous infrastructure.

The average age of Indian vessels remains high with 43 per cent of the present fleet above 20 years of age, compared to a world average of around 11.8 years. This is a major concern for ship logistics as it leads to higher operating expenses, lower charter rates, and greater risk of accidents. The age profile of Indian shipping vessels is also one of the major reasons for the declining share of overseas trade. The majority of the Indian shipping fleet contains ships which are over 20 years of age, reducing the competitiveness of Indian vessels as compared to foreign vessels.

The shipping sector and vessels are not considered as infrastructure; hence they are not entitled to a tax holiday for the first 10 years of commencement of operations, like other infrastructure such as roads, airports, railways, etc. In coastal shipping, despite the relaxation of the cabotage law for cruise ships and offer of concessional vessel related charges, high customs tax and service tax on Indian flag ships act as deterrents for Indians to own ships.

In every country, the international tax jurisdiction for any maritime business is 12 nautical miles and beyond this is the area of international waters, and income earned outside of those 12 nautical miles is tax-free. The enhancement of India’s exclusive economic zone (EEZ) from 12 nautical miles to 200 nautical miles acts as a deterrent for cruise liners to the extent that service tax is levied on a coastal circuit on services rendered on the cruise. The position needs to be made comparable to that in other countries.

Customs duty on bunkering for coastal shipping, including cruise ships, is around 33 per cent. Additionally, while some states have waived, or have lower rates of value added tax (VAT) or sales tax on sales of bunker to foreign going vessels, states normally charge VAT or sales tax on sales of bunker to coastal

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vessels. Taxation issues hinder the ship repair market as well. As the ship repairs are generally for short durations of a few weeks, and the import procedures in India are cumbersome, it is not possible to get equipment or spares imported in this timeframe. Hence, the yard has to seek indigenous substitutes which often turn out to be more expensive than the imported item. In effect, the yard has to pay double the VAT, which comes to around 8-12 per cent of the material depending on the type of work. The extra expenditure is in turn loaded onto the overall price, as almost 50-60 per cent of the ship-repair cost is towards material costs.

India does not have an institutional mechanism that encourages and promotes inter-sector coordination. The lack of an integrated transport policy results in the uneven distribution of cargo. The absence of a cabotage policy is seen as an impediment to investment in coastal shipping, and the decision on the policy has been pending for long. Moreover, the shipping industry is regulated by both domestic and international regulations. The wider regulatory framework makes stringent entry barriers into the industry and adds costs to the compliance of such regulations.

The existing port infrastructure is insufficient to handle trade flows effectively, and the capacity utilization at major ports remains high at about 80 per cent. The lack of adequate hinterland connectivity is a key concern for the shipping lines. The origin and destination of the cargo are not necessarily located along the coast and has to be moved into a hinterland, resulting in multiple loading and unloading of cargo, incurring additional transport costs. Inadequate infrastructure in several ports in terms of draught availability, lack of dedicated berthing facilities for coastal vessels, higher turnaround time, etc., are some of the other issues.

Shipping is one of the most globalized industries in the world. It is intricately linked to the world economy and trade. The private sector is expected to play an increasingly larger role in the sector. The outlook for the shipping sector in India, therefore, appears to be positive. However, the industry needs to refurbish its resources and modernize its facilities. Other factors affecting the industry include world economic conditions, availability of ship-building slots with shipyards, age of
existing vessels, adoption of new technology, skilled manpower, favorable government regulations, etc. These issues need the constant attention of the policy makers to enable the shipping industry to contribute significantly to India’s overseas trade and economy. There is also a need for a strong cargo support policy, backed by an equally strong coastal cabotage policy and a cargo assurance policy for Exim trade. This would attract investment and ensure that there is not only capacity building in this sector but also efficiencies due to competition and larger supply. This would also lead to accelerated development of transport infrastructure.

Coastal shipping

Coastal shipping offers a viable alternative that could complement the rail and road transport network in India, given India’s 7,517 km coastline and the ever-increasing strain on the land, It is an environmentally-friendly, fuel and cost-efficient, and safer (for transporting hazardous and inflammable material) mode of transport. The Indian coastal trade hinterland comprises 40 districts across five states on the country’s west coast and five on the east coast and Puducherry. The hinterland covers an area of more than 380,000 square kilometres (sqm).

