



INFRASTRUCTURE
Building for Growth



Government of India

Report of the Committee of Secretaries

Road Rail Connectivity of Major Ports

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Secretariat for the Committee on Infrastructure

Preface

This Report responds to the direction of the Committee on Infrastructure, chaired by the Prime Minister, to prepare and implement an Action Plan for providing adequate road and rail connectivity for India's major ports. Inadequate connectivity has been affecting cargo movement, and impacting international trade.

As the Indian economy integrates with the global economy, maritime infrastructure will play an ever growing role. Already, in the fiscal year 2005-06, Indian exports have for the first time crossed \$100 billion, logging an impressive annual growth of 25%. Imports have similarly grown to \$140 billion. This rapid growth in trade can be sustained only if the port infrastructure keeps pace with the increasing volumes of cargo. Road and rail connectivity forms an integral part of the port infrastructure as inefficient evacuation of cargo can mar the entire operation of a port. In particular, containerisation of cargo presupposes a seamless link with the road and rail network in an 'end to end' transport system.

Ports are currently engaged in capacity expansion and efficiency improvements aimed at handling the growing volumes of cargo. However, congestion seems to persist at several locations on account of delayed evacuation of cargo due to inadequate road and rail capacity. This undermines the competitiveness of Indian industry and hurts the economy at large, more particularly the hinterland that benefits from a robust growth in exports. Port connectivity,

therefore, manifests dimensions that are far larger than the operation of a port *per se*.

For addressing the issues relating to port connectivity, the Committee on Infrastructure constituted a Committee of Secretaries (CoS) under the chairmanship of Shri Rajeeva Ratna Shah, Member Secretary, Planning Commission with representatives from the Ministry of Shipping, Road Transport & Highways, Railway Board, Ministry of Environment & Forests and the Planning Commission to make recommendations for time-bound identification and completion of connectivity projects. The Committee consulted with the Port Trusts and other stakeholders and submitted this Report, which was considered and approved by the Committee on Infrastructure in February 2006 for implementation within a period of three years.

This Report identifies actionable plans for connectivity projects, their completion schedules and financing arrangements. It also suggests periodic review and monitoring for ensuring time-bound implementation, which has already begun.

(Gajendra Haldea)

Introduction

1.1 In the fourth meeting of the Committee on Infrastructure held under the chairmanship of the Prime Minister on May 12, 2005, it was inter-alia noted that poor rail and road connectivity was affecting cargo movement. With a view to making recommendations on improvement of road rail connectivity of Major Ports, it was decided to constitute a Committee of Secretaries (CoS) under the chairmanship of Member Secretary, Planning Commission with Secretary (Shipping), Secretary (RT&H), Secretary (Environment & Forests) and Member Traffic (Railway Board) as members.

1.2 The importance of maritime infrastructure in facilitating international trade and economic growth is well recognized. The 12 major ports established by the Central Government handle about 75% of the maritime cargo of the country. The cargo handled at these ports has increased from 19.38 million tonnes in 1950-51 to 383.63 million tonnes by the end of 2004-05. The Government is committed to a GDP growth of 8 percent per year in a sustained manner and this would require a quantum growth in development and modernization of the port infrastructure, especially for ensuring global competitiveness.

1.3 With infusion of new technology and capacity building, the cumulative/ total capacity available at ports matches the current requirement. However, ports are unable to handle additional traffic because of slow evacuation of cargo from the ports. Thus, despite having adequate capacity and modern handling facilities, the ports are

not able to ensure a quicker turn around of ships (present average turn around time at major ports is 3.42 days). This undermines the competitiveness of Indian ports vis-à-vis other ports in the region. Therefore, it is important that connectivity of Major Ports with the hinterland is augmented not only to ensure smooth flow of traffic at the present level but also to meet the requirements of projected increase in traffic.

Traffic Projections for 2013-14

2.1 An attempt has been made to formulate macro level traffic projections for the port sector, which includes major and non-major/private ports. These projections are based on the feedback received from the major ports and their users, a number of policy papers / plan documents, trade requirements, international scenario of the country's exports and new expansion projects to be undertaken by the public and private sectors.

2.2 The broad commodity-wise growth projections are presented below:

(in million tonnes)

Commodity	Existing Traffic in All Ports during 2003-04	Projected Traffic 2013-14	Compound Annual Rate of Growth (CARG)	Share of Major Ports 2013-14
POL	182.26	290.00	4.75%	191.2 (66%)
Container TEUs	51.00 (3.90)	251.40 (20.95)	17.30%	181.20 (15.10) (72%)
Iron Ore	75.62	131.50	5.69%	97.50 (74%)
Coal	58.63	135.90	8.77%	109.90 (81%)
Other Cargo	96.15	152.75	4.74%	126.04 (83%)
Total	463.66	961.55	7.57%	705.84 (73%)

2.3 As may be seen the traffic for all the ports is likely to grow at a compound annual rate of growth (CARG) of 7.57%, whereas CARG for traffic at major ports is 7.43% and non-major ports is 8.47%. The highest CARG is expected in container traffic, which will be at 17.30%.

Evacuation & Movement of Cargo

3.1 Evacuation of cargo from the port and movement to the port areas have to be properly synchronized so that the inter-modal network functions smoothly. An attempt is made to allocate the regional distribution of projected cargo to different modes of land transport. Though in certain cases of bulk cargo, it is easy to identify the mode for a particular cargo at a particular port, assumptions regarding percentage split have to be made in respect of cargo such as POL, LPG, fertiliser, fertiliser raw material, other bulk cargo, containers and break bulk cargo. These assumptions are made depending upon the features of the respective regions, nature of cargo, quantum of cargo and the spread of hinterland.

3.2 Accordingly, the following assumptions are made to indicate the Mode of Transportation for the respective cargo group:

Cargo Group	Moved by	
Crude Oil	Pipeline 100%	
POL	Railway 25% Road 25% Pipeline 50% (Including for costal movement)	
LPG	Railway 50% Road 50%	
LNG	Pipeline 100%	
Thermal Coal	Loading Port Unloading Port	Railway 100% Conveyor 80% Railway 20%
Coking Coal	Railway 100%	
Iron Ore	Mormugao New Manglore Tamil Nadu Andhra Peadesh Orissa, West Bengal	Inland waterways 80% Railway 20% Pipeline 100% Railway 100% Railway 100% Railway 100%
Food Grains	Railway 70% Road 30%	
Fertiliser Raw Mat.	Railway 30% Road 30% IWT 15% Conveyor 15%	
Other Dry Bluk	Railway 30% Road 70%	
Other Liquid Bulk	Pipeline 20% Railway 20% Road 60%	
Containers	Railway 45% Road 55% (Share of railway is increased when the traffic and/or distance increases)	
Break Bulk	Railway 20% Road 80%	

Deliberations of the Committee

4.1 Department of Shipping has obtained inputs from individual Port Trusts to assess the existing road rail connectivity of all major ports with a view to evaluating the future requirements for augmenting the same. These were deliberated in depth by the Committee of Secretaries (CoS).

4.2 Department of Shipping compiled the details of the existing connectivity of all major ports, the ongoing schemes and future requirements as initially projected by the Port Trusts. Discussions were initiated by the Committee in its first meeting held on July 20, 2005 when it was decided that proposals need to be worked out for each Major Port indicating the existing road connectivity and the proposed requirements with focus on future traffic demands. All Port Trusts were, therefore, advised to set up small groups with representatives from the National Highways Authority of India (NHAI), Railways, State Government and/or other agencies for preparing an exhaustive plan for augmenting road rail connectivity to meet the future demands of the traffic.

4.3 The issue of funding the connectivity projects was also discussed. An opinion emerged that expenditure for such projects should not be loaded on the Port Trusts and the option of Build Operate and Transfer (BOT) and other such modes could be explored. As for the rail sector, the Committee took note of the proposed dedicated freight corridor between Delhi-Kolkata and Delhi-Mumbai that was being taken up by the Railways. It was felt that a study may also be undertaken by the Shipping Department to ascertain whether Coastal

Shipping would have an advantage over a dedicated freight corridor between Kolkata and Chennai.

4.4 The Committee held its second meeting on July 7, 2005, mainly for appraisal and review of projects conceived by Railways for connectivity to Major Ports. It was decided to discuss the matter further after all Major Ports worked out their specific requirements.

4.5 The plans prepared by all Major Ports for improving road rail connectivity were discussed in the third meeting of the Committee held on September 5, 2005. The Port-wise plans can be seen at ANNEXURE-VII.

4.6 It was emphasised by the Department of Shipping that these proposals needed to be scrutinized from a moderately liberal angle. As per the present funding pattern for road connectivity projects, these are implemented by NHAI through SPV where not more than 30% project cost is borne by NHAI, the Port Trusts contribute up to 30% and the remaining 40% is met by borrowings from the market. The Committee felt that instead of pursuing the SPV model, the proposed roads should be built on BOT basis. In such cases, the existing support mechanisms such as 'viability gap funding' should also be available wherever necessary. The Committee noted that the Finance Ministry was also setting up an SPV for funding such projects by offering long term loans.

