2.1 INDIAN PORTS

India has a long seacoast of 6000 Kilometers which is studded with numerous ports. The ports play a vital role in the economic development of the nation and serve as gateways for international trade of the maritime countries. There are two types of ports as below:

1. Commercial Ports

Ports where passenger traffic and/or cargo handling operations are being undertaken in nation’s service.

2. Ports of Defence

Ports where naval operations alone are being undertaken for the country’s defence.

The country’s defence must take priority over everything else. Therefore, port of defence or defence installations in a port is a must. The Great War with Pakistan, after independence, has amply demonstrated the role our Navy would have to play in future. No doubt, the Navy also uses commercial ports during periods of emergency.

A commercial port is one in which docks are provided with the necessary facilities for loading and unloading cargo. Dry docks are sometimes provided. Ports must have shelter against winds, waves and swell. All commercial ports have a major pre-occupation with the
provision of shelter. Many commercial harbours are privately owned and operated by companies, representing the Steel, Aluminium, Copper, Oil, Coal, Timber, Fertilizer, Sugar, Fruit, Chemical and other industries. Municipal or Government controlled harbours, often at times, operated by port authorities, exist in many cities and countries. For instance the harbours at New York, Los Angeles, London and La Guaira, Venezuela.

There are at present 236 ports in India. Depending upon the national importance of the various ports and the extent of facilities available, these ports have been classified as below:

1. Minor ports and Intermediate ports : 224
2. Major ports : 12

The overall control of major ports is under the central government of India, the intermediate and minor ports are under the effective control of the respective maritime state governments. Not all the ports notified as ports, handle traffic. Only 148 ports have handled traffic during the past few years. As per the Ports and Shipping Sector Study Report of 1989, conducted by the Asian Development Bank and Planning Commission, Government of India, only 148 ports undertake traffic and allied services in India.

Tamil Nadu is the only state in India, which has three major ports viz Tuticorin, Chennai and Ennore ports.
2.1.1 Major Ports in India


2.1.2 Criteria for a Major Port

It is understood that the Ports (Technical) Committee, 1948 in their report has recommended that a port should satisfy the following criteria for being classified as a Major Port.

1. It should have protected waters for ships to be berthed safely to carry out loading and unloading operations of cargo.

2. It should have a channel which could permit vessels of 30’ draft (9.14 metres) to pass through.

3. It should have alongside berths with wharf cranes and other cargo handling equipments.

4. It should have transit sheds and open storage back-up space for the safe and convenient storage of cargo.

5. It should have adequate number of crafts, tugs and other facilities to provide necessary navigational assistance to ships.

6. It should have good rail and road network connecting the port with its hinterland.
7. The port either at the time of declaration or immediately preceding the declaration as a major port, should be capable of handling a million tonnes of cargo.

The Tuticorin Port satisfies almost all the above mentioned criteria except the one relating to draught. The available draught at present is 10.7 metre during low tides and 8.85 meter during high tides.

2.2 PROFILE OF CHENNAI PORT

Chennai Port, the third oldest port among the 12 major ports, is an emerging hub port in the East Coast of India. This gateway port for all cargo has completed 126 years of glorious service to the nation’s maritime trade.

India’s Independence saw the port gathering development momentum. The topography of the Port changed in 1964 when the Jawahar Dock, with capacity to berth 6 vessels to handle dry bulk cargoes such as coal, iron ore, fertilizer and non hazardous liquid cargoes, was carved out on the southern side.

In tune with the International maritime developments, the port developed the Outer Harbour, named Bharathi Dock for handling petroleum in 1972 and for mechanized handling of iron ore on 1974. The Iron Ore Terminal is equipped with mechanized ore handling plant, one of the three ports with such facility in the country, as to
handle 8 million tonnes. The Chennai port’s share of iron ore export from India is 12 per cent. The dedicated facility for oil led to the development of oil refinery in the hinterland. This oil terminal is capable of handling Suezmax vessels.

In 1983, the port heralded the country’s first dedicated container terminal facility commissioned by the Prime Minister Smt. Indira Gandhi on 18th December 1983. The port privatized this terminal and is operated by Chennai Container Terminal Private Limited. Having the capability of handling fourth generation vessels, the terminal is ranked among the top 100 container ports in the world. Witnessing a phenomenal growth in container handling year after year, the port is developing its Second Container Terminal with a capacity to handle 1M TEUs to meet the demand. To cater to the latest generation of vessels and to exploit the steep increase in containerized cargo, the port is planning to welcome the future with a Mega Container Terminal, capable of handling 5 million TEUs expected to be operational from 2013.

2.2.1 Mission & vision of Chennai port

Missions

1. To achieve excellence in port operations with State-of-the-Art technologies.

2. To enhance competence and enthuse workforce to maximize customer satisfaction.
3. To anticipate and adapt to the changing global scenario and
4. To act as a catalyst for sustained development of the Region.

**Vision**

The vision is to be recognized as a futuristic port with foresight.