In India, coastal shipping is used to transport both cargo and passengers. It is also used for oilfield services and the transportation of port flotillas. The primary originating and destination hubs include the Ratnagiri district of Maharashtra, the North Kanara district of Karnataka, the Calicut district of Kerala, the Ongole district of Andhra Pradesh, and the Cuttack district of Odisha. The key commodities transported through coastal shipping include bulk cargo such as petroleum products, minerals, coal, food grains and cement, and containerized cargo, including cotton yarn, automobiles, automotive spare parts, and steel.

However, while coastal shipping is intensively used as a mode of transport in developed countries, the sector’s potential remains largely untapped in India, with coastal shipping accounting for only 7 per cent of the total freight traffic. The comparable figures for the US and the European Union (EU) are about 15 per cent and 43 per cent respectively. 12 Indian states are covered by the sea coast, spreading
across 7,517 km and about 200 small harbours.\(^\text{166}\) There has been an inability to transform coastal shipping into a lucrative business opportunity in India, despite a strong platform. Most cargo that can be transported via coastal shipments is still being transported in traditional modes of rail and road. Coastal Shipping, as a complimentary mode of transport, is not only an economic necessity but also a valuable asset in times of emergency. The challenges faced by coastal shipping in India are discussed in the following section.

There is a lack of adequate infrastructure to make shipments easy and efficient. There has been an inability to develop infrastructure that includes electricity, road network and overall area development which supplement the use of this route. Secondly, unlike other channels of transportation, efforts have not been made to benefit coastal shipping users financially. Companies using coastal shipments until now had to face no exemption from Income tax, customs duty on bunkers, landing fees, etc. Thirdly, the slow, laborious and cumbersome process of shipments at customs is an obstacle compared to other modes of transport, which are much faster. Fourthly, besides high tariff, getting a berth at major ports on time is a major issue that coastal operators face today. Ocean-going vessels get priority at ports, and coastal vessels have to wait, often for days, for a berth. This makes the service uneconomical for the operators. Fifthly, one of the regulatory challenges affecting the sector is that Coastal ships are governed by the same norms on age, manning and statutory surveys as applicable to ocean-going vessels. Thus, their cost of operation is increased. Lastly, there is a lack of sources for financing the purchase of coastal vessels as banks offer loans only for 5 to 8 years, and coastal vessels require a long term funding of 20 to 25 years.\(^\text{167}\)

**Shipbuilding**

India requires a vibrant and efficient shipbuilding industry for economic as well as strategic reasons. The country accounts for just about 1 per cent of the global

\(^\text{166}\) India Infrastructure Research, Ports in India, New Delhi, 2012, p.150

shipbuilding industry worth about US$ 1,327 billion and the Ministry of Shipping, is looking to increase this share to at least 5 per cent in the next few years. The Shipbuilding capacity of India in terms of cargo carrying capacity is expected to reach 19 million tonnes by 2017. 168

The Indian Commercial shipbuilding industry has 28 shipyards comprising eight Public Sector (6 yards under Central and 2 under State Governments) and 20 Private Sector shipyards. Only Cochin Shipyard Limited with a capacity of 1,10,00 DWT and Hindustan Shipyard Limited with a capacity of 80,000 DWT have the required infrastructure and graving dock to build large vessels.169 Indian shipyards have natural advantages with regard to location, availability of low-cost labour and a vast coastline. However, compared to the potential, the sector is underperforming due to several reasons. The key issue facing the country’s shipbuilding industry is that of inadequate infrastructure and low manpower skills. Indian shipyards rose to prominence with the vessel subsidy scheme of the government at a time when the global shipping industry was booming. Consequently, infrastructure expansion and manpower training could not keep pace with the change in shipbuilding specifications and magnitude. This hampers project implementation, resulting in delays in delivery.

