

MARITIME AGENDA : 2010 - 2020



Government of India
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FOREWORD

I am glad that the Ministry of Shipping has formulated the Maritime Agenda 2020. The Indian economy has been growing consistently at more than 9% in the recent past. It is imperative to make substantial investment in ports and shipping sector in order to sustain the high growth rate in the years to come.

The Ministry of Shipping has been making continuous efforts to attract investment for creation and upgradation of infrastructure in the ports and also for augmentation of Indian tonnage in the shipping sector.

The Maritime Agenda 2020 is a perspective plan of the Ministry for this decade. It identifies priority areas for government intervention and is a road map which will guide the Ministry in its endeavours.

I would like to compliment the dedicated team of officers at the Ministry of Shipping and the subordinate offices for contributing towards formulation of the Maritime Agenda 2020.

(G.K. Vasan)

Preface

The Logistics Sector in India needs to develop rapidly to synchronize with the dynamic growth of the Indian Economy. The Ports infrastructure and Shipping have vital roles as parts of the logistics chain. The Ministry of Shipping has been continuously engaged in designing and implementing various projects for the development of the sector. Based on inputs received from various sources, it is felt that the pace of growth has to be increased, that the whole efficiency of the delivery system has to be substantially improved and that the concern for the environment has to be stronger.

The Maritime Agenda 2010-20 is part of the effort to identify the areas for attention during the 10 year period from 2010-11 to 2019-20. This 10 year period covers the last two years of the Eleventh Five Year Plan, the full five years of the Twelfth Five Year Plan and the first three years of the Thirteenth Five Year Plan. Obviously, 10 years is too long a period for identification of specific areas of action in a fast changing world. It is, therefore, imperative that the Maritime Agenda is not seen as a static document; it does need to be reviewed periodically.

I must make it clear that the various observations and statements in the document do not always reflect the accepted official position of the Government. Many of the policies, programmes and projects listed have not been formally approved, nor have they gone through the normal process of decision - making in the Government. This document basically presents an agenda for consideration. On each of the Agenda items, there has to be a separate scrutiny and decision making. In other words, this is more an Agenda for consideration and decision rather than an Agenda for action. At the same time, many of the listed activities are statements of obvious intentions and all concerned have to be working towards achieving these goals. Many of the agenda items fall in the domain of other Ministries of the Central Government, or in the domain of the State Governments; several items are for the Industry to act. Some of the identified activities may be taken up only during the later years of the decade, although the time frame has not been specified for some of the activities. This will be refined further.

As part of the monitoring process, it would be useful to have an annual assessment of the action taken on the recommendations contained in Part IV and come out with a report card. It would be possible to decide on deletions, additions and modifications depending on the circumstances then prevailing.

This exercise has had the full involvement of several officers at various levels from the Ministry of Shipping as well as from the field organizations. It would not have been possible to develop such a document without the dynamic leadership of the **Hon'ble Minister of Shipping, Shri G.K. Vasan**. I believe this Maritime Agenda 2010-20 would serve as a key support document in our efforts to develop the Indian Maritime Sector.

K. Mohandas
Secretary to the Government of India

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PART - I

INTRODUCTION

CHAPTER -1

INTRODUCTION

1.1 India is a major maritime nation by virtue of its long coast line of around 7517 Kms on the western and eastern shelves of the mainland and also along the islands, bejewelled with 13 major and 176 non-major ports, strategically located on the world's shipping routes, its long tradition of seafaring with a large pool of trained maritime personnel, and its dynamic and rapidly globalizing economy with a vast potential to expand its participation in trade and development.

1.2 India has been an emerging and vibrant economy with a huge market, a billion plus population and strong GDP growth rates of over 9% for three consecutive years up to 2008-09. However, due to the global melt-down and recession, the GDP growth slowed down to 6.7% in 2008-09. But, with global recovery under way and backed by strong decisive policy responses, the economy performed better in 2009-10 and achieved growth rate of 7.1% , it is likely to grow at 9.2% during 2010-11. As forecast made by many global institutions, India along with China will lead Asia's economic expansion from 2010 onwards.

1.3 Ports play a vital role in the overall economic development of the country. About 90% by volume and 70% by Value of the country's international trade is carried on through maritime transport. Development of India's ports and trade related infrastructure will continue to be critical to sustain the success of accelerated growth in the Indian economy. Despite record growth rates, the merchandise trade intensity of India's GDP is still below 30 per cent. This indicates that there is still a lot of untapped potential for trade growth, and consequently the demands on the country's ports and trade infrastructure will continue to mount as trade diversifies and grows. Hence, there is a need to expand the Country's ports in a timely and efficient manner.

1.4 India's ports comprise of 13 major ports including Port Blair Port Trust which was declared as a Major Port on 1-06-2010 and around 176 non-major ports along the coast and islands. The Major Ports are under the Union List (Schedule VII) while the Non-Major Ports are under the Concurrent List (Schedule VII) of the Constitution of India.

The 13 major ports are administered by the Central Government under Ministry of Shipping. The remaining ports which are referred to as Non-major ports are administered by the nine maritime States and three Union territories within their respective coastlines. A list indicating Major Ports, Non-Major Ports and Ports under Union Territories in India is given as Annexure I.

1.5 The total volume of traffic handled by all the Indian Ports during 2009-10 was 849.9 million tonnes. Non-major ports account for around one-third of the total sea-borne trade. The growth in cargo handled at Major and Non-major Ports in 2009-10 was 5.8% and 35.4% respectively as compared to 2.2% and 3.3% achieved in 2008-09.

1.6 In order to achieve the coveted goal of transforming Indian Ports into world class facilities suited to the requirements of the future economy of India, the Ministry of Shipping, Government of India has initiated many path-breaking measures which will facilitate enhanced private investment, improve the service quality and promote competitiveness, apart from achieving the expansion of capacities in the country. Such measures include formulation of Maritime Policy, revision of various operational policies, preparation of Perspective Plans for the major ports, commissioning of two more major ports one each on the East Coast & the West Coast, introduction of Port Community System (PCS), paperless regime, etc.

1.7 Although a Maritime Policy was attempted at the national level sometime in 2004 and a draft hosted on the web-site of the Ministry of Shipping, it could not be finalised due to various reasons. A comprehensive policy is necessary as a foundation for an ambitious development plan; it provides the right frame-work for the development of the sector. Keeping in view the above perspective, Policy framework and Policy issues are formulated and provided in the subsequent chapters. Of course, each State Government is also having a maritime policy of its own and an endeavour has been made to assimilate the spirit of such policies also into this document while preparing the Maritime Agenda, 2010 - 2020. Similarly, future policy milestones which are foreseeable priority deliverables have also been identified and incorporated.

1.8 Some time ago, as decided in the meeting of Committee of Infrastructure headed by the Honb'le Prime Minister, the major ports had been asked to prepare a long-

perspective Business plan of each port with the help of international consultants. Accordingly, each major port has got its Business Plans prepared. All those plans have been co-ordinated at Central level by the Indian Ports Association, New Delhi by engaging the Port of Rotterdam Authority and a consolidated business plan, combining the projections of traffic and development plans was prepared.

1.9 But, such consolidated plan is only for the major ports and does not take into consideration of the needs of non-major ports which are large in number irrespective of their volumes. The Planning Commission also, in its mid-term appraisal document, has strongly suggested having a comprehensive document for the development of the Port Sector that includes non-major ports, and also a monitoring system for assessing the overall port capacities including those of the non-major ports on a regular basis.

1.10 Moreover, when perspective business plans were prepared, the maritime sector was growing at a brisker pace and those plans took into consideration the prospective growth rates. But, unfortunately, with the global slow-down and recession, the major global economies have taken a tumble in every sector. Shipping and Ports are no exception. Accordingly, cargo traffic which had been growing at a rate of approximately 11% annually has shown lower growth rates. Although India has succeeded in effectively surviving the slowdown with the fundamental strength of the economy and the systems and with the various policy measures, achieving the earlier growth rates still remains a challenge for the economy. The current economic indicators clearly point to a robust growth of the Indian economy.

1.11 It is in this context that the Ministry of Shipping embarked upon the very challenging task of preparing an ambitious Maritime Agenda for the decade, 2010 - 2020 to create, build and sustain the maritime infrastructural needs of the Country for the next decade. This document aims to navigate and steer the Indian maritime sector realistically into the premier maritime nations of the world.

PART – II

PORTS

CHAPTER- 2

GLOBAL OVERVIEW OF THE MARITIME SECTOR

2.1 Introduction

2.1.1 International trade is a cornerstone of the global economy. Exchange of goods amongst countries widen the choice of supply and ensures that production takes place where it is cheapest and best. This is reflected in the intensification of globalization and the fact that world trade is growing faster than the world output. World trade relies on cheap and secure transport. Maritime transport, enabled by, inter alia, technological developments and competitive transport costs, is estimated to handle over 80 % world trade by volume and over 70 % by value. As trade grows, the demand for maritime transport also grows. Technological developments in bulk and container transport have made maritime transport cheaper. Bulk transport involves shipping one homogeneous commodity (e.g. grain, ore etc) at any one time, but in large quantities; in contrast, container transport entails transporting different goods at the same time, but in standard containers that are easy to load and unload. However, the slower growth in world sea-borne trade compared to world trade in general reflects that the weight of the goods transported increases at a slower rate than their value due to rising trade in processed goods like electronic items, medicines, apparel, gems and jewellery etc. Besides, greater use of lighter materials and lower material intensity in the manufacturing process has also led to slower increase in weight.

2.1.2 In 2008 international seaborne trade increased @ 3.6% to reach 8.17 billion tonnes. The volume of 8.17 billion tonnes comprised of 2.75 billion tonnes of tanker cargo (33.7%) and 5.42 billion tonnes of dry cargo (66.3%). Tanker trades (crude oil and products) posted marginal growth of 1.6 % in 2008 in an environment of weak demand. The tanker Cargo, in turn, consisted of 1834 million tonnes (66.7%) of crude oil and 915 million tonnes (33.3%) of petroleum products. Dry bulk trade, the main driver of the shipping industry over the past few years, is driven, inter alia, by industrial production and growth requirements. These shipments accounted for more than two-third of total

world goods loaded. Dry bulk consisted of 2.10 billion tonnes of the five traditional dry bulk types (iron ore, coal, food grains, and bauxite/alumina and rock phosphate) and other dry cargo of 3.32 billion tonnes which showed an increase of 4.1 % and 5 % respectively.

2.1.3 The 2008 financial crisis has been widely described as unprecedented and unforecast, which is disastrous from a risk management perspective. Container volumes in 2009 dipped abruptly by between 15% and 30% year-on-year, depending on the location, in a world that had never before experienced such severe and sustained negative growth.

2.1.4 In response to the drop in volumes and revenues, terminal operators and shipping lines have scrambled to renegotiate their commitments. Many lines have tried to postpone or cancel part of their vessel new building programmes and to renegotiate charter rates. In May 2010 it was reported that a South Korean shipyard had received a \$70M cancellation fee for not building three container ships. Lines have also reportedly achieved drastic reductions in terminal tariffs. Terminal operators, too, have tried to reduce their exposure by renegotiating some of the components of their concession agreements with port operators, such as volume guarantees, deadlines and royalty levels. It can take 10 years to get a greenfield terminal project fully up and running.

2.2 Challenges Ahead

2.2.1. The recent past has been unprecedented in the history of container shipping, as traffic volumes have collapsed, freight rates have plummeted and practically all capital investment programmes have been curtailed. Everybody has been affected, with most ocean carriers reporting record financial losses, box ports and terminals posting losses due to decline in throughput for the first time in their histories and international terminal operators (ITOs) postponing or cancelling new projects and renegotiating contracts agreed when the market was at its height. The following table needs no explanation for top operators about the loss in revenues:

Terminal Operators	Revenue		
	Jan-June, 2009	Jan-June, 2008	+/- %
Hutchitson Port Holdings (HPH)	2,000	2,500	-20.0%
APM Terminals	1,426	1,517	-6.0%
DP World	1,384	1,598	-13.4%
Hamburger Hafen Logistics, (HHLA)	704	1,043	-32.5%
International Container Terminal Services, Inc.(ICTSI)	189	227	-16.7%

Source : Cargo System, Nov.& Dec, 2009

2.2.2 Moreover, in a bid to cut costs, ocean carriers are putting more pressure on their vendors, including terminal operators. In particular, they are seeking user agreement changes, reduced tariffs, adjustments to previously negotiated volume and service guarantees, as well as more value-added packages. Despite the reduction in container traffic worldwide expected in 2009, overall container throughput is projected to continue rising as the recovery takes hold. By 2020, according to some estimates, global container throughput will reach 1 billion TEU, double last year's total of roughly 500m TEU. Much of this growth will occur in the emerging economies of Asia, Africa and Latin America where port and terminal infrastructure investment is still needed to accommodate predicted trade flows.

2.2.3 Hand in hand with growing container volumes worldwide are growing vessel dimensions. Changing trade patterns and new trade partnerships bind nations and markets through an increasingly complex global supply chain system. The current container ship order book is heavily loaded with vessels of the 10,000 TEU plus class range, which will become a bigger part of the world's container ship fleet in the years to come. Each of these issues represents important challenges to terminal operations not only in terms of operations and productivity, but also to personnel safety, and environmental impact. As the industry evolves, so must its culture.

2.3 Global Warming

2.3.1 Ports play crucial role in the maritime trade and are the economic drivers for the country and region. The demand of the sea transport has resulted into increase in the number of ships plying all over the world and also visiting the ports. It is estimated that there are more than 90000 ships plying 3000 ports in the world. Increased traffic at the

ports gives rise to increase in the chain of related activities like shipping activities viz., towing, mooring, berthing, piloting, marine survey, sea patrolling etc. involving use of harbour crafts such as tugboats and launches; bunkering and transshipment / lighterage operations etc. In addition, cargo handling, vehicular traffic, movement of cargo to and from ports through heavy duty trucks and rails, deployment of dredgers to deepen the drafts etc. also result in environmental pollution at the ports in the form of air emission. Air pollution is causing severe threat to the health of the nearby residents of the port and hence measures in the direction of reducing emission to improve the air quality and also fight against global warming are necessary. Shipping-related PM emissions take horrific toll on coastal population and are responsible for approximately 60,000 cardiopulmonary and lung cancer deaths annually. 3.8 % of all global premature deaths are due to exposure to PM. It is estimated that with the expected growth in shipping activity, annual mortalities could increase by 40% by 2012. 94% of the Diesel exhaust emission coming from 'mobile sources' in the port accounts for approximately 84% of the cancer risk. Marine fuel bunkering fumes also cause toxic emission leading to nausea and breathing difficulties.

2.3.2 The largest air pollutant amongst the above sources for CAC¹ is ships which contribute almost 40% followed by heavy duty vehicles 38%. Contribution by harbour crafts, cargo handling equipments and rail locomotives is 7%, 8% and 7% respectively. The main pollutants amongst the CAC for ships are SO_x, NO_x, PM and acid rains where as for heavy duty vehicles they are NO_x, PM and CO. For the GHG², maximum contribution of pollution of 48% is by heavy duty vehicles followed by ships 25%, harbour crafts 5%, cargo handling equipments 14% and rail locomotives 8%. The major pollutant amongst the GHGs is CO₂ followed by CH₄.

2.3.3 It is pertinent to mention that the **World Ports Climate Initiative** (WPCI) initiated by the International Association of Ports and Harbours (IAPH) is supported by 55 major ports in the world with the objective of reducing greenhouse gas emissions through developing a GHG emissions inventory and developing a collaborative approach toward collecting information, estimating emissions and developing plans to reduce the footprint

of port operations. The mission of the WPCI is to raise awareness in the port and maritime community of need for action; to initiate studies, strategies and actions to reduce GHG emissions and improve air quality; to provide a platform for the maritime port sector for the exchange of information thereon; and to make available information on the effects of climate change on the maritime port environment and measures for its mitigation.

2.3.4 IMO incorporated Annex VI to MARPOL Convention to control air pollution sources by ships looking to the growing concern toward air pollution triggered by marine industry. Convention recommends control of –

- (i) SO_x and PM emission through fuel oil and combustion equipments. It also defines the Emission Control Areas (ECA) and specifies the sulphur content of fuel oil to be used inside and outside the area³. Sample of the fuel oil is required to be maintained on board the ship to know the fuel quality.
- (ii) NO_x by prescribing emission limits by the different engine speeds and ship construction date.
- (iii) Ozone depleting substances by stoppage of their production and use.
- (iv) VOC through Vapor Emission Control System (VECS).

2.4 Productivity Aspects

2.4.1 Normally productivity is defined as metrics and measures of output from production processes per unit of input. Depending on how a terminal's performance indexes are defined, productivity can refer to containers per hour, moves per hour or cost per container, for example. It is not all that difficult to measure containers or moves per hour, system suppliers can help a terminal to operate its dockside cranes faster.

2.4.2 Automation, training, service and support, spare parts, crane information management systems, preventive maintenance and integration are examples of some of the areas are of focus which is to be looked into in the future. Port and terminal operators will have to implement best practice and cost-cutting initiatives, lean

organisations and lean operation processes are better prepared for longer periods of decreasing volumes and rates than the ones that have not adapted.

2.4.3 During the rapid growth of the container market in the recent years, most terminal operators did not think it necessary to streamline operations in line with rising in line with rising wages and increasing equipment manning. The current crisis has amplified the importance of cost compositeness, reliability and performance, and has created greater demand for improving performance, enhancing reliability and the use of measurement standards. Global and independent operators have already faced the fact that, over a very short time horizon, they had to reduce costs and improve performance. So far, this has mainly been done by cutting expenditure on training and investment and major staff reductions. Experience in other industries suggests that such measures can only last a short time, as the business is not geared to run with such a low costs without going through a significant process improvement programme.

2.5 Encouraging Future

2.5.1 All ports were hit by the recession, but not all cargo flows were affected to the same extent, and competitive positioning of ports has changed. The economic crisis is forcing us to prepare better for the future. Lower growth in consumption, more interest in energy and energy security, and a continuing focus on sustainability are characteristics of the post-crisis landscape. The year 2010 has brought favourable economic news. The World Bank has raised its projected growth rate for the global economy from 2.0% to 2.7%. A prominent consulting group has upped its estimate for growth in US GDP to 2.6% from 2.2%. China posted spectacular growth of 10.7% for 4Q/2009, and one forecast indicates that China's GDP will expand by 9.5% in 2010. Some ports in developed countries showed robust container throughput recovery in the second half of 2009. Overall, it is expected that a better economic environment for ports this year.

2.5.2 Economists and analysts have begun to speak with some degree of confidence about signs of economic recovery, and this is good news. For those in the container terminal business, however, it is not simply a case of waiting for things to return to normal. It is facing the reality of what has become the 'new normal'. It is necessary to

recognise the fundamental changes in the industry in terms of expectations of growth, investment and demand and should respond to these changes assertively and sensibly.

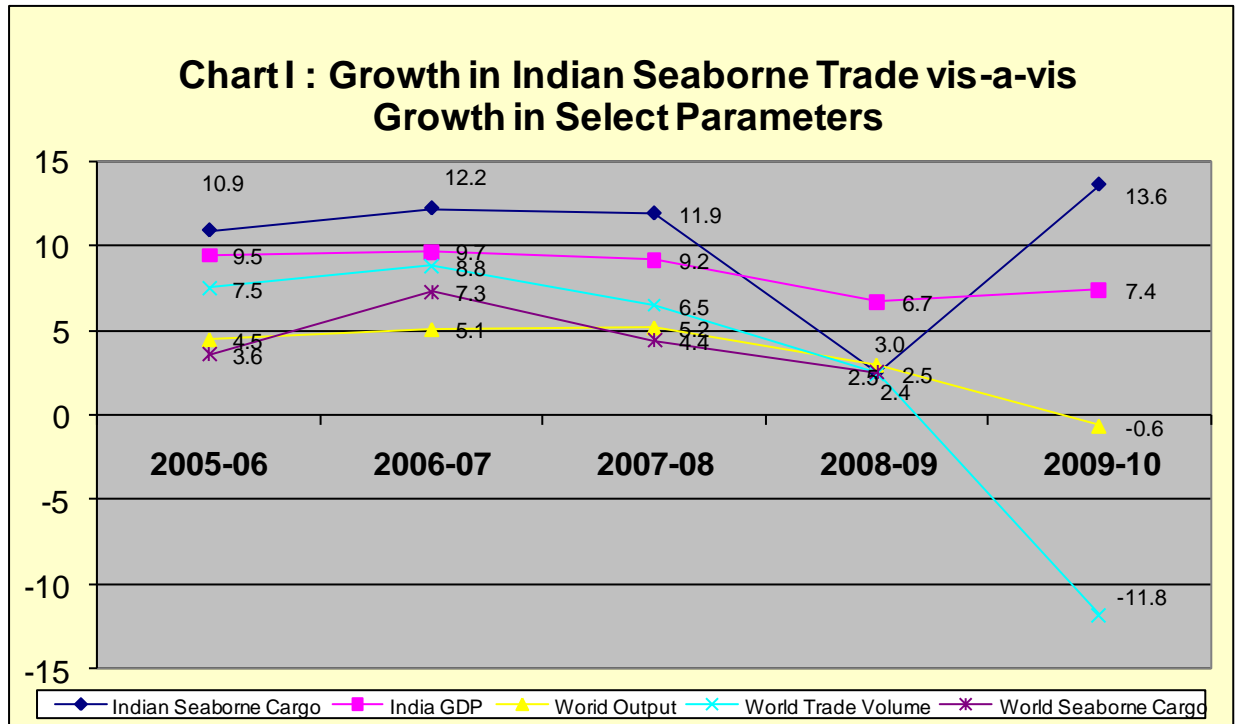
2.5.3 International containerised liner trade began on the trans-Atlantic routes just over four decades ago. The centre of gravity of containerised trade gradually shifted to the trans-Pacific services as new global trading patterns evolved. This evolutionary process continues. By 2009, China had overtaken Germany and the US as the leading exporting nation, having already surpassed Germany as the third largest economy in the world in 2007. Asia has become the new hub of global container trade. The brightest spots in the container industry are now in the economically emerging markets of southeast Asia, the Indian subcontinent, sub-Saharan Africa, Latin America and the Middle East.

2.5.4 Lack of port and transportation infrastructure in these regions persists. This simple fact emphasises the major role that established container terminal developers and operators will continue to play. We serve as crucial catalysts in the global economy by providing access to new markets and the benefits of international trade. Make no mistake, we are still in the game and we are playing to win. The long term development of ports is therefore determined to a great extent by the following factors; their distinctiveness vis-à-vis their rivals, the extent to which they can attract high-growth cargo segments, the quality of their hinterland connections and their concern for the compete, and such competition is healthy, especially when there is a level playing field. But given the above challenges, co-operation between ports and with port business will become increasingly important.

2.6 Indian Port Scenario

2.6.1 As already discussed earlier, the growth in cargo handled at Major and Non-major ports in 2009-10 was 5.8% and 35.4% respectively compared to 2.2% and 3.3% achieved in of 2008-09, The robust overall growth in India's seaborne cargo traffic in 2009-10 reflects fairly strong recovery in India's growth during the course of 2009-10. The growth in India's GDP, Port traffic and growth in world output, world trade volume

and world seaborne trade (loading and unloading) since 2005-06 to highlight the India's position of stable / vibrant economy is given in Chart I.



Source: Growth rates for India's GDP and Cargo Traffic are based on statistics released by Central Statistical Organization and data available with Transport Research Wing of M/o Shipping, Road Transport & Highways and pertain to fiscal year. Growth rates in the World Output and World Trade Volume refer to calendar years (2005-06 refers to 2005 and so on) based on (World Economic Outlook, April 2010, IMF)

CHAPTER-3

EMERGING SCENARIO

3.1 Introduction

3.1.1 The emerging global economy has opened up new avenues in all the sectors in general and maritime sector in particular. The maritime sector through economic liberalization, competition, upgraded technology, application of modern information technology is being talked about world-wide. The impact has been very positive in India as also GDP growth rate attained newer height during the recent past and projected to achieve 9% growth rate during the 11th Plan period. Globally also, apart from the last two years of economic meltdown, the overall emerging scenario is becoming very aggressive which has been described in the following paragraphs.

3.2 Economic Liberalisation

3.2.1 Opening up of the economy results in increase in the volume of imports and exports. The mid term strategy outlined by the Export Import (EXIM) Policy of the Government of India envisages an increase in India's share in world trade from the current 0.80 percent to 1.5 percent. To meet such ambitious target, cost and speed have to be the essential factors in the movement of cargo. Inefficient port operation and inadequate port capacity not only increase the total transportation cost but also hinder the smooth flow of traffic through the port. Port congestion or detention to a vessel in the port retards the speed of cargo movement. Fast movement of cargo through ports is of vital importance to a shipper. The primary consideration of port users in the selection of port for movement of cargo is the quality service provided at the least cost.

3.2.2 Liberalisation of trade has also resulted in the globalization of the manufacturing process, which in turn has led to a massive increase in trade, with the majority of these

manufactured goods moving in containers. As competition increases, manufacturers and shippers strive to minimize transport costs. At the same time, they want guaranteed delivery time and the ability to know the location of their goods on a real time basis. Port users have been putting enormous pressure on authorities to improve cargo handling efficiency, reduce port costs, and provide facilities to meet the changing demands of the ships and cargoes. Liberalisation has brought in competition in the provision of efficient and customer based services by the port management. The ports which will be able to meet the challenges posed by the competition will emerge as winners and will flourish in the long run.

3.3 Competition

3.3.1 Indian economy is at the threshold of a golden age of growth. Goldman Sachs economists say that over the next 50 years, what they call the BRIC economies (Brazil, Russia, India and China) could become a much larger force globally. The Goldman Sachs economists predict that India will overtake Italy in 2015, France in 2020, Germany in 2023 and Japan in 2032. China's economy will be larger than everybody else by 2016 and even larger than the US economy in 2041. Also they say: "India has the potential to grow the fastest over the next 30 to 50 years." Its GDP growth rate will stay above 5 per cent till 2050; China's will drop to 5 per cent by 2020 and to around 3.5 per cent in the mid – 2040s.

3.3.2 Global Competition has changed the world and therefore, the business, whether large and small today search the entire world for customers, suppliers, labour, know-how, technical expertise, finance, etc. This has resulted in merger and amalgamation and joint ventures. Dubai Port International renamed as Dubai World had taken over world-wide rights of P&O operations. Shipowners now group themselves to form a consortia to reduce the cost and increase the capacity which results in enhanced market penetration.

3.3.3 Globalisation has its impact on the developments of ports in India. There is a clear trend towards the global ownership and management of port terminals as witnessed by the entry of P&O Lines, Dubai Ports, Maersk Lines and PSA in certain Major Ports. It also means port operators responding to cut throat competition. This has resulted in transfer of a range of port related activities from mainly publicly owned to

privately owned undertakings. Changes in the world economy, shifts in composition, magnitude and direction of international trade, innovations in shipping, advancements in cargo handling technology, greater need for multi-modal transport, higher capital intensity and massive private sector participation have been rapidly transforming the competitive scenario in the port sector.

3.3.4 In India, the competition has been noticed during the post liberalisation period due to emergence of large number of State and Private Ports and Private terminals within major ports. Competition is emerging among the major ports and also in the ports within and outside the region. This has also compelled the Major Ports to pay more attention for improvement in productivity. Further, a terminal of the Major Port and that of BOT operator within the Major Port has made the port terminal to perform better to meet the competition from the BOT operator. An example of JNPT is worth mentioning.

3.3.5 Another factor that enhances competition is due to the WTO negotiations on commitments in services, which include port services. Under Maritime Transport services, negotiations may lead to agreements where foreign firms would be able to compete for port services including pilotage, towage, stevedoring services, etc. This would throw open these services to be offered by outside agencies. If these occur, there would be increased pressure on port authorities to divest some of the services rendered now.

3.3.6 To stay competitive, port authorities had to modernize and upgrade port facilities to meet the needs of the port users. However, the investment required and managerial capabilities will pose challenges to public port authorities.

3.4 Technological Changes

3.4.1 The shipping and cargo handling technologies are changing rapidly. The ship size is getting bigger and in tune the harbours need to be deepened and modernized the superstructure. Cargo handling takes place in many forms: bulk, break bulk, liquid bulk and in containers. Containerized traffic is the most prominent type in the era of growing industrial exports. These changes have an influence on the method of working and labour deployment at the terminals. More mechanization, unitisation of cargo and

computerization are becoming imperative. Manning scales have to change. Workforce needs to be better educated and more skilled.

3.4.2 With the percentage of containerization growing steadily the growth of container traffic is becoming more and more significant. As per an ESCAP study conducted in 2005, it is estimated that by 2015, Asia's share of containerised exports will increase from 55% of the world total in 2002 to 64%, while the share of containerised imports is expected to rise from 46% to 53% during the same period. In order to meet this growing global demand, the Asian ports including ports in India have to adopt the modern cargo handling technologies.

3.4.3 The biggest container ship deployed has grown at a tremendous rate over the past few decades. The driving force has been international globalisation. Increased competition and economy of scale have fuelled the development of ever bigger ships. In the early 1970s, the biggest ship was about 2,000 TEU, compared to 14,000 TEU today. Is this development going to continue or will it be curbed by global warming and the carbon footprint. Large ships are green ships by virtue of the fact that the fuel consumption per TEU transported is lower. The cost is also lower due to the economy of scale. Two decades ago, studies were published comparing two 4,000 TEU ships to one 8,000 TEU ship and showed a reduced total cost per unit. Today, a comparison between two 8k TEU ships and one 16k TEU shows the same trend. The capital cost for the bigger ship is in the order of 20% less and the fuel cost around 40% less, the exact numbers depend on the building price and fuel price. There is a gain to be made by going for bigger units, in terms of not only the cost, but also the carbon footprint. Slow steaming will also contribute to lower fuel consumption, even if more ships are needed in the loop to maintain the service schedule. So, bigger ships going at lower speed are what the world may be looking for in the years to come. But, we all know that big ships need to be filled up to be able to reap the benefits. In times of fluctuating transport volumes, it is prudent to ask if big units provide the best solution for adjusting the transportation service supply to the demand. To accommodate such vessels, container hub ports must have access channels of sufficient depth, along with advanced and highly efficient terminal facilities.

3.4.4 Another example in this regard may be quoted about installation of World's largest ship to shore crane at Georgia Port. The 242 tonne crane is 142 m. long 114 m high with the boom raised. It can span 22 containers across and 6 containers high. The lift capacity of this crane is 65 tonne under spreader bar and 85 tonne under cargo beams.

3.5 Global Challenges Ahead

3.5.1 According to a study on Perspective of Changes in the Port Industry, made by IAPH , based on ESCAP forecasting assumptions, it has been indicated that “upto 8000 TEU vessel will be in operation by 2006, and upto 12000 TEU vessel size by 2011 on the major routes. The handling rate is likely to be 160 moves per hour per berth in future. The Shippers choice will be determined by cost of service, transit time, frequency and transshipment.”

3.5.2 Another study titled as “Regional Shipping and Port Development Strategies” conducted by ESCAP in 2005 has made the following findings:

- The total volumes of world international container handling will increase to 576.4 million TEU by the year 2015 with an annual average growth rate over the period of 6.9 per cent per annum.
- The total volumes in the ports of ESCAP countries will increase from 133.7 million TEU in 2002 to 352.3 million TEU in 2015 at an annual average growth rate of 7.7 per cent.
- The study estimates that the world total trans-shipment volume of containers will increase from 58 million TEU in 2002 to 152 million TEU in 2015 at an average growth rate of 7.7 per cent annum.
- The study estimates that the total volume of containers trans-shipped within the ESCAP region will increase from an estimated 42.2 million TEU in 2002 to 109.6 million TEU in 2015.

3.6 New Terminals and Global Investments

3.6.1 The ESCAP study further estimated that, in total, 927 new container berths will be required to meet anticipated world demand in 2015, of which 569 berths will be for the ESCAP region. The biggest share of this total is accounted for by East Asia, which

will require over 270 new berths by 2015. South-East Asia and North Asia will require 148 and 65 new berths, respectively. It is estimated that 66 additional berths will be needed in the South Asia sub-region.

3.6.2 However, based on typical costs to develop new infrastructure and procure the handling equipment required to allow the terminal to operate at a satisfactory level of efficiency, the total capital required has been estimated at approximately US\$55 billion, of which US\$36 billion for the ports in ESCAP region.

3.6.3 Another study by UK-based Ocean Shipping Consultants (OSC) analyses the dramatic development in container-handling activity at East Asian ports (includes North East, Far East and South East Asia) for the period up to 2020. Under so-called normal scenarios, OSC forecasts that total container port demand is set to increase by between 102% and 126% over the 2004-15 period, to a maximum threshold of 385 million TEU. By 2020, a further expansion of 20-27% will take the figure up to 487 million TEU. Under this increased-risk scenario, total East Asian container port demand is projected to grow by 88% to 321 million TEU by 2015 and by further 20%, to 386 million TEU by 2020. Despite the increased risks, container port demand growth is still forecast to be substantial

3.6.4 On all trade routes cargo volumes are rising – and it is ports that are putting in the investment to make sure that world trade keeps moving. A Ports and Harbour survey of the world's 50 ports found that some \$40 Billion is being spent by them on infrastructure developments. To this conservative estimate must be added huge investments by terminal operators on equipment. The amount being spent by ports is probably close to the GNP of a country such as Egypt. Alone this year, \$700 Million worth of investments at other ports has been chronicled. This is only a sample of the information that gets published – much more is being spent by large and small ports alike.

3.7 Changes in Information Technology

3.7.1 As a result of fallout of 9/11 incident a number of new technologies have been introduced to help the implementation of International Ship & Port Security code in

various countries. Now, ships tend to have GPS systems which install a satellite station on a ship. Similarly the use of radio frequency identification (RFID) is gaining ground in logistics and transport planning and optical character recognition (OCR) is being used quite cleverly in terminals to speed up the processing of containers in and out.

3.7.2 In latest generation Port, optimization software is giving operators new opportunities to enhance their asset value. As a result, port planning software have been developed which enable port operators to discover and overcome any operational problems before they start. Singapore's unchallenged position as a global transport hub can largely be put down to its geographic good fortune at a cross-road of world trade, but its astonishing throughput capacity is empowered by complex and innovative software managing operations at the port. At the heart of this, are PSA's Computer Integrated Terminal Operations System (CITOS) and Portnet. Together, these two integrated real-time e-commerce systems control all of PSA's colossal container-moving operations world-wide, from booking tug and berth applications to all the way through stevedoring, loading trucking, tracking and ship-planning and to final billing. As a sign of how accurate container software-controlled system works is demonstrated by the PSA Singapore Terminal system which process one truck every 25 seconds and remotely operates yard cranes at the state-of-the-art Pasir Panjang Terminal. To meet the future requirements and to ensure its continued smooth handling, PSA has embarked on an upgradation programme to further streamline CITOS to CITOS21, making use of new technology.

3.8 Challenges ahead for Indian Ports

3.8.1 In order to meet the challenges emanating from intense global competition, advancement information & communication technology, technological changes in shipping and related sectors coupled with stiff demands from trade, ports in India are required to gear-up themselves by modernizing the port infrastructure, enhancing the quality of service and increasing the productivity level at par with International standards.

CHAPTER - 4

OVERVIEW OF PORT SECTOR IN INDIA

4.1 Introduction

4.1.1 The developments in International Port and Shipping Sector raise both threats and opportunities to the Indian Port and Shipping Sector. Indian Ports and Shipping are becoming increasingly competitive among themselves in India and abroad. On the other hand, it has opened up new opportunities to deliver quality service of international standards. Keeping in view the above, an overview of the Indian port sector has been made which is divided into two parts i.e., Overview of the Major Ports and that of Non-major ports

4.1.2 During 2009-10, the Major and the Non-major ports in India accomplished a total cargo throughput of 849.89 million tonnes reflecting an increase of 14.27% over 2008-09 compared to a marginal increase of 2.5% in 2008-09. The growth in cargo handled at Major and Non-major ports in 2009-10 was 5.76% and 35.44% respectively compared to 2.16% and 3.31% achieved in of 2008-09. The robust overall growth in India's seaborne cargo traffic in 2009-10 reflects fairly strong recovery in India's growth during the course of 2009-10. Further analysis of the performance upto 2009-10 for major & non-major ports is made in the following paragraphs:

4.2 Major Ports – An Overview

4.2.1 A noteworthy feature of the performance of India's port traffic during the years 2002-08 in particular has been its much higher growth compared to corresponding growth in world seaborne trade. To a large extent, the strong growth of India's seaborne cargo traffic reflected buoyancy in India's overall Gross Domestic product (GDP) growth and robust growth in merchandise trade in recent years. As a result, growth in India's seaborne cargo throughput during 2002-08 outstripped growth in both world trade and output. In the face of uncertain global market conditions and more challenging domestic market environment, India's seaborne cargo traffic grew by a mere 2.49 per cent in 2008-09 but recovered sharply to 14.27% in 2009-10.

Deceleration in the growth of cargo traffic during 2008-09 is attributed to mainly exogenous factors rooted in global and domestic growth dynamics.

4.2.2 In order to realize this growth potential, a number of policy initiatives have been taken during the recent past. Attention has been focused on improvement in infrastructure, modernization of existing facilities, better logistic chain, doing away the licensing system, more openings in the domestic retail market with entry for the world class players, increased avenues for Special Economic Zone type of projects etc. Canalysing system has been done away with. Indian Oil Corporation, Oil Coordination Committee, have ceased to be the only agency for import of Petroleum crude and products. State Trading Corporation is no longer the canalysing agent for import of newsprint, edible oil, sugar and foodgrains. The role of Mineral & Metal Trading Corporation as the sole canalysing agency for import of fertilizer, rock phosphate and sulphur has been taken away. In the context of Port sector, Private Sector have been allowed in development of Port Infrastructure – new berths are being commissioned on BOT basis. Documentation procedures have become simple. To become globally competitive, utmost importance has been placed on development of physical infrastructure like roads, airports, seaports, railways in general and Port Sector in particular. Single window concept with web based Port Community System has been introduced in many Ports. Indian Ports, earlier developed to handle bulk and break bulk cargo, are developing more containerized handling facilities. Development of International Container Transshipment terminal at Cochin is in the offing. Due to concerted efforts over the years, Jawaharlal Nehru and Chennai ports are attracting larger number of mother vessels for containers.

4.2.3 Details of the private sector investments, port development through National Maritime Development Programme, Traffic growth, capacity creation, overview on non-major ports etc is given in the following paragraphs.

4.3 Private Sector Participation

- The Government has been encouraging private sector participation in port development since 1996. The major areas which have been thrown open for private investment, mainly on Build, Operate and Transfer (BOT) basis with revenue sharing mechanism which include construction of cargo handling berths, container terminals and warehousing facilities, installation of cargo handling equipment, construction of dry-docks and ship repair facilities, etc. The preferred route for private sector participation is through open competitive bidding.
- Foreign direct investment upto 100% is permitted for construction and maintenance of ports and harbours.
- In order to bring in uniformity and transparency in the PPP Process, standardized RFQ, RFP and Model Concession Agreements have been put in place by the Ministry of Shipping, Government of India.
- Tariff setting Mechanism for PPP Projects have been modified to herald upfront fixation before the projects are bid out

4.3.1 Details of PPP projects Commissioned and under implementation

At present, 22 projects with private sector participation (BOT basis or on captive use basis) are in operation at the Major Ports at a cost of Rs 6335.50 crore and with a capacity of 132.65 million tonnes. There are 21 projects under implementation at an estimated investment of Rs. 12648.43 crore which are expected to add 171.45 million tonnes to the capacity at Major Ports. Details are given at **Annexure V (a) and V (b)**.

4.3.2 Details of PPP Projects awarded during 2009-10

The award of projects on PPP basis has gathered momentum with several projects being awarded and several others planned for award at the Major Ports. In the financial year 2009-10, a record of 13 projects have been awarded in the port sector on Public Private Partnership basis in the major ports of the country which included construction/development berths and terminals, mechanisation of

existing berths etc. These 13 projects envisage an investment of Rs 2653 crores and a capacity of 65.65 million tonnes. Details are given at **Annexure V (c)**.

4.4 National Maritime Development Programme

4.4.1 Development of Ports is an ongoing process based on the requirement of the trade and the future projections of traffic. Projects are taken up based on the requirement of individual ports to cater to the traffic. Recognising the catalytic role which the maritime sector has to play in India's fast growing economy and in fulfilling the trade objectives the National Maritime Development Programme (NMDP) has been formulated by the Ministry of Shipping, Govt. of India. Under the Programme, 276 projects to be taken up for implementation over the period from 1.4.2005 to 31.3.2012 have been identified. Total investment involved under the Programme is Rs.1,00,339 crores at 2004-05 prices. Out of this, Rs. 55,804 crores is for the Port Sector and the balance is for the Shipping and Inland Water Transport Sectors.

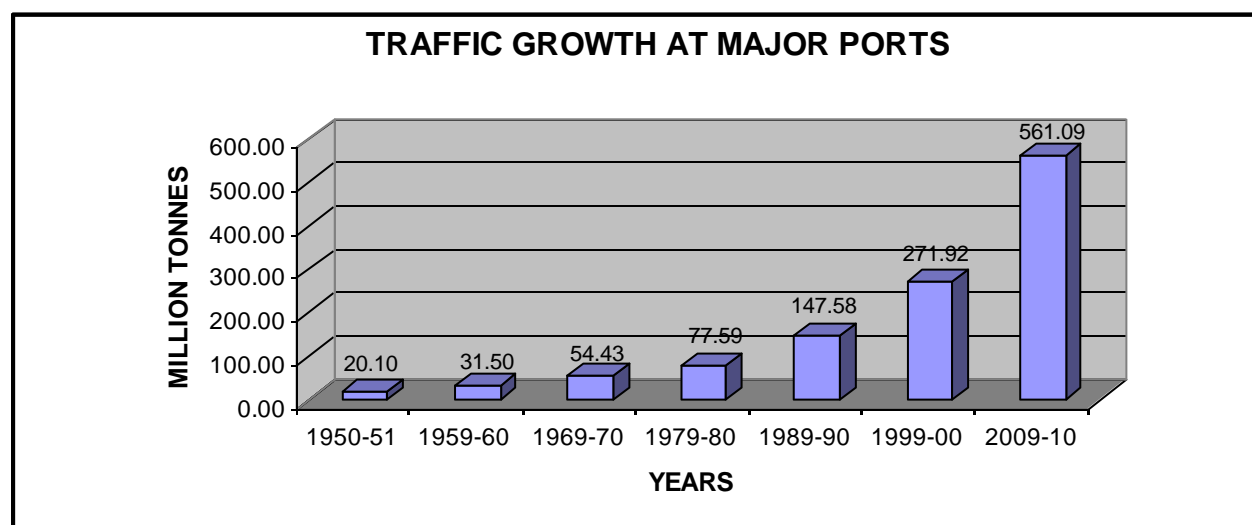
4.4.2 In the Major Ports, 276 projects undertaken under National Maritime Development Programme cover the entire gamut of activities, namely construction/upgradation of berths (76 nos.), deepening of channels (25 nos.), rail/road connectivity projects (45 nos.), equipment upgradation/ modernization schemes (52 nos.) and other related schemes (78 nos.) for creation of backup facilities. The objective is to upgrade and modernize the port infrastructure in India which will enable it to benchmark its performance against global standards.

4.4.3 Based on the above exercise the projected traffic of the major Ports emerged at the level of 615.70 million tonnes. To meet the projected traffic of 615.70 million tonnes by 2011-12, it was estimated that capacity of around 800.41 million tonnes would be required. After implementation of NMDP schemes, the capacity of major ports which was 397.50 million tonnes during 2004-05 has increased to 616.73 million tonnes as on 31.03.2010. Some schemes are being implemented and some schemes are under planning stage.

4.5 Port Traffic – Major ports

4.5.1 The major ports have witnessed a lot of ups and downs in the growth pattern of traffic during the last five decades, but the thirst for upsurge in achieving the new heights in traffic handling is still continuing. The overall compound Annual rate of Growth (CAGR) of traffic at major ports during 1950-51 to 2009-10 has been 5.80 percent, whereas during the post- liberalisation period i.e. from 1991-92 to 2009-10, the CAGR was 7.31 percent. If the CAGR of traffic growth at major ports is taken into consideration for the last 5 years, it has been 7.28 percent, whereas it is 10.73 percent if the traffic is taken for the 3 years before the global economic recession period i.e 2008-09 & 2009-10, which is the highest growth rate since 1960 . Details of growth rates at various period is given as under :

Year	Traffic (In Million Tonnes)	CAGR* (%)
1950-1951	20.10	
1959-1960	31.50	5.12
1969-1970	54.43	5.62
1979-1980	77.59	3.61
1989-1990	147.58	6.64
1999-2000	271.92	6.30
2009-2010	561.09	7.51
Period		
1951-2010	60 Years	5.80
1992-2010	Post Liberalized Era	7.31
2006-2010	Last 5 Years	7.28
2006-2008	<i>Excluding recession period</i>	10.73



4.5.2 Cargo traffic at 561.09 million tonnes at India's 12 major ports during 2009-10 accounted for around two-third of India's total sea borne cargo (849.9 million tonnes) and showed an improvement in growth to 5.80% in 2009-10, compared to 2.2% increase in 2008-09. Total cargo of 561.09 million tonnes comprising of cargo loaded, cargo unloaded and transhipped to the tune of 322.6 million tonnes, 211.0 million tonnes and 26.6 million tonnes respectively.

Traffic Growth at Major Ports

(Last 5 years)

Year	Traffic Handled (In million tonnes)	% Change over Previous Year	CAGR*(%) over last 5 years
2000-01	281.10	3.30	5.46
2004-05	383.75	11.30	8.09
2005-06	423.57	10.38	10.16
2006-07	463.78	9.49	10.28
2007-08	519.31	11.97	10.78
2008-09	530.53	2.16	8.43
2009-10	561.09	5.76	7.28
2005-06 to 2007-08			10.73

4.5.3 The analysis of cargo handled at 12 major ports reveals that Paradip Port posted highest increase by 22.8%, followed by Mormugao (17.2%), Cochin (14.5%), Kandla (10.1%), Tuticorin (8.1%), Chennai (6.2%), JNPT (6.1%), Mumbai (5.1%), Kolkata Dock System (5%) and Vishakhapatnam (2.5%). The Paradip Port accounted for a share of 10.2% in the total cargo handled by the major ports but contributed more than one-third of the incremental traffic handed at the major ports in the country during 2009-10. Details of port-wise traffic handled and its growth during 2009-10 against previous year is given as under:

**Traffic handled at Major Ports
(2009-10 & 2008-09)**

(in million tonnes)

Port	Traffic handled during		% Variation against previous year
	2009-10	2008-09	
Kolkata	13.04	12.43	4.96
Haldia	33.38	41.79	(-)20.13
Paradip	57.01	46.41	22.84
Visakhapatnam	65.50	63.91	2.49
Ennore	10.70	11.50	(-)6.93
Chennai	61.06	57.49	6.20
Tuticorin	23.79	22.01	8.07
Cochin	17.43	15.23	14.45
New Mangalore	35.53	36.69	(-)3.17
Mormugao	48.85	41.68	17.19
Mumbai	54.54	51.88	5.14
Jawaharlal Nehru	60.76	57.29	6.06
Kandla	79.50	72.22	10.07
Total	561.09	530.53	5.76

4.6 Commodity- wise Traffic

4.6.1 In terms of Commodity-wise traffic at 12 major ports, the increase during 2009-10 as compared to 2008-09 has been observed in all broad categories of cargo, except finished Fertilizer & Thermal coal. Amongst the dry bulk categories, fertilizer raw material (dry) and Iron ore posted robust growth rates of 11.6% and 6.7% respectively. Coking coal traffic, which is mainly imports, recorded modest growth of 4.6%. Container traffic which largely reflects trade in manufacturing goods and components showed significantly growth of 8.7% compared with a small increase of 1.02% in 2008-09, while “other cargo” traffic increased sharply by 20.9% in 2009-10. Commodity wise and port wise traffic details for the year 2009-10 and 2008-09 is given in **Annexure - II**

4.6.2 An attempt has also been made to analyse the CAGR during last five years - for the each commodity group. As expected the maximum CAGR of 13.05% have been noticed in container traffic, followed by 9.80% for fertilizer and raw material and 8.18% for the other miscellaneous cargo. The overall CAGR of the Port traffic has been 7.28%. It is pertinent to note that the last five years include the period of 2 years of 2008-09 and 2009-10 which has affected the growth of the port traffic due to global

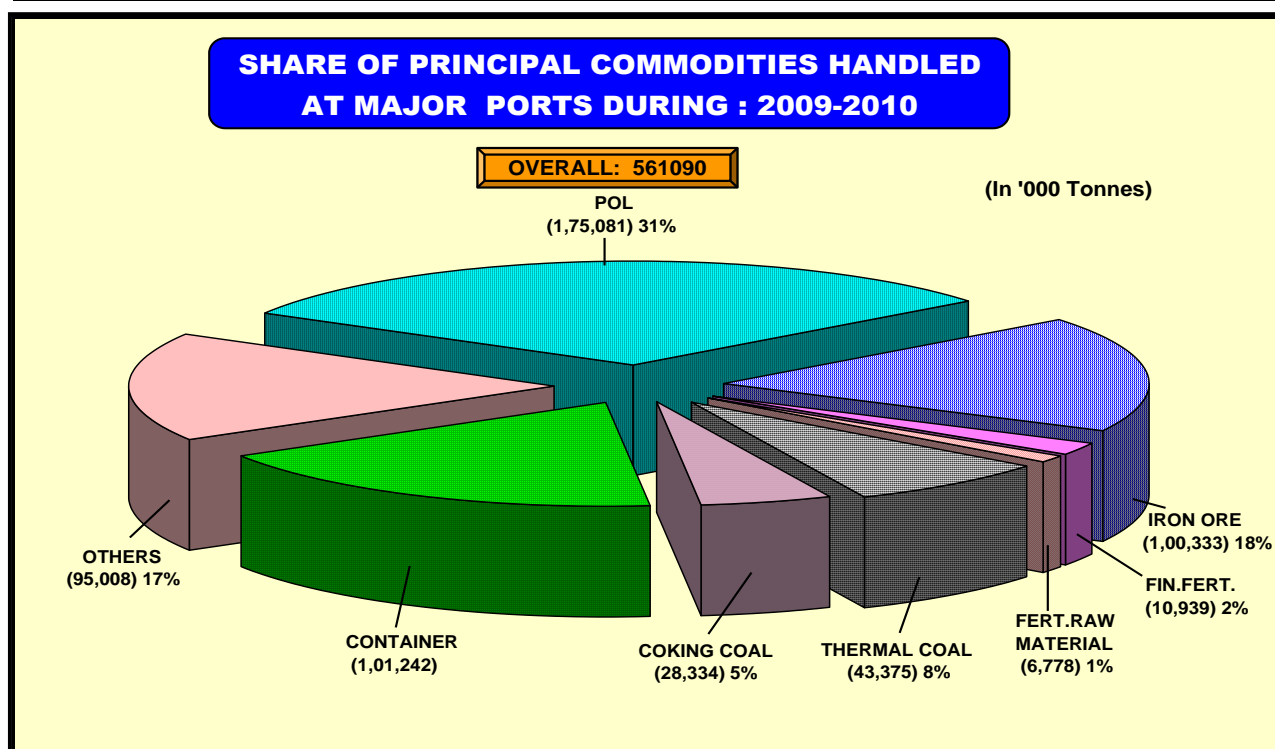
slowdown and recession. If these two years are not considered and the previous three years i.e. 2005-06 to 2007-08 are taken in to account, the CAGR reached at a level of 10.73 percent. As may be seen from the following table, the impressive growth has been noticed in all the commodities

Commodity- wise Traffic Growth

(Last 5 years)

(in million tonnes)

Commodity	2005-06	2006-07	2007-08	2008-09	2009-10	CAGR	
						during last 5 years	during 3 years i.e. 2005-06 & 2007-08
POL	142.09	154.34	168.75	176.14	175.08	5.36	8.98
Iron Ore	79.17	80.59	91.80	94.04	100.33	6.10	7.68
Coal	58.76	59.98	64.93	70.40	71.71	5.11	5.12
Fert..& Raw Mat.	12.19	14.13	16.63	18.23	17.72	9.80	16.80
Containers	61.98	74.44	92.27	93.14	101.24	13.05	22.01
Others	69.38	81.30	84.93	78.58	95.01	8.18	10.64
Total	423.57	463.78	519.31	530.53	561.09	7.28	10.73



4.6.3 As far as the cargo composition is concerned, the pattern remains unchanged during the past 5 years. During 2009-10, POL traffic maintained predominant share of about 31%, followed by container and iron ore traffic around 18% respectively while the

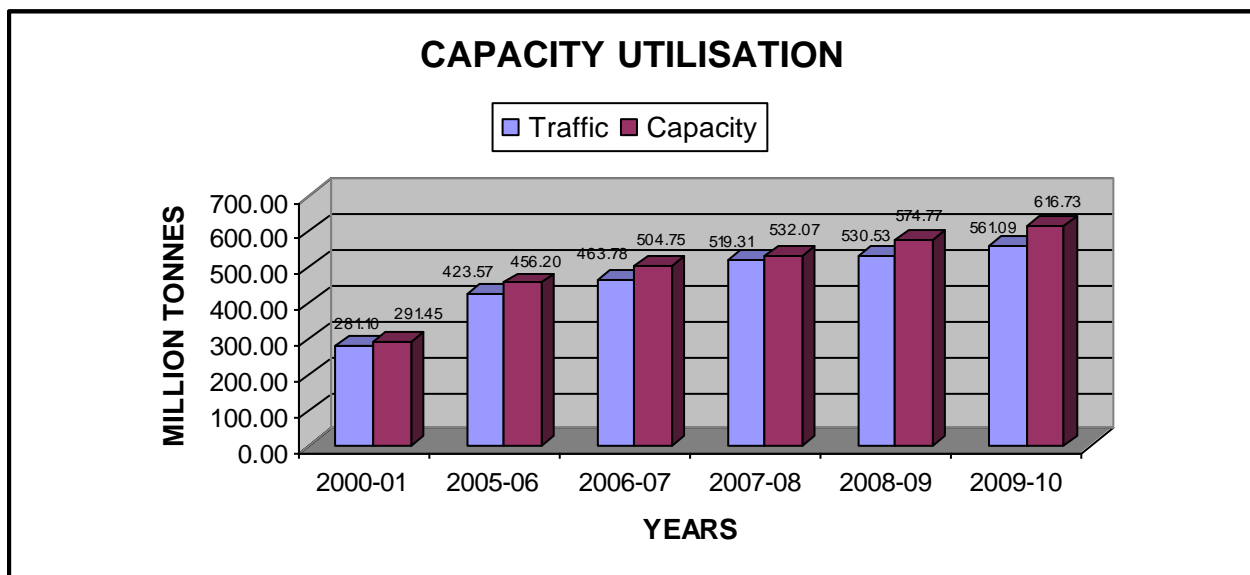
share of coal traffic was 13.8%. This clearly shows that the investment made at major ports in modern cargo handling equipment has resulted in growth of traffic over the years.

