



INFRASTRUCTURE  
Building for Growth



Government of India

# Report of the Task Force Financing Plan for Ports







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# Financing Plan for Ports

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## Secretariat for Committee on Infrastructure

### Preface

This Report outlines the financing plan for upgrading and augmenting port infrastructure in India. It responds to the direction of the Committee on Infrastructure, chaired by the Prime Minister, to evolve a plan for creating world-class port infrastructure. The Report was prepared by a Task Force chaired by Shri Anwarul Hoda, Member, Planning Commission, and included experts and representatives from the Department of Shipping, Port Trusts, Planning Commission and Ministry of Finance. It was considered and approved by the Committee on Infrastructure in June 2007.

The quality of port infrastructure contributes directly to a country's international competitiveness and economic growth by facilitating the smooth movement of cargo, spurring trade. In the past, port development has not kept pace with the growth of the Indian economy, especially the quantum jump in cargo traffic since 2002. As a result, several major ports are congested and offer inefficient services.

Compared to the actual traffic of 424 MMT at the Major Ports (Central Government undertakings) in 2005-06, the projected traffic to be handled in the year 2011-12 would be 708 MMT. Keeping in view the need to provide for buffer capacity and seasonal variations, a capacity of 1,002 MMT would be required at Major Ports by 2011-12, as

compared to the existing capacity of 456 MMT. A capacity addition of 546 MMT would, therefore, be required during the period 2006-07 to 2011-12.

To ensure the requisite investments as well as time-bound creation of world-class facilities, the Report recommends the development of ports primarily through Public Private Partnerships (PPPs).

Development of Major Ports would require an investment of Rs. 57,452 cr. between 2006-07 and 2011-12 while development of other ports (i.e. ports not owned by the Central Government) would require Rs. 35,933 cr. over the same period, aggregating to Rs 93,385 cr. Of this, an investment of approximately Rs. 68,835 cr. is envisaged from PPPs.

(Gajendra Haldea)

## Introduction

**1.1** The Committee on Infrastructure (CoI) in its fourth meeting held on May 12, 2005 approved the broad contours of the development of Ports and mandated that the programme be implemented by 2013 - 14.

**1.2** Ports play a vital role in the overall economic development of the country. About 95% by volume and 70% by value of the country's international trade relies upon maritime transport. At present, there are 12 Major Ports, six each on the east and west coast and about 45 non-major and private ports contributing to maritime trade. The total volume of traffic handled by all Indian ports during 2005-06 was 573 MMT (Million Metric Tonnes) and the overall projected traffic for 2011-12 is 1009 MMT.

**1.3** The traffic share of Major Ports in 2005-06 was 424 MMT and is expected to rise to 708 MMT in 2011-12. To cater to the additional capacity requirement, an investment of Rs. 57,400 cr. is envisaged in the Major Ports. To ensure holistic development, the Major Ports have identified development projects which can be broadly classified in the following major categories viz (a) Construction/reconstruction of berths/jetties; (b) deepening of channels/berths; (c) procurement of equipment; and (d) others.

**1.4** The growth in cargo, which has been about 19% for the last two years, is likely to continue at this pace. Rate of growth in containers is likely to be in the region of 15% to 18%. With this growth rate, capacity at Indian ports, which is already under stress,

requires substantial augmentation.

**1.5** In the meeting of the Empowered Subcommittee held on May 17, 2006 under the chairmanship of Deputy Chairman, Planning Commission, it was decided that the financing plan for Major Ports would be formulated by a Task Force under the chairmanship of Shri Anwarul Hoda, Member, Planning Commission and consisting of the following members:

Secretary, Department of Shipping

Secretary Expenditure or a nominated Addl.

Secretary

Secretary, Department of Economic Affairs or a nominated Addl. Secretary

Secretary Commerce or a nominated Addl.

Secretary

Secretary Power or a nominated Addl.

Secretary

Adviser to Deputy Chairman, Planning Commission

Addl. Secretary, Ministry of Oil & Natural Gas

Adviser (Transport), Planning Commission

Chairperson, Mumbai Port Trust

Chairman, Kandla Port Trust

Managing Director, Indian Ports Association

**1.6** The Group held meetings on June 22, August 17, September 8, November 17, 2006, April 13, 2007 and May 23, 2007 to discuss and formulate the financing plan. The recommendations of the Group are contained in the following chapters.

## Traffic projections

**2.1** In 2004-05, the Department of Shipping carried out a detailed study of traffic patterns and trends in order to make traffic projections in the port sector in the context of National Maritime Development Programme. With a view to making macro level traffic projections for 2013-14 (both for Major and Non-Major ports), these projections have been further updated in consultation with the User Ministries/Departments and the Major Ports. The broad commodity-wise projections for the years 2011-12 and 2013-14 are presented below :-

(In MMT)

Commodity	Traffic projections (2011-12)	Traffic projections (2013-14)
POL (crude, products and LNG)	378	466
Iron Ore	128	140
Coal	139	180
Containers Tonnage (MTEUs)	170 (14)	241 (20)
Others*	194	198
<b>Total</b>	<b>1009</b>	<b>1225</b>

(\*) Includes iron & steel, fertilizers and their raw materials, food grains, alumina, chemicals and other miscellaneous & general cargo

**2.2** The above projections of 1009 MMT of total port traffic during 2011-12 have been compared with separate projections based on GDP growth that take account of the growth trend of port traffic during the previous 5 years. The two sets of projections are very close.

**2.3** During 2006-07 the share of Non-Major ports in total port traffic is likely to be around 26.5%. In keeping with the ambitious development plans of the State Maritime Boards/Authorities and the constraints of expansion at the existing Major Ports, it is

expected that the share of Non-Major ports in total traffic would progressively increase and would reach about 30% by 2011-12. On this basis, the following projections have been made in table below:

(In MMT)

Commodity	Existing traffic 2005-06			Projected traffic 2011-12	
	Major Ports	Non-Major Ports	Total	Total	Major Ports
POL	142	75	217	378	215
Iron Ore	79	28	107	128	99
Coal	59	13	71	139	109
Container (Million TEUs)	62 (4.6)	4 (0.3)	66 (4.9)	170 (14.2)	144 (12)
Other cargos	82	32	113	194	141
<b>Total</b>	<b>424</b>	<b>151</b>	<b>575</b>	<b>1009</b>	<b>708</b>

**2.4** Based on the above projections, the Compound Annual Growth Rate (CAGR) of traffic between 2005-06 and 2011-12 is likely to be 9.83% for all ports, 8.94% for Major Ports and 12.16% for Non-Major ports.

**2.5** Out of the total projected traffic of 1009 MMT, share of Major Ports will be 708 MMT. The projections of traffic at Major Ports have been arrived at on the basis of feed-back received from individual Major Ports and various Government and user agencies based on current levels of demand, expansion plans, industrial growth, future export markets in the respective port's hinterland, etc.

**2.6** The commodity-wise estimated traffic at Major Ports for 2011-12 is given at Annex-I and an analysis of the projected traffic in 2013-14 is given at Appendix-I.

## Capacity requirement

**3.1** The existing capacity in the Major Ports is 456 MMT comprising 62 MMT (5.18 MTEUs or Million Twenty Feet Equivalent Units) for containers, 162 MMT for POL and 232 MMT for other cargo respectively. The projections relating to iron ore, however, may have to be reviewed in case the policy relating to export of iron ore is modified. It may be seen that the Major Ports would need to prepare themselves for handling a total cargo traffic of 708 MMT by the year 2011-12. Keeping in view the projected traffic and the need to provide for buffer capacity to meet the surge in requirements, as also the possibility of bunching of traffic, it is proposed to augment the capacity at Major Ports to a level of 1002 MMT which implies that an additional capacity of about 546 MMT is to be built in the period between 2006-07 and 2011-12. Commodity-wise break-up of additional capacity planned in the Major Ports is given in table below:

**3.2** The commodity wise capacity addition planned at each Major Port for 2007-12 is given at Annex II.

**3.3** India's port sector has reached a stage where the available capacity is facing saturation on account of growing traffic. This has resulted in congestion and delays. Owing to inefficiency and growing congestion, the average pre-berthing detention and the average turnaround time are high by international standards. The building of additional capacity is, therefore, critical for rapid improvement in the sector.

(In MMT)

Commodity	Existing capacity 2005-06	Projected traffic 2011-12	Planned capacity addition By 2011-12	Total capacity planned by 2011-12
POL	162	215	132	294
Iron Ore	56	99	66	122
Coal	46	109	69	115
Container (MTEUs)	62 (5.2)	144 (12)	161 (13.4)	224 (18.6)
Other cargos	130	141	118	247
<b>Total</b>	<b>456</b>	<b>708</b>	<b>546</b>	<b>1002</b>



## Source of financing

**4.1** Significant investments are required for upgradation and construction of berths; deepening of channels for improvement in drafts; and procurement, replacement and upgradation of equipment. The total investments in the Major Ports during the period 2007-12 are estimated at a level of Rs. 57,452 cr. A summary of the funding pattern is given in table below:

**4.2** Port-wise investment for capacity addition pertaining to berths for containers, POL and other cargoes is projected at Annex-IIIA, IIIB and IIIC respectively. Details relating to development and financing of terminals are at Annex-IIID.

**4.3** The total port-wise investment proposed for construction of terminals, dredging of

channels, other capital dredging projects, equipment and other works is at Annex-IVA to IVE. Port-wise summary of the proposed capital expenditure is at Annex-IVF. The cash balances of Port Trusts, present as well as projected, are at Annex-V.

**4.4** Capacity addition through new projects would be at the level of 464 MMT, requiring a capital investment of Rs. 32,875 cr. Additional capacity of 82 MMT would also be created through projects for dredging, equipment and other works aimed at improving productivity.

### Public Private Partnership

**4.5** Following the successful experience of operating berths at Major Ports on PPP basis

(Rs. in cr.)