Besides this, the government accords differential tax treatment for ships built for domestic and foreign shipping companies, making Indian yards less attractive to domestic players. While a five per cent customs duty is levied on the former, the latter are exempt from customs duty. Also, according to Section 65 (2) (a) and (b) of the Customs Act, customs duty is levied on the steel scrap generated during the construction of ocean-going vessels, which is valued at the price of parent materials if the vessels are not exported. Moreover, the statutory burden of taxes on the overall sector is high, with an excise duty of 16.32 per cent levied on yearly purchase of the capital goods used in shipbuilding (in 2012). There is also a customs duty levied on

capital goods imported for shipbuilding including renewals and replacements of yard facilities.\(^{170}\)

**Ship repair**

Ship repair is another emerging segment in the sector, as more than 55 per cent of India’s existing fleet is above 16 years old and has greater demand for repairing services. Currently, most ships sail to Dubai, Colombo and Singapore, amongst other destinations, for repairs, which increases time and associated costs for fleet owners.

The strategic location of India on the international trade route also means that, the country can offer ship repair and maintenance services to ships plying from the west to the east on the trade route. This represents an increasing market potential for the ship-repair business, as ship owners may prefer to repair their ships without deviating from their trade routes. Ship repair activities in India are regulated by designated ship repair units (SRUs), currently around 30 in the country, which are registered and licensed by the Directorate General of Shipping (DGS). In its bid to promote the sector, the government has granted customs duty and excise concessions to designated SRUs. However, the Indian ship repair segment is plagued with several issues. There is an acute mismatch between the location where the demand for ship repair exists and the location of the Indian ship repair yard. For instance, Gujarat, which handled about 73.7 per cent of the total cargo traffic handled at the non-major ports of the country during 2013-14, does not generate substantial repair revenue. In contrast, Tamil Nadu, which accounts for maximum repair revenue through CSL, handles less than 1 per cent of the cargo traffic at minor ports.\(^{171}\) This forces vessels to approach the nearest repair yard, mostly in foreign countries, due to the issues involved in repair logistics. Besides logistics, the turnaround times for ships at Indian repair yards are high. The average cost of repair


\(^{171}\) Update on Indian Port Sector (2014), Transport Research Wing, Ministry of Shipping, Government of India, New Delhi, p.13
of a 10-year-old Panamax vessel in India is about $3 million compared to $2 million in Singapore. Moreover, the services offered are not at par with international standards. This is mainly attributed to inadequate mechanization at repair yards and the lack of local ancillary units. Although there has been improvement in the latter in recent times, with international original equipment manufacturers such as the Goltens Group and Rolls-Royce setting up workshops in Navi Mumbai in Maharashtra and other areas, much remains to be done. These factors put India on the back seat of the ship repair market despite its comparative advantage in labour costs.

**Issues of the Container Shipping Segment**

“Containerization is the use of containers to unitize cargo for transportation, supply and storage”\(^1\).\(^2\) Container logistics incorporates supply, transportation, packaging, storage, and security together with visibility of the container and its contents into a distribution system from the source to the user. The key contributors to the development of container trade and infrastructure are ports, railways, roads, warehouses, shipping and logistics companies, simply by virtue of being the primary players dealing with containers. The major cargo commodities that get containerized are garments, electronic goods, agro products, cotton yarn, machinery/parts, granite products, coir products, leather products and jute products. Indian ports have also been seeing many hitherto break bulk cargoes such as rice, maize, glass, granite, garnet sand, sugar, soya, cement and flowers now moving in containers. Some break-bulk cargo such as bananas, cotton and green coffee beans have become permanent container fixtures, while others such as pulp, lumber, cocoa and onions migrate from container to ship holds and back to containers, according to the rise and fall of box rates. Iron ore has been successfully exported from Chennai in containers pointing to a steady move towards containerization for value added benefits.

There are several key bottlenecks hurting the growth of the container shipping segment. The single biggest issue today is the container handling and

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\(^1\) <http://www.businessdictionary.com/definition/containerization.html>, Accessed on [12-12-2012]
evacuation capacity in India. Capacity crunches are weighing down enormously on Indian ports. Capacity utilization of JNPT was over 100 per cent of its 4.3 million TEUs capacity during 2013 while at Chennai Port Trust it was 50 per cent of its 3 million TEUs while the ideal capacity utilization is less than 70 per cent.

One of the major concerns faced by the container segment is the delay in project implementation. Several projects are being delayed due to tendering issues. A major container terminal project – The Chennai mega terminal was mired in procedural delays. Secondly, India does not have a hub port and, therefore, a significant share of containers leaving an Indian port goes through feeders, transshipment and mainline movement. Thirdly, performance issues such as declining efficiency and delays due to the poor inland connectivity of ports affect the container traffic in India.