4.7 Port Capacity

4.7.1 For the first time, the total cargo handling capacity in the Major Ports exceeded the actual traffic handled as on 31-3-2001 and the trend is still continuing. The capacity in the ports as on 31.03.2010 was 616.73 million tonnes against the traffic of 561.09 million tonnes with a capacity utilization of 90.98%, which is incidentally lowest during the last five years. It shows that the capacity available was more than the traffic at ports, which is an ideal situation. Commodity wise and port-wise capacity as on 31-03-2010 is given in **Annexure – III**.

Capacity Utilisation at Ports (Last 5 years)

Year	Traffic Handled (In million tonnes)	Capacity (in million tonnes)	Percent Utilisation (%)
2000-01	281.10	291.45	96.44
2005-06	423.57	456.20	92.85
2006-07	463.78	504.75	91.88
2007-08	519.31	532.07	97.60
2008-09	530.53	574.77	92.30
2009-10	561.09	616.73	90.98



4.7.2 The capacity at Major Ports was augmented through construction of new berths/jetties/terminals and also through mechanization of cargo handling. It may be noted that at the time of formulation of National Maritime Development Programme during 2005, the capacity of all the major ports was at the level of 397.50 million tonnes and it was estimated that the same will reach to the tune of 800.41 million tonnes by the year 2011-12. Whereas, at the time of formulation of 11th five year plan document for port sector during March 2007, the total capacity of the Major Ports was at the level of 504.75 million tonnes against the actual traffic handled at level of 463.78 million tonnes.

4.7.3 Keeping in view the robust growth in all the sectors of economy and the GDP growth at level of about 9%, the total capacity envisaged at Major Ports by the end of 11th plan period is at the level 1016.55 million tonnes, whereas the traffic at Major Ports is projected at the level of 708.09 million tonnes. A number of initiatives have already been taken by the Ministry of Shipping and rigorous monitoring are being done by various wings of the Ministry for formulating and devising programmes for enhancement of Port Capacity Projects. Private sector investment is being encouraged in the ports and several Public Private Partnership projects have been envisaged for enhancement of capacity during the 11th Five Year Plan. The following statement shows the capacity addition and the traffic growth since 2004-05 till 2009-10:

(in million tonnes)

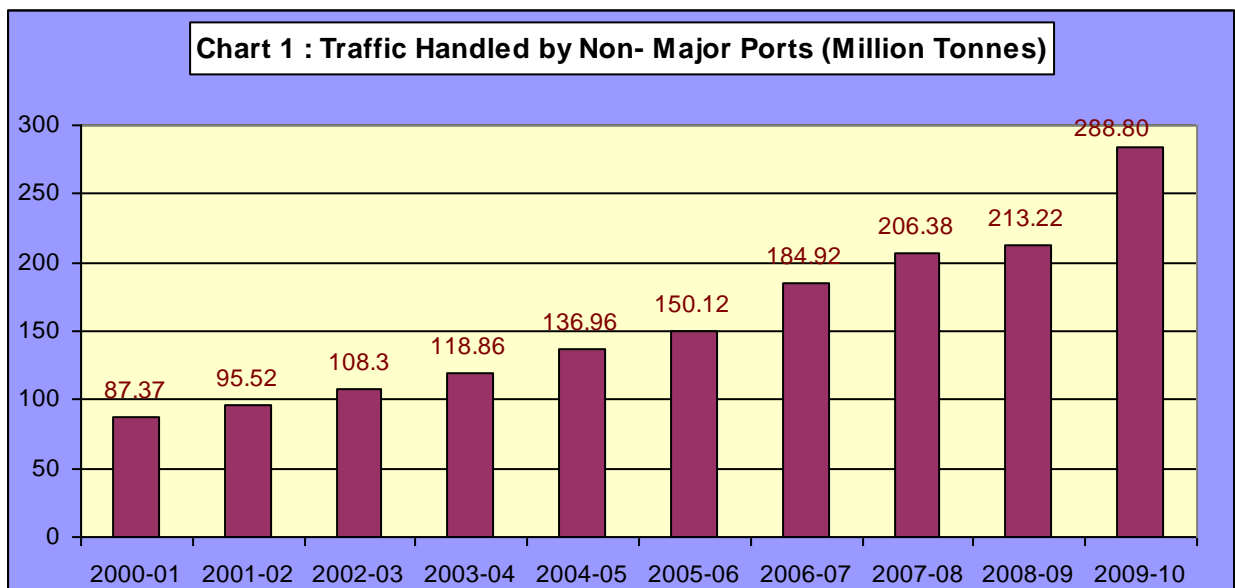
Items	Capacity	-	Addition	Traffic
Actual Achievement				
- as on 31-03-2005	397.50			383.75
- as on 31-03-2006	456.20	-	58.70	423.57
- as on 31-03-2007	504.75	-	48.55	463.78
- as on 31-03-2008	532.07	-	27.32	519.31
- as on 31-03-2009	574.77	-	42.70	530.36
- as on 31-03-2010	616.73	-	41.96	561.09
Projection				
- as on 31-03-2012	1016.55			708.09
	(as per XI Plan Document)			

4.8 Non – Major Ports – An Overview

4.8.1 There are 176 non-major ports situated along the peninsular coast-line and sea-islands. These ports are located in maritime states of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamilnadu, Andhra Pradesh, Orissa, West Bengal and Union territories of Puducherry, Daman & Diu and Lakshadweep. Out of these ports, only a

few ports are well developed and provide all-weather berthing facilities for cargo handling. In 2008-09, only 60 Ports (including ports of Andaman & Nicobar Islands) were reported to have handled cargo traffic.

4.8.2 Non-major ports in India collectively handled 288.80 million tonnes of traffic during the year 2009-10 as compared to 87.37 million tonnes of cargo handled in 2000-01 (Chart-1). The Cumulative Annual Growth Rate (CAGR) growth in traffic during 2000-01 to 2009-10 achieved by Non-major ports was 14.2% as compared to 9.7% achieved by all the ports in the country. The share of cargo traffic of Non-major ports in the total cargo traffic handled by all ports in India has increased from 10.9% in 2000-01 to 34% in 2009-10. This trend definitely shows the level of competition which Major Ports has faced during the last few years and is likely to continue in years to come and as per current indications, non-major ports will have an edge over major ports due to their growth rates as a number of green field ports are coming up with huge capacities through private sector in non-major ports. Commodity-wise and state-wise Traffic details for 2009-10 and 2008-09 is given in **Annexure –IV**.



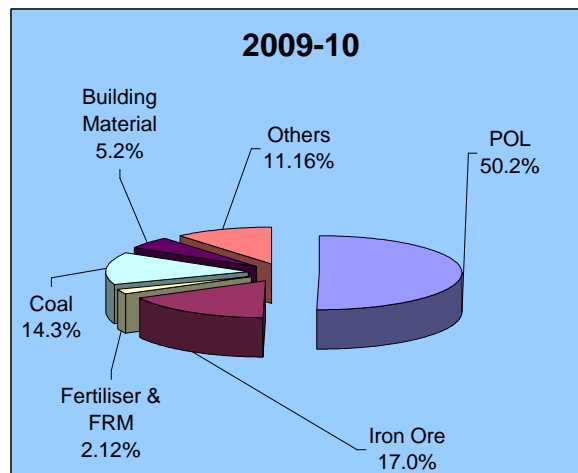
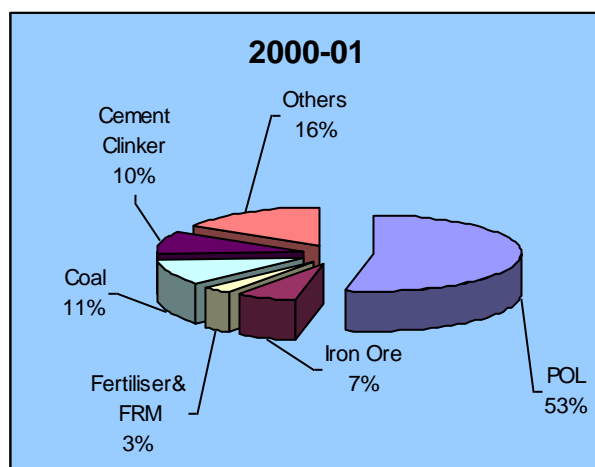
4.8.3 Commodity Composition of Non-Major Port Traffic

Commodity composition of traffic handled by non-major ports during the past few years is given in Table 1.

Table 1 : Commodity -wise Traffic Handled at Non-major Ports							
Year	Traffic Handled (million tonnes)						
	POL & its Products	Iron Ore	Building Material	Coal	Fertiliser & FRM	Others	Total
2000-01	46.39 (53.10)	5.78 (6.62)	8.38 (9.59)	9.59 (10.98)	2.98 (3.41)	14.25 (16.31)	87.37 (100)
2005-06	69.72 (46.44)	28.84 (19.21)	13.39 (8.92)	13.57 (9.04)	5.61 (3.74)	18.99 (12.65)	150.12 (100)
2006-07	81.20 (43.91)	33.97 (18.37)	14.39 (7.78)	14.02 (7.58)	6.82 (3.69)	34.52 (18.67)	184.92 (100)
2007-08	91.04 (44.11)	34.22 (16.58)	16.26 (7.88)	15.45 (7.49)	7.11 (3.44)	42.30 (20.50)	206.38 (100)
2008-09	97.82 (45.88)	35.86 (16.82)	13.26 (6.22)	21.46 (10.06)	8.85 (4.15)	35.97 (16.87)	213.22 (100)
2009-10	145.11 (50.25)	49.07 (16.99)	14.96 (5.18)	41.29 (14.30)	6.12 (2.12)	32.23 (11.16)	288.80 (100.00)
(Note : Figures in parentheses indicate percentage share of cargo handled to total cargo handled-row-wise).							

4.8.4 POL & its products (50.3%) was the single largest commodity handled at non major ports in 2009-10 and its share has ranged between 44% (in 2006-07) to 55 % (in 2001-02). It is observed that during last ten years, the relative shares of commodities in the cargo basket have not shown any pronounced shift. However, during 2009-10, there has been steep increase in POL and coal cargo. In 2009-10, the share of Iron Ore in the total traffic was 17.0% followed by Coal (14.3%) and Building Material (5.2%). The change in shares of various commodity groups in 2009-10 vis-à-vis 2000-01 is brought out in the following chart:

Commodity-wise Traffic Handled at Non-major Ports



4.8.5 Maritime State-wise traffic handled at non-major ports during 2000-01 to 2009-10 given in Table 2:

Year	Traffic Handled (million tonnes)							
	Gujarat	Mahara-shtra	AP	Goa	Tamil Nadu	Karnataka	Others	Total
2000-01	71.26 (52.59)	6.04 (-0.17)	4.84 (-18.24)	3.19 (28.11)	0.33 (63.64)	0.68 (10.29)	1.03 (-13.45)	87.37 (37.85)
2005-06	103.53 (7.69)	11.16 (-8.07)	17.67 (17.23)	11.76 (43.41)	0.71 (-16.47)	4.12 (17.38)	1.17 (11.43)	150.12 (9.61)
2006-07	131.27 (26.79)	11.58 (3.76)	18.61 (5.32)	14.31 (21.68)	0.81 (14.08)	6.56 (59.22)	1.78 (52.14)	184.92 (23.18)
2007-08	150.52 (14.66)	11.36 (-1.90)	19.29 (3.65)	12.83 (-10.35)	0.89 (9.87)	8.90 (35.67)	2.59 (45.50)	206.38 (11.60)
2008-09	152.81 (1.52)	10.42 (-8.27)	29.72 (54.07)	11.90 (-7.25)	0.90 (1.12)	4.97 (-44.16)	2.50 (-3.47)	213.22 (3.31)
2009-10	205.54 (34.51)	12.51 (20.06)	43.62 (46.77)	13.90 (16.81)	1.17 (30.00)	8.55 (72.03)	3.49 (39.60)	288.80 (35.44)

Note: (1) Figures in parentheses indicate the year-on-year percentage growth in each column.
(2) 'Others' consists of non-major ports in all other maritime States/UTs

4.8.6 The overall increase in quantity of cargo handled at non-major ports during 2000-01 to 2009-10 was mainly driven by traffic growth in Gujarat, Andhra Pradesh, Goa and Maharashtra. The share of traffic handled by non-major ports in the maritime states is given in Table 3.

Table 3 : Share of Traffic Handled by Non-Major Ports – Maritime State-wise								
Year	Traffic Handled (In Percentage)							
	Gujarat	Maharashtra	AP	Goa	Tamil Nadu	Karnataka	Others	Total
2000-01	81.6	6.9	5.5	3.6	0.4	0.8	1.2	100.0
2005-06	69.0	7.4	11.8	7.8	0.5	2.7	0.8	100.0
2006-07	71.0	6.3	10.1	7.7	0.4	3.5	1.0	100.0
2007-08	72.9	5.5	9.3	6.2	0.5	4.3	1.3	100.0
2008-09	71.7	4.9	13.9	5.6	0.4	2.3	1.2	100.0
2009-10	71.2	4.3	15.1	4.8	0.4	3.0	1.2	100.0

Note: (1) 'Others' consists of non-major ports in all other maritime States/UTs

4.8.7 Gujarat continues to be the leading maritime State, accounting for more than 71% of the total non-major port cargo traffic in 2009-10. The other contributing States to the cargo traffic at non-major ports during 2009-10 were: Andhra Pradesh (15.1%), Goa (4.8%), Maharashtra (4.3%), Karnataka (3.0%) and Tamil Nadu (0.4%). The remaining 1.2% of the cargo was handled by all the other maritime States/UTs.

4.8.8 The effectiveness of non-major ports in meeting the growing volume of cargo traffic cannot be overemphasized. Recognizing the importance of non-major ports, many maritime states have launched initiatives for their development, through the participation of private sector. This has led to significant growth in the cargo capacity and cargo traffic handled by the non-major ports in the past few years.

4.8.9 There is no doubt that the Indian Ports are heading for a better future and are getting ready to take up the challenges of India's growing international trade. At the same time, the operational efficiency of the Ports have to be competitive and be on par with any of the port in the region in particular and the ports of the world in general. Modern cargo handling techniques must be introduced to improve port performance, particularly in the dry bulk cargo, conventional and unitized general cargo trades. Proper policies and actions have to be taken up to deal with port efficiency, productivity, manpower planning, equipment and its performance etc.

CHAPTER - 5

EXISTING POLICY FRAMEWORK

5.1 Introduction

5.1.1 The Maritime sector comprises of Ports, Merchant Shipping, Ship Building/ Ship Repair and Inland Water Transport. Capacity expansion in the Port sector is being taken up through several development activities, namely construction/upgradation of berths, deepening of channels, rail/road connectivity projects, equipment upgradation/modernization schemes and other related schemes for creation of backup facilities. The objective is to upgrade and modernize the port infrastructure in India which will enable it to benchmark its performance against global standards.

5.1.2 With the opening up of the Indian economy, the Government of India has allowed private sector participation in Major Ports to infuse funds, induct latest technology, improved management practices and above all addition of capacity. Foreign direct investment upto 100% is permitted for construction and maintenance of ports and harbours.

5.1.3 To encourage private sector participation, the Ministry of Shipping has already put in place guidelines for private sector participation. To ensure uniformity in bidding documents, Model Request for Qualification (RFQ), Request for Proposal (RFP) and Model Concession Agreement (MCA) documents have been standardized and adopted. The Government of India constituted Public Private Partnership Appraisal Committee (PPPAC) under the Chairmanship of Secretary, Department of Economic Affairs, Ministry of Finance to appraise the proposals under Public Private Partnership (PPP) mode. The tariff setting mechanism has also been modified with tariffs being set upfront by the Tariff Authority for Major Ports (TAMP) before the projects are bid out on a revenue sharing basis.

5.2 Policy Framework for Development and Modernisation of Ports

5.2.1 In order to augment the capacity and to enhance productivity levels at major ports, several initiatives in the form of guidelines and policies have been taken in the recent past as explained in the succeeding paragraphs.

5.2.2 Modernisation of port infrastructure is essential to benchmark the performance of Indian ports against global standards. The Government of India has given the top priority to the Modernisation of ports, which is undertaken through:

- Construction of new berths/terminals
- Various expansion/ upgradation projects for berths
- Installation of new and modern equipment
- Upgradation/ replacement through higher capacity of cargo handling equipment
- Mechanisation of cargo handling operations
- Various computer aided systems to encourage automation in port operation
- Installation of Vessel Traffic Management System (VTMS) for smooth movement of vessels
- Implementation of Web- based Port community system

5.3 Expansion of Berth Capacities

Public Private Partnership (PPP) mode is the preferred mode of implementation of all new berth projects. Port projects are awarded through the competitive bidding process on revenue sharing model. In addition, requests from port based industries for construction and operation of facilities for captive use are being considered on a case-to-case basis.

5.4 Mechanisation:

Mechanisation of cargo handling facilities is of utmost importance for improving the efficiency of ports. Introduction of high capacity mechanized equipments in the form of mobile harbour cranes/floating cranes, etc. private sector participation, with a view to utilizing the latent capacity, as well as for augmenting the cargo handling capacity of major ports, is encouraged which would go a long way in reducing the handling cost of cargo at the major ports and will also increase throughput substantially.

5.5 Development and Maintenance of Channels

5.5.1 One of the most important features of modern and more efficient ports is to have a deep drafted channel to accommodate and navigate longer vessels. Towards this objective, ports are required to undertake capital and maintenance dredging in the channel on a regular basis.

5.5.2 Presently, most of the dredging requirements of major ports particularly maintenance dredging are met by the Dredging Corporation of India. As per present Dredging Policy, Indian dredging companies have the right of first refusal if their offer falls within 10% of the lowest technically qualifies bid.

5.6 Port Connectivity

5.6.1 All the Major Ports in the country are at present having both road and rail connectivity. However, the capacity and quality of the existing connectivity require improvement so that the flow of cargo in and out of the port is smooth and efficient. The projects on rail and road connectivity are implemented mainly by the National Highways Authority of India (NHAI) and the Railways, respectively. In a number of instances, the ports have made significant financial contribution for execution of the road and rail connectivity projects. Broad objectives for better connectivity and process of undertaking such projects are given below:

5.6.2 Road Connectivity Projects: Each Major Port will preferably have minimum four lane road connectivity. Such projects could be taken up through the National Highway Authority of India (NHAI) and / or on Build, Operate and Transfer (BOT) basis and formation of Special Purpose Vehicles comprising of all the stakeholders.

5.6.3 Rail Connectivity Projects: Each Major Port should preferably have double line rail connectivity. Such projects could be taken up by the Railways and / or BOT basis and through formation of Special Purpose Vehicles in which the port may be an equity holder.

5.7 Electronic Data Interchange- Port Community System (EDI-PCS)

As a part of Electronic Data Interchange, Centralized Web Based- Port Community System (PCS) has been introduced at all Major Ports with a view to transforming Indian Ports to modern Ports and minimizing transaction time and cost to Indian export-import trade. Computerization by way of Port Community System including a uniform and centralized web based message exchange hub covering all stakeholders including ports, customs, banks, railways, Mercantile Marine Department (MMD), Port Health Organisation, Container Corporation of India (CONCOR) and port

users etc. PCS has heralded a paperless regime in Indian Port Business. PCS having implemented in Major Ports, will be extended to non-Major Ports within a set time frame. This will greatly reduce the scope of human interface in delivery of services, enable a single window facility, reduce multiple transactions and ensure that the port users do not have to visit the Port for transacting routine business. The PCS will be fully implemented when Customs is linked with the System. The implementation of PCS with its integration with Customs is expected to reduce a transaction cost at ports and empower Indian Ports to join the premier league of international technologically advanced e-ports.

5.8 Land Policy:

5.8.1 Land available with the Ports is one of the essential and significant resource for sustainable growth. It is an established practice globally for ports to allot land for carrying out economic activity including establishing industry to ensure captive cargo to the port, thereby enhancing the sustainability of that port. Optimum utilization of land is a matter of continuing importance to all Ports.

5.8.2 Keeping in mind their specific requirements, ports have to leverage their assets including their real estate within the framework of the Master Plan for the Port. Ports may allot their land on License, short lease & long lease upto 30 years period, depending upon the nature of the Port related activities by following competitive bidding process. Port lands have also been used to set up Special Economic Zones (SEZ) aimed at encouraging industrial development in and around the Port.

5.9 In addition to the existing frame-work of policy and initiatives taken up during the recent past, the Ministry has constituted a high level committee to look into various policies impinging upon the growth of the sector, especially in the background of recession and down-turn and the Committee has made their recommendations on each of the aspects of port management. These recommendations are under examination by the Ministry and existing policies will be modified/ improvised as considered necessary. Apart from this exercise, a number of new issues identified as future policy milestone, required to be taken up on the priority basis for the overall development of the ports and maritime sector are discussed elaborately in Chapter 12.

CHAPTER- 6

ANALYSIS OF TRAFFIC PROJECTIONS BY VARIOUS AGENCIES

Traffic Projections made by various agencies at different points of time have been analysed for the purpose of correlation and arriving at realistic estimates.

6.1 Consolidated Perspective Plan of Major Ports (2005):

The total traffic in Major Ports was projected to be 510.47 million tonnes, 739.41 million tonnes and 1595.07 million tonnes in 2007-08, 2011-12 and 2025-26 respectively as per the consolidated Perspective Plan of respective Major Ports prepared by Indian Ports Association with the assistance of Rotterdam Port Authority in the year 2005. Against the forecast of 510.47 million tonnes for the year 2007-08, Indian Major Ports actually achieved 519.32 million tonnes. The break-up of the above forecast as per the Perspective Plan of each Port is as follows:

(In Million Tonnes)

NAME OF PORT	2007-08(F)	2007-08(A)	2011-12(F)	2025-26(F)
KANDLA	70.63	64.92	98.13	204.51
MUMBAI	52.38	57.04	76.13	128.61
JAWAHARLAL NEHRU	49.98	55.84	88.77	305.99
MORMUGAO	49.15	35.13	52.25	78.30
NEW MANGALORE	37.41	36.02	52.17	84.14
COCHIN	15.36	15.81	24.63	53.49
TUTICORIN	21.20	21.48	30.80	71.80
CHENNAI	54.75	57.15	64.17	87.11
ENNORE	11.30	11.56	40.64	136.40
VISAKHAPATNAM	57.70	64.60	81.70	146.80
PARADIP	45.60	42.44	71.55	125.60
KOLKATA	45.01	57.33	58.47	172.32
TOTAL	510.47	519.32	739.41	1595.07

F; forecast, A: actual

6.2 INDIA: Port Sector Development- Possibilities for Accelerating Growth World Bank (2007) :

6.2.1 The analysis contained in this report shows that four traffic segments viz., containers, coal, iron ore and petroleum, make up 80% of India's port traffic. This proportion is likely to increase as container traffic grows with increasing diversification of India's trade basket towards manufacturers and containerization increases its penetration of general cargo traffic, and coal traffic grows to meet power sector and steel industry demands for thermal and coking coal imports. Petroleum traffic also is expected to grow not only for India's domestic needs but also to support a growing petroleum products industry, with India beginning to emerge as a major refining centre for the region. Iron ore traffic has grown in response to increases in worldwide demand. India has the third largest reserves of iron ore after Australia and Brazil, but the long term prospects for this traffic are less certain owing to uncertainties in the international markets as well as a growing demand from the domestic steel industry.

6.2.2 Container traffic has been shown to exhibit a strong linkage to GDP growth and most developing countries have demonstrated a high level of correlation between the two. As the economy expands, and manufacturing output and purchasing power increases, imports and exports of intermediate and finished goods, which are typically containerize, would increase. The trend promises to be a large driver for India's containerized cargo in the future. In addition, the containerization level in India at 68% is still low compared to international levels of around 80% and increased penetration of containerization will also push traffic volumes and growth rates. Container demand is forecast to grow from the current 6.5 million TEUs in 2008-09 to about 21 million TEUs by 2015.

6.2.3 As regards to the combined traffic of thermal and coking coal, India presently imports about 8% of its coal consumption of about 370 million tonnes, however port traffic also includes coastal movement of domestic thermal coal from the east coast to the west coast ports. Presently, over 75% of the coal traffic is concentrated along the east coast as a result of the location of both mining centres and steel making capacity in the east. Thermal coal traffic at India's major ports grew to 43.4 million tonnes in 2009-10. The

power sector consumes two thirds of domestic production, with the remainder being for the steel and cement industries. The large power generation capacity enhancements proposed will drive a growing level of coal imports and coastal movements. Thermal coal traffic at the ports is slated to increase by more than two and a half times by 2015 and much of the increase is expected in the western region ports due to an expected expansion in power sector demand there. Coking coal imports grew at almost 16% per annum and reached to a level of 27.1 million tonnes by 2008-09 at major ports. Imports of coking coal are expected to more than double to 53 million tons by 2015, reflecting a growing domestic supply. The east coast ports are expected to handle over 75% of future imports with the ports in Orissa and Andhra Pradesh barring Krishnapatnam accounting for much of the traffic owing to steelmaking capacity being largely located in this region.

6.2.4 Iron ore traffic at Indian ports grew at 17% p.a. and major ports handled 94 million tonnes by 2008-09, accounting for almost one-fifth of the total traffic. This was comprised of iron ore exports of 89.4million tons, and coastal traffic of 4.6 million tonnes. Iron ore traffic is expected to increase to 164 million tonnes by 2015. Ports in Orissa and Andhra Pradesh (excepting Krishnapatnam) are expected together account for 42% of this traffic by 2015. However, these projections are subject to some uncertainty due to slowdown in global demand, growing domestic needs and possible curbs on exports of high grade ore.

6.2.5 Crude oil and petroleum products (POL) consumption in India has been growing at 3.7% per year. This is expected to pick up and the reason it has lagged the economy's high growth rates is the introduction of newer more fuel efficient cars that have reduced the fuel consumption per vehicle kilometre. In future, the fuel economy savings are likely to persist as the older fuel inefficient fleet is retired. Crude oil imports and petroleum product shipments are forecast to grow 310 million tonnes in 2015, which may turn out to be conservative. Also, large refinery capacity developments in Jamnagar have turned India into an exporter of petroleum products and this too will add to port capacity demand for both crude and petroleum products. About half of the crude imports in 2015 are expected to come through unloading terminals in Gujarat, and the Gujarat ports are also expected to account for about half of petroleum product shipments.

6.2.6 Taking into cognizance of the above factors, the total traffic is projected to grow from 732.75 million tonnes during 2008-09 to 1130 million tonnes (assuming economy growth rate of 7.5% per annum from 2005-2015) and 1300 million tonnes (assuming the growth rate of 9% per annum). The break-up of the above traffic is as under:

Traffic Projection : 2015

(In Million Tonnes)

I. Container Traffic:	267.5 (21 million TEUs)
II. Dry Bulk Cargo	
Iron Ore	164.00
Coking Coal	52.70
Thermal Coal	116.90
Cement / Clinker	29.90
Fertilizers	20.80
Food Grains	6.10
Total	390.40
III. Liquid Bulk Cargo	
Crude Oil	205.10
POL & Others	105.30
Total	310.40
IV. Others	
Iron & Steel	18.10
LNG	30.00
Edible oil , Automobiles & Others	113.60
Total	161.70
V. GRAND TOTAL	1130.00 (at 7.5% economic growth)
	1300.00 (at 9% economic growth)

6.3 Report of the Task Force on Financing Plan for Ports, constituted by Government of India (2007) :

The Overall Projected Traffic and Major Ports' Share by 2013-14 are as follows:

(In million tonnes)

Commodity	Overall Projected Traffic 2013-14	Major Ports Share	Non-Major ports Share
POL	466	254 (55%)	212 (45%)
Iron Ore	140	110 (79%)	30 (21%)
Coal	180	141 (78%)	39 (22%)
Container (Million TEUs)	241 (20)	194 (80%) (16.11)	47 (20%) (3.89)
Other Cargoes	198	135 (68%)	63 (32%)
Total	1225	834 (68%)	391 (32%)

- Includes Iron & Steel, Fertilizers and its raw materials, food grains, Alumina, chemicals and other Misc. & general cargo.

6.4 A presentation made by Ernst & Young (2008) : In connection with formation of Dredging Alliance, looking at past growth rates of traffic handled at ports, it is expected that between 2012-13 till 2026-27, traffic would grow at a CAGR of approximately 10% in line with GDP growth.

6.4 CRISIL Research, engaged by Maritime Gateway magazine for conducting its first ever Indian Ports Survey (2009) :

6.5.1 As per the Research paper, traffic at ports is expected to grow at a CAGR of 9%, from 761 million tonnes in 2008-09 to 1166 million tonnes in 2013-14. These projections are lower than the figures projected by Task Force on Financing Plan due to the fact that the growth rate is expected to be slower than the previous 5-year period, where the CAGR was 11.5% in an exceptionally strong economic environment. This growth will be led by coal and container traffic. Major and non-major ports will continue to experience growth in traffic in next few years, with the latter likely to witness a higher growth rate of 16.1% whereas major ports likely to grow at a CAGR of 5.3%.

6.5.2 Traffic at major ports is expected to grow from 530 million tonnes in 2008-09 to 673 million tonnes in 2013-14. On the other hand, traffic at non-major ports is expected

to grow from 231 million tonnes in 2008-09 to 493 million tonnes in 2013-14. In terms of share in total traffic, non-major ports are expected to grow from 30% in 2008-09 to 41% by 2013-14.

6.5.3 In 2008-09, petroleum oil lubricants (POL) constituted the largest chunk of traffic at Indian Ports. With a minor decrease in its share from 37% to 34%, it may still continue to form the largest share in total traffic. From 2008-09 to 2013-14, the share of iron ore traffic is expected to marginally decline from 17% to 15%, while the share of coal is seen increasing from 13% to 16%. Container traffic is likely to witness a slight rise from 14% to 15%.

6.5.4 Keeping in mind the increased demand for refined products, due to the healthy growth in the economy, domestic refineries have planned capacity additions to the tune of 47 mtpa between 2008-09 and 2013-14. Further, India is emerging as an important player for export of refined products, which is expected to lead to higher product movement. All these factors are seen driving POL traffic at Indian Ports over the next few years. Hence, POL traffic at Indian Ports will grow at a CAGR of 7.1% from 277.8 million tonnes in 2008-09 to 392 million tonnes in 2013-14. POL traffic at major ports is likely to grow at a CAGR of 8% from 176 million tonnes in 2008-09 to 258 million tonnes in 2013-14. At non-major ports, POL traffic is set to at a CAGR of 12.4%, from 102 million tonnes in 2008-09 to 183 million tonnes in 2013-14. The share of non-major ports in the total POL traffic is expected to go up from 37% to 42% in the same period; the nearly doubling of the Jamnagar refinery of Reliance Industries will lead this increase in the share of the total POL traffic. The non-major port of Sikka is expected to handle higher crude/product traffic in the years to come.

6.5.5 Domestic demand for steel is set to rise with many infrastructure initiatives being undertaken in the country. Consequently, the demand for coking coal may go up. On the other hand, the rise in capacities of coal-based power utilities and cement plants is set to drive the demand for thermal coal. Total traffic of coal at Indian Ports is expected to grow at a CAGR of 14%, from 95.4 million tonnes in 2008-09 to 184 million tonnes by 2013-14.

6.5.6 Coal-handling facilities at the operational non-major ports of Gangavaram, Krishnapatnam, Karaikal and upcoming ports of Dighi, Dhamra and Gopalpur are

expected to lead the increase in coal traffic at non-major ports. Coal traffic handled at non-major ports is likely to grow at a CAGR of 28.1%, from 20.8 million tonnes in 2008-09 to 71.9 million tonnes in 2013-14. With the shift, coal traffic at major ports may get reduced by 4%, from 71.1 million tonnes to 58 million tonnes during the same period. The share of non-major ports in the total coal traffic is likely to increase from 23% in 2008-09 to 55% in 2013-14

6.5.7 With the rise in iron ore demand from key ore-consuming countries like China, Korea and Japan, Indian iron ore export is expected to continue to grow over the next few years. Total iron ore traffic to grow at a CAGR of 7.6%, from 131 million tonnes in 2008-09 to 181 million tonnes in 2013-14.

6.5.8 Traffic at non-major ports is likely to grow by 18.9%, from 37 million tonnes in 2008-09 to 88 million tonnes by 2013-14. On the other hand, ore traffic at major ports is expected to decline by 0.2% in the same period, from 94 million tonnes to 93.2 million tonnes. Higher growth rate at non-major ports can be attributed to the traffic increasingly being handled at the ports of Gangavaram and Krishnapatnam and the upcoming ports of Dhamra and Dighi. The share of non-major ports in the ore handling traffic is expected to go up, from 28% in 2008-09 to 46% in 2013-14.

6.5.8 Growth of container traffic mainly depends on items like capital and engineering goods, textiles and food items, which are essentially carried in containers. The demand for capital and engineering goods is expected to increase with infrastructure development. This, coupled with higher exports of food grains and textile, is likely to drive container traffic in the country. Further, increase in containerisation of bulk cargo is expected over the next few years. Container traffic at Indian ports is seen growing at a CAGR of 10.9%, from 106.4 million tonnes in 2008-09 to 171.4 million tonnes in 2013-14.

6.5.9 Container traffic at major ports is likely to grow at a CAGR of 7.9% from 93 million tonnes to 136 million tonnes in this 5 year period. Container traffic at non-major ports is expected to grow at a higher CAGR of 26.4%, from 13 million tonnes to 43 million tonnes from 2008-09 to 2013-14. Container capacities coming up at the non-major ports of Pipavav, Hazira, Kulpi, Dighi and Krishnapatnam will primarily drive the higher

container traffic growth at non-major ports. The share of non-major ports in the total containerised traffic is expected to rise from 12.5% to 24% in the 5-year period. If the assumed CAGR of 9% as indicated by CRISIL is taken into consideration, the traffic by 2020 by major & non-major ports will reach at the level of 1955.49 million tonnes.

6.5.10 Assumption : India's merchandise trade in 2009-10 was \$455 billion while services are likely to be about 4210 billion (assuming services exports of 4115 billion and imports of \$95 billion). The world trade in 2020 is estimated to be of 494 trillion. The target of increasing our share to 55 of the world trade would result in enhancing our international trade from \$665 billion to \$3106 billion in the next 10 years requiring CARG (compound annual rate of growth) of 16.66%.

6.6 Department of Commerce, Ministry of Commerce & industry (2010) :

6.6.1 Department of Commerce, Ministry of Commerce & Industry has forwarded a brief statistical analysis of port projections which was prepared by FIEO. In this connection, a co-relation between the total export traffic and total port traffic has been made and found to be statistically positive (+0.98) nearing perfect co-relation [Pearson's Co-efficient of Co-relation].

6.6.2 Assuming that the market share of Indian exports as per the Ministry of Commerce will be 5% of the global market in 2020, projections have been made between 2011 and 2020 giving a CAGR of 16.66%. Basing our data on actual figures between total trade and port traffic over 2004-05 to 2008-09 and taking the ratio thereof in terms of the arithmetic mean, projections for port traffic for 2011-2020 were made which are as given in Table-B. The growth was in the range of 16.61% to 16.70%. This figure also coincides with the assumptions above.

6.6.3 Table-B (below) gives actual percentage growth of any year vis-à-vis the previous year. This actual percentage growth varies from 17.88% to 29.3% during years 2004-05, 2005-06, 2006-07, 2007-08 and 2008-09. Corresponding actual percentage growth in Port Traffic for the same years varies from 2.1% to 11.9%. Table A also gives ratios between total trade and port traffic for the same years. Actual mean value of these ratios is 700.

TABLE - A

Year	(x) In million \$ Total Trade	Annual %age Increase	(Y) Port Traffic in million tonnes	Annual %age increase	X/Y (Ratio)
2004-05	195023		383.74		508.29
2005-06	252256	29.3%	423.56	10.37%	595.56
2006-07	312149	23.74%	463.78	9.4%	673.05
2007-08	414786	32.88%	519.15	11.9%	798.97
2008-09	488991	17.88%	530.39	2.1%	921.94
			Arithmetic Mean		699.56

$$Y = x \frac{699.56}{699.56}$$

$$\text{Say} = X \frac{700}{700}$$

6.6.4 Table B (below) gives projected total trade 2009-10 onwards upto 2019-20 on an assumed growth 2 16.665 (CARG). Table C also gives corresponding projected increases in port traffic from 2009-10 to 2019-20. These increases are based upon the actual figures of Total Trade and Traffic during the past years : 2004-05, 2005-06, 2006-07, 2007-08 and 2008-09. Having made projections based on actual figures of past known years as given above, the percentage increases in Port Traffic of any year compared to the preceding year were calculated which work out to be ranging from 16.61% to 16.70%.

TABLE - B

2009-2010 Total 455 billion \$ (Export + Import). Compound Annual Rate of Growth [CARG] @ 16.66%

Year	Billions \$
2010-11	530.80
2011-12	619.20
2012-13	722.30
2013-14	842.60
2014-15	982.90
2015-16	1146.60
2016-17	1337.60
2017-18	1560.40
2018-19	1620.30
2019-20	2123.50

Port Projections 2011-2020

Year	Total Trade / Arithmetic Mean (In 4 million)	Total Traffic (In million tonnes)	Annual Increase %
2009-10	4550/7	650	
2010-11	5308/7	758	16.61%
2011-12	6192/7	884	16.62%
2012-13	7223/7	1031	16.62%
2013-14	8426/7	1303	16.68%
2014-15	9829/7	1404	16.70%
2015-16	11466/7	1638	16.66%
2016-17	13376/7	1910	16.60%
2017-18	15604/7	2229	16.70%
2018-19	18203/7	2600	16.64%
2019-20	21235/7	3033	16.65%

6.7 CONCLUSION :

6.7.1 Keeping in view the projections made by various agencies at different point of time for different period as outlined above, the Ministry of Shipping has embarked upon the assessment of traffic and capacity by various methods / through obtaining information from primary sources and the realistic projections made in the subsequent chapter.

CHAPTER – 7

TRAFFIC PROJECTIONS AND CAPACITY ESTIMATION FOR MAJOR PORTS AND MARITIME STATES UPTO 2020

7.1 To arrive at realistic Traffic Projections and Capacity Estimation for Port sector, this chapter is divided into three parts i.e., Assessment of the demand of supply as made by various Ministries/ Departments/ Studies form time to time for different time series, projections for Major & Non-major ports by statistical model upto the year 2020 and Projections received from the Major Ports and Maritime States based on their Capacity addition plans, hinterland development and indication given by various user agencies upto 2020 .

7.2 The GDP is one of the important aspects which will have impact on various sectors. IMF in its release on World Economic Outlook update in July-2010 has projected India's GDP growth at 9.4% in 2010 and 8.4% in 2011. The following table provides the real growth during the various plan periods from 1st five year Plan till the 11th Plan up-to 2008-09.

(Figures In %)

Plan	Period	Real Income Growth			Sectoral Growth Report		
		Targeted Growth in terms of	Plan target	Actual Growth	Agriculture	Industry	Services
1 st Plan	1951-56	NNP	2.1	3.5	2.9	5.9	3.7
2 nd Plan	1956-61	NNP	4.5	4.2	3.2	6.4	4.6
3 rd Plan	1961-66	NNP	5.6	2.8	-0.5	6.8	5.0
4 th Plan	1969-74	NNP	5.7	3.2	2.6	3.7	4.0
5 th Plan	1974-79	GDP	4.4	4.7	3.4	6.3	5.5
6 th Plan	1980-85	GDP	5.2	5.5	5.5	6.2	5.4
7 th Plan	1985-90	GDP	5.0	5.6	3.4	7.5	7.4
8 th Plan	1992-97	GDP	5.6	6.5	3.9	8.0	7.9
9 th Plan	1997-02	GDP	6.5	5.5	2.0	4.6	8.1
10 th Plan	2002-07	GDP	7.9	7.7	2.3	9.2	9.3
11 th Plan	2007-12	GDP	9.0	7.8	4.0	10-11	9-11

Source: 11th Five Year Plan. (Actual Growth rate in terms of GDP at factor cost) Petroleum Planning and Analysis cell.

(A) Assessment of Supply & demand Forecast for Various Sectors

7.3 Each Ministry/Department has its projections of various activities. Based on the available inputs like India Hydro Carbon Vision 2025, Vision Coal 2025, Basic statistics on Indian Petroleum and Natural Gas (2008-09), the Outlook for Global Container Ports and Terminals – DREWRY June 2009, Report on Working Group on Port Sector 11th five year plan, Assessment made for various cargo like Coal, POL, Gas, Containers etc are tabulated in the following paragraphs. These assessments are based on the vision of various Ministries/ Departments, which will have an impact on the Indian Maritime Perspective Plan since Maritime Industry is dependant on the user Industries and the demand for the Maritime Industry is derived demand and not direct demand.

7.4 Energy Security

7.4.1 Long term projection for energy requirements depends on assumption on growth of the economy, growth of population, the pace at which commercial energy replaces non commercial energy, process of energy conservation, process of energy efficiency as well as changes in life style and in the society. Electrical Energy consumption at 0.3 MTOE (Million Tons of Oil Equivalent) in 1997 is extremely low compared to world per capita consumption of 1.5 MTOE. China's per capita energy consumption is 0.7 MTOE and North America consumption is 6.3 MTOE.

7.4.2 There is direct correlation between Electricity Consumption and GDP growth. To accelerate growth, energy consumption has to be increased. The electrical energy requirement during year 2031-32 is expected to be 3880 BU (billion Units) under 8% GDP growth rate. The electricity requirement can be made by various alternative fuels like Coal, Nuclear, Hydro, Gas, Oil and Renewable.

7.4.3 The following fuel mix scenario is developed for sources of electricity generation.

(Million Tonnes)

Year	Total energy generation (BKWHR) @8%GDP	Hydro	Nuclear	Wind	Thermal	Fuel need		
						Coal	N. Gas	Oil
2011-12	1097	179	59	8	851	493	25	8
2016-17	1524	226	110	12	1176	656	41	9
2021-22	1983	283	206	15	1479	814	58	12
2026-27	2866	400	301	19	2146	1133	89	14
2031-32	3880	500	441	24	2915	1478	134	17

Source: Coal Vision 2025

7.4.4 The projections are based on certain assumption like exploitation of full Hydro potential, capacity addition of nuclear and wind forms and generation of electricity using lignite also. The energy requirement is projected based on the elasticity obtained from Time series data and cross country data with reference to GDP which gives % change in energy consumption for 1% change in GDP. The total primary commercial energy requirement is give below.

Total Primary Commercial Energy Requirement (TPCE)

Year	Population in Million	GDP (Rs. Crores @ 1993-94 prices)	Total Primary energy supply (MTOE) GDP @ 8% Falling	
			elasticity	No change
2011-12	1197	2621137	537	508
2016-17	1275	3851310	718	684
2021-22	1347	5858837	961	901
2026-27	1411	8314688	1248	1234
2031-32	1468	12217005	1620	1633

Source: Coal Vision 2025

Estimate of total primary energy requirement if given below.

(Figures in MTOE)

Year	Total Primary Commercial energy (TPCES)	Total Primary Non-Commercial Energy (TPNCES)	Total Energy Scenario (TPES) @ 8% GDP
2011-12	381	153	534
2016-17	508	169	677
2021-22	684	177	861
2026-27	1234	183	1417
2031-32	1633	185	1818

Source: Coal Vision 2025

7.5 Electricity Generation

The required electrical generation for each plan period from XI plan is given below.

Year	8% Growth (BKWHR)	Installed Capacity (GW)
2011-12	1029	206440
2016-17	1511	303330
2021-22	2221	445690
2026-27	3263	654865
2031-32	4793	962210

Source: Coal Vision 2025 quoting Ministry of Power

7.6 Coal

7.6.1 Coal demand is an aggregate derivative of the overall demand of various sectors which consume Coal. The output for each sector acts as a function of the growth of National Economy. Coal production during independence was 30.14 million tonnes. It reached 100 million tonnes, 200 million tonnes, 300 million tonnes, 400 million tonnes during 1977-78, 1989-90, 1999-2000 and 2006-07 respectively. While GDP growth between 1980-2003 remained at about 5.56%, the growth for different Coal consuming sectors are given below.

Sector	CAGR (Compounded Annual Growth Rate) (1980-2003)
Power utility	6.97%
Steel hot metal	7.63%
Cement Production	8.69%
Total Coal consumption	5.5%

Source: Coal Vision 2025

The assessed Coal demand projection at 8% of GDP is given below.

Sector	Year					CAGR	% Share
	2010-11	2011-12	2016-17	2021-22	2024-25		
Power (Utility)	403.68	427.16	552.56	698.53	804.03	5.22	63.46
Power Captive (Fertilizer)	41.48	44.33	62.96	90.04	111.60	7.23	8.81
Steel	51.67	54.24	69.47	89.52	104.50	5.10	8.25
Cement	36.08	39.39	61.06	94.82	123.47	9.18	9.75
Brick & others	61.56	64.51	82.11	105.62	123.41	5.00	9.74
Total	594.47	629.63	828.16	1078.54	1267.01	5.62	100

Source: Coal Vision 2025

Domestic Coal Production and Demand for various plan period

(Million Tonnes)

Domestic Production	11 th Plan 2011-12	12 th Plan 2016-17	13 th Plan 2021-22	14 th Plan 2024-25
Cooking Coal (washed coal)	26(13)	26(13)	35(18)	36(18)
Non-Cooking Coal	582	734	879	1012
Total Production	621	778	942	1086

Source: Coal Vision 2025

Coal Demand Projection

(Million Tonnes)

Domestic Production at 8% GDP	11 th Plan 2011-12	12 th Plan 2016-17	13 th Plan 2021-22	14 th Plan 2024-25
Coking Coal	39 (16)	39(16)	48(21)	49(21)
Non-Coking Coal	582	734	879	1012
Total	621	778	942	1086
Domestic Demand at 8% GDP	11 th Plan 2011-12	12 th Plan 2016-17	13 th Plan 2021-22	14 th Plan 2024-25
Coking Coal	54	69	90	105
Non-Coking Coal	576	759	989	1162
Total	630	828	1079	1267
Gap (-) /surplus(+)				
Coking	-38 (29)	-53 (40)	-69 (52)	-84 (63)
Non-Coking	+6	-20*	-95	-125

* Equivalent quantity of imported coal with ash content less than 10% either through coking coal import/ CIL overseas equity. Figures in bracket indicated beneficial coal with 17% ash level for use in steel sector.

Source: Coal Vision 2025

Coal Quantity wise production projection of CIL.

(million tonnes)

Plan Year	11 th Plan	12 th Plan	13 th Plan	14 th Plan
Coking Coal	15	14	15	16
Non-Coking Coal (Thermal Grade)	385	482	567	627
Non-Coking Coal (Superior Grade)	73	77	73	72
Total	473	573	655	715

Source: Coal Vision 2025

7.6.2 It is estimated that 47.33% amounting to 514 million tonnes of beneficiated coal + superior grade coal is likely to be transported through national Rail network/ Rail cum Sea network for consumers located beyond coal field areas. The transportation of huge volume of the countries production of about 1061 million tonnes by the end of 2024-25 will be a gigantic task as bulk of the coal has to be transported to power utility and other industries. In order to enable this vast movement of coal, The Central electricity Authority has identified through a study by NRSA, 90 potential sites in four states - 31 in six districts of Gujarat, 23 in two districts of Maharashtra, 27 in eight districts of Tamilnadu and 9 in three districts of Andhra Pradesh for development of Coastal power projects. it is imperative that adequate handling facilities are made available in the Maritime sector.

The share of future energy supply is given below.

(In %)

Year	Coal	Oil	Gas	Hydro	Nuclear
2001-02	50	32	15	2	1
2006-07	50	32	15	2	1
2011-12	53	30	14	2	1
2024-25	50	25	20	2	3

(Source: Up to 2011 from the technical note on energy (Planning Commission)) India Hydro Carbon Vision 2025

7.6.3 Tentative coal requirement for power sector for XI plan is about 525 million tonnes of which around 100 million tones will likely to be met through import, 840 million tonnes during XII plan of which around 135 million tones would likely to be through

import and 1478 million tonnes during 2031-32, of which 300-400 million tonnes will be through import.

Coal demand for the country is given below.

(in million tonnes)

Year	X Plan	Coal vision @ 8%	Hydro Carbon vision 2025	India vision 2020	EIA	IEA
2011-12	620	630	-	-	-	-
2016-17	780	828	-	-	-	-
2021-22	981	1079	-	-	-	-
2024-25	1126	1267	1402	659* 971**	611' 481"	-

*Best case scenario ** Business as usual ' High " Low

EIA (Energy Information Administration)

IEA (International Energy Agency)

Source: Coal Vision 2025

7.6.4 Expansion of electricity if based only on Coal based development shall result in total demand for Coal from 175 MTOE in 2004-05 to 1080 MTOE in 2031-32. The Coal requirement for this varies between 415 million tonnes in 2004-05 to 2700 million tonnes in 2031-32. If 5% generation due to Coal usage with poor quality of Coal deteriorates then the requirement shall be about 2842 million tonnes by 2031-32. This will call for a massive import of Coal. It is estimated to import about 300-600 million tonnes of coal and for this there is necessity for development of Port facilities and transport logistics.

7.7 Hydro Carbon Study

7.7.1 The Hydro Carbon sector plays a vital role the Economic growth of the country. Oil and Gas continue to play a pre-eminent role in meeting energy requirements of the country. It is envisaged that 45% of the energy requirement will be met by Oil & Gas. The Indian Hydro Carbon vision is to pursue projects to meet the deficit in demand and supply of natural gas and facilitate availability of LNG to establish adequate strategic storage of Crude and Petroleum products in different locations. Increased focus is planed on Natural Gas.

7.7.2 Oil imports will be around 360 million tonnes in 2031-32 which is 4 times of current imports. It is estimated that Indian import of oil shall be 7.5% of the global trade. India's total primary energy consumption was 272.1 million tonnes of oil equivalent in 1998. This increased by almost 50% by 2007, when the primary energy consumption goes to 404.4 MTOE. Oil accounted for about 34% of primary energy consumption in 1998 as against the world average oil consumption of 39%. In 2007, Oil consumption stood at 32% compare to the world average share of 36%.

7.7.3 The report on sub-group on development of refineries, marketing and transportation has given the following estimate of Crude requirement.

(Figures in million tonnes)

Year	Estimated refining capacity	Estimated Crude requirement
2001-02	129	122
2006-07	167	173
2011-12	184	190
2024-25	358	364

Source: India Hydro Carbon Vision 2025

7.7.4 Considering the present domestic Crude production of 33 million tonnes, the gap has to be met through increased imports and increase in domestic production. The reliance on Oil imports has been rising. In 2007-08, India is estimated to have imported 121.67 million tonnes of crude oil. Along with 22.72 million tonnes of Petroleum products.

7.7.5 It is observed that while the requirement for Coal for energy supply is about 50% on an average, the Gas requirement is likely to increase to 20%. The following table gives the installed capacity and refined Crude throughput.