**Quality Policy**

The quality policies are

1. To provide efficient, prompt, safe and timely services at optimum cost.
2. To ensure quick turn round of vessels, by providing facilities for efficient handling of cargo.
3. To maintain total transparency in all transactions and
4. To continually improve services to meet the expectations of the port users, employees and the society.

**2.2.2 Facilities at Chennai port**

**I. Oil terminals**

1. Oil berth at Bharathi Dock-I commissioned in 1972 which can handle tankers up to 1,00,000 DWT.
2. Another one commissioned in 1986 at Bharathi Dock-III which can handle tankers up to 1,40,000 DWT.
3. Maximum LOA of Tankers Berthed at BD – I & BD – III is 280.4m (920 ft).
4. Minimum LOA of the ship so far Berthed at BD-I is 108.15m.
5. Capacity is 13 Million Tonnes Per Annum
6. Installed with 5 Marine Loading Arms at BD – I and 6 Marine Loading Arms at BD–III. Berths laid with 762 mm (30") dia
pipelines for conveying Crude, 500 mm (20”) dia pipeline for conveying White Oil Product and 350 mm (14”) dia pipelines for conveying Furnace Oil.

7. Separate Pipelines for Crude, Furnace Oil, White Oil Products, Deballasting, Tower Monitor, Fire Hydrant and Fresh Water.


9. The facilities include pumping at the rate of 3000 tonnes per hour for Crude oil and 1000 tonnes per hour for Petroleum Products.

10. Provision of Oil reception facilities in accordance with MARPOL convention for receiving oily ballast, sludge and slop.

11. Both the jetties are equipped with fire monitors.

12. There is a separate fire fighting pump house with diesel and electrically driven pumps to supply fire hydrant and tower monitors.

II. Iron ORE Terminals

1. Mechanised Ore handling Plant commissioned in 1977 at Bharathi Dock-II.

2. Can handle Ore carriers of maximum size 1,45,000 DWT and LOA of 280, 4 metres.

3. Capacity - 8 Million Tonnes per Annum.

4. Loading rate - 6000 Tonnes per hour.

5. Capable of receiving, stockpiling, reclaiming, weighing, sampling and ship loading.

6. Ore handling facilities consist of two rotary wagon tipplers, ten lines of conveyors, two rail-mounted stackers, two rail-mounted bucket-wheel reclaimers and two rail-mounted shiploaders.
7. Equipped with an automatic belt weigher, sampling facilities, self-contained maintenance workshop and a service station.

8. Separate receiving line and shipping line, which can also function as interconnected system.

9. Rotary Wagon Tippler can handle 1200 MT/hr at the rate of 20 wagons per hour.

10. Receiving Conveyors (4 Nos). can handle 1500 MT/hr/stream of two conveyors.

11. Shipping Conveyors (6 Nos). can handle 4000 MT/hr/stream of three conveyors.

The Chennai port is one among the major ports having Terminal Shunting Yard and running its own Railway operations inside the harbour on the East Coast. The port is having railway lines running up to 68kms and handles 32 per cent of the total volume of the cargo, with 5343 rakes (292776 wagons) during 2007-08.

The port with three Docks, 23 berths and draft ranging from 12m to 16.5m has become a hub port for containers, cars and project cargo on the East Coast. The port has handled an all time high of 57.15 million tonnes of cargo, registering an increase of 7 per cent over the previous year. An increase of 20 per cent in the handling 137971 units of cars in the year 2007-08 when compared with 114756 units in the year 2006-07 and an increase of 27 per cent in the handling of containers to 1128108 TEUs in the year 2007-08 from 885422 TEUs in the year 2006-07. The long term plan for Chennai
Port envisages that the port will mainly handle 4C’s i.e. containers, cars, cruise and clean cargo.

2.3 PROFILE OF TUTICORIN PORT

Tuticorin Port is an artificial deep sea harbour with rubble mound type parallel breakwaters, on the north and south, each of length 4098.66 metres and 3873.37 metres respectively, projecting into the sea 1275 metres apart, with an entrance of 152 metres providing a tranquil sea basin of 960 acres (388.80 Hectares).

2.3.1 History of the Tuticorin port trust

Only a few port towns in India can vie with Tuticorin for a fascinating history. While maritime cities that were once centres of trade and cradles of civilization, stand humbled and obscured and cities that once decided the destinies of others have been reduced to mere geographical expressions, Tuticorin has, however, maintained a steady record of growth, throughout the centuries. In spite of the many challenges hurled on its onward march by nature as well as posterity, it had reacted to those challenges successfully and had progressed steadily and constantly only to heighten its name in the annals of history with high and higher prominence.

To trace the history of Tuticorin is, in fact, to trace the history of Tamilnadu itself, in a broad sense, as it begins with the rule of native kings, passes through the colonial phase, activated by the political
rivalry among a number of European nations to attain a foothold in the town and closes with the modern era, following the dawn of Independence.