4.7 The fourth meeting of the Committee was held on September 24, 2005, where the category-

wise projects in respect of each Major Port were discussed. These were again discussed in a meeting held on November 17, 2005 for firming up the recommendations. The last meeting of the Committee was held on November 28, 2005 to finalise its recommendations.

4.8 Conclusions /recommendations drawn on the basis of the deliberations of the Committee are stated in the following chapter.

Conclusions and Recommendations

5.1 Recommendations of the CoS are detailed below:

Connectivity

5.2 Each Major Port should preferably have atleast four lane road connectivity as well as double line rail connectivity.

5.3 Connectivity should be established within a well defined time frame. The on-going and proposed projects as well as the stipulated time schedules for the respective projects are indicated at Annexure-I to Annexure-IV.

5.4 In order to meet the agreed timelines, funds should be earmarked for these projects while making annual plan allocations for the concerned Ministries. The funding requirements for road and rail projects have been indicated at Annexure-V and Annexure-VI respectively.

5.5 All those projects for road rail connectivity where the IRR is less than the minimum prescribed, would be considered on a case to case basis. Budgetary assistance as well as assistance under the Viability Gap Funding Scheme should be considered for projects with a relatively low IRR, depending on their importance.

Road Projects

5.6 Road connectivity projects may be broadly divided into two categories:

a) Port Connectivity (PC) : Projects where the length of the road is not very great (less than 50 Km.); and

b) Hinterland Connectivity (HC) : Projects where connectivity to source of cargo such as iron ore mines/coal mines is to be provided.

5.7 Schemes for port connectivity would be undertaken by NHAI on BOT basis. The national highways for port connectivity may be categorized as National Highways (PC).

5.8 State highways with a traffic volume of 10,000 PCUs or more should be declared as national highways as per extant procedure.

5.9 All National Highways (PC) where traffic count reaches 12,000 PCUs should be taken up for 4-laning on priority.

5.10 All NH (PC) projects would be taken up by NHAI as per normal parameters. However, a separate tolling policy for NH (PC) could be proposed jointly by NHAI and the Shipping Department where necessary.

5.11 All proposals for roads falling in the category of hinterland connectivity would be taken up by NHAI on BOT basis, as far as possible.

5.12 Annexure I contains a list of ten projects (327 km; Rs. 2036 cr.) which are sanctioned or under construction and need to be completed within the timeframe indicated against the respective projects. The progress of these works should be monitored on a regular basis.

5.13 Annexure-II contains a list of four projects (364 km; Rs. 2009 cr.) for which the approval process needs to be expedited.

It includes two hinterland connectivity projects which have been sanctioned under NHDP-IIIA and for which DPRs are being completed.

Rail Projects

5.14 Eight sanctioned/ ongoing projects (961 km; Rs. 2014 cr.) have been shown in Annexure-III. These projects need to be completed as per schedule and close monitoring of the same needs to be ensured.

5.15 Annexure-IV contains a list of five projects (263 km; Rs. 944 cr.) for which the Railways have carried out or are currently carrying out surveys with a view to determining the viability of these projects.

5.16 For Ennore Port connectivity, the traffic survey was done in 2003 and the IRR was found to be negative (-1.75%). The Committee felt that in view of the proposed Iron Ore terminal and container terminal, the Ministry of Railways may get the traffic projections updated in consultation with Ennore Port to determine the viability of the project afresh. This work may be completed in the next 6 months.

5.17 For Mumbai Port, the IRR is -2% as per present survey. The Committee felt that this would improve significantly if the proposed container terminal is factored into the traffic estimate. 50% of the cost of relocating encroachments would be borne by the Railways and the remaining 50% would be shared between the Port Trust and the

State Government. This would improve the IRR further. The Project was recommended on this basis.

5.18 The need for rail connectivity to Vallarpadam where International Container Transshipment Terminal (ICTT) is proposed to be set up within 4 years was discussed and it was recommended that after a feasibility study is completed this project could be considered for funding as a national project. A Task Force under the chairmanship of Secretary, Shipping and comprising representatives of the Ministry of Railways, NHAI, Department of Economic Affairs, Department of Expenditure and Planning Commission may deliberate and recommend the most viable option for road rail connectivity to Vallarpadam. Provision of budgetary support may be considered after these proposals are firmed up.

Environment clearances

5.19 Ministry of Environment & Forests would expedite environmental clearance for pending road rail connectivity projects.

Monitoring

05.20 The COS should review progress of implementation every quarter and submit a progress report to the Committee on Infrastructure.

Annexure I

ONGOING/ SANCTIONED ROAD PROJECTS

Sl.No	Name of Port	Scope of Work	Length (Km)	
1.	Haldia	4 laning of Kolaghat - Haldia section	52.2	
2.	Paradip	4 laning of NH-5A	77	
3.	Vishakapatnam	Port Connectivity	12.47	
4.	Chennai & Ennore	Chennai-Ennore Port Connectivity	30	
5	Tuticorin	4 laning of NH-7A	47.2	
6.	Cochin	4 laning of NH-47	10.40	
7.	New Manglore	4 laning of NH-17, NH -48 & bypass	37.5	
8.	Mormugao	4 laning of NH-17B	18.3	
9.	Jawaharlal Nehru Port	4 laning of SH-54 with 6 - lane bridge on Panvel Creek. (Pkg II).	14.35	
10.	Jawaharlal Nehru Port	Package-I	27.6	
		Total	327.02	

Annexure II

ROAD PROJECTS TO BE SANCTIONED

Sl.No	Name of Port	Scope of Work	Length (in Km)	Estimated Project Cost (Rs in Crore)	
1.	Kolkata	Kona Junction on NH-6 to Netaji Subhash Dock	14		
2.	Paradip (BOT)	Four-laning of Panikoili-Barbil NH-215	189	1050	
3.	Tuticorin (BOT)	Four laning of Tuticorin Madurai Road (NH 45B)	144	629	
4.	Cochin	Connectivity to ICTT, Vallarpadam	17.2	330	
		Total	364.2	2009	

	Project Cost (Rs. in crore)	Status of work	Date of commencement	Likely date of completion
	273	Under construction	September 2002	June 2007
	427	Under construction	February 2004	June 2007
	94	Under construction	June 2002	March 2006
	309	Land for affected families to be made available.	Land acquisition awaited	
	231	Under construction	February 2004	June 2007
	106	Under construction	February 2004	June 2007
	196	Under construction	June 2005	Dec '07
	80	Held up on account of land acquisition.	Land acquisition awaited	
	143	Under construction	November 2004	May 2007
	177	Completed. Final accounts of SPV to be settled	February 2002	June 2005
	2036			

	Status of work	Date of commencement of DPR	Scheduled date of completion of DPR
	Survey for alignment is in progress. Investment decision on availability of DPR.	August 2005	December 2006
	DPR is under preparation. Bids will be invited thereafter	September 2005	September 2006
	DPR is under preparation.	June 2005	April 2006
	Approved 'in principle' by the Government. MoEF clearance awaited.		Investment decision yet to be taken

Annexure III

ONGOING/ SANCTIONED RAILWAY PROJECTS

Sl.No	Name of Port	Scope of Work	Length (Km)
1.	Haldia	Doubling of Panskura-Haldia section (Phase-I)	14
2.	Paradip	Haridaspur-Paradip link with mines & steel plants	82
3.	New Mangalore	Aresikere-Hassan-Mangalore rail link	236
4.	Kandla	Gandhidham-Palanpur Gauge Conversion	313
5.	JN Port	Doubling of Panvel-Jasai section	28.5
6.	Tuticorin	Doubling of Madurai-Dindugal section	62.06
7.	Kandla Port	Bhildi-Samdhari Gauge Conversion	223
8.	Paradip	Second bridge over Mahanadi	3
Total			961.56

Annexure IV

RAILWAYS PROJECTS TO BE SANCTIONED

Sl.No	Name of Port	Scope of work	Length (in km)	Estimated Project cost (Rs. in crore)
1.	Kolkata	Rail connectivity to proposed jetties at Diamond Harbour	-	-
2.	Mormugao	Doubling of Londa-Dharwar section	70	175
3.	Haldia	Doubling of Panskura-Haldia section (Phase-II)	44	230
4.	Mumbai	Dedicated freight line between Wadala and Kurla	5.66	104 (incl 55 cr. for hutment removal)
5.	Ennore	The new Chord line. (Puttur - Attipattu)	144	435
Total			263.66	944