**Container train operations**

The Indian multi-modal scenario has undergone massive changes after the Indian Railways (IR) liberalized container train operations in January 2006. The monopoly enjoyed by the government-owned Container Corporation of India (Concor) ended with the entry of private container operators in 2007.

Concor moves about 75 per cent share of the container train market and has about 66 per cent of container trains present in Indian Railways system. The firm operated 62 terminals across its network in the country and handled 2.58 million TEUs in 2012-13 and 2.86 million TEUs in 2013-14. Concor owns 238 rakes consisting of 11,611 wagons, around 18,453 containers (owned and leased), 14 gantry cranes, and 53 reach stackers. A The remaining 25 per cent is shared among 15 private players. The Indian Railways carry 31 per cent of freight traffic in India, as compared to 23 per cent in China, 48 per cent in USA and only 10 per cent in Europe. Also, 60 per cent of rail freight traffic is carried on 16 per cent of rail route km. The total rail route in Kilometres in India is approximately 64,100 km, which is an increase of just 10,000 km on the network of 54,000 km inherited from the

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British in 1947. Moreover, only 25,000 km are planned to be added to the railway route by 2020. The Indian Railways handled more than 1 billion tonnes of freight in 2012-13 and 2013-14.174

The Indian Railways planned the Dedicated Freight Corridors to cater to freight traffic in order to augment rail transport capacity. To meet the growing demand of the freight traffic, Dedicated Freight Corridors were proposed to be developed on the Eastern (Ludhiana in Punjab to Dankuni near Kolkata – 1839 km) and Western (from JNPT to Tughlakhbad and Dadri in Delhi – 1534 km) Corridors. Of the two, the Western Corridor is specifically dedicated to the container traffic requirements for the existing as well as emerging ports of Gujarat, Maharashtra and the northern hinterland. DFCCIL an SPV has been specifically created for implementation of these projects. Additionally 54 major and important bridges are planned to be developed on the Western Corridor between Vaitarana-Bharuch sections which will be funded by the Indian Railways. Overall these projects are proposed to be completed by 2016-17.175 In spite of all these initiatives, the container segment in India faces several issues which are discussed below.

There are several issues faced by the CTOs. The haulage charges, which Indian Railways levies on CTOs for using its tracks, locomotives and signaling infrastructure, alone accounts for 70-75 per cent of the CTO’s costs. This is the main point of contention between the Indian Railways and the CTOs. In October 2010, the Indian Railways changed the haulage policy from ‘freight all kind (FAK)’ to commodity specific. This was, however, changed in February 2011 where the commodity specific haulage would be levied if 30 or more TEUs are loaded in a train of 90 TEUs.

Another point of conflict is the dominant role played by Concor. The general perception is that, private CTOs are at a disadvantage compared to the incumbent public sector company. Concor has significant cost advantages since it possesses a base of 59 terminals built on low-cost land from the IR. In addition, private players face the challenge of delayed approval. The impetus to develop container terminals,

175 <http://dfccil.org/> Access on [08-02-2013]
CFSs, warehousing facilities, and inland container depots (ICDs) has been provided to some extent by rail freight and the increasing containerization of the largely Exim trade. CFSs and ICDs are facilities established for the handling and temporary storage of Exim as well as empty containers. They are a common user customs-bonded facility with public authority status, equipped with warehousing space, adequate handling equipment and related information technology (IT) infrastructure. These facilities provide an integrated platform for activities such as loading and unloading, packing and unpacking, and transport of containers.

One of the major concerns faced by the port sector is the delay in project implementation of container terminals. Several projects are being delayed due to tendering issues. A major container terminal project – The Chennai mega terminal project was mired in procedural delays. Also, the high risk of such a capital intensive project deters private players. The case in point is Chennai Port's rejection of the bid of the Mundra Port and Special Economic Zone for the mega terminal project.176

India does not have a hub port and, therefore, a significant share of containers leaving an Indian port goes through feeders, transshipment and mainline movement. This results in an additional delay due to the feeder voyage from India to the hub port and then at the hub port while it waits for the mainline ship to call. Some of the reasons hindering the development of a hub port in India include insufficient container traffic; cabotage law which bans foreign ships from operating as feeder vessels for international transshipment containers; and insufficient infrastructure including draught requirements for a mainline ship.