S. No	Description	Investment	Source of finance			
			PPP	EBR	Internal resources	Govt. grants
I	Berth development					
1.1	Container terminal	11,502	10,958	0.0	544	0.0
1.2	POL berths	10,314	9,278	540	496	0.0
1.3	Other cargo berths	11,059	8,715	0.0	2,343	0.0
	Total (I)	32,875	28,951	540	3,383	0.0
II	Capital dredging	5,812	103	866	2,275	2,568
III	Equipment	3,604	1,444	0.0	2,030	130
IV	Connectivity*	2,955	26	402	2,232	296
	Others@	12,207	7,555	367	4,255	30
	Total investment	57,452	38,079	2,174	14,175	3,024

\*The amount shown against connectivity projects indicates the amount committed by Port Trusts towards financing of the connectivity projects.

@ "Others" include a range of projects such as infrastructure within ports (roads, navigational aids, warehousing, stockyards, security works, etc.), ship/container repair facilities, locomotives, breakwaters, marinas, shipbuilding facilities, etc.

and in order to maximise the inflow of private capital, all new berths taken up after June 30, 2006 at Major Ports will normally be constructed through the PPP mode. The likely investment from PPPs for construction of new berths would be Rs. 38,079 cr.

### **Internal resources of Port Trusts**

**4.6** The total volume of internal resources available for investment in different ports has been indicated at Annex-V. Some of the ports have sufficient funds of their own to meet the capital expenditure on dredging, replacement of equipments and other port-specific activities. It is estimated that investments of about Rs. 14,175 cr. can be funded through the internal resources of Port Trusts.

### **Borrowings**

**4.7** The shortfall between inflows from all sources and projected outflows is proposed to be met out of market borrowings. However, these borrowings would be capped by the ability of Port Trusts to repay. It is estimated that about Rs. 2,174 cr. can be raised through borrowings by Port Trusts. Where necessary, the feasibility of loans from one Port Trust to another would also be explored.

### **Viability gap in financing of PPPs**

**4.8** In taking a decision for development of selected berths on PPP basis, the possibilities of securing upto 20% of the capital costs by way of capital grant under the scheme for

support to PPPs in infrastructure should be kept in view. This would help in expanding the scope of PPPs in development of the port sector.

### **Government grants**

**4.9** In select cases, where the financial position of any Major Port so warrants, Government support for capital dredging projects for deepening of port channels and construction of break waters has been proposed. Budgetary support of around Rs. 3,024 cr. has been projected for the Eleventh Five Year Plan. However, given the limitations on budgetary support, shortfalls may have to be met either by market borrowings or through inter-Port loans on terms to be determined by the Government.

## Non-Major Ports

**5.1** The share of cargo traffic at Non-Major ports is likely to increase at an accelerated pace as maritime States and Union Territories actively pursue the development of Non-Major Ports in their jurisdiction. The requisite institutional and policy framework has been put in place by some of the States whereas others are initiating work for the same.

**5.2** The Maritime States Development Council (MSDC) was constituted in 1997 under the chairmanship of the Minister of Shipping, with the Ministers in charge of Ports

in the Maritime States and UTs as members, with a view to ensuring integrated development of Major Ports and Non-Major Ports. As per the details collected during the latest MSDC meeting, the anticipated capacity in the Non-Major Ports as on 31.03.2007 is 228 MMT. Maritime States have also identified capacity addition projects and indicated their funding pattern. Based on information furnished by the States and UTs, the proposed capacity addition and associated funding pattern are given in the table below:

State	Proposed capacity addition (MMT)	Estimated cost (Rs. in cr.)	Funding Pattern (Rs. in cr.)			
			State Govt.	Central Govt.	Private sector	Others*
Andhra Pradesh	84	6,104	637	637	4,830	-
Gujarat	56	9,736	-	-	9,241	495
Maharashtra	85	5,993	-	-	5,993	-
Tamil Nadu	29	1,925	-	-	1,925	-
Karnataka	26	2,480	238	2,142	100	-
Orissa	13	4,100	-	-	4,100	-
Goa	4	48	5	43	-	-
Kerala	28	3,080	527	438	2,115	-
West Bengal	8	600	12	228	360	-
Pondicherry	12	1,867	-	-	-	1,867
<b>Total</b>	<b>345</b>	<b>35,933</b>	<b>1,419</b>	<b>3,488</b>	<b>28,664</b>	<b>2,362</b>

\* Funding by means of equity, market borrowings, joint venture, etc.

# Recommendations of the Task Force

## I Major Ports

### Traffic projections and capacity addition

**6.1** The projected traffic to be handled at the Major Ports for container, POL and other cargos is 708 MMT for the year 2011-12. It is estimated that a capacity of 1,002 MMT would be required at Major Ports for handling the projected traffic. The existing capacity is 456 MMT and the traffic handled during the year 2005-06 was 424 MMT. A capacity addition of 546 MMT would, therefore, be required during the period 2006-07 to 2011-12 to handle the projected traffic.

### Investment required

**6.2** The projected investment in Major Ports for the period of 2006-07 to 2011-12 is summarised below:

Description	Investment (In Rs. cr.)
1. Terminals	
(a) Container terminals	11,502
(b) POL terminals	10,314
(c) Other cargo terminals	11,059
Total (Terminals)	32,875
2. Capital dredging	5,812
3. Equipment	3,604
4. Connectivity Projects	2,955
5. Others	12,207
Total	57,452

**6.3** All concession/contracts would be awarded by the year 2011-12 though actual investment may spill over to 2013-14.

**6.4** In addition to the investment in Major Ports, the Maritime States have projected a capacity addition of 346 MMT with an investment of Rs. 35,933 cr. that would be financed mainly through private capital. In their funding proposals, the States and UTs have projected inter alia a requirement of about Rs. 3,488 cr. from the Central Government. Such assistance for Non-Major Ports should be possible to the extent States conform to the provisions of the viability gap funding scheme of Government of India.

**6.5** The total investment on Major and Non-Major Ports would be Rs. 93,385 cr. (say Rs. 90,000 cr.).

### Modes of delivery

**6.6** All new berths at Major Ports are to be constructed through the PPP mode after June 30, 2006. However, where operational exigencies so necessitate and/or balance of considerations on grounds of security, optimisation of port revenues and any other relevant concerns so warrant, development of new berths may be taken up by the Major Ports through their own resources on a case by case approach with prior approval of the Ministry of Shipping in consultation with the Planning Commission. Port Trusts would also finance the investments required for upgrading their existing berths and for modernisation/

replacement of equipments. The extant procedures for appraisal and approval of projects would continue to apply.

**6.7** The common user facilities like capital dredging, reclamation, bund construction, berth area development, electrification, water supply etc. would be taken up by the Port Trusts from their internal resources or through borrowings. The feasibility of PPPs in these areas would also be explored. In select cases, where the financial position of any Major Port so warrants, budgetary support for capital dredging projects and construction of breakwaters may be considered. Where budgetary support is inadequate, market borrowings may be relied upon and the possibilities of inter-Port borrowings may also be explored.

### **Implementation & monitoring**

**6.8** An action plan for implementation of the various projects would be formulated by an IMG (Inter Ministerial Group) chaired by Secretary, Shipping and with Department of Economic Affairs, Planning Commission, Ministry of Coal, Ministry of Petroleum & Natural Gas and the respective Port Trusts as members, by July '07 and submitted to CoI. The IMG would also review progress of implementation every month during 2007 and every quarter thereafter. The progress of the implementation of the financing plan would be reported to the Committee on Infrastructure once every quarter.



# **Annexures**

## Annex I

Estimated Traffic at Major Ports: 2011-12 (See Appendix-I for details)

(In MMT)

Port	POL	Iron ore	Coal	Container tonnage	Other misc. cargos	Total
1	2	3	4	5	6	7
Chennai	12	5	-	20	21	58
Cochin	18	-	1	15	5	38
Ennore	4	14	21	8	1	47
Haldia	12	6	16	4	7	45
JNPT	4	-	-	59	2	66
Kandla	51	1	4	6	25	87
Kolkata	1	1	1	7	3	13
Mormugao	1	33	6	0	5	45
Mumbai	40	-	4	10	17	71
New Mangalore	30	9	3	0	7	49
Paradip	16	13	29	0	18	76
Tuticorin	3	0	13	8	8	32
Visakhapatnam	24	17	12	7	22	82
<b>Total</b>	<b>215</b>	<b>99</b>	<b>109</b>	<b>144</b>	<b>141</b>	<b>708</b>



## Annex II

### Capacity addition at Major Ports: 2007-12

(In MMT)

Port	Particulars	Period	POL	Iron ore	Coal	Container tonnage	Other misc. cargos	Total
1	2	3	4	5	6	7	8	9
Chennai	Existing Capacity	2005-06	11	8	-	12	18	49
	Capacity Addition	2007-12	1	-	-	11	12	24
	Total Capacity	2011-12	12	8	-	23	29	72
Cochin	Existing Capacity	2005-06	11	-	-	3	5	19
	Capacity Addition	2007-12	19	-	2	13	2	35
	Total Capacity	2011-12	30	-	2	16	8	55
Ennore	Existing Capacity	2005-06	-	-	13			13
	Capacity Addition	2007-12	3	15	13	18	2	51
	Total Capacity	2011-12	3	15	26	18	2	64
Kolkata	Existing Capacity	2005-06	4	-	-	4	5	13
	Capacity Addition	2007-12	3	2	3	8	3	19
	Total Capacity	2011-12	7	2	3	12	8	31
Haladia	Existing capacity	2005-06	17	4	7	3	11	42
	Capacity addition	2007-12	-	2	4	10	6	21
	Total capacity	2011-12	17	6	11	13	17	63
JNPT	Existing capacity	2005-06	6	-	-	31	-	36
	Capacity addition	2007-12	6	-	-	54	-	60
	Total capacity	2011-12	11	0	0	85	0	96
Kandla	Existing capacity	2005-06	34	-	-	-	12	46
	Capacity addition	2007-12	36	-	-	7	33	76
	Total capacity	2011-12	70	0	0	7	45	122
Mormugao	Existing capacity	2005-06	2	21	-	-	7	30
	Capacity addition	2007-12	-	26	-	0	11	37
	Total capacity	2011-12	2	47	0.00	0	18	67
Mumbai	Existing capacity	2005-06	32	-	-	4	8	44
	Capacity addition	2007-12	22	-	6	10	11	48
	Total capacity	2011-12	54	0	6	14	19	92
New Mangalore	Existing capacity	2005-06	21	8	-	-	10	38
	Capacity addition	2007-12	11	4	5	4	-	23
	Total capacity	2011-12	32	11	5	4	10	61

(Contd.)