	Project Cost (Rs. in crore)	Status of work	Year of commencement	Scheduled Completion Date
	26	Being implemented by RVNL	2000-01	March 2006
	456	Railways to commence the work on priority	1996-97	December 2008
	357	Work nearing completion	1994-95	December 2005
	550	SPV (Kandla Port, Kutch Railway Co., RVNL & Adani Port) has been formed	1998-99	March 2007
	69	60% of the work is completed	2000-01	June 2006
	126	Survey completed. Detailed estimate under vetting	2003-04	December 2008
	290	18% work completed	1990-91	March 2008
	140	22% work completed	1996-97	June 2008
	2014			

Status of Work	Date of commencement of Feasibility Study	Scheduled Date of Completion of Feasibility Study
Survey to be commenced as deposit work	April 2006	December 2006
Survey for Hospet-Hubli- Londa-Vasco section has been sanctioned for 341.7 km. long section.	September 2004	March 2006
Preliminary survey has been completed. Bankability is being examined by RVNL.	July 2005	November 2005
50% of the cost of relocating hutments to be shared between Port Trust and State Government. To be sanctioned on this basis.	January 2006	March 2006
MOR to get the traffic projections updated in consultation with Ennore Port within six months.	January 2006	March 2006

Annexure V

ANNUAL FUND REQUIREMENT FOR ROAD PROJECTS

Sl. No	Name of Port to be connected	Total Approved Cost	Cost including escalation on awarded cost @15%	Expenditure incurred up to Dec.'05
1	Haldia	273	284.74	112.59
2	Paradip	427	444.92	129.14
3	Visakhapatnam	94	99.75	84.80
4	Chennai-Ennore	309	333.07	54.18
5	Tuticorin	231	210.16	31.39
6	Cochin	106	118.48	34.08
7	New Mangalore	196	292.97	5.90
8	Mormugao	80	87.81	50.35
9	Mumbai-JNPT Pkg II	143	173.29	61.07
10	Mumbai-JNPT Pkg I	177	192.38	163.86
11	Kolkata *	-		
12	Paradip (BOT) *	1050		
13	Tuticorin (BOT) *	629		
14	Vallarpadam *	330		
	Total	4045	2237.57	727.36

* Projects to be Sanctioned.

	Balance fund required	Fund Requirement				
		4th Qtr. Of 2005-06	2006-07	2007-08	2008-09	2009-10
	172.15	10.00	60.00	80.00	22.15	-
	315.78	19.00	121.00	121.00	54.78	-
	14.95	5.00	9.95	-	-	-
	278.89	5.00	38.00	107.00	88.00	41.00
	178.77	8.00	60.00	76.00	34.77	-
	84.40	5.00	37.00	42.40	-	-
	287.07	5.00	85.00	105.00	92.07	-
	37.46	-	6.00	18.00	13.46	-
	112.22	8.00	60.00	44.22	-	-
	28.52	-	28.52	-	-	-
DPR is awaited						
Viability gap funding will be provided as per bid.						
Viability gap funding will be provided as per bid.						
DPR is awaited						
	1510.21	65.00	505.47	593.62	305.23	41.00

Annexure VI

ANNUAL FUND REQUIREMENT FOR RAIL PROJECTS

Sl. No	Name of Port to be connected	Estimated Cost Rs. in crore	Exp. up to Mar.'05	
1	Haldia	26	13.25	
2	Paradip	456	30	
3	New Mangalore	357	291.9	
4	Kandla	550	100	
5	JN Port	69	13.23	
6	Tuticorin	126	3.22	
7	Kandla Port	290	0	
8	Paradip	140	20.81	
9	Kolkata +	-		
10	Mormugao +	175		
11	Haldia +	230		
12	Mumbai +	104		
13	Ennore +	435		
	Total	2958	472.41	

* This is total requirement & Railway share shall be 30% as informed by MD/RVNL

+ New Projects to be sanctioned

	Outlay for 05-06	Funds required for		
		2006-07	2007-08	2008-09
	15.5.	1	0	0
	20	100*	250*	63*
	-	-	-	-
	152.88	Full financial closure has been achieved in Nov '05 and Rs. 300 cr. has been raised from the market.		
	24.62	7	0	0
	5	26	56	44
	15	85	150	40
	25.19	55	34	5
Deposit work				
The fund requirement will be available after the projects are sanctioned				
	258.19	268	490	152

Annexure VII

Present Status of Road Rail Connectivity and Future Requirements of Major Ports

1. Kolkata Port: Kolkata Dock System (KDS)

The main commodities handled are POL, Iron ore, containers and other cargo. The total traffic handled during the year ending 31.3.2005 was 9.95 million tonnes. The port is expected to handle the traffic of 16.60 million tonnes by 2013-14.

1.1 Existing Road Connectivity

1.1.1 KDS is located at a distance of 10 km from the junction of NH2 & NH6 and at a distance of 25 km from the junction of NH34 and the Airport. These distances are covered by various city roads.

1.1.2 Upgradation of 10 km of road connectivity to Kolkata Port including 1.7 km long elevated road link between Vidyasagar Setu & Swing Bridge is being undertaken. Part of the land for the proposed project comes under Army jurisdiction, for which requisite permission has been received from Army. Survey work is now to be undertaken.

1.2 Existing Rail Connectivity

1.2.1 Sealdah-Budge Budge Branch Line of Eastern Railway connects KDS with the Railways track at Majherhat Junction. While Railway connections are available for serving three berths, however, railway tracks leading to all the berths except 1NSD require strengthening.

1.3 Future Requirements

1.3.1 The traffic of KDS is projected to increase to 16.60 MTPA by 2013-14 from the present level of 9.95 MPTA. The expansion proposals for KDS include development of a full fledged cargo facility at Saugar, construction of two additional virtual jetties/mooring facilities at Saugar and transloading of dry bulk cargo and installation of a floating terminal for containers at Sandheads. With a view to ensure smooth flow of traffic and to meet the future requirements of the projected increase in traffic, the Port has proposed undertaking the following proposals for improving the connectivity of KDS:

Road Connectivity

1.3.2 At present, cargo to/from Northern, Southern hinterland moves from junction of NH-2 and NH-6 through Second Hooghly bridge (Vidyasagar Sethu). As the 10 km stretch between the junctions of NH-2/NH-6 is heavily congested, it is necessary to widen the Garden Reach Road, Napier Road and replace the existing swing bridge of Kidderpore Dock alongwith the strengthening and widening of the bridge over Tolly's Nullah. Also, new ramps are needed to be constructed to approach Vidyasagar Setu. This project being taken up by NHAI. Their estimate excluding the cost of replacement of the swing bridge is Rs. 50 crore. The replacement cost of the existing two lane swing bridge by a 4 lane bridge is estimated to be Rs. 55 crore. The total project cost for providing connectivity between KDS and the junction of NH2/ NH6 is estimated to be Rs. 105 crore.

1.3.3 The State roads connecting the Port with the CFS also need to be connected with this proposed road.

1.3.4 KDS is planning to construct cargo handling jetties at Diamond Harbour which is 70 km downstream from Kolkata. This would help handling of bigger vessels with heavier parcel load as the draught there is deeper. The proposed site is close to the Diamond Harbour road-since rechristened as NH 117. This road is still under State Government. It is necessary to provide a 4-Lane By-pass from NH 117 up to cargo handling jetties proposed at Diamond Harbour to ensure smooth flow of traffic to/from the port facilities. The length of the proposed by pass is 3 kms. The estimated cost of the project is Rs 35 crore and the work is proposed to be undertaken by State PWD.

Rail Connectivity

1.3.5 Rail connectivity with the nearest rail head at Diamond Harbour Station on the Eastern Railway route would be necessary for handling of rail borne cargo to and from the proposed port facilities at Diamond Harbour. This work will be undertaken by the Eastern Railway. Presuming that there would be movement of one rake per day, at the beginning, the estimated cost of this 1.50 km long stretch alongwith necessary siding facilities would be Rs. 30 crore

2. Kolkata Port: Haldia Dock Complex (HDC)

Commodities handled are mainly POL, iron ore,

fertilizers, fertilizers & minerals, thermal coal, coking coal, containers and other cargoes. Total traffic handled during the year ending 31.3.2005 was HDC- 36.21 million tonnes. Traffic of 56.74 million tonnes is expected to be handled by 2013-14.

2.1 Existing Road Connectivity

2.1.1 HDC is connected to NH41 which links it to NH6 and rest of the country.

2.1.2 Four laning of 52.2 km stretch of NH-41 from Kolaghat-Haldia is being implemented by NHAI.

2.2 Existing Rail Connectivity

2.2.1 Panskura-Haldia Branch Line of South Eastern Railway connects HDC to the Trunk Railways. This is a single line.

2.2.2 Doubling of the 15.05 km stretch of this line from Panskura to Rajgoda has already been completed.

2.3 Future Requirements

2.3.1 The traffic handled at HDC is growing steadily. The traffic of HDC is expected to increase to 56.74 MTPA by 2013-14 as against the present traffic of 36.21 MTPA. The Port proposes to develop three additional berths inside the impounded dock arm, construct a second dock arm and also set up a second lock entrance. With a view to ensure smooth flow of traffic and to meet the future requirements of the projected increase in traffic, the Port

has proposed the following for improving the connectivity of HDC:

Road Connectivity

2.3.2 NH41 connects HDC with NH6 and to the rest of the country. At present NH41 is two laned. NHAI have taken up widening of the two laned carriageway of NH41. While NHAI has completed 50% of the work, the remaining 50% is progressing at a very slow pace. This needs to be expedited by NHAI to ensure smooth flow of traffic which is bound to increase with the ongoing rapid industrialization of Haldia.