The Maritime Agenda 2010-2020 envisages the development of two hub ports each on the west and east coasts – JNPT and Kochi on the west coast and Chennai and Visakhapatnam on the east coast. However, there is a long way to go before India sees hub ports. In the absence of a hub port, a majority of the country's

containers are currently transshipped through other ports like Colombo (just south of India), Singapore (east), Dubai and Salalah (west). There are only two major ports in the country which report significant container traffic – JNPT and Chennai.

Indian ports are marked by declining efficiency in terms of container movement. The total average turnaround time at major ports for containers was 2.13 days in 2012-13. The total average pre-berthing time for containers at major Indian ports was high at 43.86 hours in 2012-13.

The average turnaround time for containers at JNPT was 2.15 days in 2012-13 and 1.57 days in 2013-14, as compared to 12 hours in Singapore and 15 hours in Colombo. The average turnaround time for containers in Chennai Port in 2012-13 was 1.83 days and 1.31 days in 2013-14. When a comparison is made between the ports of Chennai and JNPT with regard to average pre-berthing time, we find that Chennai Port fares better with a pre-berthing time of 8.44 hours during 2012-13 and 3.67 hours during 2013-14 while JNPT had a higher pre-berthing time of 24.71 hours in 2012-13 and 7.77 hours in 2013-14. High pre-berthing times lead to operational inefficiencies thereby increasing costs.

India's port infrastructure is over-stretched, and there is a berthing delay of several days in the major ports. The berthing delays have affected the mother ship traffic to Indian ports. Only a few docks in the country have the infrastructure to handle mother ships. These infrastructural inadequacies have prompted mother ships not to call at Indian ports. This has escalated the exporters' woes since they are forced to depend on feeder ships to send their cargo to mother vessels in Sri Lanka, Hong Kong or Singapore to reach European markets. Using the feeder service increases freight charges and is time consuming for the exporters.

There is an imperative need to focus on capacity building along with improving the rail and road connectivity to minor ports so that congestion at the major ports of the country can be reduced.

177 Major Ports of India: A Profile-2012-13, Indian Ports Association, New Delhi, pp.59-61
178 Major Ports of India: A Profile-2012-13, 2013-14, Indian Ports Association, New Delhi, pp-58-60
The Ministry of Shipping is planning to increase port capacity by the end of the 12th Five-Year Plan to 2,493.10 million tonnes per annum (mtpa), with major ports accounting for about 50 per cent of this capacity. The combined capacity of major and non-major Indian Ports was 1399.99 Million Tonnes Per Annum (mtpa) as on March 31st, 2014 according to the Indian Ports Association.

In 2013-14, 30 projects had been targeted for award involving an additional capacity of 282 mtpa, with an investment of Rs 24,959 crore. As on September 30, 2013, 13 of these projects had already been awarded, entailing an investment of Rs 3,831.30 crore and an additional capacity of 80.85 mtpa.\textsuperscript{179}

It must again be stressed that the level of containerization in India is only 18 per cent, against a global level of over 70 per cent. According to the Planning Commission, the total container traffic is expected to cross over 350 mt by March 2017 growing at a CAGR of 21.9 per cent. JNPT is expected to dominate traffic by handling about 36.5 per cent of the total traffic, followed by Chennai at 9.95 per cent and Ennore at 8.2 per cent. For non-major ports, Gujarat is expected to handle the maximum container traffic at 16.35 per cent of the total container traffic followed by Andhra Pradesh at 5.5 per cent.\textsuperscript{180}

**Port Connectivity**

Connectivity to a port through rail and road plays a vital role in determining traffic flow, and also the efficiency and performance of the port. It is among several parameters taken into account by the private sector before investing in any port project. In 2005, the Committee of Secretaries (CoS) under the Planning Commission, recommended that every major port have four-lane road connectivity and double-line rail connectivity.\textsuperscript{181}

\textsuperscript{179} <http://www.hellenicshippingnews.com/98aa4794-2cb3-4384-9dfe-a9704e09bec5> [Accessed on 04-December-2013]

\textsuperscript{180} India Infrastructure Research, Ports in India, New Delhi, 2012, p.138

\textsuperscript{181} Report of the Committee of Secretaries, Road-Rail Connectivity of Major Ports, The Secretariat for the Committee on Infrastructure, Planning Commission, New Delhi, pp.4-10.
Post government approval on these recommendations, a number of road-port and rail-port connectivity projects have been undertaken to provide easy access to the hinterland. Since non-major ports are witnessing a higher growth in cargo traffic, connectivity projects become crucial for these ports as well. The issues and challenges of connectivity faced by major ports in India are discussed in the following section.