(In MMT)

Port	Particulars	Period	POL ore	Iron	Coal tonnage	Container misc. cargos	Other	Total
1	2	3	4	5	6	7	8	9
Paradip	Existing capacity	2005-06	6	4	20	-	21	51
	Capacity addition	2007-12	15	10	10	3	18	55
	Total capacity	2011-12	21	14	30	3	39	106
Tuticorin	Existing capacity	2005-06	2	-	6	5	7	21
	Capacity addition	2007-12	-	-	17	19	8	43
	Total capacity	2011-12	2	0	23	24	15	64
Visakhapatnam	Existing capacity	2005-06	17	11	-	1	26	55
	Capacity addition	2007-12	17	8	11	6	12	53
	Total capacity	2011-12	34	19	11	7	38	108
<b>Total</b>	<b>Existing capacity</b>	<b>2005-06</b>	<b>162</b>	<b>56</b>	<b>46</b>	<b>62</b>	<b>130</b>	<b>456</b>
	<b>Capacity addition</b>	<b>2007-12</b>	<b>132</b>	<b>66</b>	<b>69</b>	<b>161</b>	<b>118</b>	<b>546</b>
	<b>Total capacity</b>	<b>2011-12</b>	<b>294</b>	<b>122</b>	<b>115</b>	<b>224</b>	<b>247</b>	<b>1002</b>

## Annex IIIA

### Proposed investment on container terminals

(Rs. in cr.)

Sl. No.	Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
1	Chennai	11	50	202	245	0	0	0	495
2	Cochin	13	0	400	850	868	0	0	2,118
3	Ennore	18	0	0	300	300	400	0	1,000
4	Haldia	-	-	-	-	-	-	-	0
5	J.N.P.T.	49	900	20	722	1,083	1,493	135	4,353
6	Kandla	7	180	125	142	0	0	0	447
7	Kolkata	-	-	-	-	-	-	-	0
8	Mormugao	0	0	0	185	0	0	0	185
9	Mumbai	10	0	245	491	491	0	0	1,228
10	New Mangalore	3	0	0	0	150	300	250	700
11	Paradip	3	0	0	10	90	180	250	530
12	Tuticorin	9	0	0	0	158	158	0	316
13	Visakhapatnam	6	0	0	10	24	48	48	130
<b>Grand Total</b>		<b>128</b>	<b>1,130</b>	<b>990</b>	<b>2,955</b>	<b>3,164</b>	<b>2,579</b>	<b>683</b>	<b>11,502</b>

## Annex IIIB

### Proposed investment on POL terminals

(Rs. in cr.)

Sl. No.	Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
1	Chennai	-	-	-	-	-	-	-	0.00
2	Cochin	13	0	300	732	978	832	18	2,860
3	Ennore	3	0	100	100	300	700	900	2,100
4	Haldia-	-	-	-	-	-	-	0	
5	J.N.P.T.	6	0	0	0	0	0	50	50
6	Kandla	26	750	25	25	140	279	279	1,498
7	Kolkata	-	-	-	-	-	-	-	0
8	Mormugao	-	-	-	-	-	-	-	0
9	Mumbai	22	0	20	52	83	71	90	316
10	New Mangalore	11	0	0	540	1,120	1,140	100	2,900
11	Paradip *	15	0	0	0	0	0	0	0
12	Tuticorin	-	-	-	-	-	-	-	0
13	Visakhapatnam	17	0	0	108	216	216	50	590
<b>Grand Total</b>		<b>112</b>	<b>750</b>	<b>445</b>	<b>1,557</b>	<b>2,837</b>	<b>3,238</b>	<b>1,487</b>	<b>10,314</b>

(\*) Capacity addition through setting up of SBM by Indian Oil Corporation to be commenced from March, 2007

## Annex IIC

### Proposed investment on other cargo terminals

(Rs. in cr.)

Sl. No.	Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
1	Chennai	3	0	0	52	78	0	0	130
2	Cochin	10	5	70	130	118	60	38	420
3	Ennore	30	0	250	250	450	150	1,100	2,200
4	Haldia	7	23	73	142	15	0	0	253
5	J.N.P.T.	-	-	-	-	-	-	-	0
6	Kandla	36	10	297	475	313	134	764	1,992
7	Kolkata	16	0	0	50	200	550	580	1,380
8	Mormugao	24	0	20	140	145	0	210	515
9	Mumbai	17	0	122	155	207	189	35	708
10	New Mangalore	9	5	91	165	122	420	955	1,758
11	Paradip	33	0	5	129	280	493	0	907
12	Tuticorin	25	5	21	58	40	20	20	163
13	Visakhapatnam	15	4	57	185	230	141	17	633
<b>Grand Total</b>		<b>224</b>	<b>52</b>	<b>1,005</b>	<b>1,930</b>	<b>2,197</b>	<b>2,156</b>	<b>3,718</b>	<b>11,059</b>

## Annex III D

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>KOLKATA DOCK SYSTEM</b>						
1	Construction of three Cargo handling riverine jetties at Diamond Harbour along with ancillary works	Coal, Iron Ore, Container, Genl. Cargo.	6.5	2009-10 (2.0); 2010-11 (2.0); 2011-12 (2.0). (Coal - 2.0, Iron Ore - 1.0, Container -2.5, Other cargo -0.5)	330	
2	Transloading of Dry Bulk Cargo and installation of a Floating Terminal for Container handling at Sandheads/Konica Sands.	Liq. Bulk Dry Bulk Container,	3.0	2010-11 (1.00), 2011-12 (2.00).	350	
3	Construction of three riverine jetties at Saugor with back-up facilities	Liq. Bulk Dry Bulk Container.	6.0	6.00 from 2011-12	700	
<b>Sub-Total</b>			<b>15.5</b>		<b>1380</b>	
<b>HALDIA DOCK SYSTEM</b>						
1	Construction of Multipurpose berth (No.2) inside the impounded dock / 46.	Coking Coal, Non-Coking Coal, Iron Ore	3.0	2.00 (multipurpose) from 2008-09 onwards	47	
2	Construction of Multipurpose berth (No. 13) inside the impounded dock / 39.56	Fertiliser & its Raw materials, Break Bulk, Dry Bulk	1(multipurpose)	1.00from 2008-09 onwards	40	
3	Construction of 1 riverine jetty downstream of 2nd Oil Jetty / 47.11	Dry Bulk POL & Chemicals	1.5	1.50 (POL) from 2009-10 onwards	47	
4	Construction of 1 riverine jetty upstream of 3rd Oil Jetty / 99.46	Coking Coal, Non Coking Coal, Iron Ore, Other DB/BB	2.5	2.5 (Other cargo) from 2009-10 onwards	99	
5	Construction of two Holding Berths inside the impounded dock / 20.00				20	
<b>Sub-Total</b>			<b>7.0</b>		<b>253</b>	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	17	0	0	314	2008-09	2010-11
	5	0	0	345	2009-10	2010-11
	35	0	0	665	2009-10	2011-12
	<b>56</b>	<b>0</b>	<b>0</b>	<b>1323</b>		
	47	0	0	0	Order placed in 2005-06	2007-08
	40	0	0	0	Order placed in 2005-06	2007-08
	0	0	0	47	2007-08	2009-10
	0	0	0	99	2007-08	2009-10
	20	0	0	0	2008-09	2009-10
	<b>107</b>	<b>0</b>	<b>0</b>	<b>146</b>		

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>PARADIP</b>						
1	Construction of Deep Draught Iron Ore Berth on BOT basis.	Iron Ore	10.00	2010-11	505	
2	Construction of Deep Draught Coal berth on BOT basis	Coal	10.0	2010-11	388	
3	Extension of Wet Basin				14	
4	Development of Western Dock System including provision for container handling.	Container	2.5	2010-11	530	
		Other Cargo	12.5	2011-12		
5	Construction of SPM by IOC	POL	15.0	2006-07	0	
<b>Sub-Total</b>			<b>50.0</b>		<b>1437</b>	
<b>VISAKHAPATNAM</b>						
1	Construction of multipurpose berth in inner harbour -WQ.7 Berth	Alumina			11	
2	Strengthening of East Quay Berths EQ.5, EQ.6, WQ.1 & WQ.2 to cater to 12.5 m. draft vessels	Coal, Fertiliser and other bulk	0.6	(2007-08 :- 0.6)	26	
3	Strengthening of EQ7, WQ3 berths to cater to 12.5 mtrs draft vessels	Coal, Fertiliser and other bulk	0.5	(2009-10 :- 0.5)	20	
4	Strengthening of WQ4 and WQ5 berths to cater to 12.5 mtrs draft vessels	Coal, Fertiliser and other bulk	1.0	(2009-10 :- 1.0)	8	
5	Development of WQ6 berth in the Inner Harbour for Multi cargo	Multi Cargo	1.1	(2009-10 :- 1.1)	45	
6	Installation of mechanized facilities at WQ7 berth for Alumina exports	Alumina	1.5	(2009-10 :- 1.5)	30	



(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	0	0	0	505	March, 2008	March, 2011
	0	0	0	388	March, 2008	March, 2011
	14	0	0	0	March, 2007	March, 2008
	60	0	0	470	April, 2009	March, 2012
	0	0	0	0	May, 2006	March, 2007
	74	0	0	1363		
	11	0	0	0	Apr'07	Jan'08
	26	--	--	--	May'07	Apr'08
	20	--	--	--	May'08	Mar'09
	8	--	--	--	Apr'09	Dec'09
	--	--	--	45.00	Jan'08	Dec'09
	30	--	--	--	Jan'08	Apr'09