2.3.3 Due to increase in the road bound cargo related to HDC, it has become necessary to have a Rail Over Bridge at Ranichak, Haldia to meet the requirements of increasing traffic. This project may be undertaken by NHAI. As per an estimate made 4-5 years ago, the cost of the project was Rs 18 crore. However, at the present rate, the cost is estimated at Rs.35 crore. NHAI has agreed to bear cost up to Rs 9 crore. For the remaining part, HDC expects assistance from the Central Government.

Rail Connectivity

2.3.4 HDC handles 32 MT of traffic of which 13-14 MT (43%) is handled through HDC railway system. Therefore, it is important to strengthen the rail connectivity of HDC.

2.3.5 The existing single rail track connecting Haldia with Panskura has a capacity to accommodate 18 pairs of trains per day.

The present rail borne traffic of HDC is around 14 MT and with this volume of traffic, this capacity is almost saturated. With the present rate of rail borne traffic, it is estimated that this would go up to 26 MT within five years. Doubling of the Haldia-Panskura Rail Line covering a distance of 58.1 km is necessary to cope with this projected increase in traffic. While Panskura-Rajgoda stretch (15.05 km) has already been completed, work on the remaining Rajgoda-Haldia stretch of 43.05 km at an estimated cost of Rs.237 crore, needs to be to be commenced and completed at the earliest.

3. Paradip Port

Commodities handled are mainly iron ore, thermal coal, coking coal and fertilizers. Total traffic handled during the year ending 31.3.2005 was 30.10 million tonnes. The port is expected to handle traffic of around 71 million tonnes by the year 2013-14

3.1 Existing Road Connectivity

3.1.1 The port is linked to the NH-5 through a 2 lane road from Chandikhol at a distance of 80 km. This connection is through NH 5A and at Cuttack through SH 12.

3.1.2 4-Laning of Chandiphol-Paradip Road NH-5A is under progress. This 77 km stretch links the port to the iron ore mines at Sea Plants. The project is being implemented by NHAI at an estimated cost of Rs.428 crore. The project is likely to be completed by February, 2007.

3.1.3 4-Laning of Cuttak-Paradip Road SH-12 is also under progress. This 82 km stretch provides the network between the mines and the port. Various stake holders including PPT and Govt. of Orissa are to fund the project which would facilitate traffic related to POSCO, IOC Refinery, Port Expansion and Regular Passengers.

3.2 Existing Rail Connectivity

3.2.1 Port is connected by a single line section with Cuttack through Paradeep Cuttack rail link which connects Howrah-Chennai Trunk line. This single line is being doubled.

3.2.2 Daitari-Banspani rail link: This 155 km Daitari-Banspani rail line is under construction. The estimated cost of the project is Rs.590 crore. The project scheduled for completion in December, 2005 is being implemented by RVNL. Completion of this line will reduce the distance and freight cost of export iron ore making it internationally competitive.

3.3 Future Requirements

3.3.1 Orissa is attracting huge investments particularly in the mineral sector. With the setting up of 36 steel plants, 3 aluminum plants and one refinery, the traffic requirement will increase manifold. The adjoining land locked states of Jharkhand and Chhattisgarh are also attracting huge investments. Paradip is the only deep draft port to cater to traffic relating to the projects in Orissa and neighbouring states. As per projections of Paradip Port, the capacity requirement for handling iron ore at Paradip

will be 24 million tonnes including the requirements of POSCO and ESSAR Steel. With 36 new steel plants coming up within 150 kms. of the hinterland of the port, the coking coal capacity requirement will be 33 million tonnes. Taking into account requirement of power plants in South India, thermal coal requirement will increase to 20 million tonnes. The POL cargo at Paradip will be 9 million tonnes taking into account the SPM of IOC. To meet the increased demand of traffic, the existing road rail connectivity of the port needs to be augmented by undertaking following projects.

Road Connectivity

3.3.2 4-Laning of Keonjhar-Panikoili Road NH-215: This 269 km stretch connects the port to the iron ore mines. The estimated cost of the project is Rs.1076 crore. NHAI is preparing the DPR for the project to be taken up on BOT basis.

3.3.3 4-Laning of Chandikhol-Duburi NH-200: This 39 km stretch links port with steel plants and coal mines. The estimated cost of the project to be taken up on BOT basis is Rs.160 crore. NHAI is preparing the DPR for the project.

Rail Connectivity

3.3.4 **Cuttack-Paradip Rail Link:** Electrification of the 90 km Cuttack-Paradip is required. This line links the port with Howrah-Chennai main line at Cuttack and provides connectivity between the port and the iron ore and coal mines.

3.3.5 Mahanadi Bridge: Existing single Mahanadi Bridge which links the port with the coal mines in the hinterland is a bottleneck. A second bridge is required to meet the traffic demand. Railways have already taken up this project through RVNL.

3.3.6 Haridaspur-Paradip Rail Link: This 78 km line under construction will link the port with iron ore mines and steel plants as a dedicated corridor. It would shorten the distance between the port and the proposed steel plant. The estimated cost of the project is Rs. 441 crore and is to be executed by RVNL through an SPV comprising RVNL, PPT, Govt. of Orissa, Essar and others.

4. Visakhapatnam Port

Commodities handled are mainly POL and iron ore. Total traffic handled during the year ending 31.3.2005 was 50.15 million tonnes. The port is expected to handle traffic of around 100 million tonnes by the year 2013-14.

4.1 Existing Road Connectivity

4.1.1 The Port is connected to NH 5 via GNT Road (17 km), Gnanapuram-Thatichetlapalem (9 km), Alipuram-Railway Station-Thatichetlapalam (9 km), Naval Dockyard and Industrial by-pass Road (15 km).

4.1.2 NHAI is implementing a project for improving the Port connectivity by improving 12.47 km long stretch of Naval Dockyard and Industrial by-pass State road. This includes providing 4 km long missing road link.

4.2 Existing Rail Connectivity

4.2.1 Port is connected to Chennai Howrah main line of East Coast Route.

4.3 Future Requirements

4.3.1 The cargo traffic at this port is predominantly rail borne. Out of 50.15 MT, 32.9 MT (65%) is moved by rail from/to various places of primary and secondary area comprising states of Chhattisgarh, Jharkhand, Bihar, Uttarnchal, UP, Maharashtra, Orissa, West Bengal and Punjab. The port also serves tertiary service area of Haryana and J&K. The remaining cargo is moved by pipeline/road.

4.3.2 The port is estimated to handle 100 MTPA traffic by 2013-14 of which 50 to 55 MTPA is expected to be rail borne. As the port is a natural choice for cargo to/from Central India, better connectivity will not only enable the port to attract additional traffic but also help the service area to trade their products with different countries. Taking into account the anticipated increase in cargo traffic to meet the demand of fertilizers, power plants and steel sector in the service areas, the port has requested the following projects may be taken to improve the connectivity of the port:

Road Connectivity

4.3.3 4-laning of approach road from Industrial By-pass Road to RCL Junction: 7 km stretch of the Port Connectivity road being built by NHAI is on ground level and the remaining stretch consists of flyovers and ramps. Of this 7 km

stretch, 3.5 km long middle stretch is 2-laned. This needs to be widened to 4 lanes to meet the increasing traffic requirements. The cost of the project is estimated to be Rs. 15 crore.

4.3.4 Additional connectivity from the existing NHAI flyover: The port connectivity road envisages movement of cargo mainly from/to NH5 to the East quay berths. The cargo from/to the west quay berths can be carried more smoothly if two more connections are given to the NHAI flyover. These connections may be at STP pond connecting the road to the west quay berth and the other connection should be at Anakapalli level crossing. The total length involved is 2 km and the estimated cost of the project is Rs. 20 crore.

4.3.5 Additional access to NH 5 from the Port operational area (Convent Junction) via Kancharapalem: With the increase in container traffic, several CFSs are likely to be created within 20-30 km from the operational area. To meet the requirements of the projected traffic increase, there is need to have a flyover starting Convent Junction to NH-5 via Kancharapalem. The estimated cost of this project is Rs. 60 crore.

