



Port of
Rotterdam

Indian Ports Association

Coordination of business plans for major ports in India

Consolidated port development plan

Volume 2 Annexes, final version

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1 Kandla

1.1 Mission, Vision and Strategy

The vision statement for Kandla Port is as follows:

“Kandla Port will emerge as a vibrant, world class, multi-cargo port offering services at multiple locations and having a dominant share of regional cargo by virtue of its ability to effectively leverage its locations and land resources for facilitating growth of economic activities and investments, with the objective of developing mutually beneficial and sustainable linkages with port based industries and users, thereby making Kandla the driver of economic growth in the region”

The short term goals set by Kandla Port Trust are:

- Enhance and develop port facilities at multiple locations;
- Drive customer centric organisation level transformation

The short term goal is:

- To leverage land resources to facilitate economic development

The overall strategy of KPT should enable a framework within which the goals can be achieved. The aim of the strategy would be to create an enabling environment and support the goals identified for KPT.

1.2 Competitive Position

The ports in Gujarat as well as Mumbai and JNPT serve the hinterland of Kandla Port and comprise the competitive landscape of Kandla.

The Ports in Gujarat are under the administrative control of the State Government through its agency Gujarat Maritime Board (GMB). GMB has the following categories of ports:

- Multi-cargo ports;
- LNG Port Terminals;
- Chemical Port Terminals;
- Container Port Terminals;
- Bulk Port Terminals;
- Ship Building & Ship Breaking;
- Fisheries Harbor.

Kandla has stiff competition from GMB ports as it serves the same hinterland. Moreover, GMB ports are witnessing increased growth on account of robust private sector participation and initiatives of GMB. The port capacity of GMB ports has increased from 44 M TONS in 1995 to 140 M TONS in 2004

Kandla port is surrounded by the GMB ports and faces competition from Major Ports of Mumbai and JNPT. These ports have already witnessed participation by international terminal operators and liners like PSA, Maersk and P&O. GMB ports are likely to witness increased private participation in future with private interest in new ports being offered for development. These include the ports of Rozi/Bedi, Simar and

VansiBorsi. Besides these ports, development of Dholera awarded to Adani's is likely to commence soon considering its proximity to the proposed new SEZ.

In addition, the 3rd container terminal at JNPT has drawn extensive interest from private parties. These developments coupled with the initiatives already underway, offer Kandla a very challenging competitive landscape.

Import cargo:

There are three major ports on the Western side which can serve the Northern hinterland. They are Kandla, Mumbai and JNPT. In fertilisers as well as POL products, Kandla has a significant share of import cargo amongst major ports. The principal commodities being imported through Kandla Port are:

- POL and acids (captive);
- crude oil (captive);
- edible oil (non-captive);
- fertilisers (captive);
- scrap, steel coils, containers (captive);
- wooden logs (captive);
- coking coal (non-captive).

Export cargo:

While JNPT mostly handles containers, Kandla and Mumbai emphasize on liquid bulk and dry cargo. The principal commodities being exported from Kandla Port are:

- Foodgrains (non-captive);
- Salt (non-captive);
- Extractions (non-captive);
- Coated/Steel Pipes (non-captive);
- POL (captive);
- Edible Oil (non-captive);
- Bentonite (non-captive);
- Containers (non-captive).

The SWOT analysis, conducted in discussion with the stakeholders, provided the following main issues:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Strategic location; ▪ Hinterland ▪ Land availability; ▪ Ability to handle multiple types of cargo; ▪ Cost effective; ▪ Financial position. 	<ul style="list-style-type: none"> ▪ Lack of mechanisation; ▪ Restrictions arising from limited draft; ▪ Sub-optimal utilisation of space around the port; ▪ Shortage of staff; ▪ Lack of infrastructure to attract containers; ▪ Customer services; ▪ IT connectivity; ▪ Constraints in night navigation; ▪ Storage area management; ▪ Lack of uniformity in operational efficiencies; ▪ Procedural delays.
Opportunities	Threats
<ul style="list-style-type: none"> ▪ New cargo like ro-ro and LNG; ▪ Revenue potential ▪ Sustainability of revenues; ▪ Resources allocated; ▪ Growth potential. 	<ul style="list-style-type: none"> ▪ Increasing competition from GMB ports; ▪ The presence of international players in GMB ports ▪ The upcoming private ports.

Table 1.1 SWOT analysis for the Port of Kandla

1.3 Cargo Forecast

The port handles dry bulk, liquid bulk, break bulk cargoes and containers. The principal commodities imported at present are POL and acids, crude oil, edible oil, fertilisers, sulphur, scrap, steel coils, wooden logs, coking coal. The principal export commodities exported at present are foodgrains, salt, extractions, coated steel piles, POL, edible oil, bentonite.

	2007-08	2011-12	2025-26
POL – Product & Crude	49,05	61,47	118,60
Iron Ore	0,00	0,00	0,00
Coal	0,52	7,36	7,36
Fertilisers	4,13	4,51	6,15
Container Traffic	2,52	6,84	42,00
Other Cargo	14,41	17,95	30,40
Total Throughput	70,63	98,13	204,51
Container M TEU	0,21	0,57	3,50

Table 1.2 Cargo forecast Port of Kandla in Mtons

1.4 Port Facilities

The Port of Kandla is situated in the district of Kutch (Gujarat) on the West bank of Kandla Creek. The Kandla Creek runs into the Gulf of Kutch at a distance of some 90 nautical miles from the Arabian Sea. The width of the channel in Kandla Creek varies

from 200 to 1.000 m. Under high tide conditions the max permissible draft in the channel is 11,7 m. The depth of the channel is around 10 m. The total length of the approach channel is some 23 km. The port situated inside the creek is sheltered from sea and swell.

The port has eleven cargo berths for dry bulk and break bulk cargoes with a total length of 2.268 m. The berths are equipped with electric quay cranes. In addition the port has six oil jetties for handling POL, LPG and chemicals. The offshore oil terminal at Vadinar has a permissible draft of 30 m. There are three Single Buoy Moorings (SBM) at Vadinar.

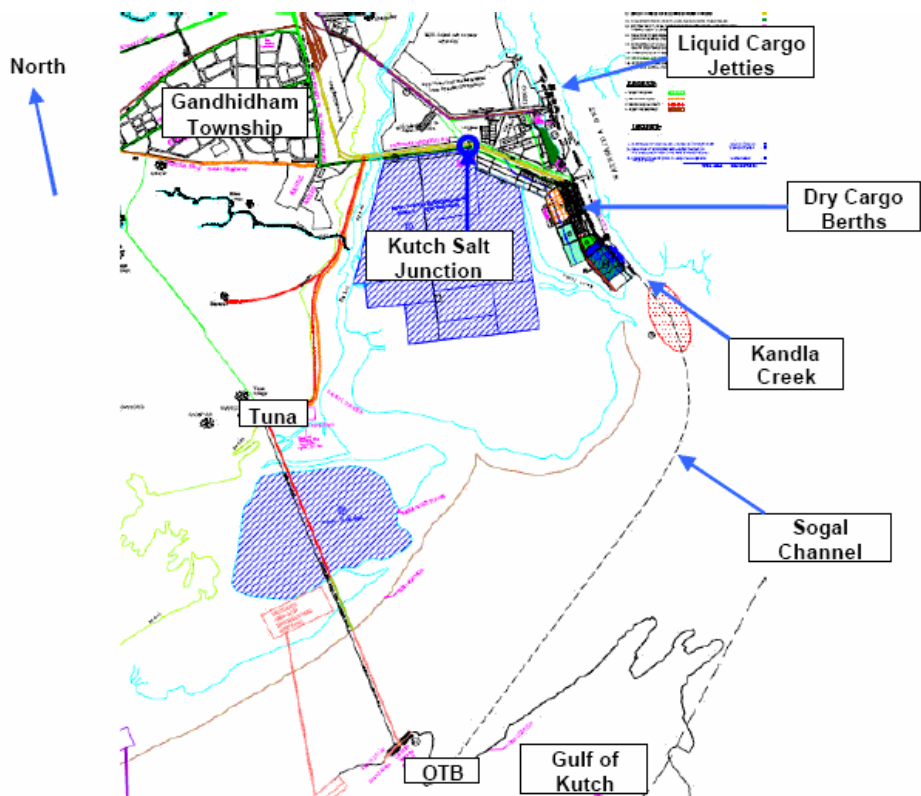


Figure 1.1 Present layout Port of Kandla

1.5 Port Planning

Proposed projects

- Container Terminal 1 (restructuring of berths 11 and 12);
- Container Terminals 2 and 3 (restructuring berths 7 to 10);
- Multi cargo berths 13 to 16;
- Expansion of the existing liquid bulk cargo jetty;
- Deepening of the access channel (Kandla Creek);
- Coal and multi cargo berths at Tuna;
- Crude oil import facilities at Vadinar;
- Road and Rail connectivity projects and programmes.

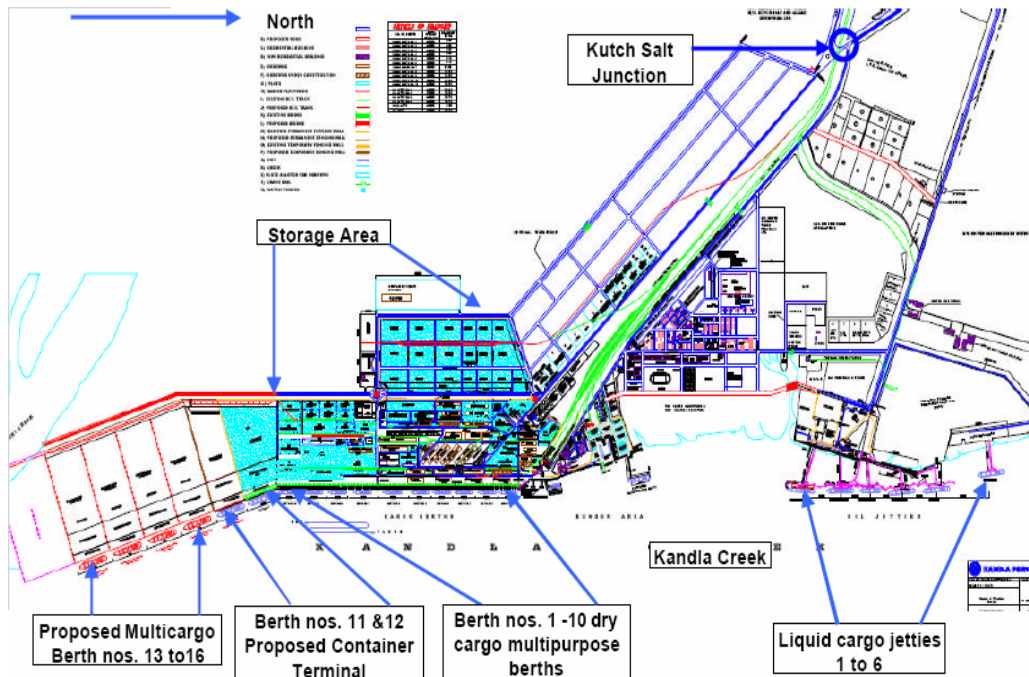


Figure 1.2 Future layout Port of Kandla

Comments of the Advisor

- Capacity of the port is restricted by nautical capacity access channel (Kandla Creek);
- Expansion possibilities at Tuna and Vadinar (sea side of Kandla Creek);
- Estimates on capacity of container terminals are optimistic.

1.6 Hinterland Connectivity

- The port is well connected with the hinterland by broad gauge railway system and by the national road network;
- The entire import cargo at Vadinar is transported through pipelines to the adjacent refineries;
- Containers are almost entirely transported between hinterland and port by road. The role of railways in general is limited in view of non availability of rakes and in view of small parcel sizes;
- At present Kandla is well connected with Ahmedabad and the national road network via a partly 2 lane and partly 4 lane highway. Works are under construction to widen the entire access road to 4 lanes.

1.7 Port organisation and institutional setting

Port organisation:

The consultant mentions and recommends improvements for the following major issues:

- Inadequate IT infrastructure;
- Lack of marketing department;

- Lack of projects cell;
- Lack of human resources department;
- Improvement in navigation needed;
- Shortage of pilots;
- Lack of strategy for land development;
- Regulatory restrictions.

Institutional setting:

Kandla Port has involved the private sector in a number of activities. The port provides all the services on its own but there are a number of services overlapping with private players too. Some areas which have seen private sector participation comprise setting up of liquid tank farms and connecting pipelines, storage facilities, handling equipments and container yard operations.

Further the port has already given the work of construction of 12th berth on BOT basis to private operator and the berths 13th to 16th are also planned for development on BOT basis. The liquid cargo SBM facility at Vadinar comprises two SBMs of IOC and one SBM of Essar. A second SBM is planned by Essar in the near future.

KPT is likely to opt for the BOT model for the construction and operation of new berths at the port. The model concession agreement currently suggested by the government proposes revenue share as a model for BOT contracts.

Corporatisation will enable the major ports to become companies under the Companies Act. Three things will follow from this development. One is that they will be more independent and less under the direct control of the Government. They will have greater powers because they will be companies under the Companies Act, that none of the restrictions that the Major Port Trust Act places on them. The second is that they will become more commercial. Finally, if they come under the Companies Act, they will be able to revamp their balance sheets to do true commercial accounting and to access banks or access commercial funding for their expansion projects.

Corporatisation would make ports much more efficient, more economically-oriented and financially-oriented. In a trust structure, the interests of the trustees are maximized whereas in a corporate structure, the interests of the shareholders are maximized.

Advantages of corporatisation:

- Independent tariff setting;
- Governance standards as per the companies act;
- Faster decision making;
- Increased accountability of the management;
- Increased professionalism.

Disadvantages of corporatisation:

- Multiple reporting structures;
- Opposition from labour workforce;
- Loss of financial flexibility in certain areas;
- Controlled environment under Regulator.

1.8 Financial issues

1.8.1 Profit and Loss account

The projected profit and loss account for Kandla Port Trust is in Table 1.3.

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	28	33	37	41	43	48	52	98
Other dues	104	127	135	151	155	168	181	325
Stevedoring revenue	94	142	154	173	176	190	200	352
Storage								
Wharf handling								
Concession fee	14	127	135	151	155	168	181	473
Other operational income	26	27	129	131	133	134	140	167
Total operating revenue	266	456	590	645	663	708	753	1.415
Expenses								
Salaries	80	81	83	85	87	89	91	139
Social charges and pension premiums	0	0	0	0	0	0	0	1
Running costs	35	39	41	44	46	49	52	89
Administrative costs	15	16	17	18	19	20	21	35
Other costs	2	2	2	2	2	2	2	4
Total operating costs	131	138	143	150	154	160	167	267
Operational net earnings before DIT	135	318	447	495	508	548	586	1.148
Other income	137	149	164	191	226	268	318	237
Net earnings before DIT	272	467	611	686	734	816	904	1.385
depreciation	38	46	53	59	62	64	65	320
Net earnings before it	234	421	558	627	672	752	839	1.065
Interest	-18	-18	-8	-8	-9	-10	-11	-48
Net earnings before tax	216	402	551	619	663	741	827	1.017
Tax	50	68	102	120	134	154	178	234
Net earnings	167	335	448	499	529	587	650	783

Table 1.3 Projected Profit and Loss

1.8.2 Balance sheet

The projected balance sheet for Kandla Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	733	819	933	945	958	924	900	12.087
Investments	1.491	1.623	1.837	2.204	2.614	3.132	3.715	2.396
Current assets	176	186	200	223	248	281	317	326
Liquid means	3	3	3	3	3	3	3	3
Total assets	2.404	2.630	2.972	3.374	3.822	4.339	4.934	14.812
Equity and liabilities								
Equity								
Reserves	2.288	2.514	2.855	3.258	3.705	4.222	4.817	14.688
Total own equity	2.288	2.514	2.855	3.258	3.705	4.222	4.817	14.688
Provisions								
Long term loans	16	16	16	16	16	16	16	16
Short term liabilities	100	100	100	100	101	101	101	107
Total equity and liabilities	2.404	2.630	2.972	3.374	3.822	4.339	4.934	14.812

Table 1.4 Projected balance sheet

1.8.3 Projects for the 7 year period

Projects Kandla

RS Crores

Kandla	Timing	Investment costs				WACC	IRR (project)
		Total	Port Trust	Private	GOI		
<i>Client related investment projects</i>							
Development of 12th Cargo berth and setting up of Container Terminal at Kandla	2007	330	150	180			
Development of Container Terminal 2	2013	370	90	280		11%	40%
Development of Container Freight Station 1	2012	65		65		11%	13%
Development of dedicated Coal Berth at Tuna	2013	110		110		11%	16%
Development of Port Based Special Economic Zone (SEZ)	2010	3,984		3,984		9%	10%
Development of 13th to 16th multi cargo berths at Kandla	2009	404		404		11%	13%
Expansion of capacity of liquid bulk cargo jetty	2009						
<i>Public Infrastructure Related Investment Projects</i>							
Development of Spur for Dedicated Freight Corridor	2010	234	234				18%
Single Level Car Parking (Ro-Ro)	2010	7,2	7,2				35%
Dredging the Sogal Channel	2007-2014	186	186				
Modification of Bunder basin for barge handling facility	2007	10	10				
Extension of Railway network in the rear of back up area from berth nos. 11 to 16	2008	17,4	17,4				
Providing Railway network in newly added cargo jetty and proposed SEZ	2008	25	25				
Road Over Bridges	2008	20	20				
Cargo Gates	2010	0,6	0,6				
Total investments in fixed assets		5.763	740	5.023			
Correction investments for 7 year period			140-				
Total investments in fixed assets in financial model			600				

1.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 167 Crores to Rs 659 Crores. The level of investments with internal funding is moderate. The solvency is nearly 100% in 2013-14. The borrowing capacity is not used.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	1.494
Available for investments IPA 10-4	1.438
blocked for pensions etc	56
Investments in financial assets 2014	3.715
Liquid means 2014	3
Available funds	3.717
Blocked for pensions	56
Available for investments 2014	3.662
Equity = borrowing capacity	4.817
Existing loans	16
Balance	4.801
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	3.662
From unused borrowing capacity	4.801
Total available for investments in fixed assets in 2014	8.463

Table 1.5 Available funds for investments in fixed assets.

1.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report Kandla	Major Remarks Final Report
The report is informative and has a proper lay out, however should be condensed. Since the report is very bulky, the Consultant should provide more overviews and clarifications between the various steps and chapters. An example is chapter 8, in which two tables are presented without proper explanations.	As in Draft Final Report. Some improvements have been made on readability. List of contents is not sufficiently extensive for this bulky report, for which reason it is difficult to find relevant sections and paragraphs.
The Consultant follows the format provided by the Advisor to a sufficient extent;	As in Draft Final Report which is good.
Vision of Kandla Port is expressed in a very complex way.	As in Draft Final Report
Competition between the ports is not sufficiently highlighted. What are the market shares Kandla and its competitors have now and in the future?	As in Draft Final Report
As commented in earlier reporting, parts of the sections on commercial and financial strategy are textbook contents and have no practical value for the port.	As in Draft Final Report
Set up of illustrations related to the forecast of part of commodities for Kandla Port is fine. Graphs are not always consistent with summary of cargo forecast (Table)	Corrections have been made
Extensive calculations have been included on logistic requirements per commodity (quay length, storage areas, number of equipments). Calculations on seaside capacity are based on optimistic assumptions. Calculations on storage areas are in cases conservative (long dwell times). Calculations on back up equipment for commodities other than general cargo have not been included.	Corrected in Final Report.
Sea access capacity has been calculated in terms of maximum vessel movements per year. Terminal capacity (ship to shore) has been calculated separately. Compatibility of terminal capacities and sea access capacity has not been provided in a clear way;	Additional remarks on the issue have been added in section 7 (page 199). Still no clear indication on compatibility of cargo handling and storage capacity on one hand and sea access capacity on other hand.
Calculations on back up equipment for containers and horizontal transport equipment are not correct.	Corrections made in Final Report.
Transport economy analysis and cargo forecast has been included to a sufficient extent;	As in Draft Final Report which is good.

Major Remarks Draft Final Report Kandla	Major Remarks Final Report
Proper maps and drawings have been provided in particular on road and rail connectivity. In maps of port area legends are in most cases not readable (small scale);	Some of the maps have been improved.
Informative illustrations included on hinterland of Kandla per commodity (page 51-57);	As in Draft Final Report which is good.
Direct hinterland transport of containers via road mode does not exist in logistic scheme of Consultant in present situation and in future. All road transport is via CFS. This is not realistic. In view of major role of CFS, projects may include information on working times, number of shifts, working methods, capacity of gangs in stripping and stuffing, gang sizes and other background leading to required CFS facilities;	Logistics scheme has been corrected. CFS capacity requirements however cannot be analysed by reader without listing of assumptions on productivity.

Financial Remarks Draft Final Report Kandla	Financial Remarks Final Report
The financial part of the report is adequate to serve as a financial body for the business plan.	As in DFR
The client related investment projects are handled in chapter 8.	As in DFR
Chapter 8.1 contains two tables. The relation between the tables is not clear. The headings in the tables are not clear and there is no description or argumentation regarding the tables.	One table has been deleted
The second table is not complete, Year of commence and project costs are not filled in	Year of commencement has been filled in, column project costs has been deleted.
The existence of chapter 8.2 is unclear, please clarify or delete.	Corrected
In chapter 8.3 – 8.8 the individual projects are described. The headings are not identical to the headings in the tables in Chapter 8.1. The project costs differentiate from the project costs in the overview in chapter 8.1	Headings have been corrected
The IRR calculation does not give details on investments, revenues and costs.	As in DFR
For each project there are 2 IRR calculations 1 for the project and 1 for the BOT operator. The impact for KPT is not mentioned.	Not improved; the consultant points to the financial models.
There is no summary with the financial impact of all projects for KPT. Such an overview should give the investments for KPT per project per year and the total should be in line with the investments in the financial accounts.	Information has been added, starting years in summary are not always in line with the project details
Projected financial accounts : The statement of accounts is for a part in line with	As in DFR

Financial Remarks Draft Final Report Kandla	Financial Remarks Final Report
the format in the information outline, however the format for the flow of funds deviates.	
The figures in the financial statements are not in line with the figures in the financial model.	New model received, figures are in line
The details for Categories of es Fixed assets Categories of costs Long term liabilities Equity and reserves as required in the information outline is missing. In order to keep the wording of chapter 10 intact these details could be integrated in an annex.	As in DFR
The relation between the selected projects and the financial accounts is not clear.	As in DFR
Major Remarks Financial Model Draft Final Report	Major Remarks Financial Model Final Report
The financial model is complex and very detailed. It is adequate to calculate the projected financial accounts. In order to make it possible for the employees of KPT to use the model as an instrument for future projections is it advised that the consultants scales it down to a less detailed version and to instruct and train the employees of KPT	As in DFR

2 Mumbai

2.1 Mission, Vision and Strategy

Based on the opportunity assessment as well as the SWOT analysis, the vision was developed through a visioning workshop carried out with port stakeholders. The identified vision and the elements of vision have been outlined as –

“To be amongst the leading world-class multipurpose city-based ports in South-East Asia by 2025”

Comments of Advisor:

The fact that the Port of Mumbai is a city based port is of less relevance. The vision statement suggest that the Port of Mumbai will only take other city based ports into account as competitors, which obviously is not the case. A mission statement was not provided, and apart from a financial strategy, other strategies were not clearly indicated.

2.2 Competitive Position

Recent trends might indicate that the growth of Mumbai Port has been slower than the overall growth of all Major Ports and especially when compared with the neighbouring JNPT. But it should not be overlooked that Mumbai Port still continues to handle a substantial portion of POL, Iron & Steel, Foodgrain, General Cargo and Edible Oil on the Western coast.

Mumbai’s competitive positioning with respect to the Major Ports (as well as the minor ports) on the Western coast would be largely determined by its ability to – (1) increase its present cargo throughput across various commodities and (2) attract and retain port-users.

Major Ports		Minor Ports	
Kandla	Dry bulk, POL, general cargo	Mundra	Cement, containers, bauxite
JNPT	Containers, POL	Pipavav	Containers
Cochin	POL, general cargo, containers	Dharamtar	Dry bulk, coal, scrap iron, sulphur
Mormugao	General cargo, coal, iron ore, liquid bulk	Dighi	Bauxite, manganese, sand, assorted metals
New Mangalore	General cargo, POL, LPG, Iron ore, Edible oil, cement		

Table 2.1 Profile competing ports for Mumbai

The six major ports on the West coast cater to the hinterland comprising almost half of the country. The primary hinterland being serviced is first of all the state where the port lies. Beyond that, the ports of Mumbai, JNPT and Kandla compete for the

Northern land-locked states of Punjab, Rajasthan, Haryana, Delhi and Madhya Pradesh. The comparatively Southern ports of Mormugao, New Mangalore and Cochin cater to the Southern states of Goa, Karnataka and Kerala on the Western coast.

Due to the proximity of Gujarat to the Northern states and initiatives taken by smaller ports like Mundra and Pipavav, the Major Ports like Mumbai and JNPT have been facing increasing pressure over the last few years. Mumbai, which has most of the areas around Mumbai and large parts of Maharashtra as its captive market, is now facing stiff competition from the smaller ports in the vicinity like Dighi and Dharamtar – mainly on account of the similar cargo profile.

According to the port users, the three most important factors in choice of a port are location, efficiency and infrastructure. JNPT emerges as the best port, with Mumbai and Mundra perceived to be the next best ports. JNPT is rated highly in terms of port efficiency, infrastructure and hinterland connectivity.

The primary constraints identified while dealing with Mumbai Port were - capacity constraints of berths to handle ships, labour inefficiency and evacuation of cargo from port. The port users recommended certain measures to improve port competitiveness - viz. reduction in tariff, alternate land usage (marina, cruise terminal etc.) and modernization of equipment.

Mumbai is rated highly in terms of – (1) location and (2) its ability to handle multiple types of cargo.

Mumbai Port continues to handle a substantial portion of Break Bulk (mainly Iron and Steel) and Liquid Bulk (mainly Crude Oil & POL) products on the Western coast. Crude Oil, POL Products, Iron and Steel, Chemicals, Rock Phosphate, Fertilizers, Edible Oil, Pulses, Automobiles and Lubricating oil presently form the captive cargo for Mumbai Port. Agro-based products, fodder and containers form non-captive cargo for Mumbai Port presently.

The port-users have identified Mumbai Port's location and its ability to handle multiple types of cargo as its Unique Selling Points. Setting up of a Special Economic Zone (SEZ) across the harbour in Navi Mumbai has opened up avenues for additional opportunities for Mumbai Port. Even though the port-users did not articulate the criticality of land-estate of Mumbai, subsequent discussions with the management has revealed the importance attached to the efficient usage of the port's large estate.

The SWOT analysis of Mumbai Port was conducted during discussions with port stakeholders:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ multi-cargo handling capabilities, ▪ location, ▪ captive cargo of the two oil refineries, ▪ sound financial position, ▪ vast land estate and the port's proximity to a vibrant mega-city. 	<ul style="list-style-type: none"> ▪ draft constraints, ▪ lockgate constraints, ▪ outdated equipment, ▪ high cargo-handling costs, ▪ rail/road evacuation problems, ▪ ageing workforce ▪ delay in project implementation.
Opportunities	Threats
<ul style="list-style-type: none"> ▪ better productivity at competing ports, ▪ containerization of cargo, ▪ fluctuating nature of break-bulk cargo ▪ the extreme price sensitivity of conventional cargo. 	<p>In order to supplement the existing projects in pipeline and fresh opportunities (such as vehicle exports), it would be necessary to create:</p> <ul style="list-style-type: none"> ▪ Additional backup facilities such as CFS, ▪ Multi-level car parks, ▪ Empty Yards and Distriparks. <p>Ample scope was identified for a lot of other value-added opportunities like</p> <ul style="list-style-type: none"> ▪ Cruise Terminal, ▪ Convention Centers, ▪ Marina ▪ Development of the Western waterfront.

Table 2.2 SWOT analysis for the Port of Mumbai

Comments of Advisor:

Although it is obvious that the location of the port in the almost captive market of 15 million people is a strength of the port, it should be noted that adequate hinterland connectivity is an absolute condition. Traffic jams in Mumbai are notorious, therefore there will always be the threat that the cargo might go to another port in the vicinity.

2.3 Cargo Forecast

Mumbai is a multi purpose port handling liquid bulk, dry bulk, break bulk and containerised cargoes. Liquid bulk and break bulk are the main cargoes. Container handling showed a declining trend over the years with a diversion of the container traffic to JNPT across the Mumbai Bay.

The vision on multi purpose resulted in traffic projections including all commodities. The forecast for the port is indicated in the following table.

	2007-08	2011-12	2025-26
POL – Product & Crude	31,88	43,14	56,61
Iron Ore	0,00	0,00	0,00
Coal	2,86	4,79	5,84
Fertilisers	0,20	0,25	0,39
Container Traffic	2,64	8,16	30,00
Other Cargo	14,80	19,79	35,77
Total Throughput	52,38	76,13	128,61
Container M TEU	0,22	0,68	2,50

Table 2.3 Cargo forecast Port of Mumbai in Mtons

Comments of Advisor:

Severe competition is to be expected from minor ports and private ports in Gujarat. No synergy has been considered with Jawaharlal Nehru Port. A large base volume of liquid bulk is present at the Port of Mumbai.

2.4 Port Facilities

The Port of Mumbai is a natural harbour along the West coast of India. The port is blessed by nature with calm and sheltered waters. The entrance to the harbour is from the South West. The main harbour channel is for the greater part a natural channel.

The port has three enclosed wet docks with locks (Indira, Prince's and Victoria dock) for the handling of dry bulk and break bulk cargoes and containers, jetties for handling chemicals at Pir Pau and offshore oil jetties at Jawahar Dweep . Facilities for ferries and cruise vessels are available as well.

The Indira dock has 21 berths within a locked basin and five berths along the harbour wall. The water depth inside the dock is some 9 m. The Victoria dock has 15 berths and 6,7 m water depth. Prince's dock has 14 berths and a water depth of only 3,7 m. Crude oil and POL is handled at four jetties in Jawahar Dweep (Butcher Island). Tankers up to 125.000 dwt can be handled.

The port is the largest holder of property in the Mumbai Metropolitan Region with 753 ha of land.

The inventory of the cargo handling equipment of the port has considerably decreased over the years. The port users increasingly applied their own equipment for cargo handling operations. The port therefore presently relies on a combination of private and port owned equipment.

The layout of the port including planned developments is provided in the following figure.

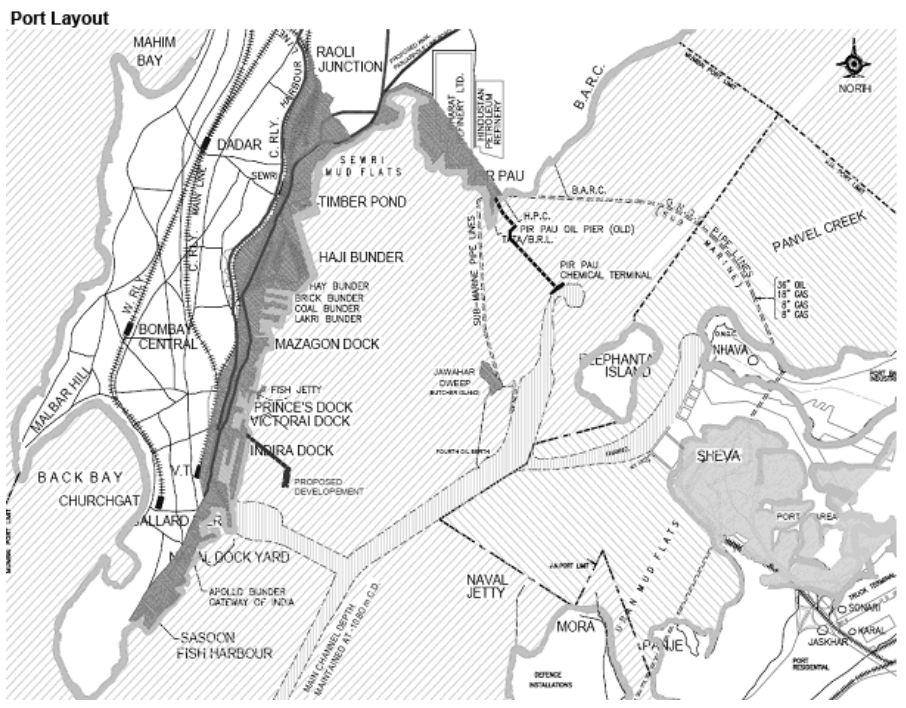


Figure 2.1 Present layout Port of Mumbai

2.5 Port Planning

Proposed projects

- Offshore Container Terminals 1 and 2;
- CFS's, off-dock Container Yards and Empty Depots;
- 5th oil Berth at Butcher Island;
- Cruise Terminal;
- Second Chemical Terminal;
- Road and Rail connectivity projects and programmes of main importance.

Comments of Advisor

- *Capacity of the port is restricted by urban area and hinterland connectivity;*
- *Container operations OCT include long horizontal transport haulage;*
- *No plans provided on shift from port to urban area.*

2.6 Hinterland Connectivity

Proximity of the port to the city and the enormous growth of the urban centre, population and city traffic, gradually resulted in rising congestion in the connections of the port with the hinterland by rail and road.

Since crude and POL are the main commodities handled in the port, the main mode of hinterland transport is pipeline. A network of sub marine pipelines is used to transfer oil and petroleum products to two oil refineries in the area.

For the other cargoes road transport is the main transport mode in spite of the congestion. The relative minor role of the railways in cargo transport results in the

lack of railway capacity and the heavy burden of the sub-urban passengers rail traffic.

An improvement could be the planned development of a dedicated rail freight corridor (Wadala – Kurla). Consultant recommends to have an additional three dedicated lines constructed. Similarly plans exist to improve the road transport system. Consultant stresses the urgency of the hinterland connections and warns that any substantial delay in the implementation in road implementation projects would have an adverse impact on road traffic and result in major congestion in particular considering new port projects recommended.