**Development & financing of terminals**

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>VISAKHAPATNAM</b>						
7	Outer Harbour Expansion Project (Berth upgradation and other infrastructure facilities)	Iron ore & Pellets	4.1	(2010-11 : 4.1)	142	
8	Development of SBM facility for crude oil (HPCL)	Crude oil	15.0	(2010-11 : 15.0)	540	
9	Construction of EQ10 berth in Inner harbour for Caustic soda	Caustic soda and bio diesel	1.1	(2009-10 : 1.1)	35	
10	Construction of berth WQ8 in the Inner harbour for Alumina export	Alumina	2.0	(2010-11 : 2.0)	50	
11	Extension of container terminal and augmentation of capacity of existing terminal	Containers	6.0	(2009-10 : 2.0); (2011-12 : 4.0)	130	
12	Upgradation of GCB to cater to 150,000 DWT ships	Coking coal & Steam coal			40	
13	Development of East docks in the inner harbour (2 berths and ancillary facilities to cater to 14 m draft vessels)	Fertilizers and coal	3.0	(2011-12 : 3.0)	207	
14	Addl. Oil handling facilities for POL	POL	2.0	(2011-12 : 2.0)	50	
15	Return and berth for floating craft				20.00	
<b>Sub-Total</b>			<b>37.5</b>		<b>1353</b>	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	142	--	--	--	Nov'08	Oct'10
	--	--	540 (HPCL)	--	Apr'08	Mar'10
	--	--	--	35	Jan'08	Jun'09
	50	--	--	--	Apr'08	Mar'10
	--	--	--	130	Sep'09	Jun'11
	40	--	--	--	Apr'08	Mar'09
	32	--	--	175	Jan'09	Mar'11
	--	--	--	50	Apr'10	Mar'12
	20				Apr'10	Mar'12
	378	0	540	435		

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>ENNORE</b>						
1	Marine Liquid Terminal I	POL	3.0	2008-09	200	
2	Marine Liquid Terminal II	POL		-	200	
3	Coal Terminal	Coal	8.0	2009-10	350	
4	TNEB Coal addl capacity	Coal	5.0	2009-10	200	
5	Iron Ore Terminal	Iron Ore	15.0	2009-10 - 6 2011-12 - 9	500	
6	Container Terminal	Container	18.0	2010-11	1300	
7	LNG Terminal	LNG			1700	
8	General Cargo	Other Cargo	2.2	2010-11	90	
9	Mega Power plant Coal Terminal	Coal		2012-13 - 10 2014-15 - 10	760	
<b>Sub-Total</b>			<b>51.2</b>		<b>5300</b>	
<b>CHENNAI</b>						
1	Second Container Terminal	Container	11.0	2009-10	495	
2	New Berth 200 m long in Bharathi Dock Oil Jetties for smaller vessels	Liquid Bulk	1.0	2009-10	40	
3	Construction of new jetty at North groyne	General cargo	1.0	2009-10	50	
4	Construction of additional berth at Southern end	General cargo	1.0	2010-11	40	
<b>Sub-Total</b>			<b>14.00</b>		<b>625</b>	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	--	--	--	200	Jun-06	Jun-08
	--	--	--	200	Jan-11	Jan-13
	--	--	--	350	Jun-07	Dec-09
	--	--	--	200	Apr-2010	Apr-2011
	--	--	--	500	Jun-07	Dec-09
	--	--	--	1300	Mar-08	Oct-2010
	--	--	--	1700	Jul-09	Jan-2012
	--	--	--	90	Oct-08	Oct-2010
	--	--	--	760	*	*
				<b>5300</b>		
	2	--	--	493	15.2.07	1.01.09
	40	--	--	--	1.04.08	31.3.2010
	50	--	--	--	1.7.2008	31.12.09
	40	--	--	--	1.10.08	31.8.2010
	<b>132</b>	<b>0</b>	<b>0</b>	<b>493</b>		

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>TUTICORIN</b>						
1	Constn of Coal Berth at NBW for NLC -TNEB - NCB-I NCB- II	Coal-NCB-I Copper Concent/R	7.5 1.5	2008 2010	80	
2	Constn of Berth- 9	Misc. Cargo	0.5	Mar, 2008	45	
3	Constn. of shallow draught Berth(3 Nos)	Misc. Cargo	0.8	2009	30	
4	Structural upgradation of Coal Jetty II	Coal	4.4	2008	8	
5	Development of Outer Harbour (Construction of 6 Berths 2 main lines & 4 feeder berths and providing container handling equipment(BOT)	All	19.2	2011	316	
<b>Sub-Total</b>			<b>33.8</b>		<b>479</b>	
<b>COCHIN</b>						
1	Replacement of Mattancherry wharf Ph-I	Coal & Misc.	1.5	2008-09	60	
2	Cruise Terminal				150	
3	Reconstruction of STB	POL			30	
4	Reconstruction of NTB	POL			30	
5	Liquid Cargo Jetty	POL	2.0	2010-11	30	
6	Reconstruction of NCB	Bulk cargo	0.4	2008-09	30	
7	Reconstruct of Mattancherry Wharf-Ph-II	Coal & Misc.	1.0	2010-11	55	
8	Bunkering Terminal Ph-1 Rs.1.5 Crores	POL	6.0	2008-09	95	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	80	-	-	-	June, 2007 Dec.'2008	Nov.'2008 March'2010
	45	-	-	-	12/2/2006	3/1/2008
	0	-	-	30	2009	2010
	7.95	-	-	-	May, 007	Jan., 2008
	-	-	-	316	2008	2011
	<b>133</b>	<b>0</b>	<b>0</b>	<b>346</b>		
	60	-	-	-	Mar.'07	Nov.'09
	10	-	-	140	2007-08	2009-10
	-	-	-	30	2008-09	2009-10
	30	-	-	-	2010-11	2011-12
	-	-	-	30	June'10	Dec.'11
	30	-	-	-	June'08	Dec.'09
	-	-	-	55	June'09	March'11
	26	-	-	69	2007-08	2011-12

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>COCHIN</b>						
9	International Container Transshipment Terminal (BOT) / Rs. 2118 Cr.	Container	12.5	2009-10	2118	
10	LNG Re-gassification Terminal (BOT) / Rs. 2050 Cr.	POL	5.0		2050	
11	Crude Oil for KRL (BOT)/Rs. 720 Cr.	POL	6.0	2007-08	720	
12	Strengthening of Q5 to Q7	GC	1.0	2008-09	30	
<b>Sub-Total</b>			<b>35.40</b>		<b>5398.00</b>	
<b>NEW MANGALORE</b>						
1	Development of LNG Terminal	LNG	2.5	2011	2600	
2	Development of Coal Handling Facilities for captive user. (NPCL - Western Arm)	Coal	3.0	2010	230	
3	POL berth at Oil Dock Arm	POL	3.0	2010	50	
4	Bulk handling berth at Western Dock Arm (Iron ore and Coal)	Iron Ore/Coal	3.0	2010	50	
5	Setting up of Mechanized Iron Ore handling facilities under BOT at berth 14	Iron Ore	2.0	2009	103	
6	Container Terminal for transshipment at N.M.P.	Containers	3.0	2012	700	
7	Outer harbour for development of Addl. Port Facilities	POL		2012	1325	



(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	-	-	-	2118	3/31/2009	3/31/2037
	-	-	-	2050	-	June'10
	-	-	-	720	-	June'07
	30	-	-	-	2007-08	2008-09
	<b>186.00</b>	<b>0.00</b>	<b>0.00</b>	<b>5212.00</b>		
	-	-	-	2600	2008	2011
	-	-	-	230	2007	2010
	50	-	-	-	2008	2010
	50	-	-	-	2008	2010
	-	-	-	103	2007	2009
	-	-	-	700	2010	2012
	300	-	-	1025	2010	2012

### Development & financing of terminals

CAPACITY ADDITION					
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)
<b>NEW MANGALORE</b>					
8	SBM for POL	POL	5.0	2012	250
9	Multi-purpose General Cargo berth	Containers	1.0	2012	50
<b>Sub-Total</b>			<b>22.5</b>		<b>5358</b>
<b>MORMUGAO</b>					
1	Construction of three nos. additional mooring dolphins	Iron ore	2.50	2007-08	20.00
2	Development of berth No.7	Iron ore, coal and other cargo	3.0	2008-09	140
3	Construction of cruise-cum-Container berth at Baina	Container and cruise vessels	0.2	2009-10	185
4	Modification of existing POL berth for handling Iron ore	Iron ore	3.0	2009-10	25
5	Modification of existing General Cargo berth to handle Iron ore	Iron ore	5.0	2011-12	90
6	Construction of two berths at Vasco Bay	Other cargo	5.4	2009-10	120
7	Construction of two additional berths at Vasco bay	Other cargo	5.0	2011-12	120
<b>Sub-Total</b>			<b>24.06</b>		<b>700.00</b>

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	-	-	-	250	2010	2012
	50	-	-	-	2010	2012
	<b>450</b>	<b>0.00</b>	<b>0.00</b>	<b>4908.00</b>		
	20.00	-	-	-	April'07/Aug'08	Aug'08
	-	-	-	140	Aug.'07/April'09	Aug.'09
	-	-	-	185	Aug.'07/Aug'10	Aug.'10
	25	-	-	-	Sept.'08/Mar'10	Mar.,2010
	90	-	-	-	Mar.'11/April'12	April'12
	-	-	-	120	Oct'07/June'10	June'10
	-	-	-	120	Oct'09/June'12	June'12
	<b>135.00</b>	<b>0.00</b>	<b>0.00</b>	<b>565.00</b>		

## Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>MUMBAI</b>						
1	Construction of two off-shore container terminal. Development of two container berths of total quay length of 700 mtrs. and related upgradation for handling vessels of 6000 TEUs capacity. Capacity (0.8 MTEUs)	Container	9.6	2010	1228	
2	Redevelopment of 18 to 21 ID, Harbour Wall Berths. Upgradation of the four berths to three berths to handle larger & deep drafted general cargo vessels.	Other Misc. cargo	7.0	2009	353	
3	Construction of 2nd berth for handling chemicals/ specialised grade of POL off Pir Pau Pier.	Liquid Chemicals	2.0	2009	116	
4	New cruise terminal near Gateway of India.	--	--	--	152	
5	5th Oil berth at Jawahar Dweep - modern oil berth to handle larger oil tankers.	POL	17.8	2010	150	
6	Captive coal berth at Pir Pau	Coal	5.5 Ph I - 3.0 Ph II 2.5	3.00 - 2007-08 2.50- 2010-11	58	
7	Development of coastal shipping.	Other cargo	1.3	2009	50	
8	Development and operation of Dry bulk terminal 16/17 ID on BOT Basis	Other cargo	0.5	2008	35	
9	Development and operation of 3 conventional cargo terminal at Indira Dock.	Other cargo	2.5	2009	60	
10	Modernisation of JD 4 berth.	POL	2.00	2012	50.00	
<b>Sub-Total:</b>			<b>48.2</b>		<b>2252</b>	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	366	--	--	862	May-07	May-10
	353	--	--	--	Feb-08	Aug-09
	116	--	--	--	Oct-07	May-09
	82	--	--	70	Jun-09	Jun-11
	150	--	--	--	Jun-09	Dec-10
	0	--	--	58	20.09.2005	Mar-07
	50	--	--	--	25.09.2006	22.05.2008
	0	--	--	35	Jul-07	Jan. 2008
	0	--	--	60	Dec.2008	Feb.2009
	50	--	--	--	2011	Mar-12
	<b>1168</b>	<b>0</b>	<b>0</b>	<b>1084</b>		