4.3.6 Formation of exclusive road corridor by constructing flyovers to cater to the container and other cargo traffic: At present the traffic has to move through a 2 km stretch of single lane Public road to/from the Port to NH5. Being a narrow road, there is often congestion leading to delay in the movement of cargo. Meanwhile the container traffic is projected to grow manifold with the setting up of several industries along

the industrial corridor between Vishakhapatnam and Kakinada. To meet the requirement of the anticipated increase in the traffic, it is necessary to have a dedicated corridor whereby movement through this narrow 2 km stretch can be avoided. This dedicated corridor could be either from the fishing harbour junction to the Sea horse Junction or from the flyover near the St Alloys School area connecting the Port Road. The estimated cost of this project is Rs. 12 crore.

Rail Connectivity

4.3.7 Doubling and electrification of Vijayanagram-Rayagada-Titlagarh-Raipur. While doubling of Vijayanagram-Rayagada-Titlagarh Section has almost been completed, Titlagarh-Raipur Section needs to be doubled beside the entire line from Vijayanagram-Raipur is required to be electrified. The estimated cost of the project is about Rs.1330 crore.

4.3.8 Development of separate interchange yard at Mindi. This will help avoid unnecessary movement of trains from Western Section to Reception & Dispatch Yard and will reduce detention of trains thereby enabling railways to directly interchange traffic at the new yard itself. This will also reduce the distance by 20 km. The estimated cost of the project is Rs. 50 crore.

4.3.9 Shifting of mechanical facilities at ore exchange yard to a separate yard. The present facility for periodical maintenance examination and other mechanical requirements results in reducing the availability of lines for handling

iron ore traffic of the port. As a result, empty rakes from the port get detained in the ore handling complex without being admitted to ore exchange yard. Therefore, shifting their mechanical facilities by railways to a separate yard is important. The estimated cost of the project is Rs.12 crore.

5. Ennore Port Limited

Commodities handled are mainly POL, Iron ore and thermal coal. Total traffic handled during the year ending 31.3.2005 was 9.48 million tonnes. The port is expected to handle traffic of around 47.50 million tonnes by the year 2013-14.

5.1 Existing Road Connectivity

5.1.1 North Chennai Thermal Power Station (NCTPS) road connects the port to TNEB power plants. TPP road connects the port to NH4, NH5 and NH45.

5.2 Existing Rail Connectivity

5.2.1 Port is connected by rail to the Chennai-Gudur Section (North-East Line) of the Southern Railway. The present rail lines providing access to the port were constructed by TNEB in 1991. There are two lines- The South Connectivity Line and The North Connectivity Line.

5.3 Future Requirements

5.3.1 The Ennore Port is now in its second phase of development wherein it is proposed to develop new terminals for handling coal, iron

ore, marine liquid, LNG and container terminal. The capacity of the port is projected to increase from the present 16 MTPA to 39.5 MTPA by 2010-2011 and will go up to 62 MTPA by 2021-2022. The estimated cargo projected to be handled through different modes is conveyor-13 MTPA; pipeline-4 MTPA; rail-20.5 MTPA + 0.25 MTEUs; road – 2 MTPA + 0.75 MTEUs. To meet the increased demand of traffic, the port has proposed undertaking following projects for improving road rail connectivity:

Road Connectivity

5.3.2 4-laning of TPP Road to provide the essential link with Chennai Port and several CFSs in the Manali area. The estimated cost of the project is Rs. 38 crore.

5.3.3 North Chennai Thermal Power Station (NCTPS) Road which is a private road of TNEB that links the port to the TPP road needs to be taken over by the State Government and strengthened/widened to 4 lanes. This 5 km stretch is estimated to cost Rs. 20 crore.

5.3.4 Northern Port Access Road : A 9-10 km long 4-laned new Access Road is required for the proposed Container Terminal to connect the proposed Northern Gate of the Port to TPP Road. The road should be extended to NH5, by passing TPP Road and NCTPS Road, providing a shorter link to the NH5.

Rail Connectivity

5.3.5 Rail connectivity to coal, iron ore and container terminals which is already in the

Annual Plan 2005-06 is required to be implemented in sync with development of respective terminals. The estimated cost of the project is Rs. 30 crore.

5.3.6 New Chord Line linking North-East (Chennai-Delhi/Kolkata) and South-West (Chennai-Mumbai) lines originating from Chennai would provide excellent connectivity to the Port and would help in increasing iron ore export through the port. This could be either through Puttur-Attipattu or Renigunta-Kalahasti-Tada. The estimated cost of the projects about Rs. 270 crore.

5.3.7 Dedicated Freight Corridor between Chennai and Bangalore/Mumbai and Delhi/Kolkata.

6. Chennai Port

Commodities handled are mainly POL, iron ore and containers. Total traffic handled during the year ending 31.3.2005 was 43.81 million tonnes. The port is expected to handle traffic of around 47.40 million tonnes by the year 2013-14

6.1 Existing Road Connectivity

6.1.1 The present road connectivity is through NH-5 Chennai-Kolkata, NH-4 providing access to Chennai from West, NH-45 Chennai-Dindugal.

6.1.2 NHAI is implementing the 30 km stretch for Chennai – Ennore Port Connectivity Project, Chennai Ennore Expressway including sea

protection work, TPP Road, Inner Ring Road, Manali Oil Refinery Road. Total cost of the project is Rs. 161 crore.

6.2 Existing Rail Connectivity

6.2.1 Port is well connected with the railway network. At present the Port is linked to Southern Railway network via Madras Beach Railway which connects Chennai Port Station to Southern parts of Tamil Nadu and via Rayapuram which connects S.Railway Trunk line to Kolkata, New Delhi, Bangalore, Coimbatore etc.

6.3 Future Requirements

6.3.1 Being an all weather port, Chennai Port handles diverse cargo mix of iron ore, coal fertilizers and containerised cargo, etc. The traffic throughput for the last 10 years shows an increase from 30.72 MT in 1995-96 to 43.80 MT in 2004-05. As per various forecasts based on the existing trends, total cargo input of Chennai port is projected to exceed 47.40 MTPA by 2013-14. The hinterland of Chennai Port is now shared with Ennore Port. If the existing facilities at Chennai Port are to be optimized, there is need for Chennai Port and Ennore Port to work in a coordinated manner to harness their combined strength. Cargo to/from Chennai Port is handled through rail (33%) road (40%) and pipeline (27%). Of the containerised cargo, only 7% is handled by rail and remaining 93% by road. With the projected increase in container cargo, it will be in the interest of the port to improve rail infrastructure so that more containers are moved.

Road Connectivity

6.3.2 Chennai-Ennore Port road connectivity project: This project called the Ennore Manali Road Improvement Project (EMRIP) is being undertaken at an estimated cost of Rs. 150 crore. It includes shore protection along Ennore Coast, 4-laning of Ennore Expressway, improvement of Tiruvottiyur-Ponneri-Panjetti road and Manali Oil Refinery Road, upgradation of Northern Segment of inner ring road leading to the National Highway.

6.3.3 Dedicated Elevated Expressway along Chennai Port to Maduravoyal: Even after implementation of EMRIP, there would be congestion in the Northern corridor due to absence of dedicated link between Maduravoyal and Gate No. 10 of Chennai Port. The cargo needs to take a detour of almost 30 km, which due to congestion in Northern corridor may increase to 60 km. To avoid this, it is required that a dedicated elevated Expressway be constructed along Chennai Port to Maduravoyal at an estimated cost of Rs. 100 crore.

Rail Connectivity

6.3.4 As the main category of cargo projected to increase significantly in the next decade will be containerized cargo, it is imperative to improve the share of rail in transporting containers from the present 7%, to take the load off from roads which at present transport 93% of containers. In this regard, the following projects are required to be undertaken to improve rail connectivity:

6.3.4.1 Mumbai-Chennai and Chennai-Bangalore Rail Corridor: Developing a new chord line linking the North/East (Chennai-Delhi/Kolkata) and South/West (Chennai-Mumbai) lines originating from Chennai would provide excellent connectivity to the Port and would help in increasing iron-ore exports through the Port. Cost of the Project is estimated to be Rs. 2000 crore. In addition, a dedicated corridor between Chennai and Bangalore at an estimated cost of Rs. 1000 crore has also been proposed by the Port. These links would benefit both Chennai and Ennore Ports.

6.3.4.2 Rail link to Sathangadu: At present there is an existing rail siding at Sathangadu which was developed for SAIL and this can be extended to Royapuram station for providing a mainland route for transportation of containers. The estimated cost of the project is Rs. 80 crore.

7. Tuticorin Port

Commodities handled are mainly thermal coal and POL. Total traffic handled during the year ending 31.3.2005 was 15.81 million tonnes. The port is expected to handle traffic of around 35.20 million tonnes by the year 2013-14.

7.1 Existing Road Connectivity

7.1.1 Present road linkages to the port are through:

- (a) 2-lane NH-45 B Tuticorin to Ettaiapuram-Aruppukottai-Madurai
- (b) 2-lane NH-7 Tirunelveli to Madurai-Erode, Salem and Bangalore

(c) 2-lane NH7A, Tuticorin to Tirunelveli.