2.7 Port organisation and institutional setting

Port Organisation:

The Consultant pays ample attention to the organisational structure of MPT and comes with the following recommendations:

- Redesign of departmental structure;
- Creation of Business Development and Marketing Division;
- Creation of Projects Division;
- Creation of Research and Consulting Division;
- Process Improvement and Information Technology initiatives;
- Manpower reforms;
- Efficiency improvement of cargo operations

Institutional setting:

With liberalization of economy, authorities have increasingly felt the need to revisit the structure of India's major sea ports to prepare them to meet changing needs. Corporatisation of ports is one of the options being considered towards this end. Corporatisation is seen as as a major step forward which would lead to subsequent privatisation or commercialisation of ports. Additionally, corporatisation is expected to result over time in - functional autonomy, improved efficiency, faster decision-making and management accountability.

The Government needs to come out with well-defined management contracts, put in place an independent regulatory mechanism, and provide financial independence to the port management, combined with accountability.

But it should be noted that any initiative towards corporatisation should have the full confidence and participation from all key stakeholders; especially from the labour workforce which are in sizeable number at the Mumbai Port.

Advantages of corporatisation:

- independent tariff setting,
- functional autonomy,
- improved efficiency,
- governance standards as per Companies Act,
- faster decision-making,
- flexibility to compete with private ports
- management accountability

Disadvantages of corporatisation:

- multiple reporting structures,
- opposition from labour workforce,
- loss of financial flexibility for concessional loans

- highly controlled environment under a stronger regulator

2.8 Financial Issues

2.8.1 Profit and Loss account

The projected profit and loss account for Mumbai Port Trust is presented in the table below.

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	50	54	59	69	77	84	90	186
Other dues	215	227	243	264	274	299	320	614
Stevedoring revenue	77	84	88	95	101	109	116	238
Storage	79	88	99	59	66	72	78	171
Wharf handling	343	377	415	362	394	425	451	853
Concession fee	0	0	0	79	80	99	118	506
Other operational income	186	251	275	300	317	330	365	702
Total operating revenue	950	1.080	1.180	1.227	1.309	1.417	1.537	3.271
Expenses								
Salaries	440	449	459	473	485	496	507	820
Social charges and pension premiums	379	382	298	301	116	59	40	111
Running costs	140	147	168	234	275	298	352	1.291
Administrative costs	11	12	13	16	18	20	22	64
Other costs	24	26	29	31	34	38	41	124
Total operating costs	994	1.016	967	1.056	928	909	961	2.411
Operational net earnings before DIT	-44	64	214	171	381	508	576	860
Other income	368	371	363	357	361	381	390	719
Net earnings before DIT	324	435	577	528	742	889	966	1.579
Depreciation	69	96	108	121	131	138	142	202
Net earnings before it	254	338	469	408	611	752	824	1.378
Interest								
Net earnings before tax	254	338	469	408	611	752	824	1.378
Tax	78	104	143	125	187	230	252	422
Net earnings	176	235	325	283	424	522	572	956

Table 2.4 Projected profit and loss account

2.8.2 Balance Sheet

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	1.005	1.677	2.241	2.560	2.788	2.873	2.891	5.934
Investments	4.861	4.455	4.252	4.193	4.448	4.923	5.494	11.553
Current assets	1.170	1.264	1.368	1.472	1.572	1.643	1.717	2.660
Liquid means	101	112	123	135	148	163	180	564
Total assets	7.138	7.507	7.983	8.359	8.956	9.603	10.282	20.711
Equity and liabilities								
Equity								
Reserves	5.338	5.642	6.038	6.391	6.883	7.441	8.052	17.255
Total own equity	5.338	5.642	6.038	6.391	6.883	7.441	8.052	17.255
Provisions	97	123	163	144	206	249	272	441
Long term loans								
Short term liabilities	1.704	1.742	1.783	1.824	1.867	1.912	1.959	3.016
Total equity and liabilities	7.138	7.507	7.983	8.359	8.956	9.603	10.282	20.711

Table 2.5 Balance sheet

2.8.3 Projects for the seven year period

Projects Mumbai								
RS Crores								
Mumbai	Timing	Investment costs				WACC	IRR MbPT	NPV MbPT
		Total	Port Trust	Private	GOI			
<i>Client related investments</i>								
Development of Offshore Container Terminal:								
Dredging	2007-08 to 2010-11	259	259			13,04%	9,32%	11,20
Filling and leveling of Prince's and Victoria docks	2007-08 to 2010-11	74	74					
Navigational aids	2007-08 to 2010-11	4	4					
Railway siding	2007-08 to 2010-11	4	4					
Implementation of the EMP recommended by the MoEF	2007-08 to 2010-11	2	2					
Two Berths	2007-08 to 2010-11	167		167				
Approach Trestle	2007-08 to 2010-11	89		89				
Container stacking yard	2007-08 to 2010-11	163		163				
Cargo handling equipment - 1st stage	2007-08 to 2010-11	284		284				
Vehicles - 1st stage	2007-08 to 2010-11	15		15				
Electrical equipment	2007-08 to 2010-11	12		12				
Civil facilities	2007-08 to 2010-11	21		21				
Container handling equipments	2012-13	134		134				
Vehicles	2012-13	8		8				
Container Freight Stations (Large CFS)								
Site development	2009-10	2	2			13,04%		
External developments - compound wall, gate building	2009-10	2		2				
Warehouse of 5 ha	2009-10	41		41				
Container yard of 16,5 ha	2009-10	27		27				
Other core building facilities - truck parking, office, plumbing	2009-10	2		2				
Other civil works - canteen, fire fighting facilities	2009-10	1		1				
Electrical equipment	2009-10	1		1				
Furnitures and fixtures	2009-10	1		1				
Vehicles	2009-10	0		0				
Plant and Machinery	2009-10	7		7				
Preliminary and Pre-operative expenses	2009-10	5		5				
Contingencies @ 2,5% project cost	2009-10	2		2				
Fifth Oil Berth at Jawahar Dweep								
Dredging and navigational aids	2009-10 to 2010-11	80	80					
Investments private operator	2009-10 to 2010-11	132		132				
Distriparks								
Land development cost	2009-10	23	23				49,78%	50,6
Construction cost of Industrial Buildings and Storage Buildings	2009-10	226		226				
Empty Stacking Yards								
Private investments	2009-10	5		5				
Cruise Terminals and related facilities								
Investments in basic infrastructure	2009-12	134	35	99				
Investments for Core Terminal and allied facilities	2009-12	254	66	188				
Development on the Western Waterfront								
Cost of Marina development	2006-11	22	22			9%	24,38%	43,41
Convention Centre		140						
Public Related Investments								
<i>Phase I</i>								
Redevelopment of 18 to 21 ID Harbour Wall berths. Upgradation of the berths and deepening of the harbour wall to handle deep drafted General Cargo ships		259						
Construction of 2nd berth for handling chemicals / specialised grade of POL at New Pir Pau		90						
Procurement of 2 Nos 32 tonne Bollard Pull Harbour Tugs		25						
Replacement of Caisson Gate at HDD		13						
Replacement of 3 Dock by 2 Dock Tugs		19						
Procurement of 10 Nos 6 tonne ELL Wharf Cranes		30						
Rail Connectivity between Wadala and Kuria		126						
Road improvements within MbPT Estate		35						
Road improvements outside MbPT Estate - Wadala Mahul to Truck Terminus Link		15						
Road improvements outside MbPT Estate - Anik Panjarepote Link		152						
Procurement of 2 Nos QGC's		63						
Procurement of 3 Nos RTG's		22						
<i>Phase II</i>								
Capital Dredging for Deepening approach channel to 5th Oil berth at Jawahar Dweep		50						
Capital Dredging for Deepening approach channel to 2nd Chemical Berth at Pir Pau		138						
Redevelopment of BPX and BPS Berths		150						
Development of Coastal Shipping		50						
Second Chemical Berth	2008-10	107	107				17,37%	93
3rd Chemical Berth vs Double banking in 2nd Chemical Berth	> 2014							
Multi-level Car Parking Facility	2010-11	201	201				23,91%	504
Redevelopment of the Outer Harbour Wall at Indira Docks	2008-10	358	358				18,30%	651
Development of Bunder Areas for Coastal Shipping and others	2010-13	44	44					
Re-engineering of Indira Docks	na 2014							
Upgradation of Apollo Bunder	2008-09	5	5					
General Warehousing and Storage	2012-13	4	4					
Development at Mahim Bunder	2008-09	0	0					
Bird Observatory at Sewri Fort	2009-10	1	1					
Total investments in fixed assets		4.300	1.290	1.634				
Correction investments for 7 year period			26-					
Normal costs of events			658					
Proposed projects without cash flows (as in financial model)			439					
Planned MbPT-projects without Cash Flows (as in financial model)			535					
Total investments in fixed assets in financial model			2.896					

Figure 2.2 Projects for the seven year period

2.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 176 Crores to Rs 572 Crores. The level of investments with internal funding is moderate. The solvency is nearly 80% in 2013-14. The borrowing capacity is not used.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is in Table 2.6.

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	4.963
Available for investments IPA 10-4	1.844
blocked for pensions etc	3.119
Investments in financial assets 2014	5.494
Liquid means 2014	180
Available funds	5.674
Blocked for pensions	3.119
Available for investments 2014	2.555
Equity = borrowing capacity	8.052
Existing loans	0
Balance	8.052
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	2.555
From unused borrowing capacity	8.052
Total available for investments in fixed assets in 2014	10.607

Table 2.6 Available funds for investments in fixed assets

2.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Mumbai	General Remarks Final Report
The Consultant follows the format provided by the Advisor.	As in DFR, which is ok
Though very extensive, the report is well structured and clearly written.	As in DFR
Illustrative maps on pages 28, 31, 43, 200, 231, though scale is missing in cases.	As in DFR
Clear remarks throughout the report on the pressure on rail and road capacity as a consequence of port developments, amongst others in SWOT analysis and on the requirement of the Dedicated Freight Corridor. It should be absolutely clear that sufficient hinterland connectivity is available at the time of commissioning of the OCT.	As in DFR
Offshore terminal is listed throughout the report without consequently mentioning onshore stacking area development directly onshore.	Has been corrected. For Phase 1 sufficient onshore (near dock) stacking area has been allocated. For Phase 2 only limited area is foreseen. The effect will be that in Phase 2 the offshore terminal will be dependent on off dock CYs with the adverse effects of double handling of containers, additional transport and therefore less economic container traffic via Mumbai.
Extensive and illustrative trade and traffic forecast analysis described in chapter 6.	As in DFR, which is ok
Quasi sophisticated container forecast for India is combined with rough assumptions on Mumbai share for regional totals.	As in DFR. No real analysis has been indicated on competition of other ports.
Tables have no numbers and often no titles.	Has been corrected
No abbreviation list is included.	As in DFR
Specific remarks	
Page 144: Graph indicates that terminal is always working at maximum capacity and in that case max capacity is less than potential throughput. This is no standard procedure for creating terminal capacity.	As in DFR (page 147).
Page 185: Low productivity can result in congestion, however also in shift to other ports and therefore less throughput (forecast is potential and not a given thing)	As in DFR (page 188). For OCT a high berth occupancy factor is adopted (77%).
Page 209: Exclude transshipment containers and containers linked to railway from total throughput	Remark has not been followed up resulting in incorrect estimates.

General Remarks Draft Final Report Mumbai	General Remarks Final Report
when estimating CFS containers and empty containers for MT depot.	
Page 258: Cruise terminal not indicated on drawing of port.	As in DFR (page 208)

Financial Remarks Draft Final Report Mumbai	Financial Remarks Final Report
The financial part of the report is adequate to serve as a financial body for the business plan.	AS in DFR
The client related investment projects are handled in chapter 7. On page 197 the investments are mentioned for the NMDP projects. These investments are not in line with the investments for the individual projects. (see page 203-204 and 223) , see also the summary on page 26-27.	Difference has been explained
In chapter 7.3 the project for the 5th Oil Berth is handled. One of the assumptions for scenario 2 is that the berth charges go directly to Mumbai Port, this does not seem to be a realistic scenario as the BOT operator is assumed to invest in the berth.	Has been explained
The calculations for the OCT include tug and pilotage dues as revenues for Mumbai Port. It seems that this should be the margin on these operations.	Has been corrected
In chapter 9 the planned public related investments are handled. The summary on page 309 and 310 also includes the 2 major projects that were handled in chapter 7. This is confusing. Once again the investments mentioned are not in line with the investments for the individual projects. (see page 203-204 and 223), see also summary on page 29-30. The individual projects handled in chapter 9 are not in line with the summary on page 309-310. This is confusing.	Has been corrected and explained
Page 265 subchapter 7.7.6.2 NPV is negative and IRR is low, what is the conclusion?	Conclusion has been added
There is no summary with the financial impact of all projects for MPT. Such an overview should give the investments for MPT per project per year and the total should be in line with the investments in the financial accounts.	Summary has been added.
Chapter 12 handles the financial plan of MPT. Subchapters 12.1, 12.2 and 12.3 contains much textbook information. In subchapter 12.4 an overview of investments is	Has been adapted

Financial Remarks Draft Final Report Mumbai	Financial Remarks Final Report
given. Figures are not in line with chapter 7 and chapter 9. There is no additional overview of the financial implications for MPT.	
The NPV for the BOT operator is calculated with a WACC of 13,04%. Is this inclusive inflation? Please clarify.	As in DFR
Page 251 subchapter 7.6.6.1 NPV is zero; this should be negative.	Has been corrected
Page 264 subchapter 7.7.6.1 Which discount rate is used for the NPV of Private JV Partner. NPV for Mumbai Port is negative, this is incorrect if discount rate of 9% is used.	AS in DFR
Projected financial accounts The statement of accounts is in line with the format in the information outline.	AS in DFR
It is not clear whether inflation has been taken into account and to which percentage. Please clarify.	Has been explained
The details for Categories of revenues Fixed assets Categories of costs Long term liabilities Equity and reserves As required in the information outline is missing. In order to keep the wording of chapter 10 intact these details could be integrated in an annex.	As in DFR
The relation between the selected projects and the financial accounts is not clear.	Has been adapted

Major Remarks Financial model Draft Final Report Mumbai	Major Remarks Financial Model Final Report
The financial model is adequate to calculate the projected financial accounts. In order to make it possible for the employees of MPT to use the model as an instrument for future projections it is advised that the consultant instructs and trains the employees of MPT.	As in DFR

3 JNPT (Jawaharlal Nehru Port)

3.1 Mission, Vision and Strategy

The vision of JNPT is:

“To be recognised as India’s premier container port providing integrated logistics services to the best interest of trade and customers”.

From a point of view of market attractiveness and alignment to JNPT’s capabilities, obviously container cargo is the major commodity on which the strategy is focused. Other strategies to pursue are to attract coastal and regional transshipment, ro-ro cargo and liquid bulk. JNPT clearly makes a choice to focus on these commodities. In addition JNPT intends to provide value added services related to these commodities: EPZ, warehousing and involvement in hinterland connectivity ventures.

The goals deriving from the vision and strategies of the port are the following:

- Achievement of 10 million TEU’s of throughput at JNPT;
- Improve efficiency across the port;
- Develop logistics capabilities and services at JNPT;
- To expand JNPT to new locations;
- Invest in hinterland connectivity ventures.

As will be shown in the traffic forecast, the 10,9 M TEU’s will be the capacity of the port after the implementation of several projects, including the 4th container terminal. This figure is considered to be the ultimate capacity of the port when no more extensions can be realised.

Comments of Advisor:

- *The Consultant / JNPT does not provide a vision for the period after 2016 when this capacity would be reached. It is not clear to the Advisor whether there could be possibilities for extension directly North or South from the existing port. While within JNPT the construction of a 5th container terminal North of the existing ones on Nhava island is already under study, no mentioning of this is made in the business plan. Therefore no indication whatsoever is presented on the feasibility of this terminal (in particular from an environmental point of view), which could considerably increase the capacity of the port.*
- *Therefore, to expand to new locations is not a goal that should have high priority. With measures taken in the existing infrastructure (extensions, enhancement of efficiency) JNPT will remain India’s premier container port for the short to medium term. Moreover, new suitable locations are scarce along the West coast, and the private sector will have occupied the most suitable locations by the time JNPT feels the need to set up a ‘satellite’.*

3.2 Competitive Position

The SWOT analysis for JNPT is presented below:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Frequency of services ▪ Available port infrastructure ▪ strong financial position 	<ul style="list-style-type: none"> ▪ distance from major shipping routes ▪ limited draft ▪ shortage of staff in key areas
Opportunities	Threats
<ul style="list-style-type: none"> ▪ export-import container trade ▪ free trade zones ▪ ro-ro cargo ▪ distribution and logistics 	<ul style="list-style-type: none"> ▪ increasing pressure on road and rail connectivity ▪ private port developments in the region

Table 3.1 SWOT analysis for the Port of JNPT

The Northern and Western regions contribute to 70% of JNPT's container traffic. Since the start-up of JNPT its market share of container traffic on the West Coast has steadily increased to an actual 83,5 %. It is questionable whether JNPT can maintain this high market share in the years to come, with (new) competitors like Mumbai, Kandla, Mundra, Pipavav and Rewas. Although it may be expected that JNPT's market share will therefore decrease, in absolute numbers of TEU's a strong increase is still expected. Mundra and Pipavav are considered to be the major competitors in the near future since they are already operational and operated by private firms.

From an international point of view, ports like Salalah and Colombo are also competitors. They may have a (serious) impact on JNPT's ambitions to attract more transshipment cargo. Moreover, JNPT is not closely located to the main shipping routes. This however is only the case for the major ports of Cochin and Tuticorin. Both of them have container capacity expansion projects and/or plans going on and form also a threat to JNPT's transshipment strategy.

Comments of Advisor:

It is remarkable that JNPT's strongest point: its dominance in import-export container traffic is listed under opportunities, while the strategy to attract regional transshipment is not listed under the opportunities.

3.3 Cargo Forecast

The real growth in Indian GDP (7,5% in 2005) is reflected in its international trade and consequently in the traffic growth that ports witnessed in the past few years. This trend in growth is expected to continue with international trade expected to grow at a rate even higher than the indicated figure for 2005.

Consultant analysed global trends, Indian macro-economic trends, industry trends to arrive at traffic projections in particular for containers and liquid bulk cargoes. A bottom up approach mapped the major industries and sources of production and consumption in order to arrive at current state levels of export and import volumes. Plans of competing ports were included in the forecast assessments.

The crude oil forecast analysis include the ONGC plans to ship part of its offshore production via JNPT to the coastal refinery at Mangalore.

The port handles 56% of the overall container throughput of India. The traffic projections for JNPT are presented below:

	2007-08	2011-12	2025-26
POL – Product & Crude	3,70	6,30	12,80
Iron Ore	0,00	0,00	0,00
Coal	0,00	0,00	0,00
Fertilisers	0,00	0,00	0,00
Container Traffic	45,24	81,00	290,52
Other Cargo	1,04	1,47	2,67
Total Throughput	49,98	88,77	305,99
Container M TEU	3,77	6,75	24,21

Table 3.2 Future traffic projections for Jawaharlal Nehru Port in Mtons

Comments of Advisor:

- Favourable location for container terminal operations;
- No synergy with Port of Mumbai considered;

3.4 Port Facilities

India's increasing international trade necessitated the development of additional port and terminal facilities to decongest the traffic at Mumbai Port. The need of an additional and alternative port in the region to handle the increased traffic led to the development of Jawaharlal Nehru Port in 1989.

JNPT is located at the Eastern end of Mumbai Bay in the Nhava Sheva area. The approach channel to JNPT is an extension of the Mumbai Harbour main channel. Current design depth of the channel is 11 m and the depth at berths is 13,5 m. The width of the channel is 400 m at entry point and 460 m off the berths.

Container vessels up to 6.000 TEU capacity with a draft of 12,5 m navigate the channels making use of the tidal windows.

The port handling facilities include container terminals, a liquid bulk handling terminal (two berths) and a shallow water berth for vessels with a maximum length of 165 m, which can handle breakbulk and containers. The total length of berths is some 3.000 m.

At present JNPT has three separated container terminals

The port area includes 2.584 ha. The port is served by 16 Container Freight Stations and by Inland Container Depots and 20 empty container yards.

The pipeline system related to the liquid bulk jetty (chemicals) is limited owing to small diameter pipelines.

The layout of the port is provided in the following figure.



Figure 3.1 Present layout Jawaharlal Nehru Port

3.5 Port Planning

The traffic projections for containers and crude oil have been translated into a vessel forecast taking into account changes in call sizes and vessel types and dimensions.

Proposed Projects

- Completion of Container Terminal GTI;
- Expansion berth towards NSICT;
- Container Terminal 4;
- Marine Chemical Terminal;
- Second Chemical Terminal;
- Road, Rail and pipeline connectivity projects and programmes.

The layout of the port including proposed projects is provided in the following figure.

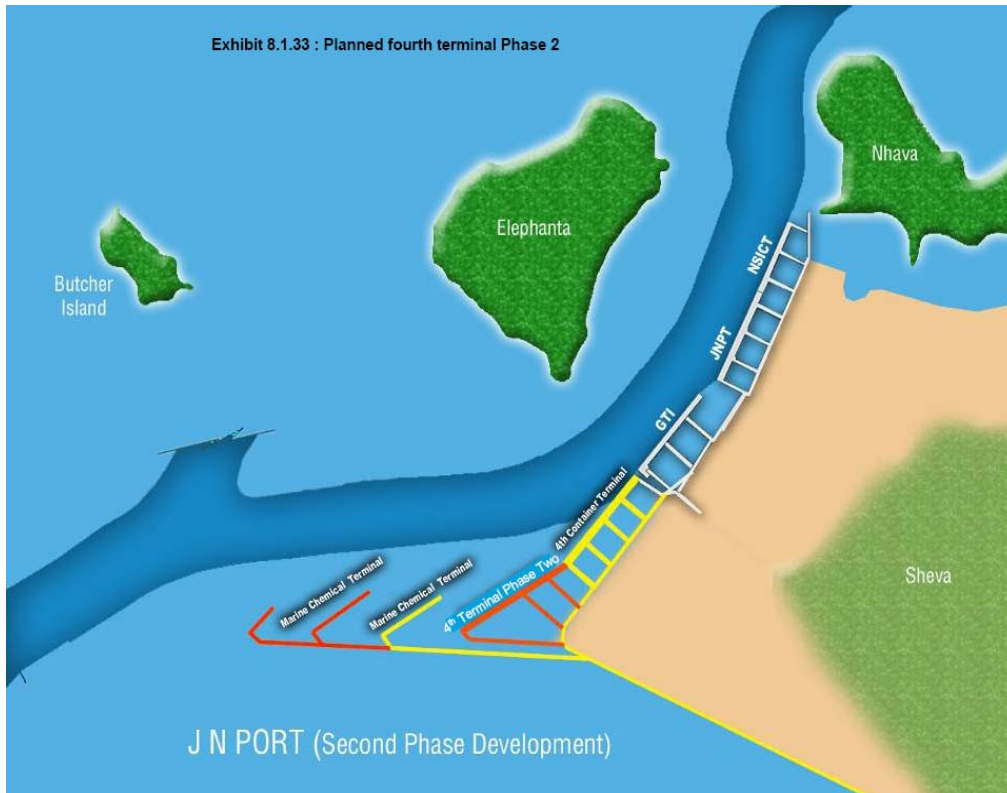


Figure 3.2 Future layout Jawaharlal Nehru Port

Comments of Advisor

- Mid and long term container terminal requirements are not considered sufficiently;
- Estimates on capacity of container terminals are optimistic;
- Increased application of door-to-door concept for container transport not considered.

3.6 Hinterland Connectivity

The port is well connected with the national rail and road networks. Road represents the major share in the hinterland transport (72%).

Rail cargo is delivered to and received from ICD's through trains that are operated by Concor. The ICD's are intermodal facilities where goods and containers are delivered by road and transferred to freight trains headed for ports (or other ICD's) or vice versa.

JNPT is linked with the national railway network through a lead line connecting the port with Jasai station at 9 km from the port. Container trains suffer substantial waiting times in view of congestion and limitations in the railway system.

The handling of container trains is executed by three agencies; railways, CONCOR and the terminal operator. Railways provide the fixed infrastructure, motive power and train crews. CONCOR is the sole provider of rail borne container transportation

between the port and the hinterland. CONCOR owns all container flat cars as well as a number of ICD's in the hinterland. The terminal operator is responsible for the unloading and loading plan of each individual train and deploys the required equipment for the rail terminal handling operations.

State and national highways join at Karal junction when entering the JNPT. The current road infrastructure is facing pressure leading to congestion at various places in the port area.

3.7 Port organisation and institutional setting

Port organisation:

JNPT is a relatively new port and therefore does not carry the burden of obligations with respect to pension funds for its workers. In the business plan no mentioning is made on the total workforce at JNPT and/or the problems related to it. Relatively small projects are proposed as organisational improvements, such as strengthening of the marketing department, automation projects at the gates and sorting yards, training, maintenance service level agreements and strengthening of the project management capabilities.

Institutional setting:

JNPT has a strong landlord character since it has concluded contracts with several private sector port operators. JNPCT however is a container terminal operated by the Port Trust while the other two terminals NSICT and GTICT are run by private players DP World and Maersk on a BOT basis. A liquid cargo handling berth has been established by BPCL on a BOT basis as well.

Although no mentioning is made of a possible conflict of interest because of the fact that JNPT is playing the role of a port authority and port operator at the same time, this situation could lead to problems in the case when JNPT has to allocate possible limited resources (tugs, pilots, channel capacity, etc) to the vessels that want to enter the port. There would always be the danger that JNPT would give preference to vessels that will berth at JNPCT. Although the JNPT management is in favour of the landlord port management model, it does not consider to privatise its container terminal operations for reasons of profitability and lack of remaining activities when becoming a full fledged landlord port.

3.8 Financial issues

3.8.1 Profit and Loss account

The projected profit and loss account for JNPT is in Table 3.3.

Rs crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	31	35	39	42	46	49	53	58
Other dues	109	118	131	143	158	173	188	244
Stevedoring revenue	0	0	0	0	0	0	0	0
Storage	21	27	27	27	27	27	30	40
Wharf handling	282	352	354	357	359	362	396	532
Concession fee	326	347	530	629	707	795	891	1.816
Other operational income	68	138	174	211	217	276	283	451
Total operating revenue	838	1.016	1.255	1.408	1.513	1.683	1.841	3.142
Expenses								
Salaries	63	68	73	79	86	92	100	291
Social charges and pension premiums	17	19	20	22	24	26	27	35
Running costs	163	184	198	211	226	241	262	397
Administrative costs	37	39	40	42	44	45	47	76
Other costs	20	22	25	29	32	35	38	45
Total operating costs	301	332	357	383	411	440	475	843
Operational net earnings before DIT	538	684	898	1.025	1.103	1.243	1.367	2.299
Other income	80	91	104	119	135	154	176	847
Net earnings before DIT	618	775	1.002	1.143	1.238	1.397	1.543	3.146
depreciation	36	46	65	79	96	97	100	137
Net earnings before it	582	729	937	1.064	1.143	1.300	1.443	3.009
Interest	-35	-35	-40	-32	-24	-16	-9	-4
Net earnings before tax	547	694	897	1.032	1.118	1.284	1.434	3.005
Tax	169	214	276	318	344	395	441	921
Net earnings	378	479	620	714	774	889	993	2.083

Table 3.3 Projected profit and loss account

3.8.2 Balance sheet

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	1.273	2.226	2.992	3.681	4.306	4.720	4.748	6.496
Investments	567	496	262	176	211	365	541	6.006
Current assets	353	353	353	353	353	353	353	353
Liquid means	370	27	15	26	41	261	991	12.058
Total assets	2.562	3.101	3.622	4.236	4.910	5.699	6.632	24.913
Equity and liabilities								
Equity								
Reserves	2.010	2.490	3.110	3.824	4.598	5.487	6.481	24.761
Total own equity	2.010	2.490	3.110	3.824	4.598	5.487	6.481	24.761
Provisions	0	0	0	0	0	0	0	0
Long term loans	400	460	360	260	160	60	0	0
Short term liabilities	152	152	152	152	152	152	152	152
Total equity and liabilities	2.562	3.101	3.622	4.236	4.910	5.699	6.632	24.913

Table 3.4 Projected Balance sheet

3.8.3 Projects for the seven year period

Projects JNPT

RS Crores

JNPT	Timing	Investment costs				WACC	IRR (project)	NPV
		Total	Port Trust	Private	GOI			
<i>Client related investment projects</i>								
Development of 32 Hectares of land for CFS	2007-08	212	114,2	98				
330 m Extension of existing berth towards NSICT	2008-09	531		531		13%	24%	470
Development of 50 Hectares of land for empty depot operations	2008-09	235	185	50				
Port Based Logistics and FTZ (lessee)	2009-10	1.700		1.700		13%	23%	137
Port Based Logistics and FTZ (port trust)	2009-10	722	722			9%	15%	348
Development of the first fase of 4th Container Terminal	2010-11	3.035		3.035		13%	14%	280
Marine Chemical Terminal - fase 1	2010-11	88		88		13%	20%	56
Development of 40 Hectares of land for empty depot operations	2012-13	227	173	54				
Development of 56 Hectares of Land for CFS Operations	2012-13	468	243	225				
<i>Public investment projects</i>								
Common user pipelines	2007-08	174,7	174,7					
Laning of SH - 54	2007-08	3.580	1.000	2.580				
Grade separators at Karal and Guvan Phata	2008-09	800	400	400				
Increase shallow berth moves to 16 moves per hour	2008-09	8		7,5				
Additional link road	2009-10	1.680	475	1205				
Additional Evacuation Road	2009-10	41	41					
Dronagiri link road	2009-10	26	26,3					
Dredging	2008-09	800	800					
Increase RMQC moves at JNPT to 24 moves per hour	2009-10	120	120					
Six Laning of NH4B	2010-11	450	50	400				
Additional road linking port and highways	2010-11	45	45					
4th container terminal link road	2010-11	33	33,3					
Reduction in vessel unoperational hours	2010-11	-						
Development of Sorting Yard	2010-11	356		356				
Increase RMGC Moves per hour	2013-14	-						
Total investments in fixed assets		15.332	4.610	10.722	-			
Correction investments for 7 year period			231-					
Total investments in fixed assets in financial model			4.379					

3.8.4 Financial Strategy

The net earnings in the 7 year period increase from Rs 378 Crores in 2007-08 to Rs 993 Crores in 2013-14.

The solvency is nearly 100% in 2013-14. The borrowing capacity is not used.

The available funds in 2014, originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	937
Available for investments IPA 10-4	887
blocked for pensions etc	50
Investments in financial assets 2014	541
Liquid means 2014	991
Available funds	1.532
Blocked for pensions	50
Available for investments 2014	1.483
Equity = borrowing capacity	6.481
Existing loans	0
Balance	6.481
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	1.483
From unused borrowing capacity	6.481
Total available for investments in fixed assets in 2014	7.963

Table 3.5 Available funds for investments in fixed assets

3.9 Advisors review on Final Business Plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report JNPT	Major Remarks Final Report
	The Consultant replied extensively in a letter to JNPT on remarks/suggestions/questions of Advisor on DFR, which is appreciated. A revised Draft Final Report was submitted accordingly.
The Consultant need to follow a format in line with the Information Outline as provided by Advisor.	Addressed in Final Report. Content list is too limited for such a bulky report.
Trade and traffic forecast is not included. Summary to be provided and reference to be made to earlier report where applicable.	Addressed in Final Report
No indications are given on possible environmental restrictions for expansion of JNP.	Addressed in Final Report, however hard to find due to concise contents list (Annex 1.5)
The vision on a future modern logistics port system is missing. It seems that present practice of CFS operations, door-to-door transport, modal split is just extrapolated to the future without considerations on possible changes.	Addressed in Final Report (Annex 1.1)
No visualisation is provided of the present lay-out, the masterplan with allocated areas for certain activities, the projected phased developments of certain areas within the context of the masterplan, highlighting the projected plans (quay structures, land reclamation, storage areas, other development areas in the various phases. Only one unclear map is included on page 166.	Improved in comparison with first draft. Development in time still not visualised clearly.
Like in earlier reports the KPMG Integrated Capacity Assessment Model is mentioned. No structural information on the model on input and output is provided. Resulting projects come out of the blue. No indication is given that analysis have been made on handling capacities, quay length, number of cranes, call sizes, berth and crane occupancy factors, working times, dwell times, back up operational systems (stacking, horizontal transport, interfaces with rail and road modes). As in earlier reports the translation from forecast to port requirements is therefore insufficient, without proper explanation of vision towards port operations, logistics system, hinterland	Additional information provided by the Consultant in second draft and Final Report Section 6.1 Assumptions on capacities are rather ambitious/optimistic in general.

Major Remarks Draft Final Report JNPT	Major Remarks Final Report
policy, productivity benchmarks, etc.	
Advice of Advisor as comment on Interim Report to do benchmarking has not been followed up or at least is not indicated. Assumption on average quay productivity related to smooth operations is ambitious and is not supported with proper analysis.	Addressed in second draft and in Final Report (Annex 1.6)
Lot of doubling of information on general marketing, financial and commercial aspects in first part of report upto page 76. Pure copying is evident when comparing page 46 to 51 with pages 62, 73 to 76.	Extent of double information did not change
Consultant to indicate in a transparent and consistent way the vision of JNPT (best interest of trade and customers) and the reported goals to invest in various government investments instruments such as bonds?	Not indicated in vision, mission, goals
Consultants to indicate in a transparent and consistent way the role of JNPT in the port; a landlord facilitating port services executed by terminal operating companies and other service providers terminal operating company and services provider combination of landlord and terminal operating company	Not indicated in vision, mission and in Organisation section. Statement in letter of 15 January from Consultant to JNPT should have been included: "JNPT will evolve primarily into a landlord port facilitating services by terminal operating companies and other providers. The solitary terminal will be the responsibility of JNPT over the medium term horizon of the plan period".
Specific remarks	
Shifting responsibility for making long term action plans to the port organisation is not a proper approach (page 33/34)	Long term developments/strategy has not been included, though outline plans (Nhava Island) are already in consideration with JNPT.