### Development & financing of terminals

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>J.N.P.T.</b>						
1	Extension of container berth by 330 m and other facilities a) Stand alone basis b) Innovative proposal under Guidelines of Ministry	Container	7.2	2010  2009-10 2008-09	453	
2	Re-development of Bulk terminal into Container terminal - 3rd Terminal	Container	15.6	2006-07	900	
3	Construction of Fourth terminal Phase I developments	Container	26.4	2011-12	3000	
4	Construction of Marine chemical jetty. 01 berth	Liquid cargo	5.5	2011-12	50	
<b>Sub-Total</b>			<b>54.7</b>		<b>4403</b>	
<b>KANDLA</b>						
1	Construction of 12th Cargo Berth including Back-up area & setting up of state-of-art Container Terminal through BOT at 11th & 12th Cargo Berth with back up area of 40 hectares	Container	7.2	1st Phase Feb. 07 2nd Phase March 09	447	
2	Setting up of marine terminal by M/s. VOTL at Vadinar for M/s. Essar Oil Ltd.	Crude and POL	12.0	Dec'2006	750	
3	Modification of Bunder Basin for barge handling	Dry Cargo	0.3	March 2007	10	
4	Additional facilities for handling crude oil at Vadinar	N/A	N/A	2008-09	50	
5	Construction of 13th to 16th Cargo Berth on BOT Basis including mechanization.	Dry cargo other than container & liquid	8.0	July 2009	443	

(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	-	-	-	453		
	-	-	-		Apr-08 May-07	Jun-09 Jul-08
	-	-	-	900		Oct.06
	-	-	-	3000	Dec.08	Dec-11
	50	-	-		Nov-10	Mar-12
	<b>50</b>	<b>0</b>	<b>0</b>	<b>4353</b>		
	116	0	0	331	23-06-2006	1st Ph - Feb 07 2nd Ph - March 09
	--			750	June'1998	Dec, 2006
	10	0	0	0	October 2004	Mar-07
	50	0	0	0	January 1997	March, 2009
	0	0	0	443	July'2007	July'2009

**Development & financing of terminals**

CAPACITY ADDITION						
Sl. No.	Project	Nature of Cargo	Capacity (In MMT)	Year in which to be added	Estimated Cost (In Rs. cr.)	
<b>KANDLA</b>						
6	Creation of Berthing and allied facilities off Tekra near Tuna (outside Kandla Creek)	Dry Cargo, Coal, Fertilizer and Crude /product	20.0	1st Ph -2009-10 2nd Ph -2011-12	1200	
7	Setting up of Off- shore Liquid Terminal	Crude	12.0	March 2012	698	
8	Strengthening of Berth No. 1 to 6 (additional capacity of 0.70 MMT per Berth will be generated after strengthening)	Dry Cargo	5.2	1st berth-2008-09 2nd berth-2009-10 3rd berth-2010-11 4, 5, 6th berth - 2011-12	99	
9	Multipurpose berth at Vadinar	Dry Cargo	4.8	March 2010	240	
<b>Sub-Total</b>			<b>69.5</b>		<b>3937</b>	
<b>GRAND TOTAL:</b>			<b>463.8</b>		<b>32875</b>	



(Contd.)

	SOURCE OF FINANCING (In Rs. cr.)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion
	I.R.	GBS	EBR and Others	Private Sector		
	0	0	0	1200	June 2007	Phase I - June, 2009 Ph II-December, 2014
	0	0	0	698	April 2009	March, 2012
	99	0.00	0.00	0.00	February 2008	March, 2013
	240	0.00	0.00	0	June 2008	March 2010
	515	0.00	0.00	3422		
	3383	0.00	540.00	28951		

## Annex IVA

### Proposed investment on terminal projects (Sum of Annex-III A to III C)

(Rs. in cr.)

Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
Chennai	14	50	202	296	77	0	0	625
Cochin	35	5	795	1,748	1,770	960	120	5,398
Ennore	51	0	300	700	1,100	1,300	1,900	5,300
Haldia	7	23	73	142	15	0	0	253
J.N.P.T.	55	700	100	922	1,200	700	781	4,403
Kandla	70	852	498	510	671	415	992	3,937
Kolkata	16	0	0	50	200	550	580	1,380
Mormugao	24	0	0	150	255	85	210	700
Mumbai	48	0	387	698	753	258	155	2,252
NMPT	23	15	81	1,553	1,300	1,454	955	5,358
Paradip	50	0	51	100	360	610	316	1,437
Tuticorin	34	10	42	100	191	90	45	479
Vizag	38	0	54	250	391	367	291	1,353
<b>Grand Total</b>	<b>464</b>	<b>1,655</b>	<b>2,583</b>	<b>7,219</b>	<b>8,283</b>	<b>6,789</b>	<b>6,345</b>	<b>32,875</b>

## Annex IVB

### Proposed investment on dredging of channels

(Rs. in cr.)

Sl. No.	Port	Present draft of channel (in metres)	Proposed draft of channel (in metres)	Capacity addition (in MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
1	Chennai	17	17	7	-	49	81	12	-	-	142
2	Cochin	12	15		-	100	250	100	-	-	450
3	Ennore	14	17		-	-	-	-	-	-	0
4	Haldia		0		-	0	281	106	35	0	421
5	J.N.P.T.	13	14		35	300	400	65	-	-	800
6	Kandla	12	Ph.I-13 Ph.II-14		16	21	35	66	48	-	186
7	Kolkata	9 (Avg)	9		-	-	-	-	-	-	0
8	Mormugao	13	14	2	-	161	-	-	-	-	161
9	Mumbai	10	15		-	30	53	97	75	23	278
10	New Mangalore	14	17		-	-	-	80	190	120	390
11	Paradip	13	16		-	127	127	-	-	-	253
12	Tuticorin	11	15		-	221	221	-	-	-	442
		OH - 17	OH - 18	*	-	-	-	21	21	-	43
			IH-Stage1-11	0	22	-	-	-	-	-	22
13	Visakhapatnam	IH - 10	IH-Stage 2-13	1	10	35	-	-	-	-	45
			IH -Stage 3 - 14	*	-	-	30.00	60	60	-	150
	<b>Total</b>			<b>11</b>	<b>83</b>	<b>1044</b>	<b>1477</b>	<b>607</b>	<b>429</b>	<b>143</b>	<b>3,783</b>

(\*) Capacity shown in respective berth development plans.

(#) Project relates to development of Vasco Bay (includes dredging component of Rs. 65 cr.)

## Annex IVC

### Proposed investment on other capital dredging @

(Rs. in cr.)

Sl. No.	Port	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
1	Cochin	0	15	35	0	35	0	85
2	Ennore	0	89	150	170	140	200	749
3	J.N.P.T.	0	25	25	0	0	0	50
4	New Mangalore	0	0	0	0	0	18	18
5	Paradip	0	16	24	0	0	90	130
6	Tuticorin	0	0	300	398	300	0	998
<b>Grand Total</b>		<b>0</b>	<b>145</b>	<b>534</b>	<b>568</b>	<b>475</b>	<b>308</b>	<b>2,029</b>

@ These projects would create an additional capacity of 5 MMT

## Annex IVD

### Proposed investment on equipment

(Rs. in cr.)

Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
Chennai	0	0	0	38	38	0	0	75
Cochin	0	0	64	68	32	30	5	199
Ennore	0	0	0	0	0	0	0	0
Haldia	12	11	75	25	40	194	106	450
J.N.P.T.	5	33	20	128	122	150	105	557
Kandla	5	12	59	85	62	74	0	291
Kolkata	2	10	24	12	100	138	24	308
Mormugao	11	15	26	45	0	32	140	258
Mumbai	0	6	21	35	0	0	0	62
New Mangalore	0	0	20	20	10	10	20	80
Paradip	0	0	43	25	19	12	15	115
Tuticorin	9	30	79	88	24	106	134	461
Visakhapatnam	13	10	65	300	261	81	31	748
<b>Total</b>	<b>58</b>	<b>127</b>	<b>496</b>	<b>869</b>	<b>707</b>	<b>826</b>	<b>579</b>	<b>3,604</b>

## Annex IVE

### Proposed investment on connectivity & other projects @

(Rs. in cr.)

Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
Chennai	3	0	236	503	507	0	0	1,246
Cochin	0	124	183	317	431	369	280	1,704
Ennore	0	12	268	84	57	25	137	582
Haldia	2	10	22	54	25	57	51	220
J.N.P.T.	0	111	79	257	540	668	1,439	3,093
Kandla	2	29	101	200	246	171	0	747
Kolkata	1	5	15	90	250	335	605	1,301
Mormugao	0	0	25	30	0	0	0	55
Mumbai	0	20	58	88	50	0	0	217
New Mangalore	0	0	15	25	25	50	0	115
Paradip	0	20	42	73	150	228	154	666
Tuticorin	0	10	43	15	500	1471	2516	4555
Visakhapatnam	0	2	47	96	122	135	259	661
<b>Total</b>	<b>8</b>	<b>343</b>	<b>1,133</b>	<b>1,832</b>	<b>2,902</b>	<b>3,510</b>	<b>5,441</b>	<b>15,162</b>

@ Includes a range of projects such as infrastructure within ports (roads, navigational aids, warehousing, stockyards, security works, etc.), ship/container repair facilities, locomotives, breakwaters, marinas, shipbuilding facilities, etc.

## Annex IVF

### Summary of proposed investment in Major Ports (Sum of Annex-IVA to IVE)

(Rs. in cr.)