7.1.2 NHAI is implementing a project for four laning of 47.2 km stretch of NH-7A between Tuticorin and Tirunelveli.

7.1.3 NHAI is to undertake 4-laning of NH 45B under NHDP III.

7.2 Existing Rail Connectivity

7.2.1 Port is connected by broad gauge (BG) rail link with major cities like Tirunelveli in the west, Nagercoil and Trivandrum in the south and Madurai, Trichi, Chennai and Bangalore in the north. Port is also linked to ICDs at Madurai, Tirupur, Karur, Salem, Coimbatore, Chennai and Bangalore.

7.2.2 The following projects are underway:

- (a) Survey for doubling of Chennai-Tuticorin link
- (b) BG conversion of Tirunelveli-Quilon MG line
- (c) BG conversion of Tanjaur-Kumbakonam-Vilupuram stretch of MG track.

7.3 Future Requirements

7.3.1 The traffic handled at Tuticorin is growing steadily. The traffic of the Port is expected to increase to 35.20MTPA by 2013-14 as against the present traffic of 15.81MTPA. The Port proposes to convert its 8th Berth into a Container terminal. It also has plans to construct a Coal Berth for NLC-TNEB, upgradation of

the existing coal jetty, construct Berth No.9 and Shallow Berths. The port is also identified as one of the Ports for cruise shipping. While the present road connectivity to the nine CFSs in Tuticorin is good, it would further improve with four laning of NH7A currently in progress and proposed four laning of NH45B. Thus, connectivity to CFSs is not an issue with Tuticorin Port Trust. However, to meet the future requirements arising from increase in traffic, the Port has proposed undertaking of the following projects for augmenting rail/road connectivity:

Road Connectivity

7.3.2 While all National Highways, State Highways and major district roads providing connectivity to the Port are already in the process of being widened/improved, the Port has proposed completion of the projects in the following priority:

- (a) For the proposed 4-laning of NH45B to be undertaken by NHAI, the work should commence in 2006 as scheduled.
- (b) 4-laning of NH7 between Madurai-Dindugal. It is understood that the contract is likely to be awarded shortly but this stretch needs to be taken up on priority as it is a bottleneck in movement of cargo, especially containers.
- (c) East Coast Road between Tuticorin and Ramanathapuram. It is understood that the State Government is likely to award the contract shortly.

Rail Connectivity

7.3.3 Madurai-Dindugul - Though the Port is well connected through BG rail link with major cities as well as with the ICDs at Madurai, Tirupur, Karur, Salem, Coimbatore, Chennai and Bangalore. However, one vital section requiring doubling is the track between Madurai and Dindugal for ensuring smooth movement of cargo to/from Port. Railways are finalizing the proposal for this project.

7.3.4 The existing single line from the port is adequate and provides direct connectivity to Karur, Erode and Tirupur. The port envisages additional railway sidings in the port area to cater to the container traffic and bulk cargo traffic.

8. Cochin Port

Commodity handled is mainly POL. Total traffic handled during the year ending 31.3.2005 was 14.10 million tonnes. The port is expected to handle traffic of around 45 million tonnes by the year 2013-14

8.1 Existing Road Connectivity

8.1.1 The present road connectivity of the Port is through two bridges – one each on Mattanchery channel and Ernakulam Channel linking the Port to mainland. There is also a link road between the Wellington Island and NH-47 bypass.

8.1.2 NHAI is implementing a project for four laning of 10.40 km stretch of NH-47 from km 348/382 to km 358/750.

8.2 Existing Rail Connectivity

8.2.1 Port is served by a single line 8 km long section of broad gauge, which branches off at Ernakulam from the main line from Shornur-Trivandrum.

8.3 Future Requirements

8.3.1 Cochin Port is a natural harbour located on the West Coast. The existing Port facilities are located on the Willingdon Island. Two bridges- one on the Ernakulam channel connects the Willingdon Island to the mainland and the other bridge on the Mattencherry Channel connects the Willingdon Island to Western Kochi. The bridge connecting the mainland and Willingdon Island is a road-cum-rail bridge. The port facilities are also connected to the Railway network through an 8 km rail line. The rail connection is also extended to the Ernakulam Wharf and the Mattencherry Wharf. Railways are in the process of replacing the existing railway bridge across the Ernakulam Channel, which connects Willingdon Island with the mainland.

8.3.2 As the port development on Willingdon Island has reached a saturation point, further development is being made at Vallarpadam where the port owns about 440 hectares of land. This island is located at the Northern side of the present road and it has about 600 acres of accreted land at the Puthuvypeen near the

entrance of the Port. Future developments are planned in these areas as part of NMDP. The major development projects include setting up the International Container Transshipment Terminal (ICTT) within the next four years, LNG regassification terminal, international bunkering terminal, international ship repair complex, crude oil handling for KRL, international cruise terminal and Port based SEZ. At present there is no rail or NH road connectivity available to Vallarapadam or Puthuvypeen areas. Moreover, even though there is a road link to the city centre of Ernakulam, it is neither suitable nor adequate to handle cargo related traffic. Therefore, to ensure smooth flow of port related traffic, which is projected to increase manifold once the above stated terminals become operational, it is important to undertake the following projects for providing rail/road connectivity to the Port:

8.3.3 The most immediate requirement is to have rail and road connectivity to Vallarapadam where the International Container Transshipment Terminal (ICTT) is being set up.

8.3.4 The techno-economic study for the most feasible and acceptable rail alignment is being conducted by RVNL.

Road Connectivity

8.3.5 The road connectivity to Vallarapadam is proposed by NHAI in two phases:-

Phase-I

4-laning of 10 km stretch of NH-47 from

Vyttila to Aroor at an estimated cost of Rs.100 crore.

Phase-II

4-Lane NH connectivity to Vallarapadam. As per DPR prepared in December, 2001, the estimated cost of the project is Rs. 267 crore. This is being revised taking into account additional requirement for 2-laned road and bridge up to Vallarapadam.

Rail Connectivity

8.3.6 A techno-economic study for most feasible and acceptable rail alignment for providing connectivity to Vallarapadam is being conducted by RVNL.

9. New Mangalore Port

Commodities handled are mainly POL and Iron-ore. Total traffic handled during the year ending 31.3.2005 was 33.89 million tonnes. The port is expected to handle traffic of around 43 million tonnes by the year 2013-14

9.1 Existing Road Connectivity

9.1.1 The present road connectivity of the Port is through NH-48 (Bangalore-Mangalore), NH-17 (Cochin-Goa-Mangalore) and NH-13 (Sholapur-Mangalore).

9.1.2 NHAI is implementing projects for four laning of NH-17 (Suratkal-Nantur section), NH-48 (Padil-Bantwal section) and a bypass

from Nantur junction on NH-17 to Padil junction on NH-48.

9.2 Existing Rail Connectivity

9.2.1 New Mangalore Port Trust (NMPT) is served by a Broad Gauge line which is connected with Southern part of the country through Mangalore, Kerala State and Chennai. The Konkan Railway linking Mangalore with Mumbai is in operation and it is connected to northern part of the country.

9.3 Future Requirements

9.3.1 The traffic of NMPT is projected to increase to 43 MTPA by 2013-14 from the present level of 33.89 MPTA. Under the NMDP, the Port plans to construct an additional general cargo berth, develop cruise lounge, develop LNG Bunkering facilities, LNG terminal, container terminal for transshipment, coal handling facilities for captive users, install SBM for POL and also develop some additional facilities. In order to cater to the increase in cargo in coming years, it is necessary to improve the existing road rail connectivity of the port. For this following projects need to be undertaken:

Road Connectivity

9.3.2 Improvement of NH-13 : NH-13 from Sholapur to Chitradurga was extended from Chitradurga to Mangalore three years ago. While the stretch between Sholapur and Chitradurga is in good condition, the stretch between Chitradurga to Mangalore needs to be widened and strengthened. The stretch between Karkala

to Shringeri is a Ghat section. Therefore, heavy vehicles are not using this route from Hospet - Bellary region to the port. Instead, they are using the route via Hubli-Karwar to Mangalore and via Chitradurga, Tumkur and Hazan to Mangalore. If the Chitradurga- Mangalore stretch NH-13 is widened and strengthened, the distance will get reduced by 150 km.

9.3.3 Improvement of State Highways

- (a) Mysore-Bantwal Road: There is need for two-laning of the existing road between Mysore to Bantwal. This is a major district road. Bantwal is 23 km from Mangalore. NHAI has already taken up four-laning of this 23 km stretch. Widening of 320 km Mysore-Bantwal road is required to be taken in three phases covering Mysore-Kushalnagar, Kushalnagar-Sampaje and Sampaje-Bantwal Segments.
- (b) Hubli-Ankola Section: 4 laning of this section is required immediately to meet the increased demand of traffic on this segment on which iron ore from Bellary Hospet Region is moved to New Mangalore Port and other ports.
- (c) Dharwad-Ramnagar Stretch of the Road and Chikkanayakana Halli to Hassan, which caters to iron ore traffic needs to be widened.