Financial Remarks Draft Final Report JNPT	Financial Remarks Final Report
The statement of accounts is in line with the information outline.	As in DFR, however the financial accounts end in 2013/2014. The period 2014/2027 is missing.
A systematic list of assumptions is missing.	Still missing
The details for: Fixed assets Categories of revenues Categories of costs Long term liabilities Equity and reserves as required in the information outline are missing.	It is not clear which additional items are part of these categories
In Section 3 (detailed action plan) the planned projects are stated, however financial information is missing. Especially the investments spread out over the years would be required. An aggregated overview	Overview has been provided in chapter 13.2

Financial Remarks Draft Final Report JNPT	Financial Remarks Final Report
of the investments per year and project would give more insight.	
The financial performance and the financial position gives a positive view on JNPT. Consultants opinion about the risks and the sensitivity of the figures in the statement of accounts is missing.	Not provided
The reference to tables is wrong in many cases (example chapter 1.5)	Corrected; however calculation in table 8.1.3 is not correct and the financial feasibility for 8.1.4 is missing
An explanation of abbreviations or a list of abbreviations is missing.	List is still missing
Section 2 covers the financial aspects. This chapter is very extensive. Some chapters contain textbook descriptions, some chapters are double and identical (example page 46 and 62).	Corrected
An opinion about the financial strategy (treasury management) and about healthy balance sheet ratios is missing. In the years 2014/15 and 2015/16 an amount of Rs 6,5 billion is drawn down on loans for each of these years. In the same period the amount of liquid means increases from Rs 16 billion to Rs 32 billion, the draw down does not make sense.	Seems to be corrected, liquid means no draw down on loans, however projected financial accounts in financial model show otherwise. Model and report are not in line

Major Remarks Financial model Draft Final Report JNPT	Major Remarks Financial Model Final Report
The financial model is adequate for the calculation of the statement of accounts. The model is not complex and extensive.	The figures in the financial model deviate dramatically from the figures in the financial accounts in the report. Tables in the report should be corrected (pages 298-299). Net earnings cannot be zero for every year. The profit and loss account in the report shows severe misprinting. The financial accounts in the report end in 2013/2014, the period 2014 2027 is missing.
It is not explained if and in what degree counterparts of JNPT have been involved in the construction of the model.	As in DFR
There is no explanation and no description on how the model can be updated by the counterparts in future years.	As in DFR
There is no distinction between fields for hard input assumptions calculations	Has been corrected

output. Giving different colours could do this.	
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4 Mormugao

4.1 Mission, Vision and Strategy

The vision for Mormugao Port Trust is:

“MPT wishes to be the preferred port for the region, recognised for its environmental policies, efficiency in cargo handling and service to customers, providing quality of life for the workforce and support to the community”

The goals are the following:

- To provide quality, efficient and cost effective services to port customers;
- To attract more traffic;
- To develop into a multi-commodity port;
- To be the preferred port for Goa and the region’s importers and exporters;
- To be financially self-sustaining;
- To promote a trained motivated competent satisfied workforce;
- Continual improvement in productivity;
- To make the port environmentally friendly.

4.2 Competitive Position

The SWOT analysis for the Port of Mormugao is presented below:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Partially natural harbour ▪ Bestowed inland waterways ▪ Substantial captive traffic ▪ Private participation and investments ▪ Profitable ▪ Moderate financial capability 	<ul style="list-style-type: none"> ▪ Lack of expansion space ▪ Lack of dedicated berth for non-cargo vessels ▪ Workforce not well motivated and inadequate qualified technical manpower ▪ Not able to fully attract the potential hinterland traffic ▪ Not well maintained infrastructure ▪ Inadequate road and rail facilities ▪ Union influences
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Improve existing facilities ▪ Vasco Bay and Baina Bay development ▪ Attract more coal and liquid bulk ▪ Cruise traffic ▪ Base for offshore supply vessels, Navy and Coastguard vessels ▪ Industrial development in North Karnataka 	<ul style="list-style-type: none"> ▪ Iron ore vulnerable to Chinese demand and may reduce ▪ Competition from Panjim, New Mangalore, Ennore, Chennai and possibly Krishnapatnam

Table 4.1 SWOT analysis for the Port of Mormugao

Comments of Advisor:

It is clear that the major part of Mormugao's throughput is related to what the Consultant has earmarked as captive cargo (iron ore). There are however competitors in this respect, like the port of Panjim, and to a lesser extent, the Port of New Mangalore.

4.3 Cargo Forecast

Iron ore accounts for 80% of the port throughput. Coal and liquid bulk are other main commodities. Consultant made an analysis of the potential traffic related to all commodities including car carriers and cruise vessels. Low, medium and high scenarios have been considered in the analysis. The forecast for the reference years for the main commodities is indicated in the following table.

	2007-08	2011-12	2025-26
POL – Product & Crude	1,12	1,49	3,02
Iron Ore	37,72	39,02	50,47
Coal	6,70	7,40	14,43
Fertilisers	0,00	0,00	0,00
Container Traffic	0,16	0,23	0,61
Other Cargo	3,45	4,11	9,77
Total Throughput	49,15	52,25	78,30
Container M TEU	0,02	0,02	0,06

Table 4.2 Cargo forecast Port of Mormugao in Mtons

Comments of Advisor:

The port is highly dependent on the iron ore trade. The projected volumes of iron ore throughput need to be considered as vulnerable in view of the uncertainties in the policy of the Government of India related to iron ore exports. The projected container volumes are conservative.

4.4 Port Facilities

The Port of Mormugao is situated in the State of Goa. It is located at the mouth of the of the river Zuari. Mormugao is the largest iron ore exporting port in India and is a main port for the import of coking coal.

The approach channel comprises an outer channel with a length of 5.200 m dredged up to CD -14,4 m and an inner channel of 2.300 m dredged up to CD – 13,1 m. The channel is 250 m wide. The harbour basin has two turning circles with a diameter of 480 m. The port has a 522 m long breakwater and a 270 m long mole running from the tip of the breakwater in Easterly direction, sheltering the port from the waves from West and North West during the monsoon.

The port has a waterfront of some 2,9 km developed into a number of berths. The main commodity iron ore is handled at berth 9 with a mechanised ore loading system. The iron ore for export is transported to the port by barges which are unloaded at the barge berths between berth 9 and 10.

The iron ore is transported from the barge berth to a stack yard behind berth 9 with a conveyor system. Three stackers are used for the purpose. Loading operations include reclaiming the iron ore with reclaimers, transport via a conveyor system to berth 9 and loading with ship loaders. The loaders have a capacity of 4.000 tons per hour. The entire operations constitute the Mechanical Ore Handling Plant (MOHP).

Mooring dolphins are used for accommodating iron ore vessels and loading these from barges using ship's gear.

In addition to the MOHP and the mooring dolphins, iron ore is loaded midstream into larger ore carriers using transhippers.

Dry bulk cargoes are handled at berths 5A and 6A. Berth 8 is dedicated for liquid bulk cargo and berths 10 and 11 for general cargoes.

For the storage of liquid bulk two oil terminals are located adjacent to the port area. The layout of the port is provided in the following figure.

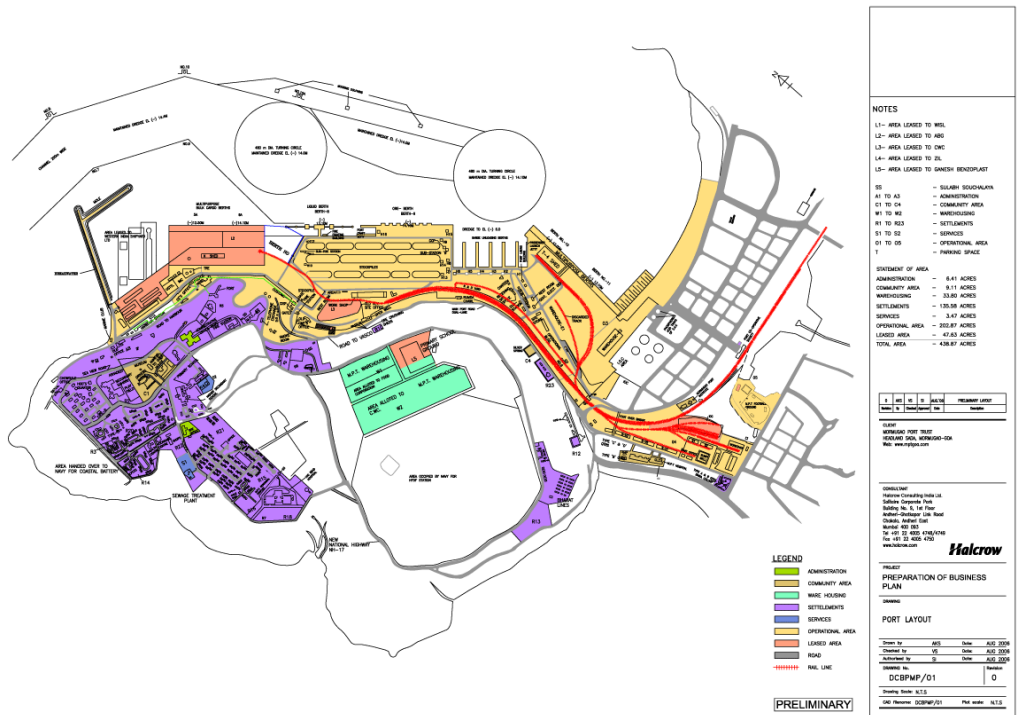


Figure 4.1 Present layout Port of Mormugao

4.5 Port Planning

Proposed projects

- Integration of berth 8 and 9;
- Introduction railway wagon tippler;
- Additional iron ore storage capacity;
- Additional mooring dolphins;
- Mobile crane for general cargo berth 11;
- New coal berth;
- Liquid bulk berths;
- Cruise vessel berth
- Port craft jetty.

Potential masterplans and short term projects are indicated in the layouts of the following figures.



Figure 4.2 Possible Masterplan for Mormugao Port



Figure 4.3 Future layout Port of Mormugao (2014)



Figure 4.4 Future layout Port of Mormugao (2025)

Comments of Advisor

- *Storage capacity iron ore and large number of (small) traders are constraints in iron ore throughput;*
- *Medium and long term development is difficult in the limited existing port area;*
- *Heavy social impacts are related to port developments in Vasco Bay and Baina Bay.*

4.6 Hinterland Connectivity

Goa is connected by road to the national road network. National Highway 17 runs close and parallel to the sea coast. Connections between the port and the national highway 17 need to be upgraded which works are in progress. The port has a poor network of internal roads between the berths.

Cargo is received and delivered by rail mainly at berths 5A and 6A. The iron ore berth no 9 is not connected by rail. Presently the iron ore from Karnataka is taken by rail up to Sanvordem (40 km from the port). From there the cargo is shifted to the nearby barge loading point by road, loaded on barges and transported to the port of Mormugao and to the neighbouring state port Panjim. The same rake unloading iron ore at Sanvordem continues to the Port of Mormugao to pick up the imported coking coal. There are capacity problems in the railway section Vasco – Hubli.

Inland waterway transport is used for the transport of the bulk of the iron ore from the mines to the port of Mormugao and to Panjim. The two main rivers, Zuari and

Mandovi are navigable for some 60 km inland. Some 30 loading jetties are located along the rivers in mining areas.

4.7 Port organisation and institutional setting

Port organisation:

The organisation structure is well defined and formulated along separate operations. However, a detailed analysis of the staff strength by level indicated a bottom heavy pyramidal structure of the organisation. The total staff strength is 3.127 persons. The following observations are made by the Consultant:

- Productivity: targets have been met so far but ban on recruitment is causing a shortage of labour in certain departments;
- Unions: the relations are good, nevertheless slow working and excessive overtime are resulting in non-optimal productivity;
- Computerisation: needs improvements;
- Bureaucracy: can significantly be reduced;
- Training: it is suggested that this should also take place in the light of corporatisation, privatisation, BOT and cruise tourism.

Comments of Advisor:

The Consultants does not analyse or mention possible constraints with respect to the institutional setting of the port. The relations and possible wishes with respect to the Ministry of Shipping are not treated in the final Business Plan.

During the Advisor's presentation in Delhi in April 2007, the Advisor was requested to provide suggestions for the formation of an Estuary Authority. Although the Consultant's work did not foresee in recommendations in this respect, it might indeed be a useful entity that monitors or co-ordinates the activities by the various players in the estuary, taking into account the interests of these players and promotes and/or prepares improvements to be made. The area authority of the Mormugao Port Trust is limited and does not encompass the estuary. The same accounts for the Port of Panjim. Co-operation between Port Trust, State Government and Inland Waterway Authority in an Estuary Agency or Authority might lead to port development options outside the present Port Trust boundaries.

4.8 Financial Issues

4.8.1 Profit and loss account

The projected profit and loss account for Mormugao Port Trust is presented in Table 4.3.

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	11	12	16	17	17	18	18	27
Other dues	63	68	72	74	83	84	86	110
Stevedoring revenue	27	35	30	31	23	23	25	48
Storage	121	126	126	127	147	144	145	169
Wharf handling								
Concession fee	17	18	25	25	25	25	25	25
Other operational income	48	51	33	33	53	54	55	61
Total operating revenue	287	309	302	307	348	347	354	440
Expenses								
Salaries	89	100	99	102	100	103	108	279
Social charges and pension premiums	63	67	33	9	10	10	10	24
Running costs	63	86	89	93	93	93	93	94
Administrative costs	18	24	25	26	26	26	26	26
Other costs	0	0	0	0	0	0	0	0
Total operating costs	233	277	245	230	229	232	237	423
Operational net earnings before DIT	54	32	57	77	119	115	117	17
Other income	12	13	14	15	17	20	24	92
Net earnings before DIT depreciation	65	45	71	92	136	136	141	109
depreciation	24	28	30	31	31	31	31	34
Net earnings before it	41	17	40	61	105	105	110	76
Interest	-8	-19	-24	-25	-23	-21	-18	0
Net earnings before tax	33	-1	16	35	82	84	91	76
Tax	0	0	0	0	0	0	0	0
Net earnings	33	-1	16	35	82	84	91	76

Table 4.3 Projected profit and loss account

4.8.2 Balance sheet

The projected balance sheet for Mormugao Port Trust is presented in Table 4.4.

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	580	693	752	731	711	691	670	394
Investments								
Current assets	83	89	93	95	107	107	109	136
Liquid means	232	203	189	221	285	362	445	1.671
Total assets	895	984	1.034	1.047	1.104	1.160	1.224	2.201
Equity and liabilities								
Equity								
Reserves	465	443	461	491	575	653	736	1.518
Total own equity	465	443	461	491	575	653	736	1.518
Provisions	165	186	185	190	187	193	201	513
Long term loans	170	243	290	273	249	220	191	0
Short term liabilities	94	112	99	93	92	93	95	170
Total equity and liabilities	895	984	1.034	1.047	1.104	1.160	1.224	2.201

Table 4.4 Projected Balance sheet

4.8.3 Projects for the seven year period

Projects Mormugao

RS Crores

Mormugao	Investment costs				
	Total	Trust (IR)	(Debt)	Private	HAI
Repair and strengthening of breakwater	27	11	16		
Deepening the approach channel and berth no. 9	65				65
Increasing the Iron ore handling capacity	316	126	190		
Developing Vasco Bay to handle the liquid bulk and other non cargo vessels	90	36	54		
Construction of new berth no. 7	140			140	
Increasing the capacity of handling miscellaneous commodities	15	6	9		
Improving the rail and road connectivity between hinterland in Karnataka and Goa	2.029				2.029
Improving the road and rail connectivity within the port premises	31	12	18		
Computerization of the port	4	2	3		
Miscellaneous	71	71			
Total investments in fixed assets	2.788	264	290	140	2.094

4.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 33 Crores to Rs 91 Crores. The level of investments with internal funding is moderate. The solvency is 60% in 2013-14. The borrowing capacity is used for a small part.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented Table 4.5.

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	232
Available for investments IPA 10-4	134
blocked for pensions etc	98
Investments in financial assets 2014	0
Liquid means 2014	445
Available funds	445
Blocked for pensions	98
Available for investments 2014	347
Equity = borrowing capacity	736
Existing loans	191
Balance	545
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	347
From unused borrowing capacity	545
Total available for investments in fixed assets in 2014	892

Table 4.5 Available funds for investments in fixed assets

4.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Mormugao	General Remarks Final Report
The report is informative, however contains many details on certain subjects and none on other subjects. Therefore the report gives an unbalanced impression and is sometimes difficult to read.	As in DFR
The Consultant follows the format provided by the Advisor.	As in DFR which is ok
A summary is missing. SWOT analyses are only described in latter part of report.	A summary has been included with an illustrative map. The results of the SWOT analyses have been replaced to a more logical position in the report. A separate chapter (Ch 5) has been added on vessel size development
Although extensive data is provided and thorough analysis shown in section 2 in many tables and in Annexure 3.1 and 3.2, Advisor is missing in the report a summary table with a brief overview of present and forecast of throughput of type of import and export commodities for reference years up to 2025/26.	Has been corrected. Forecast has been included in the summary (without figures on present throughput and without total throughput)
Although information is provided on methods of iron ore transport and handling in different seasons, Advisor is missing a clear illustrated overview (map, scheme) of present practice and proposed future practice.	As in DFR
Professional drawings have been added indicating iron ore handling method.	As in DFR which is ok
No information included on institutional bottlenecks/recommendations.	As in DFR
Special remarks	
Page 4-48 Remark on disturbance of urban area is missing	As in DFR (page 6-51)
	Cover page and contents list are missing in Advisor's copy

Financial Remarks Draft Final Report Mormugao	Financial Remarks Final Report
<p>The forecast is given in three scenarios. For iron ore the forecast is given in three 3 cases where each case has three scenarios. In chapter 5.2 road connectivity is calculated with medium scenario. In chapter 5.3 rail connectivity again in three scenarios The projected financial accounts are based on medium scenario; for Iron Ore the medium scenario of the high case is used. What is function of low and high scenario?</p>	Has been explained
<p>Forecast 2006-7 (over) till 2012-3, in effect 6 years. However for liquid bulk capacity is calculated for 2025-26. See page 5-2.</p>	Forecast for 20 years is included
<p>The proposed projects are described, but IRR and NPV data is missing.</p>	Information has been added
<p>Table 8.1 gives capital investments. The details are in annexure. 8.1. A summary is missing for the financial impact on MPT with an overview per project and per year and a clear relation with the financial accounts. Table 10.1 gives details of development activities; table 10.2 gives details of plan capital expenditure. Table 10.7 gives funding pattern for the projects. Table 10.12 gives capital assets additions. The relation between these tables is missing; totals are missing and content per project is different. Examples: Table 8.1 and 10.1 Table 10.12 and 10.8 Capital dredging in table 10.8 Rs 159 and table 10-2 Rs 650 Wagon hurdling system in table 10.1 and table 8.1</p>	Information has been added but clear relation between tables and totals are still missing
<p>Chapter 10.3 (funding capability) is clear and informative.</p>	As in DFR which is ok
<p>Table 10.14, 10.15 and 10.16 have the same heading but different content, please reorganise.</p>	Has been corrected
<p>Tax has not been calculated, due to recent cancellation of an amendment in the tax law. What is the situation at this moment; please clarify.</p>	As in DFR, reason has been explained but it is doubtful if this construction holds in practice in future.
<p>Projected financial accounts The statement of accounts is in line with the format in the information outline. Assumptions are clear. Supporting information has been given.</p>	As in DFR

General Remarks Financial model Draft Final Report Mormugao	General Remarks Financial Model Final Report
The financial model is adequate to calculate the projected financial accounts. In order to make it possible for the employees of MPT to use the model as an instrument for future projections it is advised that the consultants instruct and train the employees of MPT.	As in DFR

5 New Mangalore

5.1 Mission, Vision and Strategy

The vision and the mission statement for New Mangalore Port Trust (NMPT) are formulated as follows:

Vision:

"To be a professional provider of Port Infrastructure and services of world class standards"

Mission Statement:

"To become one of the leading liquid and multi-cargo ports in India by adopting state-of-the-art technology infrastructure and cargo handling system, complying environmental, social, safety and security standards"

From the vision and mission statement the following strategies were formulated:

- Be an all cargo type of port for captive as well as for non-captive traffic;
- Develop the access (channel) to the port in the long run;
- Co-invest in infrastructure for captive cargo and dedicate the different cargo flows to one terminal;
- Create new facilities for competitive cargoes
- Modernisation and mechanisation of bulk cargo and container handling through PPP in the long run;
- Invest in infrastructure, superstructure and equipment where needed to modernise in the short run;
- Initialise and conclude concession/lease agreements for existing cargo handling operations;
- Reduce the environmental hazards from cargo handling operations;
- Adopt the service port management model for container handling operations until a critical mass of throughput has been realised;
- Shift gradually to the landlord port management model;
- Reorganise the port in view of the developments in privatisation.

5.2 Competitive Position

The SWOT analysis for the Port of New Mangalore is presented below:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Geographical position in the Arabian Sea / Indian Ocean basin, and well suited for South Indian cargo; ▪ Hinterland area with 50 million people, a sound base for increasing container cargo (which is an opportunity) ▪ Well maintained deep-water berths 	<ul style="list-style-type: none"> ▪ Ships over 100,000 dwt can not be handled in the port ▪ Manual cargo handling for iron ore and coal ▪ High turnaround times for vessels ▪ High costs of transport for shippers ▪ Environmental problems ▪ Private sector is forced to make use of Port's dock labour for cargo handling, which is more expensive
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Interest of private parties for PPP ▪ Available funds for infrastructure developments; ▪ Development of SEZ. 	<ul style="list-style-type: none"> ▪ The Port Trust structure limits NMPT to operate as an independent and professional company ▪ The growth in vessel size ▪ Strong growth in cargo flows may result in increasing waiting times, even when mechanisation of cargo handling is introduced ▪ Competition from nearby ports Cochin and Mormugao ▪ Shortage of certain skills within NMPT

Table 5.1 SWOT analysis for the Port of New Mangalore

Inter-port competition:

There are 9 minor ports within the State of Karnataka, together handling a total of approximately 1 million tons. NMPT faces more serious competition from the nearest major ports of Cochin on the South and Mormugao on the North. While Mormugao is a major iron ore exports handling port, Cochin handles liquid bulk for the Cochin refinery. New Mangalore shares a common origin of iron ore fines and lumps with Mormugao for ore originating from the Bellary-Hospet area. Cochin is developing as a major container transshipment port, and has been able to attract cargo originating from Karnataka, such as coffee.

5.3 Cargo Forecast

Consultant studied the general economic developments (national and state) for commodities and performed origin – destination analysis. For captive cargoes relevant industrial capacities and plans were investigated. General and specific growth trends were defined for the individual commodities. Vessel developments have been reviewed in order to study and evaluate possible changes in vessel sizes.

The Port of New Mangalore is a bulk handling port that handles liquid bulk (67%) and dry bulk (29%). Low and high scenarios were defined in order to define the cargo forecast.

The state of Karnataka produces a share of some 24% of the Indian iron ore production. One of the mining areas is Bellary. The Bellary mines are connected to Visakhapatnam, Kakinada and Chennai ports at the East coast and Mormugao and New Mangalore at the West coast. A major exporter of this commodity through the Port of New Mangalore is Kudremukh Iron Ore Company Ltd. (KIOCL). KIOCL produces and exports concentrates and pellets.

Iron ore exports through the port comprise iron ore pellets and iron ore fines. KIOCL has dedicated facilities in the port for the export of pellets. Fines are exported by private mine owners in Karnataka.

Karnataka accounts for around 9% of Indian crude oil throughput. MRPL is a state owned refinery importing crude through the port. LPG is another product handled in the port. Plans exist for the handling of LNG.

The forecast for the Port of New Mangalore is indicated in the following table.

	2007-08	2011-12	2025-26
POL – Product & Crude	22,55	27,20	31,57
Iron Ore	7,30	10,20	20,09
Coal	1,00	4,30	7,00
Fertilisers	1,28	2,09	4,33
Container Traffic	0,47	1,25	3,83
Other Cargo	4,81	7,13	17,32
Total Throughput	37,41	52,17	84,14
Container M TEU	0,03	0,08	0,23

Table 5.2 Cargo forecast Port of New Mangalore in Mtons

5.4 Port Facilities

The Port of New Mangalore is located on the West coast of India in the state of Karnataka. The port is a modern all weather port which can be reached by a 7,5 km long channel and is protected by two 770 m long breakwaters. The turning circle has a diameter of 490 m.

The lagoon consists of 14 berths with a total length of some 3.250 m. Most bulk vessels calling the port are between 25.000 and 35.000 DWT with lengths of some 170 to 190 m. Berths nos 9 to 13 are related to liquid bulk with berths 10 and 11 for crude oil. LPG is handled at jetty 9. Berth no 8 (300 m length) is the dedicated berth for KIOCL. Berth 14 is 350 m long and recently constructed. The berth with the largest water depth (15,1 m) is berth 14. The liquid berths have permissible drafts up to 14 m.

The port's equipment is in general outdated and most cargo is presently handled by ship's gear. Provisional container operations take place at the area near berths 6 and 7. Ship's gear is used for the ship-to-shore handling of containers.

Iron ore loading rate is very low with loading performed by vessel gear and slings. Apart from the low speed the present method causes heavy pollution due to spillage of the cargo both on the quay and in the basin.

Fertilisers and coal are unloaded with ship's gear into a movable hopper on the quay. Discharge rates are low with grabs of some 8 tons.

The discharge rate for imported POL is 10.000 tons per day dependent on the pumping capacity of the vessels, while that for exported POL is 24.000 tons per day which is dependent on the capacity of the shore pumps.

The present layout is indicated in the following figure.

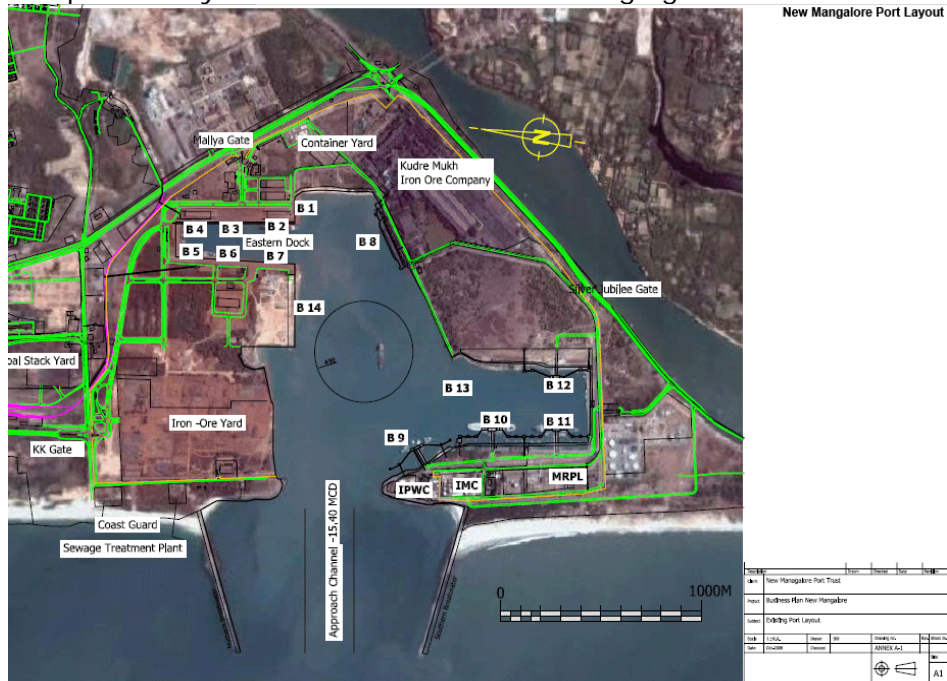


Figure 5.1 Present layout Port of New Mangalore

5.5 Port Planning

International benchmarks for container and general cargo handling productivities and for acceptable berth occupancies in India have been provided by Consultant.

Proposed Projects

- Mechanisation of the new iron ore berth 14;
- Berth 15 of new Western Dock for handling coal;
- Restructuring of berth 1 and 2 for container handling;
- Construction/conversion of berth 13 for handling liquid bulk;
- Deepening of channel and turning basin;
- Marshalling yard near new Western Dock;
- Development of SBM facilities for crude oil imports;
- LNG Terminal;
- Container terminal in Western Dock;
- National road and railway connectivity plans.

The location of the proposed projects is indicated in the figure below.



Figure 5.2 Future layout Port of New Mangalore

Comments of Advisor:

- No expansion of iron ore handling and storage capacity possible at berth 14 after present capacity is reached in 2013;
- Proposed container handling capacity does not indicate great ambition;

5.6 Hinterland Connectivity

The National Highway Authority India (NHAI) has drawn up plans to upgrade the national highways connecting the port with the hinterland. The port connectivity programme is a national programme of connecting all ports to main national highways. The new Mangalore Port connectivity programme is being implemented by New Mangalore Port Road Development Company Ltd. With a Special Purpose Vehicle (SPV) format.

The railway connection is sufficient at present although an increasing demand is expected with a modal shift from road to rail and with increasing throughput of the port.

5.7 Port organisation and institutional setting

Institutional setting:

The future success of NMPT requires institutional and organisational changes. As stated above, the dependency on MOSRTH is seen as one of the major obstacles for an effective and fast decision making process, leading to a low-cost and efficient port. The concept of a landlord port management model prevails above the present service port management model since a stronger involvement of the private sector will be beneficial for the port as well as for the regional economy.

The policy of NMPT is to continue with the implementation of the landlord model and as such become responsible for:

- Marine infrastructure;
- Construction of quay walls;
- Harbour Masters function: safety and environment;
- Promotion of the port;
- Marine services.

Activities that are suitable for outsourcing are:

- Cargo handling and storage operations;
- Workshop activities related to cargo handling equipment;
- Tally and cargo inspection;
- Dredging operations;
- Housing and medical care for employees;
- Port security.

The present NMPT strategy is that existing terminals will be given to operators on a lease contract, while Greenfield areas will be given to third party investors via public tender. According to the national Ministry of Shipping MOSRTH port privatisation is a major tool to secure funds for major infrastructural projects. It will not only lead to a lower consumption of public (port) funds but also to a more professional operation of port terminals as private operators are less hindered by public administration and Trust laws, while they have better trained people and use more advanced technology.

The future role of NMPT will be the one of a Port Authority with the following main functions:

- The role of Port regulator: vessel traffic management, safety and security, environment;
- The role of port developer: stimulator of the port as logistics nodal point, developer and maintainer of port infrastructure and lessee of port infrastructure through lease agreements / concessions.

IPA recommended in 2006 to establish a corporate structure for NMPT, in line with modern business organisation concepts. This new NMPT will be able to make major decisions professionally and without or with limited interference with MOSRTH. The corporate structure foresees a share company with 100% of the shares in the hands of MOSRTH.

Comments of Advisor:

- *The Advisor is of the opinion that also marine services can be transferred to the private sector, on the condition that strict arrangements are made to avoid a monopolistic situation. It should be investigated whether the number of vessel calls leaves room for more than one company in each field of pilotage and towage.*
- *In case the port trust has sufficient funds, it is recommended to apply the landlord management model instead of the BOT model for the development of Greenfield sites. The private sector will take into account a shorter pay back period for its investments, therewith increasing the cost for the port users.*

Port organisation:

The new role and new structure of NMPT as described above requires a re-arrangement of NMPT's organisational structure. With the shift of manpower and

equipment to the private sector, NMPT's workforce can be reduced from some 1.900 to approximately 930, a reduction of more than 50%. Another 25% of the remaining workforce is expected to become redundant, distributed over the various departments not directly related to cargo handling operations. The remaining workforce is estimated at some 600 employees. NMPT will opt for a gradual, careful reduction of its manpower.

There are a few departments within NMPT that need strengthening. Some new staff will be needed to strengthen the marketing division and the IT department. Also the human resources department needs extra attention. Retrained employees who have become redundant, could obtain new jobs within these departments.

5.8 Financial Issues

5.8.1 Profit and Loss account

The projected profit and loss account for New Mangalore Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025
Port dues	43	46	52	53	53	57	63	81
Other dues	47	49	52	52	54	56	63	74
Stevedoring revenue	128	134	147	136	145	154	155	224
Storage								
Wharf handling								
Concession fee	20	46	51	50	52	54	62	64
Other operational income	22	17	12	2	2	2	2	3
Total operating revenue	261	291	313	292	306	323	345	446
Expenses								
Salaries	57	52	47	45	44	43	41	29
Social charges and pension premiums	3	3	3	3	3	3	3	3
Running costs	64	70	85	88	97	103	111	180
Administrative costs	24	24	24	24	24	24	24	24
Other costs								
Total operating costs	148	149	159	160	168	172	179	235
Operational net earnings before DIT	113	142	154	132	137	151	166	210
Other income	53	55	54	51	45	49	54	115
Net earnings before DIT	165	197	208	184	182	200	220	325
Depreciation	18	21	25	28	27	27	28	27
Net earnings before it	148	176	183	156	155	173	192	298
Interest	-9	-7	-5	-2	0	0	0	0
Net earnings before tax	138	168	178	154	155	173	192	298
Tax	41	51	53	46	46	52	57	89
Net earnings	97	118	125	108	108	121	134	209

Table 5.3 Projected profit and loss account

5.8.2 Balance sheet

The projected balance sheet for New Mangalore Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Fixed assets	536	607	669	690	691	688	685	1.035
Investments	941	956	987	1.048	1.154	1.273	1.406	3.034
Current assets	40	45	51	50	52	54	56	91
Liquid means	9	9	10	10	12	14	16	47
Total assets	1.526	1.618	1.717	1.799	1.908	2.029	2.164	4.208
Equity and liabilities								
Equity								
Reserves	1.042	1.159	1.284	1.392	1.500	1.621	1.755	3.793
Total own equity	1.042	1.159	1.284	1.392	1.500	1.621	1.755	3.793
Provisions								
Long term loans	78	52	26	0	0	0	0	0
Short term liabilities	407	406	407	407	408	408	409	415
Total equity and liabilities	1.526	1.618	1.717	1.799	1.908	2.029	2.164	4.208

Table 5.4 Projected Balance sheet

5.8.3 Projects for the seven year period

Projects New Mangalore

RS Crores

New Mangalore	Timing	Investment costs				WACC	IRR BOT	NPV BOT
		Total	Port Trust	Private	GOI			
Road connect to port	2007-08	895	10	885				
Development of port based SEZ	2007-08	5	1	4				
Mechanised Iron Ore handling berth 14	2008-09	197	-	197		8%	32%	
Harbour crane (for bulk cargoes)	2008-09	30	30	-			261	
Harbour tug No 1	2008-09	30	30	-				
Development of bunker facilities	2008-09	10	-	10				
Development of coal berth 15	2009-10	194	-	194		8%	22%	
POL berth at oil dock, berth 13	2009-10	54	54	-		8%	29%	
Development marshalling yard	2009-10	40	10	30				
Container terminal to 100k TEU	2009-10	32	32			8%	45%	
IT	2009-10	4	4				64	
Pilot Launch	2009-10	5	5					
Improvement internal roads	2010-11	50	50					
Environment	2010-11	3	3					
Multi purpose berth No 16	2010-11	50	50					
KIOCL Berth nr 8 from 13 to 14 m	2011-12	18	18					
Harbour tug No 2	2011-12	20	20					
Bulk handling (ore/coal) Western dock, berth 17	2013-14	50	50					
Total investments in fixed assets		1.686	367	1.320	-			

5.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 97 Crores to Rs 134 Crores. The level of investments with internal funding is moderate. The solvency is 81% in 2013-14. The borrowing capacity is not used.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	950
Available for investments IPA 10-4	406
blocked for pensions etc	544
Investments in financial assets 2014	1.406
Liquid means 2014	16
Available funds	1.422
Blocked for pensions	544
Available for investments 2014	878
Equity = borrowing capacity	1.755
Existing loans	0
Balance	1.755
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	878
From unused borrowing capacity	1.755
Total available for investments in fixed assets in 2014	2.633

Table 5.5 Available funds for investments in fixed assets.