Port	Capacity (In MMT)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total investment
Chennai	24	50	488	917	634	0	0	2,088
Cochin	35	129	1,157	2,418	2,333	1,394	405	7,836
Ennore	51	12	656	934	1,327	1,465	2,237	6,630
Haldia	21	44	170	501	186	286	157	1,344
J.N.P.T.	60	879	524	1,732	1,926	1,517	2,324	8,903
Kandla	76	909	679	830	1,044	707	992	5,162
Kolkata	19	15	40	152	550	1,023	1,209	2,988
Mormugao	37	15	212	225	255	117	350	1,174
Mumbai	48	26	496	874	900	334	178	2,808
New Mangalore	23	15	116	1,598	1,415	1,704	1,113	5,961
Paradip	55	20	278	348	529	850	575	2,601
Tuticorin	43	50	385	724	1,113	1,968	2,695	6,934
Visakhapatnam	53	44	201	676	855	665	581	3,021
<b>Total</b>	<b>546</b>	<b>2,207</b>	<b>5,401</b>	<b>11,931</b>	<b>13,067</b>	<b>12,030</b>	<b>12,817</b>	<b>57,452</b>

## Annex V

### Cash balances of Port Trusts @

(Rs. in cr.)

S. No.	Port	Opening balance on 1.4.06	Internal resource availability (likely balance)				
			1.4.2007	1.4.2008	1.4.2009	1.4.2010	1.4.2011
1.	Chennai	471	599	628	312	179	317
2.	Cochin	33	29	0	0	0	0
3.	Ennore	57	24	0	0	9	14
4.	JNPT	642	675	497	0	0	0
5.	Kandla	1,377	1,455	1,426	1,193	1,074	1,193
6.	Kolkata	81	14	0	0	0	9
7.	Mormugao	87	103	90	74	89	119
8.	Mumbai	3,793	3,985	3,999	3,762	3,498	3,483
9.	New Mangalore	386	468	513	528	519	405
10.	Paradip	318	332	297	60	34	23
11.	Tuticorin	191	177	187	85	120	215
12.	Vishakapatnam	403	467	489	352	81	0
<b>Total</b>		<b>7,839</b>	<b>8,328</b>	<b>8,126</b>	<b>6,366</b>	<b>5,603</b>	<b>5,778</b>

@ The opening balances projected after 1.4.2006 indicate the cash balances after meeting the capital expenditure of the preceding year as per the Financing Plan. The projection for 1.4.2008 onwards are based on the assumption stated on the following page.

#### Assumptions adopted for projection of cash balances of Port Trusts

In projecting the cash balances of Port Trusts from 1.4.2008 onwards, the following assumptions have been adopted:

- The projected traffic has been divided into Port traffic and BOT Operators' traffic.
- The revenue has been considered as per 2005-06 scale of rates.
- For the existing BOT operated terminals, the existing Royalty Rate/Revenue Share has been considered based on projected traffic/MGT.
- For the new BOT generated cargo/projects, 20% of the Gross Revenue at Port Scale of rates has been considered as revenue share/royalty.
- For the expenditure projection existing Operating Ratio (2005-06) has been considered.
- All capital expenditure has been taken into account.
- The statement has been prepared on constant prices. Inflation has not been taken into account while making projections for revenue and expenditure.
- The interest income under non-operating income has been increased by 5% over the previous year considering the increase in investible funds.
- The pension contribution has also been increased by 5% over the previous year considering the increase in number of retired employees and revision of pension.
- An increase of 10% has been considered for depreciation compared to previous year considering the increase of assets.



## Appendix I

### ANALYSIS OF TRAFFIC PROJECTIONS FOR 2013-14

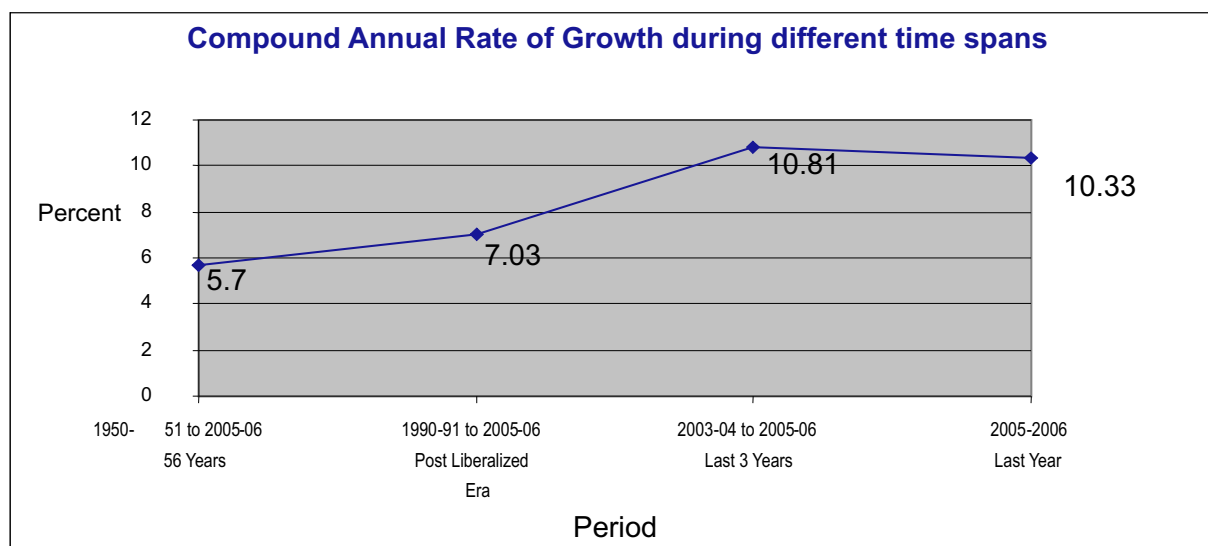
#### I. Analysis of traffic trend

The overall Compound Annual Rate of Growth (CARG) of traffic at the Major Ports between 1950-51 and 2005-06 has been 5.70 percent, whereas during the post-liberalization period i.e. during 1990-91 to 2005-06, CARG was 7.03 percent. If CARG of traffic at the Major Ports is taken into consideration for the recent years, it has been 10.81 percent during the last 3 years.

#### Growth rates during different periods

Period	CARG* (%)
1950-51 to 2005-06	5.70
1990-91 to 2005-06	7.03
2003-04 to 2005-06	10.81

The CARG of traffic at the Major Ports during different time spans as shown in the table above is presented in the graph below:



#### Traffic Projection: 2013-14

An attempt has been made to make traffic projections for the Port sector, which includes Major and Non-Major Ports. In addition to the feedback received from the Major Ports, the inputs received from different User Ministries have been considered. A number of policy papers and documents have also been referred to, some of which are as under:

1. The Tenth Plan document, Planning Commission
2. TCS Study on Coastal Shipping
3. Report on Working Group on Power, Planning Commission
4. Plan documents of Central Electric Authority
5. Paper presented in Indo-China Mineral Summit by FIMI
6. CII-McKinsey Report titled as "Made in India"
7. ESCAP Study on Containerization prospects in India

8. Fertilizers statistics, Fertilizer Association of India
9. National Steel Policy, 2005
10. Coal Vision, 2025, Ministry of Coal
11. Iron Ore market 2004-2006, UNCTAD
12. National Energy Policy, 2005
13. Papers on Petroleum Scenario, Ministry of Petroleum
14. Various papers prepared by SAIL
15. Various issues of Iron and Steel Review
16. Working Group Report on Port Sector, Ministry of Shipping

Detailed commodity-wise analysis with the reasoning of the traffic projections for 2013-14 is as follows:

### 1. Petroleum crude, products & LNG

#### (i) Petroleum Crude & Products

(a) Ministry of Petroleum and Natural Gas has estimated a refining capacity of 148.968 MMT at the beginning of XIth Plan Period. The details of refining capacity under Public and Private Sector refineries are given as under:

#### Refining Capacity at beginning of 11th Plan (as on 1.4.2007)

S. No.	Refinery	In MMT
<b>Public Sector</b>		
1	Indian Oil Corporation Limited, Digboi	1
2	Indian Oil Corporation Limited, Guwahti	1
3	Indian Oil Corporation Limited, Koyali	14
4	Indian Oil Corporation Limited, Barauni	6
5	Indian Oil Corporation Limited, Haldia	6
6	Indian Oil Corporation Limited, Mathura	8
7	Indian Oil Corporation Limited, Panipat	12
8	Hindustan Petroleum Corporation Limited, Mumbai	6
9	Hindustan Petroleum Corporation Limited, Visakh	8
10	Bharat Petroleum Corporation Limited, Mumbai	12
11	Kochi Refineries Limited, Kochi	8
12	Chennai Petroleum Corporation Limited, chennai	10
13	Chennai Petroleum Corporation Limited, Nagapatinam	1
14	Bongaigaon Refinery & Petrochemicals Limited, Bongaigaon	2
15	Numaligarh Refinery Limited, Numaligarh	3
16	Oil & Natural Gas Corporation Limited, Tatipaka	1
17	Mangalore Refinery & Petrochemical Limited, Mangalore	10
<b>Total: Public Sector</b>		<b>109</b>
<b>Private Sector</b>		
18	Reliance Petroleum Limited, Jamnagar	33
19	Essar Oil Limited, Jamnagar	11
<b>Total: Private Sector</b>		<b>44</b>
<b>Grand Total</b>		<b>153</b>

The capacity addition during the 11th Plan period is estimated at the level of 85.99 MMT and during XIIth Plan period at 67.24 MMT. The details are presented as under:

### Capacity addition during 11th Plan (2007-08 to 2011-12)

S. NO.	Refinery	In MMT
<b>Public Sector</b>		
1	Indian Oil Corporation Limited, Haldia	1
2	Indian Oil Corporation Limited, Panipat	3
3	Indian Oil Corporation Limited, Paradip	15
4	Hindustan Petroleum Corporation Limited, Mumbai	2
5	Hindustan Petroleum Corporation Limited, Visakh	7
6	Hindustan Petroleum Corporation Limited, Bhatinda	9
7	Bharat Petroleum Corporation Limited, Bina	6
8	Chennai Petroleum Corporation Limited, chennai	2
9	Kochi Refineries Limited, Kochi	2
10	Mangalore Refinery & Petrochemical Limited, Mangalore	5
11	Oil & Natural Gas Corporation Ltd. Tatipaka	1
	Total: Public Sector	53
<b>Private Sector</b>		
12	Reliance Petroleum Limited, Jamnagar (New)	29
13	Essar Oil Limited, Jamnagar	3
	<b>Total Private Sector</b>	<b>32</b>
	<b>Grand Total</b>	<b>85</b>

### Capacity addition in 12th Plan (2012-13 to 2017-18)

S. No.	Refinery	In MMT
1	Indian Oil Corporation Limited, Koyali	4
2	Indian Oil Corporation Limited, Mathura	3
3	Indian Oil Corporation Limited, Paradip	6
4	Mangalore Refinery & Petrochemical Limited, Mangalore	15
5	Mangalore Refinery & Petrochemical Limited, Kakinada	7
6	Mangalore Refinery & Petrochemical Limited, Rajasthan	8
7	Essar Oil Limited, Jamnagar	18
8	Nagarjuna Oil Company Ltd., Cuddalore	6
	<b>Total</b>	<b>67</b>

As may be seen, the total crude requirement for the existing and the proposed refineries will be at the level of 235 MMT by the end of XIth Plan. The estimate of likely POL traffic in 2011-12 was hiked by 15% over and above the estimates made by the Sub-group on refining for the XIth Plan in order to account for unexpected growth as well as redundancy so that there is no loss owing to increase in demand or slippage in execution of port facilities.