(Figures in 000 tons)

Refinery	Installed Capacity	Refined Crude throughput				
		1.4.2009	2004-05	2005-06	2006-07	2007-08
Public Sector	105468	93107	96946	108172	112541	112223
Private Sector	72500	34309	33163	38379	43562	48549
Total	177968	127416	130109	146551	156103	160772

Source: Basic Statistics on Indian Petroleum & Natural Gas, MOPNG, GOI

Public Sector Undertaking/ Pvt. Companies

Imports/ Exports of Crude Oil and Petroleum products,

(Figures in 000 tons)

Imports				
Year	2005-06	2006-07	2007-08	2008-09
Crude Oil	99409	111502	121672	126155
LNG	5060	6810	8320	8060
Petroleum Products	6181	8005	9485	7950
Total	117909	135972	152453	154500
Exports				
Petroleum Products	23461	33624	40339	36932
Net Imports				
Crude Oil	99409	111502	121672	128155
LNG	5060	6810	8320	8060
Petroleum Products	-10021	-15694	-18318	-18647
Grand Total	94448	102348	111634	117568

Source: Basic Statistics on Indian Petroleum & Natural Gas, MOPNG, GOI
Petroleum Planning/ Research Cell

Projected Demand for Petroleum products

(Figures in Million Tonnes)

Year	EIA reference Case (2004)	IEA (2004)	IHV-2025 (2000)	India Vision 2020 BAU case(2002)	Working Group 10 th Plan (2001-02)	Power and Energy Division (2003-04)
Base year	2001 (105 MMT)	2000 (102 MMT)	1998-99 (91 MMT)	1997 (83MMT)	2001-02 (108MMT)	2001-02 (108MMT)
2004-05	119	122	132	121	119	124
2009-10	139	145	175	153	139	147
2014-15	157	171	226	193	164	174
2019-20	219	201	288	245	195	207
2024-25	264	230	368	309	232	246
2029-30	-	271	-	-	276	292

EIA (Energy Information Administration)

IEA (International Energy Agency)

IHV (India Hydro Carbon Vision 2020-25)

Source: Integrated Energy Policy Committee report

7.8 Natural Gas

7.8.1 Natural Gas accounted for about 8% of energy mix in 1998, much lower than the world average share of Gas at 23%. In 2007, Natural Gas accounted for about 9%. Similarly as against the domestic gas supply is 65 MMSCMD (million standard cubic meter per day). The gap as projected in the following table has to be met by increased imports and by increase in domestic production.

(Figures in MMSCMD)

Year	Gas Requirement
2001-02	151
2006-07	231
2011-12	313
2024-25	391

Source: Report of the sub-group on development and utilization of natural gas 1999 quoted in India Hydro Carbon Vision 2025

Projected Demand for Natural Gas products

(Figures In MMSCMD)

Year	EIA reference Case (2004)	IEA (2004)	IHV-2025 (2000)	India Vision 2020 BAU case (2002)	Working Group 10 th Plan (2001-02)	Power and Energy Division (2003-04)
Base year	2001 (62)	2000 (67)	1999-00 (110)	1997 (59)	2003-04 (85)	2001-02 (81)
2004-05	74	91	195	89	93	98
2009-10	93	140	277	115	145	134
2014-15	124	189	329	149	226	183
2019-20	155	228	358	194	356	249
2024-25	195	259	391	258	488	340
2029-30	-	295	-	-	667	-

EIA (Energy Information Administration)

IEA (International Energy Agency)

IHV (India Hydro Carbon Vision 2020-25)

Source: Integrated Energy Policy Committee report

7.8.2 Tentative Coal requirement during the 11th plan is about to 525 Million tonnes which is projected to increase to 840 million tonnes during 12th plan. Considering the best possible scenario, it is assessed that in the year 2024-25, 1061 million tonnes of raw coal could be produced. By 2031-32 Coal requirement is estimated as 1478 Million tonnes. A progressive decline in share of energy from Coal based power stations from current level of 85% in 2003-04 to 78% in 2031-32 is projected. The demand for Oil for the year 2025 varies from 231 million tonnes for the best case scenario of India Vision 2020 to 368 million tonnes by India Hydro Carbon Vision 2025. Similarly the demand for Gas varies from 150 MMSCMD in low case of EIA to 738 MMSCMD in high output growth of IRADE-PWC for the year 2024-25. It is expected that 20% of power will be generated with Gas by 2031-32. The end user of Gas shall grow between 7-8% of GDP. All projected fertilizer (Urea) capacity would be generated only through GAS. Gas requirement assumes progressive increase to 20%.

7.9 Steel

7.9.1 Iron and steel including iron ore constitute about 25% traffic of Ports. The demand growth for steel is around 10% and is likely to increase higher as infrastructure growth picks up further.

		(In million tonnes)
Steel capacity by 2012	-	120.00
Steel Production	-	72.96
Gap	-	47.00
Anticipated steel production	-	Projection
2011-12	-	62.00
2013-14	-	72.00
2019-20	-	110.00

Source: National Steel Policy

7.9.2 Indian Steel consumption is slightly to grow by 16% per annum through 2012. The projected capacity is 124 million tonnes by 2012 and 294 million tonnes by 2020. The National Steel policy envisages steel production of 110 million tonnes by 2019-20. By 2019-20 the imports projection is about 6 million tonnes and export 26 million tonnes. The requirement of Iron ore for production of Steel by 2019-20 stand at 165 million tonnes. Similarly the requirement of coking coal stand at between 77 to 99 million tonnes and non coking coal at 26 million tonnes as per national steel policy.

7.10 Iron Ore and Pellets

7.10.1 As per National Steel policy 2005 the in situ reserves of rich iron ore is 11.43 billion tonnes of hematite and 10.68 billion tonnes of magnetite ore. Commercial mining capacity is 175 million tonnes. Presently 13% iron ore required by Indian Steel Industry is moving by Coastal Shipping. Out of the iron ore exports in the country the share of china is increase. The overseas and the coastal movement of iron ore and pellet through Indian Ports shall be of the order of 128 million tonnes to 162 million tonnes. The following table provides the likely Traffic through Major Ports during 2011-12.

(In million tonnes)

Country	Base Case	Upper Case
Overseas Export	100	120
Coastal Movement	21	35
Pelletisation Plant	7	7
Total	128	162

Source: Report of the Working Group for Port Sector for 11th Plan

7.11 Fertilizer and Fertilizer raw materials

7.11.1 As per CIER market study the demand for finisher fertilizer will be around 28.4 million tonnes by 2011-12. The import of finished fertilizers is assessed at 11 million tonnes considering the manufacturing capacity of 17.72 million tonnes indicated by FAI. The total traffic in respect of fertilizer and raw material is estimated at 20 million tonnes by 2011-12.

7.12 Container Traffic

7.12.1 The share of container traffic in general cargo has been increasing. Substantial part of low volume, commodities like electrical and electronic consumer goods, machinery and machinery parts, auto components, iron and steel scrap, news print, food products, agriculture products is amenable for containerization. The traffic forecast for the XI plan, XII plan and XIII are given below.

Container Traffic Projection

Name of the Agency	Container Traffic forecast in Million TEUs				
		2006-07	2011-12	2016-17	2021-22
CII	Low @4.5% growth in GDP	5.19	8.58	14.23	
	Normal	5.48	9.97	18.21	
	High @ 6.5% growth	5.79	11.58	23.27	
Rites vision 2020 (April 2001)	Excluding transshipment	4.5	8.0	12.0	18.0
	Including transshipment	7.6	13.6	20.6	30.6
10 th Plan working group, GOI (2001)		5.51			
IPA, 2004	Excluding transshipment Low @ 7%GDP	5.06	9.24	13.66	19.52
	Excluding transshipment High @ 8%GDP	5.87	10.9	15.68	23.88
	Including transshipment Low @ 7%GDP	5.66	10.84	16.08	22.32
	Including transshipment Low @ 8%GDP	5.87	7.71	18.08	26.26

Level of penetration by CII – 45 to 65%

Level of penetration by IPA -64 to 74%

Source: IPA Report

7.13 The above analysis gives a perspective of growth in related industries. Based on this and taking into consideration the port perceptions on the likely traffic flows, the traffic forecast has been formulated for major ports and non – major ports and presented in following sections.

(B) Traffic Projection on Regression Analysis for Major Ports and Maritime States upto 2020

7.14 Attempt has also been made to project Major Ports, Non-Major Ports and All Ports traffic using Regression analysis. Projections have been made at three levels viz. Pessimistic (assuming 6% growth in GDP), Most likely (assuming 9% growth in GDP) and Optimistic (assuming 11% growth in GDP). For projection purpose, GDP is taken at factor cost based on 1999-2000 constant prices from 1990-91 to 2009-10. Coefficient of correlation between GDP and Major Ports traffic is 0.998, which shows high degree of correlation. Basic data used for traffic projection are presented as under:

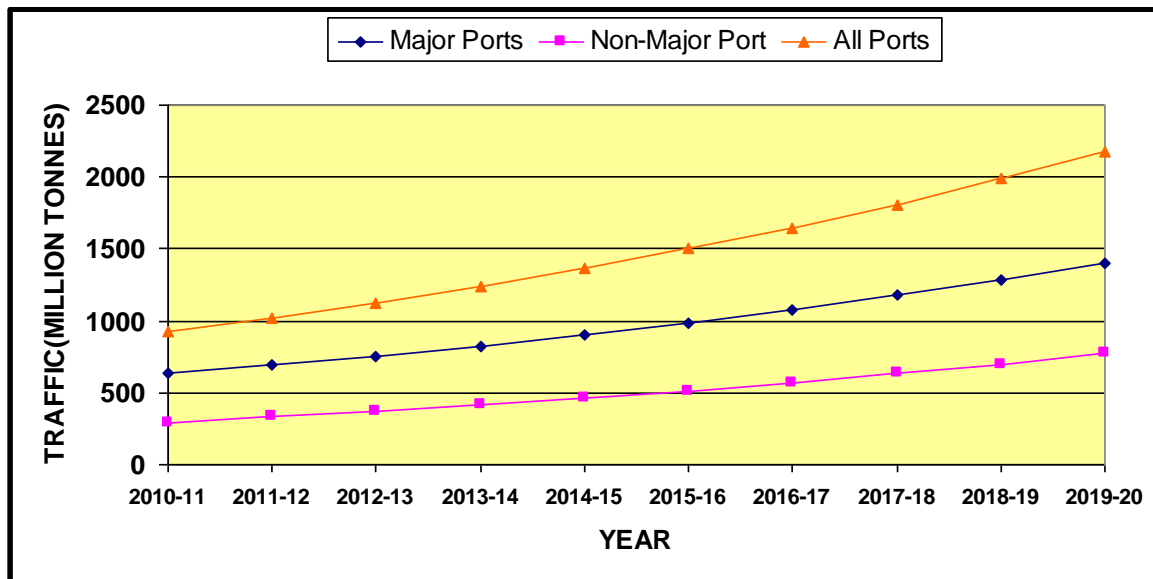
Year	GDP at Factor Cost (1999-2000 Price) [Rs. in Crores]	Traffic(In Million Tonnes)		
		Major Ports	Non-Major Ports	All Ports
1990-91	1083572	152.86	11.02	163.88
1991-92	1099072	157.60	11.86	169.46
1992-93	1158025	166.58	14.03	180.61
1993-94	1223816	179.26	16.82	196.08
1994-95	1302076	197.26	22.28	219.54
1995-96	1396974	215.34	24.16	239.50
1996-97	1508378	227.26	24.93	252.19
1997-98	1573263	251.66	35.42	287.08
1998-99	1678410	251.72	38.06	289.78
1999-00	1786526	271.92	62.35	334.27
2000-01	1864301	281.11	86.90	368.01
2001-02	1972606	287.58	96.27	383.85
2002-03	2048286	313.55	105.17	418.72
2003-04	2222758	344.80	120.84	465.64
2004-05	2388768	383.75	137.83	521.58
2005-06	2616101	423.57	155.22	578.79
2006-07	2871118	463.78	186.12	649.90
2007-08	3135261(P)	519.31	203.48	722.79
2008-09	3345323(Q)	530.53	213.20	743.73
2009-10	3592877(Q)	561.09	288.80	849.89
Coefficient of Correlation		0.998	0.988	0.998

(P) = Provisional (Q) = Quick Estimate

7.15 Based on the above data, traffic projections by regression analysis for the period 2010-11 to 2019-20 for Major Ports, Non-Major Ports and All Ports are as under:

Year	Traffic Projection (In Million Tonnes)								
	Major Ports			Non-Major Ports			All Ports		
	P (assuming 6% growth in GDP)	M (assuming 9% growth inGDP)	O (assuming 11% growth in GDP)	P (assuming 6% growth in GDP)	M (assuming 9% growth in GDP)	O (assuming 11% growth in GDP)	P (assuming 6% growth in GDP)	M (assuming 9% growth in GDP)	O (assumi ng 11% growth in GDP)
2010-11	614	632	644	283	294	301	896	926	945
2011-12	652	691	718	306	331	347	959	1022	1065
2012-13	693	756	799	332	371	398	1025	1126	1197
2013-14	736	826	890	359	415	455	1095	1240	1345
2014-15	782	902	991	387	462	517	1169	1365	1508
2015-16	830	986	1103	417	514	587	1247	1500	1690
2016-17	881	1077	1227	449	571	664	1331	1648	1891
2017-18	936	1176	1364	483	633	750	1419	1809	2115
2018-19	993	1284	1517	519	700	845	1513	1985	2363
2019-20	1055	1402	1687	557	774	951	1612	2176	2638

Note: P = Pessimistic, M = Most likely, O = Optimistic



(C) Traffic Projections and Capacity Estimation for Major Ports and Maritime States upto 2020

7.16 Based on the information received from the Major Ports and Maritime states, an attempt has been made to assess the existing traffic and capacity vis-à-vis the projected traffic and capacity at the end of 11th five year plan (2011-12), by the terminal year of 12th five year plan (2016-17) and at the end of 2019-20. In this context, traffic and capacity estimation separately for major ports, non- major ports and the same for all Indian ports has also been made, which are as follows :-

7.17 Major Ports – Traffic Forecast and Capacity Estimation

Kolkata Port Trust

7.17.1 Details for Kolkata Dock System (KDS) and Haldia Dock Complex (HDC) separately is given as under:

Kolkata Dock System (KDS)

7.17.2 The projected traffic for KDS at the end of 11th Five Year Plan is 13.69 million tonnes and in 2019-20 is 83.41 million tonnes against the existing traffic 13.05 million tonnes (2009-10). The existing capacity at KDS is 15.90 million tonnes (as on 31-3-2010-excluding 4.5 million tones capacity at anchorage), which has been planned to increase to 89.0 million tonnes in 2016-17 and 108.6 million tonnes in 2019-20. The major developments through which capacity and traffic will increase are: - installation of trans-loading facilities, commissioning of Diamond Harbour Container Terminal by 2013-14, and development of port facilities at Saugor Island by 2014-15. The projects of Diamond Harbour and Saugor will be completed in phases for which capacity has differently shown. Further capacity will also be enhanced due to induction of container handling and other equipment. The commodity wise projected traffic vis-à-vis capacity is given below :

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	0.72	0.79	3.20	3.70	3.96	4.60	7.50	7.50
IRON ORE	0.25	0.30	3.50	6.50	-	-	4.00	6.80
COAL	0.01	-	17.50	20.95	-	-	19.00	21.00
CONTAINER TEUs	6.65 (0.378)	7.60 (0.608)	20.37 (1.629)	27.46 (2.197)	5.50 (0.458)	5.50 (0.440)	34.50 (2.760)	41.50 (3.320)
OTHERS	5.42	5.00	21.40	24.80	6.44	7.00	24.00	31.80
TOTAL	13.05	13.69	65.97	83.41	15.90	17.10	89.00	108.60

Haldia Dock Complex (HDC)

7.17.3 The traffic projected for Haldia Dock Complex the end of 12th Five year Plan (2016-17) is 66.71 million tonnes and in 2019-20 is 74.178 million tonnes against the existing traffic of 33.38 million tonnes (2009-10). The existing capacity of HDC is 46.70 million tonnes (as on 31.3.2010) which has been projected to be increased to 85.00 million tonnes in 2016-17 and 91.00 million tonnes in 2019-20. The major share of increase has been projected in case of coal traffic from the existing 22.6% to 42.7% in 2016-17 and 2019-20. The major developments through which the traffic and capacity of the Dock will increase are :- commissioning of two (2) riverine jetties by 2012-13, and development of port facilities at Haldia Dock II (Shalukhali) by 2014-15, construction of other four riverine jetties, mechanization of cargo handling facilities

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	9.30	7.92	19.25	20.00	17.00	17.00	22.00	22.00
IRON ORE	7.68	6.00	8.50	11.50	6.00	6.00	9.00	9.50
COAL	7.55	12.20	28.50	31.00	7.00	15.00	33.50	38.00
CONTAINER TEUs	2.07 (0.124)	2.83 (0.227)	3.22 (0.258)	3.42 (0.273)	4.00 (0.333)	4.00 (0.222)	4.00 (0.222)	4.00 (0.222)
OTHERS	6.78	5.53	7.24	11.16	12.70	12.70	16.50	17.50
TOTAL	33.38	34.48	66.71	74.18	46.70	54.70	85.00	91.00

Paradip Port Trust

7.17.4 The traffic of Paradip Port Trust is projected to increase from the existing level of 57.01 million tonnes (2009-10) to 100.00 million tonnes in 2016-17 at the end of 12th Five Year Plan and 120.00 million tonnes in 2019-20. The major increase has been projected in case of POL traffic whose share has been projected to increase from 20.4% (in 2009-10) to 35% in 2016-17 and 40% in 2019-20, mainly due to transfer of POL (crude) through Paradip - Haldia Pipeline. The capacity of Paradip Port is projected to increase from 76.5 million tonnes (as on 31.3.2010) to 157.50 million tonnes in 2016-17 and 157.50 million tonnes in 2019-20. The major developments through which the capacity and traffic of the Port have been planned to increase are :- Deepening of channel by 2011-12, construction of one oil jetty by 2013; development of multi purpose berth on BOT basis by 2014, and installation of 2nd and 3rd SPM by M/s Indian oil Corporation by 2012-13, modernization of iron ore berth by 2011-12 etc. The existing capacity vis-à-vis traffic are as under :-

(In million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	11.65	18.00	35.00	48.00	21.00	23.50	55.50	55.50
IRON ORE	16.16	17.00	19.00	20.00	4.50	8.50	18.50	18.50
COAL	19.82	23.00	28.00	30.00	20.00	22.50	32.50	32.50
CONTAINER TEUs	0.04 (0.004)	0.05 (0.004)	1.00 (0.080)	1.00 (0.080)	-	-	2.50 (0.200)	2.50 (0.200)
OTHERS	9.34	11.95	17.00	21.00	31.00	31.00	48.50	48.50
	57.01	70.00	100.00	120.00	76.50	85.50	157.50	157.50

Visakhapatnam Port Trust

7.17.5 From the existing level of 65.501 million tonnes (2009-10) the traffic at Visakhapatnam Port has been projected to rise to 83.398 million tonnes in 2016-17 and 102.955 million tonnes in 2019-20. Against this traffic growth, the capacity of the port is projected to increase from the existing level of 62.27 million tonnes (as on 31.3.2010) to 83.398 million tonnes in 2016-17, which will increase to 102.955 million tonnes in 2019-20. The major developments through which the traffic and the capacity of the port will increase are: - projected increase of POL traffic due to expansion of HPCL refinery beyond 2013-14; projected increase in coking coal traffic due to expansion of Bhilai Steel Plant and Rashtriya Ispat Nigam Ltd. etc; and anticipated increase in import of steam coal by various power plants in the hinterland of the Port, depending the entrance channel by 2012, expansion of outer harbour by 2017 etc. The major commodity wise projected traffic vis-à-vis capacity expansion plan are given below: -

(In million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	18.29	16.30	20.20	21.50	17.65	25.65	27.65	27.65
IRON ORE	18.94	18.30	21.20	25.70	12.50	12.50	26.66	26.66
COAL	11.72	14.00	18.50	27.50	-	-	26.44	33.94
CONTAINER TEUs	1.68 (0.097)	2.04 (0.163)	3.58 (0.286)	4.67 (0.373)	1.74 (0.145)	1.74 (0.139)	4.40 (0.352)	4.40 (0.352)
OTHERS	14.87	15.62	19.92	23.59	30.38	32.08	54.52	56.02
TOTAL	65.50	66.26	83.40	102.96	62.27	71.97	139.67	148.67

Ennore Port Limited

7.17.6 The traffic of Ennore Port is projected to increase from 10.703 million tonnes (2009-10) to 67.44 million tonnes in 2016-17 and 71.54 million tonnes in 2019-20. Against this projected traffic growth, the capacity of the Port has been projected to increase from the existing 16.0 million tonnes (as on 31.3.2010) to 73.0 Million tonnes in 2016-17, which will be maintained in 2019-20 also. The major expansion plan through which traffic and capacity will rise are: - Development of LNG & Coal Terminal, Expansion of outer Harbour stage II and development of Container terminal etc. The commodity wise projected traffic and capacity increase are given below :-

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	0.39	0.80	3.20	3.30	3.00	3.00	8.50	8.50
IRON ORE	0.94	5.00	12.00	12.00	-	12.00	12.00	12.00
COAL	9.28	18.00	34.00	38.00	13.00	24.00	34.00	34.00
CONTAINER TEUs	-	-	18.00 (1.440)	18.00 (1.440)	-	-	18.00 (1.440)	18.00 (1.440)
OTHERS	0.09	0.15	0.24	0.24	-	0.50	0.50	0.50
TOTAL	10.70	23.95	67.44	71.54	16.00	39.50	73.00	73.00

Chennai Port Trust

7.17.7 The existing level of traffic of Chennai Port of 61.057 million tonnes (2009-10) has been projected to rise to 82.66 million tonnes in 2016-17 and 107.72 million tonnes in 2019-20. The capacity of Chennai Port during this period has been projected from the existing level of 71.32 million tonnes (as on 31.3.2010) to 106.32 million tonnes in 2016-17 and 140.32 million tonnes in 2019-20. The major share of traffic which is expected to grow is container trade from the existing 38.45% to around 47% in 2019-20. The major developments through which capacity and traffic of the Port will rise are :- construction of Mega container Terminal by 2017, modernisation of Jawahar Dock and construction of one liquid cargo and one general cargo berth by 2013. After commissioning of Iron ore handling capacity at Ennore in the year 2010-11, the iron ore traffic of Chennai Port is expected to be shifted to Ennore Port and the existing iron ore berth to be converted as container terminal. The commodity wise projected traffic and capacity is given as under:

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	13.32	15.43	21.50	25.27	11.80	11.80	12.80	12.80
IRON ORE	8.03	-	-	-	8.00	-	-	-
COAL	3.06	-	-	-	-	-	-	-
CONTAINER TEUs	23.48 (1.216)	25.09 (2.007)	33.39 (2.671)	50.76 (4.061)	33.60 (2.800)	33.60 (2.688)	65.60 (5.248)	99.60 (7.968)
OTHERS	13.17	22.42	27.77	31.69	17.92	22.92	27.92	27.92
TOTAL	61.06	62.94	82.66	107.72	71.32	68.32	106.32	140.32

Tuticorin Port Trust

7.17.8 Tuticorin Port's traffic has been projected to grow from the present level of 23.787 million tonnes (2009-10) to 50.601 million tonnes in 2016-17 and 58.94 million tonnes in 2019-20. The capacity of Tuticorin Port is projected to rise from the existing level of 23.72 million tonnes (as on 31.3.2010) to 63.52 million tonnes in 2016-17 and 75.12 million tonnes in 2019-20. The major growth in traffic has been projected in case of coal traffic. The share of coal traffic is projected to grow from the existing 24.43% to 52.12% in 2016-17. The major developments through which capacity and traffic of the Port have been projected to increase are :- upgradation of existing coal jetty, by 2013-14; Development of North Cargo Berth by 2014-15; upgradation of mechanised handling infrastructure and conversion of one berth to Container Terminal. The commodity wise projected traffic and capacity for Tuticorin Port is given below :-

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	0.51	0.66	0.84	0.98	2.30	2.30	2.30	2.30
IRON ORE	0.04	-	-	-	-	-	-	-
COAL	5.60	11.15	26.38	29.91	6.25	14.75	28.75	35.75
CONTAINER TEUs	6.60 (0.440)	6.17 (0.494)	10.10 (0.808)	12.70 (1.016)	5.00 (0.417)	10.00 (0.800)	10.00 (0.800)	14.60 (1.168)
OTHERS	11.03	8.79	13.28	15.35	10.17	18.47	22.47	22.47
TOTAL	23.78	26.77	50.60	58.94	23.72	45.52	63.52	75.12

Cochin Port Trust

7.17.9 The traffic of Cochin Port has been projected to increase from the present level of 17.429 Million Tonnes in 2009-10 to 46.430 Million Tonnes in 2016-17 and 58.425 Million Tonnes in 2019-20. The capacity of Cochin Port during this period is projected to grow from the existing level of 30.37 Million Tonnes (as on 31.3.2010) to 62.22 Million Tonnes at the end of 12th Five Year Plan (2016-17) and 76.720 Million Tonnes in 2019-20. The major growth in traffic and capacity expansion has been projected in container and POL traffic. The share of Container traffic is projected to rise from the present level of 22.54 % to 34.99% in 2016-17 following shifting by container vessels to ICTT at Vallarpadam. The commodity wise capacity expansion plan vis-à-vis projected traffic are given below :-

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	11.95	12.80	25.04	33.20	18.70	25.30	29.80	31.80
IRON ORE	-	-	-	-	-	-	-	-
COAL	0.15	0.36	0.50	0.50	-	-	-	-
CONTAINER TEUs	3.93 (0.290)	9.69 (0.775)	16.25 (1.300)	18.12 (1.450)	4.31 (0.359)	12.50 (1.000)	18.75 (1.500)	31.25 (2.500)
OTHERS	1.40	2.23	4.64	6.60	7.36	11.67	13.67	13.67
TOTAL	17.43	25.08	46.43	58.42	30.37	49.47	62.22	76.72

New Mangalore Port Trust

7.17.10 From the existing level of traffic of 35.528 million tonnes (2009-10) New Mangalore Port is expected to increase its traffic to 69.14 million tonnes in 2016-17 and 91.93 Million Tonnes in 2019-20. The capacity of the port during this period has been projected to increase from 44.20 million tonnes (as on 31.3.2010) to 97.52 Million Tonnes in 2016-17 which will remain at the same level in 2019-20. The major developments through which traffic and capacity of the port will increase are :- commissioning of one fertiliser berth by 2015; commissioning of one 6 Million Tonnes coking coal berth by 2015; installation of SBM facilities for POL traffic by 2015 and setting up of one oil berth by 2012. The commodity wise projected capacity vis-à-vis projected traffic are under below:-

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	21.34	23.45	34.74	38.52	22.00	22.00	47.80	47.80
IRON ORE	7.06	7.40	10.20	11.31	7.50	14.12	14.12	14.12
COAL	2.81	4.00	8.50	11.40	-	5.40	11.40	11.40
CONTAINER TEUs	0.48 (0.032)	0.54 (0.043)	3.00 (0.240)	4.50 (0.360)	-	-	4.50 (0.360)	4.50 (0.360)
OTHERS	3.84	12.20	12.70	16.20	14.70	14.70	19.70	19.70
TOTAL	35.53	47.59	69.14	81.93	44.20	56.22	97.52	97.52

Mormugao Port Trust

7.17.11 The existing traffic of 48.847 Million Tonnes of Mormugao Port Trust has been projected to rise to 62.230 Million Tonnes in 2016-17 and 68.00 Million Tonnes in 2019-20. Against this traffic growth, capacity of Mormugao Port has been projected to increase from the existing 37.05 Million Tonnes (as on 31.3.2010) to 68.05 Million Tonnes in 2016-17 which will be maintained in 2019-20. The major growth has been projected in respect of Iron ore, POL and coal traffic. The existing iron ore traffic at the port is more than its capacity as 40% of the iron ore are handled through Barges at mid stream whose capacity has not been shown. The major development through which capacity of the port is projected to rise are :- construction of one 8 Million Tonnes Iron Ore berth by 2015 and further development of Iron Ore Terminal by 2017 and 2019 . Other developments include deepening of channel, construction of one liquid berth, coal berth and container berth etc. The detailed commodity wise traffic vis-à-vis capacity are given below :

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	0.96	1.49	1.95	2.25	1.50	7.50	7.50	7.50
IRON ORE	40.57	39.02	42.23	45.00	28.30	28.30	38.30	38.30
COAL	4.74	5.80	10.00	11.50	-	-	11.00	11.00
CONTAINER TEUs	0.19 (0.013)	0.18 (0.014)	0.22 (0.018)	0.25 (0.020)	-	-	-	-
OTHERS	2.38	5.50	7.83	9.00	7.25	7.25	11.25	11.25
TOTAL	48.84	51.99	62.23	68.00	37.05	43.05	68.05	68.05

Mumbai Port Trust

7.17.12 The traffic of Mumbai Port Trust is expected to grow from the existing level of 54.543 Million Tonnes (2009-10) to 72.5 Million Tonnes at the terminal year of 12th Five Year Plan (2016.17) and 77.2 Million Tonnes in 2019-20. The capacity of the Port is projected to rise from the existing 43.70 Million Tonnes (as on 31.3.10) (excluding capacity of 6 million tones at anchorage) to 82.30 Million Tonnes in 2016-17 which will remain at 82.30 Million Tonnes in 2019-20. The major developments through which the capacity and the traffic of the port have been projected to increase are :- addition of capacity of about 18 Million Tonnes after commissioning of 5th oil Berth at Jawahar Deep by 2014; development of offshore Container terminal & multipurpose cargo berth (by 2019-20 etc. The details commodity-wise capacity vis-à-vis traffic is given below.

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	34.50	34.80	38.50	39.00	32.00	32.00	54.00	54.00
IRON ORE	-	3.70	3.70	3.70	-	-	-	-
COAL	3.74	6.00	7.00	7.00	-	-	-	-
CONTAINER TEUs	0.61 (0.058)	1.00 (0.080)	7.20 (0.576)	9.60 (0.768)	1.90 (0.158)	9.60 (0.768)	9.60 (0.768)	9.60 (0.768)
OTHERS	15.69	9.80	16.10	17.90	9.80	11.70	18.70	18.70
TOTAL	54.54	55.30	72.50	77.20	43.70	53.30	82.30	82.30

Jawaharlal Nehru Port Trust

7.17.13 The existing traffic of JNPT is 60.763 Million Tonnes (2009-10) which is projected to grow 130.20 Million Tonnes in 2016-17 which would remain at 130.2 Million Tonnes in 2019-20. The capacity of the Port during this period is projected to increase from the existing 64.0 Million Tonnes (as on 31-3-10) to 140.35 Million Tonnes in 2016-17 and 142.22 Million Tonnes in 2019-20. The major growth in traffic has been projected in respect of container traffic only. The major development as envisaged by JNPT are : - the deepening of channel, construction of berths under BOT basis and replacement of old container handling equipment. Also the present level of handling 2% to 3% of empty container, due to post effect of global recession, will soon be over and possibility to handle more loaded containers is expected to increase. The detailed commodity-wise traffic vis-à-vis capacity are given in the following table.

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011- 12	2016-17	2019-20
POL	4.92	3.96	3.96	3.96	5.50	5.50	5.50	5.50
IRON ORE	-	-	-	-	-			
COAL	-	-	-	-	-			
CONTAINER TEUs	53.09 (4.092)	58.10 (4.648)	124.00 (9.920)	124.00 (9.920)	57.60 (4.550)	61.20 (4.896)	133.95 (10.716)	135.82 (10.866)
OTHERS	2.75	2.24	2.24	2.24	0.90	0.90	0.90	0.90
TOTAL	60.76	64.30	130.20	130.20	64.00	67.60	140.35	142.22

Kandla Port Trust

7.17.14 The traffic of Kandla Port is projected to grow from the existing level of 79.50 Million Tonnes (in 2009-10) to 132.12 Million Tonnes at the terminal year of 12th Five Year Plan (2016-17) and 177.90 Million Tonnes in 2019-20. The capacity of the port during this period is projected to increase from the present level of 85.0 Million Tonnes (as on 31-3-2010) to 159.70 Million Tonnes in 2016-17 and 194.40 Million Tonnes in 2019-20. The major growth have been projected in case of POL traffic which is projected to grow by 55% in 2016-17 from the present level. The major developments through which capacity as well as traffic have been projected to increase are :- Construction of two products handling jetties and one SBM by 2014-15, mechanization of general cargo berth, setting up of offshore liquid terminal, development of dry bulk terminal, construction multipurpose berth by 2012-13, and modification and strengthening of existing berths 1 to 6 by 2015-16 etc. The detailed commodity-wise traffic vis-à-vis capacity are given below.

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	47.21	52.05	72.65	89.30	62.83	62.83	91.23	97.23
IRON ORE	0.66	0.75	0.77	0.85	-	-	-	-
COAL	3.23	3.29	12.36	15.72	-	-	-	-
CONTAINER TEUs	2.43 (0.147)	2.70 (0.216)	3.95 (0.316)	4.80 (0.384)	7.20 (0.576)	7.20 (0.576)	7.20 (0.576)	7.20 (0.576)
OTHERS	25.97	26.81	42.39	67.23	14.97	14.97	61.27	89.97
TOTAL	79.50	85.60	132.12	177.90	85.00	85.00	159.70	194.40

Port Blair port Trust

7.14.15 Port Blair Port Trust at present (2009-10) handles 1.652 Million Tonnes which is projected to rise to 1.70 million tones in 2011-12, 2.12 Million Tonnes in 2016-17 and 2.42 Million Tonnes in 2019-20. The capacity of the port is expected to remain at the same level of 4.115 Million Tonnes (as on 31-3-10) to 4.115 Million Tonnes in 2016-17 and 2019-20. The existing level of traffic and capacity is shown under section on non-major ports. The commodities which have been projected to grow more are POL and Container. The detailed commodity wise traffic vis-à-vis projection are given below :

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing* 31.03.2010	2011-12	2016-17	2019-20	Existing* 31.03.2010	2011-12	2016-17	2019-20
POL		0.17	0.23	0.26		0.40	0.40	0.40
IRON ORE		-	-	-		-	-	-
COAL		-	-	-		-	-	-
CONTAINER TEUs		0.45 (0.036)	0.52 (0.042)	0.57 (0.046)		0.70 (0.056)	0.70 (0.056)	0.70 (0.056)
OTHERS		1.07	1.37	1.59		3.02	3.02	3.02
TOTAL		1.69	2.12	2.42		4.12	4.12	4.12

(*) included in section on non-major ports

7.15 All Major Ports

7.15.1 All the twelve Major Ports (excluding Port Blair) handled 561.090 Million Tonnes of Traffic in 2009-10. The traffic of all these Major Ports (including Port Blair Port Trust) are expected to reach to the level of 629.64 million tonnes by the end of 11th Five year plan. (i.e. in 2011-12), 1031.518 million tonnes by end of 12th Five Year Plan (i.e. in 2016-17) and 1214.820 million tonnes in 2019-20. These projections are based on the feedback received from the Major Ports through their user agencies and development plans over the years. The compound projected annual growth (CAGR) for different commodities from the existing level (2009-10) to 2019-20 are as follows : - POL -

6.52%, Iron Ore -3.16%, Coal – 12.04%, Container (Tonnage) – 10.70% (TEUs - 12.56%), Others - 8.10% and over all growth is 8.03%. The capacities of all the Major Ports during this period are projected to rise from the existing level of 616.73 Million Tonnes (as on 31.03.2010) to 1328.265 million tonnes by the end of 12th Five Year Plan (2016-17) and to 1459.535 million tonnes in 2019-20. This capacity is excluding the capacities at the anchorage points of the Ports. Overall capacity growth (CAGR) of Major Ports are projected from the existing level to 9.00% in 2019-20. It may be seen from Annexure-III that POL traffic has been projected to grow from the existing level of 175.08 million tonnes (2009-10) to 280.259 million tonnes in 2016-17 and 329.24 million tonnes in 2019-20. Thermal Coal is expected to rise from 43.37 million tonnes (2009-10) to 105.977 million tonnes in 2016-17 and 122.19 million tonnes in 2019-20. Coking & other Coal traffic is projected to grow from 28.33 million tonnes (2009-10) to 85.26 million tonnes in 2016-17 and 101.36 million tonnes in 2019-20. Finished Fertiliser traffic is expected to be doubled from 10.94 million tonnes in 2009-10 to 19.15 Million Tonnes in 2016-17 and 30.169 million tonnes in 2019-20, while the raw materials traffic during the same period is projected to grow from 6.778 million tonnes in 2009-10 to 9.316 million tonnes in 2016-17 and 11.245 million tonnes in 2019-20. Container traffic is projected to grow from 101.24 million tonnes in 2009-10 (6.89 million TEUs) to 244.799 million tonnes (19.58 million TEUs) in 2016-17 and 279.851 million tonnes (22.388 million TEUS) in 2019-20.

The commodity wise traffic projection vis-à-vis capacity Estimation for all Major Ports are given below:-

Traffic vis-a-vis Capacity of all Major Ports

(in million tonnes)

COMMODITY	TRAFFIC				CAPACITY			
	Existing 31.03.2010	2011-12	2016-17	2019-20	Existing 31.03.2010	2011-12	2016-17	2019-20
POL	175.08	188.62	280.26	329.24	219.24	243.38	372.48	380.48
Iron Ore	100.33	97.47	121.10	136.56	66.80	81.42	122.58	125.88
Coal	71.71	97.80	191.24	223.48	46.25 *	81.65	196.59	217.59
Comtainer TEUs	101.24 (6.89)	116.43 (9.32)	244.79 (19.58)	279.85 (22.39)	154.49 (9.82)	146.04 (11.68)	313.70 (25.10)	373.67 (29.89)
Others	112.73	129.32	194.11	245.69	129.95	188.87	322.91	361.91
Total	561.090	629.64	1031.50	1214.82	616.73	741.36	1328.26	1459.53

*Capacity of only Thermal Coal

Port –wise, commodity-wise traffic projections and capacity estimation for major ports from 2011-12 to 2019-20 is given in **Annexure VI & VII**.

In addition to above, Central Government plans to commission two more Major Ports, one each on Andhra Coast & West Coast, which will also entail addition capacity in Major Port segment.

7.16 Maritime States - Traffic Forecast and Capacity Estimation

7.16.1 Recognising the critical importance of ports to cater to the future increase in maritime traffic, the maritime states initiated the process of development of ports in their States. The eight maritime States have estimated that the cargo traffic from non-major ports will increase from the existing 288.80 million tonnes in 2009-10 to 402.50 million tonnes in 2011-12, 987.81 million tonnes by the end of 12th Five Year Plan in 2016-17 and 1280.13 million tonnes by 2019-20. During 2009-10 to 2019-20, Cargo traffic in the maritime states is projected to grow at Cumulative Annual Growth Rate (CAGR) of 16.06%. The State-wise traffic projections of traffic is given in following Table .

Traffic Projections of Maritime States

(In million tonnes)

States	Existing Traffic	Projected Traffic		
	2009-10	2011-12	2016-17	2019-20
Gujarat	205.54	248.00	438.00	565.00
Maharashtra	12.51	30.57	124.28	172.71
Goa	13.90	14.17	14.90	15.35
Karnataka	8.54	9.95	51.95	67.40
Andhra Pradesh	43.62	63.85	162.01	202.04
Tamil Nadu	1.17	3.10	35.20	45.40
Kerala	0.15	0.26	11.39	27.27
Orissa	0.42	32.60	150.08	184.96
Total	288.80*	402.50	987.81	1280.13

Note : (*) including 2.92 million tonnes of other Union territories.

7.16.2 The above table shows that in absolute terms, traffic is projected to increase substantially in four states namely, Gujarat, Andhra Pradesh, Maharashtra and Orissa out of the total cargo handled at non-major ports. The share of Gujarat and Goa is likely to decline from 71% and 5% in 2009-10 to 44% and 2% by 2019-20 respectively, whereas share of rest of the maritime states is expected to increase in future. The State-wise and commodity wise traffic projection from 2011-12 to 2019-20 are given in **Annexure VIII**.

7.16.3 The cargo mix of non-major ports during 2009-10 reveals that, Petroleum Oil & Lubricants (POL) was the dominant commodity accounting for more than 50% of total cargo. The share of other major commodities was iron ore (17.0%), coal(14.3%) and fertilizer (2.1%).

7.16.4 The commodity profile of the cargo, over the years is expected to undergo substantial change. The commodity wise traffic projections of cargo at non-major ports in maritime states during 2011-12, 2016-17 and 2019-20 is given in following table.

(In million tonnes)

Commodity	Existing Level (2009-10)	Projected Traffic		
		2011-12	2016-17	2019-20
POL	145.12	144.17	248.01	330.49
Iron Ore	49.07	58.95	106.83	122.85
Coal	41.29	89.34	284.80	346.41
Container TEUs	14.85 (1.19)	31.13 (2.49)	139.66 (11.17)	206.54 (16.52)
Others	38.47	78.91	208.51	273.84
Total	288.80	402.50	987.81	1280.13

7.16.5 The above table shows that in absolute terms, the maximum increase during next ten tears i.e. from 2009-10 to 2019-20 will be in coal traffic around 305 million tonnes followed Container, POL and other misc. cargo i.e. 191 million tones, 185 million tones and 235 million tonnes respectively. Coal traffic is projected to grow at maximum CAGR of 23.7% during 2009-10 to 2019-20. Other commodity groups which are estimated to achieve double digit CAGR of 10%, 10.3% and 21% are Iron ore, Fertiliser and Other misc. cargo respectively.

7.17 Capacity Estimation – Maritime States

7.17.1 The Non-major ports at the end of March 2010 had capacity to handle 346.31 million tonnes of cargo. Out of this the eight maritime states namely, Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu Andhra Pradesh and Orissa had the capacity to handle 337.89 million tonnes. The four maritime Union territories viz Pondicherry, Daman & Diu, Lakshadweep and Andaman & Nicobar islands having 37 ports had capacity of 8.42 million tonnes. A lone non-major port at West Bengal does not handle any cargo.

7.17.2 Unlike major ports, the commodity-wise capacity forecast for non-major ports are not available. The maritime States have drawn plans to increase the capacity of non-major ports at an CAGR of 17.33% during 2009-10 and 2019-20. This is proposed to be achieved through the development of existing ports and by setting up new ports. The maritime states propose to increase the existing capacity 346.31 million tonnes to 498.68 million tonnes by March 2012. At the end of 12th five year plan in 2016-17 at 1263.86 million tones and 1670.51 million tonnes in 2019-20. The proposed capacity enhancement is required to keep pace with the projected traffic which is estimated to grow at CAGR of 17.33%. This is proposed to be achieved through expansion of existing ports and setting up of new ports. The capacity planned for increase by the maritime states is shown in Table below. State wise Capacity estimation from 2011-12 to 2019-20 for Non-Major Ports are given in **Annexure IX**.

Capacity Estimation for maritime States

(In million tones)

States	Existing Level 2009-10	2011-12	2016.17	2019-20.
Gujarat	243.64	303.64	585.64	864.04
Maharashtra	28.28	48.56	202.28	232.40
Goa	13.90	18.40	19.80	20.20
Karnataka	9.20	10.70	60.20	68.00
Andhra Pradesh	39.50	75.70	174.20	207.20
Tamil Nadu	1.20	3.10	35.20	45.40
Kerala	0.17	0.30	19.68	30.92
Orissa	2.00	38.28	168.16	202.35
Total	346.31	498.68	1263.86	1666.02

Note : () including other ports*

7.17.3 The above table shows that non-major ports in maritime states plan to achieve nearly four fold increase in capacity in next ten Years. The State of Gujarat has planned maximum increase in capacity by 620 million tonnes followed by Andhra Pradesh (168 million tonnes), Maharashtra (204 million tonnes), Orissa (200 million tonnes), Karnataka (59 million tones), Tamil Nadu (44.20 million tones), Kerala (30.75 million tones) and Goa (6 million tones).

7.18 Summary – Traffic & Capacity

7.18.1 Traffic Projection

(In million tonnes)

Ports	Existing Level 2009-10	Projections			CAGR(%) between 2009-10 and		
		2011-12	2016-17	2019-20	2011-12	2016-17	2019-20
Major Ports	561.09	629.64	1031.50	1214.82	5.93	9.09	8.03
Maritime States	288.80	402.50	987.81	1280.13	18.05	19.21	16.06
Overall	849.89	1032.14	2019.31	2494.95	10.20	13.16	11.37

7.18.2 Capacity Estimation

(In million tonnes)

Ports	Existing Level 2009-10	Projections			CAGR(%) between 2009-10 &		
		2011-12	2016-17	2019-20	2011-12	2016-17	2019-20
Major Ports	616.73	741.36	1328.26	1459.53	9.64	11.58	9.00
Maritime States	346.31	498.68	1263.86	1670.51	20.00	20.31	17.04
Overall	963.04	1240.04	2592.12	3130.04	13.47	15.19	18.34

Summary of overall commodity wise traffic projection for Major Ports and non- Major Ports, including all Indian Ports is given in **Annexure-X**.

CHAPTER – 8

HINTERLAND CONNECTIVITY

8.1 The projected traffic of major & non-major ports is to move through the land transport infrastructure providing port connectivity which needs considerable expansion to keep pace with accelerating trade growth. In fact, inadequate capacities in the hinterland transport modes often lead to higher costs and delays on account of sub-optimal mode choices, circuitous routing and congestion in the hinterland transport links. All of which directly impact trade competitiveness. Many raw materials, agricultural products and manufactured goods which are competitive at the mine, farm-gate or factory, lose their competitive advantage due to high transport cost to the port and delays in transit. Though all the major ports are having rail and road connectivity with national rail and road network, yet more thrust is to be made for faster and efficient evacuation of cargo to and from ports.

8.2 CONNECTIVITY AT MAJOR PORTS – AN OVERVIEW

8.2.1 A brief overview of the present rail and road connectivity status in ports along with some of the major connectivity projects proposed to be under taken in the ports is given as under :

(i) Kolkata Port Trust

The Port has vast hinterland comprising the entire Eastern India and two land-locked neighbouring countries. Nepal and Bhutan, it is well linked by road and railways with rest of the India. City roads connect the port to National Highways 2 and 6 and to the junction of National Highway 34 and the Airport. The 10 kms stretch from the port to the junction of NH-2 and Nh-6 including 1.7 kms long elevated road link between Vidyasagar Sethu and Swing Bridge is being undertaken. The rail connectivity to the port is provided by the Sealdah-Budge Budge Branch Line to Majherhat Junction.

(ii) Haldia Dock Complex

Haldia Dock Complex is connected to NH-41 which links it to NH-6 and the rest of the country. Four laning of 52.2 kms stretch of NH-41 from Kotaghat-Haldia is in progress. A single rail line from Panskura-Haldia Branch Line connects the docks to the Trunk

Railways. Doubling of the 15.05 kms stretch of this line from Panskura to Rajgoda has been completed.

(iii) Paradip Port Trust

The port is connected to NH-5 through a two lane road upto Chandikol. Four laning of the road is completed. The two lane State Highway 12 from the port to Cuttack provides network between the port and the mines. Port is connected by a single line section with Cuttack which connects Howrah-Chennai Trunk Line. The single line is being doubled. The 155 kms Daitari-Banspani rail line is under construction. The 78 kms Haridaspur-Paradip Rail Link to provide a dedicated corridor from the Port with the iron ore mines and steel plants is also under construction.

(iv) Visakhapatnam Port Trust

The port has two harbours viz. Inner Harbour and Outer Harbour. The port boasts of the deepest container terminal among major ports (14.9 mtrs). The port is connected to NH-5. A project for improving the 12.47 kms long stretch of Naval Dockyard and Industrial by pass State road is available. The port is also connected to the Chennai – Howrah main railway line of the East Coast Route.

(v) Ennore Port Limited

The first corporate Major port in India, the port is situated at Ennore, 25 kms north of Chennai on India's east coast. The port is a functional landlord port. The port is connected to NH-4, NH-5 and NH-45, Rail connectivity from the port is also available. Ennore – Manali Road improvement Project (EMRIP) costing around Rs. 600 cr. Is to be executed by SPV comprising NHAI, ChPT, GoTN and Ennore Port Ltd. The objective of the project is to widen and strengthen a number of roads including Ennore Expressway, Manali Oil Refinery Road etc covering a distance of 19 Kms. After completion of the said road improvement project it is expected that the present road capacity of 1,100 Passenger Car Unit (PCU) per hour shall increase to 3,500 PCUs per hour. This road improvement plan is envisaged to improve the connectivity to Ennore and Chennai Ports.

(vi) Chennai Port Trust

The port is connected by road to NH-5 (Chennai-Kolkata), NH-4 (Chennai – Bangalore / Hyderabad etc.) and NH-45 (Chennai –Dindugal/ Tiruchirappalli. Apart from national highways the east coast highway connects the city with Puducherry and rest of South India. Port is also well connected with the railway network to the southern parts of Tamil Nadu as also to the rest of India. Chennai Port – Maduravoyal 4 Lane Elevated Corridor project is included in the NHDP Phase-VII to be executed under BOT model at a total estimated cost of Rs,1,655 Cr. covering a distance of 19 Kms. The majority of the expressway shall be alongside the river Cooum. The elevated corridor shall begin from the Exit/Entry Gate of Chennai Port on the southern end to Maduravoyal connecting NH-4 which leads to the industrial hinterland of Sriperumbudur of Kanchipuram District and further to Bangalore, Hyderabad etc.

Unless, the above connectivity projects at Ennore and Chennai port are implemented, it will be difficult of evacuation of cargo to be handled at proposed at Mega container terminal.

(vii) Tuticorin Port Trust

The port has two lane road connectivity through NH-45B, NH-7 and NH-7A. Four laning of the 47.2 kms stretch of NH-7A between Tuticorin and Tirunelveli and NH-45B are in progress.

(viii) Cochin Port Trust

Road connectivity to the port from the mainland is through two bridges –one on Mattanchery channel and one on Emakulam Channel. A link road connects Willingdon Island to NH-47 bypass. Four laning of the 10.40 stretch of NH-47 is under progress. A single rail line which branches off at Emakulam from the main line from Shornur— Trivandrum also serves the port. Action is being taken to provide rail connectivity and National Highway connectivity to the upcoming International Container Transshipment Terminal, which is targeted to serves an hinterland extending to Major Industrial Hubs of India. A 17.2 km long four-lane road that will connect the Container Terminal to three National Highways NH-47 (Salem), NH-17 (Mumbai) and (indirectly) to NH-49 (Madurai) has been newly created. The road is to be commissioned along with ICTT project, by

January 2011. The connectivity to the National railway grid is established to facilitate container movement to the North Indian Industrial hubs. An 8.86 km long link line from ICTT to the main rail grid is becoming operational by November 2010. The link will support the formation of a freight corridor for movement of exports from Tamil Nadu and Karnataka in future. In addition to the rail/road linking, an Inland water connectivity is also needed to the terminal in the context of Kerala, inland water transport can support development of industries along the water-front in nearby districts. The National Waterway (NW3) maintained by the Inland Waterways Authority of India runs in proximity to the Cochin Port. In the wake of the commissioning of ICTT, the Waterways Authority is adding two new terminals near the port to facilitate the movement of Ro-ro barges (Roll on and Roll off) which will enable movement of container traffic from South Kerala through the Inland Waterways. The terminals will also facilitate movement of containers by coastal vessels and river-sea vessels from west coast Non-Major Ports.

(ix) New Mangalore Port Trust

Mangalore in Karnataka State on the west Coast of India, well connected to the Industrial hubs of Southern India as well as North India via Konkan railway. Road connectivity to the port is provided through NH-48 (Bangalore-Mangalore), NH-17 (cochin-Goa-Mangalore) and NH-13 (Sholapur-Mangalore). 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 is in progress. A broadgauge railway line connects the port to the southern parts of the country and the Konkan Railway links the port through Mangalore with Mumbai.

(x) Mormugao Port Trust

The port accounts for about 32% of Iron Ore export of the country. Two lane road link from the port to NH-17A through Vasco city is available. Four laning of 18 kms stretch of NH-17B from Verna Junction on NH-17 to Mormugao Port in progress. Rail connectivity to the port is also available.

(xi) Mumbai Port Trust

The port has three dock systems with 50 berths on the mainland. The port is well connected to other parts of the country through NH-8 (ahmedabad), NH-3 (Delhi and Kolkata), NH-4 (Bangalore) and NH-17 (Goa/Mangalore), anik-Panjorpole Link Road to provide access between Mumbai Port and Southern parts of Mumbai, Navi Mumbai on the mainland to the East and Eastern Express Highway is being undertaken. The port is connected to the Indian Railways at Raoli, Junction, Wadala.

(xii) Jawaharlal Nehru Port

The port is connected through NH-4B to the Mumbai-Oune Expressway, NH-17 to Mumabi-Goa Highway, SH-54 to the western parts of India. Four laning of NH-4B and SH-54 and construction of a four lane Amra Marg including six lane major bridge across Panvel Creek is also in operation. The port is well connected by rail to Panvel. A proposal for construction of grade separators through SPV between NHAI, JNPT and State Government is under active consideration. Similarly, construction of second evacuation road from container gate to CFS / Dronagiri with respect the proposed development of SEZ in the area is also under consideration.

(xiii) Kandla Port Trust

A gateway to the North West India, it accesses a vast hinterland of 1 million sq. kms stretching upto Jammu & Kashmir by meter gauge and broad gauge railway system. The port has two lane and four land approaches to NH-8A. Four laning of various sections of NH-8A have also been implemented. The port is connected by rail to Mumbai and Delhi via Ahmedabad. The port has metre-gauge connectivity to Palanpur.