5.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report New Mangalore	Major Remarks Final Report
Recommendations on strategy in summary strongly deviate from those in main text (par 2.3 page 8).	Has been corrected.
Results SWOT analysis in summary strongly deviate from those listed in main text (par 2.1 page 5 and 6). Opportunities do not include strong growth of Indian economy.	Has been corrected.
Editing required	Has been addressed.
Extensive market review, which is OK	As in Draft Final Report which is good.
English phrasing in general is adequate.	As in Draft Final Report which is good.
Systematic mistake is made throughout the report in figures/units	Has been corrected.
Proper figures have been provided on existing port layouts, berth numbering, land use, nautical aspects (page 62, 76, 81, 87), masterplans (page 132, 134, 136);	As in Draft Final Report which is good.
Of many projects proposed to be implemented in reference period up to 2013 (Table 0-3, page vii) only 4 have been assessed in detail. What is reason that other projects have not been included in assessments?	Better overview provided of projects to be implemented in short and long term as requested.
Proper introduction given on tariff setting on page 12;	As in Draft Final Report which is good.
Proper explanation of Market orientation and Traffic Forecasts in Chapter 3 and 4. Source(s) of information need to be added however;	Where applicable sources have been added.
Growth of traffic for NMPT seems to be quite modest in view of strong growth expectation of Indian economy?	Final Report indicates slightly higher growth figures.
Informative graphs have been provided on present and future berth capacities in chapter 5;	As in Draft Final Report which is good.
Specific remarks	
	Specific remarks have been followed up systematically and improved the report
	Summary has been improved substantially with informative table including: top projects for short term; other projects for long term; NMDP projects; Graph indicating berth

Major Remarks Draft Final Report New Mangalore	Major Remarks Final Report
	occupancy factors;

Financial Remarks Draft Final Report New Mangalore	Financial Remarks Final Report
The financial part of the report is adequate to serve as a financial body for the business plan.	As in DFR
For some projects in chapter 6 there is a subchapter economic feasibility, where assumptions are stated. It is not clear which of the assumptions are valid for the financial feasibility and which are valid for the economic feasibility. The text is not clear. A clarification and a more systematic approach is needed.	Not improved.
The IRR mentioned in the tables (for instance table 6.3) is not identical with the text.	Changed but not improved; IRR OK but NPV different
The first 2 projects in table 0-3 with an investment of in total 28 Rs Cr are not included in the annual capital exp and are not included in the investments in the financial forecast.	Removed from table 0-3
The text on page x of the summary is wrong. The cash flow is positive (see table 0-6)	Corrected
For the other projects in chapter 6.7 no financial feasibility is calculated without explanation and or motivation.	Explanation has been given
The environmental projects reflect a total investments of Rs 2,6 Cr. (Table 7-3). This investment is not included in the financial forecast.	Included in table 10-5
Projected financial accounts The statement of accounts is for a part in line with the format in the information outline, however the format for the flow of funds deviates.	As in DFR
The details for Categories of revenues Categories of costs Long term liabilities Equity and reserves as required in the information outline is missing. In order to keep the wording of chapter 10 intact these details could be integrated in an annex.	Information added.
The relation between the selected projects and the financial accounts is clear for the investments, but not for the revenues.	An aggregated overview of additional revenue and costs is missing
The cash flow is in normal practice defined as net income after tax plus depreciation. The consultant uses a different definition where interest, changes in working capital and capex are included in the formula. In the sensitivity analyses (chapter 10.6) the same formula is used for different scenarios, giving the cash flow (in consultants	As in DFR

Financial Remarks Draft Final Report New Mangalore	Financial Remarks Final Report
definition) as result. In this way the sensitivity on the cash flow effect on this cash flow and highlights the eventual need for extra loans. The cash flow is calculated for NMPT as a whole, not for the individual projects. The sensitivity analyses have no impact on decision about the execution of the individual projects.	
Table 10-20 gives financial indicators, definitions are missing.	Definition has been added
Some items are double in the report (see page 21-23 , 45, 90 and 107)	Corrected
Specific remarks have been followed up systematically and improved the report	As in DFR

Major Remarks Financial Model Draft Final Report	Major Remarks Financial Model Final Report
The financial model is not received.	The financial model has been received and is adequate for the calculation of the projected financial accounts. The figures in the financial model are not in line with the figures of the financial accounts in the final report. The difference is caused by the income from royalties.

6 Cochin

6.1 Mission, Vision and Strategy

The mission of the Cochin Port Trust shall be that:

'The Port of Cochin is the gateway to the West Coast of India.'

As a gateway the port will act as an Indian Subcontinent International Transshipment hub for the Indian West Coast and an Import-Export hub for the Southern states.

The vision of Cochin Port Trust is to see itself, over the next twenty years, serving the country as:

- A Business Enterprise;
- An Economic Development Facilitator;
- An Environmental Conservator;
- A Public Service Provider.

The Port of Cochin has the following goals:

- To strengthen the competitive position;
- To maximise space and infrastructure utilisation.

6.2 Competitive Position

The Swot analysis for the Port of Cochin is presented below:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Geographical location, close to the international East-West shipping route ▪ Available land for future development activities ▪ Protection from monsoons, no cyclones, moderate wave conditions ▪ Presence of the KRL refinery ▪ Presence of oil terminal able to receive large vessels of 115,00 dwt 	<ul style="list-style-type: none"> ▪ Low labour productivity and strong labour unions ▪ Lack of industrial growth in the hinterland ▪ Available draft on 4 berths ▪ Outdated layout of the port ▪ Poor condition of available infrastructure ▪ Low container productivity, limited backreach area and lack of storage area ▪ Lack of intermodal facilities / poor rail infrastructure ▪ Customs clearing time ▪ High transportation costs to the hinterland ▪ Poor financial health of CoPT
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Vallarpadam terminal to become an international transshipment hub ▪ SEZ's at Vallarpadam and Puthu-Vypeen with food processing industries ▪ KRL capacity increase ▪ LNG terminal ▪ Tourism ▪ Cochin as liquid bulk centre for the region 	<ul style="list-style-type: none"> ▪ Upcoming port of Vizhinjam as a transshipment hub ▪ A possible new transshipment port at Kolachel ▪ Port expansion at Colombo ▪ Government policy on imports of fertilisers ▪ Resistance from urban areas near proposed projects

Table 6.1 SWOT analysis for the Port of Cochin

The Consultant pays much attention to the competitive situation related to containers, taking into account:

- The Arabian Sea / Indian Ocean International transshipment market. The conclusion is that Cochin is not competitive in this market;
- The Indian Subcontinent International transshipment market. The Port of Cochin is highly competitive in this market, with a share of 24% in the normal scenario and 32 % in the high scenario.

The implementation of the Sethusamundram project will not have a large impact on the competitive positioning of Cochin with respect to Colombo and Tuticorin. These competing ports will continue to be more competitive for containers originating from the Indian East coast than Cochin, and will similarly continue to be less competitive than Cochin for containers originating/destined to the West coast of India. The

impact will be more pronounced in case of Tuticorin's competitiveness over Colombo with regard to containers originating in the East coast of India.

The nature of the markets for the other commodities are:

- Liquid bulk: captive;
- Dry bulk: semi captive;
- Break bulk: captive.

6.3 Cargo Forecast

The major player for crude oil business in Cochin is the Kochi Refineries Ltd. (KRL). It is expected that the crude oil handling volume in the port of Cochin is limited by the capacity of KRL. The POL export from the Port of Cochin is also related to the refining capacity of KRL.

The future volumes of phosphoric acid as a FRM for the fertiliser industry (FACT) depend on the production plans of FACT.

Apart from the nationwide growth in the transport of containerised goods and the potential for the Port of Cochin in this field, the port might attract transshipment containers destined to and originating from for other Indian ports. At present the port of Colombo plays a major role as a transshipment centre for Indian containers. Other commodities analysed by Consultants are cement, scrap, wheat, metals, timber, coal and other bulk cargoes.

The cargo forecast for the Port of Cochin is indicated below.

	2007-08	2011-12	2025-26
POL – Product & Crude	9,47	11,97	12,64
Iron Ore	0,00	0,00	0,00
Coal	0,26	0,84	0,36
Fertilisers	0,63	0,71	0,76
Container Traffic	3,84	6,00	29,16
Other Cargo	1,16	5,11	10,57
Total Throughput	15,36	24,63	53,49
Container M TEU	0,32	0,50	2,43

Table 6.2 Cargo forecast Port of Cochin in Mtons

Comments of Advisor:

The container transshipment potential depends to a high degree on the policy of the Government of India regarding restrictions to international shipping lines to be involved in "cabotage".

6.4 Port Facilities

The Port of Cochin is located on the South West coast of India in the state of Kerala. The port is located near the main shipping routes. The port is situated on Willingdon Island. Willingdon Island splits the backwaters into Ernakulam Channel on the East side and Mattancherry Channel on the West side.

The outer channel has a length of 10 km, a width of 175 m and is accessible for vessels with a draft of 12,5 m.

Berths are located along the Ernakulam and Mattancherry Channels. The Ernakulam Wharf is 917 m long and has six berths. Three berths are used for container handling operations, two berths for general and dry bulk cargoes and one for fertilisers. Furthermore there are three oil berths in the Channel. Mattancherry has four berths for general cargo, one boat train pier and two jetties. The present layout of the port is indicated in the figure below.

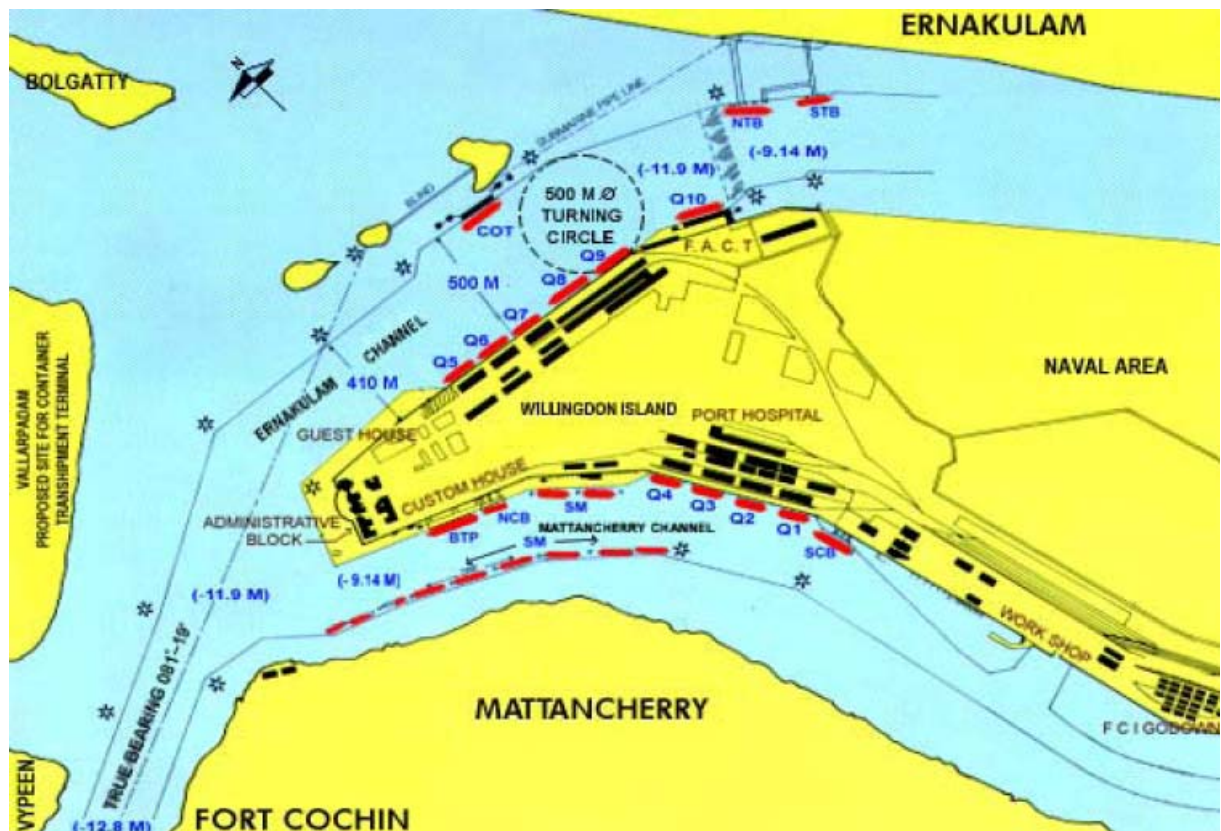


Figure 6.1 Present layout Port of Cochin

6.5 Port Planning

- Consultant proposes a combination of both migrating port activities and upgrading the port area in order to improve the present less efficient handling operations at Willingdon Island.
- The most important present port activities (crude and container handling) will migrate to the Puthuvypeen and Vallarpadam areas, because these locations provide the optimal boundary conditions for further development.
- The remaining conventional cargo handling activities (POL, dry bulk, break bulk and other liquid bulk) will be located at Willingdon Island and the present liquid jetties. This implies that Willingdon Island and the present liquid berths along Ernakulam Channel will be upgraded to accommodate the remaining conventional cargo handling activities and to meet the future requirements for efficient cargo handling.

- The basic development concept for Willingdon Island is to allocate the cargo handling activities that require the reception of the deepest draft vessels along Ernakulam Channel and the shallower draft vessels along the Mattancherry side of Willingdon Island.

Proposed projects

- Development of SBM facilities for crude oil imports;
- LNG and LPG Terminals;
- Bunkering Terminal;
- Vallarpadam Container Terminal;
- Cruise Terminal;
- Upgrading Willingdon Island;
- National road and railway connectivity plans.

The location of proposed projects is indicated in the figure below.

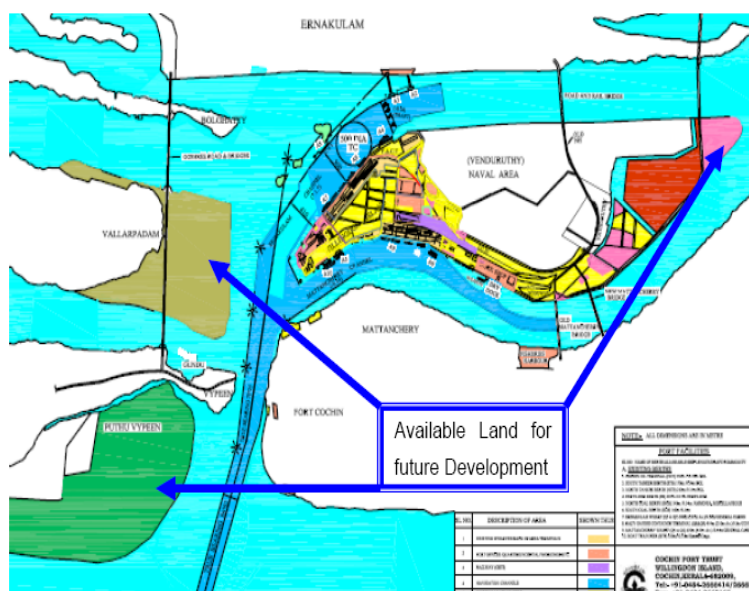


Figure 6.2 Future layout Port of Cochin

Comments of Advisor

- Function of Cochin Oil Terminal not clear with development of SBM;
- Interesting Railway “backbone” concept for South India;
- State border problems with regard to hinterland transport via road modality.

6.6 Hinterland Connectivity

The hinterland of the port is connected to the port via rail, road, inland waterway and pipeline.

The inland waterway connection is the Inland waterway no 3 and its two navigable side channels (Udyogamandal and Champakkara Canal). The FACT fertiliser plant is a captive industry at some 25 km from the port. The transportation of imported FRM is mainly done by barges.

The Port of Cochin is connected via three national highways and railway lines (North, East and South) to the hinterland. The port is connected to the national highway network via two bridges from Willingdon Island to the mainland. The bridges are major bottlenecks in the road system. As shift of the container operations from Willingdon Island to Vallarpadam Island would relax this situation.

For the future proposed Container terminal at Vallarpadam a complete new rail link has to be built up to handle the future traffic.

Furthermore, Consultant describes the potential to develop a hinterland hub in South India to consolidate railway volumes from different ports in the South, like Cochin, Tuticorin and the upcoming ports Vizhnam and Kolachel. A suitable location for such a hub may be Erode where the main railway links come together. To develop this hub Cochin Port Trust (CoPT) has to look for partners in the liberalized railway sector as well as at other ports.

6.7 Port organisation and institutional setting

As to the National Port Strategy for Indian major ports, CoPT has to gradually shift its role and functions to the Land lord concept. Activities eligible for outsourcing are:

- Cargo handling and storage operations: For General and Dry Bulk cargo
- Workshop activities for cargo handling equipment
- Maintenance and supply of electricity at Willingdon Island
- Tally and cargo inspection
- All dredging operations
- Marine services like tugs and pilotage
- Training for skills/knowledge not available in-house
- Indirect human resource services: housing, medical care
- CFS operations

In principle these activities can be out-sourced when sufficient supply of professional services can be secured (at a better price/quality relation).

New departments to be established at CoPT include a separate HR department, Corporate Communication department, Corporate Planning, Project Management and Marketing and Sales department.

A new organization structure has been proposed and recommendations are provided with respect to training, recruitment, voluntary retirement and transfer of employees. The establishment of a Strategic Corporate Planning Unit is proposed.

Comments of Advisor:

No analysis or mentioning is made of the relation with the Ministry of Shipping and the possible wish to obtain more autonomy. The Consultant does not come with recommendations in this respect.

6.8 Financial Issues

6.8.1 Profit and loss account

The projected profit and loss account for Cochin Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26	2026-27
Revenue									
Port dues	24	29	33	80	87	94	102	248	268
Other dues	64	79	90	183	197	214	231	532	572
Stevedoring revenue									
Storage									
Wharf handling	47	65	88	95	99	104	109	166	171
Concession fee	34	45	27	28	30	31	43	88	94
Other operational income	30	13	14	15	16	16	17	31	32
Total operating revenue	199	232	252	401	429	460	502	1.065	1.137
Expenses									
Salaries	63	63	63	61	58	56	54	28	29
Social charges and pension premiums	56	58	61	63	65	68	70	97	99
Running costs	41	46	47	72	73	74	77	89	91
Administrative costs	4	5	5	8	9	10	11	27	30
Other costs	2	2	1	1	1	0	0	0	0
Total operating costs	167	174	177	205	207	209	212	241	248
Operational net earnings before DIT	31	58	74	196	223	251	290	824	888
Other income	14	11	12	11	20	28	41	395	449
Net earnings before DIT	45	69	86	208	242	279	331	1.218	1.337
Depreciation	13	13	18	18	18	18	18	19	19
Net earnings before it	32	56	68	189	224	261	313	1.200	1.319
Interest									
Net earnings before tax	32	56	68	189	224	261	313	1.200	1.319
Tax	0	0	23	64	76	88	105	404	444
Net earnings	32	56	45	125	149	173	208	796	875

Table 6.3 Projected profit and loss account

6.8.2 Balance sheet

The projected balance sheet for Cochin Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	339	527	789	771	752	734	716	723
Investments	25	25	25	137	247	419	621	5.527
Current assets	136	93	101	162	173	185	203	429
Liquid means	438	420	444	435	490	507	517	1.380
Total assets	937	1.065	1.359	1.504	1.662	1.845	2.056	8.059
Equity and liabilities								
Equity								
Reserves	316	520	795	931	1.092	1.277	1.489	7.322
Total own equity	316	520	795	931	1.092	1.277	1.489	7.322
Provisions	268	289	310	332	355	378	401	728
Long term loans	324	226	226	204	181	158	136	0
Short term liabilities	30	29	27	37	34	31	29	10
Total equity and liabilities	937	1.065	1.359	1.504	1.662	1.845	2.056	8.059

Table 6.4 Projected Balance sheet

6.8.3 Projects for the seven year period

Projects Cochin

RS Crores

Cochin	Timing	Investment costs				WACC	IRR (project)	NPV
		Total	Port Trust	Private	GOI			
Vallarpadam International Container Terminal (VICT)	2007							
Single Buoy Mooring Facility for crude Oil Import (SBM)	2007							
LNG Terminal	2009							
LPG Terminal	2008							
Bunkering Terminal (two phases)	2007-09	55		55			21%	25
	2017-19	38		38				
International Cruise Terminal	2008-10	55		55			14%	36
Distribution Park	2007-08	36		36			22%	26,82
Business District	2006-07	149		149			18%	120,31
	2009-10	133		133				
Upgradation of Willingdon Island	2007-08	15	15				4%	-26,18
	2010-11	60	60					
Capital Dredging	2010	481		481				
Total investments in fixed assets		1.021	556	465	-			

6.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 32 Crores to Rs 796 Crores. The level of investments with internal funding is moderate. The solvency is 72% in 2013-14. The borrowing capacity is hardly used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	462
Available for investments IPA 10-4	124
blocked for pensions etc	338
Investments in financial assets 2014	621
Liquid means 2014	517
Available funds	1.137
Blocked for pensions	338
Available for investments 2014	799
Equity = borrowing capacity	1.489
Existing loans	136
Balance	1.354
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	799
From unused borrowing capacity	1.354
Total available for investments in fixed assets in 2014	2.153

Table 6.5 Available funds for investments in fixed assets.

6.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report Cochin	Major Remarks Final Report
The format of the report is not in line with the information outline as provided to Consultants in December 2006, probably because the Consultant did not have the revised outline of the draft final report. The present Draft Final Report is therefore considered to be incomplete, since the overview of the results of the Inception and Interim phases are lacking. It is far from a stand alone report including a summary, while no references are made to earlier submitted reports.	Has been corrected.
The proposed projects are for a part financially covered by a subsidy of the Government of India, this is not realistic unless this can be substantiated.	Has been corrected. See next remark below.
The financial impact of the proposed projects and the proposed capital dredging (chapter 3.11) do not seem to be incorporated in the financial projections, if this is true the financial projections have no value.	The funding of capital dredging is assumed to come from a Government Grant. It is however questionable if it is correct to ask for a Government Grant if the CoPT has enough means to fund the project.
The above 3 issues are of vital importance and therefore this Draft Final Report is of insufficient quality.	Has been improved sufficiently
The mission is ambitious considering other major ports along the West coast (JNPT).	As in DFR
No vision revealed on outsourcing of commercial port activities in paragraph on Vision.	As in DFR
Proper maps of the port (present port layout, land use, infrastructure, masterplan, outline plans of listed main projects) are missing. Zoning plans on page 44 and 48 are the only outline figures (maps) in the report.	Has been corrected, although there is still room for improvement
The report is transparent and in proper English.	As in DFR
Recommendations on organisational changes have been included, though recommendations do not always match the proposed main organisational change from a service port organisation to a landlord port authority.	Has been corrected
Discussion on labour redundancy and the financial burden of pension obligations have not been included in this report.	Has been corrected
No relation is given between forecast and extent of required port facilities.	Has been corrected. Calculations on required capacity of general and dry bulk cargoes need to be

	considered as very optimistic with average unit weights per cycle of 8 to 15 tons for general cargoes and 10 to 35 tons for dry bulk cargoes.
Environmental implications have been included, however possible morphological effects due to substantial developments along the coast line like breakwater construction have not been listed	As in DFR
The proposed degree of investments of CoPT as facilitator of economic activities does not give the impression to match the long term vision statement (economic development facilitator).	As in DFR
Specific remarks	
	Consultant has taken note of the comments of Advisor on the Draft Final Report.
	Forecast of cruise vessels (page 73) shows sudden changes (growth) in 2009-10 without proper explanation.
	No information has been provided on Government policy, regulations and restrictions with regard to cabotage in the relevant chapter on transshipment of Indian containers.

Financial Remarks Draft Final Report Cochin	Financial Remarks Final Report
A systematic list of assumptions is missing.	Information has been added
In chapter 2 the financial aspects of the investments are described for 4 projects: Cruise terminal Bunkering Terminal Free trade zone Business district. In chapter 1.5 sources of finance a summary of new projects is given.	Information has been added
For the cruise terminal the Capex is Rs 54,5 crores. Neither the summary in chapter 1.5 neither the financial coverage in chapter 2 gives a clear picture. Our impression is that CoPT will finance the investment for 65% (35 Crores) of which 50% comes from a Grant from the Government of India. This is unlikely, not substantiated and explicitly ruled out in the TOR of the consultant. The other 50% should come from internal resources of CoPT, however in the projected financial accounts (annexes IV, V and VI) this has not been indicated. The other 35% (19 Crores) should come from PPP, 20% of this amount is supposed to come from a Grant	The calculation for the Cruise Terminal has been restructured and this gives a clear picture. On page 205 the IRR for the Cruise Terminal Operator is calculated with a 10% Grant from the GOI, which improves the IRR and the NPV. However in the same line the grant is mentioned as an Equity Grant. What is an Equity Grant? If an equity Grant is meant as a participation of the

<p>from the Government of India; this again is highly unlikely and not substantiated.</p>	<p>GOI in the equity this does not make a difference in the IRR and the NPV.</p>
<p>For the Bunkering terminal the Capex is Rs 93,27 crores. The financial coverage should come from PPP, 20% of this amount is supposed to come from a Grant from the Government of India; this again is highly unlikely and not substantiated. CoPT is not on the list of investors.</p>	<p>The calculation has been restructured and this gives a clear picture. The conclusion of the Consultant is that the project is only feasible for a scenario with a total throughput of 79 MT for 20 years. A market study is recommended and a tender among established oil companies. The market study seems to be superfluous as the oil company would be in a much better position for the market study. It is suggested to make the market study an integrated part of the tender procedure.</p>
<p>For the Free Trade Zone the Capex is Rs 16,24 crores. The financial coverage should come from PPP, 20% of this amount is supposed to come from a Grant from the Government of India; this again is highly unlikely and not substantiated. CoPT is not on the list of investors.</p>	<p>Project seems to be cancelled.</p>
<p>For the business district the Capex is Rs 279,55 crores. The financial coverage is supposed to come from PPP for 100%. CoPT is not on the list of investors</p>	<p>As in Draft Final Report</p>
<p>Chapter 3 gives a detailed action plan. Apart from the projects in chapter2, 4 more projects are handled: Container Terminal SBM LNG terminal LPG terminal The financial implications from these projects for CoPT are not covered in the report.</p>	<p>As in Draft Final Report. A proper motivation has been given for the absence of the calculations.</p>
<p>Chapter 3.11 handles the dredging requirements. An estimate of the expenditure is: 2007-2009 Rs 150 Crores After 2014 Rs 230 Crores. These amounts are not found in the financial accounts.</p>	<p>The funding of capital dredging is assumed to come from a Government Grant. It is however questionable whether it is correct to ask for a Government Grant if the CoPT has enough means to fund the project.</p>
<p>Figure 3.2 on page 44 shows a new breakwater, however this is nowhere described and no cost estimate has been mentioned.</p>	<p>As in DFR</p>
<p>Page 29 The first line of project financials says that the IRR is 15,63%.</p>	<p>Has been corrected</p>

<p>It is also stated that the NPV is positive discounted at 16,55%.</p> <p>This cannot true, if a discount rate is higher then the IRR the NPV is negative.</p>	
<p>Projected financial accounts (annexes IV V and VI)</p> <p>The financial accounts are in line with the format in the information outline.</p> <p>Some items need more clarification:</p> <p>The revenues include wharf handling including wharf handling from PPP projects; however as a landlord and not being on the list investors it is highly unlikely that CoPT will receive those revenues.</p> <p>Only 1 new investment has been taken into account (an amount of Rs 35 Crores in 2009). It is not clear if there is a relation with any of the mentioned projects.</p>	<p>A serious error in the calculation of the revenues has been made, the port dues are added twice for all the years in the projection. This error has a severe impact on the revenue, the net result and all other financial figures. The error ranges from Rs 24 crores in 2008 to Rs 265 crores in 2027. This was corrected in a new version of the financial model. However in the new version there is an error in the calculation of the net earnings where the depreciation of the new assets has not been taken into account.</p>
<p>The details for:</p> <p>Fixed assets</p> <p>Categories of costs</p> <p>Equity and reserves</p> <p>As required in the information outline are missing.</p>	<p>Information has been added</p>
<p>Page 20: Tables on page 20 and 23 are not consistent.</p>	<p>Tables have been removed</p>
<p>Page 29: Relation between NPV, IRR and discount factor not clear for this project.</p>	<p>Has been corrected</p>

Major Remarks Financial Model Draft Final Report	Major Remarks Financial Model Final Report
<p>The financial model has not been received.</p>	<p>Financial model has been received and is adequate.</p>

7 Tuticorin

7.1 Mission, Vision and Strategy

Mission

'TPT shall be South India's Quality leader in General and Bulk cargo and the High Speed Container Pipeline Provider for the Indian backbone'

Vision

- To be the preferred distribution hub of India

Goals

- Enhance Customer attractiveness;
- Market oriented planning;
- Increase operating efficiency;
- Strengthen competitive position;
- Attract investments;
- Better utilize IT facilities.

7.2 Competitive Position

With respect to exports and import, TPT is in a better position overall against Port of Cochin and Chennai. But for the scale and magnitude of infrastructure and operations, it scores over Chennai in terms of efficiency and performance. Compared with Cochin, TPT scores well on almost all the factors. Chennai has problems of congestion and capacity saturation. This may mean more traffic diversion to TPT in the future. Also, direct ship calls at EU and US is a big advantage for TPT. TPT scores over all other Ports in terms of market image. Marketing efforts of TPT are recommended. TPT has much less labour issues with workforce than the other Ports. Two major bottlenecks for TPT are hinterland rail connectivity and higher Port dues and charges.

For transshipment market, TPT's current situation is better than Cochin but nowhere near Colombo, if it has to become a transshipment hub Port of South-East Asia. The planned Port of Vizhinjam has much better chances with over 20 meters of natural draught.

The competitive mapping has been covered under 10 major areas in case of exports/imports and 8 major areas in case of transshipment, which determine the choice of Port by the customers and each area has its sub areas upon which each Port is being evaluated and measured against each other. The Consultant considers three major competing ports for export imports; Tuticorin, Chennai and Cochin. As part of the analysis for Tuticorin's competitive situation for developing as a transshipment hub, Port of Colombo has also been considered along with Cochin and the planned new Port of Vizhinjam. The overall results of the analysis have been summarized in the table below.

Competitive factors (Best performer listed in each category)	Container Exp/Imp	Bulk Exp/Imp	Transshipment
Proximity to Market Clusters	Chennai	Chennai	N / A
Port Infrastructure	Chennai	Chennai	Colombo / Vizhinjam
Handling Capability	Chennai / TpT	Chennai / TpT	Colombo
Costs	Chennai	Chennai	Chennai
Customs	TpT	TpT	N / A
Value Added Services	TpT / Chennai / Cochin	TpT / Chennai / Cochin	Colombo
Direct Ship Calls to US & EU	TpT	N / A	N / A
Labour Productivity	TpT	TpT	TpT
Market Orientation / Customer Attractiveness	TpT	TpT	Colombo

Table 7.1 Competitive position

In case of transshipment market, TPT's current situation is better than Cochin but nowhere near Colombo, if it has to become a transshipment hub Port of South- East Asia. The planned Port of Vizhinjam has much better chances with over 20 meters of natural draught.

The impact of the Sethusamudram channel project would be its easy access to the East coast of India. The Consultants foresees major advantages in terms of increased cargo throughput due to the shorter maritime route to the major ports on the East coast.

Comments of Advisor:

This is not very clear. In particular for the Northern ports of Chennai (containers) and Visak (bulk, containers) it is expected that these ports might become more attractive than Tuticorin for Northern bound cargo.