The roads, railways and ports sectors have one union ministry each. There is, therefore, little coordination between the three. Due to the lack of a single ministry or authority for multimodal projects (rail-road-port connectivity), each project is approved in isolation of the other and causes inordinate delays resulting from administration approval processes, which may involve these three ministries and several other entities.

A major issue faced while augmenting road connectivity projects is a land acquisition. There is a greater need for active participation of state governments and port trusts with the NHAI for land acquisition, utility shifting, and resettlement and rehabilitation matters. For example, the Chennai-Ennore Port road connectivity project has faced considerable delays on account of such issues. The project was announced in 2005 and was expected to be completed by 2006. However, due to the litigation in land acquisition, the project is still under implementation. Some of the other projects facing land acquisition issues include Haridaspur-Paradip and Angul-Sukinda new line projects.

The PPP model adopted by the Indian Railways (IR) in port connectivity projects has its own limitations. There is a cap on the rate of returns that a private player can earn. One of the operational SPVs is Pipavav Rail Corporation Limited (PRCL), formed by Gujarat Pipavav Port Limited and the IR. Gujarat Pipavav made a traffic guarantee of 3 mt to the corporation from the third year of operations, 2003-04. The parent company was to pay a penalty if the promised traffic did not arrive. A minimum of 3 mt of traffic was promised from 2005-06, which PRCL met only in 2009-10. PRCL has received Rs 1.05 billion as a penalty, helping it to
survive. The company still complains of high operation and maintenance charges and backlog in the payment of dues from the railways.\textsuperscript{182}

The tedious and lengthy process of receiving clearances hinders investment initiatives in projects, especially from the private sector. The Rs 16.55 billion road project connecting Chennai Port and Maduravoyal, received ‘in principle' approval in June 2007, and the foundation stone laid in January 2009. However, it was then put on hold for want of environment clearance. The project finally received the clearance in March 2011.\textsuperscript{183}

**Challenges related to Public Private Partnership (PPP)**

Over the past few years, the Ministry of Shipping (MoS) has made consistent efforts to channelize private investment into the port sector. Model documents for private sector participation (PSP) have been finalized, land policy guidelines issued, and efforts are being made to streamline the process of awards. At the state level too, measures have been taken in the form of setting up maritime boards, port policies, etc. to attract private participation.

The global financial downturn starting from late 2008 impacted significantly the inflow from private players although it started on an optimistic note in the third year of the Eleventh Five Year Plan (2007-12). Moreover, the award process itself faced delays on account of issues concerning the standard bidding and award documents.


As a result, public-private partnership (PPP) projects have been falling short of targets. In the financial year 2011-12, only three projects were awarded till March 15, 2012 out of the target of 23. In FY13, the shipping ministry awarded 13 PPP projects at a total cost of Rs. 2,74 crore, which is only about 20 per cent of the total amount that the ministry targeted for the year.

For 2013-14, the Union government accelerated the pace of awarding PPP projects and 23 out of the targeted 30 projects for fiscal 2014 had been awarded by February 2014. However, it must be stressed that, introducing a stable policy framework is critical to overcoming the challenges facing PPP in the Port sector. With this background, the main issues facing PPP in Indian Ports are analyzed below.

The tariff fixing methodology under TAMP has had a negative impact on the profitability and returns of PPP project developers because of several factors. These include the lengthy process of tariff fixing and review; anomalies in the tariff setting mechanism (not allowing full pass-through of revenue share); low rate of allowed tariff increase due to indexation to inflation; and uncertainty about whether the operator would be allowed a tariff increase if its investment was higher than originally envisaged (because of changes in the scope of the project, etc.)

Delays in tariff fixation by TAMP impact bidders’ interest in BOT projects by delaying the ongoing bid process. Post-award of a project, there have been delays in execution because of the time taken to obtain environmental and other statutory clearances. There is a considerable delay in getting environment clearances/Coastal Zone Management Authority approvals in respect of projects in the port sector. The issue with environmental clearance in ports is that it is obtained after projects are bid out to private parties, and this usually takes a long time to fructify.