8.3 MODAL SHARES IN PORT CONNECTIVITY

8.3.1 Port traffic within India is carried largely by railways and road transport, with pipelines carrying some crude oil and petroleum products. Alternative modes such as inland waterways have remained largely undeveloped and the situation is unlikely to change substantially in the medium term. The present mode share of port cargo, based on the tonnage transported by a particular mode, is provided below. These mode share estimates are based on some assumptions on commodity-wise optimal mode of

transport, on the geographical features of the respective regions, certain cargo characteristics, and the distances traveled from the hinterland. For instance, cargo such as coal and iron ore would preferably be transported by railways unless alternative arrangements such as conveyors or pipelines are available. The estimates suggest that while the railways should have carried 34 percent of port traffic, it actually moved only 24 percent. Roads by contrast presently carry 36 percent of the traffic as compared with the 22 percent they should carry.

Port Traffic Mode Share (% of Tons Handled)

Present Mode	Share % (2007)	Optimal Mode Share %
Railways	24	34
Roads	36	22
Pipeline	30	44
Other including inland waterways, conveyers etc.	10	

Source World Bank Report 2007

8.4 ROAD TRANSPORT

8.3.1 Road transport is now the predominant mode of inland transport for port cargo. It is generally more cost effective for shorter leads and smaller package sizes as it is both costlier and slower than railways for distances in excess of about 300 to 500 km. Partly this is due to delays at numerous checkpoints for road traffic at state border crossings. A significant improvement in the quality of road infrastructure over the last few years following the launch of national programs such as the National Highway Development Program (NHDP) has contributed to the growing efficiency and increased reliance on road transport. The other factor favoring road transport is the convenience of door-to-door transport for high value goods which are increasing as trade in finished and intermediate goods increases.

8.5 RAILWAYS

8.5.1 In contrast, railways account for the inland haulage of only 24 percent of port cargo, with the Major ports having a 30 percent share and State ports an insignificant 8 percent, indicating the extremely low rail connectivity to ports other than the Major ports.

Rail transport is primarily used for low value commodities for which transport costs are an important component of the delivered price. However, with the exception of coal, which is almost entirely transported by rail, most other commodities are beginning to shift to roads owing to the shortage of rail capacity in many sectors. Iron ore exports have experienced a large shift to roads, on account of the rapid increase in exports and the capacity crunch being faced by the railways. High value cargo such as containers, are also moving away from rail transport. Fertilisers, limestone and foodgrains are the other dry bulk commodities being moved by rail.

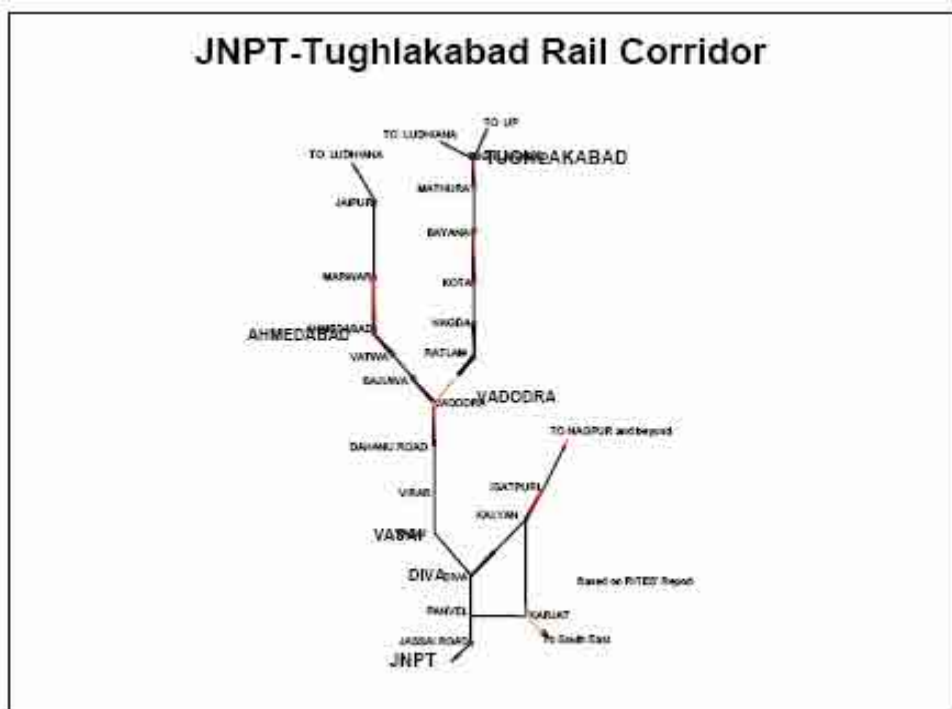
8.5.2 The main reason for the railways declining share has been inadequate investments in capacity, particularly for freight, the poor quality of service and slow response to various segments of the growing freight demand. The non-availability of wagons, even when line capacity is available is a common problem hurting both bulk and containerized cargo. In the case of container traffic, this shortage of rakes can be attributed to insufficient investment by the Container Corporation of India (CONCOR) which has so far enjoyed a monopoly in rail container transport.

8.5.3 The Tughlakabad-JNPT (Delhi-Mumbai) line, one of the most highly trafficked corridors in the country is a case in point. With an average line capacity of 50 trains per day, it has been handling over 67 trains per day, operating at a capacity utilization of 135 percent, and several sections are being operated at 160 percent utilization levels. Roughly 40 trains on this corridor are passenger trains, leaving a limited capacity for freight trains, which have a lower priority. Congestion at the railways' Tughlakabad Inland Container Depot (ICD) near Delhi and on the line itself has resulted in a poor reliability of service, and high value cargo such as containers, which form the majority of the traffic on this corridor, is increasingly shifting to road transport. Presently, less than one-third of the containerized cargo in this corridor is being carried by the Railways. On average, 9,000 loaded trucks move over this corridor everyday, aggregating around 30 million tons annually of road freight traffic.

8.5.4 The Dedicated Freight Corridor proposed for the Delhi–Mumbai and Delhi-Kolkata sections will, once completed, go a long way towards relieving congestion on these corridors. The National Rail Vikas Yojana launched in 2003, is an attempt by the

Government and Indian Railways to prioritize the development of port connectivity links. The recent initiatives by Indian Railways to involve the private sector in container train operations and wagon ownership are also likely to improve the situation. However, many of these initiatives are long overdue and their impact, particularly of the Dedicated Freight Corridor, is not likely to be felt for some years. So far, nine private operators have been awarded license for updating containers trains.

Rail Connectivity Mumbai to North-Western Hinterland



8.6 PIPELINES

8.6.1 Pipelines account for roughly 30 percent of the port traffic movements in the hinterland. They are the optimal mode for the movement of liquid bulks such as crude oil and petroleum products, and for some bulk materials such as iron ore moved as slurries. A vast network of pipelines already exists for the transportation of petroleum. Currently, almost all crude imports are being moved by pipelines to the refineries. Similarly, LNG imports are carried, after re-gasification at the port, through gas pipelines to consumption centres. Petroleum products on the other hand move equally by pipelines and other forms of land transport i.e. road and rail. Since pipelines fall within

the domain of the large oil companies, and are not really dependent on public funding, their development has generally kept pace with requirements.

8.7 IMPACT OF INADEQUATE CONNECTIVITY

8.7.1 Inadequate hinterland connectivity has important impacts on external trade and therefore the development of the economy. It typically results in suboptimal choice of mode and port, leading to time and cost escalations, and in extreme cases to congestion in the ports due to an inability to move cargo out of the port.

8.7.2 Containerized Cargo

8.7.3 Jawaharlal Nehru Port is the most efficient container port in the country and is the preferred port for a majority of the country's container traffic, presently accounting for about 60 percent of the total. even though the Gujarat ports are located a little closer, they take almost twice as long to reach. The east coast ports not only take much longer, but also cost more than twice as much in inland haulage charges. These differences restrict competition, and JNP therefore enjoys a dominant position on account of both its better overall shipping service offerings and its superior hinterland connectivity. The Gujarat ports on the other hand, continue to lose out to JNP due to their relatively poor connectivity, despite enjoying a closer proximity to the north-western hinterland which generates a majority of the container traffic. Even cargo destined for China or other south east Asian countries prefers to be routed through JNP, rather than ports like Chennai on the east coast which though closer to the destination offer poor connectivity to the northern hinterland.

8.7.4 As a result, traffic at JNP has grown at the rate of 22 percent over the last five years, but rail connectivity has not kept pace. The main reason for this, apart from the congested rail network on the Delhi-Mumbai corridor, is the low reliability of services offered by CONCOR, the container transport monopoly of Indian Railways. The present container handling capacity as on 31-03-2010 at JNPT is 4.55 million TEUs. Further, the proposed fourth terminal would add another 4 million TEU, and will require a major upgrade of the port's connectivity infrastructure.

8.7.5 Bulk Cargo

(i) Ports on the east coast are ideally located to serve the growing trade needs of its vast mineral rich hinterland. Large reserves of coal and iron ore are found in Orissa state and also in the neighboring landlocked states of Jharkhand and Chhattisgarh. The recent boom in the steel industry has also led to large additions in steel manufacturing capacity being planned in this hinterland.

(ii) The iron ore mines in the Banspani area, in the immediate hinterland of Paradip Port, do not have a direct rail link to the port, instead the cargo must be routed circuitously via Kharagpur in West Bengal to the north before coming back south to Paradip port. The problem is further compounded by a severe shortage of wagons. As a result, a large percentage of the iron ore from this belt is being diverted to Haldia and Vizag ports which are considerably further away.

8.7.6 Similarly, thermal coal shipments from Talcher coalfields in Orissa to power plants in the south are also best routed through Paradip Port which is 200 km away. However, due to rail capacity constraints, some of this traffic is being diverted to Vizag port which is 560 km away and also due to Paradip Port has a single line rail link which cannot handle more than 18 trains per day.

8.8 IMPROVING PORT CONNECTIVITY

8.8.1 In the absence of adequate hinterland connectivity, higher cost solutions in the form of sub-optimal modes or ports are being used as was seen above, leading to large economic losses. Efficient connectivity solutions not only ensure trade competitiveness through their direct impact on costs and delivery times, but also enhance competition between ports by increasing shipper options. Improving hinterland connectivity is therefore also important for promoting inter-port competition and thereby improving the efficiency of services available to shippers. In recognition of these considerations, Government of India constituted in March, 2005 a Committee of Secretaries to establish policies and priorities for improving port connectivity. The following summarizes the key recommendations of the Committee:

- a. Each Major port should have at least four lane road connectivity and double line rail connectivity.
- b. For those connectivity projects having a lower than prescribed rate of return, budgetary assistance, or Viability Gap Funding in the case of Public-Private Partnership projects, maybe considered.
- c. National Highways Authority of India (NHAI) shall undertake port connectivity (less than 50 km) projects on a BOT basis, and hinterland connectivity highway projects on a BOT basis where possible.
- d. Toll rates for highway port connectivity projects shall be established jointly by NHAI and the Department of Shipping.
- e. Ongoing projects (10 road and 8 rail) are to be monitored on a quarterly basis and approvals of pending projects (4 road and 5 rail) are to be expedited.

8.8.2 It may be noted that the Committee has focused on the needs of the Major ports. While this approach has helped focus attention on the connectivity issues faced by the Major ports, a similar approach needs to be undertaken to help resolving the problem for the State ports.

8.8.3 The Table below presents the road and rail traffic projected for 2015 and their shares in the overall port traffic. High Case projections are used here in order to base conclusions regarding connectivity needs on the worst case congestion scenario likely to emerge. The allocations between modes are based on an assumed optimal allocation by commodity type, and in some cases by port location where specialized facilities, e.g. a slurry pipeline exist.

**Projected Road and Rail Traffic Demand (High Case) in 2015
(in million tones)**

Port	Road Traffic		Rail Traffic		All Traffic Volume
	Volume	Share	Volume	Share	
Kolkata	18	29%	29	48%	61
Paradip	7	6%	88	80%	110
Visakhapatnam	28	20%	65	45%	144
Chennai/Ennore	33	32%	42	39%	106
Cochin & Tuticorin	41	42%	34	34%	100
Mangalore	10	13%	29	37%	78
Goa Cluster	4	7%	13	25%	50
Mumbai	103	40%	99	39%	257
Gujarat	101	25%	93	23%	400

8.8.4 What is abundantly clear from above Table is that for port traffic to be moved to and from its inland destinations efficiently, the key strategic issue will be rail connectivity. This is true of all Major or Non-Major Ports, with the possible exception of Cochin and Tuticorin, and even there the absolute rail traffic volumes projected are not inconsequential. For the Ports in Gujarat and Mumbai region, while the relative share of rail is lower than for road, the absolute volumes are extremely high, and here too efficiency of the ports will critically rely on improvements in rail connectivity. This is not to minimize the importance of road connectivity. Roads will always be the default option for connectivity of the ports. However, the highway development aspects appear to be in a better shape owing to initiatives such as the National Highways Development Program Port Connectivity projects, and the overall funding plans for highway development programs. The point to be noted is that the efficiency of India's port infrastructure will critically rely on a major effort to ramp up rail port connectivity.

8.9 RAIL CONNECTIVITY ENHANCEMENT

8.9.1 An estimated 225 percent increase in rail haulage of port cargo will be required over the medium term (2015) an increase of over 400 percent will be needed. Based on the presently proposed rail capacity enhancements an analysis was conducted of the last mile port connectivity of the railways for the 2015 High Case and the number of trains required for the transportation of projected rail cargo. The analysis is limited in scope as it considers only last mile connectivity and does not factor in upstream capacity constraints. Some assumptions have been made on the share of passenger trains for city ports and other ports where the rail link also has passenger traffic.

8.9.2 The analysis given below very clearly points to the large rail capacity shortfalls likely in the critical Mumbai. Cochin/ Tuticorin and Mangalore are also likely to experience significant constraints. This is assuming the present plans are implemented without major delays. It must be kept in mind that the analysis merely explores the bottleneck at the port and not further into the network, where large capacity constraints may exist and for which projects such as the Dedicated Freight Corridor are needed to address capacity expansion needs.

Projected Rail Capacity Minus Demand (Unit Trains/ day)

Port	<i>Demand 2015</i>	<i>Capacity 2015</i>	<i>Capacity Shortfall 2015</i>
Kolkata	46	130	
Paradip	128	154	
Vizag	98	122	
Chennai/Ennore	70	75	
Cochin & Tuticorin	68	62	(6)
Mangalore	47	32	(15)
Goa	19	32	
Mumbai	193	120	(73)
Gujarat	180	218	

8.10 CONCLUSIONS

8.10.1 This review of port - hinterland connectivity has highlighted some critical issues that need to be addressed and the key challenges with regard to hinterland connectivity facing the ports sector. The following summarizes the essential features for improving hinterland connectivity in Indian Ports :

- a. Railways are presently carrying considerably less than their optimal share of port traffic, and road transport has made up the deficit with many negative externalities for road traffic particularly in the major port cities.
- b. As the economy grows and diversifies to higher value manufactures, the optimal road transport share of port traffic will grow. NHAI's port connectivity projects under the NHDP appear to be addressing the needs for Major ports. A similar effort for non-major ports, however, is lacking.
- c. Over the medium term, however, the key to improved port connectivity for India's ports will be enhancements in rail connectivity and capacity, and the latter could require as much as a 400% increase over the present levels of port traffic carried by the railways.
- d. Indian Railways' Dedicated Freight Corridor project will help to considerably alleviate congestion in the Delhi-Mumbai corridor, which is critical to the hinterland connectivity of the Mumbai and Gujarat port clusters that serve the largest share of India's port traffic.
- e. Railways plans for last mile connectivity to various Major and non-major ports need considerable enhancement, and a special effort on this by RVNL to expedite planning and implementation should be initiated on an urgent basis.

CHAPTER- 9

PORT'S EFFICIENCY

– QUEST TO ACHIEVE INTERNATIONAL STANDARDS

9.1 In India, when Productivity Parameters in major ports are discussed, traditionally, the following parameters are reckoned to assess the effectiveness and efficiency of a major port:

1. Average Pre-berthing Detention of Vessels (In hours)
2. Average Turnaround Time of Ships (In days)
3. Average Output per Ship berth day (In tonnes)
4. Average Idle time (%)
5. Average Berth Occupancy (%)
6. Percentage of Capacity Utilisation of berths
7. Average Gang Output per shift.

9.2 Of course, the total traffic, number of vessels and total number of TEUs handled are also computed to indicate how big or small the port is. But, these parameters definitely do not indicate how efficient a port is, unless they are correlated with the number of berthing points a port possesses and the kind of cargo it handles viz., bulk, break-bulk, liquid bulk and containerised cargo. Further, after commissioning of container terminals in the country, calculation of “Average moves per Crane-hour” in each of the terminals, which ultimately show the productivity of the terminal, was also considered.

9.3 However, when internationally acknowledged practices are discussed, the above parameters are not much in vogue in international ports either in Asia, South Africa Europe or United States. There is no concept of “pre-berthing detention” as such because in world class ports, the capacity is much more than the actual traffic and the planning is also done on those lines. Hence, there is no question of any ship waiting at anchorage. When average turnaround time is discussed, they may generally be referred to in informal business conversations but not formally calculated since it all depends upon the parcel size of the vessel calling, length of the channel in which pilotage takes place, type of commodity and the mode of discharge/loading. It cannot be generalised as the averages of such anomalous elements only distort the real picture

and convey wrong results and interpretations because weightages of different commodities are different in each port. One commonly used parameter which could be attributed to port's internal efficiency is the quantum of cargo that the port discharges/loads from /to a ship in a day which is nothing but Output per ship berth day. However, it will also differ according to the nature of commodity. Still, comparisons could be made commodity-wise and it gives a fair comparison of the port's handling efficiency. Of course, it does not indicate non-shore (water side) efficiency nor reflect whether a port has adequate capacity to serve the demands of traffic/trade. It presupposes that the port has built adequate capacity and no pre-berthing detention accrues.

9.4 One parameter widely used internationally is "Average moves per crane per hour". With the advent of full-scale containerisation of general cargo all over the world due to its obvious advantages, ports have seen a metamorphosis in terms of commissioning of container terminals in majority of ports in the world and relatively less emphasis is given on analysis of handling of traditional bulk cargo since the container vessels are more modern and costly and hence turnaround should be faster. Hence, many innovative methods and handling systems are found to achieve more productivity in a container terminal. As a consequence, monitoring of terminal performance takes an important seat and monitoring is done by meticulously watching the performance of Shore Cranes. The best parameter for the purpose is "Average moves per Crane hour". Associated and derivative parameters like Number of moves per hour (meaning total moves of all cranes working for vessel – also known as Vessel throughput per hour) , terminal throughput (meaning the total TEUs handled by the terminal in a day), yard productivity (meaning the number of containers handled in a yard) etc., have subsequently emerged . This could be a real yardstick to measure and compare the different terminals in the worlds on an even keel.

9.5 A survey of some available literature on the subject does not show any standard KPIs defined for the port sector. However, on compilation through various sources of information like UNCTAD Monographs on Port Management, other informal data obtained from respective ports and some articles in shipping magazines, the following position emerges:

PORT	Crane Productivity for small vessels	Berth Productivity for large vessels	Crane Productivity for large vessels	Berth Productivity for large vessels
Singapore PSA	23	45	36	140
Port Rashid and Jabel Ali	22	40	30	110
Khor-Fakkan, Fujairah	20	32	28	100
Salalah	N/A	N/A	29	90
Aden	N/A	N/A	28	70
India				
NSICT	18	30	22	40
JNPCT	16	24	20	36
Tuticorin	14	14	-	-
Colombo - SLPA	14	23	18	45
Colombo -SAGT	13	25	24-25	
Belgium Ports	-	-	30-35	-
Shanghai	-	-	35	-
International Standards	-	-	27-33	-

9.6 If one expands the productivity parameters from Turnaround time to Dwell Time and compare with Port of Singapore, in general terms, the position emerges as follows:

Ports	Dwell Time (days)	Crane productivity (Moves/hr)	Evacuation System	Vessel evacuation rate (Containers/hr)	Turnaround time (days)
Major Indian Ports	3.78	20	Manual	40	1.77
Singapore	0.60	30	Automatic flow –thru gate system	100	0.50

9.7 It could be seen from the above table, that there is a difference in three chief performance indicators viz., Crane Productivity=> Vessel evacuation rate=> Turnaround time between a world-class port like Singapore and major ports in India. The reasons for this variation could be many and some of them are underlined below:

I. Basic physical features

Sl. No.	Indian Port	PSA Singapore
1	The total number of terminals for handling Containers at India's biggest container Port-JNPT is three terminals, having linear Quay length of 1992 meters, adequate for Nine vessels at a time.	PSA Singapore has four terminals having quay length of 11,754 meters which can accommodate about 41 container vessels at a time.
2	The area available at JNPT for the three terminals is about 133 hectares.	The area available at Singapore Port for the four terminals is about 425 hectares.
3	Expansion of area, JNP is dependent acquisition of land behind the terminal the same is fraught with problems of land acquisition and resettlement/ rehabilitation.	Though land is scarce in Singapore expansion of terminals is done by reclamation of land from sea and therefore though costly, can be well planned and is not limited by the constraint of land acquisition.
4	The draft at JNPT is (-)13.5 and there is Limitation on latest generation vessels	Maximum draft is more than (-) 16M. And there is no limitation on the most modern And latest generation container vessels.
5	There are drafts limitations in the channel	There are no draft limitations in the channel And biggest ships in the world can visit Singapore Port at any point of time.
6	The total number of quay cranes in about 24 Nos.	The number of quay cranes at the four Terminals at PSA Singapore is 131

II Cargo handling characteristics

The total volume of cargo handled at Indian Ports in 2008-09 was 732.755 Million tons. In this, handling of container Cargo is only 7.25 mTEUs and JNP India Biggest container port handled 3.953 mTEUs	The total volume of cargo handled at Singapore in the calendar year 2008 was 515.4 million tons of which, containers handled 29.92 million TEUs. The volumes therefore are simply not comparable.
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III Level of Mechanization

1	The level of mechanization at Indian Ports Is limited and cargo is mainly handled by Conventional means. In container stream, The number of quay cranes, reach stackers, Trailers etc., is far limited.	The level of Mechanization is very high and sophisticated with infusion of latest technology in every sphere of handling of cargo.
2	The equipment is handled by staff Deployed at site. The average moves Per hour is about 20-25. Due to less deployment of cranes, the crane rate (total number of containers loaded/ vessels/ Unloaded from a ship in one hour) is about 60-70. This leads to late turn round of Vessels and subsequent high dwell time.	The cranes are both operated by staff at site and also automation through Terminals control center. The no. of moves per hour is about 25-39. They have the maximum reach across the biggest and widest vessels Due to adequate deployment of cranes, the crane rate achieved is 100 per hour. This leads to quick turn round of vessel and Subsequent less dwell time.

9.8 In fact, the most important issue of cost competitiveness of our trade has been the inability to take large size vessels in ports and inefficiency due to more turn round time. The delay in turn round time is mostly on port account which is around 65% of the total turn round time. The factors responsible for port account delays are vessel waiting for the berthing berth after completion of unloading and before commencement of loading, breakdown / non availability of handling equipments, non availability of port labour gangs, spillage of the cleaning / bagging / stitching etc. Similarly, the non port account factors contributing to the delays are customs formalities, want of cargo / container, weather conditions, documents not ready, want of barges, poor clearance of cargo, breakdown of ship gears etc.

9.9 Several Indian ports experience high dwell time because of customs and port side constraints like inadequate infrastructure and various IT related bottlenecks. For container handling, which is increasing rapidly adequate electronic environment with Enterprise Resource Planning (ERP), enabling the efficient use of port resources is yet to be established. The Electronic Data Interchange (EDI), which ensures flow of data electronically between ports, Customs, shipping lines and users, is still to be commissioned on a common platform. The implementation of Risk Management System (RMS) by Customs is expected to bring about significant reduction in detention of cargo for

assessment and examination at ports. An assessment of working of RMS needs to be made so that corrective measures, if necessary can be taken.

9.10 Taking the overall position of Indian Ports' performance, in order to really improve the performance in terms of Pre-berthing Detention, Turnaround Time and Berth Productivity in Indian Ports, the following broad strategies could be envisaged:

- A. **Capacity Creation:** Although it is ideal to maintain a gap of 30% between the installed capacity and the traffic according to the conventional international norms, it may not be possible to maintain the exact gap all the time. The gap of 30% is generally required to be maintained in order to take care of maintenance works at the berths, approaches to the berths, equipments etc., it is not mandatory to maintain this ideal gap. In fact, if the traffic outweighs capacity, capacity utilisation of berths will be maximum which again indicates effective utilisation of berth capacity. However, leaving this short-term gain, it is better if the ports create capacity in excess of 30% of actual traffic over a period of time. In such a case, pre-berthing detention on account of Port could be brought to almost "zero".

- B. **Adequate drafts:** Due to various reasons, the drafts at Indian Ports (both in the channel and at berths) have historically been very low and not commensurate with the developments taking place in the world in terms of change of ship sizes, higher parcel sizes, changes in cargo trends such as containerization, project cargoes etc., If one would glance through the drafts available in Indian Ports, it goes as low as 7 mtrs in older ports and upto 16 mtrs in newer ports. Higher drafts are available in very few ports only. Internationally, top 20 container ports in the world had drafts ranging from 14 mtrs to 16 mtrs even in 2003. Thereafter, some ports in China and other countries have enhanced drafts still further to accommodate Super Post Panamax and above vessels. Hence, another important measure that the Ports are required to do is to increase the drafts at least to 14 mtrs and upto 17 mtrs according to the potential of bigger size vessels calling a particular port.

C. Massive Mechanisation: With the kind and size of vessels with higher parcel sizes calling at Ports, loading and discharge rates should go phenomenally up from the present low productivity levels at berth. Some ports in India discharge Fertilizers as low as 2277 tonnes per day and maximum discharge is to the tune of 10931 MT per day. With manual loading, Iron Ore is getting loaded into the ships at some ports to the tune of 12028 MT per day whereas mechanized ports in India itself load around 50136 MT per day. International Comparison has been made in the previous pages with regard to containers. It was also a fact that a ship which was loaded in 4 days in a Chinese Port took 15 days to discharge at an Indian Port, despite efforts made at all levels. It only goes to say that “mechanization” is the need of the hour at all Indian Ports - not a nominal or limited mechanization but a massive world-class mechanization. It is a fact that till recently and even now, Ports have been grappling with handling of cargo with the Electric Level Luffing Cranes of Capacity of 3T, 6T and 10T. With this kind of mechanical aids, Indian Ports might find it difficult to achieve international norms and standards of performance. Hence, it is high time, Indian Ports should take up heavy mechanization programmes and each berth should be equipped adequately with high capacity versatile Cranes, Conveyer Systems, Silos, Harbour Mobile Cranes, Grab Unloaders and Gantry Cranes.

D. Development of Adequate Storage Areas: If one examines the entire chain of cargo flow from /to the Port, he finds that the immediate concern for all the stakeholders in the port is to feed/remove the cargo from the wharf so that turnaround of ships shall be faster. There should not be congestion at wharf and wharf clearance is of utmost importance. Towards this objective, apart from deploying and achieving the manual and mechanical efficiency at wharf, clearance of cargo from the wharf to/from some other plots, viz., storage areas has to be targeted. It is a general impression that the cargo should not dwell at the Port for longer periods; rather, it can be taken to individual factory or consumption centres for feed from there in case of exports. Although it is ideal to aim at, practically, it may result in so many snags because the ultimate consumption centres or cargo generating centres are far away from the ports. All over the world, land is always regarded as a leverage point for port's development. If a port has adequate land, it should develop

or cause to develop adequate open stacking areas or closed warehouses near the port, with sufficient disincentive to dump for longer periods and resort to “stock & sale” from such port areas. However, ports need to develop or cause to develop storage areas near the port so that cargo can be cleared from the port faster and achieve lower turnaround time. Incidentally, it may be mentioned that “warehousing” is one of the port related functions and providing “transit” is one of the primary responsibilities of a port. The strategy of providing storage space for attracting the traffic is well adopted by private ports like Mundra and Gangavaram.

- E. **Hinterland connectivity:** In order to make Indian Ports comparable to International Ports, not only improvements inside the port but also the improvements in logistics network outside is ensured. One of the important factors apart from wharf clearance, inside evacuation network, augmentation of storage space etc., is to really evacuate the cargo from the port to hinterland. This holds true for every port, be it a Bulk Port or a Container Port or a Specialised Cargo Port/ Terminal. We see in Europe that all the ports have such a seamless connectivity that cargo flows and transported in the entire Europe (even between the countries) uninterrupted and smooth. This ensures minimum delays at the port as well as port area. Hence, Indian Ports, to be comparable to International Ports, should have minimum 4-lane road connectivity as well as double line rail connectivity.
- F. **Cost Efficiency:** Shipping lines have been representing time and again that port charges at Indian Ports are very high as compared to other comparable International Ports. As a matter of fact, vessel related charges are perhaps higher than some of the International Ports whereas cargo related charges are much lower in some Indian Ports in comparison to ports abroad. If actual cost of handling per tonne is reckoned, we find it is as low as Rs.41.41 at Mangalore, Rs.44.74 at Tuticorin and Rs.45.20 at Kandla (meaning, less than US \$ 1 per ton). Hence, a generalised statement based on a common perception by incorrectly grouping together vessel and cargo related charges may not reflect a correct picture. If we take Vessel related charges alone, the reasons for higher charges are mainly two: (1) higher cost of dredging in certain ports, requiring perennial dredging and (2) lack of subsidy on the

part of Government. We have seen, in many parts of the world, some part of dredging (at least Capital) is funded by Provincial Governments or Federal Governments. If the same approach is adopted by Central Government or State Governments, the vessel related charges also could be brought to the reasonable levels. The whole position stated above is with regard to Port Cost, meaning thereby cost at port. But, if we look at the overall cost at Port, including ship's waiting cost; stevedoring charges, C&F charges, Vessel Agent charges etc., the cost may be higher than that of international ports. The best way to deal with it is to reduce pre-berthing time to zero, bring down ship turnaround time to the minimum levels, and achieve higher productivity levels for which the above mentioned strategies may really work wonders.

9.11 To sum up, Indian Ports have to lay their emphasis and focus on improving Berth Productivity for container vessels as also the Turnaround Time of ships. Indian Ports, as of now, irrespective of Public or Private, are not comparable to world-class ports due to various reasons. The broad strategies to make Indian Ports to achieve international standards are Capacity Creation, increase in the drafts, massive mechanisation, development of adequate storage areas, providing seamless hinterland connectivity and attaining cost efficiency.

CHAPTER – 10

CATEGORY-WISE PROJECTS AND THE FUNDING PATTERN FOR MAJOR PORTS AND MARITIMES STATES UPTO 2020

10.1 In order to meet the projected traffic and estimated capacity as indicated in the previous Chapter for Major Ports and Non Major Ports, a number of development projects has also been identified under five projects heads viz. deepening of channels, construction and re-construction of berths, procurement / modernization of equipments, hinterland connectivity and various other developmental works to be taken up in three phases i.e. Phase – I, Phase – II and Phase – III by the terminal year of the 11th five year plan (2011-12), by the terminal year of the 12th five year plan (2016-17) and by the end of the financial year 2020, respectively. The details are as follows:

10.2 Major Ports – Projects and Funding Pattern

Kolkata Port Trust

10.2.1 Kolkata Port Trust has proposed out an investment plan for Rs. 1824.90 crores for 7 projects in phase I, Rs. 8690.47 crores for 15 projects in Phase II and Rs. 260.00 crores for 3 projects in Phase III. The Private sector investment has been proposed for Rs. 760.00 crores, Rs. 8011.00 crores and Rs. 215.00 crores in three phases respectively. The above investments and projects include Kolkata Dock System and Haldia Dock Complex. The details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads, along with their estimated costs is given as under:

SI. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	1	1000.00	-	-	-	-
2.	Construction/Reconstruction of Berths/ Jetties etc.	-	-	4	801.90	6	6883.00	-	-
3.	Procurement of Equipments etc.	2	325.80	2	23.00	4	628.47	-	-
4.	Rail / Road Connectivity Works	1	30.00	-	-	3	1075.00	-	-
5.	Other Works	1	6.10	-	-	2	104.00	3	260.00
	TOTAL	4	361.90	7	1824.90	15	8690.47	3	260.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Paradip Port Trust

10.2.2 Paradip Port has taken up an investment plan of Rs. 2249.42 crore for 11 projects in the phase I, Rs. 1980.60 crore for 6 projects in phase II and Rs. 376.10 crore for 4 projects in Phase III. The private sector investment has been estimated as Rs. 379.11 crore in phase I and Rs. 570.00 crore in phase II. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads along with their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	253.36	1	40.00	1	260.00	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	2	107.36	4	2076.73	2	1530.00	1	To be firmed up
3.	Procurement of Equipments etc.	-	-	3	70.68	1	50.60	2	368.10
4.	Rail / Road Connectivity Works	2	615.60	-	-	-	-	-	-
5.	Other Works	3	71.41	3	62.01	2	140.00	1	8.00
	TOTAL	8	2010.73	11	2249.42	6	1980.60	4	376.10

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Visakhapatnam Port Trust

10.2.3 The investment plan of Visakhapatnam Port Trust is Rs. 3373.22 crore for 27 projects in phase I, Rs. 6465.00 crore for 19 projects in phase II and Rs. 4100.00 crore for 10 projects in phase III. Of the above investment plan, the private investments have been earmarked as Rs. 2262.08 crore in phase I, Rs. 3830.00 crore in phase II and Rs. 1000.00 crore in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	3	412.14	2	200.00	2	1500.00
2.	Construction / Reconstruction of Berths / Jetties etc.	1	35.19	12	1873.07	5	5630.00	3	2300.00
3.	Procurement of Equipments etc.	1	444.10	5	654.01	1	90.00	-	-
4.	Rail / Road Connectivity Works	3	100.00	3	296.00	2	150.00	3	200.00
5.	Other Works	5	166.46	4	138.00	9	395.00	2	100.00
	TOTAL	10	745.75	27	3373.22	19	6465.00	10	4100.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Ennore Port Limited

10.2.4 Ennore Port has envisaged an investment plan of Rs. 1636.92 crore for 6 projects in phase I, Rs. 3622.00 crore for 5 projects in phase II and no project for phase III. Of the above investment plan, the private investments have been estimated as Rs. 100.00 crore only in phase II. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	1	221.00	1	219.00	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	3	2286.13	2	310.00	3	357.00	-	-
3.	Procurement of Equipments etc.	-	-	-	-	-	-	-	-
4.	Rail / Road Connectivity Works	2	122.02	1	454.32	1	446.00	-	-
5.	Other Works	-	-	-	-	-	-	-	-
	TOTAL	5	2408.15	4	985.32	5	1022.00	-	-

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Chennai Port Trust

10.2.5 Chennai Port has chalked out an investment plan of Rs. 5224.04 crore for 9 projects in phase I, Rs. 4231.00 crore for another 13 projects in phase II and Rs. 1125.00 crore for 7 projects in phase III. The investments from Private Sector for the three phases are Rs. 4262.24 crore in phase I, Rs. 2911.00 crore in phase II and Rs. 795.00 crore in phase III respectively. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	143.00	1	561.00	1	-	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	1	200.00	3	3259.80	4	925.00	1	500.00
3.	Procurement of Equipments etc.	-	-	-	-	-	-	-	-
4.	Rail / Road Connectivity Works	1	400.00	1	600.00	-	-	2	225.00
5.	Other Works	1	200.00	4	803.24	8	3306.00	4	400.00
	TOTAL	4	943.00	9	5224.04	13	4231.00	7	1125.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Tuticorin Port Trust

10.2.6 Tuticorin Port has envisaged an investment plan of Rs. 1154.55 crore for 7. projects in phase I, Rs. 1444.32 crore for 6 projects in phase II and Rs. 3907.00 crore for 11 projects under phase III schemes. The provisions of private sector investment for the above projects are Rs. 873.08 crore in phase I, Rs. 664.32 crore in phase II and Rs. 1200.00 crore in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	538.00	-	-	2	140.00	1	2250.00
2.	Construction / Reconstruction of Berths / Jetties etc.	1	40.00	3	520.56	2	664.32	2	850.00
3.	Procurement of Equipments etc.	-	-	2	392.22	-	-	3	232.00
4.	Rail / Road Connectivity Works	1	25.00	1	101.77	2	640.00	2	300.00
5.	Other Works	3	35.00	-	-	-	-	3	275.00
	TOTAL	6	638.00	7	1154.55	6	1444.32	11	3907.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Cochin Port Trust

10.2.7 Cochin Port has envisaged an investment plan of Rs. 511.00 crore for 6 projects in phase I, Rs. 2371.40 crore for 18 projects in phase II and Rs. 3999.10 crore for 14 projects in phase III. The investments from private sector have been planned as Rs. 397.00 crore in phase I, Rs.1840.00 crore in phase II and Rs. 2900.00 crore in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	381.25	-	-	3	111.40	1	29.10
2.	Construction / Reconstruction of Berths / Jetties etc.	2	5318.00	2	397.00	7	1610.00	3	2900.00
3.	Procurement of Equipments etc.	-	-	2	84.00	2	125.00	6	825.00
4.	Rail / Road Connectivity Works	2	803.00	-	-	1	40.00	-	-
5.	Other Works	1	850.00	2	30.00	5	485.00	4	245.00
	TOTAL	6	7352.25	6	511.00	18	2371.40	14	3999.10

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

New Mangalore Port Trust

10.2.8 New Mangalore Port has envisaged an investment plan of Rs 378.90 crore for 3 projects in phase I, Rs. 1147.00 crore for 3 projects in phase II and Rs. 390.00 crore for 1 project in phase III. The private investment for phase I and phase II have been projected as Rs. 299.73 crore and Rs. 850 crore respectively. No private investment has been planned in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	-	-	-	-	1	390.00
2.	Construction / Reconstruction of Berths / Jetties etc.	1	230.00	2	348.90	3	1147.00	-	-
3.	Procurement of Equipments etc.	1	296.03	1	30.00	-	-	-	-
4.	Rail / Road Connectivity Works	2	69.55	-	-	-	-	-	-
5.	Other Works	-	-	-	-	-	-	-	-
	TOTAL	4	595.58	3	378.90	3	1147.00	1	390.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Mormugao Port Trust

10.2.9 The investment plan of Mormugao Port Trust is Rs. 496.00 crore for 1 projects in phase I, Rs. 2391.80 crore for 4 projects under phase II. No investment plan has been projected for phase III. The private investment has been projected for Rs. 496.00 crore in phase I and Rs. 1946.00 crore for Phase II. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	50.00	-	-	-	-	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	2	63.00	1	496.00	3	1946.00	-	-
3.	Procurement of Equipments etc.	1	15.00	-	-	1	445.80	-	-
4.	Rail / Road Connectivity Works	-	-	-	-	-	-	-	-
5.	Other Works	-	-	-	-	-	-	-	-
	TOTAL	4	128.00	1	496.00	4	2391.80	-	-

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Mumbai Port Trust

10.2.10 Mumbai Port Trust has chalked out an investment plan of Rs. 919.50 crore for 10 projects in phase I, Rs. 1371.50 crore for 9 projects in phase II and Rs. 3900 crore for 3 projects under phase III. The proposed private investments for 3 phases are as follows: Rs. 100.00 crore in phase I, Rs. 400.00 crore in phase II and Rs. 1500.00 crore in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	2	1038.00	1	50.00	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	1	1460.52	2	469.00	4	971.50	2	2040.00
3.	Procurement of Equipments etc.	-	-	3	48.00	1	50.00	-	-
4.	Rail / Road Connectivity Works	1	333.00	-	-	-	-	-	-
5.	Other Works	1	50.00	3	164.50	3	300.00	1	1860.00
	TOTAL	3	1843.52	10	919.50	9	1371.50	3	3900.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Jawaharlal Nehru Port Trust

10.2.11 JNPT has projected an investment plan of Rs. 9467.00 crore for 12 projects in phase I, Rs. 11851.10 crore for 10 projects in phase II and Rs. 23.10 crore for 1 project in phase III. The proposed private investments are Rs. 6988.00 crore in phase I, Rs. 8600.00 crore in phase II. No private investment has been projected in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	1	800.00	-	-	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	-	-	2	4700.00	1	2600.00	-	-
3.	Procurement of Equipments etc.	3	150.00	1	112.00	5	189.10	1	23.10
4.	Rail / Road Connectivity Works	2	402.00	1	279.00	1	45.00	-	-
5.	Other Works	6	187.00	7	3576.00	3	9017.00	-	-
	TOTAL	11	739.00	12	9467.00	10	11851.10	1	23.10

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Kandla Port Trust

10.2.12 Kandla Port has chalked out an investment plan of Rs. 3974.90 crore for 11 projects in phase I, Rs. 14752.56 crore for 14 projects in phase II, and Rs. 1310.00 crore for 3 projects in phase III. The proposed private investments in 3 phases are Rs. 3261.50 crore in phase I; Rs. 14427.00 crore in phase II, and Rs. 1040.00 crore in phase III. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	1	186.00	-	-	-	-	-	-
2.	Construction / Reconstruction of Berths / Jetties etc.	1	443.00	5	2138.40	3	1760.00	2	1040.00
3.	Procurement of Equipments etc.	-	-	1	120.00	1	50.00	1	270.00
4.	Rail / Road Connectivity Works	3	45.26	-	-	2	115.56	-	-
5.	Other Works	2	52.80	5	1716.50	8	12827.00	-	-
	TOTAL	7	727.06	11	3974.90	14	14752.56	3	1310.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

Port Blair Port Trust

10.2.13 Port Blair Port has projected investments of Rs. 45.08 crore for 33 projects under phase I, Rs. 1111.53 crore for 24 projects in phase II and Rs. 625.00 crore for 8 projects in phase III. No private investments have been proposed for the aforesaid projects in 3 phases. Details of number of projects - ongoing as well as to be undertaken in 3 phases under different project heads alongwith their estimated cost is given as under:

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-20)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2	3	4	5	6	7	8	9	10
1.	Deepening of Channel / Berths etc.	-	-	2	To be firmed up	6	20.00	5	15.00
2.	Construction / Reconstruction of Berths / Jetties etc.	-	-	9	24.47	5	1040.50	2	610.00
3.	Procurement of Equipments etc.	-	-	15	9.48	8	46.73	-	-
4.	Rail / Road Connectivity Works	-	-	-	-	-	-	-	-
5.	Other Works	-	-	7	11.13	5	4.30	1	To be firmed up
	TOTAL	-	-	33	45.08	24	1111.53	8	625.00

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

10.3 Summary of Capacity yielding Projects for All Major Ports

10.3.1 As may be seen from the details(given in Summary –I & II), 352 projects have been identified by all major ports and capacity through these projects has been proposed to increase by around 767.15 million tonnes during April, 2010 to March 2020. The proposed capacity addition through projects would not tally with the physical capacity addition as shown in the previous chapter as capacity of some of the projects will be fully reaped after completion of the project. The investments of these projects have been estimated as Rs.109449.41 crores, of which Rs.72878.16 crores have been estimated to come from Private sector participation and the balance Rs.36571.25 would be funded through Internal

Resources/EBR and Government Budgetary support etc. Meanwhile, it is pertinent to mention that the above details do not include 72 ongoing projects with total cost of Rs. 18492.94 crore and it is proposed that such project will generate total capacity of 143.70 over the years. The details are given below:

SUMMARY - I : Investments (with Break up)

Sl. No.	PROJECT HEAD	Ongoing Projects		PHASE – I (2010-2012)		PHASE – II (2012-2017)		PHASE – III (2017-2020)	
		No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)	No. of Projects	Estimated Cost* (Rs. In Crore)
1	2			3	4	5	6	7	8
1.	Deepening of Channel / Berths, etc.	6	1551.61	13	3412.14	17	1000.40	10	4184.10
2.	Construction / Reconstruction of Berths / Jetties etc.	15	11146.20	51	17415.83	48	27064.32	16	10240.00
3.	Procurement of Equipments etc.	8	1230.93	35	1543.39	24	1675.70	13	1718.20
4.	Rail / Road Connectivity Works	20	2945.43	7	1731.09	12	2511.56	7	725.00
5.	Other Works	23	1618.77	35	6501.38	45	26578.30	19	3148.00
	TOTAL	72	18492.94	141	30603.83	146	58830.28	65	20015.30

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

SUMMARY - I : Investments (Overall)

Sl. No	PROJECT HEAD	Ongoing Projects		New Projects (2010-2020)		Total Projects (Ongoing + New)	
		No. of Projects	Funding (Rs. In Crore)	No. of Projects	Funding (Rs. In Crore)	No. of Projects	Funding (Rs. In Crore)
1	2	3	4	5	6	7	8
1.	Deepening of Channel / Berths etc.	6	1551.61	40	8596.64	46	10148.25
2.	Construction/Reconstruction of Berths / Jetties etc.	15	11146.20	115	54720.15	130	65866.35
3.	Procurement of Equipments etc.	8	1230.93	72	4937.29	80	6168.22
4.	Rail / Road Connectivity Works	20	2945.43	26	4967.65	46	7913.08
5.	Other Works	23	1618.77	99	36227.68	122	37846.45
	TOTAL	72	18492.94	352	109449.41	424	127942.35

Note : (*) Estimated Cost is for the Projects proposed to be taken up/under execution during that period.

As such Major Ports have identified a total of 424 Projects including 72 Nos of ongoing Projects upto period of March 2020. After completion of the above schemes the incremental addition of capacity of Major Ports would be 910.85 million tonnes, which is as follows:

SUMMARY - II : Capacity Yielding Projects

Sl. No.	PROJECT HEAD	Capacity Yielding Projects (in million tonnes)				
		Ongoing Projects	Phase – I (2010-12)	Phase – II (2012-17)	Phase – III (2017-20)	Total (Col. 3+4+5+6)
1	2	3	4	5	6	7
1.	Deepening of Channel / Berths etc.	7.50	6.20	2.00	-	15.70
2.	Construction/Reconstruction of Berths / Jetties etc.	106.30	267.87	326.75	111.70	812.62
3.	Procurement of Equipments etc.	28.90	33.71	7.57	-	70.18
4.	Rail / Road Connectivity Works	1.00	-	-	-	1.00
5.	Other Works	-	7.45	3.90	-	11.35
	TOTAL	143.70	315.23	340.22	111.70	910.85

Port-wise details of ongoing and New Projects are given under **Annexure – XI & XIII**.

10.4 From the above, it could be gauged that Major Ports in India have drawn up some ambitious expansion plans during the next decade, thereby intending to create substantial additional capacity. Some of the major and important capacity yielding projects include :

10.4.1 Kolkata Port's River Regulatory Measures for improvement of draft of Hooghly estuary, development of four container handling jetties at Diamond Harbour; development of full fledged cargo handling facilities at Saugor Island; Transloading facilities at Sandheads and development of Port facilities at Haldia Dock II (Shalukhali).

10.4.2 Paradip Port's projects include development of multi purpose clean cargo berth, construction of Southern Oil Jetty, installation of second and third SPM by Indian Oil Corporation; deepening of channel to increase a draft from 16 meters to 18.5 meters. Development of western Dock, Construction of Offshore Breakwater, Replacement of Equipments in MCHP etc.

10.4.3 Visakhapatnam Port's major projects of expansion include Deepening of entrance channel. Additional Oil handling facilities for POL, Outer harbor expansion, Construction of WQ7, WQ8, WQ6, EQ/A berths at inner harbor, Development of Satellite Port at Bhimunipatnam apart from the strengthening of existing berths.

10.4.4 Chennai Port's major investment projects are besides capital dredging creation of mega container terminal apart from development of two more container terminals within docks, development of elevated corridor from Chennai Port to Maduravoil, development of one liquid cargo berth and development of integrated Dry Port and Multi Model Logistics Hub near Sriperumbudur

10.4.5 Tuticorin Port's plan include apart from Capital Dredging projects . development of 3 North-Cargo berths, 2 additional container terminals and an Outer Harbour & upgradation of Mechanical Handling equipment.

10.4.6 Ennore Port plans to take up projects including Capital Dredging, construction of one Coal berth , development of LNG Terminal , 2nd Marine Liquid Terminal etc.

10.4.7 Major Developmental projects of **Cochin Port** include construction/ Development of LNG re-Gasification terminal Ph-II , International Container Transshipment Terminal Ph II & Ph III, and a Deep Water Outer Harbour apart from the projects of Multi-User Bunkering Terminal & International Cruise Terminal.

10.4.8 **New Mangalore Port's** major projects include development of Coal handling facilities, Multi-purpose General Cargo Berth, development of container terminal, SBM facilities for POL apart from Mechanisation and Deepening proposals.

10.4.8 **Mormugao Port's** include construction of two additional berths at Vasco Bay, Development of Iron Ore Terminal apart from Mechanisation and Modernisation projects

10.4.9 **Mumbai Port's** plan includes deepening of main harbour channel & other capital dredging projects, development of off-shore container terminal PhII, construction of one oil berth at Jawahar Deep, one liquid cargo jetty at New Pir Pau Pier, Development of offshore multipurpose cargo berths apart from New Cruise Terminal at Gateway of India.

10.4.10 **Jawaharlal Nehru Port's** major projects include extension of container berth, development of fourth container terminal Ph I & II, apart from Deepening of Channel and Equipment projects.

10.4.11 **Kandla Port's** important projects are development of Off-Shore liquid terminal , development of one Dry-Bulk terminal and two multipurpose cargo berths and also development of satellite port "Tuna-Tekara".

10.4.12 **Port Blair Port's** major project includes development of port facilities at Katchal & Safed Balu, establishment of dry dock & procurement of tug of 45 T capacity.

10.5 MARITIME STATES - PROJECTS AND FUNDING

10.5.1 Maritime states have drawn ambitious programmes to create additional capacity during 2010-11 to 2019-20. The states have identified projects for development of non-major ports at an estimated cost of Rs 167930.84 crore for creation of additional capacity of 1293.56 million tonnes. Private sector is envisaged to fund most of the projects through PPP or BOT or BOOT basis. It is envisaged that private sector will meet 96.1% of the cost of development amounting to Rs 161332.91 crore. Remaining requirement of

Rs. 3678.34 crore is planned to be contributed by State Governments through Internal Resources / Gross budgetary Support/ Internal Extra budgetary Resources. Table A reflects statewise estimated cost of projects during 2010-11 to 2019-20 alongwith sources of financing and capacity likely to be added.

Table A :State-wise Project Cost Estimates and Source of Financing						
Maritime State	Capacity Addition	Estimated Cost (Rs. crore)	Source of Financing (Rs. crore)			
	(In MTPA)		I.R.	GBS	EBR and Others	Private Sector
Gujarat	620.90	74240.59	287.29	1320.30	62.00	72571.00
Maharashtra	155.10	20417.55	634.05	97.00	1237.59	18448.91
Goa (Panaji Port)	1.50	202.70	0.00	155.65	47.05	0.00
Karnataka	51.00	7058.00	300.00	0.0	0.0	6758.00
Andhra Pradesh	195.20	33540.00	0.0	0.0	0.0	33540.00
Tamil Nadu	50.50	6925.00	0.0	0.0	0.0	6925.00
Kerala	20.12	1811.00	0.0	0.0	0.0	1811.00
Orissa	199.24	23736.00	2457.00	0.0	0.0	21279.00
TOTAL	1293.56	167930.84	3678.34	1572.95	1346.64	161332.91

10.5.2 State wise analysis of proposed investment in projects indicate that investment in non-major ports of Gujarat at Rs. 74240.59 crore would be around 44% of the total investments in non-major ports during 2010-11 to 2019-20. Maharashtra, Orissa and Andhra Pradesh are other maritime states where investments is more than ten thousand crores in next ten years are planned.

10.5.3 A Port development project involves several activities such as deepening of channels/berths, construction/reconstruction of berth/jetties etc., procurement of equipments, rail/road connectivity to ports and other works such as buildings, roads etc. The estimated cost of projects identified for development of non-major ports have been divided into above 5 sub-heads. Table B gives estimated cost of projects under various subheads and their funding pattern during the next ten years.

Table B:Sub-Project wise Estimated Cost and Source of Financing					
Sub-Project	Estimated Cost (Rs. crore)	Source of Financing (Rs. Crore)			
		I.R.	GBS	EBR and Others	Private Sector
Deepening of channel/berths	11468.40	628.3	140.0	9.45	10690.60
Construction/reconstruction of berths/jetties etc.	124782.43	845.99	20.0	222.4	123694.00
Procurement of equipment etc.	10276.18	789.23	15.65	894.80	8576.50
Rail/road connectivity works	9338.56	617.11	1397.30	76.95	7247.20
Other works	12065.27	797.71	0.0	142.95	11124.61
Total	167930.84	3678.34	1572.95	1346.64	161332.91

Note : The total cost figures may not tally exactly due to rounding of figures

10.5.4 Table B shows that cost of construction of berths is major component for the development of non-major ports account for 64% of aggregated project cost. The percentage share of other sub-projects i.e. deepening of channels, procurement of equipments, rail/road connectivity and other works in total cost of projects are 9%, 11%,10% and 10% respectively. States propose to fund more than 20% of expenditure on Rail/Road connectivity projects. Summary of Investment to be made by Maritime states for various development projects during three phases are given in **Annexure - XII**

10.5.5 The execution of proposed projects is divided into three phases – ongoing & new schemes have been included under 2010-11 to 2011-12 i.e. last two years of XIth Five year Plan(Phase-I), 2012-13 to 2016-17 i.e. XIIth Five Year Plan(Phase-II) and first three years of XIIIth Plan i.e. 2017-18 to 2019-20(Phase-III) respectively. The projects of Rs. 33144.22 crore are planned/under execution in the first phase. These projects are expected to add capacity of 240.11 million tonnes. The projects of Rs 95883.83 crore and Rs. 38675.79 crore are planned to be taken up for execution in Phase-II and Phase-III. The projects in Phase-II and Phase-III are expected to add capacity of 680.34 million tonnes and 373.11 million tonnes respectively in the major ports. State-wise cost of projects to be taken up during three phases is given in Table B.