The SWOT analysis for the Port of Tuticorin is presented as follows:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Geographic advantage <ul style="list-style-type: none"> ○ Close to main shipping lines, all weather port ▪ No maintenance dredging costs ▪ Availability of Land for future expansion / upgradation. ▪ High level of overall efficiency: <ul style="list-style-type: none"> ○ Especially in container handling operations ○ Only few labour problems ○ Fast and co-operative customs operations ▪ Proactivity <ul style="list-style-type: none"> ○ From Port in marketing and managing customers ○ From trade entrepreneurial trade community 	<ul style="list-style-type: none"> ▪ Infrastructure: <ul style="list-style-type: none"> ○ Draft limitations ○ High dredging costs due to rock and limestone harbour bed ○ Insufficient gate capacity ○ Evacuation problems, congestion ○ Old and outdated handling equipment " inefficiencies break bulk ▪ Poor rail connectivity to important hinterland industrial clusters ▪ Comparatively high port dues ▪ Trade imbalance in containers ▪ IT infrastructure <ul style="list-style-type: none"> ○ Poor with legacy systems delivering no real time information flow
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Construction of Outer Harbour <ul style="list-style-type: none"> ○ Catering not only for domestic containers but also international transshipping ▪ Development of Tuticorin as Distribution Hub <ul style="list-style-type: none"> ○ Short term for South India ○ Mid and Long term for Central and even Northern India ○ Integrating value added services ▪ Development of Tuticorin as "Power Hub" ▪ Proactive attitude of Tamil Nadu Govt <ul style="list-style-type: none"> ○ Industrial development and attracting FDI ▪ Development of Sethusamudram Channel 	<ul style="list-style-type: none"> ▪ Time <ul style="list-style-type: none"> ○ Action must be taken soonest to develop advantage ▪ Competition <ul style="list-style-type: none"> ○ Many ports in vicinity vying for same immediate hinterland area ▪ Dependence on "political" goods <ul style="list-style-type: none"> ○ Thermal coal, fertilizer, wheat, sugar ▪ Shipping trends <ul style="list-style-type: none"> ○ Larger vessels ○ Direct shipments to and from other Indian ports

Table 7.2 SWOT analysis for the Port of Tuticorin

7.3 Cargo Forecast

Thermal coal unloading at the Port of Tuticorin is driven by the plans for additional capacity of thermal power plants in the immediate hinterland. The import of industrial coal depends on the developments in the cement and paper industry in Tamil Nadu.

The imports of FRM (Fertiliser Raw Material) are related to the fertiliser production industries (SPIC and TAC). It is expected that this market remains stable. The import of finished fertilisers will grow in line with the growth of agriculture in the region. Copper concentrate imports are related to the planned productions at Sterlite company, while timber and logs demand follow the construction and furniture industry. Development of refineries are not expected near Tuticorin and therefore a substantial growth in POL handling is not expected. The container market is driven to a large extent by the garment industry. A well developed hinterland network is expected to boost the import and export of containerised cargoes. Transshipment is expected to be attracted as well. The cargo forecast for the port is indicated in the table below.

	2007-08	2011-12	2025-26
POL – Product & Crude	0,80	0,90	1,40
Iron Ore	0,00	0,00	0,00
Coal	7,50	11,40	20,20
Fertilisers	1,50	1,70	2,50
Container Traffic	4,90	9,10	36,80
Other Cargo	6,50	7,70	10,90
Total Throughput	21,20	30,80	71,80
Container M TEU	0,46	0,84	3,08

Table 7.3 Cargo Forecast Port of Tuticorin in Mtons

7.4 Port Facilities

The Port of Tuticorin is located on the Southeastern coast at some 130 nautical miles from the international mainline shipping route from East to West.

The port is an artificial harbour with sheltered water between almost parallel breakwaters of some 4 km length. The distance between the breakwaters is 1.275 m. The approach channel has a length of 2,4 km, a width of 183 m and permits a draft of 12,5 m. The harbour basin between the breakwaters has a maximum depth of 10,7 m and a turning circle diameter of 488 m.

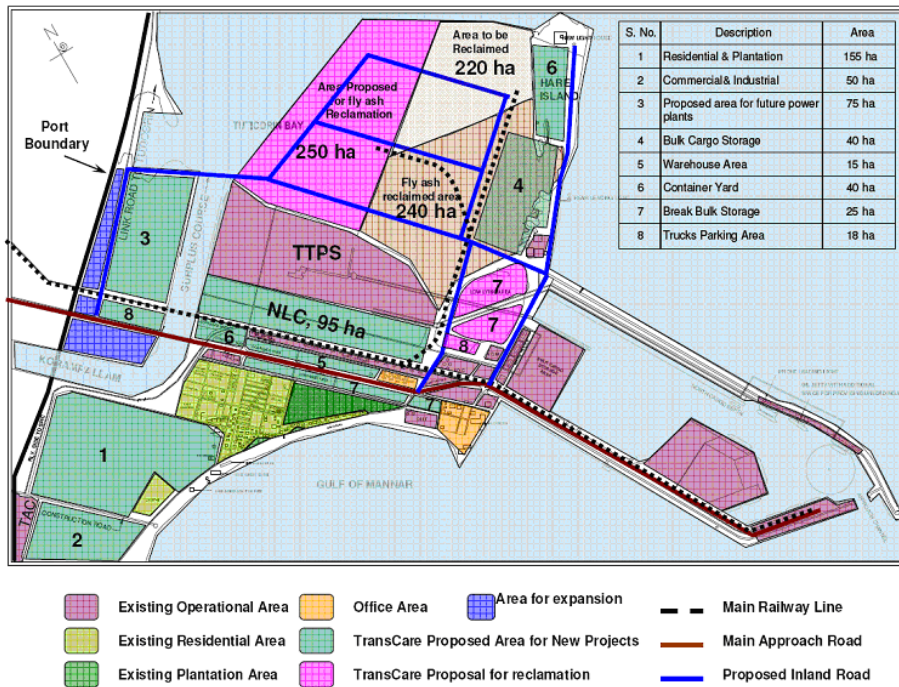
The port has 8 berths with a max permissible draft of 8,6 m to 10,9 m and total quay length of 1.770 for the handling of dry bulk, breakbulk and containers. Containers are handled at a dedicate container terminal behind berth no 7.

Furthermore the port has two shallow water berths, an oil jetty and two (thermal) coal jetties. The unloaded thermal coal is transported via hopper and conveyor belt systems to the adjacent power plant.

The port has a lack of storage area near the berths. A bulk storage area is located at some 3 km from the berth area resulting in a large fleet of transport trucks and in heavy traffic within the port area.

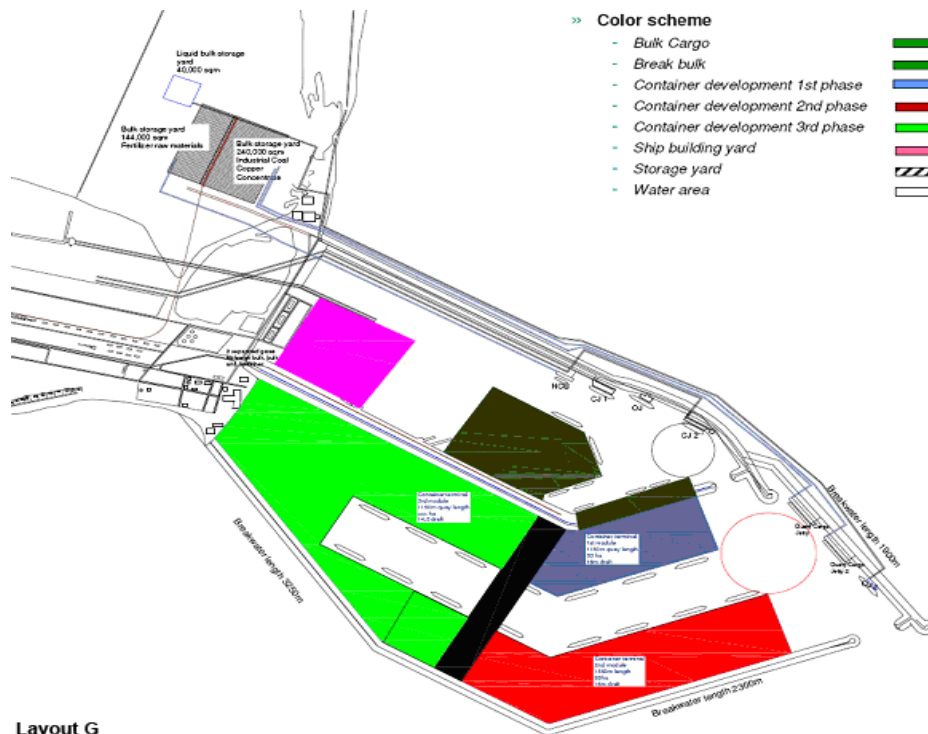
7.5 Port Planning

Proposed layouts of the short term and long term (Masterplan) are indicated in the two figures below.



Transcare Proposal - Land Use Plan for Tuticorin Port

Figure 7.1 Future Layout Port of Tuticorin



Layout G

Figure 7.2 Masterplan Port of Tuticorin

Berth requirement has been derived from the forecasted volumes and berth productivities. National and international benchmarks have been used as reference for berth productivity figures.

The long term land use plan as described by Consultant focuses on the future demand of the container business and the development of the outer harbour.

Proposed Projects:

- Deepening of existing channel and harbour basin;
- Development of outer harbour;
- Conversion of berth 8 into Container Terminal 8;
- North Cargo Berth for thermal coal handling.

Comments of Advisor:

- *Outer harbour developments required long and expensive breakwaters;*
- *Terminal development is focussed on expansion container handling facilities;*
- *Interesting Railway “backbone” concept for South India;*
- *Feasibility of application of fly ash for land reclamation to be investigated;*
- *Impact of outer harbour on tidal currents to be investigated.*

7.6 Hinterland Connectivity

The Port of Tuticorin has connections with the hinterland via road and railway networks. The road connection is via two 2-lane national highways to the main national highway. The connection to the main rail link is via a single railway line.

The share of cargo for captive industries is some 50%. This cargo is transported by road, conveyor system or to a minor extent pipeline. 70% of the captive cargo is related to thermal coal volumes. Of the non captive cargo some 90% is transported to and from the hinterland by road.

Connectivity plans have been drawn up to support the development of Tuticorin as major distribution hub for South India and the entire country. Besides a perfect road infrastructure to serve the existing hinterland within a radius of about 1,000 km the railway connectivity has to be in a good shape regarding infrastructure as well as operations. Consultant recommends the Tuticorin Port Trust to take stakes into network development together with railway and logistics operators to serve central and North India via rail.

The long term connectivity plan has to support the development of Tuticorin as major distribution hub for South India and the entire country. Besides a perfect road infrastructure to serve the existing hinterland within a radius of about 1,000 km the railway connectivity has to be in a good shape regarding infrastructure as well as operations. Therefore it is highly recommended to take stakes into network development together with railway and logistics operators to serve central and North India via rail.

7.7 Port organisation and institutional setting

Port organisation:

On the internal organisational structures, some of the observations were:

- Though planning is done for 20 years and 5 years with a break up of each year, the detailed corporate planning is not in place;
- Corporate Plan should include the organizations' long and mid term goals and strategy along with a detailed traffic and revenue projections. Objective and strategy of each department should be drawn in detail. But it has not been followed by the Port;
- There is no clearly defined corporate performance measurement system that would help the organisation to measure its goals/ objectives;
- Master planning is not performed on a regular basis. Market changes are not incorporated in the master plan that was conducted by IPA;
- There is no project management tool in place.

Institutional setting:

The Consultant made some clear observations in the Business Plan:

- The port does not have full autonomy to decide and to take its own decision for the key projects that are critical for the competitiveness of the port;
- The Ministry (GOI) has full control over the ports critical projects but the approval process takes minimum three years;

- Even when TPT is planning to finance projects from its own resources it has to wait for the Ministry's approval;
- New policies prepared at central level are not clearly communicated to the ports. Hence the port has to find out itself how to adapt to the new changes;
- Tariff fixation is not under port control. TAMP controls the tariff fixation based on some key parameters. The port can not set its own tariffs. Even when the port wants to lower its tariffs it has to go through a rigorous process.

Comments of Advisor:

These institutional aspects clearly give an impression of the tension between the Ministry / Central Government and TPT. Consultant does not come with recommendations on how to improve the institutional setting in such way that it would benefit trade and speed up the processes related to critical projects to be executed in the port.

7.8 Financial Issues

7.8.1 Profit and loss account

The projected profit and loss account for Tuticorin Port Trust is in table 1

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenu								
Port dues	26	32	36	39	44	49	53	168
Other dues	63	74	78	86	99	108	117	369
Stevedoring revenue	74	76	64	66	82	85	89	129
Storage	4	4	4	4	5	5	5	10
Wharf handling								
Concession fee	30	42	63	78	91	105	118	508
Other operational income	6	6	6	6	6	7	8	27
Total operating revenue	203	235	251	279	328	359	389	1.211
Expenses								
Salaries	26	25	25	24	24	24	23	36
Social charges and pension premiums	19	20	21	22	23	24	26	46
Running costs	23	30	36	45	52	55	58	138
Administrative costs	12	14	16	18	21	23	26	91
Other costs	2	3	3	4	5	6	6	29
Total operating costs	82	93	101	113	125	132	139	340
Operational net earnings before DIT	121	142	150	165	203	227	250	871
Other income	25	26	27	28	29	30	32	49
Net earnings before DIT	147	168	177	194	232	257	281	921
depreciation	11	11	22	22	23	57	57	78
Net earnings before it	136	157	155	171	210	200	224	843
Interest	-7	-6	-39	-37	-35	-135	-131	-1
Net earnings before tax	128	152	116	134	174	65	93	842
Tax	45	53	43	49	62	29	38	281
Net earnings	83	99	74	85	112	36	55	561

Table 7.4 Projected profit and loss account

7.8.2 Balance sheet

The projected balance sheet for Tuticorin Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	733	1.017	1.567	2.117	2.587	2.605	2.565	3.164
Investments	215	215	215	215	215	215	215	215
Current assets	70	80	85	94	110	120	129	387
Liquid means	16	6	-108	-195	-249	-281	-225	1.106
Total assets	1.034	1.318	1.759	2.231	2.662	2.658	2.685	4.872
Equity and liabilities								
Equity	81	169	341	520	668	743	748	1.462
Reserves	587	597	499	406	371	331	381	3.326
Total own equity	668	767	840	926	1.038	1.074	1.129	4.788
Provisions	22	22	22	22	22	22	22	22
Long term loans	287	467	830	1.209	1.523	1.480	1.450	-84
Short term liabilities	57	62	67	74	79	82	84	146
Total equity and liabilities	1.034	1.318	1.759	2.231	2.662	2.658	2.685	4.872

Table 7.5 Projected Balance sheet

7.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Tuticorin

RS Crores

Tuticorin	Timing	Investment costs			IRR
		Total	Port Trust	Private	
Cargo berth No 9	2007-09	40	40		9%
Shallow Berth - 3 Nos	2007-09	30	30		15%
North Cargo Berths	2007-11	60	60		14%
Dredging	2007-09	450	450		
Upgradation of C-J-II	2007-08	7	7		23%
Conversion of CB8 to CT8 (Rs Crores 30 in 2006-07)	2006-09	150		150	10%
Outer Harbour - Phase I	2009-14	1788	1638	150	12%
Outer Harbour - ICJ (Rs Crores 24 in 2014-15)	2013-15	36	18	18	12%
Provisions for investments	2012-13	75	75		
Total investments in fixed assets		2.636	2.318	318	

7.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 33 Crores to Rs 85 Crores. The level of investments with internal funding is substantial. The solvency is 42% in 2013-14. The borrowing capacity is absorbed for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity are presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	231
Available for investments IPA 10-4	253
blocked for pensions etc	-22
Investments in financial assets 2014	215
Liquid means 2014	-225
Available funds	-9
Blocked for pensions	-22
Available for investments 2014	13
Equity = borrowing capacity	1.129
Existing loans	1.450
Balance	-321
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	13
From unused borrowing capacity	-321
Total available for investments in fixed assets in 2014	-308

Table 7.6 Available funds for investments in fixed assets

7.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Tuticorin	General Remarks Final Report
The report is reasonably well structured and clearly written. SWOT, mission, vision goals are described in latter part of report. Findings on SWOT have not been summarised in Summary.	Has been corrected
Mission statement is expressed in less professional way.	As in DFR
A proper summary is included. Tables in summary are without number and title.	Has been corrected
An abbreviation list is included though a number of abbreviations in the text has not been included in the list. When using abbreviations preferably explain first time the abbreviation is applied.	Has been corrected.
Proper Figures provided in section on land use (1.8).	As in DFR which is ok
Trade and traffic forecast and competitive position are provided in a structured and clear way.	As in DFR which is ok
Figures on forecast of container volumes are confusing with respect to domestic, transshipment, total, throughout the report and in particular in page 61.	Has been corrected
Illustrative schemes have been provided on commodity flows in section 1.6.	As in DFR, which is ok
No clear translation has been included from the forecast to physical port requirements and land use plan.	As in DFR
Interesting illustrative options provided on long term development (page 121-127).	As in DFR, which is ok
Interesting description of process of masterplanning and short term planning and observations Consultant (page 140-144).	As in DFR, which is ok
The Sethusamudram channel project is not mentioned.	Has been corrected
Project titles are not consistent in tables (f.e page 185) and text. This does not lead to easy reference, comparison and understanding.	Has been corrected
Erode is mentioned (page 105) as a consolidation point for the major (and minor) ports in South India. And the starting point of the "backbone". Development and operation of such strategic point should probably/preferably from a national point of view be organised by the various stakeholders including all relevant ports. Intention of Tuticorin Port as exclusive developer described on page 181 does not fit such strategy.	Has been corrected

General Remarks Draft Final Report Tuticorin	General Remarks Final Report
Specific remarks	
Page 46: Berth occupancy of container terminal reported to be 37%. This is high considering volume of 321,0000 TEU on 370 m quay length.	Not explained, though statement added that berth 7 is combination of 7a and 7b (page 51).
Page 107: Environmental impact of dumping fly ash has not been mentioned throughout the report	As in DFR (page 115)
	On page 114 a map has been added to present the zones A and B, which is OK

Financial Remarks Draft Final Report Tuticorin	Financial Remarks Final Report
The financial part of the report is adequate to serve as a financial body for the business plan.	As in DFR
Chapter 2.4.6 handles the financial strategy; most of the content is textbook knowledge.	AS in DFR
The last page handles the actual proposed strategy. It is concluded that only 10% of the investments comes from internal resources.	Increased to 80% from internal resources and borrowing
The end of the chapter gives a firm statement: <i>The basic principle in all the Port's investments should be to plough back its earnings, make the PPPs more attractive and, get a share of the profits and not just rentals from the new projects.</i> This is recognised, agreed and supported; however it does not reflect in the business plan.	Adapted
Chapter 2.5 handles the major projects. One of the projects is deepening of the approach channel. In the financial evaluation is stated that there will be an increase in vessel sizes. (from 28 KGRT to 35 KGRT.) The revenue sharing for the calculation of this project has been taken into account for the part of the increased 7000 KGRT. The extra revenue however does not come from bigger parcels but from more traffic. In order to get a more accurate estimate of the extra revenue, the calculation could be made in 2 scenarios, one including the project and one excluding the project. The funding of the project takes into account a Government Grant of 50%, which seems to be unrealistic and unnecessary.	Internal resources and borrowings replacing Government Grant
Another project is outer harbour development. The funding of the project takes into account a Government Grant of 50%, which seems to be unrealistic and unnecessary.	Call for Government Grant is restricted to break water, dredging and reclamation
Some tables have no headings and no numbers.	Has been corrected

Financial Remarks Draft Final Report Tuticorin	Financial Remarks Final Report
<p>The headings of the projects and sometimes the content are not in line with the summaries (page 185), for instance: Chapter 2.5.5 and Annexure VI Chapter 2.5.3 and Annexure VIII (IRR and NPV) Chapter 2.5.6. and Annexure III</p>	
<p>Most calculations are made in Rs, however sometimes the result is in US\$, this is confusing. It is better to use one type of currency.</p>	As DFR
<p>The discount rate for the calculation of NPV's is not mentioned.</p>	Information added
<p>134 FA & CAO is described, the financial discipline is underestimated certainly in view with the remarks on page 147.</p>	As in DFR
<p>The names for the projects in different tables and annexes are not in line with each other.</p>	Has been corrected
<p>Projected financial accounts The statement of accounts is in line with the format in the information outline. The details for Categories of revenues Categories of costs Long term liabilities Equity and reserves as required in the information outline is missing. In order to keep the wording of chapter 3 intact these details could be integrated in an annex.</p>	Information has been added
<p>The relation between the selected projects and the financial accounts is not clear. It is recommended to make 1 table where all projects are included and where the funding is separated between the port and the third party and where the investments are summarised per project and per year.</p>	Information has been added
<p>The liquid means are projected at Rs 40 Crores in the 2007, at the end of the 7-year period this is increased to Rs 365 Crores. In the year 2028 this is increased to Rs 6.343 Crores. On top of that the investments are Rs 339 Crores, this amount is stable during all the years in the projections. It is not realistic to ask for Government Grants and to increase the loans with so much money in the bank.</p>	Adapted, now it is more balanced
<p>Under liabilities in the balance sheet there is an employee benefit fund amounting to Rs 129 Crores, which is stable during all the years in the projections. What is the purpose of this fund and why is it stable?</p>	As in DFR

Major Remarks Financial model Draft Final Report Tuticorin	Major Remarks Financial Model Final Report
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The financial model is adequate to calculate the projected financial accounts; however the figures in the model are not in line with the figures in the accounts.

The project loan in the final version of the financial model gives a negative value, which is incorrect.

The liquid means in the period 2009/2010 until 2012/2013 are negative. It is not clear how this gap will be financed

8 Chennai

8.1 Mission, Vision and Strategy

The vision statement of the Port of Chennai is:

"To be recognised as a futuristic port with a foresight".

The mission statements are as follows:

- Achieve excellence in port operations with state-of-the-art technologies. Enhance competence and enthuse workforce to maximise customer satisfaction
- Anticipate and adapt to the changing worldwide scenario
- Act as a catalyst for sustained development of the region

The core values that accompany these visions are integrity, proactive, professional, committed and conscious of environment / social obligations.

As a strategy ChPT chooses to focus on becoming a clean port with a focused attention on container handling, automobile exports and cruise terminal operations. It sees itself operating in a market where more likely than not, iron ore exports face restrictions either in view of environmental pressures or due to economic and political reasons. So also it anticipates the coal cargo to be gradually phased out in view of the environmental pressures on a city port and emerging alternative capacities in the vicinity. It shall move away from such cargo operations in a phased manner and over a period of time.

In keeping with its vision of becoming a "Futuristic Port with a Foresight" the port wants to change its image and undertake several strategic initiatives which will position it as such. In view of the fact that such transformation hinges more on changes to the way of doing things, to its approach, rather than a long list of physical infrastructure projects alone, it shall undertake several 'soft' initiatives like organizational reforms, systems reengineering etc.

Comments of Advisor:

During the process of the development of the business plan, the Consultant has shifted from an approach whereby the port was focusing on handling the same commodities as present, to a clear choice for clean cargo as described above. In addition the Consultant was of the opinion that in particular organisational improvements were required for Chennai Port Trust, and that infrastructural works etc were of less importance. The Advisor did not share this opinion, after which the strategy to become a clean port was chosen. This shift was made in a relatively short time.

8.2 Competitive Position

Ennore was originally conceived as the satellite port of Chennai to handle the dusty coal and iron ore. Ennore has already succeeded in diverting the coal cargo from

Chennai. Even though the shift of iron ore cargo from Chennai to Ennore has been virtually not there at present, the project to be implemented by PSA SICAL at Ennore will definitely start the trend in next two years. Ennore port has identified its role to be the energy hub port and planned for projects like LNG terminal and marine liquid terminal. Ennore being promoted as dirty industrial port, the Consultant is of the opinion that it is very unlikely that categories like cars will move there. Also the POL traffic of Chennai, if it at all moves out, it will shift to a SBM, and possibly not to Ennore.

While both Ennore and Tuticorin pose competitive threats to ChPT, Tuticorin is perceived to be major threat to Chennai in terms of containers compared to Ennore, because the projects at Ennore might take some time to be implemented. This was the result of the initiative taken by Tuticorin Port to privatise and improve the efficiency in the container terminal. Tuticorin is a competitor for Chennai mainly for container cargo originating from South of ChPT. Tuticorin Port has plans for further expansion in capacity for containers, coal and POL products. Tuticorin port is not directly exposed to cyclone induced delays, unlike Chennai.

Cochin, being just 11 nautical miles from international sea route, has planned for major projects including a trans-shipment hub to explore the opportunities offered by its geography. Cochin has identified big ticket infrastructure projects under SEZ led port development plan. However the cargo hinterland for this projects and the very nature of the same being a transshipment port should pose no great challenge to Chennai.

Mangalore does not share a major common hinterland with Chennai and therefore is not considered to be a threat to Chennai.

ChPT has identified its role to be a hub port in the Indian subcontinent on the Eastern coast, However, Chennai will face competition for container cargo, coal, iron ore and POL products. In the nearby hinterland area, Chennai has the presence of global vehicle manufacturing giants. Hyundai has also signed a MOU with Chennai guaranteeing traffic at Chennai. Chennai, therefore, enjoys a strong competitive advantage so far as automotive exports are concerned.

As far as international ports are concerned, ChPT faces stiff competition from these ports for attracting main line vessels. Chennai is greatly hampered by its location which is not on the international maritime route.

ChPT will face threat from new entrants which are non-major ports of Tamil Nadu and other neighbouring states and upcoming projects of major ports in the region. The Consultants' analysis suggests that non-major ports in the hinterland area of ChPT are fast moving forward to grab traffic by providing special service options like developing Single Point Mooring (SPM) for different customers. The state government policies for greater private sector participation have been the catalyst for such development. However, the efficient facilities provided by ChPT will help in maintaining the existing tonnage growth. The non-major ports will take some time to attract a large customer base.

Amongst upcoming minor ports, biggest threat is likely to come from Krishnapatnam Port. The port is designed with deep draft to handle ships of size up to 200,000 DWT. The port is targeting iron ore cargo from Bellary – Hospet region in Karnataka, coal cargo for power plants and cement plants in the nearby areas and other minerals cargo originating from Andhra Pradesh. Krishnapatnam has a total cargo potential of about 20 M tons per year in the short term and over 37 M tons in the long term. The

port has expansion plans to build up to 30 berths and has 4000 acres of back-up area. The phase I of the port development will be completed by 2008. Krishnapatnam port has the potential to attract iron ore cargo of ChPT. Contrary to this the Consultant does not envisage any threat from Krishnapatnam for container cargo.

Apart from non-major ports, the Sethusamudram Project is expected to result in acting as catalyst for rise in coastal trade. Some 4 M tons of traffic can be diverted to coastal route without increasing the transportation cost, and if the capacity planning is done in a proper way, coastal traffic can go upto 10 M tons by 2012. The beneficiaries of the coastal trade will be all the major ports as well as non-major ports along the route. The impact of Sethusamudram project on coastal trade and on facility planning at ChPT needs to be studied.

A SWOT analysis was carried out. The most important strengths, weaknesses, opportunities and threats are:

Strengths	Weaknesses
<p>The stakeholders consider Chennai's monopoly position because of its geographical location as its major strengths. Other strengths are:</p> <ul style="list-style-type: none"> ▪ Dedicated facilities for handling all major cargo types ▪ Good multimodal connectivity ▪ Long term agreements with users like CPCL and Hyundai ▪ Best location on the East Coast for cruise operations in view of good air connectivity and proximity to cruise destinations ▪ Sufficient reserves & surplus 	<p>The stakeholders consider the road connectivity and related traffic congestion as the major weakness of the port. Others are:</p> <ul style="list-style-type: none"> ▪ Traffic evacuation not allowed during the day time ▪ Restricted land availability ▪ Sub-optimal usage of rail connectivity ▪ Exposure to dust & saline environment ▪ Perceived need for improvement in service levels ▪ Low efficiency and high tariffs levels ▪ Surplus labour
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Positive economic environment in the years to come with an anticipated 7% GDP growth rate ▪ Increasing containerisation and good forecasted demand ▪ Strong forecasted growth in automobile exports ▪ JV or strategic investment with minor/ intermediate ports ▪ Better road connectivity after construction of proposed road projects ▪ Facilitate cruise tourism ▪ Public-private partnerships 	<ul style="list-style-type: none"> ▪ Competition from major ports specially from Ennore and Tuticorin port ▪ Competition from minor ports mainly from Krishnapatnam ▪ Expected ban on export of minerals

Table 8.1 SWOT analysis for the Port of Chennai

Comments of Advisor:

The Advisor has the impression that the general opinion of the Consultant and the ChPT is that he who builds first, will get the cargo. It should be mentioned that such competitive advantage is only temporarily, in particular when footloose cargo like containers are involved. Also with respect to the car terminal that could be built in the vicinity of Chennai, the chances of Ennore should not be under estimated since the hinterland connections of the Port of Chennai pose a serious problem for such activity.

8.3 Cargo Forecast

The major commodities handled at the port at present are:

- Containers;
- Automobiles (export);
- POL;
- Iron ore;
- Fertilisers (products and raw materials);
- General cargoes.

The Port of Chennai is the second largest port in India in terms of cargo handled reaching the milestone of 50 M tons per year in 2006-07. The port is the first port in India to start handling containers (1983).

The present handling operations related to iron ore and coal create a lot of dust within the port area and in the surrounding urban area. Besides this it demands relative large storage areas. Coal handling therefore has been identified as a port activity that should be ceased for this reason. The nearby Port of Ennore can create the capacities and seems to be the logical location to shift these handling operations.

Growth rates have been defined by Consultant for the various relevant commodities, while targeted traffic forecast have been derived by taking into account the extent of competition from nearby ports and by port policy aspects (ceasing the handling of dirty cargoes). In particular clean cargoes (containers and automobiles and POL are targeted commodities.

The forecast of the port is indicated in the table below.

	2007-08	2011-12	2025-26
POL – Product & Crude	14,01	15,00	20,00
Iron Ore	10,66	11,09	0,00
Coal	1,43	1,43	0,00
Fertilisers	0,00	0,00	0,00
Container Traffic	15,84	27,68	57,64
Other Cargo	12,81	8,97	9,47
Total Throughput	54,75	64,17	87,11
Container M TEU	1,32	2,31	4,80

Table 8.2 Cargo forecast Port of Chennai in Mtons

Comments of Advisor:

- Major decision has been made by the Port Trust to abandon the handling of dirty bulk cargoes (coal and iron ore) from the port;
- No synergy with the Port of Ennore has been considered;

- *Optimistic view has been expressed in the report with regard to the competitive position regarding container handling market.*

8.4 Port Facilities

The port basin is protected from sea and swell by breakwaters. The entrance channel is 7 km long with a water depth of 19,2 m. The port has 24 berths spread over three docks, i.e. Ambedkar Dock, Jawahar Dock and Bharati Dock. The maximum water depth available is 17,4. The total quay length available is some 5,5 km and the total land area is some 240 ha, which is relatively small in relation to the available quay length.

A second container terminal with an alongside water depth of 15,5 m is being developed at present by converting the existing East Quay, Naval berth and South Quay III.

The Bharati Dock with 1,9 km of quay length provides handling facilities for POL, containers and iron ore. The iron ore berth can cater for vessels with a draft up to 16,5 m. The available draft alongside the container terminal is 13,4 m.

A fishing harbour is located directly North of the commercial port.

The layout of the port is indicated in the figure below.

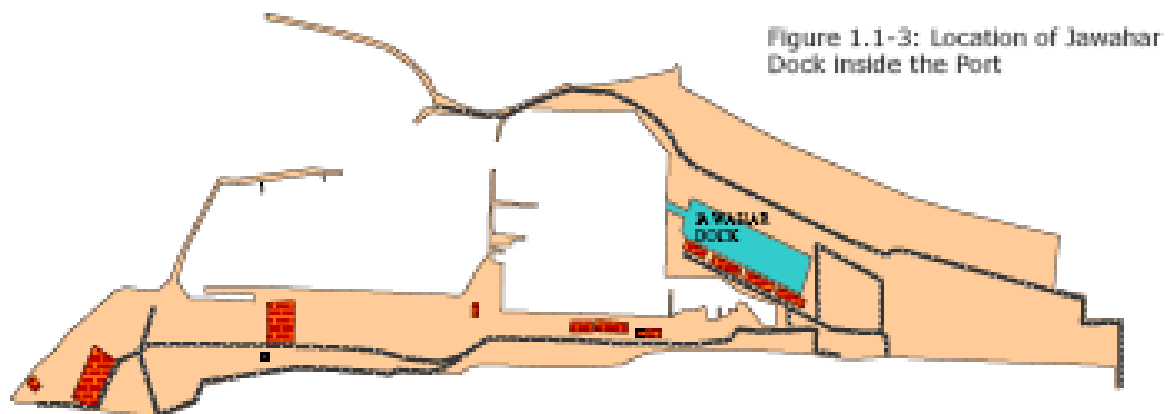


Figure 1.1-3: Location of Jawahar Dock inside the Port

Figure 8.1 Present layout Port of Chennai

8.5 Port Planning

Proposed Projects:

- Development of Container Terminals 2, 3, 4 and 5;
- Off-dock facility Tondiarpet;
- Ennore – Manali Road;
- Elevated Expressway to Poonamallee;
- Railway Terminal at Tondiarpet and shuttle train connection between Port and Railway Terminal;
- Cruise Terminal;
- Car Terminal and car parking facility.

Comments of Advisor:

- *Stacking areas are limited;*

- *Off-dock solutions for stacking result in double handling and are therefore expensive;*
- *National and state road and railway connectivity plans of prime importance.*

8.6 Hinterland Connectivity

The Golden Quadrilateral Road Project being implemented by NHAI connects Chennai to Kolkata and to Mumbai via Bangalore. Chennai is well connected to other major cities via the national highway network. The last stretches however of some 15 to 20 km connecting the highway network with the port through the city of Chennai are clogged and subject to traffic restrictions.

Presently the traffic from the North (Ennore Expressway) is through the entry of the fishery harbour which is narrow and which creates inconvenient traffic conditions.

The golden Quadrilateral will be connected to Poonamallee outside the city of Chennai. One of the plans therefore include the improvement (dedicated four lane elevated expressway) of the stretch of road between Poonamallee and the port.

The entrance to the port from the North is planned to be upgraded within the Ennore-Manali Road Improvement Project.

The Port of Chennai is connected to the national railway network via Chennai Beach Railway Station and via Royapuram Station. Presently the iron ore for export and the imported coal are transported via the railway mode.

8.7 Port organisation and institutional setting

With respect to the organisation of ChPT the Consultant comes with the following strengths and weaknesses:

Strengths:

- Well trained staff in Marine, Engineering, Traffic & Accounting;
- Good employment and training facilities;
- Transparency in operations;
- Good industrial relations;
- IT developments and automation;
- Sound financial position.