Ministry of Petroleum and Natural Gas has recommended the crude handling requirements at ports at around 270 MMT (i.e. 15% higher than estimated 235 MMT) by 2011-12. Since the projections of 2013-14 were found difficult to make, the crude requirement based on available information has been estimated by the Study Team at the level of around 273 MT.

The consumption of Petroleum products during 2003-04 and 2002-03 was 107.71 MMT and 104.12 MMT respectively. According to the Xth Plan document, the demand for POL (products) by the end of the Xth Plan is projected as 120.4 MMT (CARG 3.7%). Keeping in mind the anticipated surge in the manufacturing sector, a growth rate of 5% is considered likely beyond the Xth Plan. Accordingly, the estimated product requirement by 2013-14 is likely to touch 169 MMT.

However, based on the information received about the movement of petroleum products at the ports, the product traffic is estimated at the level of around 163 MMT during the same period. In order to establish this, the demand projections for petroleum products given in the report of the Integrated Energy Policy Committee for the year 2014-15 are given in table below:

(c) If the average of the above projections are taken into consideration, it comes to 181 MMT during 2014-15. Hence, the projections of 163 MMT of POL products during 2013-14, which includes imports, exports and coastal movements also has been assumed, as this seems to be reasonable and also in line with the projections made by different agencies and incorporated in the Integrated Energy Policy Committee Report.

(d) On the other hand, Ministry of Petroleum and Natural Gas has estimated Petroleum product traffic at the level of 150 MMT by 2011-12 itself, which includes 115 MMT of import & export and 35 MMT of coastal movement.

(ii) LNG  
Natural gas is the World's third largest source of primary energy following coal and oil. LNG is presently used in our country for power

Year	EIA Reference Case	IEA	India Hydro Carbon Vision-2025	India Vision 2020	Working Group Xth Plan	Power & Energy Division
2014-15	157	171	226	193	164	174

EIA- Energy Information Administration, IEA-International Energy Association

generation and fertilizer production in a modest way. GAIL Ltd. with a network of 4400 km gas pipeline across India holds a monopoly in gas transmission. The existing gas supply from all the sources is 82 mmscmd, while the demand is more than 120 mmscmd. In order to bridge the gap, India is currently considering the setting up of several LNG projects including LNG terminals along the coast line.

LNG Terminals are proposed to come up at Jamnagar, Dahej, Hajira, Pipavav, Dabhol, New Mangalore, Kakinada, Kochi, Ennore, Gopalpur, etc. Already one 2.5 MMT capacity LNG Terminal exists at Dahej. Shell has also set up a 2.5 MMT capacity LNG terminal at Hazira. Indian Oil in joint venture with British Petroleum and Petronas of Malaysia are proposing to set up 2.5 MMT capacity terminal at Kakinada Deep Water Port. Taking these developments into consideration, an estimate of 30.0 MMT of LNG is considered as traffic forecast for 2013-14.

(e) The total crude, product & LNG traffic projected is as follows for the year 2013-14:

(in MMT)	
Commodity	Traffic
Crude	273
Product	163
LNG	30
<b>Total</b>	<b>466</b>

## 2. Iron ore and pellets

At present, the in-situ reserves of relatively rich

iron ore in India is 11.43 billion tonnes of Haematite and 10.68 billion tonnes of Magnesite ore. The present commercial mining capacity for iron ore is only 175 MMT.

(Source: National Steel Policy, 2005).

Iron ore Production during 2004-05 was 145 MMT, of which 54 MMT was domestically consumed and 78 MMT was exported (National Steel Policy, 2005).

The share of India's export to China out of the total iron ore exports from the country has increased from 30.4% (1999-2000) to 58% (2004-05). China imported about 208 MMT during calendar year 2004, an increase of 40% from 148 MMT during 2003 and India's share was 45 MMT. This constitutes about 22% of total import of Indian iron ore by China.

According to UNCTAD study titled "Iron Ore Market 2004-06", the estimated total import of iron ore by China will be of the order of 350 MMT by 2009. Assuming that the existing share of Indian Iron ore to the Chinese market will continue (i.e., 20%), the export of Indian iron ore to China will be about 70 MMT, which is likely to remain the same upto 2013-14.

In addition to China, about 10 MMT of ore was exported to Japan and 23 MMT of ore was exported to Korea and other countries during 2004-05. There are no firm indications of increase in imports of Indian iron ore by Japan and Korea. Therefore, the exports to Japan and other countries have been taken to remain almost the same level of 33 MMT per annum. Steel production in India is estimated to be of the order of 72 MMT by 2013-14. This will

require about 108 MMT of iron ore by the steel industries. (1.5 tonnes of iron ore required for per tonne of steel).

Presently, about 13% of iron ore required by Indian steel industry relies on coastal shipping. Assuming that the 13% share of shipping continues, the volume of iron ore moved along the coast will be around 28 MMT (14 MMT loading and 14 MMT unloading).

The pellet movement will be around 9 MMT on account of palletisation plants . Hence, total overseas and coastal movement of iron ore and pellet traffic through Indian ports during 2013-14 will be of the following order:

(in MMT)	
Country	Iron ore exports
China	70
Japan & Others countries	33
Coastal Movement	28
Pelletisation Plants	9
<b>Total</b>	<b>140</b>

### 3. Non-coking coal

The total installed power generation capacity reached 1,32,329 mega watt (MW) as on the 31st March, 2007 of which 71,128 MW is coal-based. Electricity generation has become increasingly dependent on thermal generation as hydro and nuclear generation has not kept pace with the Plans due to various reasons. The thermal power sector presently accounts for about 65% of the total installed capacity in the

country and in the year 2006-07 over 80% of the country's total electricity generation has been obtained from thermal stations. The reliance on thermal generation is expected to continue.

A shortfall in domestic availability of non-coking coal for power plants has been recently faced requiring import of non-coking coal by power plants. According to the Central Electricity Authority (CEA), about 20 MMT non-coking coal would have to be imported by the power plants during 2006-07.

As per the 5th National Power Plan (2002-2012) prepared by CEA a need based installed capacity of the order of 2,12,000 MW is required by the end of the XIth Plan based on the demand projections of the 16th Electric Power Survey. The primary resources for electric power generation are water, fossil fuel (coal, lignite, oil and natural gas) and nuclear energy. These would continue to serve as major sources of power generation in the long run, though various forms of renewable sources viz. wind, bio-mass, tides, etc. will contribute to meet the demand.

CEA recently gave a presentation at Paradip Port regarding development of future coal based power plants in India for which emphasis is being laid on coastal areas for various advantages. According to CEA, additional coal based power generation capacity to the tune of 40,000 MW is going to be added during the 11th Plan, of which 10,000 MW would be in the coastal areas. If this is so, the total coal based power generation capacity of our country is likely to touch 1,20,000 MW. Normally for

producing 1000 MW of power, about 4.1 MMT of non-coking (thermal) coal is required. On this basis, about 492 MMT of coal will be required to generate about 1,20,000 MW of coal based power.

The Ministry of Coal published “Vision Coal 2025” in March, 2005 which projects coal demand by various sectors assuming GDP growth of 8% p.a. Relevant details are given in table below :

Assuming 90% materialization, the requirement of coal for power plants by 2013-14 is likely to be 443 MMT.

As per the 10th Plan document, the estimated coal production by the end of 2006-07 is going to be 405 MMT (including 30 MMT of coking coal). Assuming a CAGR of 4.46% over 375 MMT of coal (other than coking coal), the estimated production of coal by 2013-14 will be 510 MMT.

Assuming 75% of domestic production will continue to be supplied to power utilities, the supply of domestic coal to power utilities by 2013-14 will be about 383 MMT. This will lead to a shortfall of about 58 MMT of coal for power plants, which has to be imported.

Presently 5% of overall coal production (other than coking coal) moves coastally. However as new power plants to come up in coastal areas and the existing coastal power plants rely more on imported coal, the coastal movement of domestic coal is likely to come down in future. Hence domestic movement of coal by coastal route in future has been assumed to be around 3% of overall coal production. Accordingly, coastal movement of coal will be of the order of 15 to 17 MMT. Therefore, movement of 34 MMT of coal through the ports has been assumed.

The Steel Policy envisages that about 26 MMT of non coking coal would be required for producing 110 MMT of steel during 2019-20. This constitutes 0.24 tonnes of non-coking coal for each tonne of steel. On this basis, about 18 MMT of non coking coal would be required for producing 72 MMT of steel during 2013-14. The Ministry of Coal has indicated that two ultra mega thermal power projects are planned during 11th Plan period with thermal coal intake of 12 MMT per annum for each plant. Therefore, an additional requirement of 24 MMT of thermal coal is projected p.a. The total non coking coal traffic for 2013-14 is projected as follows on the basis of the analysis above.