Table B: Phase wise Project Estimates and source of Financing

Phase – I 2010-11 to 2011-12

Maritime States	Capacity addition (In MMT)	Estimated Cost* (Rs. Crore)	Source of Financing (Rs. Crore)			
			I.R.	GBS	EBR and Others	Private Sector
Gujarat	60.00	8030.89	95.79	280.10		7655.00
Maharashtra	57.11	4224.88	129.10	97.00	226.68	3772.10
Goa (Panaji Port)	0.30	59.45		37.15	22.30	
Karnataka	1.50	800.00				800.00
Andhra Pradesh	63.70	10590.00				10590.00
Tamil Nadu	22.50	1200.00				1200.00
Kerala		203.00				203.00
Orissa	35.00	8036.00	667.00			7369.00
TOTAL	240.11	33144.22	891.89	414.25	248.98	31589.10

Phase - II 2012-13 to 2016-17

Maritime States	Capacity addition (In MMT)	Estimated Cost* (Rs. Crore)	Source of Financing (Rs. Crore)			
			I.R.	GBS	EBR and Others	Private Sector
Gujarat	281.00	40928.10	178.20	797.90	62.00	39890.00
Maharashtra	75.17	9108.73	344.87		635.35	8128.51
Goa (Panaji Port)	0.70	81.00		56.25	24.75	
Karnataka	49.50	6031.00				6031.00
Andhra Pradesh	98.50	20550.00				20550.00
Tamil Nadu	28.00	5725.00				5725.00
Kerala	13.52	957.00				957.00
Orissa	133.95	12503.00	890.00			11613.00
TOTAL	680.34	95883.83	1413.07	854.15	722.10	92894.51

Phase – III 2017-18 to 2019-20

Maritime States	Capacity Addition (In MMT)	Estimated Cost* (Rs. Crore)	Source of Financing (Rs. Crore)			
			I.R.	GBS	EBR and Others	Private Sector
Gujarat	279.90	25281.60	13.30	242.30		25026.00
Maharashtra	22.82	7083.94	160.08		375.56	6548.30
Goa (Panaji Port)	0.50	62.25		62.25		
Karnataka						
Andhra Pradesh	33.00	2400.00				2400.00
Tamil	6.60	651.00				651.00
Kerala						
Orissa	30.29	3197.00	900.00			2297.00
TOTAL	373.11	38675.79	1073.38	304.55	375.56	36922.30

Note : (*) Estimated Cost shown for the Projects that is to be taken up/under execution during that period

10.5.6 Some of the major and important capacity building projects at Maritime State planned/under executions are:

SL. No.	Name of Major Projects	Capacity Addition (MTPA)	Investments (Rs in Crore)
GUJARAT			
1	Development of Coal Terminal for Ultra Mega Power Plant by Tata Power/MPSEZ at Mundra Port.	30.0	4000.00
2	Installations of New SBM by Cairns Energy at Bhogat Port.	5.0	1000.00
3	Captive Jetty by Essar Group at Salaya	10.0	2000.00
4	Solid Cargo Terminal by Adani at Dahej Port	11.0	1180.00
5	Extension of Captive jetty by Sanghi Cement at Jakhau.	5.0	200.00
6	Development of Pvt Terminal by Universal Success Enterprise Ltd. at Bhogat	10.0	2000.00
7	Capacity expansion of Sikka Port by Reliance Port and Terminals Pvt. Ltd. (5th berth) at Sikka Port	5.0	180.00

SL. No.	Name of Major Projects	Capacity Addition (MTPA)	Investments (Rs in Crore)
8	Second SPM by M/s. Reliance Industries at Magdalla Port	4.0	300.00
9	Deepwater jetty by Essar at Magdalla & Hazira Port.	15.0	750.00
10	SBM Pipeline & COT at Mundra Port Second SBM	9.0	900.00
11	Container Terminal at Mundra by MPSEZ, South Port	46.0	5000.00
12	LNG berth subconcession agreement with GSPC by MPSEZ at Mundra Port	10.0	3000.00
13	Dahej Port (North of Birla Jetty) by Sterling Biotech	42.0	3700.00
14	Development of new basin for additional berths at Mundra port by GAPL Phase 2 South Port at Mundra Port.	42.0	1800.00
15	Nargol Port Project by GMB/ Private Player	37.8	5750.00
16	Modhava Port Project by GMB/ Private Player	21.0	1986.00
17	Pipavav Port by GPPL at Pipavav Port	47.5	5110.00
18	Chhara Port Project by Shappoorji Palonji group at Chhara Port.	13.3	2270.00
19	Development of Port facilities Bulk and Container by Hazira Adani Port Pvt Ltd. at Magdalla & Hazira)	40.0	4574.00
20	Capacity expansion of Sikka Port by Reliance Port and Terminals Pvt. Ltd. (expansion of Product jetty)	15.0	2000.00
21	Development of Cement jetty by M/s. JP Cement by Jay Prakash at Kadoli Port	10.0	1600.00
22	Development of Old Mundra Port	5.0	N.A.
23	Development of Mahuva Port by GMB at Mahuva Port	10.5	600.00
24	Installation of New SBM by ONGC at Magdalla & Hazira Port	5.0	400.00
25	Development of Mandvi by KKM International Pvt Ltd	18.0	1400.00
26	Khambhat Port: Phase 1 & 2 by IL & FS	3.0	356.00
27	Captive jetty expansion by Ultra tech Cement Ltd at Kovaya/Pipavav Port	5.0	250.00
28	Development of Solid Terminal and Maritime city by GVK Power & Infrastructure at Okha & Dkhamadhi	15.0	2000.00
29	Development of Greendfield Port at Dholera by JK groups at Dholera	19.0	1500.00

SL. No.	Name of Major Projects	Capacity Addition (MTPA)	Investments (Rs in Crore)
30	Installation of New SBM by proposed GSPC Refinery at various Gujrat Port	30.0	700.00
31	Development of Port facilities for power Plant by Srei Infrastructure Finance Ltd. at Navlakhi Port	10.0	2500.00
32	Port Terminal by GVR Group at Jyrrabad	5.0	2000.00
33	Development of LNG with sub concession with M/s Swan Energy by GPPL at Pipavav	5.0	1500.00
34	Development of Vansiborsi Port	8.0	1773.00
35	Multipurpose berth at Navlakhi by DMCC	4.0	400.00
36	Development of Bedi new port	10.0	828.00
37	Offshore Port facilities at Okha for petroleum products by Energy Infrastructure Lts.	3.0	200.00
38	Captive Cement Jetty at Magdalla by ABG Cement	3.0	100.00
39	Expansion of LNG facilities at Dahej	3.0	450.00
40	Captive Jetty at Salaya by Essar Group – Phase 2	5.0	1000.00
41	Container Terminal at Mundra Phase 2 north Port by GAPL	46.0	5000.00
42	Development of Khambhat port	3.0	100.00
MAHARASHTRA			
1	Dighi Port by M/s Dighi Port Limited	97.8	12024.00
2	Jaigad Port		
	- Jaigad Port infrastructure Pvt Ltd(Bulk, Container)	3.1	403.00
	- JSW Jaigad Port (8 Berths for Liquid, General Cargo, SBM, RORO)	37.0	3059.00
3	Rewas Port (9 Berths – Container(4), Coal, Liquid, General Cargo, car carrier)	66.16	5114.00
4	Ispat Dharamtar Jetty (Iron ore, Coal, Coke, Lime stones scrap, etc)	24.8	1443.60
5	Ulwa – Belapur (Ambuja cement)	1.2	32.00
6	Ranpar (Finolex Industries Ltd)	5.25	137.00

SL. No.	Name of Major Projects	Capacity Addition (MTPA)	Investments (Rs in Crore)
GOA			
1	Development of Panaji Port	1.5	202.70
KARNATAKA			
1	Development of Karwar Port	11.75	800.00
2	Development of Tadri Port	34.05	2231.00
3	Development of Haldipur Port	10.0	1900.00
KERALA			
1	Development of Azhikkal Port	8.46	425.00
2	Development of Ponnani Port	6.8	636.00
3	Development of Vizhinjam Port	10.55	NA
TAMIL NADU			
1	Captive port by IL&FS Ltd. Paragipeti, Cuddalore	9.0	1500.00
2	Captive port by Tridem Port and Power Company Private Ltd., Thirukuvalai in Nagapattinam District	5.0	850.00
3	Captive port by M/s Udangudi Power Corporation Ltd., Udangudi, Thoothukudi District	4.0	600.00
4	Captive port by Empee Group, Nagapattinam District	4.0	350.00
5	Captive port by Sindya Power Generating Co.Pvt. Ltd., Nagapattinam District	4.0	350.00
6	Captive Jetty by M/s Cuddalare Powergen Corporation Limited, Cuddakare	3.5	325.00
7	Captive port by M/s Nagarjuna oil Corporation Limited, Thiruchopuram	15.0	2300.00
ANDHRA PRADESH			
1	Development of Kakinada Deep Water Port	11.0	900.00
2	Development of Gangavaram Port	24.0	2750.00
3	Development of Machilipatnam Port	17.0	1860.00
4	Development of Krishnapatnam Port	25.0	2000.00

SL. No.	Name of Major Projects	Capacity Addition (MTPA)	Investments (Rs in Crore)
5	Development of Nizampatnam & Vadarevu ports	40.0	15414.00
6	Development of Vanpic Port	50.0	17930.00
ORISSA			
1	Development of Gopalpur Port by Gopalpur Port Ltd.	27.74	1879.00
2	Development of Dhamra Port by International Sea Ports Private Ltd.	99.0	10800.00
3	Development of Subernarekha Muhan Port by Creative Port Development Private Ltd.	14.5	2500.00
4	Development of Astaranga Port by navayuga Engineering Company Ltd.	30.0	3500.00
5	Development of Chudamani Port by Essel Mining and Industries Ltd.(Aditya Birla Group)	28.0	2457.00

CHAPTER – 11

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) PERSPECTIVE IN INDIAN PORTS

11.1. Need of Information Technology in a Port

Ports are interfaces in a complex chain of logistical stations where not only containers and general cargo but also numerous kinds of bulk goods, like coal and ores, are loaded and unloaded at maritime and river terminals, stored and transferred to power stations, agricultural and industrial centres using conveyors, road and rail transport.

Therefore, Ports deal with a wide range of activities like movement of ships, passengers, cargo/container through different modes of transport, the loading and unloading of ship and interaction/clearance from different statutory bodies and port users. In addition, allocation and management of physical resources like berths, anchorage, channels, tugs, warehouses, storage space, human resources, etc. are also to be considered. Therefore, management of a port involves efficient deployment and utilization of all resources, backed-up by timely and accurate information, which can only be successfully achieved by efficient deployment of state-of-art Information Technology.

In view of innovations in Information and Communication Technology, the maritime industry is undergoing rapid technological changes. High degree of automation in operations is aimed at the ports world over to meet the increase in demand of efficiency of port operations. Hence, application of Information Technology is one of the key issues in the modernization of Ports.

11.2. Computerization at Indian Ports – Present Status

Presently, Indian Ports are now rapidly moving towards application of state-of-art technology and internet technology to implement integrated Port Operation System and to move towards paperless regime so as to reduce dwell time and as also cost to users.

The major areas includes, where such automation is aimed at by use of:

- *Vessel Traffic Management System (VTMS)*
- *Information Technology in Operational and non-operational areas*
- *Surveillance System and Safety & Security System*
- *Electronic Commerce (EC)/Electronic Data Interchange (EDI)*

11.2.1 Vessel Traffic Management System (VTMS)

VTMS has already been installed at Mumbai, Jawaharlal Nehru, Kolkata, Chennai, Cochin, New Mangalore and Mormugao Ports. Installation of the VTMS in the Gulf of Kutch providing coverage to Port of Kandla and other non-major Ports along the Gulf is under process.

11.2.2 Information Technology

Indian Ports have been implementing/implemented heterogeneous system using the latest technology covering the following modules/applications for efficient functioning of ports:

- i) Integrated Vessel Services and Control Management
- ii) Integrated Cargo Management and Accounting System for all types of cargo (which includes import & export module, Rail/CONCOR Operation and billing)
- iii) Integrated Container handling and Tracking system
- iv) Resource Planning (Including Equipment, Labor etc)

Most of the Private Container Terminal Operators in Major Ports/Non Major Ports have also implemented Terminal Operation Systems like NAVIS, CATOS, etc.

Apart from the operational Applications, some of the Indian Ports possess modern Hydrographic Survey units.

Other areas, which have been computerized by the Ports, are Pay Roll preparation and related accounting functions such as P.F. Accounts, Loan Accounts, Income Tax, Financial Accounting, Stores Inventory, Personnel Management, Estate Management, Hospital Management, Materials Management System, etc.

11.2.3 Surveillance System and Safety & Security System

As a result of fallout of 9/11 incident, a number of new technologies have been introduced to help the implementation of International Ship and Port Facility Security (ISPS) Code in various countries including India. All the Major Ports are ISPS compliant. In process of implementing ISPS, the need for bio-metric based access control management was felt and many ports are in the process of implementations. Besides, the requirement of CCTV based surveillance system has also been felt and some ports are also reaping the benefits of the same.

Now, all crafts tend to have AIS system, which install a satellite station on a ship. Similarly the use of radio frequency identification (RFID) is gaining ground in logistics and transport planning and optical character recognition (OCR) is being used quite cleverly in terminals to speed up the processing of containers in and out.

It is also proposed to introduce container scanning system in a phased manner, in addition to the introduction of automatic surveillance system like CCTVs.

Because of terrorist threat, the surveillance and security has become top most priority in Ports. Therefore, the need of very stringent and secured RFID/smart card and biometric verification at access points within ports/terminals for the seaport personnel, vehicles and container truck traffic management has arisen. Ports are geared to take up this challenge. The need of electric fencing with breach alarm is also thought of.

11.2.4 Electronic Commerce (EC)/Electronic Data Interchange (EDI)

The members of the Port Community depend on the flow of data from other members of the community to perform their functions effectively, since activity in one area will have an impact on the others. If data can be exchanged between them accurately and speedily, the efficiency and throughput will be improved. Electronic Data Interchange (EDI) has therefore become an essential element for maintaining the efficient operation not only of ports but also for the complete trade and transportation cycle.

The EC/EDI implementation is vigorously pursued in the functioning of trade regulating and facilitating organizations like Customs, Ports, Airports, Airlines, Banks, DGFT, AEPC/Texprocil, CONCOR, Railways, etc. Implementation of EDI varies from port to port and covers areas like Banks, exchange with Customs and few messages with few users.

11.3 Way Forward - Towards Paperless Regime

To achieve the paperless regime, ports have to gear up with the complete automation at an individual Port and Port Community levels.

11.3.1 Port Level Automation

Each port should undertake Enterprise Resource Planning (ERP) solutions which would cover all functional areas including port operation. The functional areas where ERP solutions are not available on the shelf, the solutions should be developed and integrated with ERP solutions. Ports like Cochin and Mormugao have already implemented ERP Solution along with Port Operation System and other modules that are not part of ERP Solution. New Mangalore is in the process of implementation similar ERP Solution followed by all the other Ports.

Non ERP solution like GIS linking with the Land/Estate Policy, Hospital Management, Bespoke System like Vigilance, Legal, File Tracking, Employee welfare, Right To Information (RTI) Act shall be implemented.

Ports shall implement Land/Estate Management solution which is completely scalable for implementation of other Business Process like Financial and Management Accounting, etc. As most of the Major Ports have initiative for the Computerization of Land Management process, the need of the hour is the Implementation of a complete application for Real estate Management, Utilities, and Advertisements which is completely scalable for implementation of an integrated ERP application on a Decentralized basis and shall be linked with ministry e-governance initiatives.

The provision for Self Service Scheme available in the system would be introduced as an employee welfare measure.

Automated equipment (Cargo/Container handling, Weight Bridges) shall also be integrated with the centralized system to avoid manual intervention.

Campus cabled LAN Network system shall be undertaken covering all the automation system and as a redundancy wireless LAN network shall also be considered.

The IT Policy of the port should be such a way as to integrate all sophisticated systems in the port in a comprehensive manner such as VTMS, AIS, RFID, CCTV, Surveillance System and other security systems.

A comprehensive data base needs to be developed by the ports themselves which will lead decision making and provide artificial intelligence.

Sufficient and suitable manpower shall be placed in each port for managing IT systems and these personnel shall be trained periodically to update their knowledge & know-how.

Each Port shall aim toward the goal to secure the ISO 27001 certification.

11.3.2 Port Community Level Automation

Port Community System (PCS) is intended to integrate the electronic flow of information and function as the centralized hub for Indian Ports and other stakeholders like Shipping Lines/Agents, Surveyors, Stevedores, Banks, Container Freight Stations, Government regulatory agencies, Customs House agents, Importers, Exporters, CONCOR/Railways, etc. through common interface in secure manner using the latest technologies.



PCS will be accessible through a secure and personalized web browser. This central and common facility will definitely save time and money and improve the speed of the services. It will improve track and trace efficiency and shipment/service visibility by automatically posting the current status updates by the system of each member as and when any significant event occurs. The status will be available for all interested parties for viewing or downloading as required.

Steps had already been initiated to implement Centralized Web based - Port Community System (PCS) at all Major Ports to reap the maximum benefits of EC/EDI and move towards a paperless regime. The module like Vessel, Container, Cargo, Transport, Finance, e-payment and MMD have been made LIVE. The testing of Port-Customs interface messages is in progress.

Presently as on July 2010, Major Ports are exchanging around 5 lakhs messages every month.

Now, steps have already been taken to implement PCS at Non-Major Ports also. Ports like Mundra, Pipavav, Gangavaram, Dehaj have already shown interest to implement PCS and taken advance step to integrate with PCS.

11.4 Conclusion

With the above ICT measures, Port Community will be enriched with:

- ❖ *Ability to file documents as well as messages (XML, UN/EDIFACT, TXT format) in multiple protocol for any port from any where in India;*
- ❖ *Convenience 24x7 submission;*
- ❖ *Ability to monitor and track the activities through the web;*
- ❖ *Exchange of Standardized Information;*
- ❖ *Gateways provisions for e-payment, SMS, E-mail, etc. centrally;*
- ❖ *Ability to get timely Alert during exceptions on e-mail, SMS, etc;*
- ❖ *Better security, redundancy and providing for Disaster recovery;*
- ❖ *Building of a Centralized repository of information for endless query options and a variety of needs including statistics and research;*

The ultimate aim is to seamlessly integrate all members of the port community and also to provide an electronic platform to act as a single window to exchange messages. This is definitely a **positive step towards improving Communication & Productivity and reduction in transaction cost at Indian Major Ports.**

All the above ICT measures will transform the Indian Ports into a truly top-knotch world-class technology driven ports. When Indian is becoming third largest economy in the world, ports also to be geared up to catch up the requirement of world trade and contribute their mite to the economy for which the ports should be equipped with the State-of-Art Technology

CHAPTER - 12

POLICY AGENDA AND THE WAY FORWARD

12.1 India has been an emerging and vibrant economy with a huge market and a billion plus population. As per the prediction of experts, India has the potential to grow as the fastest economy for the next 30 years and is more likely to occupy the second position after China by 2030.

12.2 This economic upsurge will be one of the important drivers for the growth of Indian Ports in the years to come. Coupled with this, the technological changes in shipping and information technology will trigger the growth in Indian Ports and provide stimulus for cargo handling.

12.3 Hinterland connectivity and Information and Communication (ICT) integration among all Port Community members are the two vital elements which drive the port sector in India towards comprehensive development of efficient world class ports. Various Ministries in Government of India viz., Ministry of Shipping, Ministry of Road Transport & Highways and Ministry of Railways as well as State Governments should lay specific emphasis and focus on hinterland connectivity. Major and non-major ports in the country should initiate and update various ICT measures and also integrate themselves with stakeholders to vitalize themselves into world class ports.

12.4 The Indian major ports in the recent past have exhibited very strong change management capabilities and have made significant strides in modernization and capacity augmentation. Port capacity development was possible mainly due to the various policy initiatives taken by the Government for increasing the pace of privatization, which include, amongst other things, standardization of RFQ, RFP and MCA and formulation of guidelines for fixation of upfront tariffs. The maritime states also have come up with several policy initiatives and identified potential locations for development of new outlets. Thus, the major ports and non-major ports have assumed complementary roles, besides creating healthy competition which in turn enabled the sector to provide cost effective and quality service to the customers.

12.5 As per the Maritime Agenda, 2020, the traffic at major ports is likely to grow at a CAGR of 8.03% from 561.09 Million Tonnes in 2009-10 to 1214.82 Million Tonnes by 2019-20, whereas the traffic at non – major ports is expected to grow at a CAGR of 15.96% from the present level of 288.80 Million Tonnes to 1269.59 Million Tonnes by 2019-20. Thus, the anticipated traffic at Indian Ports would grow to 2484.41 Million Tonnes by 2019-20 from the present level of 849.89 Million Tonnes at CAGR of 11.32%.

12.6 Having set the tone for the growth path, the Indian major ports and non-major ports have formulated ambitious plans for development of new outlets, augmentation of existing service centres, induction of state-of-art cargo handling equipment and improvement in logistics in order to meet the challenges emanating from the anticipated growth in the trade. As per these plans, the capacity at 13 major ports is likely to increase to 1459.53 million tonnes by 2020 from the present level of 616.73 Million Tonnes. The capacity at non-major ports is poised to increase by 2020 to 1660.02 Million Tonnes from the present level of 346.31 Million Tonnes. Thus, the Indian Ports are aiming at a surplus capacity of above 25% over the projected demand. This will enable the ports to provide berthing facilities on arrival of the ships, thus achieving zero waiting time for the vessels. The proposed investment during the next ten years is expected to be Rs. 2.77 lakh crore - 1.09 lakh crore for Major Ports and Rs.1.68 lakh crore for non-major ports.

12.7 In addition to capacity augmentation, all the major ports are aiming at bringing structural changes in the administration of the ports to improve organizational effectiveness. To this end, all the ports are planning towards implementing 'landlord port' concept duly limiting their role to maintenance of channels and basic infrastructure leaving the development operation management of terminal and cargo handling facilities to the private sector. The ports are aiming at lean staff by extending information technology to the entire gamut of operations. Thus the Indian Ports are marching forward with a confident note and gearing themselves to meet the anticipated demand from the trade in the years to come.

12.8 A summary of the projected traffic, estimated capacity and investments proposed by the Major Ports and Maritime States under three phases upto 2020 is given as under.

Traffic Projection

(In million tonnes)

Ports	Existing Level 2009-10	Projections			CAGR(%) between 2009-10 and		
		2011-12	2016-17	2019-20	2011-12	2016-17	2019-20
Major Ports	561.09	629.64	1031.50	1214.82	5.93	9.09	8.03
Non- Major Ports	288.80	402.50	987.81	1280.13	18.05	19.21	16.06
Overall	849.89	1032.14	2019.31	2494.95	10.20	13.16	11.37

Capacity Estimation

(In million tonnes)

Ports	Existing Level 2009-10	Projections			CAGR(%) between 2009-10 &		
		2011-12	2016-17	2019-20	2011-12	2016-17	2019-20
Major Ports	616.73	741.36	1328.26	1459.53	9.64	11.58	9.00
Non- Major Ports	346.31	498.68	1263.86	1670.51	20.00	20.31	17.04
Overall	963.04	1240.04	2592.12	3130.04	13.47	15.19	18.34

12.8.1 From the above table, it could be seen that Major Ports in India will handle a traffic of 1214.82 million tonnes and to handle such magnitude of traffic, Ports have identified schemes which would create a capacity to the tune of 1459.53 million tonnes. It means that capacity at Major Ports by the year 2020 will surpass traffic by 20%. Ideally, as per internationally accepted norms, the capacity should be about 30% more than traffic. Hence, major ports would continue to identify schemes/projects during the next decade to achieve the ideal norm of 30% over traffic. Incidentally, it is also mentioned that the capacity resulting from the ongoing schemes in 2020 has not been considered in the projections. Even these projects, if advanced, will result in more capacity, thereby fulfilling the ideal objective. In addition to the above, the Central Government plans to commission two more Major Ports, one each on the Andhra Coast & West Coast, which will also entail addition capacity in the Major Port segment.

Proposed Investments

(Rs. in Crore)

Ports	PROPOSED INVESTMENTS		
	2011-12	2016-17	2019-20
Major Ports	30603.83	58830.28	20015.30
Non- Major Ports	33144.22	95883.83	38675.79
Overall	63748.05	154714.11	58631.09

12.9 Policy Agenda 2010 - 20

While the present policies in the Government, both Central and State are quite dynamic and investor friendly, it is felt imperative that some more path-breaking initiatives, may be required to be taken over a period of time to boost the sector to the huge anticipated levels of growth and development of Ports in terms of traffic as well as capacity. It would also be necessary to review the policies periodically, say once in three years, to keep them relevant in changing times. Some of the future foreseeable priorities are as follows:

12.9.1 **Major Ports to be landlord ports:** The Major ports have been working towards implementing 'landlord port' concept duly limiting their role to maintenance of channels and basic infrastructure leaving the development operation management of terminal and cargo handling facilities to the private sector. This approach will continue and total realisation of this concept is expected by 2020.

12.9.2 **Policy on PPP projects:** Public Private Partnerships will be the preferred mode for the development of port terminals and other commercially viable activities in the Major Ports. The standardization of RFQ, RFP and MCA and the formulation of guidelines for fixation of upfront tariffs have served to make the PPP process transparent and to give confidence to the investors. These documents will be reviewed in 2010 – 11 and then after five years.

12.9.3 **Land Policy :** Land Policy is one of the significant policy frameworks guiding the overall functioning of the Port Sector. In all major ports, the world over, land

has been leveraged for optimizing the throughput and increasing revenue of Ports. It is an established practice globally for the ports to allot land for carrying out the economic activity including establishing industry to ensure captive cargo to the port, thereby enhancing the sustainability of that port. Port land has also been used to set up Special Economic Zones (SEZ) aimed at encouraging industrial development in and around that port. Other than the above, ports are generally expected to utilize their land giving the first priority for the purpose of port-related activities and treating the activities incidental to the port as secondary in nature. Ports located in large cities present port planners with a special challenges in land management. Major city-ports offer opportunities for the economic development of their host cities in terms of utilisation of land. Keeping all these factors in view, Land Policy shall be reviewed from time to time and a new vibrant Land Policy will be put in place in tune with the times.

12.9.4 Policy for preventing monopoly in the Major Ports Sector: In terms of the 'Regulatory Framework' of the Private Sector Participation (PSP) guidelines (1996), the ports were directed to ensure that private investment does not result in creation of private monopolies and that private facilities are available to all users on equal and competitive terms. Accordingly, it was felt that a policy may be formulated for prevention of private monopoly in the Port Sector for ensuring healthy competition amongst the private operators and smooth award of projects for capacity augmentation at the Major Ports. In exercise of the powers conferred upon the Central Government under Section 111 of the Major Port Trusts Act, 1963 and in consultation with Chairpersons of all Major Ports as well as stake holders, the following policy has been laid down with effect from 2.8.2010 for preventing private sector monopoly in Major Ports:

“If there is only one private terminal/berth operator in a port for a specific cargo, the operator of that berth or his associates shall not be allowed to bid for the next terminal/berth for handling the same cargo in the same port”.

12.9.5 Corporatization of Major Ports and Commercialisation: There are 13 Ports directly under the Central Government – out of these, 12 Major Ports are governed by the Major Port Trusts Act, 1963, and one (Ennore Port Limited) was

incorporated as a company under the Companies Act, 1956 and is governed by Indian Ports Act, 1908. Corporatization envisages conversion of Major Ports into commercial organizations operating with minimum costs offering improved services and having a quick market oriented commercial response mechanism. Towards this end, Corporatisation of ports has been recommended by experts and will be achieved in phases. Corporatisation will be taken up for three ports in the first phase, beginning with JNPT. Deserving ports could be conferred with Navaratna or Mini ratna status, giving them substantial autonomy in functioning. Public Ports under the control of both the Central Government and the State Governments should completely re-tune themselves and focus on Commercialisation and Corporatisation, with professional management in place and free access to financial markets without recourse to government support.

12.9.6 Tariff Regulation at Major Ports: TAMP is the economic regulator for major ports with the key function being tariff determination for major ports and their private terminals. TAMP was established in 1997 by an amendment to the Major Port Trusts Act, 1963 with the key objective of determining tariffs for the major ports and also specifying the conditions governing these tariffs. TAMP follows a consultative process with the stakeholders before fixation of tariffs. A set of guidelines on tariff setting was notified on March 31, 2005. This was a cost plus approach with an assured return on gross capital deployed. It was clarified that royalty/revenue share payable to the land lord port by the operator will not be an admissible cost for tariff computation. It thus implied that royalty will be paid out of the operating surplus of the concessionaire. The Tariff setting guidelines were revised in February, 2008 since it was felt that the bidders were facing difficulties in quoting the revenue share, on account of the tariff being determined after the bidding process was completed. As per the February, 2008 guidelines, a tariff cap (defining the ceiling) is set *upfront* by TAMP prior to inviting bids. TAMP follows a normative cost based approach which recognizes capital and operating costs and allow a reasonable rate of return on capital deployed, which is 16 percent as of now based on a capacity utilization of 70 percent of the capital deployed. While the whole tariff fixation mechanism has to be reviewed, there are several improvements possible in the guidelines in the short term, and this will be attempted in 2010-11.

12.9.7 **Port Regulator :** While the Tariff Authority of Major Ports is the economic regulator for major ports, with the main function as tariff setting for major ports and private terminals commissioned therein, the non-major ports, operating in the same environment do not have any economic regulator and non-major ports including private ports have liberty to fix their own tariffs. As a result, there is no level playing field. Hence, there is a need for a Port Regulator for all the ports for setting, monitoring and regulating the service levels, technical & performance standards. All the ports should be left free to fix their tariff, depending upon inter-play of market forces. The Regulator can be entrusted with the responsibility of dispute resolution as appropriate. The Regulator may also be empowered with judicial powers to issue regulations and policy guidelines, and take specific regulatory actions upon a finding of inadequate competition, anti-competitive practices or unsafe or environmentally detrimental practices. The Regulator could also act as an Ombudsman to deal with consumer grievances.

12.9.8 **Environmental Clearance Mechanism:** India is in the process of creating huge capacity through Public Private Partnership basis. One of the major factors for delay in the fructification of projects is the long environmental clearance mechanism. The project authorities have to undergo different processes at State and Central Level to get the project environmentally cleared. It is in the interest of the Port Sector that the environmental clearance process be reviewed in respect of existing ports where further development works are being undertaken. It should be possible to have clear guidelines laid down by the Environment Ministry and leave it to the Administrative Ministry / State Government to comply with those guidelines strictly and clear the projects environmentally. A Master Plan for the entire Port, covering different projects may be prepared and in-principle clearance be taken from Environment Ministry and thereafter, specific clearance for each project may be obtained from the Administrative Ministry/State Government. These could also be subject to subsequent environmental audit. It would also be desirable to look at the global best practices for environmental clearance.

12.9.9 **Environment Policy and Green ports:** The Ministry of Shipping is committed to the protection of environment, as it is an indispensable factor for sustainable economic growth. Steps are to be taken by ports in their endeavour to

become clean, green and environmental friendly ports. Environmental issues including the handling of hazardous and noxious substances in a port, prevention of air, water and soil pollution in ports, treatment of harmful aquatic organism in ballast water etc., are being addressed and tackled. The port industry in general has been faced with sustainability issues – compliance to international and national regulations vis-à-vis demands for bigger port capacity and increased productivity without compromising environmental quality. Without regulation, it is difficult to implement greener practices, as these may put operators at a competitive disadvantage. In addition to the need for increased regulation, there are several other issues that appear across the marine and port sector. These include availability of incentives to encourage green practices, cost and availability of clean fuel, the need to do more research on green technologies, use of shoreside power, training programmes for such industry and designating emission control areas.

In India also, strict policies for the air pollution due to fuel, old engines are adopted by prescribing the emission limits for different pollutants. Along with regulatory mechanism, there are various solutions available to control air pollution at ports. Air emission is already spreading its wings damaging the environment and ports contribute major source of emission imposing health risks to the nearby communities. Ports need to take the initiatives addressing the root cause of the pollution for the sustainable development. Progress with bad health of the region is not preferred by any society. Hence more emphasis is to be given on the use of cleaner fuel and technology leading to improvement in air quality and public health. There is a need to develop green policies supported by incentives to encourage ports to implement green practices. Jawaharlal Nehru Port Trust has already taken a lead in this regard. Green practices in the marine and port sector would need collaboration with other sectors (ex., air quality concerns, etc). Some of the measures for the control of emission and development of green ports are as under:

Easy and low cost approaches

- i. Use of cleaner fuels such as low sulphur diesels (LSD), biodiesel, and Fischer- tropsh diesel in all port equipments.
- ii. Well-enforced idling time restrictions of the vehicles in the port area.

- iii. Measures such as terminal gate improvements, simplifying trade procedures, designing logistic chain which produces less traffic and less air emission.
- iv. Controlling temperature of bunker during storage or using scavenging agent to reduce emission during bunkering operations.
- v. Speed reduction, use of specially designed paints to reduce drag, and vessel assignment planning for harbour crafts.
- vi. Formulation of 'green tariff' for the vessels which are reducing speed and using distillate fuel in the port limits.
- vii. 'Water curtains' for the coal storage area to prevent the coal dust flying from the storage yard and spreading through the port.

Capital intensive approaches

- i. Replacing or retrofitting cleaner engines for cargo handling equipments, vehicles, and harbour crafts.
- ii. Repowering of the old, highly polluting locomotives and tugboats with several low emitting new engine options, including natural gas (NG) and hybrid battery-electric (Bailey & Solomon, 2004).
- iii. Cold ironing for ships and port's tugs.
- iv. Building of the infrastructure such as separate corridors for the cargo, widening of the roads, flyovers, improving intersection for the better traffic.
- v. VOCS for the oil installations, gas fill stations and bunkering barges in the port area.
- vi. Use of renewable energy such as wind, solar power or biogas or alternative fuel such as natural gas or propane for the port's energy needs.
- vii. 'Green curtains' by tree plantation mainly to mitigate the effect of CO₂ emission.

12.9.10 **Capacity Building and Human Resource Development** : Recognising the need to impart structured training to all port personnel including officers, it is essential to re-train them towards multi-skilling. Every employee shall undergo different tiers of training programme during his service. Revamping of port based training institutions is also focused. Training will be made compulsory before consideration of an employee for promotion. In order to incentivise the port personnel and induct professionalism, Cadre Restructuring of Officers in Major Ports will be fully implemented which brings in uniformity as well as fresh induction of professionals at different levels of management through direct recruitment. The present classification of Ports into Category I & Category II will be reviewed and if considered necessary, done away with. The remuneration package for the port personnel will be on the lines of

public sector companies to induce corporate culture in the ports. Manning Scales, Datums and piece-rate incentives for port employees will be rationalised from time to time and realistic and productivity oriented ones will be put in place. Performance appraisal of CEOs of Ports will depend upon the agreed targets and objectives by way of a Memorandum of Understanding. Incentives for officers will depend upon the achievement of such stated targets and objectives.

12.9.11 **Indian Maritime Cadre** : Maritime Sector is a specialised sector and decisions in most of the areas are driven by the experience of executives in the sector, who through their professional experience and expertise can contribute to the growth and development of the sector. It should be possible to have several key positions in the sector manned by maritime specialists. In addition, executives in the sector do not have any proper career progression plans. As a result, they lack motivation and are unable to contribute their mite to the sector in spite of their specialisation. Hence, there is a need to form an Indian Maritime Cadre and encourage the specialisation in this field.

12.9.12 **Pilots Pool** : Indian Ports suffer, many-a-time, from inadequacy of pilots to navigate the vessels in their channels. As a result, ports are unable to achieve zero pre-detention time for vessels and long-waiting of vessels are also common in ports. It is advisable to start a three year pilots course consisting of 1 years theoretical training in Indian Maritime University and 2 years practical on-the job-training in ports so that a candidate can be given a pilot licence by the Government, after successful completion of course, to pilot vessels in any port. These pilots can move from one port to another.

12.9.13 **Dredging** : Ports need to develop the capacity to receive bigger ships, for which capital dredging to achieve the desired level of draft and maintenance dredging to retain that level, have to be undertaken. In most of the maritime nations, dredging in the channels, both capital as well as maintenance is taken up with budgetary support from the either the national Government or local Governments. Financial support for dredging is necessary for reducing the port charges. The channels leading to the Major Ports could be declared as National or State Channels. If considered necessary, each Port may be asked to remit certain Dredging Contribution

to the concerned Government in proportion of the quantum of traffic handled by the port. A policy on this has to be prepared in 2011-12.

12.9.14 Rail- Road Connectivity : Although major ports have reasonably adequate Rail-Road connectivity, many non-major ports are suffering from severe constraints. Such non-major ports must work with the State Governments and other authorities to commission 4 - lanes Road connectivity and 2 - lanes Rail Connectivity at their ports so as to ensure seamless flow of cargo. Major Ports may endeavour, in consultation with National Highways Authority of India (NHAI) and Ministry of Railways, to expand their connectivity to 8-lane Road Connectivity and 4- lanes Rail-connectivity respectively, by 2020. Links with the Western Dedicated Freight Corridor and Eastern Freight Corridor are a must for the Indian Ports to live up to challenges of burgeoning trade and must be pursued to be in place at the earliest.

12.9.15 Hub Ports : India should commission at least 4 hub ports, two each on the east viz. Chennai and Visakhapatnam Ports and the west coast viz. Jawaharlal Nehru and Cochin Ports to receive the 13,500+ TEU containerships. These should have :-

- Ability to berth vessels upto 400 LOA.
- Depth of water to be available for vessels at least of 15 m draft.
- Crane reach for vessels having 24 rows across.
- Container handling speed of 250-350 moves per hour.

12.9.16 Tax Regime: Since the beginning, the major ports in this country have been treated as “local authority” by virtue of a provision in General Clauses Act and they have been exempted from the Income Tax as Ports are considered as Nation’s vital infrastructure and the surpluses generated in the Ports could be ploughed back for creation of more infrastructure both within and outside the Port. Similar was the case of State Maritime Boards also. However, during the year 2002, the Income Tax Act has been amended to tax Ports also. The taxation system must also promote investment in infrastructure.

12.9.17 Cruise Shipping : Cruise Shipping is an area which has vast potential for Indian Ports, India being a major tourist destination. Though a policy has been

formulated, Cruise Shipping has not really taken off as it should have. A comprehensive policy need to be evolved and adequate arrangements in terms of state of art Passenger Terminals, Baggage screening, Customs clearance, Immigration, Tourism related ancillaries backed up by effective publicity need to be in place so that Indian Ports also become truly world class destinations as in the case of Singapore, Dubai and several western European and Caribbean countries.

12.9.18 Indian Maritime Finance Corporation : Most of the maritime projects are specialized in nature and they require a specialized scrutiny and appraisal for obtaining the finances for such projects. Moreover, there are no specialized agencies to fund such projects. As a result, many-a-time, project authorities in the maritime sector find it difficult to raise finances and achieve financial closure. Many Ports possess considerable cash reserves which, otherwise to be utilised for expansion and developmental activities, are deposited in Banks, because of induction of PPP in sector. These deposits yield low returns. On the other hand, a good maritime project, if appraised properly, might yield very good returns. Hence, it is quite desirable to float a specialized Maritime Finance Corporation with the equity of ports and financial institutions to fund the Port projects.

12.9.19 Corporate Social Responsibility : Corporate Social responsibility encompasses the sectors like health, education, employment, income and quality of life. It should be binding on the corporate sector to work on the above aspects, which are thought to be primary social indicators. The concept of corporate social responsibility (CSR) has so far failed to take deep root in India. Much needs to be done to bring changes in attitude towards CSR and bring awareness among the corporate about their social responsibilities. The Department of Public Enterprises (DPE) has prepared guidelines for central public sector enterprises to take up important corporate social responsibility projects to be funded by 2-5 per cent of the company's net profits. Nearly all the major ports in India are involved in CSR programmes in areas like education, health, staff quarters, skill development, and training. Major Ports are also promoting encouragement to the outstanding children of port employees through scholarships etc. However, much more could be done. A policy on CSR applicable to the Major ports will be prepared in 2011-12.

12.9.20 Approach to International Co-operation : To widen the Port's horizon, a continuous co-ordination and co-operation is to be maintained with international organizations like IAPH (of which most of the ports are members), PIANC, World bank, European Union, ESCAP, UNCTAD and ADB etc. In fact, Ports are aligned to IMO, FAL and SOLAS convention documents for safe and secure handling of various type of cargo. Most of the leading ports have already implemented ISPS code. Though a number of major ports have established sister-port agreements with some of the world class ports, there is further need to strengthen such co-operation for sharing the expertise in cargo handling operations and port management, exchange of information, co-operation in training needs and modules development, establishing joint ventures of mutual interest, promoting synergy and trade facilitation in the areas of their expertise etc. The sister-port arrangements may cover bilateral financial and technical cooperation through exchange of technology relating to infrastructure development and environment, management and operations, collaborations on dredging, marketing of port services etc.

12.9.21 Competition and Co-operation among Ports : In this era of globalisation where the economy grows at a brisk pace, every industry is witnessing competition between the many players. The Port Sector is no exception. The inter-port competition as well as intra-port competition is quite evident in the recent times. In India, inter-port competition is hindered mostly by insufficient hinterland connectivity and because not all ports can not offer similar type of cargo handling facilities at their terminals. Further, there are rigidities in pricing as a result of which traffic of nearby ports cannot be enticed by value added services or reduction in tariff. These issues need to be resolved to promote inter-port competition in an efficient market. One can expect more competition to emerge, once more ports are developed by the private operators in the bigger Maritime States. The Central Government has taken a considered decision to not allow a particular player to dominate a port, and this should promote intra-port competition in future. With the emergence of new ports and terminals lined up in the future, there is a need of a government policy to gear itself to meet these challenges of competition (or the lack of it).

While competition is very vital for growth and development of industry as well as to ensure quality of service to the Trade at competitive prices, at times, situations come across the situations where co-operation among the competing players is also essential. There is a need to practice business ethics as well as to avoid unfair practices for which co-operation among all the relevant players is essential. There are certain circumstances where co-operation among the different terminals or ports is necessary in operational exigencies as well as in emergent situations. For example, when a CONCOR Train brings in boxes in a rake comprising the boxes pertaining to JNPT, NSICT and GTL into the Port, a co-operative and co-ordinated mechanism should be evolved to deliver the boxes to the respective terminals. Similarly, when the traffic is over-flowing in a Port, all the terminals should find out a way out to handle all the boxes effectively without much delay. What is required in such a situation is that the Port authorities must plan in co-operation with other terminal operators to handle the vessels most efficiently and prepare berthing programme, allotment of space, gate clearance, inter-terminal transfers etc., Similarly, in case of illegal strikes takes place in a terminal, creating a difficult situation to the management and the Trade, the other terminals should come forward and rescue the terminal in difficulty, by handling their cargo at the usual tariff. The same broad principle of co-operation should be adopted by the all the ports in the country to see that Indian Cargo should not get diverted to the neighbouring countries. Of course, usual competition based on efficiency, productivity, cost-effectiveness and marketing must continue and thrive in ports and terminals.

12.9.22 Legislative Framework : The Governments, both Central and State should transform the legislative frame-work in tune with the current requirements. Necessary amendments to the Major Ports Act, 1963, Indian Ports Act, 1908 and Maritime Board Acts of respective State Governments have to be carried out.

12.9.23 Indian Ports' Global : In the era of Globalisation, infrastructure sectors all over the world have gone global in the form of acquisitions, equity stakes in companies abroad, commissioning of green field projects, partnering with companies abroad by the way of Joint Ventures etc., Port sector is no exception. Port of Singapore Authority have established their wings in different part of the world by an instrument called PSA International. Similarly, Dubai Ports have too spread its wings internationally

by the consolidated company viz. DP World. Likewise, some ports in Europe too made their presence in the rest of the world. It is in this context felt that since India is bestowed with rich maritime heritage and immense expertise in operating ports with highly skilled manpower and specialised knowledge in port operations, India must also float a special purpose vehicle for making investments in ports abroad and become a truly global power in Port Sector world-wide. It is envisaged to incorporate a new special purpose vehicle viz. Indian Ports' Global (IP Global) and commence pursuing its objectives as stated above.

12.10 While, the Maritime Agenda, 2010 - 20 envisages ambitious programmes to reach 3.12 billion tonnes port capacity within the next decade, a strong monitoring and feedback mechanism with "Score Card" approach should be initiated both at the Ports' level and at Government's level.

LIST OF PORTS IN INDIA

(A) STATE-WISE & UNION TERRITORY LIST OF NON-MAJOR PORTS

S.NO.	NAME OF PORT	S.NO	NAME OF PORT
	GUJARAT- 41	33	Vansi-Borsi
1.	Mandvi	34	Billimora
2.	Navlakhi	35	Valsad
3.	Bedi	36	Umarsadi
4.	Sikka	37	Kolak
5.	Jafarabad	38	Maroli
6.	Okha	39	Umergaon
7.	Porbandar	40	Mul-Dwarka
8.	Veraval	41	Magdalla
9.	Bhavnagar		
10.	Bharuch		
11.	Hazira		
12.	Koteshwar		
13.	Mundra / GAPL		
14.	Jakhau		
15.	Jodia		
16.	Salaya		ANDHRA PRADESH -12
17.	Pindhara	1	Bhavanapadu
18.	Beyt	2	Calingapatnam
19.	Rupen	3	Bheemunipatnam
20.	Mangrol	4	(i) Kakinada (ii)Kakinada Deepwater Port
21.	Kotda	5	Narsapur
22.	Madhwad	6	Machilipatnam
23.	Navabandar	7	Vodarevu
24.	Rajpara	8	Nizampatnam
25.	Pipavav / GPPL	9	Krishnapatnam
26.	Mahuva	10	Gangavaram
27.	Talaja	11	Mutyalampalem
28.	Ghogha	12	Rawa
29.	Khambhat		
30.	Dahej		
31.	Bhagwa		
32.	Onjal		

S.NO.	NAME OF PORT	S.NO	NAME OF PORT
	MAHARASHTRA - 48	45	Vengurla
1	Dahanu	46	Redi
2	Tarapur	47	Kiranpani
3	Nawapur	48	Ratnagiri
4	Satpati		
5	Kelwa-Mahim		
6	Arnala (incl Datiware)		
7	Uttan		
8	Bassein		
9	Nhiwandi		KARNATAKA - 10
10	Manori	1	Mangalore
11	Kalyan	2	Malpe
12	Thane	3	Hangarkatta
13	Versova	4	Kundapur
14	Bandra	5	Bhatkal
15	Trombay	6	Honavar
16	Ulwa-Belapur /(Panvel)	7	Tadri
17	Mora	8	Belekeri
18	Mandwa	9	Karwar
19	Karanja	10	Pudubidri
20	Thal (Rewas)		
21	Alibag (Dharamtar		
22	Revdanda		LAKSHADWEEP - 10
23	Borli/Mandla	1	Agatti
24	Nandgaon	2	Amini
25	Murud-Junijira	3	Androt
26	Rajpuri (Dighi	4	Bitra
27	Manded	5	Chetlat
28	Kumbharu	6	Kavaratti
29	Shriwardhan	7	Kadmat
30	Bankot	8	Kiltan
31	Kelshi	9	Kalpeni
32	Harnai	10	Minicoy
33	Dabhol		
34	Palshet		GOA - 5
35	Borya	1	Panaji
36	Jaigad	2	Chapora
37	Tiwri-Waroda	3	Betul
38	Purnagad	4	Talpona
39	Jaitapur	5	Tiracol
40	Vijaydurg		
41	Devgad		PONDICHERRY - 2
42	Achara	1	Pondicherry
43	Malvan	2	Karaikal
44	Niwti		

S.NO.	NAME OF PORT	S.NO	NAME OF PORT
	DAMAN & DIU - 2		WEST BENGAL - 1
1	Daman	1	Kulpi
2	Diu		
			KERALA - 17
		1	Alppuzha
		2	Vadakara
		3	Canannore
		4	Kasargod
	TAMIL NADU - 15	5	Kodungalloor
1	Cuddalore	6	Ponnani
2	Nagapattinam	8	Thiruvananthapuram
3	Rameswaram	9	Quilon
4	Pamban	10	Kozhikode/Bey pore
5	Colachel	11	Neendakara
6	Valinokkam	12	Azhikkal
7	Kanyakumari	13	Koavalam/Vizhinjam
8	Ennore	14	Tellycherry
9	Punnakkayal	15	Kayamkulam
10	Thirukkadaiyur	16	Manakkodam
11	PY-3 (Oil field)	17	Neeleswaram
12	Kattupalli ©		
13	Thiruchopuram ©		ORISSA - 13
14	Manappad ©	1	Gopalpur
15	Kudankulam	2	Bahabalpur
		3	Bahadammuham
		4	Palur
		5	Baliharichandi
		6	Astaranga
		8	Jatadhar Muhan
		9	Dhamra
		10	Chudamani
		11	Inchuri
		12	Chandipur
		13	Subatnarekha Mouth (Kirtania)

(B) LIST OF MAJOR PORTS

Major Ports

- 1. Kolkata Port Trust**
- 2. Paradip Port Trust**
- 3. Visakhapatnam Port Trust**
- 4. Chennai Port Trust**
- 5. Tuticorin Port Trust**
- 6. Cochin Port Trust**
- 7. New Mangalore Port Trust**
- 8. Mormugao Port Trust**
- 9. Mumbai Port Trust**
- 10. Jawaharlal Nehru Port Trust**
- 11. Kandla Port Trust**
- 12. Port Blair Port Trust**

Companies

- 13. Ennore Port Ltd.**

TRAFFIC IN TERMS OF PRINCIPAL COMMODITIES DURING 2009-2010 AND 2008-2009

(In Million Tonnes)

Port	Period	POL Crude + Product	Iron* Ore	Fertilizer		Coal		Container		Others	Total
				Finished	Raw Mat.	Thermal	Coking	Tonnage	TEUs (In 000 Nos.)		
KOLKATA	2009-2010	0.72	0.25	-	0.03	-	0.01	6.64	0.38	5.39	13.04
	2008-2009	3.44	0.29	-	0.01	-	-	5.48	0.30	3.21	12.43
HALDIA	2009-2010	9.31	7.68	0.18	0.12	1.49	6.06	2.07	0.12	6.47	33.38
	2008-2009	16.95	8.75	0.32	0.23	1.91	5.92	2.37	0.13	5.34	41.79
PARADIP	2009-2010	11.65	16.16	0.08	3.49	14.82	5.00	0.04	0.00	5.77	57.01
	2008-2009	4.82	14.27	0.17	3.40	14.70	5.43	0.03	0.00	3.59	46.41
VISAKHAPATNAM	2009-2010	18.29	18.94	2.91	0.78	3.77	7.95	1.68	0.10	11.18	65.50
	2008-2009	19.76	17.52	3.41	0.73	3.44	7.58	1.36	0.09	10.11	63.91
ENNORE	2009-2010	0.39	0.94	-	-	9.28	-	-	-	0.09	10.70
	2008-2009	0.36	1.11	-	-	9.71	-	-	-	0.32	11.50
CHENNAI	2009-2010	13.32	8.03	0.36	0.25	1.27	1.79	23.48	1.22	12.56	61.06
	2008-2009	13.13	8.36	0.52	0.26	2.44	1.66	20.58	1.15	10.54	57.49
TUTICORIN	2009-2010	0.51	0.04	1.22	0.86	5.60	-	6.60	0.44	8.96	23.79
	2008-2009	0.50	-	1.15	0.68	5.71	-	5.48	0.44	8.49	22.01
COCHIN	2009-2010	11.96	-	0.14	0.21	0.15	-	3.93	0.29	1.04	17.43
	2008-2009	10.49	0.03	0.19	0.26	0.26	-	3.26	0.26	0.74	15.23
NEW MANGALORE	2009-2010	21.34	7.06	0.82	0.01	-	2.81	0.47	0.03	3.02	35.53
	2008-2009	21.33	9.77	0.90	0.01	-	1.93	0.40	0.03	2.35	36.69
MORMUGAO	2009-2010	0.96	40.57	0.12	-	0.96	3.78	0.19	0.01	2.27	48.85
	2008-2009	0.90	33.81	0.18	-	0.45	4.11	0.15	0.01	2.08	41.68
MUMBAI	2009-2010	34.50	-	0.20	0.24	3.74	-	0.61	0.06	15.25	54.54
	2008-2009	34.37	-	0.12	0.19	3.27	-	1.29	0.09	12.64	51.88
J.N.P.T.	2009-2010	4.92	-	-	-	-	-	53.10	4.09	2.74	60.76
	2008-2009	4.55	-	-	-	-	-	50.60	3.95	2.14	57.29
KANDLA	2009-2010	47.21	0.66	4.91	0.79	2.30	0.93	2.43	0.15	20.27	79.50
	2008-2009	45.54	0.13	5.19	0.30	1.41	0.47	2.14	0.14	17.04	72.22
ALL PORTS:	2009-2010	175.08	100.33	10.94	6.78	43.38	28.33	101.24	6.89	95.01	561.09
	2008-2009	176.14	94.04	12.15	6.07	43.30	27.10	93.14	6.59	78.59	530.53

(*) INCLUDES PELLETS ALSO.