A historical survey of Tuticorin, as a centre of maritime trade and as a harbour, will be of topical interest as the harbour has now developed into a major port. Though the sources of historical information are lost in the mists of antiquity, a fairly clear and authentic historical picture emerges from the sketchy information provided by travellers.

Based upon the District Gazetteer of Tirunelveli District, 1917 edition, Tuticorin was third in succession to the great medieval port of Palayakayal and the earliest port of Korkai. All the three ports were within 12 miles reach on the east coast of Tirunelveli District (now Chidambarnar District) in Tamilnadu State.

The earliest port of Korkai is now an obscure village on the north bank of Thambaravarani River, 4 miles from its mouth. When the sea receded, the port ceased to function. Regarding Palayakayal - Palaya means old, Kayal means lagoon or backwater. The sea here also receded and the port ceased to function.

The rise and fall of Korkai and Kayal and the consequent elevation of Tuticorin Port to a position of eminence are part of the history. Tuticorin, then a small village, inhabited by Bharathars only,
had the advantage of a natural harbour for small crafts of those days, being enclosed by a circular chain of islands and reefs. As the port engaged in maritime trade with international range, it has perhaps a longer tradition than any other port in our country.

2.3.2 Port development after independence

The task of developing the Tuticoin harbour was taken up in 1949 and 1950, but was dropped due to paucity of funds. From 1954 onwards various committees and experts again examined the prospects of developing the Tuticorin harbour at the instance of Chennai Government and evolved schemes. Amongst them, Chatterjee’s Scheme (1954), Sethusamudram Committee Scheme (1955), Chacko’s Scheme and Mathrani’s Scheme are worth mentioning. These schemes were also dropped due to the stringent financial conditions of the Government.

In this connection, it is worth mentioning here that the Business Interest Investment and the Tuticorin Harbour Development Council have been showing a steady enthusiasm in approaching the Government from time to time insisting on the sanction for a harbour project at Tuticorin. The year 1958 marks the consolidation of Tuticorin people’s interest in the development of the harbour. A delegation consisting of eminent personalities, under the leadership of Sri.A.P.C.Veerabaghu and Sri.C.I.R.Machado met the Prime Minister, Sri Jawaharlal Nehru and the Vice-chairman of the Planning
Commission and succeeded in convincing the need for the development of the harbour in the Second and Third Five Year Plan periods. The strides made by the local business people to meet the Prime Minister in 1958 and impress upon him that the sanction of the project was really commendable. “There is no need for any argument; this has got to be done” so said Nehru, when he met the delegation of Tuticorin Harbour Development Council in 1958. In a huge meeting during his visit to Tuticorin in 1958, recalling the glorious days of V.O.Chidambaram who ran the first Indian National Steamer from Tuticorin, he publicly announced his commitment to the development of Tuticorin Port as a major port. Even without the prior approval of his Cabinet, he sanctioned a sum of Rs.5 crores for the development of Tuticorin Port. At the instance of the Central and State Governments, the Tuticorin Port Trust took up preliminary investigation for the schemes proposed, for implementation.

2.3.3 Port development - proposal for a new harbour

In the sixties, the minor anchorage port of Tuticorin had handled around one million tones of cargo and earned the distinction of the largest intermediate port of India. It has always been in the minds of the interested people that if a new harbour is constructed with alongside facilities, not only will it augment the traffic potential but also give room for many ancillary industries. Moreover, because of the limited facilities available for the handling of cargo in the then
existing minor port it became all the more necessary to construct a new deep-sea harbour at Tuticorin.

As the draft was inadequate for berthing of ships, the ships were anchored in the mid-sea, sailing vessels were used to carry the cargo between shore and the ships at anchorage. On account of this cumbersome process, a ship had to wait for about 12 to 15 days in the mid-sea in order to complete the loading and unloading operations. This cumbersome process and long time waiting of ships, ultimately resulted in increasing the cost of the cargo handled, besides the risks and cargo losses involved. Therefore, in order to quicken the process of handling of cargo and to reduce the ship’s waiting time and thereby ultimately to achieve the country’s economy, a new major port was found essential.

In 1960, the Intermediate Ports Development Committee, which was appointed by the Government of India in 1959 to examine the feasibility of development of selected intermediate ports and to suggest extents of development, envisaged a 30 feet new harbour for Tuticorin and put forward a scheme, considering the development of Tuticorin into a deep-sea harbour.

The first systematic traffic survey for Tuticorin was carried out by the National Council of Applied Economic Research during the year 1958-59. It made very strong recommendations for the development of
the harbour. The traffic assessment made by it, paved the way for the successful culmination of the efforts directed towards the development of Tuticorin into a major harbour.