(In MMT)

Year	Power utility	Captive Power	Cement	Others	Total
2011-12	427	44	39	65	575
2013-14	473	51	47	91	662
2016-17	553	63	62	82	760

(Note : The coking coal requirement of steel plants not considered)

(in MMT)	
Product	Non-coking coal required (in MMT)
Power / Cement Plants	82
Steel Plants	18
Coastal Movements	34
<b>Total</b>	<b>134</b>

#### 4. Coking coal

The National Steel Policy 2005 envisages the targets given in table below for Production, Imports, Exports and Consumption of steel by 2019-20.

Assuming a CAGR of 7.3%, steel production during 2013-14 is estimated at about 72 MMT.

Coking coal is primarily utilized by steel industries which require about 0.8 tonnes of coking coal for producing one tone of steel. Hence for producing about 72 MMT tonnes steel by 2013-14, the steel industries will require about 58 MMT of coking coal.

As per National Steel Policy, 85% of total coking coal requirement would be met through imports. Hence, to meet overall requirements of 58 MMT of coking coal by 2013-14 about 49 MMT of coking coal would have to be imported

for the steel plants. Keeping in view the actual traffic handled at ports (which was not more than 20-23 MMT over the last 5 years) and the estimates provided by the National Steel Policy, around 46 MMT of coking coal traffic has been projected by 2013-14.

#### 5. Other misc. cargo

In addition to traffic in the broad categories of cargo mentioned above, projected traffic in different minor commodity groups, is around 198 MMT. These commodities include steel products (17 MMT), fertilizers and fertilizer raw materials (20 MMT), foodgrains (10 MMT), chemicals & other liquids (50 MMT), alumina (6 MMT), other general and break bulk cargo (95 MMT), etc. Brief details are given below :

##### (i) Steel products

According to the National Steel Policy 2005, the consumption of steel in India is going to grow by about 6.9% per annum. On this basis, the consumption of steel in the country will be about 65 MMT per annum by 2013-14. The import of steel, on the basis of CAGR of 7.1% as indicated in the National Steel policy, is likely to amount to about 4 MMT p.a. by 2013-14. Given likely production of 72 MMT p.a. of steel in the country by 2013-14, import of about 4MMT p.a. and consumption of about 65 MMT

(In MMT)				
Year	Production	Import	Export	Consumption
2004-05	38	2	4	36
2019-20	110	6	26	90
CAGR	7.3%	7.1%	13.3%	6.9%



p.a. , the export of steel products by 2013-14 is likely to be about 11 MMT p.a.

According to a report on Coastal Shipping prepared by TCS, 1.5 to 2% of the country's steel consumption will be moved by coastal route. Considering 65 MMT of steel as projected consumption during 2013-14, the overall coastal movement of steel will be about 2 MMT p.a. by 2013-14.

Hence total traffic in respect of steel products has been projected at the level of 17 MMT during 2013-14.

#### ***(ii) Fertilizers & fertilizer raw materials***

As per CIER market study, the demand for finished fertilizers will be around 28 MMT p.a. by 2013-14. Since the overall fertilizer manufacturing capacity (as indicated by FAI) is around 17 MMT, the import of finished fertilizers is assessed at 11 MMT p.a.

The present level of fertilizer raw materials (FRM) imports at major ports is around 5.6 MMT. The Xth Plan Working Group had projected 8.49 MMT traffic by 2006-07. Since there is no specific indication from FAI regarding creation of additional capacity, it is assumed that almost the same level of import of FRM with marginal increase can be expected (i.e. about 9 MMT) during 2013-14. Therefore, the total traffic in respect of fertilizer and its raw material is estimated at 20 MMT p.a. by 2013-14.

#### ***(iii) Foodgrains***

According to the Department of Food & Public Distribution, the country will face a shortfall of

10 MMT of foodgrains by the end of the XIth Plan. Assuming this shortfall to continue till 2013-14, port traffic of 10 MMT p.a. of food grains has been considered for 2013-14.

#### ***(iv) Chemicals and other liquids***

The existing level of traffic in respect of edible oil, chemicals and other liquids is about 17 MMT. Annual growth of about 10% has been projected in consultation with the Department of Chemicals and Petro-chemicals. Therefore, the total port traffic in respect of chemicals and other liquids has been estimated at around 40 MMT in 2013-14.

The Central Government is contemplating setting up mega petro-chemical hubs, both on the east and west coasts. On establishment of these hubs, additional traffic in chemicals to the tune of around 10 MMT may be expected by 2013-14.

Hence by 2013-14, the total chemicals and other liquid traffic will be around 50.25 MMT, which is consistent with the estimated traffic of 53MMT indicated by the Department of Chemicals and Petro-chemicals.

#### ***(v) Alumina***

There are proven reserves of bauxite in the state of Orissa. Three firms namely, UAIL, L&T and Aditya Birla Vedanta have formulated definitive course of action for establishment of Alumina plants for exports of initially 1 MMT each and 2 MMT in the subsequent years. NALCO is already exporting Alumina to the tune of 1 MMT and is poised to reach 2 MMT by 2007. Accordingly, exports of 6 MMT of Alumina is considered by 2013-14.

**(vi) Other general/break bulk cargo**

Keeping in view the scope of export growth and various developments likely to take place in consumer products, automobile industry, food-processing industry, readymade garments, development of a number of SEZs across the country, etc., it is projected that around 95 MMT of such traffic is likely to be generated.

**6. Container traffic**

The projection of Container traffic by the end of the year 2013-14 is 20 Million Twenty Feet Equivalent Units (MTEUs) against the traffic of 4.613 MTEUs handled during 2005-06, thus achieving a CAGR of 15.98%.

To confirm the above projections, ports were asked to provide Annualised projections from 2007-08 to 2013-14. It has been observed that CGAR between 2007-08 and 2013-14 is 17.23%. However, the overall projected traffic till 2013-14 remains 20 MTEUs.

The growth of container traffic between 2000-01 and 2005-06 is 13.33%. The overall growth rate from 1990-91 to 2005-06 is 13.61%.

Regression Analysis relating GDP growth rate and container TEUs handled from 1990-91 to 2005-06. is summarized in the following table. Assuming GDP growth @ 9%, CARG of projected container traffic is 12.09%:

GDP Growth Rates	CARG (%)
@ 7.5%	10.21%
@ 8.0%	10.84%
@ 8.5%	11.47%
@ 9.0%	12.09%

According to a study conducted by ESCAP, the rate of growth for container traffic in India for 2011-12 is assumed @ 9.4% with a traffic of 11.7 MTEUs.

Similarly, the mid level projections made by CES for the study titled “Establishment of fourth container terminal at JNPT” was at the level of 11.5 MTEUs for all Indian Ports.

As per the study on “Preparation of Master Plan for Development of ICDs/CFS in India” done in 2004 by M/s RITES for Infrastructure Division, Department of Commerce, Ministry of Commerce & Industry, the estimated export and import traffic likely to be handled at Major Ports during 2014-15 is 94.8 MMT or with appropriate loadability factors for constituted cargo groups, 9.32 MTEUs.

As may be seen from the above details, the growth rate under most of the projection scenarios ranges from 10.21% to 12.09%. However, keeping in view the various developments likely to be taken up during the next 9 years i.e. from 2005-06 to 2013-14 and deliberations with the ports and other users agencies, the projection for containers has

been made at the level of 20 MTEUs with the overall CARG for container traffic of around 16%.

### Summing up of the projections for 2013-14

The details indicated above are based on the projected growth in various refineries, market for iron ore exports, expansion programme/plans for power and steel plants, petro chemical and other liquid /chemical sector of our country and also feedback received from various government departments like fertilizers, chemicals and petro-chemicals, food and public distribution, etc. Commodity-wise projections for 2013-14 are as under:

(in MMT)	
Commodity	All ports traffic projection for 2013-14
POL	466
Non-coking Coal	134
Coking Coal	46
Iron Ore	140
Containers - Tonnage	241
Containers - TEUs	20
Others *	198
<b>Total</b>	<b>1225</b>

(\* includes iron and steel, fertilizers and related raw materials, food grains, alumina, chemicals and other misc. & general cargo)

The above projections of 1225 MMT of total port traffic during 2013-14 have been compared with separate projections done by the Indian Ports Association (IPA) on GDP growth by regression analysis and growth trend of port traffic during the previous 5 years. The results of such comparison are tabulated in the table below for 2013-14:

(In MMT)			
GDP Growth at 7.5%	GDP Growth at 8%	GDP Growth at 8.5%	Trend of growth of all port traffic during preceding 5 years.
1103	1150	1198	1142

### Share of traffic between Major & Non-Major Ports during the last five years

(In Percent)					
Ports	2001-02	2002-03	2003-04	2004-05	2005-06
Major Ports	74.92	74.88	74.05	74.05	74.42
Non-Major Ports	25.08	25.12	25.95	25.95	25.58

The commodity based projections done in this study (1225 MMT) is close to the above projections made on the analysis based on GDP growth and trend of growth during the previous 5 years.

During 2006-07, it is projected that share of Non-Major port traffic would be around 26.5%. In keeping with the massive development plans undertaken by the State Maritime Boards/Authorities, constraints of

expansion in the existing Major Ports beyond certain limits and availability of greenfield sites on the vast Indian coast line, it is expected that the share of Non-Major port traffic would progressively go up and would reach about 32% by 2013-14.

On this basis, the following abstract has been prepared and the projected figures have been rounded off to the nearest integer:

#### Abstract of traffic projections

(In MMT)

Commodity	Existing traffic (2005-06)			Overall projected traffic (2013-14)	Share of Major Ports (2013-14)
	Major Ports	Non-Major Ports	Overall		
POL	142	75	217	466	254 (55%)
Iron Ore	79	25	104	140	110 (79%)
Coal	59	15	74	180	141 (78%)
Container (MTEUs)	62	4	66	241	194 (80%)
	(5)	(0.293)	(5)	(20)	(16.11)
Other cargoes	81	31	112	198	135 (68%)
<b>Total</b>	<b>423</b>	<b>150</b>	<b>573</b>	<b>1225</b>	<b>834 (68%)</b>

*Based on the above projections, CAGR likely to be achieved from 2005-06 till 2013-14 will be 9.96% for all ports, 8.84% for Major Ports and 12.76% for Non- Major ports.*







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