**COMMODITY-WISE PORT CAPACITIES AS ON 31-3-2010
(TAKING INTO ACCOUNT THE REASSESSMENT OF EXISTING CAPACITIES)**

(In Million Tonnes)

SL. NO.	COMMODITY	Kolkata	Haldia	Paradip	Vizag	Ennore	Chennai	Tuticorin	Cochin	New Mangalore	Mormugao	Mumbai	Kandla	J.Nehru	Total
1.	POL	3.96 + 4.0 (7) + A	17.00 (3+2BJ)	21.00 (1) + SBM	17.65 (4)	3.00 (1)	11.80 (2)	2.30 (1)	18.70 (3)+ SPM	22.00 (4)	1.50 (1)	32.00 (5)	62.83 + 0.8 (8+3SBM) + A	5.50 (2)	219.24 + 4.8 (42+5SBM+2BJ) + A
2.	IRON ORE	-	6.00 (2)	4.50 (1)	12.50 (1)	-	8.00 (1)	-	-	7.50 (1)	28.30 (1+Trans)	-	-	-	66.80 (7+Trans)
3.	COAL (THERMAL)	-	7.00 (2)	20.00 (2)	-	13.00 (2)	-	6.25 (2)	-	-	-	-	-	-	46.25 (8)
4.	FERTILIZERS	-	-	7.50 (2)	1.00 (1)	-	-	-	0.60 (1)	-	-	-	-	-	9.10 (4)
5.	GEN./ BREAK BULK CARGO	6.44 + 0.5 (22) + A	12.70 (8)	23.50 (9)	29.38 (15)	-	17.92 (14)	10.17 (10)	6.76 (9)	14.70 (8)	7.25 (4)	9.80 + 6 (24)* + A	14.97 (11)	0.90 (1)	154.49 + 6.5 (135) + A
6.	CONTAINERS	5.50 (4)	4.00 (2)	-	1.74 (1)	-	33.60 # (7)	5.00 (1)	4.31 (3)	-	-	1.90 (2)	7.20 (2)	57.60 @ (9)	120.85 (31)
	In Lakhs TEUs	4.58	3.33	-	1.45	-	28.00	4.17	3.59	-	-	1.58	6.00	45.50	98.20
	TOTAL:	15.90 + 4.5 (33) + A	46.70 (17+2BJ)	76.50 (15) + SBM	62.27 (22)	16.00 (3)	71.32 (24)	23.72 (14)	30.37 (16)+ SPM	44.20 (13)	37.05 (6+Tran shippers)	43.70 + 6 (31) + A	85.00 + 0.8 (21+3SBM) + A	64.00 (12)	616.73 + 11.30 (227+5SBM+ Transhippers+ 2BJ)+A

NOTE: Figures in brackets denotes number of berths. BJ = Barge Jetty, SBM = Single Buoy Mooring, Single Point Mooring=SPM, Trans = Transhippers, and A = Anchorage.

CHENNAI Capacity of Chennai Port 1st Container Terminal(4 berths) and 2nd Container Terminal (3 berths) has been taken as 24 MT and 9.60 MT respectively.

* MUMBAI: Berth no. 2&4 of Indira Dock has been redesignated as general cargo berths. As P&V dock (18 berths) is being converted as container storage yard, the capacity and number of berths have been taken as nil.

@ JNPT: Capacity of JNP container terminal (3 berths), NSICT(2 berths), GTIPL(3 berths) & 1 shallow water berth has been taken as 15.0 MT, 15.0 MT, 26.40 MT and 1.20 MT respectively. Capacity of one shallow water berth at JNPT is 0.90 MT for dry bulk cargo.

SOURCE: DEVELOPMENT WING, MINISTRY OF SHIPPING.

COMMODITY-WISE TRAFFIC AT NON-MAJOR PORTS
DURING 2009-2010* AND 2008-2009

(In Million Tonnes)

States	Period	POL Crude + Product	Iron Ore	Cement & Clinker	Coal	Fertilizer & FRM	Container Tonnage	Others	Total
GUJARAT	2009-2010	140.23	6.83	11.04	21.64	2.18	14.42	9.20	205.54
	2008-2009	91.16	5.87	11.26	16.16	6.77	11.54	10.05	152.81
MAHARASHTRA	2009-2010	-	5.32	2.20	2.97	0.01	0.00	2.01	12.51
	2008-2009	-	4.16	2.16	1.46	0.03	-	2.60	10.41
GOA(PANJIM)	2009-2010	-	13.68	-	0.22	-	-	-	13.90
	2008-2009	-	11.90	-	-	-	-	-	11.90
TAMIL NADU	2009-2010	1.04	-	-	-	0.04	-	0.09	1.17
	2008-2009	0.80	-	-	-	0.02	-	0.08	0.90
KARNATAKA	2009-2010	-	7.84	0.01	-	-	-	0.70	8.55
	2008-2009	-	4.28	0.01	-	-	-	0.68	4.97
KERALA	2009-2010	0.01	-	0.05	-	-	-	0.06	0.12
	2008-2009	0.01	-	0.04	-	-	-	0.07	0.12
PUDUCHERRY	2009-2010	0.02	-	-	1.16	-	0.01	0.13	1.32
	2008-2009	0.02	-	-	-	-	-	0.03	0.05
ANDHRA PRADESH	2009-2010	3.65	15.28	0.92	15.16	3.85	-	4.76	43.62
	2008-2009	9.40	9.47	0.21	3.50	3.27	-	3.89	29.74
ORISSA	2009-2010	-	0.12	-	0.14	0.03	-	0.13	0.42
	2008-2009	-	0.04	-	-	0.20	-	0.05	0.29
A&N ISLANDS	2009-2010	0.17	-	0.26	-	0.01	0.42	0.79	1.65
	2008-2009	0.17	-	0.26	-	0.01	0.43	1.14	2.01
ALL PORTS:	2009-2010	145.12	49.07	14.48	41.29	6.12	14.85	17.87	288.80
	2008-2009	101.56	35.72	13.94	21.12	10.30	11.97	18.59	213.20

(*) Provisional

(#) Steam Coal

ANNEXURE - V (a)

PRIVATE SECTOR / CAPTIVE PORT PROJECTS (OPERATIONAL)
(AS ON 1.10.2010)

S.no.	Name of the Project	PORT	Cost (RS. In Crore)	Capacity (in MTPA)
(1)	(2)	(3)	(4)	(5)
1.	Container Terminal, NSICT	JNPT	600.00	13.20
2.	BPCL Jetty	JNPT	200.00	5.50
3.	Third Container Terminal	JNPT	900.00	15.60
4.	Bulk Cargo berths no. 5A & 6A	Mormugao	250.00	5.00
5.	Fifth Oil Jetty (IFco0	Kandla	21.50	2.00
6.	Oil Jetty related facilities at Vadinar (ESSAR)	Kandla	750.00	12.00
7.	Oil Jetty awarded to M/s IOCL	Kandla	20.70	2.00
8.	Container Freight Station	Kandla	41.07	3.00
9.	Container Terminal (Phase I & II)	Kandla	446.54	7.20
10.	Container Terminal (Berth no. 70).	Tuticorin	100.00	5.00
11.	Container Terminal, Outer harbour.	Visakhapatnam	108.00	1.60
12.	Multipurpose Berths - EQ-8 & EQ-9	Visakhapatnam	196.00	6.00
13.	Captive Fertilizer Berth	Paradip	26.17	4.00
14.	Mechanisation of Cargo handling project -1	Paradip	37.32	2.00
15.	Mechanisation of Cargo handling project -2	Paradip	25.13	2.00
16.	Container Terminal at Chennai	Chennai	469.00	8.00
17.	Construction of single Point Mooring Captive berth	paradip	500.00	15.00
18.	Development of Second Container Terminal	Chennai	495.00	9.60
19.	Marine Liquid Terminal	Ennore	249.00	3.00
20.	Multipurpose Berth no. 4A	Haldia	150.00	3.00
21.	Multipurpose Berth no. 12	Haldia	30.07	0.45
22.	Crude Oil handling facility	Cochin	720.00	7.50
	Total		6335.50	132.65

ANNEXURE - V (b)

**PRIVATE SECTOR / CAPTIVE PORT PROJECTS UNDER IMPLEMENTATION
(AS ON 1.10.2010)**

S.NO.	Name of the Project	PORT	Cost (RS. In Crore)	Capacity (in MTPA)
(1)	(2)	(3)	(4)	(5)
1.	International Container Transshipment Terminal (ICTT) (Phase I to III)	Cochin	2118.00	36.00
2.	LNG R-gasification Terminal at Cochin	Cochin	3195.00	2.50
3.	Coal Terminal	Ennore	399.00	8.00
4.	iron Ore Terminal	Ennore	480.00	12.00
5.	Construction of two new off Shore container berths and development of container terminal	Mumbai	1460.00	9.60
6.	Construction of Captive Jetty for handling Coal by M/s NPCL	New Mangalore	230.00	5.40
7.	Construction of Coal Berth at NBW for NLC-TNEB	Tuticorin	49.00	6.30
8.	Development of 13th multipurpose cargo berth (other than liquid and container cargo berth)	Kandla	188.00	2.00
9.	Construction of Deep Draft Iron Ore Berth	Paradip	591.00	10.00
10.	Construction of Deep Draft Coal Berth	Paradip	479.00	10.00
11.	Setting up of Mechanised Iron Ore Handling Facilities at Berth no. 14	New Mangalore	277.11	6.62
12.	Development of Berth No.7 for handling bulk cargo	Mormugao	252.00	7.00
13.	Development of Western quay(WQ-6) in the northern arm of Inner harbour of VPT for	Visakhapatnam	114.37	2.00
14.	Development of EQ-10 berth in Inner Harbour for handling liquid cargo	Visakhapatnam	55.38	1.85
15.	.Mechanised Coal handling facilities at General cum Cargo Berth (GCB) in the Outer	Visakhapatnam	444.10	10.18
16.	Mechanization of Central Quay-III Berth	Paradip	40.00	4.00
17.	Mechanization of berth no. 2	Haldia	75.00	4.00
18.	Mechanization of Berth no. 8	Haldia	75.00	4.00
19.	Multi purpose berth Project	Paradip	387.31	5.00
20.	Development of Container Terminal	Ennore	1407.00	18.00
21.	Construction of NCB-II	Tuticorin	332.16	7.00
	Total		12648.43	171.45

ANNEXURE V (c)

PPP PROJECTS AWARDED IN 2009-10

S.NO.	Name of the Project	PORT	Cost (RS. In Crore)	Capacity (in MTPA)
(1)	(2)	(3)	(4)	(5)
1.	Development of 13th multipurpose cargo berth (other than liquid and container cargo berth)	Kandla	188.00	2.00
2.	Construction of Deep Draft Iron Ore Berth	Paradip	591.00	10.00
3.	Construction of Deep Draft Coal Berth	Paradip	479.00	10.00
4.	Setting up of Mechanised Iron Ore Handling Facilities at Berth No. 14	New Mangalore	277.11	6.62
5.	Development of Berth no.-7 for handling bulk cargo	Mormugao	252.00	7.00
6.	Development of Western quay (WQ-6) in the northern arm of Inner harbour of VPT for handling Dry bulk cargo	Visakhapatnam	114.37	2.00
7.	Development of EQ-10 berth in Inner harbour for handling liquid cargo	Visakhapatnam	55.38	1.85
8.	Mechanised Coal handling facilities at General cum Cargo Berth (GCB) in the Outer Harbour	Visakhapatnam	444.10	10.18
9.	Mechanisation at HDC berth no. 2	Kolkata	75.00	4.00
10.	Mechanisation at HDC berth no. 8	Kolkata	75.00	4.00
11.	Mechanisation of Cargo Handling Project-1	Paradip	37.32	2.00
12.	Mechanisation of Cargo Handling project -2	Paradip	25.13	2.00
13.	Mechanization of Central Quay-III Berth	Paradip	40.00	4.00
	Total		2653.41	65.65

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
KOLKATA	2011-12	0.79	0.30	-	-	-	0.05	7.60	0.61	4.95	13.69
	2012-13	0.81	0.30	-	3.00	-	0.06	8.19	0.66	5.18	17.54
	2013-14	0.83	0.30	-	4.00	-	0.06	8.80	0.70	5.45	19.44
	2014-15	1.92	0.30	-	4.00	-	0.06	10.03	0.80	4.68	20.99
	2015-16	2.50	3.50	5.00	10.50	-	0.06	11.80	0.94	19.31	52.67
	2016-17	3.20	3.50	5.50	12.00	-	0.06	20.37	1.63	21.34	65.97
	2017-18	3.35	4.50	6.00	12.70	-	0.06	22.26	1.78	22.02	70.89
	2018-19	3.50	5.50	6.50	13.20	-	0.07	24.79	1.98	23.02	76.58
	2019-20	3.70	6.50	7.20	13.75	-	0.07	27.46	2.20	24.73	83.41
HALDIA	2011-12	7.92	6.00	1.85	10.35	0.36	0.11	2.83	0.23	5.06	34.48
	2012-13	8.54	6.00	1.87	11.5	0.37	0.11	3.02	0.24	5.24	36.65
	2013-14	9.95	7.50	1.87	16.12	0.36	0.11	3.04	0.24	5.33	44.28
	2014-15	15.04	8.50	1.90	24.17	0.37	0.12	3.09	0.25	6.42	59.61
	2015-16	15.25	8.50	1.90	25.63	0.38	0.12	3.16	0.25	6.61	61.55
	2016-17	19.25	8.50	1.95	26.55	0.38	0.12	3.22	0.26	6.73	66.70
	2017-18	20.00	9.50	2.00	27.3	0.39	0.13	3.28	0.26	7.08	69.68
	2018-19	20.00	10.50	2.00	28.12	0.40	0.13	3.35	0.27	7.51	72.01
	2019-20	20.00	11.50	2.00	29.00	0.41	0.13	3.42	0.27	7.72	74.18

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
PARADIP	2011-12	18.00	17.00	18.00	5.00	0.20	4.00	0.05	0.004	7.75	70.00
	2012-13	21.00	17.00	18.00	5.50	0.20	4.00	0.05	0.004	9.10	74.85
	2013-14	23.50	17.00	18.00	6.00	0.20	4.50	0.10	0.008	10.10	79.40
	2014-15	29.00	17.50	18.00	7.00	0.20	4.50	0.10	0.008	10.70	87.00
	2015-16	34.50	18.50	18.00	8.00	0.20	4.50	1.00	0.08	11.30	96.00
	2016-17	35.00	19.00	18.00	10.00	0.20	5.00	1.00	0.08	11.80	100.00
	2017-18	39.00	19.00	18.50	10.00	0.20	5.50	1.00	0.08	12.40	105.60
	2018-19	43.00	19.50	19.00	10.00	0.20	6.00	1.00	0.08	13.20	111.90
	2019-20	48.00	20.00	20.00	10.00	0.20	7.00	1.00	0.08	13.80	120.00
VISAKHAPATNAM	2011-12	16.30	18.30	3.00	11.00	4.20	0.75	2.04	0.16	10.67	66.26
	2012-13	16.30	18.30	3.00	11.30	4.50	1.00	2.28	0.18	11.05	67.73
	2013-14	16.60	18.30	3.00	11.30	5.50	0.9	2.56	0.20	11.48	69.64
	2014-15	17.40	18.30	3.50	15.00	5.50	0.9	2.86	0.23	12.39	75.85
	2015-16	19.40	18.30	3.50	15.00	5.50	0.85	3.2	0.26	13.11	78.86
	2016-17	20.20	21.20	3.50	15.00	5.50	0.85	3.57	0.29	13.57	83.39
	2017-18	21.50	21.20	3.50	15.00	5.50	0.85	3.97	0.32	14.15	85.67
	2018-19	21.50	21.20	3.50	17.00	5.50	0.85	4.34	0.35	14.79	88.68
	2019-20	21.50	25.70	3.50	24.00	7.00	0.85	4.67	0.37	15.74	102.96

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL	CARS (NOS IN LAKHS)
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
ENNORE	2011-12	0.80	5.00	12.00	6.00	-	-	-	-	0.15	23.95	0.90
	2012-13	0.80	6.00	16.00	8.00	-	-	-	-	0.20	31.00	1.20
	2013-14	0.80	8.00	16.00	8.00	-	-	-	-	0.20	33.00	1.80
	2014-15	1.15	10.00	16.00	8.00	-	-	6.00	0.48	0.24	41.39	2.00
	2015-16	2.15	12.00	26.00	8.00	-	-	6.00	0.48	0.24	54.39	2.00
	2016-17	3.20	12.00	26.00	8.00	-	-	18.00	1.44	0.24	67.44	2.00
	2017-18	3.20	12.00	30.00	8.00	-	-	18.00	1.44	0.24	71.44	2.00
	2018-19	3.20	12.00	30.00	8.00	-	-	18.00	1.44	0.24	71.44	2.00
	2019-20	3.30	12.00	30.00	8.00	-	-	18.00	1.44	0.24	71.54	2.00
CHENNAI	2011-12	15.43	-	-	-	0.40	0.28	25.09	2.01	21.74	62.94	
	2012-13	16.63	-	-	-	0.42	0.30	27.6	2.21	22.67	67.62	
	2013-14	17.83	-	-	-	0.44	0.31	25.48	2.04	23.64	67.70	
	2014-15	19.04	-	-	-	0.46	0.33	25.48	2.04	24.68	69.99	
	2015-16	20.26	-	-	-	0.48	0.34	28.37	2.27	25.77	75.22	
	2016-17	21.5	-	-	-	0.51	0.36	33.39	2.67	26.9	82.66	
	2017-18	22.74	-	-	-	0.53	0.38	38.99	3.12	28.09	90.73	
	2018-19	24.00	-	-	-	0.56	0.40	44.58	3.57	29.36	98.90	
	2019-20	25.27	-	-	-	0.59	0.42	50.76	4.06	30.68	107.72	

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
TUTICORIN	2011-12	0.66	-	11.15	-	1.26	0.73	6.17	0.49	6.80	26.77
	2012-13	0.7	-	15.78	-	1.32	0.76	6.67	0.53	8.86	34.09
	2013-14	0.72	-	18.92	-	1.39	0.80	7.17	0.57	10.91	39.91
	2014-15	0.77	-	21.06	-	1.46	0.84	8.53	0.68	11.96	44.62
	2015-16	0.8	-	24.22	-	1.53	0.88	9.30	0.74	13.02	49.75
	2016-17	0.84	-	26.38	-	1.60	0.93	10.10	0.81	10.75	50.60
	2017-18	0.89	-	29.55	-	1.68	0.97	11.00	0.88	11.28	55.37
	2018-19	0.93	-	29.72	-	1.77	1.02	11.80	0.94	11.85	57.09
	2019-20	0.98	-	29.91	-	1.86	1.07	12.70	1.02	12.42	58.94
COCHIN	2011-12	12.80	-	0.36	-	0.10	0.36	9.69	0.78	1.77	25.08
	2012-13	14.40	-	0.38	-	0.11	0.37	12.34	0.99	2.16	29.76
	2013-14	16.00	-	0.42	-	0.11	0.37	14.50	1.16	2.54	33.94
	2014-15	17.23	-	0.44	-	0.11	0.38	15.00	1.20	2.93	36.09
	2015-16	21.10	-	0.47	-	0.15	0.39	15.63	1.25	3.49	41.23
	2016-17	25.04	-	0.50	-	0.20	0.4	16.25	1.30	4.04	46.43
	2017-18	27.70	-	0.50	-	0.21	0.42	16.88	1.35	4.60	50.31
	2018-19	30.40	-	0.50	-	0.23	0.43	17.50	1.40	5.24	54.30
	2019-20	33.20	-	0.50	-	0.25	0.45	18.13	1.45	5.90	58.43

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
NEW MANGALORE	2011-12	23.45	7.40	2.00	2.00	1.00	-	0.54	0.04	11.20	47.59
	2012-13	25.79	8.14	2.50	2.00	1.05	-	0.75	0.06	11.20	51.43
	2013-14	29.55	9.06	3.00	2.00	1.05	-	1.00	0.08	11.20	56.86
	2014-15	33.39	9.80	3.00	2.50	1.10	-	2.00	0.16	11.20	62.99
	2015-16	33.80	10.00	3.00	3.00	1.20	-	2.50	0.20	11.20	64.70
	2016-17	34.74	10.20	4.00	4.50	1.50	-	3.00	0.24	11.20	69.14
	2017-18	35.80	10.50	5.40	6.00	3.00	-	3.50	0.28	11.20	75.40
	2018-19	36.90	10.90	5.40	6.00	4.00	-	4.00	0.32	11.20	78.40
	2019-20	38.52	11.31	5.40	6.00	5.00	-	4.50	0.36	11.20	81.93
MORMUGAO	2011-12	1.49	39.02	1.40	4.40	-	0.20	0.18	0.01	5.30	51.99
	2012-13	1.49	40.00	1.50	4.50	-	0.20	0.20	0.02	5.40	53.29
	2013-14	1.49	40.00	1.50	4.50	-	0.25	0.20	0.02	5.70	53.64
	2014-15	1.65	40.00	2.00	5.00	-	0.25	0.20	0.02	6.05	55.15
	2015-16	1.65	40.00	2.50	6.00	-	0.25	0.22	0.02	6.85	57.47
	2016-17	1.95	42.23	3.00	7.00	-	0.30	0.22	0.02	7.53	62.23
	2017-18	1.95	42.23	3.00	7.00	-	0.30	0.23	0.02	7.60	62.31
	2018-19	2.00	43.00	3.00	7.00	-	0.30	0.24	0.02	7.85	63.39
	2019-20	2.25	45.00	3.50	8.00	-	0.35	0.25	0.02	8.65	68.00

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
MUMBAI	2011-12	34.80	3.70	5.40	0.60	0.20	0.30	1.00	0.08	9.30	55.30
	2012-13	36.30	3.70	5.40	0.60	0.20	0.30	3.00	0.24	10.50	60.00
	2013-14	36.90	3.70	5.40	0.60	0.30	0.40	4.00	0.32	11.15	62.45
	2014-15	37.40	3.70	5.40	0.60	0.30	0.40	6.00	0.48	11.60	65.40
	2015-16	37.90	3.70	6.00	0.60	0.35	0.45	6.50	0.52	13.35	68.85
	2016-17	38.50	3.70	6.40	0.60	0.40	0.50	7.20	0.58	15.20	72.50
	2017-18	38.50	3.70	6.40	0.60	0.40	0.50	8.00	0.64	15.75	73.85
	2018-19	39.00	3.70	6.40	0.60	0.40	0.60	8.80	0.70	16.10	75.60
	2019-20	39.00	3.70	6.40	0.60	0.40	0.60	9.60	0.77	16.90	77.20
JAWAHARLAL NEHRU	2011-12	3.96	-	-	-	-	-	58.10	4.65	2.24	64.30
	2012-13	3.96	-	-	-	-	-	62.50	5.00	2.24	68.70
	2013-14	3.96	-	-	-	-	-	70.63	5.65	2.24	76.83
	2014-15	3.96	-	-	-	-	-	84.63	6.77	2.24	90.83
	2015-16	3.96	-	-	-	-	-	101.25	8.10	2.24	107.45
	2016-17	3.96	-	-	-	-	-	124.00	9.92	2.24	130.20
	2017-18	3.96	-	-	-	-	-	124.00	9.92	2.24	130.20
	2018-19	3.96	-	-	-	-	-	124.00	9.92	2.24	130.20
	2019-20	3.96	-	-	-	-	-	124.00	9.92	2.24	130.20

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
KANDLA	2011-12	52.05	0.75	2.42	0.87	5.15	0.75	2.70	0.22	20.91	85.60
	2012-13	53.45	0.75	2.44	0.89	5.15	0.75	2.90	0.23	21.67	88.00
	2013-14	55.65	0.75	4.65	1.01	6.89	0.76	3.16	0.25	23.76	96.63
	2014-15	57.85	0.75	6.69	1.21	7.52	0.77	3.42	0.27	26.32	104.53
	2015-16	65.3	0.75	8.72	1.41	8.05	0.78	3.68	0.29	28.67	117.36
	2016-17	72.65	0.77	10.75	1.61	8.84	0.79	3.95	0.32	32.76	132.12
	2017-18	80.3	0.79	12.53	1.81	9.53	0.80	4.22	0.34	35.5	145.48
	2018-19	88.35	0.82	13.56	1.91	9.92	0.80	4.51	0.36	38.24	158.11
	2019-20	89.3	0.85	13.71	2.01	14.45	0.80	4.80	0.38	51.98	177.90
PORT BLAIR	2011-12	0.17	-	-	-	0.01	-	0.45	0.04	1.06	1.69
	2012-13	0.18	-	-	-	0.01	-	0.46	0.04	1.12	1.77
	2013-14	0.19	-	-	-	0.01	-	0.48	0.04	1.17	1.85
	2014-15	0.20	-	-	-	0.01	-	0.49	0.04	1.23	1.93
	2015-16	0.22	-	-	-	0.01	-	0.51	0.04	1.29	2.03
	2016-17	0.23	-	-	-	0.01	-	0.52	0.04	1.36	2.12
	2017-18	0.23	-	-	-	0.01	-	0.54	0.04	1.43	2.21
	2018-19	0.25	-	-	-	0.01	-	0.55	0.04	1.50	2.31
	2019-20	0.26	-	-	-	0.01	-	0.57	0.05	1.57	2.41

Annexure - VI

**PORT WISE & COMMODITY-WISE TRAFFIC PROJECTIONS FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

PORT	PERIOD	POL	IRON ORE	COAL		FERTILIZER		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MATERIAL	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
ALL MAJOR PORTS	2011-12	188.62	97.47	57.58	40.22	12.88	7.53	116.44	9.32	108.90	629.64
	2012-13	200.35	100.19	66.87	47.29	13.33	7.85	129.96	10.40	116.59	682.43
	2013-14	213.97	104.61	72.76	53.53	16.25	8.46	141.12	11.29	124.87	735.57
	2014-15	236.00	108.85	77.99	67.48	17.03	8.55	167.83	13.43	132.64	816.37
	2015-16	258.79	115.25	99.31	78.14	17.85	8.62	193.12	15.45	156.45	927.53
	2016-17	280.26	121.10	105.98	85.26	19.14	9.31	244.79	19.58	165.66	1031.50
	2017-18	299.12	123.42	117.38	88.41	21.45	9.91	255.87	20.47	173.58	1089.14
	2018-19	316.99	127.12	119.58	91.83	22.99	10.60	267.46	21.40	182.34	1138.91
	2019-20	329.24	136.56	122.12	101.36	30.17	11.74	279.86	22.39	203.77	1214.82

**PORT WISE & COMMODITY-WISE CAPACITY ESTIMATED FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

CAPACITY ESTIMATED AS ON 31ST MARCH											
PORT	YEAR	POL	IRON ORE	COAL		FERTILIZERS		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MAT.(DRY)	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
KOLKATA	2011-12	4.60	-	-	-	-	Included in the other Misc Cargo	5.50	0.44	7.00	17.10
	2012-13	4.60	-	-	3.00	-		6.50	0.52	8.00	22.10
	2013-14	4.60	-	-	5.00	-		6.50	0.52	8.00	24.10
	2014-15	4.60	-	-	5.00	-		16.50	1.32	8.00	34.10
	2015-16	4.60	4.00	5.00	12.50	-		24.00	1.92	24.00	74.10
	2016-17	7.50	4.00	5.50	13.50	-		34.50	2.76	24.00	89.00
	2017-18	7.50	5.00	6.00	13.80	-		38.00	3.04	24.00	94.30
	2018-19	7.50	6.00	6.50	13.80	-		39.50	3.16	31.80	105.10
2019-20	7.50	6.80	7.20	13.80	-	41.50	3.32	31.80	108.60		
HALIDA	2011-12	17.00	6.00	7.00	8.00	Included in the other misc cargoes	4.00	0.32	12.70	54.70	
	2012-13	17.00	6.00	7.00	8.00		4.00	0.32	12.70	54.70	
	2013-14	17.00	6.00	7.00	8.00		4.00	0.32	14.70	56.70	
	2014-15	20.00	8.00	7.00	19.00		4.00	0.32	14.70	72.70	
	2015-16	20.00	9.00	11.00	19.00		4.00	0.32	16.50	79.50	
	2016-17	22.00	9.00	11.00	22.50		4.00	0.32	16.50	85.00	
	2017-18	22.00	9.00	11.00	22.50		4.00	0.32	16.50	85.00	
	2018-19	22.00	9.00	11.00	26.00		4.00	0.32	17.50	89.50	
2019-20	22.00	9.50	12.00	26.00	4.00	0.32	17.50	91.00			
PARADIP	2011-12	23.50	8.50	22.50	-	-	7.50	-	-	23.50	85.50
	2012-13	44.50	18.50	22.50	10.00	-	7.50	-	-	23.50	126.50
	2013-14	55.50	18.50	22.50	10.00	-	7.50	-	-	23.50	137.50
	2014-15	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50
	2015-16	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50
	2016-17	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50
	2017-18	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50
	2018-19	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50
2019-20	55.50	18.50	22.50	10.00	-	7.50	2.50	0.2	41.00	157.50	

**PORT WISE & COMMODITY-WISE CAPACITY ESTIMATED FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

CAPACITY ESTIMATED AS ON 31ST MARCH												
PORT	YEAR	POL	IRON ORE	COAL		FERTILIZERS		CONTAINERS		OTHER MISC. CARGO	TOTAL	CARS (NOS IN LAKHS)
				THERMAL	COKING & OTHER	FINISHED	RAW MAT.(DRY)	TONNAGE	TEUS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
VISAKHAPATNAM	2011-12	25.65	12.50	-	-	1.00	1.74	0.14	31.08	71.97		
	2012-13	25.65	14.50	3.00	9.20	2.30	2.40	0.19	37.00	94.05		
	2013-14	25.65	20.16	7.36	16.58	6.20	2.40	0.19	37.00	115.35		
	2014-15	27.65	26.66	7.36	16.58	6.20	4.40	0.35	39.20	128.05		
	2015-16	27.65	26.66	7.36	16.58	6.20	4.40	0.35	39.20	128.05		
	2016-17	27.65	26.66	7.36	19.08	6.20	4.40	0.35	48.32	139.67		
	2017-18	27.65	26.66	7.36	21.58	6.20	4.40	0.35	48.32	142.17		
	2018-19	27.65	26.66	7.36	24.08	6.20	4.40	0.35	49.82	146.17		
2019-20	27.65	26.66	7.36	26.58	6.20	4.40	0.35	49.82	148.67			
ENNORE	2011-12	3.00	12.00	16.00	8.00	-	-	-	-	0.50	39.50	2.0
	2012-13	3.00	12.00	16.00	8.00	-	-	-	-	0.50	39.50	2.0
	2013-14	3.00	12.00	16.00	8.00	-	-	6.000	0.48	0.50	45.50	2.0
	2014-15	5.50	12.00	16.00	8.00	-	-	6.000	0.48	0.50	48.00	2.0
	2015-16	8.50	12.00	26.00	8.00	-	-	18.00	1.44	0.50	73.00	2.0
	2016-17	8.50	12.00	26.00	8.00	-	-	18.00	1.44	0.50	73.00	2.0
	2017-18	8.50	12.00	26.00	8.00	-	-	18.00	1.44	0.50	73.00	2.0
	2018-19	8.50	12.00	26.00	8.00	-	-	18.00	1.44	0.50	73.00	2.0
2019-20	8.50	12.00	26.00	8.00	-	-	18.00	1.44	0.50	73.00	2.0	
CHENNAI	2011-12	11.80	-	-	-	-	-	33.60	2.69	22.92	68.32	
	2012-13	12.80	-	-	-	-	-	33.60	2.69	25.42	71.82	
	2013-14	12.80	-	-	-	-	-	33.60	2.69	26.42	72.82	
	2014-15	12.80	-	-	-	-	-	41.60	3.33	26.42	80.82	
	2015-16	12.80	-	-	-	-	-	53.60	4.29	26.42	92.82	
	2016-17	12.80	-	-	-	-	-	65.60	5.25	27.92	106.32	
	2017-18	12.80	-	-	-	-	-	77.60	6.21	27.92	118.32	
	2018-19	12.80	-	-	-	-	-	89.60	7.17	27.92	130.32	
2019-20	12.80	-	-	-	-	-	99.60	7.97	27.92	140.32		

**PORT WISE & COMMODITY-WISE CAPACITY ESTIMATED FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

CAPACITY ESTIMATED AS ON 31ST MARCH											
PORT	YEAR	POL	IRON ORE	COAL		FERTILIZERS		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MAT.(DRY)	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
TUTICORIN	2011-12	2.3	-	14.75	-	-	-	10.00	0.80	18.47	45.52
	2012-13	2.3	-	14.75	-	-	-	10.00	0.80	20.47	47.52
	2013-14	2.3	-	14.75	-	-	-	10.00	0.80	22.47	49.52
	2014-15	2.3	-	21.75	-	-	-	10.00	0.80	22.47	56.52
	2015-16	2.3	-	21.75	-	-	-	10.00	0.80	22.47	56.52
	2016-17	2.3	-	28.75	-	-	-	10.00	0.80	22.47	63.52
	2017-18	2.3	-	28.75	-	-	-	10.00	0.80	22.47	63.52
	2018-19	2.3	-	35.75	-	-	-	11.80	0.94	22.47	72.32
2019-20	2.3	-	35.75	-	-	-	14.60	1.17	22.47	75.12	
COCHIN	2011-12	25.30	-	-	-	-	0.60	12.50	1.00	11.07	49.47
	2012-13	25.30	-	-	-	-	0.60	12.50	1.00	11.07	49.47
	2013-14	25.30	-	-	-	-	0.60	18.75	1.50	11.07	55.72
	2014-15	25.30	-	-	-	-	0.60	18.75	1.50	11.07	55.72
	2015-16	29.80	-	-	-	-	0.60	18.75	1.50	11.07	60.22
	2016-17	29.80	-	-	-	-	0.60	18.75	1.50	13.07	62.22
	2017-18	29.80	-	-	-	-	0.60	18.75	1.50	13.07	62.22
	2018-19	29.80	-	-	-	-	0.60	18.75	1.50	13.07	62.22
2019-20	31.80	-	-	-	-	0.60	31.25	2.50	13.07	76.72	
NEW MANGALORE	2011-12	22.00	14.12	5.40	-	-	-	-	-	14.70	56.22
	2012-13	29.80	14.12	5.40	-	-	-	-	-	14.70	64.02
	2013-14	29.80	14.12	5.40	-	-	-	-	-	14.70	64.02
	2014-15	47.80	14.12	5.40	6.00	-	-	4.50	0.36	14.70	92.52
	2015-16	47.80	14.12	5.40	6.00	-	-	4.50	0.36	14.70	92.52
	2016-17	47.80	14.12	5.40	6.00	5.00	-	4.50	0.36	14.70	97.52
	2017-18	47.80	14.12	5.40	6.00	5.00	-	4.50	0.36	14.70	97.52
	2018-19	47.80	14.12	5.40	6.00	5.00	-	4.50	0.36	14.70	97.52
2019-20	47.80	14.12	5.4	6.00	5.00	-	4.50	0.36	14.70	97.52	

**PORT WISE & COMMODITY-WISE CAPACITY ESTIMATED FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

CAPACITY ESTIMATED AS ON 31ST MARCH											
PORT	YEAR	POL	IRON ORE	COAL		FERTILIZERS		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MAT.(DRY)	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
MORMUGAO	2011-12	7.50	28.30	-	-	-	-	-	-	7.25	43.05
	2012-13	7.50	28.30	-	-	-	-	-	-	7.25	43.05
	2013-14	7.50	38.30	7.00	-	-	-	-	-	7.25	60.05
	2014-15	7.50	38.30	11.00	-	-	-	-	-	7.25	64.05
	2015-16	7.50	38.30	11.00	-	-	-	-	-	7.25	64.05
	2016-17	7.50	38.30	11.00	-	-	-	-	-	11.25	68.05
	2017-18	7.50	38.30	11.00	-	-	-	-	-	11.25	68.05
	2018-19	7.50	38.30	11.00	-	-	-	-	-	11.25	68.05
2019-20	7.50	38.30	11.00	-	-	-	-	-	-	11.25	68.05
MUMBAI	2011-12	32.00	-	-	-	Included in the other misc cargoes	-	9.60	0.77	11.70	53.30
	2012-13	34.00	-	-	-		9.60	0.77	18.70	62.30	
	2013-14	34.00	-	-	-		9.60	0.77	18.70	62.30	
	2014-15	36.00	-	-	-		9.60	0.77	18.70	64.30	
	2015-16	36.00	-	-	-		9.60	0.77	18.70	64.30	
	2016-17	54.00	-	-	-		9.60	0.77	18.70	82.30	
	2017-18	54.00	-	-	-		9.60	0.77	18.70	82.30	
	2018-19	54.00	-	-	-		9.60	0.77	18.70	82.30	
2019-20	54.00	-	-	-	9.60	0.77	18.70	82.30			
JAWAHARLAL NEHRU	2011-12	5.50	-	-	-	-	-	61.20	4.90	0.90	67.60
	2012-13	5.50	-	-	-	-	-	63.95	5.12	0.90	70.35
	2013-14	5.50	-	-	-	-	-	103.95	8.32	0.90	110.35
	2014-15	5.50	-	-	-	-	-	103.95	8.32	0.90	110.35
	2015-16	5.50	-	-	-	-	-	133.95	10.72	0.90	140.35
	2016-17	5.50	-	-	-	-	-	133.95	10.72	0.90	140.35
	2017-18	5.50	-	-	-	-	-	135.82	10.87	0.90	142.22
	2018-19	5.50	-	-	-	-	-	135.82	10.87	0.90	142.22
2019-20	5.50	-	-	-	-	-	135.82	10.87	0.90	142.22	

**PORT WISE & COMMODITY-WISE CAPACITY ESTIMATED FOR MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

CAPACITY ESTIMATED AS ON 31ST MARCH											
PORT	YEAR	POL	IRON ORE	COAL		FERTILIZERS		CONTAINERS		OTHER MISC. CARGO	TOTAL
				THERMAL	COKING & OTHER	FINISHED	RAW MAT.(DRY)	TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
KANDLA	2011-12	62.83	-	-	-	-	-	7.20	0.58	14.97	85.00
	2012-13	73.83	-	-	-	-	-	7.20	0.58	51.47	132.50
	2013-14	73.83	-	-	-	-	-	7.20	0.58	51.47	132.50
	2014-15	88.83	-	-	-	-	-	7.20	0.58	51.47	147.50
	2015-16	91.23	-	-	-	-	-	7.20	0.58	60.27	158.70
	2016-17	91.23	-	-	-	-	-	7.20	0.58	61.27	159.70
	2017-18	91.23	-	-	-	-	-	7.20	0.58	61.27	159.70
	2018-19	97.23	-	-	-	-	-	7.20	0.58	75.97	180.40
2019-20	97.23	-	-	-	-	-	7.20	0.58	89.97	194.40	
PORT BLAIR	2011-12	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2012-13	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2013-14	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2014-15	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2015-16	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2016-17	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2017-18	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
	2018-19	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11
2019-20	0.4	-	-	-	0.01	-	0.70	0.06	3.00	4.11	
TOTAL ALL PORTS	2011-12	243.38	81.42	65.65	16.00	1.01	8.10	146.04	11.68	179.76	741.36
	2012-13	286.18	93.42	68.65	38.20	2.31	8.10	150.45	12.04	234.68	881.99
	2013-14	297.18	109.08	80.01	47.58	6.21	8.10	202.70	16.22	239.68	990.54
	2014-15	339.68	117.58	91.01	64.58	6.21	8.10	229.70	18.38	259.38	1116.24
	2015-16	349.58	122.58	110.01	72.08	6.21	8.10	291.20	23.30	285.98	1245.74
	2016-17	372.48	122.58	117.51	79.08	11.21	8.10	313.70	25.10	303.60	1328.26
	2017-18	372.48	123.58	118.01	81.88	11.21	8.10	331.07	26.49	303.60	1349.93
	2018-19	378.48	124.58	125.51	87.88	11.21	8.10	346.37	27.71	328.60	1410.73
2019-20	380.48	125.88	127.21	90.38	11.21	8.10	373.67	29.89	342.60	1459.53	

**STATE WISE & COMMODITY-WISE TRAFFIC PROJECTION FOR NON MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHERS	TOTAL
						TONNAGE	TEUS		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10
GUJARAT	2011-12	142.00	10.00	25.00	4.00	30.00	2.40	37.00	248.00
	2012-13	153.00	11.00	43.00	4.00	39.00	3.12	43.00	293.00
	2013-14	167.00	12.00	48.00	4.00	46.00	3.68	47.00	324.00
	2014-15	183.00	13.00	53.00	5.00	54.00	4.32	50.00	358.00
	2015-16	200.00	15.00	59.00	5.00	64.00	5.12	53.00	396.00
	2016-17	219.00	16.00	66.00	5.00	74.00	5.92	58.00	438.00
	2017-18	239.00	18.00	73.00	5.00	87.00	6.96	63.00	485.00
	2018-19	256.00	20.00	78.00	5.00	98.00	7.84	66.00	523.00
	2019-20	273.00	22.00	83.00	5.00	110.00	8.80	72.00	565.00
MAHARASHTRA	2011-12	0.17	9.74	10.08	2.76	0.63	0.05	7.19	30.57
	2012-13	0.50	15.18	21.55	3.20	0.88	0.07	11.67	52.98
	2013-14	1.04	18.12	40.03	3.61	1.18	0.09	20.78	84.76
	2014-15	1.39	19.12	41.76	4.02	1.58	0.13	24.81	92.68
	2015-16	4.98	22.75	46.97	4.52	2.17	0.17	28.47	109.86
	2016-17	7.86	24.03	50.14	5.85	2.92	0.23	33.48	124.28
	2017-18	11.23	25.69	53.09	6.69	3.94	0.32	37.42	138.06
	2018-19	18.10	27.36	56.37	7.44	5.31	0.42	40.79	155.37
	2019-20	21.28	29.24	60.14	8.52	7.21	0.58	46.32	172.71

**STATE WISE & COMMODITY-WISE TRAFFIC PROJECTION FOR NON MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHERS	TOTAL
						TONNAGE	TEUS		
1.	2.	3.	4.	5	6	7	8	9	10
GOA	2011-12	-	13.95	0.22	-	-	-	-	14.17
	2012-13	-	14.09	0.23	-	-	-	-	14.32
	2013-14	-	14.23	0.23	-	-	-	-	14.46
	2014-15	-	14.38	0.23	-	-	-	-	14.61
	2015-16	-	14.52	0.23	-	-	-	-	14.75
	2016-17	-	14.67	0.23	-	-	-	-	14.90
	2017-18	-	14.81	0.24	-	-	-	-	15.05
	2018-19	-	14.96	0.24	-	-	-	-	15.20
	2019-20	-	15.11	0.24	-	-	-	-	15.35
KARNATAKA	2011-12	-	-	-	-	-	-	9.95	9.95
	2012-13	-	-	-	-	-	-	10.70	10.70
	2013-14	-	-	-	-	-	-	11.45	11.45
	2014-15	-	-	-	-	-	-	38.55	38.55
	2015-16	-	-	-	-	-	-	43.63	43.63
	2016-17	-	-	-	-	-	-	51.95	51.95
	2017-18	-	-	-	-	-	-	60.20	60.20
	2018-19	-	-	-	-	-	-	66.80	66.80
	2019-20	-	-	-	-	-	-	67.40	67.40

**STATE WISE & COMMODITY-WISE TRAFFIC PROJECTION FOR NON MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHERS	TOTAL
						TONNAGE	TEUS		
1.	2.	3.	4.	5	6	7	8	9	10
ANDHRA PRADESH	2011-12	0.50	16.18	34.11	4.65	0.15	0.01	8.26	63.85
	2012-13	0.50	16.95	45.21	5.27	0.40	0.03	10.37	78.70
	2013-14	1.22	20.24	56.81	5.50	5.40	0.43	13.74	102.91
	2014-15	1.32	20.57	61.43	6.13	18.13	1.45	16.93	124.51
	2015-16	1.39	20.92	64.88	6.46	30.45	2.44	20.06	144.16
	2016-17	1.51	21.32	69.18	7.29	41.50	3.32	21.21	162.01
	2017-18	1.62	21.25	73.03	7.34	50.75	4.06	24.35	178.34
	2018-19	1.93	21.72	79.47	7.78	57.60	4.61	24.22	192.72
	2019-20	1.94	22.25	82.79	8.63	61.70	4.94	24.73	202.04
TAMIL NADU	2011-12	1.50	0.20	0.80	0.05	0.35	0.03	0.20	3.10
	2012-13	3.00	0.30	1.40	0.05	0.40	0.03	0.25	5.40
	2013-14	6.00	0.40	16.00	0.20	0.60	0.05	1.00	24.20
	2014-15	6.50	0.90	18.50	1.00	0.80	0.06	2.00	29.70
	2015-16	7.00	1.30	20.00	1.20	1.00	0.08	2.50	33.00
	2016-17	7.50	1.40	21.00	1.20	1.10	0.09	3.00	35.20
	2017-18	8.00	1.40	23.00	1.60	1.30	0.10	3.00	38.30
	2018-19	9.00	1.70	23.50	1.60	1.50	0.12	3.50	40.80
	2019-20	10.00	1.80	26.00	2.00	1.60	0.13	4.00	45.40

**STATE WISE & COMMODITY-WISE TRAFFIC PROJECTION FOR NON MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHERS	TOTAL
						TONNAGE	TEUS		
1.	2.	3.	4.	5	6	7	8	9	10
KERALA	2011-12	0.003	-	-	0.03	-	-	0.23	0.26
	2012-13	0.003	-	1.50	0.08	0.14	0.01	0.74	2.46
	2013-14	0.066	-	2.00	0.13	2.00	0.16	1.29	5.49
	2014-15	0.073	-	2.10	0.28	3.13	0.25	1.93	7.51
	2015-16	0.126	-	2.20	0.25	4.44	0.36	2.28	9.30
	2016-17	0.135	-	2.30	0.31	5.89	0.47	2.75	11.39
	2017-18	0.144	-	2.40	0.30	7.40	0.59	3.00	13.24
	2018-19	0.154	-	2.50	0.31	9.03	0.72	3.34	15.33
	2019-20	0.269	-	7.00	0.48	11.53	0.92	7.99	27.27
ORISSA	2011-12	-	8.88	19.13	1.49	-	-	3.10	32.60
	2012-13	-	16.35	25.45	1.70	-	-	4.96	48.46
	2013-14	-	16.37	53.08	1.91	7.00	0.56	9.96	88.32
	2014-15	12.00	24.38	66.52	2.21	7.20	0.58	12.21	124.52
	2015-16	12.00	26.39	73.48	2.25	7.20	0.58	14.44	135.76
	2016-17	12.00	29.41	75.95	2.28	14.25	1.14	16.19	150.08
	2017-18	24.00	32.42	81.45	2.33	14.30	1.14	18.48	172.98
	2018-19	24.00	32.44	83.69	2.38	14.30	1.14	21.55	178.36
	2019-20	24.00	32.45	87.24	2.45	14.50	1.16	24.32	184.96

**STATE WISE & COMMODITY-WISE TRAFFIC PROJECTION FOR NON MAJOR PORTS
FROM 2011-12 TO 2019-20**

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHERS	TOTAL
						TONNAGE	TEUS		
TOTAL	2011-12	144.17	58.95	89.34	12.98	31.13	2.49	65.93	402.50
	2012-13	157.00	73.87	138.34	14.30	40.82	3.27	81.69	506.02
	2013-14	175.33	81.36	216.15	15.35	62.18	4.97	105.22	655.59
	2014-15	204.28	92.35	243.54	18.64	84.84	6.79	146.43	790.08
	2015-16	225.50	100.88	266.76	19.68	109.26	8.74	164.38	886.46
	2016-17	248.01	106.83	284.80	21.93	139.66	11.17	186.58	987.81
	2017-18	283.99	113.57	306.21	23.26	164.69	13.18	209.45	1101.17
	2018-19	309.18	118.18	323.77	24.51	185.74	14.86	226.20	1187.58
	2019-20	330.49	122.85	346.41	27.08	206.54	16.52	246.76	1280.13

**STATE-WISE CAPACITY ESTIMATION FOR NON-MAJOR PORTS
FROM 2010-11 TO 2019-20**

(IN MILLION TONNES)

STATES	2011-12		2012-2017					2017-2020		
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
1		2	3	4	5	6	7	8	9	10
GUJARAT	267.64	303.64	353.64	403.64	458.64	507.64	584.64	687.74	761.04	864.04
MAHARASHTRA	38.25	48.56	71.18	133.82	144.56	178.87	202.28	212.59	221.40	232.40
GOA	18.30	18.40	18.70	18.90	19.10	19.30	19.50	19.80	20.00	20.20
KARNATAKA	9.95	10.70	11.45	38.55	43.63	51.95	60.20	66.80	67.40	68.00
ANDHRA PRADESH	49.50	75.70	80.70	90.70	116.70	141.70	174.20	174.20	174.20	207.20
TAMIL NADU	1.20	3.10	5.40	24.20	29.70	33.00	35.20	38.30	40.80	45.40
KERALA	0.30	0.30	2.49	5.53	15.92	17.74	19.68	21.66	23.75	30.92
ORISSA	23.00	38.28	48.25	87.55	139.87	153.89	168.16	189.91	192.93	202.35
PUDUCHERRY	-	-	-	-	-	-	-	-	-	-
DAMAN & DIU	-	-	-	-	-	-	-	-	-	-
ANDAMAN & NICOBAR	-	-	-	-	-	-	-	-	-	-
TOTAL	408.14	498.68	591.81	802.89	968.12	1104.09	1263.86	1411.00	1501.52	1670.51

**STATE-WISE CAPACITY ESTIMATION FOR NON-MAJOR PORTS
FROM 2011-12 to 2019-20**

(In Million tonnes)

Sl.No.	Maritime States	Capacity as on 31.3.2010(*)	Capacity Estimated as on 31st March										
			2011-12		2012-17					2017-20			
			2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	
1	GUJARAT												
1	Bagasara	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	Bedi	5.69	5.69	5.69	7.69	7.69	7.69	7.69	7.69	17.69	17.69	17.69	17.69
3	Bhavnagar	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
4	Bhogat	0.00	0.00	5.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
5	Chhara		0.00	0.00	0.00	8.00	8.00	8.00	8.00	8.00	13.30	13.30	13.30
6	Dahej	13.19	16.19	16.19	28.19	42.19	42.19	42.19	42.19	55.19	55.19	55.19	70.19
7	Dholera		0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	19.00	19.00	19.00
8	Ghogha	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
9	Jafrabad	4.53	4.53	4.53	4.53	4.53	9.53	9.53	9.53	9.53	12.53	12.53	12.53
10	Jakhau	3.25	3.25	3.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25
11	Kachchigadh		0.00	0.00	0.00	0.00	5.00	5.00	5.00	12.80	12.80	12.80	12.80
12	Kadoli		0.00	0.00	0.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00
13	Khambhat		0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	6.00	6.00	6.00
14	Koteshwar		0.00	0.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
15	Magdalla & Hazira	27.05	43.05	43.05	43.05	58.05	70.05	70.05	70.05	95.05	95.05	95.05	95.05
16	Mahuva		0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	10.50	10.50
17	Mandvi	0.32	0.32	0.32	0.32	3.32	3.32	3.32	3.32	18.32	18.32	18.32	18.32
18	Modhawa		0.00	0.00	0.00	0.00	0.00	0.00	9.00	9.00	9.00	21.00	21.00
19	Muldwaraka	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72
20	Mundra (GAPL)	36.20	41.20	66.20	75.20	75.20	80.20	95.20	122.20	132.20	132.20	178.20	178.20
21	Mundra (GMB)	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
22	Nargol		0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	37.80	37.80	37.80
23	Naviakhi	4.82	4.82	4.82	4.82	4.82	8.82	8.82	8.82	18.82	18.82	18.82	18.82
24	Okha	3.96	3.96	4.96	4.96	4.96	4.96	4.96	22.96	22.96	22.96	22.96	22.96
25	Pipavav(GPPL)	23.41	23.41	23.41	28.41	33.41	38.41	38.41	38.41	58.41	58.41	58.41	80.91
26	Porbandar	5.26	5.26	5.26	6.26	6.26	6.26	6.26	6.26	6.26	6.26	6.26	6.26
27	Salaya		0.00	0.00	5.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00
28	Sikka	104.57	104.57	109.57	109.57	109.57	124.57	124.57	124.57	124.57	124.57	124.57	124.57
29	Vansiborsi		0.00	0.00	0.00	0.00	0.00	8.00	8.00	8.00	8.00	8.00	8.00
30	Veraval	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17
31	Gujarat Ports		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	30.00	30.00
	Total	243.64	267.64	303.64	353.64	403.64	458.64	507.64	584.64	687.74	761.04	864.04	864.04