Weaknesses:

- Outdated environment development plan;
- High attrition of skilled workforce in Marine departments;
- Unstructured framework for internal communication;
- Succession planning not done by HR department;
- Failure to benefit from Treasury Department;
- Absence of internal audit department;
- Lack of customer focuses;
- Multiple regulatory bodies;
- Cumbersome business procedures;
- Ageing workforce and issues related to excess labour;
- Lack of computer training to the staff.

The Consultant proposes more than 40 projects to overcome the organisational constraints.

Comments of Advisor:

During the process it became clear that the Consultant's core expertise was on organisational issues. It is therefore not a surprise that many organisation related projects are proposed. The Advisor however is of the opinion that the number and the level of detail of these projects is not in balance with the non - organisational projects such as container terminal development and the like. In the course of the project the Consultant hired extra expertise to tackle the technical and port planning issues, in particular related to the container terminal development. In addition, institutional issues such as level of autonomy of ChPT in relation to the Ministry are not presented.

8.8 Financial Issues

8.8.1 Profit and loss account

The projected profit and loss account for Chennai Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	153	166	179	193	185	195	207	392
Other dues	65	70	71	90	90	91	95	143
Stevedoring revenue	33	35	37	39	30	28	29	14
Storage	22	24	25	26	20	19	19	10
Wharf handling	134	141	147	153	129	126	128	79
Concession fee	113	126	127	214	227	244	258	408
Other operational income								
Total operating revenue	521	561	587	715	681	702	735	1.045
Expenses								
Salaries	178	183	188	229	208	211	214	129
Social charges and pension premiums	52	53	54	66	116	60	60	28
Running costs	62	68	74	85	81	94	102	215
Administrative costs	46	51	56	64	62	72	78	162
Other costs	11	6	1	1	0	0	0	0
Total operating costs	348	361	372	444	467	437	454	533
Operational net earnings before DIT	173	200	214	270	215	265	281	512
Other income	68	55	65	72	87	102	126	607
Net earnings before DIT	241	256	280	342	302	367	408	1.119
depreciation	39	42	47	50	48	48	47	31
Net earnings before it	202	214	233	293	253	319	360	1.087
Interest	-2	-2	-1	-1	-1	-1	0	0
Net earnings before tax	200	212	231	291	252	318	360	1.087
Tax	67	71	78	98	85	107	121	366
Net earnings	132	141	154	193	167	211	239	721

Table 8.3 Projected profit and loss account

8.8.2 Balance sheet

The projected balance sheet for Chennai Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	760	786	859	878	829	781	734	243
Investments	2.123	2.304	2.452	2.700	2.929	3.275	3.628	10.136
Current assets	645	648	657	698	712	727	747	1.384
Liquid means	45	51	55	64	72	85	99	370
Total assets	3.573	3.790	4.023	4.340	4.542	4.868	5.207	12.133
Equity and liabilities								
Equity	24	24	24	24	24	24	24	24
Reserves	1.762	1.903	2.057	2.252	2.421	2.634	2.875	8.467
Total own equity	1.785	1.927	2.081	2.276	2.444	2.658	2.899	8.491
Provisions	1.522	1.591	1.661	1.745	1.804	1.882	1.960	2.700
Long term loans	16	14	11	9	6	4	1	0
Short term liabilities	249	259	271	311	287	326	347	942
Total equity and liabilities	3.573	3.790	4.023	4.340	4.542	4.868	5.207	12.133

Table 8.4 Projected Balance sheet

8.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Chennai

RS Crores

Chennai	Timing	Investment costs				IRR	NPV
		Total	Port Trust	Private	GOI		
Multilevel Car Parking and Cruise Terminal	2007-08	133	133			15,31%	41,54
Dedicated Elevated Corridor	2007-08	40	20		20		
Ennore Manali Expressway	2007-08	4	4				
Various	2007-12	191	191				
Development of container Terminal 2	2008-09	100	100				
Converting Tondiarpet Housing Colony into Off-dock Container Stacking Facility	2012-13	50	5	45		17,40%	2,43
Total investments in fixed assets		518	453	45	20		

8.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 132 Crores to Rs 239 Crores. The level of investments with internal funding is moderate. The solvency is 56% in 2013-14. The borrowing capacity is not used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	2.168
Available for investments IPA 10-4	659
blocked for pensions etc	1.509
Investments in financial assets 2014	3.628
Liquid means 2014	99
Available funds	3.726
Blocked for pensions	1.509
Available for investments 2014	2.218
Equity = borrowing capacity	2.899
Existing loans	1
Balance	2.897
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	2.218
From unused borrowing capacity	2.897
Total available for investments in fixed assets in 2014	5.115

Table 8.5 Available funds for investments in fixed assets.

8.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Chennai	General Remarks Final Report
Outline or format of the Draft Final Report as indicated by Advisor and IPA has been partly followed.	Has been corrected. Executive summary has been included
Summary and abbreviation list are missing.	Has been corrected
SWOT has been added however mainly on organisational items. No results of overall SWOT analysis have been included.	Has been corrected (par 2.8)
Introduction includes clear indicative figures of existing port and port basins. North and scale indications should be added.	Figures have been completed with North indications
Actual forecast has been described and analysed prior to analysis on SWOT, competition and strategy, which sequence is not logical.	Paragraph on competition has been added prior to defining the cargo forecast which is ok
Quasi sophisticated analysis combined with very rough qualitative assumptions eventually result in figures for the potential forecast for South India. Strategic choices and physical limitations result in the market share of Chennai Port for the various commodities. Advisor misses a table indicating the overall actual forecast in the course of time.	As in DFR. Table indicating the overall forecast has been added (Table 2.4-18)
Figures for forecast should be rounded off.	Has been corrected
Units in tables need to be checked on consistency (for example reference is made to pages 26, 27 and 28). Avoid confusion in abbreviations for metric tonnes (MT) and million tonnes (MT).	Has been corrected
Many detailed recommendations have been made on organisational improvements, however no remarks/recommendations have been made on institutional aspects (f.e. corporatisation, roles and responsibilities of Port Trust and Ministry).	Has been improved and more balance has been obtained. In Addendum all projects are still listed
Assumption on throughput iron ore is probably too optimistic when strategy results in ceasing operations in the year Operator and clients will anticipate on ceasing operations and in reality the throughput will gradually decline to the year of closing down business. This tendency should be reflected in forecast and subsequently included in Financial Model.	Has been corrected

General Remarks Draft Final Report Chennai	General Remarks Final Report
Assumption on potential forecast for Chennai of containers is probably too optimistic. With the strong potential throughput for South India, other relevant ports (Tuticorin, Ennore, Cochin and minor ports) will anticipate by making and implementing plans for new container terminals. In the forecast a passive attitude of the competing ports has been assumed. This tendency should be reflected in the actual forecast and subsequently included in Financial Model.	As in DFR
Relation of berth lengths and stacking areas is not ideal for modern container terminals.	As in DFR. Correction has been made on storage capacity which is now indeed the limiting factor
Logistics considerations have not been added for car handling operations. No description/calculation is provided on car handling and storage facilities required and on required hinterland transport facilities/capacity.	As in DFR. Throughput of 700,000 cars per year results in some 100,000 trailer visits per year to port and to an average 300 truck visits (600 truck movements) per day
Projected basin of Jawahar Dock does not provide sufficient width for safe navigation.	As in DFR
Consultant has taken large share of time input for organisational matters reflecting in many organisational recommendations. Many of these should not be listed as projects since these are regular tasks of service oriented companies. When defining projects such recommendations could be condensed. Present listing of projects is unbalanced.	Has been corrected.
Ensure that a proper table with clear division in client related and public related projects are included in report. Table of section 2.3 (all projects are public related) and 2.4 and projects in Section -1 and II of pages 131 and 132 do not provide this clear information.	Has been corrected (though numbering is strange (table 3.3.1)
Special remarks	
Page 79 Restricted Iron Ore Exports: How does this coincide with adopted 8% growth rate for South India for period until 2026?	As in DFR
Page 51 Gate capacity has not been checked	Gate (lane) capacity has been checked however assumptions are very optimistic

Financial Remarks Draft Final Report Chennai	Financial Remarks Final Report
The financial part of the report misses its backbone; the financial accounts.	Financial part has been included
The investments increase from Rs 997 cr in 2007 to Rs 1644 cr in 2014 and Rs 5357 cr in 2027. The investments are for a part for funds (pension	Situation is explained (page 122) and suggestions for possible avenues of investing surplus

Financial Remarks Draft Final Report Chennai	Financial Remarks Final Report
<p>gratuity etc).</p> <p>The rest is surplus; these are Rs 169 cr in 2007, Rs 523 cr in 2014 and Rs 3.823 cr in 2027.</p> <p>Why this increase; it does not seem to be in line with the financial strategy. (page 94 and 95).</p>	<p>funds are given.</p>
<p>In chapter 4.1 the financial aspects of the investments are mentioned. The amounts do not seem to be in line with the financial statements. (Total Cash flow line 16)</p> <p>Please clarify.</p>	<p>AS in DFR</p>
<p>In the financial strategy (page 95) the terms SPV and PPP, are they supposed to be identical? Please clarify.</p>	<p>Has been corrected</p>
<p>The Projection drivers are described in stage 3 of chapter 4.2. According to this table Inflation has been taken into account for revenues and for interest. Not for the other costs. Please clarify.</p>	<p>Has been corrected</p>
<p>The projections are described in the annexures; however revenues and costs are not stated.</p> <p>The discount rate for the calculation of the NPV is not mentioned.</p>	<p>Information has been added</p>
<p>Projection drivers are described in a general way. Specific assumptions are not described. See assumptions in financial model.</p>	<p>Information has been added</p>
<p>A systematic list of volumes used in the calculation of revenues is missing.</p>	<p>Information has been added</p>
<p>Projected financial accounts</p> <p>The statement of accounts is in line with the format in the information outline; however these statements are not in the Draft Final Report. It is not sufficient that the statements are included in the financial model. The statements together with assumptions and conclusions should be an integrated part of the report.</p>	<p>Has been corrected</p>
<p>There are small differences in the projected balance sheet in the years 2021/22 – 2026/27.</p>	<p>Has been corrected</p>
<p>The details for</p> <ul style="list-style-type: none"> ○ Categories of revenues ○ Fixed assets 	<p>Information has been added</p>

Financial Remarks Draft Final Report Chennai	Financial Remarks Final Report
<ul style="list-style-type: none"> ○ Categories of costs ○ Long term liabilities ○ Equity and reserves <p>As required in the information outline is missing.</p>	

Major Remarks Financial model Draft Final Report Chennai	Major Remarks Financial Model Final Report
<p>The financial model is adequate to calculate the projected financial accounts. In order to make it possible for the employees of CHpT to use the model as an instrument for future projections it is advised that the consultants instruct and train the employees of CHpT.</p>	<p>As in DFR</p>

9 Ennore

9.1 Mission, Vision and Strategy

The management vision for the next 20 years is as follows:

'Develop as a mega port with World Class facilities to become the Eastern gateway Port of India'

The goals for the next 7 years are to execute the following projects selected to create port capacities to handle marine liquids, coal, iron ore and containers and to provide the supporting infrastructure.

The main projects are:

- Marine Liquid Terminal to handle POL, LPG, chemicals and other liquid bulk cargo;
- Coal Terminal to handle coal for various users other than Tamil Nadu Electricity Board (TNEB);
- Iron Ore Terminal to facilitate export of iron ore by various users;
- Container Terminal (Phase 1) to promote export/import of containers;
- Organise installation of additional shore based unloaders in the existing coal berths when required for TNEB / TNEB – NTPC JV power plants.

The first three projects mentioned above are already approved and contracts have been signed with BOT operators.

With respect to supporting infrastructure the following activities are foreseen:

- Dredge the berth areas of marine liquids, coal and iron ore terminals to -15m depth in Phase-I and land raising for Coal and Iron Ore stackyards;
- Dredge the berth area of Iron ore terminal to -18.0m, port basin to -18.5m and channel to -20.0m in Phase-II;
- Dredge the berth area of container terminal to -15m in Phase III;
- Establish rail connectivity to the coal, iron ore and container stack yards;
- Establish road connectivity to the coal, marine liquid and container terminals;
- Develop other common infrastructure to improve port's attractiveness. This includes organising development of buffer yards and portside (rail) container yards;
- Develop Green belt.

The Port of Ennore envisages to follow the following strategies:

Development Strategy:

- Develop cargo terminals through private sector participation;
- Undertake the required capital dredging and essential road and rail connectivity works;
- Acquire additional lands to support the long term development of port facilities. This refers to both the immediate requirements as well as additional long term requirements;

- Develop core manpower to achieve an optimum and effective core strength;
- Outsource specialised expertise as and when required;
- Monitor and co-ordinate the activities among the BOT operators, EPL and interfacing Departments/Agencies to maintain the time frame;
- Continuous market studies and updates future development and operations;
- Commission feasibility study for construction of a multipurpose berth to handle cars, granite blocks, project cargo and other clean unit loads;
- Co-ordinate with State and Central Government Departments to improve access roads and rail connectivity;
- Act as a business facilitator.

Commercial Strategy:

- Maximise utilisation and revenue earnings of the existing coal berths and temporary handling facilities for POL and iron ore;
- Encourage temporary (improvised) cargo handling facilities ahead of regular terminals in line with market demand to be set up under private investments;
- Expedite transfer of 486 ha (1,200 acres) of Salt Department Lands at Attipattu South block, as it is needed for port related commercial uses;
- Review the land use plan and allot lands for port related purposes;
- Introduce a cost centre system to ensure timely and accurate monitoring of forthcoming BOT agreements;
- Review and fix the tariff for vessel related charges other than berth hire for the berths constructed by the BOT operators on commercial basis;
- Draw up suitable tender conditions to avoid excessive market exploitation by BOT operators;
- Form joint ventures with stakeholders to increase port throughput.

Financial Strategy:

- Mobilise private sector funding for developing cargo terminals;
- To the extent possible, obtain Government funds for basic infrastructure investments like capital dredging;
- Mobilise additional funds through equity or loan for funding common infrastructure works;
- Explore the possibilities of forming Joint Venture with the beneficiaries like TIDCO, National and State Highways, BOT operators, Railways, RVNL and other stakeholders for investments on road and rail connectivity.

9.2 Competitive Position

The Consultant did not provide a structured SWOT table, however the strengths and weaknesses of the port were mentioned to some extent.

Ennore is a Greenfield major port situated at the vicinity of the well-developed Chennai city, yet away from the populated areas. The strength of Ennore port is the availability of protected waterfront of about 3.000m in length and back up lands of 836 ha for development of deep drafted cargo terminals benchmarking high productivity standards and quality parameters. It has the ability to connect to the national highways NH4, NH5 and NH45 without entering into the populated Chennai city area.

All in all Ennore port is in a good competitive position to develop bulk and container terminals and the weakness can be mitigated through better facilities and services.

The principal competitors of Ennore port are:

- Chennai, Tuticorin, Cochin (Vallarpadam) and Vizhinjam for containers.
- Chennai and Cuddalore (as & when developed) in case of coal (for Non-TNEB users).
- Chennai & Krishnapatnam (as & when developed) for iron ore.

Comments of the Advisor:

The Consultant does not elaborate on the special relation with the Port of Chennai and the synergy it could create by co-operation. Reference is also made to the next chapter where the strategies of Chennai port are described. Ennore may take advantage of the choices made by Chennai.

9.3 Cargo Forecast

The main cargo handled at the Port of Ennore is thermal coal, which is import for TNEB (Tamil Nadu Electricity Board). Other present cargoes handled are iron ore and liquid bulk cargo.

- A strong growth in the handling of bulk cargoes is expected in line with the expected shifting of these cargoes presently handled via the Port of Chennai;
- The port has initiated action for the development of terminals for liquid bulk, coal, iron ore and containers. The related cargo volumes are included in the forecast;
- The volumes of thermal coal are heavily dependent on the planned additional power generation capacities of TNEB;
- The mining area Bellary/Hospet/Tumkur will be the source of the expected iron ore exports;
- LNG and crude oil handling has not been foreseen in the short and mid term;
- The projections for container traffic are based on the growth pattern of container traffic at Indian ports.

The forecast for the Port of Ennore is shown in the table below.

	2007-08	2011-12	2025-26
POL – Product & Crude	0,00	0,00	0,00
Iron Ore	2,00	7,90	12,00
Coal	9,00	25,80	35,30
Fertilisers	0,00	0,00	0,00
Container Traffic	0,00	5,40	86,76
Other Cargo	0,30	1,54	2,34
Total Throughput	11,30	40,64	136,40
Container M TEU		0,45	7,23

Table 9.1 Cargo forecast Port of Ennore in Mtons

Comments of Advisor:

The projected volumes of iron ore throughput need to be considered as vulnerable in view of the uncertainties in the policy of the Government of India related to iron ore exports.

Consultant did not include a vision on synergy (f.e. coastal traffic) between the port facilities at the Port of Chennai and those at the Port of Ennore.

9.4 Port Facilities

The Port of Ennore is an artificial deepsea harbour comprising of two breakwaters. The breakwaters create a port basin of 220 ha. The approach to the port is via a channel with a length of some 3.800 m dredged to a level of CD – 16 m. The permissible draft is 13,5 m.

The port was developed from a greenfield situation at the East coast of India, 20 km North of the port of Chennai and commissioned in 2001.

Two coal berths of each 280 m length with an alongside depth of 15 m are available. The fully mechanised coal handling system comprises of two gantry type grab unloaders each of 2.000 tons per hour. The unloaded thermal coal is transported via a conveyor belt system to the premises of the North Chennai Thermal Power Station (NCTPS) of TNEB.

9.5 Port Planning

A proper rail connection is required for the transport of iron ore from the hinterland to the port while a list of main projects is indicated below

Proposed projects:

- Upgrading existing Coal berths for handling thermal coal;
- Common User Coal Terminal;
- Marine Liquid Terminal;
- Container Terminal;
- Dredging and reclamation works;
- National and state road and railway connectivity plans.

The layout of the port including the proposed projects is indicated in the figure below.

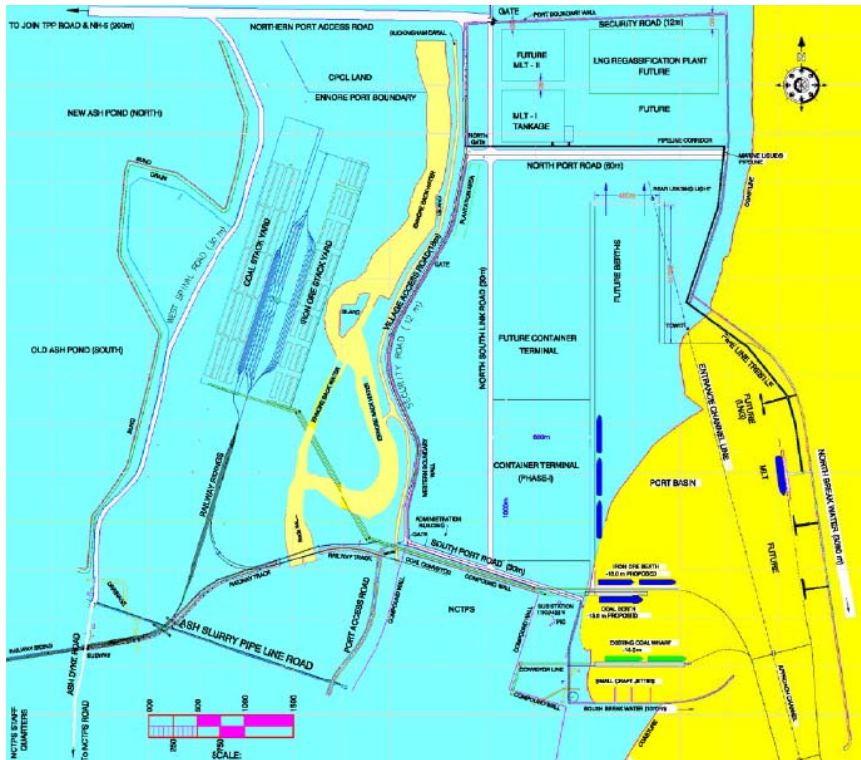


Figure 9.1 Future layout Port of Ennore

Comments of Advisor:

- Major expansion possibilities.
- Masterplan for long term is missing (pipeline, creek).

9.6 Hinterland Connectivity

The Port of Ennore is connected to the Southern railway network at about 6 km from the port. The port does not have its own siding at present, although a plan exists for such facility. The critical rail route to transport the planned iron ore volume between the Bellary Hospet mining area and the port is the 17,5 km severely congested Avadi – Vysarpadi section. The forecasted export volumes of iron ore and the imported volumes of coal would enable efficient rail transport (return cargo). The Port of Ennore and the Southern Railways have identified projects to remove bottlenecks.

Adequate road connections are required for the transport of future volumes of containers and liquid bulk. The main access roads need to be improved to have a proper connection to the national highway system. Ennore Port Limited (EPL) and the NHAI (National Highway Authority India) are in a process to take up this challenge.

9.7 Port organisation and institutional setting

Organisational Issues:

The organisation of the Port of Ennore is different from the other major ports since it is the only one which does not fall under the Port Trust Act. The Port of Ennore is corporatised and the management of Ennore port, incorporated under the companies

Act (1956) is provided through the Board of Directors. The top management body is functioning in the style of a Central Government Public Sector Undertaking meeting out government objectives and policies. As a commercial oriented corporation, the management is following the landlord concept. The Directors and Heads of Departments are responsible for the corporate planning keeping in view the strategy of the port company.

As the development of new projects is gaining momentum with the award of concessions for three terminals and the fourth one is in the pipeline EPL is taking action to strengthen the organisation. With a view to improve the planning capability within the organisation, a 3-layer organisational structure is recommended (Senior management, Middle management & Junior management). Job descriptions for the personnel involved in the planning activities are drawn according to the managerial position in the planning unit. EPL already initiated for recruiting the proper professionals and fill up the slots as per the recommended organisation structure in stages commensurating with the workload.

Comments of Advisor:

Ennore Port Limited (EPL) is a new and relatively small company with a staff of some 45 persons. Certainly in comparison with the other major ports, this is a very small company, not carrying the financial burden of many pensionado's. (The landlord management model will also keep the total number of employees to a reasonable number.) On the other hand, the financial resources of Ennore are (still) also small compared to the other major ports.

The Consultant does not provide any suggestions for improvements on the institutional setting. The level of autonomy of the Port of Ennore is higher than in the case of the other major ports since it is free to set its own tariffs for example, but it is not clear whether it is desirable to delegate tasks and responsibilities from the Ministry level to the port level.

9.8 Financial Issues

9.8.1 Profit and loss account

The projected profit and loss account for Ennore Port Limited is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	2	4	6	21	29	30	36	69
Other dues	7	8	7	29	38	39	47	97
Stevedoring revenue								
Storage								
Wharf handling	106	105	101	140	190	190	208	305
Concession fee	0	5	40	173	203	223	247	530
Other operational income	10	15	5	7	7	8	9	16
Total operating revenue	125	137	160	370	467	490	546	1.017
Expenses								
Salaries	4	6	8	9	10	12	13	72
Social charges and pension premiums								
Running costs	20	13	13	14	16	16	22	41
Administrative costs	4	4	4	5	5	5	5	10
Other costs	1	4	2	4	8	8	8	13
Total operating costs	30	27	27	32	39	41	49	135
Operational net earnings before DIT	95	110	133	338	428	448	497	882
Other income								
Net earnings before DIT	95	110	133	338	428	448	497	882
Depreciation	14	19	24	27	27	27	27	27
Net earnings before it	81	92	109	311	401	421	470	855
Interest	-32	-48	-69	-65	-49	-32	-16	0
Net earnings before tax	49	20	41	246	352	389	454	855
Tax	6	2	5	28	39	44	51	294
Net earnings	44	17	36	218	312	345	403	561

Table 9.2 Projected profit and loss account

9.8.2 Balance sheet

The projected balance sheet for Ennore Port Limited is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	693	841	1.018	1.125	1.099	1.072	1.045	724
Investments	10	10	59	134	159	159	159	1.159
Current assets	87	87	87	87	87	87	87	87
Liquid means	22	19	34	35	180	383	642	4.562
Total assets	812	975	1.198	1.380	1.525	1.701	1.933	6.532
Equity and liabilities								
Equity	300	300	300	300	300	300	300	300
Reserves	46	85	121	341	654	1.001	1.404	6.165
Total own equity	346	385	421	641	954	1.301	1.704	6.465
Provisions	1	1	1	1	1	1	1	1
Long term loans	389	505	710	672	503	334	162	0
Short term liabilities	76	66	66	66	66	66	66	66
Total equity and liabilities	812	957	1.198	1.380	1.525	1.701	1.933	6.532

Table 9.3 Projected Balance sheet

9.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Ennore

RS Crores

Ennore	Timing	Investment costs				WACC	IRR	NPV
		Total	Port Trust	Private	GOI			
<i>Private Investments</i>								
Existing Coal Berths (TNEB Coal)	2013-14	200		200				
Common-user Coal Terminal	2007-09	400		400				
Common-user Iron Ore Terminal	2007-09	480		480				
Marine Liquid Terminal	2006-08	196		196				
Container Terminal	2008-10	1.300		1.300		12%	27,30%	867
<i>Public Investments</i>								
Capital Dredging phase 1	2007-08 to 2010-11		90					
Capital Dredging phase 2	2007-08 to 2010-11		150					
Capital Dredging phase 3	2007-08 to 2010-11		170					
Road Connectivity	2007-08 to 2010-11		180					
Rail connectivity to coal, iron ore, and container stackyards	2007-08 to 2009-10		63					
Miscellaneous investments	2007-08 to 2009-10		45					
Equity contribution to the SPV of Puttur-Attipattu new rail line			50					
Total investments in fixed assets		2.576	748	2.576				

9.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 44 Crores to Rs 403 Crores. The level of investments with internal funding is moderate. The solvency is 88% in 2013-14. The borrowing capacity is for a part used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	32
Available for investments IPA 10-4	72
blocked for pensions etc	-40
Investments in financial assets 2014	159
Liquid means 2014	642
Available funds	801
Blocked for pensions	
Available for investments 2014	801
Equity = borrowing capacity	1.704
Existing loans	162
Balance	1.542
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	801
From unused borrowing capacity	1.542
Total available for investments in fixed assets in 2014	2.343

Table 9.4 Available funds for investments in fixed assets.

9.9 Advisors review on Final Business plan

The Advisor is of the opinion that the Port of Ennore is impressive, not so much for what it is doing today, but in particular for what it may do in the future. At this moment only coal handling takes place, but the mechanised operations may serve as an example to other ports in the country.

In view of the strong growth of the Indian economy and the related future cargo flows, Ennore seems to be the only port where a large portion of this growth can be accommodated. There is still a vast port area available for future operations, but the actual size of the port – 836 ha – is however not impressive compared with large ports of world class. The larger Ennore area encompasses some 2500 ha, which sounds huge, but looking at a new port of similar size like the Port of Sohar in Oman, such an area can be leased out completely within a period of 4 years. And looking at the possible economy of scale in India, there is no reason to think that it will take decades in Ennore to reach full capacity.

It is therefore recommended to pay the utmost attention to long term planning and development of the port. Moreover, it should be mentioned that it is disappointing that the Consultant paid insufficient attention to this long term opportunity. The present three main projects which have been contracted to BOT operators have already their fixed sites or locations which can not be changed or only through re-negotiation of the contracts. EPL should be extremely careful not to block the future opportunity of the port through neglecting long term masterplanning. It is advised that this should be done first, before new terminals will be built.

Aspects that should be taken into account in long term masterplanning could be the re-alignment of the creek in order to create more direct port area, the shift of EPZ activities farther away from the waterfront area and the creation of clusters for liquid bulk handling and storage, dry bulk handling and storage and container terminals in combination with EPZ activities.

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the EPL will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Ennore	Major Remarks Final Report
The report is informative and well structured. The report follows the structure outlined by the Advisors and contains a proper summary.	As in DFR which is ok
An Executive Summary is included. No information has been included on SWOT and competitive aspects. No drawings have been included.	Has been corrected, a few remarks on competition have been added
List of abbreviations is included.	As in DFR which is ok
A long term development of Ennore Port has been indicated. The indicated option with a relatively wide inner basin (Figure 2.2) has not been clarified and is not in line with the discussions with Advisor on the subject. More emphasis on a masterplan for Ennore port is recommended.	Final report gives more emphasis on long term development than DFR. The strategy on land use on page 2-15 has been improved
LNG project is shortly mentioned (page 4-29). No	Has been corrected

General Remarks Draft Final Report Ennore	Major Remarks Final Report
reason of exclusion in analysis is given apart from reference to interim Report.	
Demands for general cargo handling facilities have been included in the section on cargo forecast. Short term options for relevant facilities are briefly mentioned (combining containers and general cargo handling on planned container terminal. Medium and long term solutions have not been provided.	Background has been sufficiently explained in final report.
Low container scenario is based on low share of Ennore (3%) in a low all India forecast. This does not appear to be the best basis for a masterplan. Long term vision is missing.	Has been corrected
In how far are environmental requirements included in concession agreements. No indication in examples in annexures.	Environmental requirements have been included in concession agreements as indicated in Final Report.
Inconsistencies have been noticed in forecasts (page xii, xiii) of throughput and in investments regarding container terminal development.	Has been corrected

Financial Remarks Draft Final Report Ennore	Financial Remarks Final Report
In chapter 2.7 and in figure 2.7 the recommended organizational structure is given. Marine services and operations are presented in the board of directors. Finance is a department headed by a senior management. In view of the new situation with important projects coming up the financial strategy and control will be essential. This discipline should be represented at directory level.	Has been adapted
The financial part of the report is adequate to serve as a financial body for the business plan.	As in DFR
In chapter 3.2 the Financial Strategy is stated as: <i>Mobilise private sector funding for developing cargo terminals.</i> <i>Obtain Government funds for basic infrastructure investments like capital dredging.</i> <i>Mobilise additional funds through equity or loan for funding common infrastructure works.</i> <i>Explore the possibilities of forming Joint Venture with the beneficiaries like TIDCO, National and State Highways, BOT operators, Railways, RVNL and other stakeholders for investments on road and rail connectivity.</i> Remarks can be made on the second bullet: Government funds should only be asked if there is no alternative and if the port has not enough cash flow to finance the capital dredging. EPL is not in such a position.	Has been rephrased
In chapter 4 the private investments are handled:	Information has been added

Financial Remarks Draft Final Report Ennore	Financial Remarks Final Report
<p>Subchapter 4.1.2 handles the common user coal terminal subchapter 4.1.3 the Iron Ore Terminal. Both chapters end with a commercial and financial assessment. However this contains only a statement about the rates. The financial implications for EPL are missing.</p> <p>Subchapter 4.1.4 handles the Marine Liquid Terminal. It is stated that the IRR is low and it is concluded that the financial performance of the BOT operator should be monitored. The financial implications and risks for EPL are missing.</p> <p>Subchapter 4.1.5 handles the Container Terminal. The financial implications and risks for EPL are missing.</p>	
<p>Projected financial accounts The statement of accounts is in line with the format in the information outline. The details for Categories of revenues Fixed assets Categories of costs Long term liabilities Equity and reserves as required in the information outline are missing.</p>	Information has been added.
<p>The volumes used for the calculation of the statement of accounts do not seem to have a relation with the traffic forecast in table 2-2 and the expected vessel calls in table 2-3. The volumes deviate from the low forecast as well as from the high forecast. Since no details were given in chapter 5, the volumes in the financial model were used for comparison.</p>	As in DFR
<p>The projected balance sheet shows a shortage in liquid means in the period 2008-2011. The maximum shortage calculated is Rs 271 Crores. After that period the liquid means are positive and rise to an unrealistic and unacceptable level. (Rs 667 crores in 2014 and Rs 6.640 Crores in 2027) The consultant gives 2 options to overcome the shortage: A grant from the Government Additional equity injection. No choice has been made between the options, and none of the options have been integrated in the statement of accounts. Both options are structural and are not suitable for a short-term shortage. A commercial loan eventually supported by guarantees would be more adequate.</p>	A third option (debt financing) has been adopted and incorporated.

Financial Remarks Draft Final Report Ennore	Financial Remarks Final Report
<p>The steadily rising balance of liquid means after 2014 is due to the lack of investments after the 7- year period. It is more appropriate to take into account a certain level of investments in fixed assets after 2014 and to keep the liquid means on a normal level.</p>	<p>As in DFR</p>
Major Remarks Financial model Draft Final Report Ennore	Major Remarks Financial Model Final Report
<p>General Remarks related to Financial model</p> <p>The financial model is adequate to calculate the projected financial accounts. In order to make it possible for the employees of EPL to use the model as an instrument for future projections it is advised that the consultants instruct and train the employees of EPL.</p>	<p>The model contains some errors, rows 16 and 18 in the sheet investments are not included in the calculation of the fixed assets in the balance sheet.</p>

10 Visakhapatnam

10.1 Mission, Vision and Strategy

The Port of Visakhapatnam is the largest major port in India and has surpassed the mark of 55 million tons of cargo throughput in the year 2005-2006, out of a total of 423.4 million tons for all major ports together. The port is a major bulk handling port with POL, iron ore and coal being the major bulk commodities.

The following vision, mission and strategies are presented:

Vision:

"VPT to be the most preferred port in South Asia offering services of global standards"

Mission statement:

"To be the major partner in meeting the logistics requirements of the importers and exporters in the region"

Recommended brand: *"The East Coast Gateway"*

The port development strategy aims at:

- Increasing the port's capacity to facilitate higher volumes of cargo by introducing improved infrastructure and modern handling techniques;
- Expansion of the port to be focussed on the Outer Harbour in the sense of developing new deep-water berths and improving of cargo handling rates;
- Receiving vessels of less than 50.000 dwt in the Inner Harbour, which allows for the development of multi user facilities operated by private companies;
- Reducing the waiting times of vessels to a maximum of 24 hrs.