The coal and iron-ore terminals at Paradip obtained their respective clearances in January 2011 – around two and half years after they were bid out. The other major port projects that faced delays due to environmental clearance were the container terminal project at Chennai, and the coal terminal and iron ore export terminal at Mormugao Port.

Port-road connectivity projects are also faced with the same challenges. In March 2011, the Ministry of Environment and Forests (MoEF) finally approved the execution of the Rs 16.55 billion road-port project connecting Chennai Port and Maduravoyal. The foundation stone for the project was laid in January 2009, but it was put on hold for want of environment clearance.

In a few cases, lack of clarity of the bidding process has delayed projects. A recent example is that of the fourth container terminal project at the JNPT, which had been delayed amid confusion over stamp duty responsibilities.

The project was awarded in September 2011, and the concession agreement was to be signed on January 11, 2012. However, the consortium had refused to pay the Rs 50 crore stamp duty to the state government and had demanded that JNPT cover the costs. As per the company, they were not informed in advance and not communicated clearly that stamp duty expenses have to be borne by them.185

In recent years, the majority of the berth or terminal construction related projects have faced delays due to litigations. Table 3.4 illustrates a few instances in which port projects were delayed due to legal issues.

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Table 3.4

Examples of a few Port Projects delayed due to Litigation

<table>
<thead>
<tr>
<th>Project</th>
<th>Port</th>
<th>Name of the company which filed the case</th>
<th>Reason for filing cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth container terminal</td>
<td>JNPT</td>
<td>Danish-based AP Moller-Maersk Group (APM)</td>
<td>The company was barred from participation in the second round of bidding.</td>
</tr>
<tr>
<td>Conversion of berth 8 as</td>
<td>Tuticorin</td>
<td>PSA-Sical</td>
<td>PSA was barred from bidding for the project due to the conditions of the Policy for Prevention of Monopoly at the Major Ports.</td>
</tr>
<tr>
<td>container terminal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICTT</td>
<td>Vizhinjam</td>
<td>Zoom Developers Limited</td>
<td>The company was not selected and alleged irregularities in the bidding process.</td>
</tr>
</tbody>
</table>


The private sector participation (PSP) that was initiated over a decade ago has been increasing though slowly both in terms of its scope and investments. The award and completion of PPP projects have fallen behind the set timeline due to factors such as litigation issues, clearance delays, poor connectivity, etc. The projected traffic growth and high capacity utilization will continue to drive the need for capacity expansion at both major and non-major ports despite these challenges.

Human Resource Development

Most of the ports in India are grappling with the issue of shortage of skilled manpower and lack of adequate training for port operations such as crane operations, pilotage, vessel traffic services, etc. There is a lack of adequate investment in training infrastructure, and there is no consistency in the content and methods of training due to the absence of a regulatory body. The lack of slots at ports and ships leads to delay in the commencement of the training for cadets. The productivity indicators in respect of cargo and equipment handling continue to be poor. The other
issues include the present method of calculation of productivity linked rewards in Indian ports based on certain parameters calculated on an all-India basis and not on the productivity parameters of the individual port trusts.

**Labour and Industrial Relations**

The multiplicity of unions and inter-union rivalries has always been a constraint with regard to the functioning of ports in India. There is a lack of participative management for the resolution of work-related issues. An adequate assessment of the number of workers required for peak performance has not been made in the context of large-scale modernization and technological changes in ports. In addition, liberal incentive payment schemes for performance over normative levels of productivity have also not been introduced. In addition to the above, the major challenges according to port and dock workers in Indian ports are:

The Port and Dock workers in Indian Ports feel that the current impetus being given by the Indian Government to various Port Development Projects under the PPP, Captive, Hiring or License Model is unfair to those ports that have sufficient funds and available manpower. This has changed the shape of Major Indian Ports and has resulted in port labour unemployment especially with reference to stevedoring operations. The increase in the number of casual and contract workers due to the indiscriminate outsourcing of work previously done by port labour has led to a reduction in regular employment in ports. Equal wages and other benefits of regular workers are not provided to workers employed through a contractor or on a casual/contract basis.\(^{186}\) The process of wage revision and other service conditions including the benefit of consolidation to pensioners needs to be settled in an expeditious manner. Port employee or labour problems occur due to insufficient and inadequate worker-employer communication, incorrect planning and implementation of mechanization, the continuance of heavy manual labour and lack of proper labour negotiation.