**STATE-WISE CAPACITY ESTIMATION FOR NON-MAJOR PORTS
FROM 2011-12 to 2019-20**

(In Million tonnes)

Sl.No.	Maritime States	Capacity as on 31.3.2010(*)	Capacity Estimated as on 31st March											
			2011-12		2012-17					2017-2020				
			2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20		
2	MAHARASHTRA													
1	REWAS PORT	0.00	0.00	0.00	0.00	43.83	44.94	46.10	59.43	61.03	62.69	66.16		
2	DIGHI PORT	0.00	0.36	1.29	4.37	5.92	7.08	7.73	8.97	9.33	10.49	10.06		
3	JAIGAD PORT (JSW LTD.)	15.00	15.00	16.50	27.00	34.50	34.50	54.50	54.50	54.50	54.50	54.50		
4	JAIGAD PORT (CHOWGULE PORT LTD.)	0.00	0.00	3.15	3.15	3.15	3.15	3.15	5.84	5.84	5.84	5.84		
5	VIJAYDURG PORT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	REDI PORT	0.00	0.00	0.00	0.00	0.13	0.26	0.39	0.75	0.99	1.23	1.46		
7	ULWE (AMBUJA CEMENT)	1.80	2.00	2.18	2.35	2.55	2.70	2.87	3.00	3.00	3.00	3.00		
8	RANPAR PORT (FINOLEX INDUSTRIES)	0.25	0.50	0.50	0.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50		
9	RATNAGIRI PORT	0.00	0.10	0.10	0.10	0.25	0.25	0.50	0.50	0.50	0.50	0.50		
10	REVDANDA PORT (WELSPUN)	1.55	1.55	2.20	7.15	7.15	7.15	14.35	14.80	14.80	14.80	14.80		
11	DHARMATAR PORT (ISPAT INDUSTRIES)	9.03	12.08	14.83	18.18	21.13	23.95	27.28	29.09	33.12	36.08	40.35		
12	JAIGAD PORT (MARINE SYNDICATE)	0.15	0.15	0.15	0.48	0.48	0.48	0.48	0.48	0.60	0.60	0.60		
13	SANEGAON (INDO ENERGY INTERNATIONAL)	0.50	0.85	1.00	1.25	1.58	2.00	2.43	2.95	3.55	4.35	4.80		
14	DHARMATAR (PNP PORT)	0.00	5.66	6.66	6.66	7.66	12.60	13.60	16.47	19.83	21.83	24.83		
	Total	28.28	38.25	48.56	71.18	133.83	144.56	178.87	202.28	212.59	221.40	232.40		
3	ORISSA													
1	GOPALPUR PORT	2.00	2.00	11.28	17.25	18.05	18.67	19.19	19.91	20.61	21.13	21.85		
2	PORT AT ASTARANGA AREA	0.00	0.00	0.00	0.00	4.50	17.70	19.20	21.75	23.80	26.30	30.00		
3	CHUDAMANI PORT	0.00	0.00	0.00	4.00	8.00	13.00	19.00	20.00	25.00	25.00	28.00		
4	DHAMRA PORT	0.00	21.00	27.00	27.00	57.00	77.00	83.00	93.00	107.00	107.00	109.00		
5	SUBARNAREKHA MUHAN PORT						13.50	13.50	13.50	13.50	13.50	13.50		
	Total	2.00	23.00	38.28	48.25	87.55	139.87	153.89	168.16	189.91	192.93	202.35		
4	KARNATAKA													
1	KARWAR	3.00	3.15	3.30	3.45	3.60	3.75	6.95	10.15	11.75	11.75	11.75		
2	BELEKERI	6.00	6.60	7.20	7.80	8.40	9.00	9.60	10.20	10.80	11.40	12.00		
3	HALDIPUR	0.00	0.00	0.00	0.00	6.00	7.00	8.00	9.00	10.00	10.00	10.00		
4	TADRI	0.20	0.20	0.20	0.20	20.55	23.88	27.40	30.85	34.25	34.25	34.25		
	Total	9.20	9.95	10.70	11.45	38.55	43.63	51.95	60.20	66.80	67.40	68.00		
5	ANDHRA PRADESH													
1	KAKINADA ANCHORAGE PORT	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00		
2	KAKINADA DEEP WATER PORT	12.50	12.50	14.00	14.00	14.00	18.00	18.00	22.00	22.00	22.00	25.00		
3	GANGAVARAM PORT LTD.	10.00	15.00	15.00	15.00	20.00	25.00	30.00	35.00	35.00	35.00	40.00		
4	MACHILIPATNAM PORT	0.00	0.00	5.00	5.00	5.00	12.00	17.00	17.00	17.00	17.00	22.00		
5	KRISHNAPATNAM PORT	10.00	15.00	25.00	25.00	30.00	30.00	35.00	40.00	40.00	40.00	50.00		
6	NIZAMPATNAM & VADAREVU PORTS	0.00	0.00	5.00	10.00	10.00	20.00	30.00	40.00	40.00	40.00	50.00		
7	MEGHAVARAM	0.00		4.70	4.70	4.70	4.70	4.70	13.20	13.20	13.20	13.20		
8	RAWA	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00		
	Total	39.50	49.50	75.70	80.70	90.70	116.70	141.70	174.20	174.20	174.20	207.20		

**STATE-WISE CAPACITY ESTIMATION FOR NON-MAJOR PORTS
FROM 2011-12 to 2019-20**

(In Million tonnes)

Sl.No.	Maritime States	Capacity as on 31.3.2010(*)	Capacity Estimated as on 31st March										
			2011-12		2012-17				2017-2020				
			2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	
6	GOA												
1	PANAJI PORT	13.90	18.30	18.40	18.70	18.90	19.10	19.30	19.50	19.80	20.00	20.20	20.20
	Total	13.90	18.30	18.40	18.70	18.90	19.10	19.30	19.50	19.80	20.00	20.20	20.20
7	TAMIL NADU (&)												
1	Kattupalli	0.00	0.00	0.60	1.00	2.00	2.00	2.00	3.00	4.00	4.50	5.00	5.00
2	Ennore Minor port	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
3	Cuddalore	0.00	0.00	0.50	1.00	4.30	4.80	6.00	6.00	7.10	7.00	7.00	7.00
4	Thiruchopuram	0.10	0.10	0.30	1.00	6.00	6.00	8.00	8.00	8.00	9.10	9.20	9.20
5	Silambingalam	0.00	0.00	0.00	0.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6	Parangipettai	0.00	0.00	0.20	0.50	1.00	2.00	2.00	3.00	4.00	5.00	7.00	7.00
7	PY-03	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
8	Thirukkadaiyur	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
9	Kaveri	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
10	Vanagiri	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
11	CPCL	0.20	0.20	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
12	Nagapattinam	0.20	0.20	0.40	0.40	3.90	3.90	4.00	4.00	4.00	4.00	4.00	4.00
13	Thirukkuvalai	0.00	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
14	Manappad	0.00	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
15	Udangudi	0.00	0.00	0.10	0.40	1.00	3.00	3.00	3.20	3.20	3.20	3.20	3.20
	Total	1.20	1.20	3.10	5.40	24.20	29.70	33.00	35.20	38.30	40.80	45.40	45.40
	(&) Colachal Port is still under Conceptual Stage. Hence Traffic & Capacity can not be firmed up till fruition of Project												
8	KERALA												
1	PONNANI PORT		0	0	2.19	3.25	4.00	4.49	4.98	5.47	5.96	6.80	6.80
2	KOLLAM PORT		0.08	0.08	0.08	0.08	1.813	1.813	1.82	1.82	1.82	2.319	2.319
3	VIZHINJAM PORT					1.98	3.11	4.44	5.88	7.37	8.97	10.55	10.55
4	BEYPORE PORT		0.191	0.191	0.191	0.191	2.179	2.179	2.179	2.179	2.179	2.76	2.76
5	AZHIKEL PORT		0.024	0.024	0.024	0.024	4.82	4.82	4.82	4.82	4.82	8.487	8.487
	Total	0.17	0.30	0.30	2.49	5.53	15.92	17.74	19.68	21.66	23.75	30.92	30.92
	GRAND TOTAL	337.89	408.14	498.68	591.81	802.89	968.12	1104.09	1263.86	1411.00	1501.52	1670.51	1670.51

Note (*) Total Capacity as on 31.03.2010 is 346.305 MMT after including capacities of Union Territories i.e Puducherry, A & N Islands and Daman & Diu as 4.30, 4.11 & 0.005 MMT respectively

**SUMMARY OF COMMODITY-WISE OVERALL TRAFFIC PROJECTION FOR MAJOR PORTS, NON MAJOR PORTS & INDIAN PORTS
FROM 2011-12 TO 2019-20**

A. Major Ports

(IN MILLION TONNES)

Ports	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHER MISC. CARGO	TOTAL
						TONNAGE	TEUS		
1	2	3	4	5	6	7	8	9	10
MAJOR PORTS	2011-12	188.62	97.47	97.8	20.41	116.44	9.32	108.9	629.64
	2012-13	200.35	100.19	114.16	21.18	129.96	10.4	116.59	682.43
	2013-14	213.97	104.61	126.29	24.71	141.12	11.29	124.87	735.57
	2014-15	236.00	108.85	145.47	25.58	167.83	13.43	132.64	816.37
	2015-16	258.79	115.25	177.45	26.47	193.12	15.45	156.45	927.53
	2016-17	280.26	121.1	191.24	28.45	244.79	19.58	165.66	1031.5
	2017-18	299.12	123.42	205.79	31.36	255.87	20.47	173.58	1089.14
	2018-19	316.99	127.12	211.41	33.59	267.46	21.4	182.34	1138.91
	2019-20	329.24	136.56	223.48	41.91	279.86	22.39	203.77	1214.82

**SUMMARY OF COMMODITY-WISE OVERALL TRAFFIC PROJECTION FOR MAJOR PORTS, NON MAJOR PORTS & INDIAN PORTS
FROM 2011-12 TO 2019-20**

B. Non-Major Ports

(IN MILLION TONNES)

STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHER MISC. CARGO	TOTAL
						TONNAGE	TEUS		
1	2	3	4	5	6	7	8	9	10
Non Major Ports	2011-12	144.17	58.95	89.34	12.98	31.13	2.49	65.93	402.50
	2012-13	157	73.87	138.34	14.3	40.82	3.27	81.69	506.02
	2013-14	175.33	81.36	216.15	15.35	62.18	4.97	105.22	655.59
	2014-15	204.28	92.35	243.54	18.64	84.84	6.79	146.43	790.08
	2015-16	225.5	100.88	266.76	19.68	109.26	8.74	164.38	886.46
	2016-17	248.01	106.83	284.8	21.93	139.66	11.17	186.58	987.81
	2017-18	283.99	113.57	306.21	23.26	164.69	13.18	209.45	1101.17
	2018-19	309.18	118.18	323.77	24.51	185.74	14.86	226.2	1187.58
	2019-20	330.49	122.85	346.41	27.08	206.54	16.52	246.76	1280.13

**SUMMARY OF COMMODITY-WISE OVERALL TRAFFIC PROJECTION FOR MAJOR PORTS, NON MAJOR PORTS & INDIAN PORTS
FROM 2011-12 TO 2019-20**

C. All Indian Ports

(IN MILLION TONNES)

PORTS/STATES	PERIOD	POL	IRON ORE	COAL	FERTILIZER	CONTAINERS		OTHER MISC. CARGO	TOTAL
						TONNAGE	TEUS		
1	2	3	4	5	6	7	8	9	10
All Indian Ports (Major Ports & State Ports)	2011-12	332.79	156.42	187.14	33.39	147.57	11.81	174.83	1032.14
	2012-13	357.35	174.06	252.5	35.48	170.78	13.67	198.28	1188.45
	2013-14	389.3	185.97	342.44	40.06	203.3	16.26	230.09	1391.16
	2014-15	440.28	201.2	389.01	44.22	252.67	20.22	279.07	1606.45
	2015-16	484.29	216.13	444.21	46.15	302.38	24.19	320.83	1813.99
	2016-17	528.27	227.93	476.04	50.38	384.45	30.75	352.24	2019.31
	2017-18	583.11	236.99	512	54.62	420.56	33.65	383.03	2190.31
	2018-19	626.17	245.3	535.18	58.1	453.2	36.26	408.54	2326.49
	2019-20	659.73	259.41	569.89	68.99	486.4	38.91	450.53	2494.95

**Annexure- XI
(Ongoing)**

**SUMMARY OF PROJECTS BEING UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS
HEADS & THEIR FUNDING PATTERN FOR ONGOING PROJECTS**

ALL MAJOR PORTS

Sl. No.	Name of the Scheme	Total Number of Projects	Capacity Addition (In MMTPA)	Estimated Cost (` in Crores)	Source of Funding (` In Crores)			
					IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/ BETHS, ETC.	6	7.50	1551.61	831.36	720.25	0.00	0.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/ JETTIES, ETC.	15	106.30	11146.20	783.05	0.00	0.00	10363.15
C	PROCUREMENT OF EQUIPMENT ETC.	8	28.90	1230.93	190.80	0.00	0.00	1040.13
D	RAIL/ ROAD CONNECTIVITY WORKS	20	1.00	2945.43	990.43	246.00	1709.00	0.00
E	OTHERS WORKS	23	0.00	1618.77	858.77	10.00	0.00	750.00
	OVERALL TOTAL	72	143.70	18492.94	3654.41	976.25	1709.00	12153.28

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Kolkata

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	0.00	1000.00	0.00	1000.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	1	0.00	1000.00	0.00	1000.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	4	11.27	41.90	760.00	801.90	6	109.50	350.00	6533.00	6883.00	0	0.00	0.00	0.00	0.00	10	120.77	391.90	7293.00	7684.90
C	PROCUREMENT OF EQUIPMENTS ETC	2	1.00	23.00	0.00	23.00	4	3.00	264.37	364.10	628.47	0	0.00	0.00	0.00	0.00	6	4.00	287.37	364.10	651.47
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	3	0.00	25.00	1050.00	1075.00	0	0.00	0.00	0.00	0.00	3	0.00	25.00	1050.00	1075.00
E	OTHER WORKS	0	0.00	0.00	0.00	0.00	2	0.50	40.00	64.00	104.00	3	0.00	45.00	215.00	260.00	5	0.50	85.00	279.00	364.00
	TOTAL	7	12.27	1064.9	760.00	1824.90	15	113.00	679.37	8011.10	8690.47	3	0.00	45.00	215.00	260.00	25	125.27	1789.27	8986.10	10775.37

Name of the Port: Paradip

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	5.00	40.00	0.00	40.00	1	0.00	260.00	0.00	260.00	0	0.00	0.00	0.00	0.00	2	5.00	300.00	0.00	300.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	4	37.00	1747.62	329.11	2076.73	2	15.00	1060.00	470.00	1530.00	1	0.00	0.00	0.00	0.00	7	52.00	2807.62	799.11	3606.73
C	PROCUREMENT OF EQUIPMENTS ETC	3	4.00	20.68	50.00	70.68	1	0.00	50.60	0.00	50.60	2	0.00	368.10	0.00	368.10	6	4.00	439.38	50.00	489.38
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
E	OTHER WORKS	3	0.00	62.01	0.00	62.01	2	0.00	40.00	100.00	140.00	1	0.00	8.00	0.00	8.00	6	0.00	110.01	100.00	210.01
	TOTAL	11	46.00	1870.31	379.11	2249.42	6	15.00	1410.60	570.00	1980.60	4	0.00	376.10	0.00	376.10	21	61.00	3657.01	949.11	4606.12

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Visakhapatnam

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	3	1.20	412.14	0.00	412.14	2	0.00	200.00	0.00	200.00	2	0.00	1500.00	0.00	1500.00	7	1.20	2112.14	0.00	2112.14
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	12	39.50	321.00	1552.07	1873.07	5	26.50	2000.00	3630.00	5630.00	3	9.00	1300.00	1000.00	2300.00	20	75.00	3621.00	6182.07	9803.07
C	PROCUREMENT OF EQUIPMENTS ETC	5	10.86	44.00	610.01	654.01	1	0.00	90.00	0.00	90.00	0	0.00	0.00	0.00	0.00	6	10.86	134.00	610.01	744.01
D	RAIL/ROAD CONNECTIVITY WORKS	3	0.00	296.00	0.00	296.00	2	0.00	150.00	0.00	150.00	3	0.00	200.00	0.00	200.00	8	0.00	646.00	0.00	646.00
E	OTHER WORKS	4	0.65	38.00	100.00	138.00	9	0.00	195.00	200.00	395.00	2	0.00	100.00	0.00	100.00	15	0.65	333.00	300.00	633.00
	TOTAL	27	52.21	1111.14	2262.08	3373.22	19	26.50	2635.00	3830.00	6465.00	10	9.00	3100.00	1000.00	4100.00	56	87.71	6846.14	7092.08	13938.22

NOTE: OUT OF TOTAL CAPACITY, 13.00 MTPA IS BEYOND 2020

Name of the Port: Chennai

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	0.00	561.00	0.00	561.00	1	2.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	2	2.00	561.00	0.00	561.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	3	50.50	1.30	3258.50	3259.80	4	11.50	27.00	898.00	925.00	1	7.20	2.00	498.00	500.00	8	69.20	30.30	4654.50	4684.80
C	PROCUREMENT OF EQUIPMENTS ETC	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
D	RAIL/ROAD CONNECTIVITY WORKS	1	0.00	139.80	460.20	600.00	0	0.00	0.00	0.00	0.00	2	0.00	225.00	0.00	225.00	3	0.00	364.80	460.20	825.00
E	OTHER WORKS	4	0.00	259.70	543.54	803.24	8	0.00	1293.00	2013.00	3306.00	4	0.00	103.00	297.00	400.00	16	0.00	1655.70	2853.54	4509.24
	TOTAL	9	50.50	961.8	4262.24	5224.04	13	13.50	1320.00	2911.00	4231.00	7	7.20	330.00	795.00	1125.00	29	71.20	2611.80	7968.24	10580.04

NOTE: OUT OF TOTAL CAPACITY, 7.20 MTPA IS BEYOND 2020

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Tuticorin

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	0.00	140.00	0.00	140.00	2	0.00	140.00	0.00	140.00	1	0.00	2250.00	0.00	2250.00	4	0.00	2530.00	0.00	2530.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	3	13.20	39.70	480.86	520.56	2	14.00	0.00	664.32	664.32	2	19.20	0.00	850.00	850.00	7	46.40	39.70	1995.18	2034.88
C	PROCUREMENT OF EQUIPMENTS ETC	2	13.10	0.00	392.22	392.22	0	0.00	0.00	0.00	0.00	3	0.00	82.00	150.00	232.00	5	13.10	82.00	542.22	624.22
D	RAIL/ROAD CONNECTIVITY WORKS	1	0.00	101.77	0.00	101.77	2	0.00	640.00	0.00	640.00	2	0.00	300.00	0.00	300.00	5	0.00	1041.77	0.00	1041.77
E	OTHER WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	3	0.00	75.00	200.00	275.00	3	0.00	75.00	200.00	275.00
	TOTAL	7	26.30	281.47	873.08	1154.55	6	14.00	780.00	664.32	1444.32	11	19.20	2707.00	1200.00	3907.00	24	59.50	3768.47	2737.40	6505.87

Name of the Port: Cochin

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	0	0.00	0.00	0.00	0.00	3	0.00	111.40	0.00	111.40	1	0.00	29.10	0.00	29.10	4	0.00	140.50	0.00	140.50
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	2	4.10	0.00	397.00	397.00	7	12.75	120.00	1490.00	1610.00	3	49.50	0.00	2900.00	2900.00	12	66.35	120.00	4787.00	4907.00
C	PROCUREMENT OF EQUIPMENTS ETC	2	0.00	84.00	0.00	84.00	2	0.00	125.00	0.00	125.00	6	0.00	825.00	0.00	825.00	10	0.00	1034.00	0.00	1034.00
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	1	0.00	40.00	0.00	40.00	0	0.00	0.00	0.00	0.00	1	0.00	40.00	0.00	40.00
E	OTHER WORKS	2	0.00	30.00	0.00	30.00	5	0.00	135.00	350.00	485.00	4	0.00	245.00	0.00	245.00	11	0.00	410.00	350.00	760.00
	TOTAL	6	4.10	114	397.00	511.00	18	12.75	531.40	1840.00	2371.40	14	49.50	1099.10	2900.00	3999.10	38	66.35	1744.50	5137.00	6881.50

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: New Mangalore

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	1	0.00	390.00	0.00	390.00	1	0.00	390.00	0.00	390.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	2	12.30	79.17	269.73	348.90	3	29.00	297.00	850.00	1147.00	0	0.00	0.00	0.00	0.00	5	41.30	376.17	1119.73	1495.90
C	PROCUREMENT OF EQUIPMENTS ETC	1	0.00	0.00	30.00	30.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	1	0.00	0.00	30.00	30.00
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
E	OTHER WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
	TOTAL	3	12.30	79.17	299.73	378.90	3	29.00	297.00	850.00	1147.00	1	0.00	390.00	0.00	390.00	7	41.30	766.17	1149.73	1915.90

Name of the Port: Mormugao

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	1	7.00	0.00	496.00	496.00	3	16.00	0.00	1946.00	1946.00	0	0.00	0.00	0.00	0.00	4	23.00	0.00	2442.00	2442.00
C	PROCUREMENT OF EQUIPMENTS ETC	0	0.00	0.00	0.00	0.00	1	2.00	445.80	0.00	445.80	0	0.00	0.00	0.00	0.00	1	2.00	445.80	0.00	445.80
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
E	OTHER WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
	TOTAL	1	7.00	0	496.00	496.00	4	18.00	445.80	1946.00	2391.80	0	0.00	0.00	0.00	0.00	5	25.00	445.80	2442.00	2887.80

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Mumbai

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	2	0.00	238.00	0.00	238.00	1	0.00	50.00	0.00	50.00	0	0.00	0.00	0.00	0.00	3	0.00	288.00	0.00	288.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	2	9.00	469.00	0.00	469.00	4	20.00	771.50	200.00	971.50	2	6.80	540.00	1500.00	2040.00	8	35.80	1780.50	1700.00	3480.50
C	PROCUREMENT OF EQUIPMENTS ETC	3	0.00	48.00	0.00	48.00	1	0.00	50.00	0.00	50.00	0	0.00	0.00	0.00	0.00	4	0.00	98.00	0.00	98.00
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
E	OTHER WORKS	3	0.00	64.50	100.00	164.50	3	0.00	100.00	200.00	300.00	1	0.00	1860.00	0.00	1860.00	7	0.00	2024.50	300.00	2324.50
	TOTAL	10	9.00	819.5	100.00	919.50	9	20.00	971.50	400.00	1371.50	3	6.80	2400.00	1500.00	3900.00	22	35.80	4191.00	2000.00	6191.00

NOTE: OUT OF TOTAL CAPACITY, 6.80 MTPA IS BEYOND 2020

Name of the Port: JNPT

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	0.00	800.00	0.00	800.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	1	0.00	800.00	0.00	800.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	2	40.00	0.00	4700.00	4700.00	1	30.00	0.00	2600.00	2600.00	0	0.00	0.00	0.00	0.00	3	70.00	0.00	7300.00	7300.00
C	PROCUREMENT OF EQUIPMENTS ETC	1	2.75	112.00	0.00	112.00	5	1.87	189.10	0.00	189.10	1	0.00	23.10	0.00	23.10	7	4.62	324.20	0.00	324.20
D	RAIL/ROAD CONNECTIVITY WORKS	1	0.00	0.00	279.00	279.00	1	0.00	45.00	0.00	45.00	0	0.00	0.00	0.00	0.00	2	0.00	45.00	279.00	324.00
E	OTHER WORKS	7	0.00	1567.00	2009.00	3576.00	3	0.00	3017.00	6000.00	9017.00	0	0.00	0.00	0.00	0.00	10	0.00	4584.00	8009.00	12593.00
	TOTAL	12	42.75	2479	6988.00	9467.00	10	31.87	3251.10	8600.00	11851.10	1	0.00	23.10	0.00	23.10	23	74.62	5753.20	15588.00	21341.20

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Kandla

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	5	35.50	347.40	1791.00	2138.40	3	33.00	0.00	1760.00	1760.00	2	20.00	0.00	1040.00	1040.00	10	88.50	347.40	4591.00	4938.40
C	PROCUREMENT OF EQUIPMENTS ETC	1	2.00	40.00	80.00	120.00	1	0.70	0.00	50.00	50.00	1	0.00	270.00	0.00	270.00	3	2.70	310.00	130.00	440.00
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	2	0.00	115.56	0.00	115.56	0	0.00	0.00	0.00	0.00	2	0.00	115.56	0.00	115.56
E	OTHER WORKS	5	6.80	326.00	1390.50	1716.50	8	3.40	210.00	12617.00	12827.00	0	0.00	0.00	0.00	0.00	13	10.20	536.00	14007.50	14543.50
	TOTAL	11	44.30	713.4	3261.50	3974.90	14	37.10	325.56	14427.00	14752.56	3	20.00	270.00	1040.00	1310.00	28	101.40	1308.96	18728.50	20037.46

Name of the Port: Ennore Port Limited

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	1	0.00	221.00	0.00	221.00	1	0.00	219.00	0.00	219.00	0	0.00	0.00	0.00	0.00	2	0.00	440.00	0.00	440.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	2	8.50	310.00	0.00	310.00	3	9.50	257.00	100.00	357.00	0	0.00	0.00	0.00	0.00	5	18.00	567.00	100.00	667.00
C	PROCUREMENT OF EQUIPMENTS ETC	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
D	RAIL/ROAD CONNECTIVITY WORKS	1	0.00	454.32	0.00	454.32	1	0.00	446.00	0.00	446.00	0	0.00	0.00	0.00	0.00	2	0.00	900.32	0.00	900.32
E	OTHER WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
	TOTAL	4	8.50	985.32	0.00	985.32	5	9.50	922.00	100.00	1022.00	0	0.00	0.00	0.00	0.00	9	18.00	1907.32	100.00	2007.32

**Port Wise Summary of Number of Projects to be undertaken for Major Ports Under 5 Project Heads & Their Funding Pattern in Phase I, II & III
FROM 2010-11 TO 2019-20**

Name of the Port: Port Blair

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	2	0.00	0.00	0.00	0.00	6	0.00	20.00	0.00	20.00	5	0.00	15.00	0.00	15.00	13	0.00	35.00	0.00	35.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	9	0.00	24.47	0.00	24.47	5	0.00	1040.50	0.00	1040.50	2	0.00	610.00	0.00	610.00	16	0.00	1674.97	0.00	1674.97
C	PROCUREMENT OF EQUIPMENTS ETC	15	0.00	9.48	0.00	9.48	8	0.00	46.73	0.00	46.73	0	0.00	0.00	0.00	0.00	23	0.00	56.21	0.00	56.21
D	RAIL/ROAD CONNECTIVITY WORKS	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
E	OTHER WORKS	7	0.00	11.13	0.00	11.13	5	0.00	4.30	0.00	4.30	1	0.00	0.00	0.00	0.00	13	0.00	15.43	0.00	15.43
	TOTAL	33	0.00	45.08	0.00	45.08	24	0.00	1111.53	0.00	1111.53	8	0.00	625.00	0.00	625.00	65	0.00	1781.61	0.00	1781.61

Name of the Port: ALL PORTS TOTAL

Sl. No.	Category	PHASE-I					PHASE-II					PHASE-III					TOTAL				
		No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)			No. of Projects	Capacity (In MTPA)	Source of Financing (In Crores)		
				IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total			IEBR & BS	Private	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	DEEPENING OF CHANNEL/BERTHS ETC	13	6.20	3412.14	0.00	3412.14	17	2.00	1000.40	0.00	1000.40	10	0.00	4184.10	0.00	4184.10	40	8.20	8596.64	0.00	8596.64
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.	51	267.87	3381.56	14034.27	17415.83	48	326.75	5923.00	21141.32	27064.32	16	111.70	2452.00	7788.00	10240.00	115	706.32	11756.56	42963.59	54720.15
C	PROCUREMENT OF EQUIPMENTS ETC	35	33.71	381.16	1162.23	1543.39	24	7.57	1261.60	414.10	1675.70	13	0.00	1568.20	150.00	1718.20	72	41.28	3210.96	1726.33	4937.29
D	RAIL/ROAD CONNECTIVITY WORKS	7	0.00	991.89	739.20	1731.09	12	0.00	1461.56	1050.00	2511.56	7	0.00	725.00	0.00	725.00	26	0.00	3178.45	1789.20	4967.65
E	OTHER WORKS	35	7.45	2358.34	4143.04	6501.38	45	3.90	5034.30	21544.00	26578.30	19	0.00	2436.00	712.00	3148.00	99	11.35	9828.64	26399.04	36227.68
	TOTAL	141	315.23	10525.09	20078.70	30603.83	146	340.22	14680.86	44149.42	58830.28	65	111.70	11365.30	8650.00	20015.30	352	767.15	36571.25	72878.16	109449.41

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
1.PROJECTS FROM 01-04-2010 TO 31-03-2012

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
A	DEEPENING OF CHANNEL/BERTHS ETC						
	Gujarat		858.80	8.80	0.00	0.00	850.00
	Maharashtra		521.00	0.90	0.00	2.10	518.00
	Goa (Panaji Port)		35.00	0.00	35.00	0.00	0.00
	Karnataka		289.00				289.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		65.00				65.00
	Orissa		3561.00	50.00	0.00	0.00	3511.00
	Sub Total		5329.80	59.70	35.00	2.10	5233.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.						
	Gujarat	60.00	6555.00	0.00	0.00	0.00	6555.00
	Maharashtra	57.11	950.23	43.50	0.00	26.83	879.90
	Goa (Panaji Port)	0.30	19.30	0.00	0.00	19.30	0.00
	Karnataka	1.50	319.00				319.00
	Andhra Pradesh	63.70	10590.00				10590.00
	Tamil Nadu	22.50	1200.00				1200.00
	Kerala		30.00				30.00
	Orissa	35.00	540.00	60.00	0.00	0.00	480.00
	Sub Total	240.11	20203.53	103.50	0.00	46.13	20053.90

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
1.PROJECTS FROM 01-04-2010 TO 31-03-2012

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
C	PROCUREMENT OF EQUIPMENTS ETC						
	Gujarat		76.99	76.99	0.00	0.00	0.00
	Maharashtra		432.90	48.60	0.00	113.40	270.90
	Goa (Panaji Port)		5.15		2.15	3.00	
	Karnataka		0.00				
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		59.00				59.00
	Orissa		1158.00	112.00	0.00	0.00	1046.00
	Sub Total		1732.04	237.59	2.15	116.40	1375.90
D	RAIL/ROAD CONNECTIVITY WORKS						
	Gujarat		540.10	10.00	280.10	0.00	250.00
	Maharashtra		981.25	0.50	97.00	1.15	882.60
	Goa (Panaji Port)		0.00				
	Karnataka		100.00				100.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		35.00				35.00
	Orissa		1211.00	65.00	0.00	0.00	1146.00
	Sub Total		2867.35	75.50	377.10	1.15	2413.60

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
1.PROJECTS FROM 01-04-2010 TO 31-03-2012

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
E	OTHER WORKS						
	Gujarat		0.00	0.00	0.00	0.00	0.00
	Maharashtra		1339.50	35.60	0.00	83.20	1220.70
	Goa (Panaji Port)		0.00				
	Karnataka		92.00				92.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		14.00				14.00
	Orissa		1566.00	380.00	0.00	0.00	1186.00
	Sub Total		3011.50	415.60	0.00	83.20	2512.70
	Total All	263.41	33144.22	891.89	414.25	248.98	31589.10

State Wise Total							
	Gujarat	60.00	8030.89	95.79	280.10	0.00	7655.00
	Maharashtra	57.11	4224.88	129.10	97.00	226.68	3772.10
	Goa (Panaji Port)	0.30	59.45	0.00	37.15	22.30	0.00
	Karnataka	1.50	800.00	0.00	0.00	0.00	800.00
	Andhra Pradesh	63.70	10590.00	0.00	0.00	0.00	10590.00
	Tamil Nadu	22.50	1200.00	0.00	0.00	0.00	1200.00
	Kerala	0.00	203.00	0.00	0.00	0.00	203.00
	Orissa	35.00	8036.00	667.00	0.00	0.00	7369.00
	Total All	240.11	33144.22	891.89	414.25	248.98	31589.10

Annexure - XII
Phase - II

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
PROJECTS FROM 01-04-2012 TO 31-03-2017

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
A	DEEPENING OF CHANNEL/BERTHS ETC						
	Gujarat		22.20	22.20	0.00	0.00	0.00
	Maharashtra		703.50	1.30	0.00	3.20	699.00
	Goa (Panaji Port)		45.00		45.00		
	Karnataka		2600.00				2600.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		50.00				50.00
	Orissa		1878.00	380.00	0.00	0.00	1498.00
	Sub Total		5298.70	403.50	45.00	3.20	4847.00
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.						
	Gujarat	281.00	38166.00	20.00	20.00	40.00	38086.00
	Maharashtra	75.17	2381.50	38.00	0.00	80.50	2263.00
	Goa (Panaji Port)	0.70	20.00			20.00	
	Karnataka	49.50	2210.00				2210.00
	Andhra Pradesh	98.50	20550.00				20550.00
	Tamil Nadu	28.00	5725.00				5725.00
	Kerala	13.52	460.00				460.00
	Orissa	133.95	4177.00	70.00	0.00	0.00	4107.00
	Sub Total	680.34	73689.50	128.00	20.00	140.50	73401.00

Annexure - XII
Phase - II

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
PROJECTS FROM 01-04-2012 TO 31-03-2017

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
C	PROCUREMENT OF EQUIPMENTS ETC						
	Gujarat		0				
	Maharashtra		2511.80	213.45	0.00	497.85	1800.50
	Goa (Panaji Port)		16.00		11.25	4.75	
	Karnataka		425.00				425.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		45.00				45.00
	Orissa		2616.00	70.00	0.00	0.00	2546.00
	Sub Total		5613.80	283.45	11.25	502.60	4816.50
D	RAIL/ROAD CONNECTIVITY WORKS						
	Gujarat		2739.90	136.00	777.90	22.00	1804.00
	Maharashtra		504.41	20.61	0.00	53.80	430.00
	Goa (Panaji Port)		0.00				
	Karnataka		58.00				58.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		260.00				260.00
	Orissa		2300.00	185.00	0.00	0.00	2115.00
	Sub Total		5862.31	341.61	777.90	75.80	4667.00

Annexure - XII
Phase - II

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
PROJECTS FROM 01-04-2012 TO 31-03-2017

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
E	OTHER WORKS						
	Gujarat		0.00				
	Maharashtra		3007.52	71.51	0.00	0.00	2936.01
	Goa (Panaji Port)		0.00				
	Karnataka		738.00				738.00
	Andhra Pradesh		0.00				0.00
	Tamil Nadu		0.00				
	Kerala		142.00				142.00
	Orissa		1532.00	185.00	0.00	0.00	1347.00
	Sub Total		5419.52	256.51	0.00	0.00	5163.01
	Total All		95883.83	1413.07	854.15	722.10	92894.51
State Wise Total							
	Gujarat	281.00	40928.10	178.20	797.90	62.00	39890.00
	Maharashtra	75.17	9108.73	344.87	0.00	635.35	8128.51
	Goa (Panaji Port)	0.70	81.00	0.00	56.25	24.75	0.00
	Karnataka	49.50	6031.00	0.00	0.00	0.00	6031.00
	Andhra Pradesh	98.50	20550.00	0.00	0.00	0.00	20550.00
	Tamil Nadu	28.00	5725.00	0.00	0.00	0.00	5725.00
	Kerala	13.52	957.00	0.00	0.00	0.00	957.00
	Orissa	133.95	12503.00	890.00	0.00	0.00	11613.00
	Total All	680.34	95883.83	1413.07	854.15	722.10	92894.51

**SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
PROJECTS FROM 01-04-2017 TO 31-03-2020**

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
A	DEEPENING OF CHANNEL/BERTHS ETC						
	Gujarat		13.30	13.30			
	Maharashtra		529.60	1.80	0.00	4.20	523.60
	Goa (Panaji Port)		60.00		60.00		
	Andhra Pradesh		0.00				0.00
	Kerala		37.00				37.00
	Orissa		200.00	150.00	0.00	0.00	50.00
	Sub Total		839.90	165.10	60.00	4.20	610.60
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.						
	Gujarat	279.90	25026.00	0.00	0.00	0.00	25026.00
	Maharashtra	22.82	1043.40	14.49	0.00	35.81	993.10
	Goa (Panaji Port)	0.00					
	Andhra Pradesh	33.00	2400.00				2400.00
	Kerala	6.60	490.00				490.00
	Orissa	30.29	965.00	300.00	0.00	0.00	665.00
	Sub Total	372.61	29924.40	314.49	0.00	35.81	29574.10
C	PROCUREMENT OF EQUIPMENTS ETC						
	Gujarat						
	Maharashtra		1835.09	118.19	0.00	275.80	1441.10
	Goa (Panaji Port)	0.50	2.25		2.25		
	Andhra Pradesh		0.00				0.00
	Kerala		38.00				38.00
	Orissa		1055.00	150.00	0.00	0.00	905.00
	Sub Total		2930.34	268.19	2.25	275.80	2384.10
D	RAIL/ROAD CONNECTIVITY WORKS						
	Gujarat		242.30	0.00	242.30	0.00	0.00
	Maharashtra		5.60				5.60

**SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS
PROJECTS FROM 01-04-2017 TO 31-03-2020**

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
	Goa (Panaji Port)						
	Andhra Pradesh		0.00				0.00
	Kerala		52.00				52.00
	Orissa		309.00	200.00	0.00	0.00	109.00
	Sub Total		608.90	200.00	242.30	0.00	166.60
E	OTHER WORKS						
	Gujarat						
	Maharashtra		3670.25	25.60	0.00	59.75	3584.90
	Goa (Panaji Port)						
	Andhra Pradesh		0.00				0.00
	Kerala		34.00				34.00
	Orissa		668.00	100.00	0.00	0.00	568.00
	Sub Total		4372.25	125.60	0.00	59.75	4186.90
	Total All		38675.79	1073.38	304.55	375.56	36922.30
State Wise Total							
	Gujarat	279.90	25281.60	13.30	242.30	0.00	25026.00
	Maharashtra	22.82	7083.94	160.08	0.00	375.56	6548.30
	Goa (Panaji Port)	0.50	62.25	0.00	62.25	0.00	0.00
	Andhra Pradesh	33.00	2400.00	0.00	0.00	0.00	2400.00
	Kerala	6.60	651.00	0.00	0.00	0.00	651.00
	Orissa	30.29	3197.00	900.00	0.00	0.00	2297.00
	Total All	373.11	38675.79	1073.38	304.55	375.56	36922.30

Annexure - XII
Phase - I, II & III

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS

1.PROJECTS FROM 01-04-2010 TO 31-03-2020

ALL PHASE TOTAL

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9

A	DEEPENING OF CHANNEL/BERTHS ETC						
	Gujarat	0.00	894.30	44.30	0.00	0.00	850.00
	Maharashtra	0.00	1754.10	4.00	0.00	9.50	1740.60
	Goa (Panaji Port)	0.00	140.00	0.00	140.00	0.00	0.00
	Karnataka	0.00	2889.00	0.00	0.00	0.00	2889.00
	Andhra Pradesh	0.00	0.00	0.00	0.00	0.00	0.00
	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00
	Kerala	0.00	152.00	0.00	0.00	0.00	152.00
	Orissa	0.00	5639.00	580.00	0.00	0.00	5059.00
	Sub Total	0.00	11468.40	628.30	140.00	9.50	10690.60
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES ETC.						
	Gujarat	620.90	69747.00	20.00	20.00	40.00	69667.00
	Maharashtra	155.10	4375.13	95.99	0.00	143.14	4136.00
	Goa (Panaji Port)	1.00	39.30	0.00	0.00	39.30	0.00
	Karnataka	51.00	3494.00	300.00	0.00	0.00	3194.00
	Andhra Pradesh	195.20	33540.00	0.00	0.00	0.00	33540.00
	Tamil Nadu	50.50	6925.00	0.00	0.00	0.00	6925.00
	Kerala	20.12	980.00	0.00	0.00	0.00	980.00
	Orissa	199.24	5682.00	430.00	0.00	0.00	5252.00
	Sub Total	1293.06	124782.43	845.99	20.00	222.44	123694.00

Annexure - XII
Phase - I, II & III

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS

1.PROJECTS FROM 01-04-2010 TO 31-03-2020

ALL PHASE TOTAL

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
C	PROCUREMENT OF EQUIPMENTS ETC						
	Gujarat	0.00	76.99	76.99	0.00	0.00	0.00
	Maharashtra	0.00	4779.79	380.24	0.00	887.05	3512.50
	Goa (Panaji Port)	0.50	23.40	0.00	15.65	7.75	0.00
	Karnataka	0.00	425.00	0.00	0.00	0.00	425.00
	Andhra Pradesh	0.00	0.00	0.00	0.00	0.00	0.00
	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00
	Kerala	0.00	142.00	0.00	0.00	0.00	142.00
	Orissa	0.00	4829.00	332.00	0.00	0.00	4497.00
	Sub Total	0.50	10276.18	789.23	15.65	894.80	8576.50
D	RAIL/ROAD CONNECTIVITY WORKS						
	Gujarat	0.00	3522.30	146.00	1300.30	22.00	2054.00
	Maharashtra	0.00	1491.26	21.11	97.00	54.95	1318.20
	Goa (Panaji Port)	0.00	0.00	0.00	0.00	0.00	0.00
	Karnataka	0.00	158.00	0.00	0.00	0.00	158.00
	Andhra Pradesh	0.00	0.00	0.00	0.00	0.00	0.00
	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00
	Kerala	0.00	347.00	0.00	0.00	0.00	347.00
	Orissa	0.00	3820.00	450.00	0.00	0.00	3370.00
	Sub Total	0.00	9338.56	617.11	1397.30	76.95	7247.20

Annexure - XII
Phase - I, II & III

SUMMARY OF INVESTMENTS TO BE MADE AT MARITIME STATES FOR VARIOUS DEVELOPMENT PROJECTS

1.PROJECTS FROM 01-04-2010 TO 31-03-2020

ALL PHASE TOTAL

Sl. No.	Name of Project	Capacity (In MTPA)	Estimated Cost (` in crores)	Source of Financing (` in Crores)			
				I.R.	GBS	EBR and Others	Private Sector
1	2	4	5	6	7	8	9
E	OTHER WORKS						
	Gujarat	0.00	0.00	0.00	0.00	0.00	0.00
	Maharashtra	0.00	8017.27	132.71	0.00	142.95	7741.61
	Goa (Panaji Port)	0.00	0.00	0.00	0.00	0.00	0.00
	Karnataka	0.00	92.00	0.00	0.00	0.00	92.00
	Andhra Pradesh	0.00	0.00	0.00	0.00	0.00	0.00
	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00
	Kerala	0.00	190.00	0.00	0.00	0.00	190.00
	Orissa	0.00	3766.00	665.00	0.00	0.00	3101.00
	Sub Total	0.00	12065.27	797.71	0.00	142.95	11124.61
	Total All	1293.56	167930.84	3678.34	1572.95	1346.64	161332.91

State Wise Total

	Gujarat	620.90	74240.59	287.29	1320.30	62.00	72571.00
	Maharashtra	155.10	20417.55	634.05	97.00	1237.59	18448.91
	Goa (Panaji Port)	1.50	202.70	0.00	155.65	47.05	0.00
	Karnataka	51.00	7058.00	300.00	0.00	0.00	6758.00
	Andhra Pradesh	195.20	33540.00	0.00	0.00	0.00	33540.00
	Tamil Nadu	50.50	6925.00	0.00	0.00	0.00	6925.00
	Kerala	20.12	1811.00	0.00	0.00	0.00	1811.00
	Orissa	199.24	23736.00	2457.00	0.00	0.00	21279.00
	Total All	1293.56	167930.84	3678.34	1572.95	1346.64	161332.91

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING
PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : KOLKATA PORT

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
	Sub-Total:								
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
	Sub-Total:								
C	PROCUREMENT OF EQUIPMENT ETC.								
1	Procurement/ Replacement of Cargo handling equipment.		0.50	2012	25.80	25.80	-	-	-
1	Sub-Total:		0.50		25.80	25.80	0.00	0.00	0.00
D	RAIL/ROAD CONNECTIVITY WORKS								
	Sub-Total:								
E	OTHERS WORKS								
1	Upgradation/extension of VTMS upto Kolkata with accessories and navigational aids etc.		-	2011	6.10	6.10	-	-	-
1	Sub-Total:		0.00		6.10	6.10	0.00	0.00	0.00
2	GRAND TOTAL		0.50		31.90	31.90	0.00	0.00	0.00

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : HALDIA DOCK COMPLEX

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
	Sub-Total:								
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
	Sub-Total:								
C	PROCUREMENT OF EQUIPMENT ETC.								
1	Equipping of berths 2 & 8 at HDC for enhancement of operational productivity under the erstwhile scheme "Acquisition of 2 nos. Mobile Harbour Cranes"		8.00	2011	300.00				300.00
1	Sub-Total:		8.00		300.00	0.00	0.00	0.00	300.00
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Development of Road Infrastructure including drainage etc. inside and outside dock (in phases)		1.00	2012	30.00	30.00			
1	Sub-Total:		1.00		30.00	30.00	0.00	0.00	0.00
E	OTHERS WORKS								
	Sub-Total:		0.00		0.00	0.00	0.00	0.00	0.00
2	GRAND TOTAL		9.00		330.00	30.00	0.00	0.00	300.00

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : PARADIP PORT

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
1	Deepening of channel to handle 1,25,000 DWT vessels			2011	253.36	208.36	45.00	-	-
1	Sub-Total:		0.00		253.36	208.36	45.00	0.00	0.00
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	Construction of deep draught berth for coal.	Coal	10.00	2013	479.01	-	-	-	479.01
2	Construction of Deep Draught Iron Ore Berth on BOT basis	Iron Ore	10.00	2013	591.35	-	-	-	591.35
2	Sub-Total:		20.00		1070.36	0.00	0.00	0.00	1070.36
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Upgradation of Paradip Railway Yard, Signalling, Station building			2012	17.60	17.60	-	-	-
2	Enhancement of rail connectivity (Haridaspur - Paradip)			2015	598.00	27.50	-	570.50	-
2	Sub-Total:		0.00		615.60	45.10	0.00	570.50	0.00
E	OTHERS WORKS								
1	Illumination of Storage Area			2011	10.00	10.00	-	-	-
2	Acquisition of Floating Craft			2011	31.41	31.41	-	-	-
3	Improvement of pollution control system including sewage disposal & solid waste management		-	2012	30.00	30.00	-	-	-
3	Sub-Total:		0.00		71.41	71.41	0.00	0.00	0.00
8	GRAND TOTAL		20.00		2010.73	324.87	45.00	570.50	1070.36

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

NAME OF THE PORT : VISAKHAPATNAM PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)				
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector	
A	DEEPENING OF CHANNEL/BETHS, ETC.									
	Sub-Total:									
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.									
	1	Strengthening of EQ5, EQ6, and WQ1, WQ2, WQ3, berths to cater to 12.5 mtrs draft vessels		0.50	2012	35.19	35.19	-	-	-
	1	Sub-Total:		0.50		35.19	35.19	0.00	0.00	0.00
C	PROCUREMENT OF EQUIPMENT ETC.									
	1	Mechanized cargo handling facilities at GCB at Outer Harbour		10.18	2011	444.10	-	-	-	444.10
	1	Sub-Total:		10.18		444.10	0.00	0.00	0.00	444.10
D	RAIL/ROAD CONNECTIVITY WORKS									
	1	Improvement to road infrastructure with road bridges / fly over bridges-Phase:I			2012	40.00	40.00	-	-	-
	2	Improvement to port railway system			2017	35.00	35.00	-	-	-
	3	Modernisation of Railway sidings facilities			2017	25.00	25.00	-	-	-
	3	Sub-Total:		0.00		100.00	100.00	0.00	0.00	0.00

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

E		OTHERS WORKS								
	1	Development of Addl. Stacking Space - Transit shed of 5,000 sq.mts. and Open Storage shed (2 Nos.) of 20,000 Sq. mtrs.			2013	21.23	21.23	-	-	-
	2	Environmental up-gradation schemes: Phase-I			2014	24.03	24.03	-	-	-
	3	Replacement of one tug Nethravathi			2013	83.20	83.20	-	-	-
	4	Replacement of 1 tug (TT Swarna)			2013					
	5	Environmental upgradation schemes : Phase-II			2017	38.00	38.00	-	-	-
	5	Sub-Total:		0.00		166.46	166.46	0.00	0.00	0.00
	10	GRAND TOTAL		10.68		745.75	301.65	0.00	0.00	444.10

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : ENNORE PORT LIMITED

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
	Sub-Total:								
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	Development of a Coal Terminal to handle coal for users other than TNEB.		8.00	2010	399.13	-	-	-	399.13
2	Development of an Iron Ore Terminal.		12.00	2010	480.00	-	-	-	480.00
3	Development of a Container Terminal (1000 m length) (Capacity 1.5 MTEUPA)		18.00	2012	1407.00	-	-	-	1407.00
3	Sub-Total:		38.00		2286.13	0.00	0.00	0.00	2286.13
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

D		RAIL/ROAD CONNECTIVITY WORKS								
	1	Four laning of 9Km length (Manali-Vallur stretch) of Thiruvottiyur-Ponneri-Pancheti Road (TPP Road) connecting the three National Highways (NH4, NH5 & NH45) to Ennore Port under the Ennore-Manali Road Improvement Project (EMRIP). <i>EPL has committed financial contribution.</i>				34.02	34.02	-	-	-
	2	Rail Connectivity between Ennore Port and Main Lines of Indian Railways (Ennore Port to Attipattu Rly station) for servicing Coal, Iron Ore and Container terminals.				88.00 (EPL Share)	88.00	-	-	-
	2	Sub-Total:		0.00		122.02	122.02	0.00	0.00	0.00
E		OTHERS WORKS								
		Sub-Total:								
	5	GRAND TOTAL		38.00		2408.15	122.02	0.00	0.00	2286.13

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : CHENNAI PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)				
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector	
A	DEEPENING OF CHANNEL/BETHS, ETC.									
1	Deepening of Channels, Basin and Berths		2.50	2011	143.00	143.00	-	-	-	
1	Sub-Total:		2.50		143.00	143.00	0.00	0.00	0.00	
B	CONSTRUCTION/RECONS-TRUCTION OF BERTHS/JETTIES, ETC.									
1	Modernisation of Chennai Port		2.50	2012	200.00	200.00	-	-	-	
1	Sub-Total:		2.50		200.00	200.00	0.00	0.00	0.00	
C	PROCUREMENT OF EQUIPMENT ETC.									
	Sub-Total:									
D	RAIL/ROAD CONNECTIVITY WORKS									
1	Dedicated elevated corridor on NH-4 from Port to Maduravoyal (Revised estimated cost: Rs. 1655/- Cr. - Break-up not available)			2013	400.00	200.00	-	200.00	-	
1	Sub-Total:				400.00	200.00	0.00	200.00	0.00	
E	OTHERS WORKS									
1	Creation of addl. open storage yards by reclamation		-	2012	200.00	200.00	-	-	-	
1	Sub-Total:		0.00		200.00	200.00	0.00	0.00	0.00	
4	GRAND TOTAL		5.00		943.00	743.00	0.00	200.00	0.00	

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : TUTICORIN PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
1	Dredging the Dock Basin and Channel* (* EOI being sought for private sector)			2012	538.00	269.00	269.00	-	-
1	Sub-Total:		0.00		538.00	269.00	269.00	0.00	0.00
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	Construction of Coal Berth at NBW for NLC. - TNEB (NCB1)		6.30	2011	40.00	40.00	-	-	-
1	Sub-Total:		6.30		40.00	40.00	0.00	0.00	0.00
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Four laning of NH 7A between TPT and Palayamkottai.			2011	25.00	25.00	-	-	NHAI
1	Sub-Total:		0.00		25.00	25.00	0.00	0.00	0.00
E	OTHERS WORKS								
1	Usage of information Technology for the operation and management of port.			2012	5.00	5.00	-	-	-
2	Auxiliary facilities			2012	20.00	20.00	-	-	-
3	Conversion of HT / LT Over head Lines			2012	10.00	10.00	-	-	-
3	Sub-Total:		0.00		35.00	35.00	0.00	0.00	0.00
6	GRAND TOTAL		6.30		638.00	369.00	269.00	0.00	0.00