10.2 Competitive Position

The SWOT analysis indicates that the port will continue to benefit from its natural strengths; however its position is being threatened by the proximity of upcoming new private ports as well as the internal bureaucratic procedures and tariff setting. The following presents the key issues of the SWOT analysis:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Deep water port in outer harbour and on anchorage ▪ Handling of VLCC's at anchorage ▪ Mechanised handling of iron ore handling complex ▪ Good railway connectivity ▪ Healthy financial position (ex pension liabilities) 	<ul style="list-style-type: none"> ▪ Entrance channel capacity ▪ A non-incentive tariffs structure ▪ Manual coal handling with low productivity ▪ Bureaucracy and inefficient use of facilities ▪ Close proximity to the city
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Strong development of the Indian economy ▪ Plans for investments in the industry and therewith growth potential in the hinterland of Visakhapatnam 	<ul style="list-style-type: none"> ▪ Strong inter-port competition on the hinterland of Visakhapatnam substantial private investments in these new ports ▪ Relatively strong labour unions ▪ Long procedures, compared to private ports

Table 10.1 SWOT-Analysis for Port of Paradip

Competing ports:

The Consultant made a thorough analysis of the competing ports in the region. Fierce competition is expected from the development of the new private Gangavaram Port, located 15 km South of Visakhapatnam. It is presently being developed as an all weather, deep water (18-20 m), multipurpose world class facility. The port will have a traffic potential of 27 mt/year in the short term and more than 100 mt/year in the long term. The port will have 29 berths and will be able to accommodate vessels of 200.000 dwt. The first phase will become operational in 2008.

The impact for the port of Visakhapatnam is expected to lead to a loss of 11,5 mt (5 mt iron ore, 5,5 mt of coking coal and 1,0 M tons of steam coal).

Other competing ports are/ may be:

- The major port of Paradip, draft 13 m, mechanised bulk, capacity 55-100 M tons;
- The new private port of Dhamra, located North of Paradip, draft 16 m, still Greenfield; capacity 10-30 M tons;
- Krishnapatnam, still Greenfield, capacity 20-40 M tons;
- Kakinada, draft 11.5 M tons, multipurpose port, capacity 15 M tons.

Of these ports the impact on Visakhapatnam are not estimated. Paradip may take a share of Visakhapatnam's coaking coal, steam coal and limestone. Containers, now coming to Visakhapatnam, may also shift to Paradip when container terminal facilities will be developed. Dhamra poses the threat of attracting SAIL's cargo, which now comes to Visakhapatnam.

10.3 Cargo Forecast

The port is a major bulk handling port with POL, iron ore and coal being the major bulk commodities. The hinterland is rich in mineral resources. Other commodities handled in substantial are iron and steel products, fertilisers, fertiliser raw materials (FRM) and alumina. The port surpassed the throughput mark of 55 M tons of cargo per year in 2005-06.

Long term projections are partly based on CAGR growth trends. Where appropriate specific circumstances have been taken into account:

- POL traffic will be restricted by refinery capacity;
- Iron ore exports are expected to show a slow growth in view of the growth of the domestic steel industry;
- Thermal coal projections are dependent on the requirement of the Tamil Nadu Electricity Board;
- Imports of coking and steam coal is expected to grow in line with steel industry growth;
- The current growth in fertiliser throughput is related to agriculture development in India;
- The growth of break bulk cargo throughput is limited in view of the expected containerisation degree;
- Container growth is bound to grow at a rapid pace on account of the vibrant economic growth.

The forecast of the Port of Visakhapatnam is indicated in the table below.

	2007-08	2011-12	2025-26
POL – Product & Crude	12,80	19,10	23,70
Iron Ore	17,50	20,00	29,50
Coal	12,70	16,20	26,40
Fertilisers	3,90	5,20	9,20
Container Traffic	1,30	3,50	13,80
Other Cargo	9,50	17,70	44,20
Total Throughput	57,70	81,70	146,80
Container M TEU	0,11	0,29	1,15

Table 10.2 Cargo forecast Port of Visakhapatnam in Mtons

Comments of Advisor:

The forecast of thermal coal throughput is heavily dependent on the competition encountered from the Port of Paradip. The projected volumes of iron ore throughput need to be considered as vulnerable in view of the uncertainties in the policy of the Government of India related to iron ore exports. With respect to the projected container volumes the competition with the Northwest ports (as JNPT) for the container market of North India need to be taken into account. Heavy competition is to be expected from the port of Gangavaram with respect to the expected volumes of dry bulk.

10.4 Port Facilities

The Port of Visakhapatnam is located on the Indian East Coast. The port includes two harbours, i.e. the Outer Harbour with seven berths and the Inner Harbour with 19 berths.

The seven berths in the Outer Harbour include:

- two ore berths;
- general cargo berth;
- offshore tanker terminal (OSTT);
- LPG jetty;
- container berth (VCTPL)
- new oil mooring;

The Inner Harbour is operational since 1933 and consists of a naturally protected entrance channel, a turning basin and three navigable arms. Two basins (Northern and Western basin) are in use by the Viakhapatnam Port Trust. Both basins are used for a variety of cargo and can serve vessels with a draft up to 10.2 m (45,000 DWT). The access channel to the Inner harbour is relatively narrow (down to 110 m) with a rocky coastline. Dredging works to widen the channel are ongoing. Reference is made to the following figure.

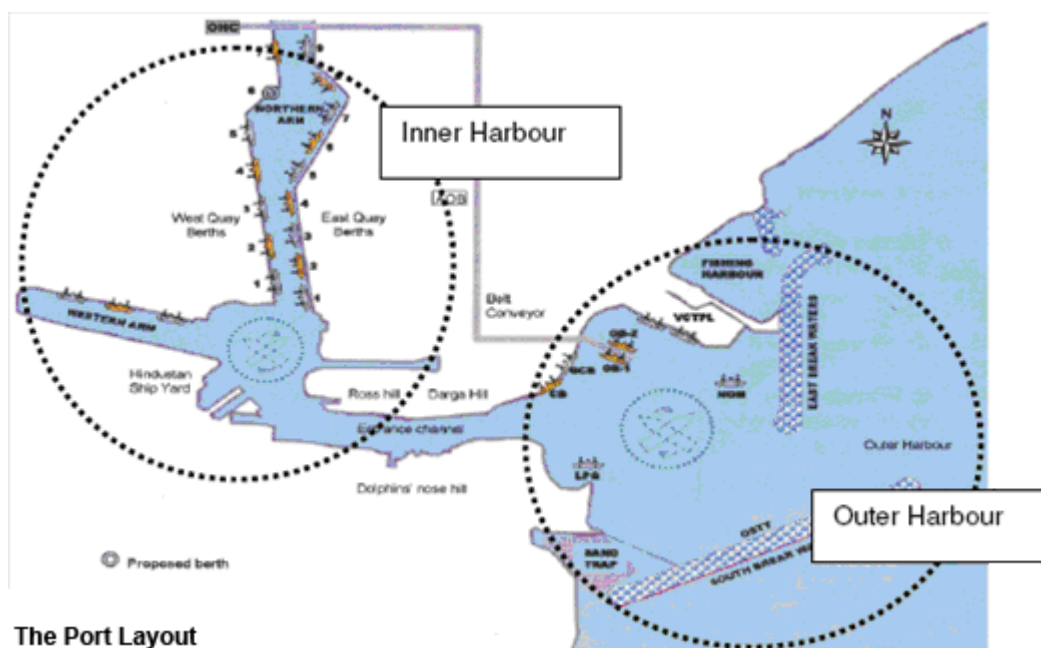


Figure 10.1 Present layout Port of Visakhapatnam

10.5 Port Planning

Proposed projects

Inner harbour:

- Export facility for bulk cargoes at West Quay 1 and 2;
- Reorganisation of fertiliser handling at East Quay;

- East Dock and strengthening East Quays;
- Deepening entrance channel to inner basin.

Outer harbour:

- Mechanisation General Cargo Berth;
- Upgrading iron ore jetty;
- Handling facility for crude oil and POL (SBM);
- Extension Container Terminal.

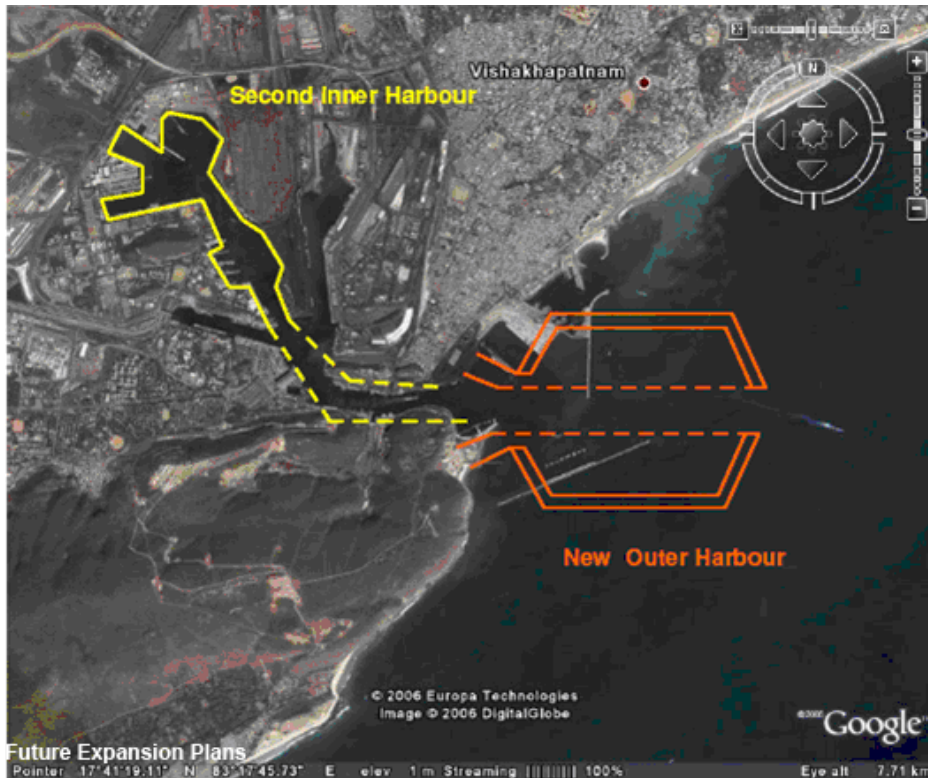


Figure 10.2 Future layout Port of Visakhapatnam

Comments of Advisor

- *Extension of inner harbour selected as long term port development in spite of presence of Navy facilities in the area.*

10.6 Hinterland Connectivity

Indian ports have traditionally focussed on the seaside operations rather than the interfaces with the hinterland (landside facilities). Adequate hinterland connections are very important in order to enable a smooth movement of cargoes to and from the hinterland (origin/destination).

The railway system is of major importance since its share in hinterland transport is some 60 to 65%. The coastal railway line connects Visakhapatnam to the South and the North.

The present low share of road transport is likely to increase in view of a trend towards more general cargo. The roads connecting the port with the national network

pass through the city where traffic restrictions are imposed prohibiting heavy vehicles during certain periods of time during the day. Also for other reasons the roads are congested and traffic is slow.

Recently a road has been built connecting the port directly with the national highway (no 5).

10.7 Port organisation and institutional setting

At present the Port of Visakhapatnam is organised based on a mix of several port management models. It is organised according to the landlord model (in case of private jetties), the tool port model (it owns and rents out equipment) and the service port model (cargo handling operations).

VPT employs some 5600 employees, not including casual labour. The total workforce has come down over the past years and according to a study conducted in 2004, the workforce could be further reduced with some 300 persons. It may be expected that in the years to come the workforce will be further reduced due to an outsourcing of non-core activities. The policy of VPT is to continue with the implementation of the landlord port management model and as such being responsible for:

- Basic infrastructure;
- Construction of quay walls (in case no BOT arrangement is applicable);
- The Harbour Masters function: safety and environment;
- Port promotion;
- Marine services;
- Divestment of non-core activities.

Marine services (pilotage, towage, (un)mooring services), are not typically landlord functions. The Consultant recommends to keep these under VPT's control to avoid a monopolistic situation.

Consultant has made a thorough analysis of organisational improvements of VPT. In order to facilitate a prosperous development of the port, it is important that it will become highly efficient. This is only possible when the organisational set up is clear for all users, and therefore the Consultant recommend to restructure the port organisation by introducing:

- Modernisation of the port administration, aiming at improvement of management, operations and services;
- Commercialisation of port activities and services, in such way that the activities will be carried out based on market principles;
- Corporatisation of VPT

Adopting the concept of a landlord port requires institutional changes. With corporatisation of VPT, the VPT will act as an independent unit under the corporate law. The shareholders could be the Government of India and/or the State of Andhra Pradesh. The VPT will then become a Port Authority, and it is therefore recommended to change the name into Visakhapatnam Port Authority (VPA). The main functions of VPA will then be:

- Stimulator of the port as a logistic nodal point;
- Developer and maintainer of port infrastructure
- Lessee of port property: long/short term lease/concessions for mainly infrastructure.

The role of the Harbour Master is essential in the landlord management model. He will be responsible for nautical safety and environment. In order to avoid possible conflict of interest between commercial interests (maximisation of throughput and/or profit) and safety issues (admission of vessels into the port under difficult circumstances) it is recommended that the Harbour Master should have the final say in nautical and environmental matters. He could therefore report to the Ministry of Shipping and Transport of India instead of to the VPA.

The new organisation structure will consist of the following layers:

- The board of the organisation consisting of representatives of the shareholders;
- The management of VPA;
- The staff department (Finance, HRD, Audit, Legal, etc);
- The line departments: Harbour Master's office, Business development and Operations.

Comments of Advisor:

Advisor does not support the point of view of the Port Trust with respect to keeping the marine services under VPT's control and is of the opinion that the actual public monopoly could be changed into a private activity under strict conditions. Moreover, being the largest port with more than 2100 vessel calls and which will grow to 2500 vessel calls in 2012, Advisor believes that there is room for competition in marine services.

10.8 Financial Issues

10.8.1 Profit and loss account

The projected profit and loss account for Visakapatnam Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	42	43	46	50	54	62	64	79
Other dues	118	126	135	138	141	163	165	184
Stevedoring revenue	249	259	250	243	251	290	291	306
Storage								
Wharf handling								
Concession fee	24	38	70	95	102	117	121	161
Other operational income	83	91	97	97	97	113	113	113
Total operating revenue	515	558	597	622	645	746	755	843
Expenses								
Salaries	209	203	197	191	184	179	173	116
Social charges and pension premiums	68	72	75	79	83	0	0	0
Running costs	112	122	133	112	123	138	137	132
Administrative costs	23	23	23	23	23	23	23	23
Other costs	7	8	8	8	8	10	10	10
Total operating costs	419	428	437	413	421	349	343	281
Operational net earnings before DIT	96	130	161	210	223	397	412	562
Other income	20	24	16	19	16	15	24	205
Net earnings before DIT	116	154	177	228	240	412	435	767
depreciation	34	38	47	49	58	67	62	42
Net earnings before it	82	116	130	179	182	345	374	726
Interest	-3	-3	-25	-24	-22	-20	-19	0
Net earnings before tax	79	113	105	156	160	325	355	725
Tax	24	34	32	47	48	97	107	218
Net earnings	56	79	74	109	112	227	249	508

Table 10.3 Projected profit and loss account

10.8.2 Balance sheet

The projected balance sheet for Visakapatnam Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	886	1.123	1.342	1.472	1.573	1.552	1.491	1.508
Investments	678	506	575	514	492	709	988	5.237
Current assets	328	344	357	365	373	380	379	391
Liquid means	33	22	18	20	19	19	23	113
Total assets	1.925	1.995	2.292	2.371	2.457	2.660	2.881	7.249
Equity and liabilities								
Equity								
Reserves	1.339	1.418	1.492	1.602	1.714	1.943	2.192	6.860
Total own equity	1.339	1.418	1.492	1.602	1.714	1.943	2.192	6.860
Provisions								
Long term loans	206	196	419	393	366	339	313	26
Short term liabilities	381	381	381	377	377	378	377	364
Total equity and liabilities	1.925	1.995	2.292	2.371	2.457	2.660	2.881	7.250

Table 10.4 Projected Balance sheet

10.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Visakhapatnam

RS Crores

Visakhapatnam	Timing	Investment costs			WACC	IRR (project)	NPV
		Total	Port Trust	Private			
Mobile Cranes 2*100t	2007	45		45			
Mechanisation export facility WQ1/2 (VPT 23)	2008	106	12	94	8%	20%	102
Construction WQ-7	2008	8		8			
Replacement Equipment IO Berths	2008	39	39				
Deepening Entrance Channel and Inner Basin to 12,5 m	2008	40		40			
Strengthening W. Quays to 12,5 m	2008	47	47				
Mechanisation General Cargo Berth	2009	237	65	172	8%	12%	70
SBM facility for the handling of crude by VLCC	2009	540		540			
Replacement tugs	2009	40	40				
New tugs 75T BP	2009	90	90				
Construction WQ 6	2009	45		45			
East Docks, South Side	2009	119	30	89			
Construction EQ 10	2009	35		35			
Mechanised facilities coal handling East Docks South	2009	60		60			
Liquids lines / Loading arms LPG Jetty	2009	23	23				
Installation shiploader Alumina WQ7	2010	30		30			
Construction WQ 8	2010	50	50				
Procurement barges and launches	2010	6	6				
Replacement 2 locos 1430 HP & 1 loco 3100 HP	2010	34	34				
Extension Container Terminal	2011	120		120			
Upgrading OR1-2	2011	50		50			
Road	2011	229	229				
Other works	2011	132	62	70			
Rail	2011	129	129				
Upgrading Iron Ore Jetty for 200.000 DWT (lengthening)	2012	50	50	-	8%	18%	37
Environmental	2012	45	45				
Residual costs on VPT 4	2012	145	145				
Deepening Entrance Channel and Inner Basin to 14 m	2014	150		150	8%	< 0%	198-
Strengthening E. Quays to 14 m	2014	120		120			
Mechanised import facility EQ1-3	2015		2	74			
East Docks, North Side	2015	89		89			
Total investments in fixed assets until 2014		2.763	1.096	1.668	-		
Total investments in fixed assets		2.852	1.098	1.831			

10.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 56 Crores to Rs 249 Crores. The level of investments with internal funding is moderate. The solvency is 76% in 2013-14. The borrowing capacity is hardly used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is in table 4

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	711
Available for investments IPA 10-4	596
blocked for pensions etc	115
Investments in financial assets 2014	988
Liquid means 2014	23
Available funds	1.011
Blocked for pensions	115
Available for investments 2014	896
Equity = borrowing capacity	2.192
Existing loans	313
Balance	1.880
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	896
From unused borrowing capacity	1.880
Total available for investments in fixed assets in 2014	2.776

Table 10.5 Available funds for investments in fixed assets

10.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report Visakhapatnam	Major Remarks Final Report
The report gives a reasonable complete, transparent and well structured impression and is written in general in proper English.	As in Draft Final Report which is good
The format of the report is sufficiently in line with the information outline.	As in Draft Final Report which is good
A proper summary is included. Map of present port is fine however has a small scale and is therefore difficult to be read. Present berth numbers cannot easily be related to a map. No references are given.	As in Draft Final Report . No proper map has been added.
Environmental implications and possible bottlenecks have been included.	As in Draft Final Report which is good
A list of abbreviations is missing.	List has been added in Final Report
Good description of the competing ports is provided. Advisor appreciates the addition of maps, however the scale is such that no additional information is provided.	As in Draft Final Report . No proper maps have been added.
Chapter 4 on confrontation of demand and supply properly indicates the capacity bottlenecks, however does not result in the logical conclusion that capacity need to be added either by taking away sub optimal logistics or by expansions in port facilities. A reference to a list of relevant projects (chapter 6) is missed in this stage of the report.	Conclusions have been added at the correct spot (page 95,96).
The subsequent chapter 5, Land use plan is described prior to listing of relevant projects in chapter 6	Sequence of reporting has been changed and improved
Chapter on Connectivity projects give a decent impression on analysis carried out, however can only be understood by insider.	Improvements in drawings have been made to a certain extent.
Inconsistencies have been encountered in the listing of projects (number, title, timing, status, etc) as identified and described in the chapters 6, 7, 8 and 9 and in the overall list in Table 10-5. Inconsistencies have been encountered throughout the tables on throughput and forecast (Tables 2-2, 2-3, 3-27, 3-28, par 5.3 line 2, ..).	Suggestion to make transparent and consistent overview of projects have not been followed up.
Specific remarks	
Cost for required strengthening berths have not been included in the deepening inner Basin (page 130)	Has not been corrected.
Give breakdown of estimated investment cost (pages 133, 134)	Has not been addressed.

Financial Remarks Draft Final Report Visakhapatnam	Financial Remarks Final Report
The financial part of the report is adequate to serve as a financial body for the business plan.	As in DFR, which is good.
The information about the individual plans in chapter 7, 8 and 9 should be in the interim report. It is however acknowledged that it concerns an adapted part of the interim report due to discussions between the Port Trust and the consultant.	No changes have been made.
Projected financial accounts The statement of accounts is for a part in line with the format in the information outline, however the format for the flow of funds deviates.	No changes have been made.
The details for Categories of revenues Categories of costs Long term liabilities Equity and reserves as required in the information outline is missing. In order to keep the wording of chapter 10 intact these details could be integrated in an annex.	Information has been added.
The relation between the selected projects and the financial accounts is clear for the investments, but not for the revenues.	Information has been added.
The cash flow is in normal practice defined as net income after tax plus depreciation. The consultant uses a different definition where interest, changes in working capital and capex are included in the formula. In the sensitivity analyses (chapter 10.6) the same formula is used for different scenarios, giving the cash flow (in consultants definition) as result. In this way the sensitivity on the cash flow effect on this cash flow and highlights the eventual need for extra loans. The cash flow is calculated for VPT as a whole, not for the individual projects. The sensitivity analyses have no impact on decision about the execution of the individual projects.	No changes have been made.
Table 10-20 gives financial indicators, definitions are missing.	Definitions have been added.
The NPV is calculated with an interest percentage of 8% (page 126). This percentage is not motivated.	Explanation added page 100.
Project 6.5 Upgrading the iron ore jetty for 200.000 DWT (page 126) The project has a negative IRR, nevertheless the consultants recommends that the project can be developed on the basis of its own merits, because a cargo loss is prevented. The financial impact of the cargo loss is not mentioned and not integrated in the calculations of the IRR and the NPV.	Cargo loss is included in the calculations in this sense that the IRR for the new situation is identical to the IRR in incremental situation because loss of traffic is prevented.

Major Remarks Financial model Draft Final Report Visakhapatnam	Major Remarks Financial Model Final Report
<p>The financial model is adequate but also complicated. It will be difficult for employees of the Port Trust to use this model. It is recommended to make the model more user friendly, to add instruction and to instruct the future users.</p>	<p>Model has been simplified and training has been given.</p>
<p>The figures in the P&L of the last year of the model deviate from the figures in the report.</p>	<p>Has been corrected</p>

11 Paradip

11.1 Mission, Vision and Strategy

The Port of Paradip has a high potential to become (one of) the most important ports on the East Coast, based on its core strengths: deep draft and proximity to mineral reserves and land-locked regions.

The market offers a volume potential of 140 to 190 million tons at a CAGR of 6% to 8% in the coming 20 years, which will make Paradip one of the leading bulk ports in the world.

Its vision is presented as follows:

"To become a lead hub port of East Coast and economic thrust engine for Eastern India"

On the short term PPT focuses on dry bulk, in the mid term on liquid bulk and in the long term on containers and other clean cargo.

The Mission Statement of the port is:

"To offer world class marine and operational services, while adding value to stakeholders (public)"

PPT aims to achieve its mission through cost effective operations, through highly mechanised, deep draft and dedicated handling facilities, through superior supply chain connectivity and dedicated corridors and through strategic partnerships with private investors.

PPT is a public service entity and hence adding value to the public stakeholders by facilitating economic development and offering cost-effective services should be the key mission of the port. (Elsewhere in the business plan maximization of profits is mentioned, Advisor would prefer optimization of profits).

11.2 Competitive Position

Despite its closer location to mineral mining areas and steel plants, Paradip has lost cargo to some of its competitors. Therefore the Consultant considered it of high importance to make a SWOT analysis of the port, in which the key parameters were past facts and performances, customer's feedback and their future plans, competitor's future plan and new entries. The key elements in the SWOT analysis are as follows:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Location near mineral reserves ▪ Potential to serve as gateway to landlocked regions ▪ Deep draft potential ▪ Steel industry hub in the direct hinterland of the port ▪ The mechanised handling terminal for thermal coal 	<ul style="list-style-type: none"> ▪ Poor connectivity by road and rail to mineral reserves and steel plants ▪ Low availability of port area ▪ Poor internal logistics system, long procedures and delay in capacity addition ▪ High costs of operation ▪ Poor organisational structure and inefficient port labour ▪ Low level of mechanisation
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Potential to become a major bulk port in the world ▪ Hub for liquid and petrochemical cargoes ▪ Clean and container hub for the East Coast 	<ul style="list-style-type: none"> ▪ Competing ports like Visakhapatnam and Dhamra that might offer better value for money and a better work attitude; ▪ Dependency on 5 major customers ▪ Uncertainty w.r.t. availability of non-coking coal and routing of thermal coal

Table 11.1 SWOT-Analysis for Port of Paradip

11.3 Cargo Forecast

For the main commodities handled at the Port of Paradip two scenarios have been developed by Consultants (optimistic and realistic scenarios). The main commodities are listed below.

Iron ore:

The main market driver for iron ore is the Chinese steel production and consumption market.

Particular projections have been made therefore of the Chinese import of iron ore from India. Apart from the market demand Consultants assumed that the development of new iron ore handling facilities will not be a constraint for the iron ore forecast.

Coal:

Coal is one of the key energy resources for the power sector and for the steel and cement industries and therefore these industries are the key drivers for coal consumption. The power sector is reported to consume 75% of the total coal production in India (thermal coal). A strong growth in power generation is expected. Coal production is controlled by the Government of India. Coal India Ltd (CIL) is the major subsidiary of the Government of India and produces nearly 85% of the total production in the country. Non coking coal has a share of 90% of the total coal production while the balance is coking coal. The steel industry is the major consumer of coking coal.

Fertiliser:

Agriculture accounts for about 25% of India's GDP. Demand for fertiliser raw materials is proportional to the growth rate of agriculture (2.4% for the last years).

India manufactures three types of chemical fertilisers. Nitrogen based (urea) phosphate based (DAP) and complex fertilisers. India is only partly self sufficient in terms of raw materials. World fertiliser demand is expected to grow steadily with the main increase in Asia. Fertiliser raw materials (FRM) is a captive cargo for the Port of Paradip (PPL and IFFCO companies).

Chrome ore:

Orissa is the main production area for chrome ore and chrome concentrate.

Containers:

The West coast ports have a share of 70% of the container throughput. The growth in containerised cargoes is mainly via exports. This trend may change when the Indian domestic market starts to consume more high value goods. East bound traffic is expected to grow faster than West bound traffic. The present throughput of containers via the Port of Paradip is negligible. Consultants consider the hinterland to have a high potential to develop containerised cargoes like semi-finished products and food grains. Consultants report the Port of Paradip to have a potential to become a container hub for the Eastern part of India in view of its considerable draft potential.

The overall forecast for the Port of Paradip is indicated in the following table.

	2007-08	2011-12	2025-26
POL – Product & Crude	5,30	17,60	33,70
Iron Ore	12,80	16,10	22,80
Coal	20,50	27,70	47,80
Fertilisers	3,70	5,30	7,80
Container Traffic	0,08	0,25	3,50
Other Cargo	3,20	4,60	10,00
Total Throughput	45,60	71,55	125,60
Container M TEU	0,07	0,02	0,29

Table 11.2 Cargo forecast Port of Paradip in Mtons

Comments of Advisor:

The forecast of thermal coal throughput is heavily dependent on the competition encountered from the Port of Visakhapatnam. The projected volumes of iron ore throughput need to be considered as vulnerable in view of the uncertainties in the policy of the Government of India related to iron ore exports. With respect to the projected container volumes the competition with the Northwest ports (like JNPT) for the container market of North India need to be taken into account.

11.4 Port Facilities

The Port of Paradip an artificial lagoon type harbour protected from sea and swell by breakwaters. The dredged approach channel is some 2.200 m long and 190 m wide (for draft of 13,2 m). The port has one turning circle with a diameter of 520 m.

The port has two wet docks (central and Eastern dock). The Eastern dock (East Quay I, II and III) is planned for the handling of bulk cargoes (up to draft of 11,5 to 12,5 m), while a planned Western dock is planned for clean and other general cargoes. The Central Quay (multipurpose) has a length of 755 m for vessels with a draft up to

13 m. Other quays are South Quay (12,5 m), Fertiliser Berth (13,0 m), Iron Ore Berths (13,2 m), Coal handling Berths (15,0 m) and a POL Jetty (14,0 m).

In particular the iron ore handling capacity is limited. Port equipment in general is old and subject to frequent breakdowns.

The port does not have any dedicated container handling cargoes facilities. The port has a storage capacity of 150 ha of which some 70% is used for coal storage.

The layout of the port is indicated in the figure below.



Figure 11.1 Present layout Port of Paradip

11.5 Port Planning

The Consultants report the following:

- The projected parcel size for bulk vessels is expected to grow (Capesize vessels);
- The market requires more and highly mechanised berths for iron ore and coal;
- The port needs a dedicated container terminal with as capacity of some 1.0 M TEU.

The Port is currently occupying some 70% of the land area for the existing dock and harbour area. Long term plans have been indicated to deal with the reported traffic forecast and required port facilities. One of the plans is shown in the figure below.

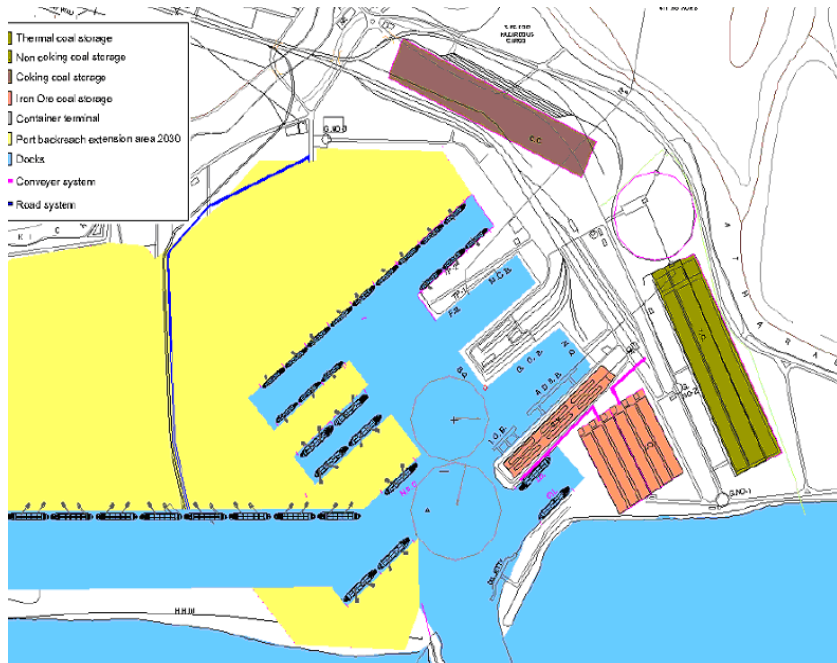


Figure 11.2 Future layout Port of Paradip (Masterplan option)

The following projects have been recommended by Consultant:

- Deepening of entrance channel;
- Extension of breakwater;
- Iron ore and coal mechanised terminals;
- Container Terminal;
- Fertiliser Terminal.

Comments of Advisor

- *Positive development of railway transport through dedicated railway line between mines and port;*
- *Various long term port development plans (Masterplans) proposed.*

11.6 Hinterland Connectivity

Rail dominates the thermal coal distribution in India. Thermal coal is transported to Tamil Nadu by coastal trade from the Port of Paradip.

The PPT owns and operates the rail infrastructure on the port premises. The rail facilities include wagon tippler facilities for iron ore unloading.

The port is connected with all major national highways through Cuttack. The existing road network is not sufficient to cater for the increasing demand.

Banspani is the main iron ore production (mining) cluster. Banspani is located some 300 km from the port. The transport route is not a direct one and the transport distance amounts to some 650 km.

Thermal coal mainly originates from the Talcher mines. A rail link is available between the mines and the port. Coal is diverted to Visakhapatnam in view of better rail link (availability of rakes).

A new Daitari - Banspani rail link will dramatically reduce the transport distance between the iron ore mines and the port and hence the freight cost for iron ore.

With respect to hinterland connections Consultants recommend amongst others to establish rail links between the steel plants and the port.

11.7 Port organisation and institutional setting

Port organisation:

On the internal organisational structures, some of the observations were:

- There is no clearly defined corporate performance measurement system that would help the organisation to measure its goals/ objectives;
- Master planning is not performed on a regular basis. Market changes are not incorporated in the master plan that was conducted by IPA;
- There is much bureaucracy within the PPT, IT communication systems are poor or lacking;
- Business development activities are underdeveloped. Marketing is not considered to be important;
- There is no project management tool in place, projects are managed through paper files;
- One of the major issues is that PPT does not have a well established Human Resources department, while it employs some 3900 people;
- The attitude of the cargo handling labour was rated below average by all customers during the market survey. The productivity at the terminals is low.

Institutional setting:

The Consultant made some clear observations in the Business Plan:

- The port does not have full autonomy to decide and to take its own decision for the key projects that are critical for the competitiveness of the port;
- The Ministry (GOI) has full control over the ports critical projects but the approval process takes minimum three years. This leads to loss of cargo, since the market makes its choice for the private competing ports. PPT had planned for deep draft berths for iron ore and coking coal already in 2001, still these projects have not been materialised yet;
- Even when PPT is planning to finance projects from its own resources it has to wait for the Ministry's approval;
- New policies prepared at central level are not clearly communicated to the ports. Hence the port has to find out itself how to adapt to the new changes;
- Tariff fixation is not under port control. TAMP controls the tariff fixation based on some key parameters. The port can not set its own tariffs. Even when the port wants to lower its tariffs it has to go through a rigorous process;
- Projects are delayed in the approval and planning phases, but also in the tendering phase. Many times a re-tender has to take place. A normal tender process takes 1.5 years.