The preparation of master plan, evolution of layout and designs of marine structures were completed solely by Indian engineers, without any consultancy from abroad. Much spade work was done by the Central Water and Power Research Station, Poona, in this connection towards conducting of intensive model studies, selecting a suitable and economic layout, consistent with the marine and meteorological conditions existing in this area. After a series of model studies conducted for the different parameters of waves, the Central Water and Power Research Station finally evolved an economic layout. The hydrographical survey of Tuticorin Port, which was carried out by I.N.S.SUTLEJ during March and April, 1995, with a publication of a revised chart of Tuticorin harbour, was very helpful in deciding the site for the development of the port to a great extent. An area which is about 8 km away from the south-east of the then existing minor anchorage port and about 2 km from the south of Hare Island was recommended as suitable for the construction of a new major harbour consisting of long breakwaters.

After all these efforts, surveys and investigations, the Ministry of Transport and Communications informed the State Government, on May 6, 1961 that the development of Tuticorin Port had been included
in the Third Five Year Plan. In 1962-63 all the doubts were set to rest and a definite decision was taken for developing Tuticorin into a major harbour, the long cherished dream of the Tuticorin Port Trust. The project was finally sanctioned by the Government of India, with an allotment of Rs. 5 crores in the third Five year Plan. The Tuticorin Port Trust Board, handed over immediately about 1250 acres to the Chief Engineer and Administrator of Tuticorin Harbour Project. Such other lands as were in the possession of the Tuticorin Port Trust and had been leased out, were resumed and made available to the harbour project with the least possible delay. This prompt action of Tuticorin Port Trust paved the way for the commencement of the harbour work in time.

The new port at Tuticorin was declared by the Central Government as the tenth major port of the country, on July 11, 1974, coinciding with the commissioning of the temporary oil mooring berths at north break waters and since then the new port came under the control of Ministry of Shipping and Transport of the Government of India. The first two alongside berths were completed and thrown open for commercial traffic on December 2, 1975, the first milestone in the long and winding path in constructing the harbour. The remaining two berths were completed and commissioned in December 1976.

The administration of the new port was governed by the Major Port of New Tuticorin Rules, 1977. The traffic both in the major port
and minor port was handled efficiently to cater to the needs of the trading public. For the balanced growth of the minor port and major port, the Central Government decided to integrate them under one unified administrative set-up so that the proposed set up would make for greater administrative cohesion resulting in more efficient port operations. Amendment to sub-section (1) of Section 5 of the Indian Ports Act, 1908, conferring powers on Central Government, to alter limits of any port by uniting with that port, any other port or any part of any other port was enacted by the Parliament on May 4, 1978 (No.17 of 1978). Consequently, the erstwhile minor port of Tuticorin which came under the Government of Tamilnadu and the new port of Tuticorin which came under the Government of India were merged and a unified Port Trust under the Major Port Trust Act, 1963 was formed on April, 1979 to run the integrated port. Zone A is a deep-sea new port having alongside facilities to receive ships. Zone B is an old anchorage port with facilities to operate vessels at mid-stream only.

2.3.4 Features of Tuticorin port

Tuticorin Port is in the southern most part of the East Coast, situated on the Gulf of Mannar with Srilanka on its south-east. It has two operational wings. The new port is a man-made all - weather harbour, constructed in a fairly sheltered area. In addition, Tuticorin port possesses the following physical and marine features which help to undertake the maritime operations throughout the year.
2.3.5 Location

The old port, is an open anchorage port situated in the Gulf of Mannar in latitude 8.45’ North and longitude 78.11’ East and is 653 kilometres away by rail from Chennai. The usual steamer anchorage is about 8 kilometres off-shore and 3 kilometres eastward of the lighthouse which is situated on the narrow strip of the land commonly known as the “Hare Island”. The anchorage is connected to the shore by means of a boat channel of 122 metres wide, dredged up to a depth of 3 metres and marked with buoys.

The new harbour is situated in latitude 8’ 45’ North and longitude 78’ 13’ East and is about 580 kilometres south-west of Chennai. The basin is protected by two rubble mound parallel breakwaters, extending about 4 kilometres from the shore. The cargo terminals are located in natural deep waters about 3 kilometres from the original shore, thereby minimizing the need for capital dredging. There are 4 general cargo berths alongside the southern breakwaters with a total length of 750 metres. On the finger pier, emanating from this breakwaters, there is an additional berth length of 350 metres. Two berths exclusively for container operation of which one berth has been handed over to private operators on BOT basis for 30 years.

Tuticorin is the only port in the world which has both anchorage facilities as well as alongside berths, built on modern lines, in one and the same port, making it possible for the port to handle ships of any
draught or size. Located strategically on the south eastern tip of India, Tuticorin Port is a major gateway for the country’s international trade from the southern region.

2.3.6 Facilities at Tuticorin port

The volume and pattern of traffic which decide the quantum of revenue, depend upon the infrastructure facilities, available in the port. Hence a brief description about the infrastructure facilities in the Tuticorin Port is given below.