\(^{186}\) India Maritime Report, Volume 2, (2009), i-maritime, Navi Mumbai. Pp- 392-402
Lack of Co-ordination and Communication among the different organs of the Port

The Ports in India have an unstructured framework for internal communication. The Ports face constraints due to the absence of a structured framework for intra-department communication and co-ordination resulting in lower knowledge transfer within the different departments. The other issue is the lack of management accountability at the ports resulting in ineffective port operations.

Safety and Security

The Safety conditions at Indian Ports are not adequate. The Government departments concerned with industrial safety are ill-equipped. The Directorate General of Factory Advisory Service and Labour Institutes, the main body for industrial safety in India, is severely understaffed. Obsolete cargo handling equipment, excessive manual handling of cargo and inadequate safety precautions during cargo loading and unloading operations and lack of timely, independent safety audits compromise the safety of port and dock workers.

India has a 7,516 kilometre long coastline spread across 9 states and 4 union territories. Although a multi-layered coastal security architecture comprising the Indian Navy, the coast guard, marine police and customs has been entrusted with the responsibility of protecting the coastline, the extent to which it is being ensured has been critically questioned several times lately. The inadequacies of the coastal security architecture are mainly due to the lack of coordination among the ministries and departments involved in coastal protection such as the Ministries of Home Affairs, Defence, External Affairs, Shipping, Forests and Environment, Earth Sciences, Finance, the Department of Fisheries as well as the various state governments, the police, district administration etc. The differing perceptions among various stakeholders regarding their roles due to differences in the Organisational culture also undermine the effectiveness of coastal security. Insufficient manpower, lack of trained personnel and inadequate infrastructure in terms of the lack of office buildings, weapons, boats and vessels, jetties, workshops for repair and maintenance
of boats, etc severely constrains the effectiveness of the central and state agencies in their performance of coastal security activities.

With the ever increasing smuggling activities and especially the recent rise in terror activities, coastal security has become a burning issue due to poorly guarded sea routes. The major security issues threatening Indian Ports include maritime terrorism, hijacking, smuggling and trafficking, piracy and armed robbery, fraud, theft, illegal migration, infiltration and influx of refugees. The costs of maintaining a high level of security at the ports have also risen exponentially in tune with technological advances to cope with the sophisticated methods used by terrorists and pilferers.187

The impact of the challenges confronting the Indian Ports on the Indian economy is severe. India's port infrastructure is over-stretched, and there is a berthing delay of several days in the major ports. There is an imperative need to focus on capacity building along with improving the rail and road connectivity to minor ports so that congestion at the major ports of the country can be reduced.

In an era of economic globalization, ports are evolving rapidly from being traditional land/sea interfaces to providers of complete logistics networks. Consequently, ports have to face many challenges due to unpredictable environmental changes and trends in the shipping, port and logistics industries.

The changing elements of the Maritime transport system in the contemporary era call for a different perception and behaviour in the organization and scope of port businesses in order to gain cargoes. The Port Management has to restructure its organization, infrastructure and administrative procedures and its strategies must aim to integrate the port into a production-transport-distribution chain.

The transportation of the necessary quantities of final, but also intermediate, goods via a process that makes the most effective use of human resources, port infrastructure and superstructure is essential for the port to remain effective. In the

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current environment of intense port competition, and the altered public-private sector relationship, those ports that do not adjust their process of production and supply of services, will not manage to remain competitive.

Effective seaport organizations will considerably improve the efficiency and performance of their seaports which, in turn, would have positive effects on the nation’s transport systems and the country as a whole. This verifies the importance of organizational effectiveness and its assessment in seaport organizations. The focus of this research is to thus, find out the specific issues associated with the working of Chennai Port Trust and analyze the perceptions and satisfaction of the Users and employees of the port on various dimensions of port management. With this background, after discussing the challenges faced by the Indian Port Sector, the next Chapter describes the Organizational Structure and Functions of Chennai Port Trust and analyzes the trends in the growth of the port since its inception until 2001.