Comments of Advisor:

These institutional aspects clearly give an impression of the tension between the Ministry / Central Government and PPT. Consultant does not come with recommendations on how to improve the institutional setting in such way that it would benefit trade and speed up the processes related to critical projects to be executed in the port.

11.8 Financial Issues

11.8.1 Profit and loss account

The projected profit and loss account for Paradip Port Trust is presented in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	158	181	184	199	212	224	241	414
Other dues								
Stevedoring revenue	82	85	91	49	52	54	59	68
Storage	22	24	26	27	29	30	32	48
Wharf handling	273	303	198	215	226	228	236	322
Concession fee	0	0	32	35	38	50	55	107
Other operational income	81	90	101	115	123	132	146	237
Total operating revenue	616	682	632	640	681	718	769	1.195
Expenses								
Salaries	58	63	38	41	42	43	44	52
Social charges and pension premiums								
Running costs	256	310	205	228	238	246	257	428
Administrative costs	9	10	6	7	7	7	7	8
Other costs	47	52	32	34	36	38	40	83
Total operating costs	370	436	281	310	324	335	349	572
Operational net earnings before DIT	246	246	351	331	357	383	420	624
Other income	82	88	94	101	108	115	123	247
Net earnings before DIT	328	334	445	432	465	498	543	871
depreciation	43	44	59	56	51	59	65	118
Net earnings before it	284	290	387	376	413	439	478	753
Interest	-31	-37	-43	-46	-113	-93	-98	-54
Net earnings before tax	253	253	344	330	300	346	380	699
Tax	81	81	110	106	96	111	122	224
Net earnings	172	172	234	224	204	236	258	475

Table 11.3 Projected profit and loss account

11.8.2 Balance sheet

The projected balance sheet for Paradip Port Trust in in table 2

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	1.456	1.607	1.773	1.871	1.877	1.868	2.056	2.175
Investments								
Current assets	431	515	640	804	984	1.203	1.328	5.355
Liquid means	906	972	1.046	1.126	1.202	1.280	1.364	2.745
Total assets	2.794	3.094	3.459	3.801	4.063	4.351	4.748	10.275
Equity and liabilities								
Equity								
Reserves	1.542	1.786	2.100	2.416	2.776	3.146	3.550	9.754
Total own equity	1.542	1.786	2.100	2.416	2.776	3.146	3.550	9.754
Provisions								
Long term loans	281	332	387	414	339	279	295	162
Short term liabilities	971	976	971	971	949	926	904	359
Total equity and liabilities	2.794	3.094	3.459	3.801	4.063	4.351	4.748	10.275

Table 11.4 Projected Balance sheet

11.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Paradip

RS Crores

Paradip	Timing	Investment costs				WACC	IRR	NPV
		Total	Port Trust	Private	GOI			
Deepening of the Channel	2008-09	716	373	343		15%	11%	451
Deep draft Iron Ore Berth Phase 1	2008-11	448	116	332		15%	16%	516
Deep draft Coking Coal Phase 1	2008-11	356	107	249		15%	17%	42
Deep draft Non-Coking Coal Phase 1	2008-11	218	83	135		15%	19%	50
Container Terminal Phase 1 & 2	2011-12	697	146	551		15%	16%	20
Fertilizer Terminal (dredging)	2014	41	12	29		15%	20%	20
Other investment provision	2007-14	360	360					
Iron Ore Berth Phase 2	> 2018	504		504		15%	15%	190
Coking Coal Berth Phase 2	> 2018	270		270		15%	15%	1
Total investments in fixed assets until 2014		2.836	1.197	1.639				
Total investments in fixed assets		3.610	1.197	2.413	-			

11.8.4 Financial strategy

The net earnings in the 7 year period increase from Rs 172 Crores to Rs 258 Crores. The level of investments with internal funding is moderate. The solvency is 75% in 2013-14. The borrowing capacity is hardly used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	906
Available for investments IPA 10-4	640
blocked for pensions etc	266
Investments in financial assets 2014	0
Liquid means 2014	1.364
Available funds	1.364
Blocked for pensions	266
Available for investments 2014	1.098
Equity = borrowing capacity	3.550
Existing loans	295
Balance	3.254
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	1.098
From unused borrowing capacity	3.254
Total available for investments in fixed assets in 2014	4.352

Table 11.5 Available funds for investments in fixed assets

11.9 Advisors review on Final Business plan

The Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

Major Remarks Draft Final Report Paradip	Major Remarks Final Report
Format of report is more or less in line with format provided by the Advisor. The extensive part on major results of Interim and Inception phase (up to page 138) includes many relevant aspects from the earlier project phases, however could have been more condensed and balanced	As in Draft Final Report, which is good in general. Suggestion for improvement of readability has not been followed up.
In the Interim phase Consultants have prepared transparent background considerations, analysis and estimates on competitive mapping (chapter 6) and forecast (chapter 3). Much of these considerations and the related Interim Report text have been copied to the Draft Final Report. Advisor would have preferred a summary of the findings and references to the Interim Report where applicable. Furthermore the above subjects need to be described in the correct sequence; first competitive mapping and then forecast as in the Interim Report.	Summary has not been prepared as suggested. Sequence of subjects has been improved and is more logical
Port maps have been included in the summary of the existing situation and considered master plan(s), as well as overview of throughput per commodity. This is appreciated although the map of the existing port as a base of all development projects should be more pronounced and clear, at least at the level of the revised Interim Report.	Suggestion has not been followed up. Map on existing and planned situation (page 127 of DFR) has been left out rather than improved.
The summary provides a lot of figures and growth percentages. Tables and in particular graphs would be more illustrative. Figures indicating same elements in tables and text need to be consistent and should be expressed with significant number of digits only. Ensure that abbreviations are explained and that in all tables it is clear in which unit the figures in the tables are expressed.	Suggestion has not been followed up.
Interesting observations on institutional aspects have been included in section 8.	As in Draft Final report, which is good.
The translation from forecast to required port facilities has been made in tables in the Interim Report. No references have been made in the Draft Final Report to these tables, with the result that in chapter 7 required port facilities come out of the blue	Suggestion has not been followed up. POL imports are growing strongly however no facilities have been projected/evaluated.
The assumptions and summaries of the economic and financial analysis have been described in the Interim Report. No references have been made in the Draft Final Report to these important background data with the result that in chapter 10 the findings of the analysis come out of the blue.	Introduction to financial analysis have been added.
Advisor is missing a clear relation between bottlenecks encountered, resulting projects proposed, action plan, investments, cost benefit analysis, proposed public related and client related projects.	Part of this remark is related to the remarks above on Section 7 up to the action Plan. For the stages beyond the action plan (financial items) improvements have been made.

Financial Remarks Draft Final Report Paradip	Financial Remarks Final Report
<p>In the report two scenarios have been worked out: Internal resources and borrowing PPP These scenarios are worked out for PPT as a whole. The financial coverage of the individual projects follow the PPT scenarios. The character of the individual projects is different (entrance channel or terminal), so an individual approach seems appropriate. A BOT scenario is not evaluated, where it seems appropriate for terminals. If these options are not appropriate due to circumstances it should be motivated in the report.</p>	<p>Remark has been followed up in FR 1 scenario where deepening of channel and berths constructions is funded with internal resources and investment in plants by BOT</p>
<p>Projected financial accounts (annexes IV V and VI) The statement of accounts is not in line with the information outline, especially the format for the projected profit and loss account deviates.</p>	<p>Remark has been followed up. Extra lines have been added in P&L to provide missing information</p>
<p>The details for: Fixed assets Categories of revenues Categories of costs Long term liabilities Equity and reserves as required in the information outline are missing.</p>	<p>Information has been added (table 2.22 and 2.23)</p>
<p>The details for the fixed assets should include an overview of the investments in fixed assets per year and per project. The investments in the financial accounts (additions to fixed assets) seem to be far out of line with the investments in the projects (see revised interim report).</p>	<p>Information has been added (table 2.24 and 2.25)</p>
<p>For the period 2007-2016 the investments in the projects are Rs 24 billion, for the internal and borrowing scenario it is Rs 33 billion and for the PPP scenario it is Rs 16 billion. The differences between the 2 scenarios with regard to revenues, costs and investments are self-explanatory; consultants are requested to explain.</p>	<p>Not applicable anymore as the two scenarios have been deleted and a new one has been added.</p>
<p>The assumptions for the 2 scenarios are missing; the text in the report only handles the results</p>	<p>In FR there is only 1 scenario with extensive description of assumptions</p>
<p>The relation between the selected projects and the financial accounts is missing</p>	<p>Still missing, especially the PPT investments for BOT projects is unclear</p>
<p>Page 156 and 157: Explain how deepening of channel (basic infrastructure project) can be a stand alone feasible project. The financial viability for all projects is evaluated on the basis of an IRR of 15% for all projects. For essential infrastructural projects a much lower IRR is acceptable and normal. The IRR for this project is above the 15% standard. The assumptions in the interim report regarding the revenue for this project are dubious. It is</p>	<p>A Cash flow calculation has been added, however the assumptions regarding revenue are still dubious. The IRR is 11,1% where the NPV at a discount rate of 15% is positive. This cannot be correct. (page 181)</p>

Financial Remarks Draft Final Report Paradip	Financial Remarks Final Report
recognised that this project is essential for all other projects and should be seen in connection with the other projects, regardless the doubts on the IRR calculation.	

Major Remarks related to Financial model in the Draft Final Report Paradip	Major Remarks related to Financial model in the Final Report
The financial model has not been received.	The Financial Model has been received and is adequate for the calculations of the projected financial accounts. The figures in the Financial model are in line with the figures in the financial accounts in the latest version of the Final Report. This version has been received on 26th February.

12 Kolkata

12.1 Mission, Vision and Strategy

Based on a SWOT analysis carried out by consultants along with the management of KoPT the following Mission Statement has been adopted to guide the future development of the Port.

‘Kolkata Port will develop as a customer friendly self sustaining port providing integrated quality services to its customers while retaining its position as a major sea-river gateway for the Eastern region of India and neighbouring land locked countries.’

A number of strategic objectives have been drawn up that are in line with the mission statement. These are:

- To exceed a traffic level of 67 M Tons by 2013-14 and 166 M Tons by 2025-26;
- To be amongst the top 3 major ports of the country in terms of profitability starting by 2010;
- To offer integrated services with other private players so as to develop KoPT as one of the top ports in the country providing added customer value;
- The port will try to maximize the use of lighterage & floating storage terminals in short term and deepwater port Southwards in conjunction with inland waterway transport to maintain its position as a major gateway for the Eastern States and Nepal and Bhutan;
- To provide operating conditions of the highest quality with high levels of productivity, comparable to any other major port in the country, both at the port level as well at the employee level.

Comments of Advisor:

Initially the second strategy mentioned above: to be amongst the top 3 major ports in terms of profitability, was the Mission Statement for the port. The Advisor supports the change towards a more customer oriented Mission Statement.

12.2 Competitive Position

Competition is measured mainly in terms of performance indicators and cost comparisons with other major ports such as:

- Revenue and costs per tonne handled;
- Operating expenditures and operating profits;
- Profitability of the Port Trust;
- Productivity per hook-shift (comparison only between Kolkata and Haldia dock systems);
- Average turn around time (comparison only between Kolkata and Haldia dock systems);
- Average pre-berthing detention (comparison only between Kolkata and Haldia dock systems);

- Average output per ship day (comparison only between Kolkata and Haldia dock systems);
- Average vessel size (comparison only between Kolkata and Haldia dock systems);
- Employee productivity;
- Revenue per employee;
- Equipment productivity;
- Percentage of non working time to total stay at berth.

The SWOT analysis of the Port of Kolkata is presented below:

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Largest Hinterland ▪ Riverine Connectivity ▪ Established Trade Flows ▪ Prime land ▪ WB Government Support ▪ Connectivity and Railway Corridor ▪ Generating adequate Surplus ▪ Principal Gateway 	<ul style="list-style-type: none"> ▪ Siltation in River ▪ Draft Limitation ▪ Old Infrastructure ▪ Long approach Channel ▪ Spread out resources
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Booming economy ▪ Boom in Real Estate ▪ Boom in Shipbuilding & Repair 	<ul style="list-style-type: none"> ▪ Booming economy ▪ Increased Competition ▪ Increasing pension burden ▪ Delayed payment for Subsidy ▪ Import of Coal by TN

Table 12.1 SWOT analysis for the Port of Kolkata

Some of these factors – like riverine connectivity are both Strength (due to larger hinterland access) and Weakness (problems of siltation, dredging and long approach). Similarly – the booming economy is both an opportunity (possibilities of large projects) as well as a threat (changing trade flows – traditional export of Iron ore could diminish with many steel plants being setup).

Competition from other ports, apart from the major ports:

- The new deep sea port, for which plans are made by the Government and for which a location needs to be determined. It is not clear yet to which extent this will influence the Port of Kolkata;
- Dhamra Port, a private port located near Paradip, and planned to become one of the deepest ports in India. In the initial phase the port will be able to handle 18 million tons, mostly dry bulk. Dhamra may prove to be a fierce competitor for the Port of Kolkata.

Comments of Advisor:

The elements used for comparison are not all relevant. In particular the cost comparisons are often comparing apples with oranges and strictly seen from the angle of the Port Trust. The elements related to the attractiveness of the port for the port users are not sufficiently highlighted.

12.3 Cargo Forecast

The Consultant prepared an analysis to estimate the expected traffic and distinguished high and low scenarios for the main commodities. Commodity groups that are expected to be the main drivers of the total forecast are thermal coal, coking coal, iron ore, crude/POL, containers and other cargoes.

The growth of thermal coal is related to the planned additional capacity of power plants.

Iron ore throughput is expected to decline in view of the expected capacity addition at the Port of Paradip (large draft) and its improving hinterland linkage (rail).

Crude imports will decline from the year 2007-08 when a pipeline is completed for the transport of crude between Paradip and Haldia.

The degree of containerisation is expected to grow for which reason the container volumes handled at the Port of Kolkata are expected to grow.

The overall traffic forecast for the main commodities is provided in the following table:

	2007-08	2011-12	2025-26
POL – Product & Crude	9,98	12,34	21,91
Iron Ore	7,66	4,66	4,66
Coal	12,02	19,46	24,92
Fertilisers	0,00	0,00	6,07
Container Traffic	6,89	11,97	85,35
Other Cargo	8,46	10,04	29,41
Total Throughput	45,01	58,47	172,32
Container M TEU	0,57	1,00	7,11

Table 12.2 Cargo forecast Port of Kolkata in Mtons

Comments of Advisor:

- *The long term forecast for the Port of Kolkata is heavily dependent on the potential development of a deepsea hub in West Bengal and the Port of Kulpi along the Hooghly River.*
- *Consultant did not include a vision on synergy (f.e. IWT initiatives) between the present and potential port facilities downstream such as Haldia, riverine developments and the above mentioned potential port developments (West Bengal hub en Kulpi).*

12.4 Port Facilities

The Port of Kolkata comprises two major operational areas; Kolkata Dock System (KDS) and Haldia Dock Complex (HDC). The Kolkata Dock System comprises four subareas; Kidderpore Dock (KPD), Netaji Subhash Dock (NSD), Budge Budge Oil Jetties and a couple of anchorages at downstream Diamond Harbour, Saugor and Sandheads.

Both the KPD and NSD are (locked) dock basins located near Garden Reach along the Hooghly river. The distance from Garden Reach to downstream Sandheads is some 223 km. Budge Budge with six jetties is a river side terminal located some 30 km downstream of NSD. The KPD has 18 berths for handling general cargoes and NSD 10 berths for handling containers and general cargoes. The anchorages at Diamond Harbour and Saugor are related to dry bulk handling (lighterage) and at Sandheads for liquid bulk lighterage.

The present layouts of port facilities in Kolkata and Haldia are indicated in the two figures below.



Figure 12.1 Present layout Port of Kolkata (NSD)

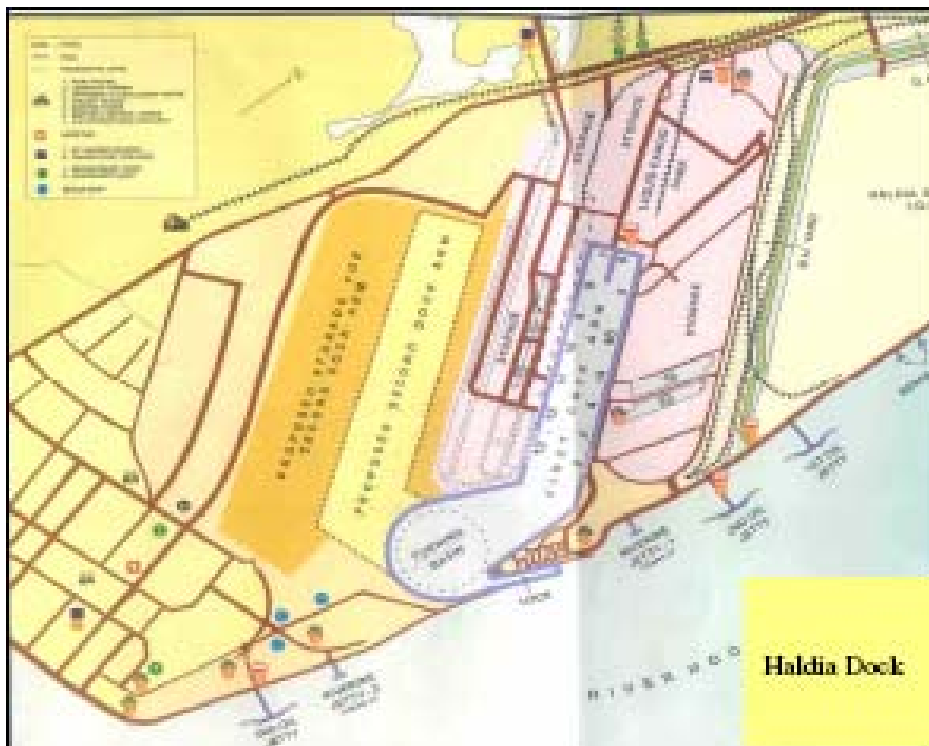


Figure 12.2 Present layout Port of Kolkata (Haldia)

12.5 Port Planning

Main proposed projects

- Two riverine multipurpose jetties near Haldia Dock Complex;
- Three riverine multipurpose jetties at Diamond Harbour;
- Three riverine multipurpose jetties at Saugor.

Comments of Advisor

- *No expansion of Haldia Dock foreseen in spite of demand for capacity increase;*
- *No proposals indicated on development of Kidderpore Docks (deepsea, IWT or urban area);*
- *National and state road and railway connectivity plans.*

12.6 Hinterland Connectivity

The roads connecting the docks of the KDS are crowded and narrow with major congestion and traffic jams. In order to allow growth of port traffic in particular traffic related to container handling, in the NSD and KPD areas, developments of express connections are required.

Railway linkage to KDS is available through the Sealdah station on the left bank of the Hooghly river. Railway linkage is also available to river side jetties among others those at Budge Budge. On the right bank a railway connection is available through

the oil terminal hub at Mourigram. An extension of the railway network down to Diamond Harbour is under investigation.

Concor introduced in 2006 a container train service between KDS to Tughlagkabad. The port of Kolkata is also linked with ICD's at Assam and Nepal.

HDC is relatively new compared to the KDS while the surrounding area is still in a development stage. Congestion however is encountered. The approach road to the port passes a congested stretch where it crosses a railway line through a level crossing. Road improvement works are underway though on a low speed way. The rail connection of Haldia is quite efficient. Rail capacity expansion plans have been drawn up.

Comments of Advisor:

The potential of IWT transport between Kolkata and the hinterland via two national waterways is underutilised. Further potential for IWT connections via the Hooghly between Kolkata and port areas downstream need to be investigated.

12.7 Port organisation and institutional setting

Port organisation:

The Port of Kolkata has followed a successful policy with respect to reducing the number of personnel, decreasing it from 41.000 in the mid 60's to less than 11.000 at this moment. Nevertheless there is still room for further reducing the number of manpower. There are also projects in the nature of port modernisation that require capacity addition.

The focus areas for the Port of Kolkata related to port organisation are:

- Key human resources areas, such as manpower planning, ban on recruitment, and training;
- Reduction of internal paper work;
- Voluntary retirement scheme;
- Information Technology.

Institutional setting:

Successful functioning of ports in existing competitive environment would depend on quick decision making. The Major Ports Reforms Committee, which looked at the structure of the major ports, recommended that the Port Trust Board should shed off responsibility concerning day to day operation, monitoring of activities and overseeing the working of specialized departments of finance, traffic, engineering and marine.

Keeping in view the recommendations of the Major Ports Reforms Committee and the observations of the Consultant, adequate power should be delegated to the port authorities so that business decision on day to day matters are taken at the Heads of Department level and only policy issues and issues falling beyond the delegated authority are referred to the Board of Trustees / central government for approval.

12.8 Financial Issues

12.8.1 Profit and loss account

The projected profit and loss account for Kolkata Port Trust is in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Revenue								
Port dues	52	54	55	56	62	65	72	205
Other dues	88	90	92	94	104	110	121	327
Stevedoring revenue	319	332	292	302	325	354	359	586
Storage	6	6	3	4	4	4	4	5
Wharf handling	18	18	17	18	19	21	22	36
Concession fee	19	19	19	19	22	21	29	378
Other operational income	163	171	179	190	204	219	242	437
Total operating revenue	664	690	656	682	739	795	848	1,974
Expenses								
Salaries	201	211	196	191	214	234	248	499
Social charges and pension premiums	151	165	199	224	283	318	363	266
Running costs	116	129	-45	38	97	179	197	391
Administrative costs	2	2	3	3	3	4	4	9
Other costs	35	39	142	96	51	58	63	122
Total operating costs	505	546	494	551	648	793	875	1,287
Operational net earnings before DIT	159	144	162	131	91	2	-27	687
Other income	92	123	146	165	193	242	235	457
Net earnings before DIT	251	267	308	297	283	244	208	1,144
depreciation	30	34	47	53	56	59	57	174
Net earnings before it	222	233	260	244	227	185	151	970
Interest	-23	-22	-21	-21	-21	-19	-5	0
Net earnings before tax	199	211	240	223	206	167	146	970
Tax	74	70	118	84	68	55	48	320
Net earnings	125	141	121	139	138	112	98	650

Table 12.3 Projected profit and loss account

12.8.2 Balance sheet

The projected balance sheet for Kolkata Port Trust in the following table:

Rs Crores	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2025-26
Assets								
Fixed assets	854	1.174	1.291	1.355	1.392	1.342	1.304	4.353
Investments	187	202	234	272	300	310	318	428
Current assets	1.896	2.079	1.796	1.761	1.688	1.700	1.831	990
Liquid means	1.412	1.423	1.769	1.950	2.227	2.481	2.594	4.118
Total assets	4.349	4.877	5.090	5.339	5.607	5.834	6.047	9.890
Equity and liabilities								
Equity	1.068	1.350	1.490	1.580	1.633	1.633	1.633	1.633
Reserves	1.074	1.215	1.337	1.476	1.614	1.726	1.823	5.994
Total own equity	2.142	2.566	2.827	3.056	3.247	3.358	3.456	7.627
Provisions	447	455	376	332	357	383	410	911
Long term loans	111	97	88	88	89	66	41	0
Short term liabilities	1.649	1.759	1.799	1.863	1.914	2.026	2.140	1.352
Total equity and liabilities	4.349	4.877	5.090	5.339	5.607	5.834	6.047	9.890

Table 12.4 Projected profit and loss account

12.8.3 Projects for the seven year period

The projects for the 7 year period are presented in the following table:

Projects Kolkata								
RS Crores								
Kolkata	Timing	Investment costs				Debt	WACC	IRR
		Total	Port Trust	Private	GOI			
<i>HDC Ongoing projects</i>								
River Regulaory (RR) Measures for improvement of Draft in Hooghly Estuary		421			421			
Construction of Multipurpose berth (No. 2)	2006-07	47	47					
Construction of Multipurpose berth (No. 13)	2006-07	40	40					
Construction of two Holding Berths		20	20					
Procurement of 2 RMQs for container handling		50	50					
Procurement of 4RTGCs for container handling		24	24					
Procurement of 2 nos. Stacker-cum-reclaimer		25	25					
Development of Road Infrastructure		30	30					
Improvement of Back Up Area with Railway connectivity		25	25					
Development of additional storage area		50	50					
Augmentation of railway siding and allied facilities in Haldia dock complex		24	24					
<i>HDC New Projects</i>								
Acquisition of new equipment		100		100				
Dry Bulk Capacity Enhancement (berth 2 and 13)		48						
Up-Grading Handling Capacity of Existing Berths		105		105				
New Riverine Jetties - 2 nos	2007-08	48	48					
	2008-09	99	99				16%	25,61%
<i>KDS Ongoing projects</i>								
Pocurement/Replacement/Refurbishment of Cargo of handling equipment for handling Containers		23	23					
Replacement/Refurbishment of various Cargo of handling equipment for handling Break Bulk		24	24					
Construction of Pilotage facilities		14	14					
Modernization/replacement for Port Craft viz. Grab Dredger & Tugs		42	12			30		
Replacement of SD Subarnarekha		130			130			
Development of infrastructure for storage of break bulk		17	17					
Up-gradation of Railway Track at KDS to handle break bulk		9	9					
Development of infrastructure to store break bulk materials		19	19					
Development of Energy Education/Environmental Awareness Park		10	0			9,9		
Commercial utilization of Mechanical Engineering Workshop Facilities		15	0			15		
<i>KDC New Projects</i>								
3 New Berths at Diamond Harbour (BOT 313, rest PT?)	2006-07	16					10,38%	15,96%
	2007-08	132						
	2008-09	167						
	2009-10	46						
Floating Terminals at Sagar/Sandheads		350	5	345				
3 Riverine Jetties at Saugor (BOT 665, 35 PT)	2009-10	140					10,38%	14,07%
	2010-11	280						
	2011-12	280						
Yard Development at NSD		50		50				
1-30 T capacity ELL Crane		8		8				
Total investments in fixed assets		2.925	603	608	551	54		
Correction investments for 7 year period			292					
Total investments in fixed assets in financial model			895					

12.8.4 Financial strategy

The net earnings in the 7 year period decrease from Rs 125 Crores to Rs 98 Crores. The level of investments with internal funding is moderate. The solvency is 75% in 2013-14. The borrowing capacity is not used for projects in the 7 – year period.

The available funds in 2014 originating from liquid means, investments and unused borrowing capacity is presented in the following table:

Elements	Rs Crores
Available funds 2007 (investments and liquid means)	1.599
Available for investments IPA 10-4	317
blocked for pensions etc	1.282
Investments in financial assets 2014	318
Liquid means 2014	2.594
Available funds	2.912
Blocked for pensions	1.282
Available for investments 2014	1.630
Equity = borrowing capacity	3.456
Existing loans	41
Balance	3.415
Available in 2014 in funds and borrowing capacity	
Net from investments and liquid	1.630
From unused borrowing capacity	3.415
Total available for investments in fixed assets in 2014	5.045

12.9 Advisors review on Final Business plan

The Revised Final Business Plan forms a sufficient basis for implementation of the related projects in the coming 7 years. The Advisor recommends that the Port Trust will take the following suggestions, as final remarks made by the Advisor, into account before commencement of the implementation of the Final Business Plan.

General Remarks Draft Final Report Kolkata	General Remarks Final Report	General Remarks Revised Final Report
No summary has been included.	Has been corrected.	OK
Report is well structured and written in proper English.	As in DFR which is ok	OK
Abbreviation list has not been included.	Has been corrected	OK
Conclusions of Inception and Interim Reports have been properly summarised in Chapter 2.	As in DFR which is ok	OK
Mission Statement 'KoPT to be at the top of 3 major ports of the country in terms of profitability' is not correct and not in line with vision (customer friendly port).	Has been corrected, though profitability statement is still a strategic objective	OK
Adopted growth figures for various commodities are not sufficiently explained. High and low forecasts have been provided. Not clear what has been done with results.	Has been corrected	OK
Competition is measured only in terms of performance indicators and mainly cost comparisons.	As in DFR	Has been improved
Link between forecast, terminal requirements and selected projects is not explained in a structured and transparent way.	As in DFR. Table 3.1 on page 3-10 covers subject partly however is difficult to be read	Has been improved
Interesting proposal for Kolkata Port has been introduced with closing down port activities at Kidderpore Docks and restructuring to city development.	Proposal of land use plan has been changed with more industrial areas.	OK
Apart from 3 reported top projects no indication is given by consultants on viability of the other proposed projects. Way of selection of three top projects is not clear from report.	As in DFR	As in DFR
Consultants includes many tables with statistical data on port performances in section 2.5, however does not explain nor analyse the figures. Reader has to guess to reasons of strong deviations and changes.	As in DFR	As in DFR
Container handling capacity is structurally expressed in M TONS rather than the more logical TEU/year. In case the adopted (high)	As in DFR, capacity is expressed partly in M tons and partly	Has been improved

General Remarks Draft Final Report Kolkata	General Remarks Final Report	General Remarks Revised Final Report
unit weight of the container is changing for example due to a larger imbalance in imports and exports and a consequential change in share of empties, the volume in TEU per year is far more relevant.	in TEU per year	
Not clear why Consultant is selecting only three (already known NMDP) projects out of the long list of proposed projects.	As in DFR	As in DFR
Information on capacity expansion projects and in particular on selected projects is minimal regarding type of commodities, type of equipment, productivities, working times, seaside and yard handling and storage requirements, breakdown of cost for developments etc. Reasonable checking of logic of projects is not possible.	As in DFR	Has been improved
Section on Human Resources is too extensive in relation to other subjects in this business plan.	As in DFR	As in DFR

Special remarks	Special remarks Final Report	Special remarks Revised Final Report
	No information is provided on possible port developments at Kulpi and on new deepsea port	Has been improved
Page 2-44 Estimates made for number of truck trips is very optimistic, while figures are not properly defined	As in DFR	As in DFR
	Some additional general information on IWT added in chapter 2.6.3	As in DFR
	Part of Advisors remarks have been considered by Consultant in their processing from DFR to Final Report	OK
	Contents list does not provide pages making it difficult to trace chapters, sections and paragraphs	Has been improved

Financial Remarks Draft Final Report Kolkata	Financial Remarks Final Report	Financial Remarks Revised Final Report																
<p>Chapter 3 gives an overview of investment projects for the periods 2003-07 The description of these projects is brief, financial calculations are missing. It is unclear if these projects have any connection with the traffic forecast and with the expansion of the capacity of KoPT. For some projects the cost of the project is mentioned and an indication of the financial coverage.</p>	As in DFR	Table 4-0 at page 4-3 has been added, however is not in line with the financial model.																
<p>Three top projects are described, all three are for riverine jetties they will be located in HDC, Diamond Harbour and Saugor.</p> <p>The calculation of the financial feasibility is extensive. The assumptions and the calculation are easy to follow. The outcome is in line with the calculations. This is as follows:</p> <table border="1" data-bbox="284 1162 906 1556"> <thead> <tr> <th>Project</th> <th>Project IRR</th> <th>Equity IRR</th> <th>NPV 15%</th> </tr> </thead> <tbody> <tr> <td>Riverine jetties at HDC</td> <td>15.37%</td> <td>19.13%</td> <td>25.36 RS Cr</td> </tr> <tr> <td>Riverine jetties at Diamond Harbour</td> <td>17.26%</td> <td>22.91%</td> <td>77.87 RS Cr</td> </tr> <tr> <td>Riverine jetties at Saugor</td> <td>15.23%</td> <td>20.67%</td> <td>134.08 RS Cr</td> </tr> </tbody> </table>	Project	Project IRR	Equity IRR	NPV 15%	Riverine jetties at HDC	15.37%	19.13%	25.36 RS Cr	Riverine jetties at Diamond Harbour	17.26%	22.91%	77.87 RS Cr	Riverine jetties at Saugor	15.23%	20.67%	134.08 RS Cr	<p>Riverine jetties at HDC: Cost of capital in FR is 16% (in DFR 15%). Capex is lower than in DFR and therefore IRR and NPV are higher</p> <p>Riverine jetties at Diamond Harbour: Cost of capital in FR is 10.38% (in DFR 15%) and therefore NPV is higher</p> <p>Riverine jetties at Saugor: As riverine jetties at Diamond Harbour</p>	As in FR which is OK
Project	Project IRR	Equity IRR	NPV 15%															
Riverine jetties at HDC	15.37%	19.13%	25.36 RS Cr															
Riverine jetties at Diamond Harbour	17.26%	22.91%	77.87 RS Cr															
Riverine jetties at Saugor	15.23%	20.67%	134.08 RS Cr															
<p>In the light of the marginal feasibility remarks can be made of two major assumptions in the projects, the first remark regards all 3 projects: Port dues are included in the revenue, this assumption is arbitrary because it is normal practice that port dues are charged in order to cover the maintenance of the access channel and the basins.</p>	As in DFR	As in DFR																
<p>The second remark regards the riverine jetty at Saugor Towage is included in the revenue based on the average revenue for towage in ht epast,</p>	Has been corrected	OK																

Financial Remarks Draft Final Report Kolkata	Financial Remarks Final Report	Financial Remarks Revised Final Report
however average towage revenue is for vessels passing the lock, for riverine situation the towage will be on a lower level.		
Projected financial accounts The statement of accounts is in line with the format in the information outline regarding the projected balance sheet and the projected profit and loss account. The flow of funds deviates from the format in the information outline, some items need further clarification: Net increase in equity, this seems to be the Government Grant, why is this amount excluded in the profit and loss account Net addition to reserves, this seems to be <i>Amortised cost interest</i>	As in DFR	OK
The details for Categories of revenues Categories of costs Long term liabilities Equity and reserves As required in the information outline is missing. In order to keep the wording of chapter 3 intact these details could be integrated in an annex.	As in DFR	As in DFR
The relation between the selected projects and the financial accounts is not clear. It is recommended to make 1 table where all projects are included and where the funding is separated between the port and the third party and where the investments are summarised per project and per year.	As in DFR	Table 4-0 on page 4-3 has been added.
Major Remarks Financial model Draft Final Report Kolkata	Major Remarks Financial Model Final Report	Major Remarks Financial Model Revised Final Report
The financial model is adequate to calculate the projected financial accounts.	As in DFR	OK