2.3.7 Infrastructure facilities

The infrastructure of the Tuticorin Port consists of three breakwaters, viz. north breakwaters, south breakwaters and eastern breakwaters, to create tranquility conditions conducive to shipping operations. The breakwaters both north and south are of 7 metre top width with 1:2 slopes on sea side and 1:15 in the harbour side. Due to the requirement of a vertical face in the place where the ships have to be actually berthed, concrete blocks of about 20 tonnes (average) have been cast and launched into the sea in the form of slice work and vertical face formed for berthing of ships.

The south breakwaters is widened by reclamation, with sand fill of 61 metres wide within the harbour basin over which the road and railway lines have been laid. The object of the north breakwaters is to arrest the wave action so that within the harbour basin, the
disturbance due to waves could be considerably reduced. In the construction of breakwaters, stones weighing from 10 kilograms to 8 tonnes, as recommended by model study in Central Water and Power Research Station, have been used to withstand the wave action.

Unlike the cargo handled in wharves in south breakwaters, which requires lorries and train for their transport, in north breakwaters coal is transported by belt conveyor and oil is pumped to the storage.

Zone B is an anchorage port where movement of cargo between the ship and shore is carried out through lighters of varying sizes.

The infrastructure of Zone A of Tuticorin Port consists of breakwaters, channels and turning basin of the following sizes:-

**Breakwaters**

1. Length of north breakwaters  -  4098.66 metres
2. Length of south breakwaters  -  3873.37 metres
3. Distance between breakwaters  -  1275.00 metres

**Channels**

1. Width of entrance channel  -  152.40 metres
2. Width of approach channel  -  183.00 metres

**Turing Basin**

Diameter of turning basin  -  488.00 metres
The north breakwaters is the longest in Asia and the second longest one in the world.

2.3.8 Berthing facilities

The capacity of handling both bulk and liquid cargoes, depends upon the size and number of berths available in the port. Zone A of the Port is served by 6 alongside berths. 4 alongside berths (No. I to IV) are constructed in the eastern breakwaters and named after the great patriot, V.O.Chidambaram (V.O.C.Wharf). Two more alongside berths (No. V and VI) have been recently constructed in south breakwaters, without any transit shed. All the berths are of identical design with concrete block work constructions. These berths are available for loading and unloading of bulk and dry cargoes like cement, salt, food grains etc. The construction of the container Berth No. 7 for water supply was completed in May, 1998, at a cost of Rs.34.88 crores. The berth has length of 370m and a draught of 10.7m. Main line vessels carrying up to 2000 TEUs are expected to call on this berth. To equip the above berth and operate the same, licence had been awarded on BOT basis to M/s. PSA SICALS Corporation Ltd, Singapore for a period of 30 years in July, 1998. In addition to 7th Berth, Tuticorin Port Trust has constructed the 8th Berth at an estimated cost of Rs. 46 crores. The work got completed in December 2002. This berth is also available to private operators on BOT basis.
The oil jetty constructed in the north breakwaters in 1980, provides facilities to handle liquid cargo traffic, with two marine unloading arms, one for Naptha and another for Furance Oil. It consists of an operating platform, two berthing dolphins one on either side, 4 mooring points located on the harbour slope of the north breakwaters and approach to the operating platform. The oil jetty is designed for handling tankers upto 40,000 DWT.

The coal jetty constructed in the north breakwaters, in 1983, provides adequate modern facilities to handle coal, mainly to Tuticorin Thermal plant, at the rate of 2000 tonnes per hour, through conveyor belts. It is an open pile construction, designed to handle 50,000 DWT vessels for discharge of coal by ship gears into travelling hoppers and associated conveyor system, installed on the jetty.

The port has constructed the seventh berth for container operation and has handed over it to M/s. PSA SICAL container terminals Ltd, for BOT basis for 30 years. In the year 2000, the port has constructed the eight berth for general purpose. Altogether there are six general cargo berths, two container berths, one oil berth and one coal berth available in Zone A of Tuticorin Port for shipping operations. In addition, a finger jetty constructed in the south breakwaters, in 1982 facilitates handling of passenger ships and small vessels. It has been designed for handling small passenger vessels of 4.2 metre draft. The finger jetty is used for handling
specialized Vinyl Chlorine Monomer tankers also. Mooring berth facilities are also available in Zone A.

The facilities of berths with regard to their draught, capacity for handling cargoes and accommodating vessels are given in Table 2.1
Land table
Zone B is a lighterage port having adequate facilities of lighters of varying capacities between the anchorage and shore. The ships lie in the open roadstead and lighters transfer the cargo from ship to shore and vice versa. The port facilities are located in the protected bay. Zone B has the facilities to handle 2.50 lakhs tonnes of dry cargo per annum. It has three jetties to handle coal, cements and salt and four wharves for fertilizer and general cargo traffic. There is one dry dock which provides repair facilities.

2.3.9 Cargo handling equipments

The efficiency of the port is measured by the quick turn-round of the ships. It depends upon the quick movements of loading or unloading of cargo either from the ship to shore or ship to ship. For efficient and quick handling of cargo, adequate cargo handling equipments are provided in sufficient number with different capacities. Their details are shown in Table 2.2.