Rail Connectivity

9.3.4 Hubli-Ankola Line

Karnataka Government and MOR have

proposed this new line which would connect Konkan Railway at Ankola from Hubli in South Western Railway. This would provide alternative connectivity to the mines in Hospet Bellary Region.

10. Mormugao Port

Commodity handled is mainly iron ore. Total traffic handled during the year ending 31.3.2005 was 30.66 million tonnes. The port is expected to handle traffic of around 44 million tonnes by the year 2013-14

10.1 Existing Road Connectivity

10.1.1 The Port has a two lane road link to NH-17A passing through Vasco city. A Project for Four laning of 18Km stretch of NH-17B from Verna Junction on NH-17 to Mormugao Port is being implemented by NHAI.

10.2 Existing Rail Connectivity

10.2.1 Goa is connected with neighbouring states via Londa Junction on the Miraj-Bangalore of South Central Railways. Railway station at Vasco in Goa is situated a few kilometers away from Port and is linked by a BG line. Konkan Railways network passes through the states of Karnataka, Goa and Maharashtra with a 105 km stretch in Goa.

10.3 Future Requirements

10.3.1 The port has plans to construct a cruise vessel cum container berth at Baina. Beside the

port also has plans for construction of a berth at Vasco Bay and modification of existing POL and General Cargo berth to handle iron ore. The traffic of the port is projected to go up to 44 MT by the year 2013-14. To ensure smooth flow of traffic and to meet the requirements of the increase in traffic, the port has suggested the following projects for improving the connectivity of the Port:

Road Connectivity

10.3.2 Verna Junction-Mormugao Port Trust (MoPT) Road Link

- (a) NH-17A connects the port to NH-17 at Cortalin. The highway passes through the congested Vasco City. To meet the traffic requirement, 4-laning of 17B the link between Port and Verna Junction is under implementation. While a 13.1 km stretch between Verna and Varnapuri Junction has been completed, the remaining 5.2 km link between Varnapuri Junction and Port is yet to be completed.
- (b) There is a need for a flyover linking NH-17B to Gate No.9 of the Port so that cargo from berths 10 & 11 and the proposed new berths 12 to 14 can have free access to the National Highways. The estimated cost of the flyover is Rs. 30 crore.
- (c) NH-4A connects Panaji to Belgaum. A major portion of this road in the Karnataka sector is in a very bad shape and should be renovated.

- (d) By-pass road on NH-17 is required to bypass the Margao City.
- (e) Second bridge across Zuari River is required to meet traffic needs in the long run.
- (f) Widening and upgradation of 4 km stretch of NH-17 near Sawantwadi in Maharashtra is required.
- (e) Doubling of balance sections line capacity which mainly includes doubling of Gadak-Hospet section line of 85 km at a cost of around Rs. 210 crore.
- (f) Increase in train holding capacity in Vasco Hospet section by increasing the number of stations with adequate number of loop at a cost of around Rs. 230 crore.

Rail Connectivity

10.3.3 90% of cargo handled at this Port is bulk cargo consisting of iron ore and coal. Almost entire coal traffic is moved by rail. The port is installing a Wagon Handling System for bringing iron ore from Bellary Hospet Region. To meet the demands of traffic to be generated in the coming years, rail augmentation is required to be undertaken in two phases:

Phase-I

- (a) Creation of a proper Reception & Dispatch (R&D) yard capable of dealing with the anticipated traffic at Vasco Railway yard and remodeling of the present R&D Yard.
- (b) Construction of a new railway line from Kulem to Gunji to doubling of track at Ghat Section at an estimated cost of Rs. 600 crore.
- (c) Doubling of Londa-Dharwar route of 70 km at an approx. cost of Rs. 175 crore.
- (d) Doubling of Hubli Gadaj route of 58 km at a cost of around Rs.145 cr. Phase-II

11. Mumbai Port

Commodities handled are mainly POL, Total traffic handled during the year ending 31.3.2005 was 35.12 million tonnes. The port is expected to handle traffic of around 45.20 million tonnes by the year 2013-14.

11.1 Existing Road Connectivity

11.1.1 The Port is well connected to other parts of the country through NH-8 (Ahmedabad), NH-3 (Delhi & Kolkata), NH-4 (Bangalore) NH-17 (Goa/Mangalore). Port traffic has to move through Eastern Express Highway, Western Express Highway and Sion-Panvel Highway through busy city roads.

11.1.2 Anik-Panjorpole Link Road (APLR) is being undertaken by Maharashtra Metropolitan regional development agency (MMRDA). This project, which is a part of Eastern Freeway Project will provide access between Mumbai Port and Southern parts of Mumbai, Navi Mumbai on the mainland to the East and the Eastern Express Highway to the North-East. This project involved road length of 5.6 km and the estimated cost of the project is Rs. 150 crore.

11.2 Existing Rail Connectivity

11.2.1 MbPT railway system is connected to Indian Railways at Raoli Junction, Wadala for receiving and dispatching the traffic generated from and to hinterland.

11.3 Future requirements

11.3.1 The traffic of Mumbai Port is projected to increase to 45.20MTPA by 2013-14 from the present level of 35.12 MPTA. The expansion proposals for Mumbai Port include construction of two offshore container terminals having a capacity of 0.8 MTEUs, redevelopment of Harbour Wall Berths to handle larger and deep drafted general cargo vessels and a fifth oil berth. The port has plans to develop facilities for coastal ships. With a view to ensure smooth flow of traffic and to meet the future requirements, the Port has proposed the following for improving connectivity:

Road Connectivity

11.3.2 Construction of 700 meters missing link connecting Wadala to Truck Terminus road, which would eventually join Anik-Panjorpole link road and further to Eastern Express Highway. This land will segregate the port traffic from the city traffic right at the outset and ensure faster evacuation. The required land is under occupation of the salt commissioner. This is to be acquired by MMRDA but there has been hardly any progress for last 12 years.

11.3.3 Construction of two stretches of road from APLR to Eastern Express Highway.

A stretch of 2 km from Panjorpole Circle to Chembur Mankhurd Link Road(CMLR) and 2.54 km stretch of road from CMLR to Eastern Express Highway.

Rail Connectivity

11.3.4 Wadala-Kurla Dedicated Freight Line 5.66 km. Laying of 5th and 6th additional line from Kalyan to Kurla is already under progress under MUTP being implemented by Mumbai Rail Vikas Nigam. Additional corridor from Kurla to Kalyan needs to be extended to Wadala. This would integrate port railway system with the Indian rail network and is critical for evacuation of port traffic to Central as well as Western Railway. RITES has conducted a feasibility study in 2001 and found the project to be feasible. On the request of MbPT, the Deptt. of Shipping took up the matter with railway board. On the advice of railway board MbPT engaged Central Railways in Dec 2004 to carry out detailed engineering feasibility study. This report is awaited.

11.3.5 Additional siding by Central Railway at Haji Bunder: For handling of coal at Haji Bunder for consumption of MSEB Power Plant at Nasik, the coal is transported through rail line facility located at a distance of 2 km from the berth. Moreover, length of this point is about 200 metres and full rake load cannot be serviced at a time thereby causing operational difficulties and multiple handling leading to increased cost of operation. To avoid this additional siding is required at Haji Bunder. Central Railway may activate the existing dormant line and provide siding facility.

11.3.6 Direct haulage of Central/Western Railway Locomotives up to the docks: At present, Central Railway Locomotives ply up to Wadala interchange yard from where the cargo is moved up to the docks by Mumbai Port locomotives. This change over causes delay of 6-8 hours for every operation. Therefore, it is necessary that Central Railway locomotives run right up to the docks. This track may be electrified for haulage of electric locomotives.

12. Jawaharlal Nehru Port

Commodities handled are mainly containers. Total traffic handled during the year ending 31.3.2005 was 32.81 million tonnes. The port is expected to handle traffic of around 73 million tonnes by the year 2013-14.

12.1 Existing Road Connectivity

12.1.1 The port is connected through:

- (a) NH-4B to the Mumbai-Pune Expressway
- (b) Mumbai-Goa Highway (NH-17)
- (c) SH-54 to Navi Mumbai, Thane, Nasik, Ahmedabad.

12.1.2 NHAI is implementing a project for four laning of NH 4B in two phases. In Phase-I, four laning of NH-4B from km 5/000 to km 26/987 and km 0/000 to km 4/440 and four laning of NH-4 from km 106/000 to km 109/500 is being undertaken. In Phase- II, four laning of SH-54 from km 6.400– 14.550 and construction of four lane Aamra Marg including six lane major bridge across Panvel Creek (Belapur-Gavanphata – 6.202 km) in Maharashtra State, it to be undertaken.

12.2 Existing Rail Connectivity

12.2.1 Port is connected to Panvel by a single line Railway track of 28.5 km with a capacity of 18 trains per day in one direction. At the present ICD traffic of about 14-15 trains per day in one direction pass through this track.

12.2.2 To meet future requirements, the Port has already requested Ministry of Railways to provide one more rail track from the Port to Panvel. The work on this stretch commenced in October, 2003 and is scheduled to be completed by mid 2006. The cost of project is Rs. 53 crore, which is being borne by the Railways.

12.3 Future Requirements

12.3.1 JNPT has been steadily growing as a major container hub port in this part of the world. During the current financial year, the port has already crossed 2 million TEU mark and accounts for about 58% of total container traffic of the country. JNPT has already signed concession agreement for shortly taking up development of third container terminal on BOT basis with a capacity of 1.3 million TEUs. JNPT has plans to develop the 4th and 5th terminals in the near future. The port is likely to handle about 73 million tonnes by 2013-14. As per recent traffic survey and traffic forecasting studies, it is estimated that the peak traffic volume generated due to port activity would be to the tune of 3668 PCUs per hour by 2015-16. This would require corresponding augmentation of road connectivity of the port. In order to evaluate the requirement of augmenting rail connectivity of the port to meet

the demands of increased traffic, JNPT had engaged RITES for conducting a rail logistic study for the planned development of JNPT. The port has projected following requirements for improving road rail connectivity of the port.

Road Connectivity

12.3.2 Construction of two grade separated junctions: Two grade separators are required immediately to segregate traffic and avoid frequent accidents at the two junctions at Karal (intersection – NH-4B and SH-54) and Gavan Phata (inter section SH-54 and Amra Marg). The estimated cost would be around Rs. 80 crore.

12.3.3 Upgradation of Khopata Bridge and Link Road of NH-17: To avoid the longer route via NH-4B from Panval to JNPT for traffic to/from Southern States, the link road via Khopta-Koproli-Kalambusare-Chirner-Sai Kharpada needs to be widened and strengthened. The project is estimated to cost of Rs. 53 crore.

12.3.4 Second Link to JNPT: Present accessibility to JNPT is from a single point from where the traffic gets routed to NH-4B and SH-54. The Port runs the risk of getting cut off from rest of the country if there is any hindrance of NH-4B and SH-54. To avoid this, there is urgent need to develop second link to JNP from Panvel Creek Bridge via Belpada joining JNP to facilitate traffic to/from Mumbai, Navi Mumbai Region. The project is estimated to cost Rs. 168 crore. CIDCO has prepared a complete project profile for this 2nd link.

12.3.5 6-laning of NH-4 from Kalamboli-Mumbra: The Kalamboli-Mumbra stretch of NH-4 is being widened to 4-lane. However, to meet the demands of additional traffic on this stretch, it needs to be widened to 6-lanes. 6-laning of this 20 km stretch is estimated to cost Rs. 45 crore.

12.3.6 Linking of NH-4 and NH-8
By-passing Mumbra: There is a need to have a separate access by-passing Thane and Mumbra City, connecting Nasik and Ahmedabad Highway through NH-3 and NH-8 respectively as road passing through Mumbra and Thane gets damaged during monsoons and traffic movement is severely affected.

Three alternatives are considered to connect NH-4 to NH-3 and NH-8. These are:

- (a) Mumbra By-pass on NH-4 to Mankoli Junction
- (b) Mankoli Junction to Anjur Phata on NH-3
- (c) Anjur Phata on NH-3 to Chinchoti Phata on NH-8

The likely expenditure on this project is estimated to be Rs. 72 crore.

12.3.7 6-laning of NH-4B: Taking into account the traffic likely to be generated once the third container terminal becomes operational, this road would have to be widened to 6-lane. The likely expenditure is estimated to be Rs. 45 crore.

12.3.8 Extension of NH-4B towards South: It is necessary to extend NH-4B towards Dronagiri Node on the South to give direct and fast access to the container freight stations. This will also reduce congestion on main

approach road of the Port. The estimated expenditure on this is Rs. 99 crore.

Rail Connectivity

12.3.9 JNPT had engaged RITES for conducting Rail Logistic Study for the planned development of JN Port. The long term and short term measures indicated by RITES in their draft report are:

- (i) Northern Corridor from JNPT up to Ludhiana via Diva, Vasai road, Vadodara, Ratlam, Kota, Bayana, Mathura junction, Tughlakabad and Delhi.
 - (a) Expedite doubling of Panvel-Jasai-JN Port Section
 - (b) Implement automatic block signaling on the Panvel-Diva-Vasai Road-Dahanu Road-Vadodra and Vadodra-Mathura Junction Segments of the route.
 - (c) Find ways & means to facilitate expeditious passages of freight trains across Virar and Vadodara.
 - (d) Expedite the proposed quadrupling of the Palwal-Delhi section.
- (ii) North Western Corridor from JNPT to Rewari via Vadodra-Ahmedabad, Sabarmati-Palanpur, Marwar Jn. Jodhpur, Jaipur
 - (a) Expedite gauge conversion works
 - (b) Following (i) above, undertake doubling of Mehasana-Palanpur, Ajmer-Jaipur and Rewari-Delhi sections, the latter two by converting the existing parallel MG Tracks to BG Tracks.

13. Kandla Port

Commodities handled are mainly POL, Containers, Food grains and other general cargo. Total traffic handled during the year ending 31.3.2005 was 41.54 million tonnes. The port is expected to handle traffic of around 81.20 million tonnes by the year 2013-14.

13.1 Existing Road Connectivity

13.1.1 The port has two lane & four lane approaches to NH8A from the Port Gates. Following projects have been implemented by the NHAI for improving the road connectivity on NH8A:

- (a) Four laning of NH-8A from km 306-324 (Samakhyali Gandhidham Road Project Pkg. - I)
- (b) Four laning of NH-8A from km 324-346 (Samakhyali Gandhidham Road Project Pkg. - II)
- (c) Four laning of NH-8A from km 346-362.16 (Samakhyali Gandhidham Road Project Pkg. - III)

13.2 Existing Rail Connectivity

13.2.1 Kandla Port has dual gauge railway system in operation. It is connected by BG link to Mumbai and Delhi via Ahmedabad.

13.2.2 KPT has dual gauge rail connectivity up to the Port gates. BG connectivity is through

longest route i.e. via Viramgam-Ahmedabad-Godhra-Ratlan-Bayana-Jamuna Bridge to Delhi. The second route is via Viramgam-Khodiyar-Mehsana-Palanpur-Ajmer to Delhi. In addition, Port has MG connectivity with Palanpur.

13.2.3 Port has signed MOU with Ministry of Railways for conversion of existing Samakhiali-Palanpur MG Line to BG through an SPV, subscribing 26% in equity of Rs. 200 crore with MOR, Gujarat Adani Port Limited and GOI.

13.3 Future Requirements

13.3.1 KPT has an ambitious programme for port and infrastructure development at an estimated cost of Rs. 5000 crore. The programme is covered under the NMDP.

13.3.2 As per present trend of traffic, it is expected that 16 to 17 million tonnes of dry cargo would be handled at Kandla during the current year as compared to 14 million tonnes handled during previous year. In addition, the coal traffic will be around 6 million tonnes including handling at Mundra which will require strengthening of the existing facilities. The port is also planning to create berthing facilities for lighterage operations at Tuna. According to a study conducted by Gandhidham Chamber of Commerce & Industry, the traffic at Kandla Port is likely to increase substantially in a few years taking into account the setting up of new industries and addition of jetties and other infrastructure facilities. To meet demands of increase in traffic, following projects for augmentation of road rail connectivity are required.

Road Connectivity

13.3.3 Kandla is connected to Ahmedabad through NH8A. Construction of 10 km stretch of road from NH8A to Tuna, where additional facilities are being set up initially to cater to needs of IFFC, would meet the requirements of the related traffic. The estimated cost of the project is Rs. 15 crore.

13.3.4 Construction of 10 km stretch of Gandhidham bypass road from Kandla SEZ to Anjar would meet the requirements of the port related traffic. The estimated cost of the project is Rs. 15 crore.

13.3.5 Construction of a flyover at Railway crossing at Gandhidham would ensure smooth flow of the traffic. The estimated cost of the project is Rs 5 crore.

Rail Connectivity

13.3.6 Double Track broad gauge connectivity from Gandhidham to Kandla as a part of SPV of Gandhidham-Palanpur Conversion at the estimated cost of Rs. 25 crore.

13.3.7 By-pass at Gandhidham for Mundra/Bhuj Lines and providing of additional Loop lines for handling facilities at Adipur at an estimated cost of Rs. 23 crore.

13.3.8 Provision of railways sidings from Gandhidham to Tuna (10 km) at an estimated cost of Rs. 15 crore.