Table: 2.2

Details of cargo handling equipment at Tuticorin port trust

<table>
<thead>
<tr>
<th>Top left Trucks for handling containers</th>
<th>35T</th>
<th>-</th>
<th>5 Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Cranes (TATAP &amp; H)</td>
<td>75T</td>
<td>-</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>Wharf Cranes (10 Nos.)</td>
<td>3T</td>
<td>-</td>
<td>3 Nos.</td>
</tr>
<tr>
<td></td>
<td>6T</td>
<td></td>
<td>2 Nos.</td>
</tr>
<tr>
<td></td>
<td>10T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front End Loaders</td>
<td>2</td>
<td>-</td>
<td>5 Nos.</td>
</tr>
<tr>
<td>Locomotive</td>
<td>1</td>
<td>-</td>
<td>No.</td>
</tr>
<tr>
<td>Marshall Demag crane</td>
<td>12T</td>
<td>-</td>
<td>1 No.</td>
</tr>
</tbody>
</table>
2.3.10 Floatilla

The floating crafts are very essential for berthing and moving of ships. They are also required for rendering bunkering services and marine survey. Their details are given in Table 2.3.

<table>
<thead>
<tr>
<th>Details of floating crafts at Tuticorin Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tugs</td>
</tr>
<tr>
<td>Pilot launches</td>
</tr>
<tr>
<td>Mooring launches</td>
</tr>
<tr>
<td>Other launches</td>
</tr>
<tr>
<td>Water bangs</td>
</tr>
<tr>
<td>Other bangs</td>
</tr>
<tr>
<td>Floating crane</td>
</tr>
</tbody>
</table>

2.3.11 Warehouse facilities

The Tuticorin Port Trust provides adequate modern storage facilities in the port area. Facilities for storing dangerous cargoes and fumigation of imported cotton also exist in this port. The harbour railway is connected to Southern Railway System. It operates in the port area, facilitating the inward and outward movement of cargo. The port is also linked with the national highways. A well-equipped port free service unit and central industrial security force are functioning in the port. Navigational aids such as light house, buoys, etc. are provided in the port. The signal station in the port facilitates the communication between the ship and shore.
2.3.12 Hinterland

The fundamental importance of a port depends in the extent and productiveness of its hinterland. It plays an important role in deciding the composition and quantum of traffic through the port. The gap between the average traffic and maximum traffic varies from port to port and is directly attributable to the composite of economic hinterland.

Hinterland means a region to which a port acts as a door. The extent of the hinterland of a port depends upon the means of communication and availability of land transport. A dense population, abundant economic products and an efficient transport and communication system make the hinterland ideal. The commerce of a port is reflective of the conditions of production and the nature of consumption of its hinterland. A hinterland may be distributory or contributory. In a distributory hinterland, the import trade is of great significance either to feed its population or to supply raw materials to industries. If the region is productive enough to contribute to the world market, it is a contributory hinterland.

Tuticorin Port has a vast and rich hinterland, covering 513 acres of the southern district of Tamilnadu. It is well connected by national and state high ways and broad gauge railways.
2.3.13 Trade and traffic of Tuticorin port

The volume of trade and traffic is the index of a port’s development. The earnings of the Port Trust depend upon the volume and nature of traffic handled every year. The volume of traffic as well as its pattern depends upon a number of factors such as the location of the port in the main world sea routes, richness of hinterland, availability of infrastructure facilities and the policy of the Government.

The past war years have seen a steady growth of traffic. The port now handles an import of 98.11 lakhs tonnes and an export of 32.06 lakhs tonnes annually. The major imported commodities are coal, fertilizers, containerized cargo, and copper concentrate. The significant exports are containerized cargo, salt, granite stone, Ilmenite sand. Annually 1421 ships from all nations, call at the port establishing trade relations with countries. All countries’ Conference liner ships provide regular service from and to the European countries, the United States of America, Japan, West Asia, Far East and Australia.

The import is a significant aspect in the balance of traffic at Tuticorin Port. The import traffic has increased from Rs. 54.08 lakh tonnes in 1992-93 to 98.11 lakhs in 2001-02. The export traffic of the Tuticorin port was 8.07 lakhs tonnes in 1992-93 and increased to 32.06 lakhs tonnes in 2001-02. Another feature of the traffic is that
foreign traffic forms nearly 99.38 per cent of the total export traffic. The coastal traffic was only 0.62 per cent in 1992-93. The foreign traffic in 2001-02 was 98.16 per cent of the total export traffic, whereas coastal traffic was only 1.84 per cent. The main export products are salt, granite stone, Ilmenite sand, garnet sand and containerized cargo.

2.4 PROFILE OF ENNORE PORT

Ennore is situated on the coromandal coast about 24 km north of Chennai port along the coast line, in the State of Tamil Nadu, India. It is the twelfth major port in India and the first corporatized major port in India.

Ennore port was originally conceived as a satellite port to the Chennai Port, primarily to handle thermal coal to meet the requirements of Tamil Nadu Electricity Board (TNEB). The scope was expanded, taking into account subsequent developments such as the plan of the Government of Tamil Nadu to set up the following projects:

1. A 1880 metro water LNG power project in association with a private consortium
2. A large petro-chem park
3. A naphtha cracker plant

The pollution and environmental hazards caused, while handling iron ore and coal, in the Chennai harbour and nearby
habitation also necessitated shifting these cargo items from the Chennai port.

This was the rationale behind planning of berth for (for users other than TNEB) iron ore, LNG, POL, chemical and other liquid and crude to serve various industries that would come up on the proposed Petro - Chem Park. These factors have contributed to the evolution of Ennore Port as a multi-functional energy port of the new millennium.

The Phase I development of Ennore Port has been completed. The port was inaugurated and dedicated to the nation by the Honorable Prime minister of India on 1.2.2001. Commercial operations commenced with handymax - geared vessels for unloading of thermal coal on 22.6.2001. With the deployment of self-unloading and gearless vessels of 65000/77000 DWT, full-fledged operations have started from December 2002.

There are more than, 2,000 seaports active throughout the world to cater to the requirements of sea - borne cargo to the volume of around 5.3 billion tonnes. With the growing move for privatization of the seaports, all over the world subsequent to reforms, private sector participation in operations and infrastructure activities of seaports has increased substantially over the last few years. This has resulted in a radical change in the organisational model of ports, converting from Service Port model to Landlord Port model, where port authority retains the port infra-structure and regulatory functions, and port services are provided by private operators.
2.4.1 Infrastructure at Ennore port

Ennore Port has been endowed with large chunks of land. The Port would have about 2000 acres of land. EPL would provide all the infrastructure facilities required viz., water supply, electricity, transmission corridor, fire fighting services, environmental protection measures etc. The facilities available at Ennore Port are:

<table>
<thead>
<tr>
<th>Berths</th>
<th>Capacity (in metric tons per annum)</th>
<th>Length (in meters)</th>
<th>Max permissible Draught (in meters)</th>
<th>Date of Survey</th>
<th>Type of Cargo</th>
<th>Size/Type of Vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB-1</td>
<td>8 MTPA</td>
<td>280</td>
<td>13.5</td>
<td>Feb 09</td>
<td>Thermal Coal</td>
<td>65,000-77,000DWT</td>
</tr>
<tr>
<td>CB-2</td>
<td>4MTPA</td>
<td>280</td>
<td>13.5</td>
<td>Feb 09</td>
<td>Thermal Coal/POL</td>
<td>65,000-77,000 DWT</td>
</tr>
<tr>
<td>MLT-1</td>
<td>3MTPA</td>
<td>360</td>
<td>13.5</td>
<td>July 09</td>
<td>POL/Chemicals</td>
<td>upto 1,50,000DWT</td>
</tr>
</tbody>
</table>

**Equipment profile (Installed by TNEB over Coal Wharf)**

<table>
<thead>
<tr>
<th>Conveyors</th>
<th>Description</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyors</td>
<td>Two streams with the rated capacity</td>
<td>4000 TPH each</td>
</tr>
<tr>
<td>Unloading Equipments</td>
<td>Shore-based Gantry Type Grab 2 Nos</td>
<td>Rated capacity 2999 TPH each</td>
</tr>
<tr>
<td>Mobile hopper</td>
<td>Mobile Hopper (to receive coal from Crane hopper self-unloading ship at the rate of 4000 TPH)</td>
<td>1 No</td>
</tr>
<tr>
<td>Temporary hoppers</td>
<td>(To Receive coal from Handymax Geared Vessels)</td>
<td>6 Nos</td>
</tr>
</tbody>
</table>

2.4.2 Connectivity

1. Excellent road connectivity to NH4, NH5 & NH45
2. Linked to Chennai-Kolkata, BG Main Line
3. Connectivity to Chennai Airport

2.4.3 Logistics services at ennore port

1. The first Corporatised Major Port in the Country
2. Designed to be developed as Asia’s Energy Port
3. All Weather Port
4. Round the clock Operations
5. Strategic Location
6. Vast Back-up Land
7. Simple Documentation
8. Number - one destination for Liquid Bulk Cargo
9. Eco-Friendly environment
10. State-of-the art infrastructure
11. Modern Navigational Facilities
12. Efficient Logistics Systems
13. Excellent Transport Interface
14. Access to quality human resources
15. Positioned within today's IT-Driven integrated logistics chain
16. Customer - friendly approach

2.4.4 Business potential of ennore port

EPL, as landlord port, would create and retain the basic infrastructure and carryout its regulatory functions. Development, operations & management of cargo terminals to handle dry/liquid bulk cargo would be concessioned to private sector participants on BTO basics. Private operators would be required to construct the berth, install topside facilities and storage facilities at their cost and operate the facility.

2.5 FUNCTIONAL AND RESPONSIBILITIES OF VARIOUS DEPARTMENTS

2.5.1 Marine Department

1. Providing Marine Services such as pilotage for berthing, un-berthing and shifting of ships, tug/pilot & mooring launch hire, mooring services, etc.
2. Berthing, allocating and implementation of priority berthing as per the Government circulars

3. Capital and maintenance dredging

4. Survey of harbour basin, channel, alongside berths, etc.,

5. Maintenance of communication with ships & port users through Port Signal Station

6. Maintenance of navigation aids and communication equipments

7. Ambulance (24 hours) for use of terminal operators/port users during emergency

8. Occupational Health Center

9. Maintenance and monitoring of safety for port users

10. Establishment and maintenance of fire fighting facilities

11. Monitoring of air and marine / ground water quality

12. PCS/ EDI message interchange with customs and port users

13. Security compliance as per ISPS code

14. Traffic related issues

2.5.2 Operations department

1. Preparation of Annual Plan, Business Plan and Master Plan

2. Preparation and execution of Action Plans

3. Project appraisal and development

4. Planning of road and rail network inside the port to improve the traffic movement and also improve and create external connectivity to the City/National Highway Network and Railway Network

5. Creation and maintenance of civil infrastructures and structures

6. Electrical supply and maintenance to the port users
7. Land matters
8. Township development
9. Engagement of consultant / contractors for preparation of tenders, award of contract and supervision of execution of work
10. Tendering and award of contracts
11. Arbitration matters

2.5.3 Finance and company secretary department

1. Preparation of Capital and Revenue budget based on the inputs from Heads of all departments
2. Appropriation of accounts, re-appropriations, surrender and savings
3. Collection of all dues, fees, charges or other sums payable to the company
4. Management of expenditure
5. Audit and administration of taxes
6. Resource mobilization through loans, institutional finance, credit and investment etc.
7. Payments on due dates of sums, due on account of interest, principal and sinking funds in respect of loans raised by the Company.
8. Financial concurrence and advice
9. Maintain the cash balances at credit, of the various funds of the company and invest them in a manner most advantageous to the Company
10. Legal and secretarial functions
11. Organizing Board meetings, Annual general meetings (AGMs), etc.
12. Scrutinize tenders, purchase proposals and agreements relating to all purchases

13. Compile of the Company’s Annual Report from the information furnished by other Heads of Departments

2.5.4 Human resource development and administration department

1. Recruitment and induction of new employees

2. Declaration of Probation and Confirmation of employees

3. Training for employees

4. Increments and Pay fixation

5. Maintenance of Personal files

6. Promotion

7. Absorption of employees, on deputation from other Govt. Organisations

8. Leave register maintenance

9. Welfare measures of the employees

10. Processing of Medical, HBA & Vehicle Advances

11. Vigilance and disciplinary cases

12. Appeals/Reviews arising from disciplinary/vigilance cases

13. Maintenance of Complaint Cell Register

14. Periodical returns, regarding complaints, vigilance cases, etc.

15. Implementation of Official Language (Hindi)

16. Transport

17. Public Relations
2.6 SERVICES OFFERED

2.6.1 Procedure to avail services

1. Arrival of the vessel with required details to be informed by the Steamer Agent through PCS
2. Berth allotment confirmed via PCS
3. Import application to be filed by the Importer/Custom House agent for taking delivery of the import cargo from the port on completion of customs formalities
4. Export application to be filed by Shipper/Custom House agent for landing the export cargo at the port after completing the customs formalities

2.6.2 Charges for services provided

- The relevant charges for the services provided are collected as per the Scale of Rates of port trust.

2.6.3 Marine services

- Berthing / unberthing of vessels
- Priority berthing is done as per the Government circular and on remittance of due charges
- The berth hire charges are as per the Scale of Rates
- Safe movement and timely berthing / unberthing of vessels
- Transparent allotment of berth on first-come first-serve basis/cargo requirements and Govt. directives
- If there is a breakdown / non-availability of floating crafts/stoppage of work/late reporting of staff Manager (ME) is to be contacted.
2.6.4 Handling of POL Products

- Terminal Manager, ETTPL shall be contacted

2.6.5 Handling of Iron ore: (temporary facility)

- Terminal Manager, MMTC/ and Transport shall be contacted

2.6.6 Fire Fighting Service

The Port is committed

- To prevent fire, by taking adequate safety measures & creating awareness of causes of fire among employees, port operators, user, etc.,

- To extinguish fire and control the spreading of fire to ships/areas, if a fire occurs

- Remove oil spillage for preventing fire

- In case of fire the Signal Station / Fire Station / GM (MS) / Dy. Manager (Safety) / Manager (ME) / Officer I/C, CISF is to be contacted

- The users can contribute enormously towards this service by informing the Port in advance, regarding hazardous cargo expected to be handled so as to ensure adequate safety measures