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : COCHIN PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
1	Capital dredging for ICTT 1st stage for 14.5 m draft and LNG basin to create a draft of 11.5 m			2010/2019	381.25	-	381.25	-	-
1	Sub-Total:		0.00		381.25	0.00	381.25	0.00	0.00
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	International Container Transshipment Terminal (ICTT)-Phase-I		12.50	2010	2118.00	-	-	-	2118.00
2	LNG Re-gasification Terminal		2.50	2012	3200.00	-	-	-	3200.00
2	Sub-Total:		15.00		5318.00	0.00	0.00	0.00	5318.00
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								
D	RAIL/ROAD CONNECTIVITY WORKS								
1	National Highway Connectivity to the ICTT project site at Vallarpadam			2010	557.00	-	-	557.00	-
2	Rail connectivity			2010	246.00	-	246.00	-	-
2	Sub-Total:		0.00		803.00	0.00	246.00	557.00	0.00
E	OTHERS WORKS								
1	Port based Special Economic Zone		-	2015	850.00	100.00	-	-	750.00
1	Sub-Total:		0.00		850.00	100.00	0.00	0.00	750.00
6	GRAND TOTAL				7352.25	100.00	627.25	557.00	6068.00

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : NEW MANGALORE PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (in MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)					
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector		
A	DEEPENING OF CHANNEL/BETHS, ETC.										
	Sub-Total:										
B	CONSTRUCTION/RECONS-TRUCTION OF BERTHS/JETTIES, ETC.										
	1	Development of Coal Handling Facilities for captive user.	Coal	5.40	2010	230.00	-	-	-	230.00	
	1	Sub-Total:									
				5.40		230.00	0.00	0.00	0.00	230.00	
C	PROCUREMENT OF EQUIPMENT ETC.										
	1	Setting up of mechanized Iron ore handling facilities (at berth no. 14) - BOT	Iron	6.62	2012	296.03	-	-	-	296.03	
	1	Sub-Total:									
				6.62		296.03	0.00	0.00	0.00	296.03	
D	RAIL/ROAD CONNECTIVITY WORKS										
	1	Improvement to Port Internal Roads			2012	50.00	50.00	-	-	-	
	2	Road connectivity to the Port.			2012	19.55	19.55	-	-	-	
	2	Sub-Total:									
				0.00		69.55	69.55	0.00	0.00	0.00	
E	OTHERS WORKS										
	Sub-Total:										
4	GRAND TOTAL										
				12.02		595.58	69.55	0.00	0.00	526.03	

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : MORMUGAO PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
1	Capital Dredging for Mooring Dolphin (In lieu of Deepening of Approach Channel and berth no. 9 to increase the draft from 14.10 m to 15.10 m.)		5.00	2011	50.00	25.00	25.00	-	-
1	Sub-Total:		5.00		50.00	25.00	25.00	0.00	0.00
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	Construction of berth alongside breakwater (in lieu of Strengthening of breakwater)		-	2012	47.00	47.00	-	-	-
2	Extension of existing POL berth no. 8 (In lieu of modification of existing POL berth for handling Iron ore)		1.00	2013	16.00	16.00	-	-	-
2	Sub-Total:		1.00		63.00	63.00	0.00	0.00	0.00
C	PROCUREMENT OF EQUIPMENT ETC.								
1	Replacement of two stackers			2012	15.00	15.00	-	-	-
1	Sub-Total:		0.00		15.00	15.00	0.00	0.00	0.00

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

D		RAIL/ROAD CONNECTIVITY WORKS							
		Sub-Total:							
E		OTHERS WORKS							
		Sub-Total:							
	4	GRAND TOTAL		6.00	128.00	103.00	25.00	0.00	0.00

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : MUMBAI PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
	Sub-Total:								
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
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.		9.60	2012	1460.52	444.86	-	-	1015.66
1	Sub-Total:		9.60		1460.52	444.86	0.00	0.00	1015.66
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Improvement of Rail & Road infrastructure.			2013					
	a) Rail connectivity between Wadala & Kurla.				131.00	131.00	-	-	-
	b) Road improvements within MbPT estate.				35.00	35.00	-	-	-
	c) Road improvements outside MbPT estate.								
	i) Wadala Mahul to Truck Terminus Link. #				15.00	7.50	-	7.50	
	ii) Anik Panjarpol Link #				152.00	35.00	-	117.00	
1	Sub-Total:		0.00		333.00	208.50	0.00	124.50	0.00
E	OTHERS WORKS								
1	Development of coastal shipping		0.00	2016	50.00	40.00	10.00	-	-
1	Sub-Total:		0.00		50.00	40.00	10.00	0.00	0.00
3	GRAND TOTAL		9.60		1843.52	693.36	10.00	124.50	1015.66

**PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
(ONGOING PROJECTS)**

NAME OF THE PORT : JAWAHARLAL NEHRU PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (Crores)	Source of Funding (In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
	Sub-Total:								
B	CONSTRUCTION/RECONS-TRUCTION OF BERTHS/JETTIES, ETC.								
	Sub-Total:								
C	PROCUREMENT OF EQUIPMENT ETC.								
1	Procurement of one RMQC and shifting of two old RMQC at SWB		1.80	2011	35.00	35.00	-	-	-
2	Replacement of One RMGC on line 1 and 2			2012	12.00	12.00	-	-	-
3	Replacement of three RMQC		1.80	2011	103.00	103.00	-	-	-
3	Sub-Total:		3.60		150.00	150.00	0.00	0.00	0.00
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Improvement of Road Connectivity (a) Four laning of NH4B (b) SH-54 Amramarg in progress			2012	357.00	100.00	-	257.00	-
2	Internal Port Road widening-Stg-II			2011	45.00	45.00	-	-	-
2	Sub-Total:		0.00		402.00	145.00	0.00	257.00	0.00
E	OTHERS WORKS								
1	Infrastructure facilities for Port based industries		0.00	2011	45.00	45.00	-	-	-
2	Environmental measures			2012	10.00	10.00	-	-	-
3	Environmental measures			2014	20.00	20.00	-	-	-

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

NAME OF THE PORT : JAWAHARLAL NEHRU PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
4	Replacement of three Pilot launches, one VIP launch, one Utility launch and procurement of Pollution control vessels, VIP launch replaced			2011	22.00	22.00			
5	Infrastructure facilities for Port based industries - Ph-II			2012	45.00	45.00	-	-	-
6	Infrastructure facilities for Port based industries Phase-III			2012	45.00	45.00	-	-	-
6	Sub-Total:		0.00		187.00	187.00	0.00	0.00	0.00
11	GRAND TOTAL		3.60		739.00	482.00	0.00	257.00	0.00

PORT-WISE DETAILED LIST OF PROJECTS BEING UNDERTAKEN FOR MAJOR POTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

(ONGOING PROJECTS)

NAME OF THE PORT : KANDLA PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (In MMTPA)			Estimated Cost (' Crores)	Source of Funding (' In Crores)			
		Nature of Cargo**	Capacity Addition (In MMT)	Year in which to be added		IR	GBS	EBR & Others	Private Sector
A	DEEPENING OF CHANNEL/BETHS, ETC.								
1	Deepening of Navigational			2018	186.00	186.00	-	-	-
1	Sub-Total:		0.00		186.00	186.00	0.00	0.00	0.00
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, ETC.								
1	Construction of 15th to 18th Cargo Berth on BOT Basis including mechanization (Renamed as Construction of		8.00	2013	443.00	-	-	-	443.00
1	Sub-Total:		8.00		443.00	0.00	0.00	0.00	443.00
C	PROCUREMENT OF EQUIPMENT ETC.								
	Sub-Total:								
D	RAIL/ROAD CONNECTIVITY WORKS								
1	Extension of Road & Railway Network in the rear of back up area from berth no. 11 to 18 at Kandla.			2012	17.39	17.39			
2	Four laning of existing road from national highway 8A upto jetty complex.			2011	21.79	21.79			
3	Providing railway network in newly developed cargo jetty.			2011	6.08	6.08	-	-	-
3	Sub-Total:		0.00		45.26	45.26	0.00	0.00	0.00
E	OTHERS WORKS								
1	Developmnt of open storage facilities		0.00	2011	40.00	40.00	-	-	-
2	Augmentation of Water Suply at Kandla			2011	12.80	12.80	-	-	-
2	Sub-Total:		0.00		52.80	52.80	0.00	0.00	0.00
7	GRAND TOTAL		8.00		727.06	284.06	0.00	0.00	443.00

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- KOLKATA PORT

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	River Regulatory Works for improvement of draft in Hooghly Estuary	-	Draft Proposed to be raised from 8.5 mts to 9 mts	2012-13 (Expected)	1000.00	-	1000.00 √ (Through grant-in-aid)	-	-	2010-11	After two years of completion of scheme following placement of work order.	A scheme aimed at improvement of draft at Hooghly Estuary from 8.5 to 9 metres, was earlier approved by the Board of Trustees of Kolkata in December 2004 at a cost of Rs.385 crore. In view of adverse changes in geo-morphological state of the river regime, necessitating higher quantum of spoils to be dredged, PAMD of Planning Commission sought revalidation of the cost of the scheme in November 2007 which emerged at the level of Rs 936.44 crore. Accordingly, as advised by TAC, WAPCOS, in association with CWPRS and another international agency viz. Lankan Hydraulic Institute, was engaged for carrying out the long term geo-morphological and revalidation study in December 2008. The Final report has been received on 26.4.2010 and after due approval by TAC/Board of Trustees, a detailed proposal would be raised for approval of the scheme from PIB / CCEA.
Sub-Total					1000.00	0.00	1000.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Construction of 1 riverine Multi-purpose jetty upstream of 3rd Oil Jetty (HDC)	Dry Bulk, container	3.27	2012-13	270.00 [Estimate made by CES]	-	-	-	270.00 √ (Through PPP)	2010-11 2012-13		RFQ document has been issued on 19.2. 2010 for execution of the scheme on DBFOT basis. Last date of receipt of offers extended till 31.8.2010.Exploratory efforts being made to examine legal/ technical feasibility for awarding the construction of the berth on nomination basis for which Ministry's advice has been sought.
2	Construction of 1 riverine multi-purpose upstream of Haldia Lock	Dry Bulk, container	2.00	2012-13	140.00	-	-	-	140.00 √ Through PPP)	2011-12 2012-13		Feasibility Study is being undertaken.
3	Transloading facilities at Sandheads/ Orissa Coast for midstream loading/ unloading of Cargo	Dry Bulk, container	6.00	2012-13	350.00 (Indicative)	-	-	-	350.00 √ (Through PPP)	2011-12 2012-13		Expression of Interest (EOI) was earlier invited for transloading of dry bulk cargo at Sandheads/ Konica Sand Anchorage for which responses were received. Ministry formed a Working Group with representatives of State Govts of West Bengal, Orissa and KoPT to look into the territorial, technical and commercial issues involved to ensure smooth operationalisation of the project, which remained unresolved.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
4	Infrastructure Upgradation and Allied Works in and around Dock Area at KDS in 11th & 12th Plan		Not directly related to capacity augmentation but would help capacity augmentation on scheme like berths equipment to realise their optimal efficacies	2013-14	41.90	41.90	-	-	-	2010-11 2013-14	2013-14	Scheme has been sanctioned by the Board of Trustees in Feb'10.
Sub-Total			11.27		801.90	41.90	0.00	0.00	760.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Procurement/Replacement of Cargo Handling Equipment (at KDS)	Container	Details may be firmed up once the modalities of the BOT/OOM contract are finalised. (Capacity 1.00 million tonnes)	2012-13	-	-	-	-	√	Details may be firmed up once the modalities of the BOT/OOM contract are finalised. 2011-12	2012-13	Induction of various equipment, aimed at improved container handling capability of one KDS berth, including 1 Mobile Harbour Crane, 2 Reach Stackers, 3 RTGs, 6 Tractor-Trailer combination has been accorded sanction by the Board of Trustees of KoPT and NIT has since been published
2	Procurement of a Research-cum-survey Craft in replacement of RSV Anusandhani	-	-	2012-13	23.00	-	23.00	-	-	2010-11/ 2012-13	2012-13	NIT has been issued for procurement of craft. Offers are under scrutiny.
Sub-Total			1.00		23.00	0.00	23.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
Sub-Total					0.00	0.00	0.00	0.00	0.00			
E OTHER WORKS												
Sub-Total					0.00	0.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
	GRAND TOTAL		12.27		1824.90	41.90	1023.00	0.00	760.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Development of Infrastructure and allied works viz., Construction of four Container Handling Jetties at Diamond harbour Container Terminal (A/C KDS)	Container	1.65 M TEUs (or around 25 million tonnes)	2014-15 (Indicative)	1233.00 (As per 2008 estimate)	-	-	-	1233.00 v (PPP)	2011-12 2014-15	2014-15	Construction of four container handling jetties at the proposed Diamond Harbour Container Terminal was earlier plsnrf, withan envisaged cost of Rs 1233 Crore and a Projected Container traffic of 1.65 million TEUs in terms of the recommendation of a high Powered committee set up by the Ministry/Feasibility Study Undertaken by a Consultant.The Feasibility Report, as submitted by the Consultant. was approved by the Trustees in September 2008but the scheme has been kept on hold,since Ministry of Defence, till recently had not agreed to transfer land at the proposed project site. Recently Ministry of Defence has concurred on availability of land at Diamond Harbour in lieu of commensurate landat Roychowk.
2	Development of full-fledged Cargo handling Facilities at Saugor (A/C KDS)	Dry Bulk, liquid bulk, Container	60.00 M Tonnes	2015-16	3000.00 [Indicative]	-	-	-	300.00 v (PPP)	2011-12 2014-15	2014-15	The salient details of the project were easier around 2003 04forwarded development of economic affairs Ministry of Finance, whichin turn, had requested the Japanese Government to carry out a feasibility study through JICA. JICA has earlier taken up a pre-feasibility study. In the meanwhileMinistry took up a larger project viz Development of deep sea port in the Coast of West Bengalon which action was to betaken by Govt of West Bengal. Accordingly the Sugarproject of KOPT became a non-starter.As the deep sea port project has seen no development in the last three years. Expression of interest (EOI) was recently invited for development of facilities initially for handling dry bulk cargo and containers at Sugar Islandabout 150 km or 80 nautical miles south of kolkata. The port facility at Saugor will have the potential to handle dry bulk cargo like cooking Coal, thermal coal iron ore, detc and container and also liquidcargo. There has been a very good response from the developers and tender has already been floated seeking engagment of a consultancy.
3	Construction of Port Facility at Salukkhali (Haldia Dock II) (A/C HDC)	-	20 M Tonnes	2014-15 (Indicative)	2000.00	-	-	-	2000.00 v (PPP)	2011-12 2014-15	2014-15	NIT has already been issued for construction of five berths at the proposed Port facility at Salukkhali (Haldi Dock II)

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
4	Construction of 6 Riverine barge Jetties ,upstream of lock Entrance at HDC	-	4.5 M Tonnes	2012-13	300.00	-	-	-	300.00 v (PPP)	2011-12 2012-13	2012-13	
5	Works of Civic Infrastructure including augmentation schemes (A/C HDC)	-	Not directly related to capacity augmentation but would help capacity augmentation scheme.	2016-17	300.00	300.00	-	-	-	2013-14 2016 17	2016-17	These include works of various civic infrastructure expected to be taken up in 12th Plan through IR at HDC of KOPT
6	Works of civic infrastructure and other allied Works (A/C KDS)	-	-do-	2016-18	50.00	50.00	-	-	-	2013-14 2016 17	2016-17	These include works of various civic infrastructure expected to be taken up in 12th Plan through IR at KDS of KOPT
	Sub Total		109.50		6883.00	350.00	0.00	0.00	6533.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
1	Equipment Mechanisation of Berths 4b 5,9 &13at HDC	-	2.00 M Tones	2016-17	300.00	-	-	-	300.00	2013-14 2016 17	By 2016-17	
2	Procurement of Stacker Cum Reclaimer for Iron Ore handling at Berth No 3 (HDC)	-	1.00 M Tones	2012-13	24.37 (indicative)	24.37 (Under Revision)	-	-	-	2013-14 2016-17	2016-17	In terms of comprehensive report of Consultant earlier engaged. KOPT Board has, in principle approved of procurement of 3 nos 1500 tph capacity ore Stacker - cum Reclaimer (SCR)and engagement of a Project Management Consultant (PMC) with regard to tendering,procurement etc of the equipment. NIT for engagement of PMC is under process.
3	Replacement procurement of various craft viz Grab Dredger Midnapur, Jet Dredger and Suction Dredger Chumi (a/c KDS)	-	-	2016-17	240.00	240.00	-	-	-	2013-14 2016 17	2016-17	Vatiod craft envisaged for procurement in 12th Five Year Plan
4	Procurement of various equipment viz Crawler /Tyre Mounted Mobile Cranes and 4 Locomotives (A/C KDS)	-	-	-	64.10	-	-	-	64.10	2014-15 2016 17	2016-17	
	Sub Total		3.00		628.47	264.37	0.00	0.00	364.10			
D	RAIL/ROAD CONNECTIVITY WORKS											

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
1	Construction of a rail link (from the nearest rail head to the proposed Diamond Harbour Container Terminal (A/C KDS)	-	Not directly related to capacity augmentation but would help capacity augmentation scheme like berths equipment to realise -their optional effecacies	2014-15 (indicative)	25.00	25.00	-	-	-	2011-12 2014-15	2014-15	Eastern railway to undertake the work on behalf of KoPT on deposit basis
2	Construction of a rail link (around 35km from kakddip to the proposed port facility at Saugar including the Rail-cum -Road overbridge of 4.5 km from Lot kno 8 Harwood Point) to KaCHUBERIA (A/C KDS)	-	-do-	2014-15	1000.00 (indicative)	-	-	-	1000.00	2011-12 2014-15	2014-15	The work to be undertaken through SPV Mode/ PPP Mode of participation
3	Construction of rail link approx 8 km) along with allied rail infrastructure from the proposed port facility at Shalukkhali to the already existing Barda, Basulia Sutahata stations at Haldia Panskura rail -line (A/C HDC).	-	-do-	2014-15 (indicative)	50.00	-	-	-	50.00 Through Private Operation	-	2014-15	Railways may undertake the work on behalf of KOPT on deposit work basis
Sub Total			0.00		1075.00	25.00	0.00	0.00	1050.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- KOLKATA PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
E OTHER WORKS												
1	Setting up of New Passenger Terminal (A/C KDS).	-	-	-	4.00 (indicative)	-	-	-	4.00 Through Private Operation	-	-	Parcel of land along the Bank of River Hooghly at Millenium Park has already been licensed for develoment of cruise tourism in the river which is plying up to Sunderbans; another location at Outram Jetty No 12 has been assigned to an operator since Oct 06 for operation of local River Cruises which also has started.
2	Setting up of IWT Terminals, development of Mechanised loading/unloading facilities at the IWT Terminal (A/C KDS).	-	0.50 MTones	-	100.00 (indicative)	40.00	-	-	60.00 Through Private Operation	-	2016-17	Several private jettities as well as those by IWAI have come up/ are under construction along the river bank (Botential Gardens, Budge etc) which would cater to movement of traffic though iwt mode. A modern IWT Terminal is also being constructed by IWAI in Kolkatta for which KOPT has allotted land at No 2 Garden Reach Jetty. Also IWAI has been requested to come up with a technical Feasibility study along with State Govt for construction of jetty etc at Haldia where around 4 acres of KOPT land and around 7.
Sub Total			0.50		104.00	40.00	0.00	0.00	64.00			
GRAND TOTAL			113.00		8690.47	679.37	0.00	0.00	8011.10			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

III. PROJECTS FROM 1-4-2017 TO 31-03-2020

NAME OF THE PORT:- KOLKATA PORT

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
		-	-	-	0.00	0.00	-	-	-	-	-	
	Sub-Total				0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
		-	-	-	0.00	0.00	-	-	-	-	-	
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
		-	-	-	0.00	0.00	-	-	-	-	-	
	Sub-Total				0.00	0.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
		-	-	-	0.00	0.00	-	-	-	-	-	
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
1	Development /Commercial Utilisation of Warehousing Facilities	--	--	--	100.00	5.00	--	--	95.00	--	--	Not yet firmed up.
2	Commercial use of various land parcels of Kolkata Port for development of convention Centre, Multiplexes, Shopping Malls, Parking Yards, Service Hubs and Port Users' Complex	--	--	--	100.00	5.00	--	--	95.00	--	--	Yet to be firmed up. Scheme is being currently kept on hold.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

III. PROJECTS FROM 1-4-2017 TO 31-03-2020

NAME OF THE PORT:- KOLKATA PORT

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
3	Development of Riverfront & existing Ghats in River Hooghly for promotion of tourism, Amusement Parks & setting up of Food Marts, Cafeterias, Meditation Centres, Health Hubs like Ayurvedic Therapy Centres. Development of Vedic Villages setting up of Parks and Gardens, shops & other establishments	--	--	--	60.00	35.00	--	--	25.00	--	--	Barring beautification of a few ghats along the river front , the scheme over-all is yet to be firmed up. Being currently kept on hold.
Sub-Total		--	--	--	260.00	45.00	0.00	0.00	215.00	--	--	
GRAND TOTAL					260.00	45.00	0.00	0.00	215.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PARADIP PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
1	Enhancement of draught at existing dock system from 12.5 m to 14.0 m to cater to Panamax Vessels.	--	5.00 (2.5 POL & 2.5 Thermal Coal)	2011	40.00	40.00	--	--	--	Nov.,2010	May,2011	Bids received on 09.07.2010 and are under scrutiny.
	Sub-Total		5.00		40.00	40.00						
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Development of Multi Purpose Berth to handle clean cargo including container on BOT basis.	Clean cargo, container	5.00	2014	387.31	58.20	--	--	329.11	05.07.2010/ Jul.,2011	Jun.,2014	Financial bids opened on 23.06.2010. Letter of Award has been issued in favour of H1 bidder (Consortium of Sterlite - Leighton).
2	Construction of Southern Oil Jetty at Paradip Port.	Crude Oil/POL Products	10.00	2013	191.09	191.09	--	--	--	Oct.,2011	Mar.,2013	EFC memorandum has been submitted to Ministry on 22.05.2010. The queries raised by Ministry on capital cost and project completion period have been complied. The project is at appraisal stage.
3	Extension of Break Water	--	--	--	6.00	6.00	--	--	--	Nov.,2010	Oct.,2011	Bids have been received on 21.05.2010 & are under evaluation.
4	Installation of 2nd SPM by IOCL (Ph-I) & Installation of 3rd SPM by IOCL (Ph-II).	Crude Oil	11.00 11.00	2012 2013	1492.33	--	--	1492.33 (IOCL)	--	Dec.,2010	Apr.,2012 Apr., 2013	This will be taken up by Indian Oil Corporation Ltd.
	Sub-Total		37.00		2076.73	255.29		1492.33	329.11			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PARADIP PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS		
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector					
C	PROCUREMENT OF EQUIPMENTS ETC.													
1	Replacement & Procurement of Locomotives (1 No.)	--	--	--	11.00	11.00	--	--	--	Jan.,2011	Mar.,2012	Continuing Schemes:- New Procurement- 1No. Replacement- 3 Nos. New locomotive was procured on 23.07.08. 1st & 2nd replacement locomotives were procured on 16.07.08 & 16.03.10 respectively. This 3rd replacement locomotive is likely to be procured by 31.03.2012.		
2	Replacement of Wagon Tippler (1 No.)	--	--	--	9.68	9.68	--	--	--	Feb.,2012	Aug.,2013	Continuing Schemes:- LOI & W.O. have been issued for replacement of one Wagon Tippler at a cost of Rs. 0.87 Crores. This work is likely to be completed by 07.11.2012. This 2nd replacement is likely to be completed by 31.08.2013.		
3	Mechanization of CQ 3 berth	Pellets	4.00	Mar 2012	50.00	-	--	--	50.00	Dec.,2010	Mar.,2012			
	Sub-Total		4.00		70.68	20.68	0.00	0.00	50.00					
D	RAIL/ROAD CONNECTIVITY WORKS													
					NIL									
	Sub-Total													

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PARADIP PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
E	OTHER WORKS											
1	Shifting of existing 33/11 KV Control Room at Atharabanki and 33 KV power supply to BOT Terminals.	--	--	--	21.51	21.51	--	--	--	Dec.,2010	Sept.,2012	Fresh tender has been invited on 06.07.2010 & scheduled to be opened on 10.08.2010.
2	Enhancement of contract demand from 16 MVA to 30 MVA.	--	--	--	7.50	7.50	--	--	--	Jul.,2010	Dec.,2012	The demand load is likely to be enhanced in phases from 16 to 30 MVA by the year 2012.
3	Supply, Installation, commissioning of integrated Dust Control System in Harbour Area.	--	--	--	33.00	33.00	--	--	--	Apr.,2011	Mar.,2013	The proposal is under process and is likely to be finalised by the year 2010-11.
	Sub-Total				62.01	62.01						
	GRAND TOTAL		46.00		2249.42	377.98	0.00	1492.33	379.11			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- PARADIP PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
1	Deepening of Channel to increase draught from 16.0 m to 18.5 m to handle 1,85,000 DWT Vessels.	--	--	--	260.00	130.00	130.00	--	--	Jul.,2014	Jun.,2015	The proposal will be processed after award of the offshore Breakwater.
	Sub-Total				260.00	130.00	130.00					
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Development of Western Dock on BOT basis at Paradip Port.	Bulk Cargo like Iron ore, coal etc.	15.00	2014	530.00	60.00	--	--	470.00	Jul.,2012	Jun.,2014	In the process of DPR study.
2	Construction of Offshore Breakwater.	--	--	--	1000.00	1000.00	--	--	--	Jul.,2012	Jun.,2015	Bids have been received for preparation of DPR, Detailed Engineering & Environmental Impact Assessment study.
	Sub-Total		15.00		1530.00	1060.00			470.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
1	Replacement & Procurement of Locomotives (3 Nos.)	--	--	--	50.60	50.60	--	--	--	Sep.,2013	Dec.,2018	One locomotive will be replaced by 31.12.2014, the work order of which is likely to be issued by 30.09.2013. Another two locomotives will be replaced by 31.12.2016, the work order of which is likely to be issued by 30.09.2015.
	Sub-Total				50.60	50.60						

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERNII. PROJECTS FROM 1-4-2012 TO 31-03-2017NAME OF THE PORT:- PARADIP PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. specify)	Private sector			
D	RAIL/ROAD CONNECTIVITY WORKS											
	NIL											
	Sub-Total											
E	OTHER WORKS											
1	Shore protection work. (Groin field)	--	--	--	40.00	40.00	--	--	--	Dec.,2014	Nov.,2015	
2	Development of Airstrip at Paradip on BOT basis.	--	--	--	100.00	--	--	--	100.00	Apr.,2012	Sep.,2015	Feasibility study is being done.
	Sub-Total				140.00	40.00			100.00			
	GRAND TOTAL		15.00		1980.60	1280.60	130.00	0.00	570.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT:- PARADIP PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS	
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector				
A	DEEPENING OF CHANNEL/BERTHS , ETC.												
													NIL
	Sub-Total												
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Construction of Berths on the lee side of the Off-shore Breakwater.	--	--	--	--	--	--	--	--	--	--	--	Details will be provided after completion of DPR study for Construction of Off-shore Breakwater.
	Sub-Total												
C	PROCUREMENT OF EQUIPMENTS ETC.												
1	Replacement & Procurement of Locomotives (1 No.)	--	--	--	19.80	19.80	--	--	--	Sep.,2017	Dec.,2018	One locomotive will be replaced by 31.12.2018.	
2	Replacement of Equipments in MCHP (Stacker-2 Nos., Reclaimer-2 Nos., Shiploader-2 Nos.)	--	--	--	348.30	348.30	--	--	--	Sep.,2019	Sep.,2021		
	Sub-Total				368.10	368.10							
D	RAIL/ROAD CONNECTIVITY WORKS												
													NIL
	Sub-Total												
E	OTHER WORKS												
1	Arboriculture work close to Paradip vicinity	--	--	--	8.00	8.00	--	--	--				
	Sub-Total	--	--	--	8.00	8.00	--	--	--	--	--		
	GRAND TOTAL				376.10	376.10							

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Phase -II - Deepening of Inner harbour entrance channel and turning circle draft from 11.0 m to 12.5 m.	-	0.60	2012	70.00	70.00	-	-	-	Sept. 10/ Nov. 10	May-11	Tenders invited for rock dredging
2	Phase-III - Deepening the entrance channel and turning circle from draft of 12.5 m to 14 m Inner Harbour	-	0.60	2012	244.00	244.00	-	-	-	Apr. 11/ Jun.11	Jun-12	In-principle approval of Ministry received on 21.6.2010. Proposal is processed for EFC approval.
3	Outer harbour expansion project (Capital Dredging portion) upto 18.1 mtrs draft	-	Shown against item no. B2	2014	98.14	98.14	-	-	-	Mar. 11/ May. 11	Feb-12	Separate proposal for dredging sent for PIB approval.
Sub Total			1.20		412.14	412.14	0.00	0.00	0.00			
B INVESTMENT IN TERMINALS												
1	Additional Oil handling facilities for POL	POL Products	2.00	2013	183.00	183.00	-	-	-	Mar. 11/ May. 11	2014	Feasibility report submitted by IPA
2	Outer harbour expansion project	Iron ore	6.50	2014	261.30	-	-	-	261.30	Jul. 11 Dec. 11	2014	To take up the scheme through PPP is under examination

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
3	Construction of WQ.7 Berth in the Inner harbour including mechanised handling facilities for handling Alumina and Other Dry bulk. (DBFOT basis)	Alumina & Other Dry bulk	5.66	2013	239.66	-	-	-	239.66	Sept. 10/ Dec. 10	Oct-12	Approval of the Ministry received. Award of Concession by September 2010
4	Construction of WQ.8 Berth in the Inner harbour including mechanised handling facilities for handling Alumina and Other Dry bulk. (DBFOT basis)	Alumina & Other Dry bulk	5.66	2013	244.66	--	--	--	244.66	Sept. 10/ Dec. 10	Oct-12	Approval of the Ministry received. Award of Concession by September 2010
5	Development of WQ6 berth in the Inner Harbour for Multi cargo	Multi cargo	2.08	2013	114.50	--	--	--	114.50	31/07/2010/ Oct. 10	Oct-12	Concession Agreement signed on 31.7.2010.
6	Construction of EQ10 berth in Inner harbour for liquid cargo	Liquid cargo	1.84	2013	55.38	--	--	--	55.38	Aug. 2010/ Nov. 2010	Aug-12	Project awarded. Signing of Concession agreement by August 2010
7	Strengthening of EQ7, WQ4& WQ5 berths to cater to 12.5 mtrs draft vessels	Coal, fertiliser and other bulk cargo	0.50	2012	18.00	18.00	-	-	-	Sept. 2012 / Oct. 2012	Mar. 2014	Will be taken up after strengthening of 5 berths in 1st phase.
8	Development of EQ1A on South side of EQ1 in inner harbour on DBFOT basis	Steam coal	7.36	2013	313.39	--	--	--	313.39	Oct. 10 / Dec. 10	Dec-13	PPPAC meeting to be held by Ministry Govt. approval awaited.
9	Development of EQ 1 berth on South side of East Quay by replacement of EQ 2 berth in inner harbour on DBFOT basis.	Thermal coal	6.40	2013	323.18	--	--	--	323.18	Oct. 10 / Dec. 10	Dec-13	PPPAC meeting to be held by Ministry Govt. approval awaited.
10	Development/ Strengthening /Modification of Berths and Jetties	Multi cargo	0.50	2012	70.00	70.00	--	--	--	--		
	a) WQ1 return end upto RCC lay by jetty	-	-	2011	(21.00)	(21.00)	--	--	--	Sept. 10/ Oct. 10	Mar-12	Tenders under finalisation
	b) WQ8 return end	-	-	2011	(19.00)	(19.00)	--	--	--	Sept. 10/ Oct. 10	Mar-12	
	c) Development of Jetties at SL Canal	-	-	2012	(21.00)	(21.00)	--	--	--	March-11	Sep-12	In the Process for approval

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
	d) Widening of EQ5 & EQ6			2012	(9.00)	(9.00)	--	--	--	March-11	Sep-12	Planning stage
11	Development of berthing facilities for handling multicommdities and for berthing of crafts		1.00	2012	50.00	50.00	--	--	--	Dec-11	Dec-12	Planning stage
12	Upgradation and development of integrated slipway complex and dry dock of FH and operation and maintenanc of the same	--	--		0.00	--	--	--	0.00	June-11	Mar-13	Proposed to be leased including O&M
	Sub Total		39.50		1873.07	321.00	0.00	0.00	1552.07			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Installation of Mechanised facilities at WQ1 berth in inner Harbour for handling Iron ore on DBFOT basis.	Iron ore	7.66	2013	272.43	--	--	--	272.43	Dec. 10/ Mar.11	Mar-13	RFQ opened. Applications are under evaluation.
2	Modernization of Ore handling complex - Replacement of stacker etc)	-	--	2012	28.00	28.00	--	--	--	March-11	Mar-12	Tenders are under evaluation
3	Installation of Mechanized fertiliser handling facilities at EQ7 berth in the Inner harbour on DBFOT basis	Fertilisers	3.20	2013	217.58	--	--	--	217.58	March-11	Sep-12	RFQ re-issued. Date of Receipt of RFQ is 11.08.2010.
4	Procurement of Bucket Wheel Reclaimer as a replacement	-	--	2012	16.00	16.00	--	--	--	March-11	Mar-12	Tenders issued, Bids will be opened on 11.8.2010.
5	Replacement of 10 ton cranes by 4 Nos. Harbour mobile cranes	-	--	2013	120.00	--	--	--	120.00	March-12	Sep-13	Will be taken up after strengthening of berths.
Sub Total			10.86		654.01	44.00			610.01			
Note : Estimate cost are approximate & tentative and to be firmed up based on DPR to be taken up.												
D RAIL/ROAD CONNECTIVITY WORKS												
1	Improvement to road infrastructure with road bridges / fly over bridges – Ph.II	--	--	--	55.00	55.00	--	--	--	Dec-10	2012	Consists of various sub schemes. DPR is under preparation for fly overs.
2	Development of interchange Yard at Vadlapudi and Reception and Despatch yard at Mindi and associated facilities	--	--	--	81.00	81.00	--	--	--	Dec-11	2014	DPR prepared by RITES is under examination
3	Improvement to road infrastructure with road bridges/ fly over bridges Phase-III	--	--	--	160.00	160.00	--	--	--	June-11	2014	Being taken up in co-ordination with NHA. Appointment of consultants is in progress by NHA.
Sub Total					296.00	296.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
E OTHER WORKS												
1	Acquisition of land for construction of quarters	--	--	--	18.00	18.00	--	--	--	--	--	Contingent liability
2	Acquisition of land adjacent to outer harbour (Land acquisition at Kotaveedhi, OH)	--	--	--	20.00	20.00	--	--	--	--	2012	Proposal submitted to Ministry
3	Development of Multi model logistics Hub	--	--	--	100.00 (JV)	--	--	--	100.00 (JV)	Dec-10	Mar-12	MoU signed. Completion of DPR expected by Oct. 2010.
4	Productivity improvement measures	Containers	0.65	--	-	--	--	--	-		2013	
Sub Total			0.65		138.00	38.00	0.00	0.00	100.00			
GRAND TOTAL			52.21		3373.22	1111.14	0.00	0.00	2262.08			

Note : Estimate cost are approximate & tentative and to be firmed up based on DPR to be taken up.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
1	Development of Satellite port at Bhimunipatnam including new Fishing Harbour - Capital Dredging portion.	-	-	-	200.00	200.00	-	-	-	Apr-15	Jun-16	
2	Expansion of Outer harbour - Dredging/ Channel development etc.	-	-	-	200.00	200.00	-	-	-	Jun-12	Dec-16	
	Sub Total				200.00	200.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Extension of container terminal and augmentation of capacity of existing terminal	Containers	2.00	2016	130.00	-	-	-	130.00	Apr-14	Mar-16	Feasibility report is ready
2	Development of Satellite port at Bhimunipatnam including new Fishing Harbour Ph- I Ph- II	Multi cargo	3.50 4.00	2016	2000.00	1000.00 (Break waters etc)	-	-	1000.00	Mar-14	'Sept.,17 Sept.,20	Feasibility report under preparation
3	Expansion of Outer harbour Ph- I	Coal Other bulk	5.00 5.00	2017	2000.00	500.00 (Break waters etc)	-	-	1500.00	Mar-14	Sep-17	Feasibility report to be takenup.
4	Replacment of existing berths in the inner harbour/ Development of Jetties / Berths.	Coal	5.00	2016	1000.00	-	-	-	1000.00	Mar-13	Mar-17	

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

II. PROJECTS FROM 1-4-2012 TO 31-03-2017

NAME OF THE PORT:- VISAKHAPATNAM PORT

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. specify)	Private sector			
5	Development of barge handling/ deep draft facilities at Yarada water front	Other bulk	2.00	2017	500.00	500.00	-	-	-	Mar-15	March 17.	Model studies being entrusted to CWPRS / Pune.
Sub Total			26.50		5630.00	2000.00	0.00	0.00	3630.00			
* 13.00 MTPA capacity beyond 2020												
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Replacement of 2 tugs sahay and swantantra.	-	-	-	90.00	90.00	-	-	-	Jan-13	Mar-15	
Sub Total			0.00		90.00	90.00	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
1	Modernization and development of railway system	-	-	-	100.00	100.00	-	-	-	Apr-14	Mar-17	
2	Development of new road connectivities	-	-	-	50.00	50.00	-	-	-	Apr-15	Mar-17	
Sub Total					150.00	150.00	0.00	0.00	0.00			
E OTHER WORKS												
1	Acquisition of land adjacent to outer harbour - Phase-II (Land acquisition at I town area)	-	-	-	50.00	-	-	-	50.00	Sep-15	Mar-17	
2	Construction of multi-stored building to house trade center	-	-	-	25.00	25.00	-	-	-	Jan-16	Mar-18	
3	Construction of open storage sheds / warehouses in port areas.	-	-	-	50.00		-	-	50.00	Sep-12	Jan-14	
4	Development of stacking space in Port Area Phase.II	-	-	-	10.00	10.00	-	-		Apr-12	Mar-13	
5	Upgradation of Environmental schemes Phase-III	-	-	-	50.00	50.00	-	-		Apr-12	Mar-17	
6	Rerouting of conveyor system	-	-	-	100.00	100.00	-	-		Apr-14	Mar-16	

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. specify)	Private sector			
7	Upgradationm of existing infrastructural facilities (for all assets)	-	-	-	-	-	-	-		Apr-12	Mar-17	
8	Upgradation of ORS & dry dock	-	-	-	100.00		-	-	100.00	Jan-15	Dec-16	Proposed to leased out including O&M
9	Information technology phase-III	-	-	-	10.00	10.00	-	-		Apr-12	Mar-17	
	SubTotal				395.00	195.00	0.00	0.00	200.00			
	GRAND TOTAL		26.50		6465.00	2635.00	0.00	0.00	3830.00			

*13.00 MTPAcapacity beyond 2020

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT:- VISAKHAPATNAM PORT**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Development of Second Entrance channel to Inner Harbour	-	-	-	1000.00	1000.00	-	-	-	April 2018.	March 2021.	Fesibility to be entrusted
2	Development of existing entrance channel into two way channel	-	-	-	500.00	500.00	-	-	-	Sept 2019.	March 2022.	Fesibility to be entrusted
Sub-Total			0.00		1500.00	1500.00	0.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Augumentation of Off Shore Tanker Terminal (OSTT) to cater to 200000 DWT Tankers	-	2.00		100.00	100.00	-	-	-	April 2019.	March 2021.	
2	Relocation of Oil mooring facility in the Outer Harbour between LPG and OSTT berths	-	2.00		200.00	200.00	-	-	-	April 2019.	Sept 2020.	Fesibility to be entrusted
3	Expansion of Outer Harbour - Stage -II	-	5.00	2021	2000.00	1000.00	-	-	1000.00	Sept 2019.	March 2022.	Fesibility to be entrusted
Sub-Total			9.00		2300.00	1300.00	0.00	0.00	1000.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
Sub-Total			0.00		0.00	0.00	0.00	0.00	0.00			

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
D RAIL/ROAD CONNECTIVITY WORKS												
1	Construction of flyover bridges in Port operational areas.	-	-	-	100.00	100.00	-	-	-	Jun-17	Mar-19	Fesibility to be entrusted
2	Modernization and development of railway system. Phase. II	-	-	-	50.00	50.00	-	-	-	Apr-17	Mar-20	Fesibility to be entrusted
3	Development of new road connectivities Phase.II	-	-	-	50.00	50.00	-	-	-	Apr-17	Mar-20	Fesibility to be entrusted
Sub-Total			0.00		200.00	200.00	0.00	0.00	0.00			
E OTHER WORKS												
1	Development of stacking space in Port Area Phase.III	-	-	-	50.00	50.00	-	-	-	Apr-17	Mar-18	
2	Upgradation of Environmental schemes Phase-IV	-	-	-	50.00	50.00	-	-	-	Apr-17	Mar-18	
Sub-Total			0.00		100.00	100.00	0.00	0.00	0.00			
GRAND TOTAL			9.00		4100.00	3100.00	0.00	0.00	1000.00			

Note : Estimate cost are approximate & tentative and to be firmed up based on DPR to be taken up.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- ENNORE PORT LTD**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Capital Dredging Phase II	To facilitate dredging the Iron Ore Berth area, basin &	-	2010-11	221.00	221.00	-	-	-	Oct' 2010	14.12-2012	
	Sub-Total		0.00		221.00	221.00	0.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Development of Car Terminal	Cars	0.50 MTPA	2010	110.00	110.00	--	--	--		2010	Work in progress.
2	Construction of Coal Berth III	Coal	8 MTPA	2012-14	200.00	200.00	--	--	--	2011-12	2013-14	
	Sub-Total		8.50		310.00	310.00	0.00	0.00	0.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
	Sub-Total				0.00	0.00	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
1	Road	Four Lanning North Gate of EPL to Tachur	-	-	454.32	78.08	-	376.24	-	2012-13	2015-16	Project implemented by NHAI, RFQ is invited on 22.12.2009
	Sub-Total				454.32	78.08	0.00	376.24	0.00			
E OTHER WORKS												
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		8.50		985.32	609.08	0.00	376.24	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- ENNORE PORT LTD**

Sl. No	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Capital Dredging Phase III	To facilitate dredging in the container berth	-	-	219.00	219.00	-	-	-	2012-13	2013-14	Synchronising with container terminal project
Sub-Total			0.00		219.00	219.00	0.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Beths/Jetties etc.,	Development of LNG Terminal	2.50	-	100.00	-	-	-	100.00	2014-15	-	Project is to be developed by Indion Oil Corporation
2	Beths/Jetties etc.,	2nd MLT Terminal	3.00	-	200.00	200.00	-	-	-	2014-15	-	Will be taken after 7 years of commercial operation of MLT 1 or after achieving throughput of 2.10 MT whichever is earlier.
3	Upgradation of Coal Handling Facility	Coal	4.00	-	57.00	57.00	-	-	-	2014-15	-	
Sub-Total			9.50		357.00	257.00	0.00	0.00	100.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
Sub-Total					0.00	0.00	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
1	New Chord Line linking Puttur Attipattu	To facilitate Iron Ore Traffic	-	-	446.00	223.00	-	223.00	-	-	-	Railways are working out the final locations.
Sub-Total			0.00		446.00	223.00	0.00	223.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- ENNORE PORT LTD**

Sl. No	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
E	OTHER WORKS											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		9.50		1022.00	699.00	0.00	223.00	100.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING**III.PROJECTS FROM 1-4-2017 TO 31-3-2020****NAME OF THE PORT:- ENNORE PORT LTD**

Sl. No	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		0.00		0.00	0.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-3-2012****NAME OF THE PORT: CHENNAI PORT**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (Crores)	Source of Financing (` in Crores)				Expected date of Award /Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others* (*pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS, ETC											
1	Development of Basin and Channels for Mega	Container	-	2018	561.00	561.00	-	-	-	2011	2017	
	Sub-Total		0.00		561.00	561.00	0.00	0.00	0.00			
B	CONSTRUCTION/ RECONSTRUCTION OF BERTHS/JETTIES, Etc.,											
1	Creation of Mega container terminal to the north of the Bharathi Dock (excluding dredging component)	Container	48.00	2018	3125.00	-	-	-	3125.00	2011	2017	Proposal taken up for implementation under PPP mode. MoS approval awaited for issue of RFP.
2	Construction of additional berth (Ro-Ro) at southern end of Container terminal along with Multi-level stackyard for automobiles	General cargo	1.50	2013	94.80	0.80	-	-	94.00	Aug-11	Aug-13	Proposal taken up for implementation under PPP mode. Preparation of Feasibility report is under progress.
3	New Berth 200 M long in Bharati Dock (Renamed as) Development of Barge handling facilities at Chennai Port under PPP mode	Liquid Cargo	1.00	2013	40.00	0.50	-	-	39.50	Aug-11	Aug-13	Proposal taken up for implementation under PPP mode. Preparation of Feasibility report is under progress.
	Sub total		50.50		3259.80	1.30	0.00	0.00	3258.50			
C	PROCUREMENT OF EQUIPMENTS ETC.,											Furnished seperately
D	RAIL/ROAD CONNECTIVITY WORKS											
1	Ennore-Manali Expressway	-	-	2012	600.0	Equity-139.80 & Loan to project-110.68	-	-	460.20 by SPV	2002	2012	Rs.38CrS already paid with the approval of MoS. MoS approval awaited for enhanced equity and loan assistance.
	Sub total		0.00		600.00	139.80	0.00	0.00	460.20			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-3-2012****NAME OF THE PORT: CHENNAI PORT**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (' Crores)	Source of Financing (' in Crores)				Expected date of Award /Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others* (*pl. Specify)	Private Sector			
E	OTHERS WORKS											
1	Construction of Marina	-	-	2012	300.00	2.00	-	-	298	31.03.2011	31.03.2012	This scheme was proposed at the southern side of the Port after construction of groyne field. As environmental clearance for this proposal is awaited, facility for 20 boats is being developed in Boat Basin area as a first phase at an estimated cost of Rs. 2 Crs.
2	Construction of Groyne field south of sand screen	-	-	2014	15.70	15.70	-	-		31.01.2012	31.01.2014	Proposal submitted for Environmental clearance.
3	Development of Modern Cruise Terminal at NQ	-	-	2014	100.00	100.00	-	-		31.01.2012	31.01.2014	
4	Development of Integrated Dry Port and Multi Model Logistics Hub near Sriperumbudur	-	*	2013	387.54	100 towards acquisition of land on lease basis + 42 towards rail connectivity	-	-	145+ 100.54 by BOT operator	Apr-11	Mar-13	Pursued with MoS for obtaining approval for acquisition of land from GoTN on lease basis. Development of Back up area at santhangadu OFF DOCK CFS has been taken up as development of Dry port at Sriperumbudur
	Sub-Total		0.00		803.24	259.70	0.00	0.00	543.54			
	GRAND TOTAL		50.50		5224.04	961.80	0.00	0.00	4262.24			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
II. PROJECTS FROM 1-4-2012 TO 31-3-2017

NAME OF THE PORT: CHENNAI PORT

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (' Crores)	Source of Financing (` in Crores)				Expected date of Award /Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others* (*pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS, ETC											
1	Deepening of Channels, Basin and Berths - (Estimated cost Rs. 143 Crs) (Group schemes continued from Phase-I)											
	(C) Modernisation of North Quay - (Estimated cost Rs. 50 crs)	General Cargo	1.00	2013	-	-	-	-	-	01.01.12	31.03.13	
	(d). Modernisation of South Quay I & II - (Estimated cost Rs.38.4 crs)	General Cargo	1.00	2014	-	-	-	-	-	01.04.12	31.03.14	
	Sub total		2.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, Etc.,											
1	Extension of WQ to the South	General cargo	0.50	2017	75.00	5.00	-	-	70.00	01.04.15	31.03.17	
2	Development of third Container Terminal at WQ	Container	10.00	2016	750.00	20.00	-	-	730.00	01.03.14	31.03.16	
3	Construction of new jetty at North groyne	General cargo	0.50	2017	50.00	1.00	-	-	49.00	01.03.15	28.02.17	
4	Construction of 200M berth at Western side of Boat Basin on BOT basis	General cargo	0.50	2017	50.00	1.00	-	-	49.00	01.04.15	28.02.17	
	Sub total		11.50		925.00	27.00	0.00	0.00	898.00			
C	PROCUREMENT OF EQUIPMENTS ETC.,											Furnished seperately

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
II. PROJECTS FROM 1-4-2012 TO 31-3-2017

NAME OF THE PORT: CHENNAI PORT

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (' Crores)	Source of Financing (` in Crores)				Expected date of Award /Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others* (*pl. Specify)	Private Sector			
D	RAIL/ROAD CONNECTIVITY WORKS											
E	OTHERS WORKS											
1	Development of Slipway complex at Timber Pond	-	-	2017	40.00	0.50	-	-	39.50	01.12.15	31.12.17	
2	Construction of 200 bed hospital at THC on PPP mode	-	-	2018	75.00	0.50	-	-	74.50	01.01.16	31.01.18	
3	Construction of Commercial complex at North of Speciality hospital, Rajaji Salai	-	-	2018	45.00	45.00	-	-		01.02.16	31.03.18	
4	Construction of Shoping Mall at THC on PPP mode	-	-	2018	50.00	0.50	-	-	49.50	01.06.16	31.03.18	
5	Development of Coastal Road along with Revetment upto outer arm	-	-	2013	40.00	40.00	-	-		01.06.11	31.05.13	
6	Construction of Transit Guest House - Serviced/Studio Apartments at Port's Land in Trisulam near Airport on PPP mode	-	-	2018	50.00	0.50	-	-	49.50	01.06.16	31.03.18	
7	Development of SEZ along with Port facilities by investing in Kolachel Minor Port	-	-	2018	3000.00	1200.00	-	-	1800.00	01.04.15	31.03.18	
8	Acquiring land from PWD/GoTN at west of Naval Office near Nappier bridge and construction of Chairman's & HOD's Quarters	-	-	2018	6.00	6.00	-	-	-	01.04.16	31.03.18	
	Sub total		0.00		3306.00	1293.00	0.00	0.00	2013.00			
	GRAND TOTAL		13.50		4231.00	1320.00	0.00	0.00	2911.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-3-2020****NAME OF THE PORT: CHENNAI PORT**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (' Crores)	Source of Financing (` in Crores)				Expected date of Award /Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others* (*pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS, ETC											
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES, Etc.,											
1	Development of Container Terminal at Eastern side of Jawahar Dock	Container	7.20 *	2021	500.00	2.00	-	-	498.00	01.03.19	31.03.21	
	Sub Total		7.20		500.00	2.00	0.00	0.00	498.00			
	* 7.20 MTPA beyond 2020											
C	PROCUREMENT OF EQUIPMENTS ETC.,											Furnished seperately
D	RAIL/ROAD CONNECTIVITY WORKS											
1	Construction of new elevated road over WQ road from the Container terminal to Hazardous Cargo shed with connection to new coastal road.	-	-	2019	150.00	150.00	-	-	-	01.05.17	01.01.19	
2	Construction of three elevated road inside the port according to Cargo evacuation plan of Mega Terminal	-	-	2019	75.00	75.00	-	-	-	01.05.17	01.01.19	
	Sub Total		0.00		225.00	225.00	0.00	0.00	0.00			
E	OTHERS WORKS											
1	Annexing the existing fishing harbour after construction of a new fishing harbour to its north	-	-	2019	100.00	100.00	-	-		01.04.17	31.03.19	
2	Developing EPZ near Fishing Harbour on BOT basis	-	-	2019	100.00	1.00	-	-	99.00	01.04.17	31.03.19	
3	Development of new Trade Convention Centre at New Workshop on BOT basis	-	-	2020	100.00	1.00	-	-	99.00	01.04.18	31.03.20	
4	Development of Sylo complex with conveyor facilities	-	-	2020	100.00	1.00	-	-	99.00	01.04.18	31.03.20	
	Sub Total		0.00		400.00	103.00	0.00	0.00	297.00			
	GRAND TOTAL		7.20		1125.00	330.00	0.00	0.00	795.00			

* 7.20 MTPA beyond 2020

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT : TUTICORIN

SI No	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (Crores)	Source of Financing (In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
A	DEEPENING OF CHANNEL / BERTHS ETC											
1	Dredging in front of NCB-II	-	-	2011-12	140.00	140.00	0.00	0.00	0.00	2011	October2012	Action is being taken
	Sub- Total		0.00		140.00	140.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Construction of shallow dragught berths 2 Nos	-	-	-	30.00	30.00	-	-	-	-	-	
		-	-	-		-	-	-	-	-	-	
(i)	For handling construction materials	Construction materials	2.00	2012-13 &2013-14	65.37	0.00	0.00	0.00	65.37	Feb.2011	18Monthsform signing of LOA July,2012	RFQ opened on 10-06-2010 and evaluation is in progress.PPPAC Memo sent of Ministry On 12-04-10.Joint hearing meeting by TAMP for fixing upfront tariff is held on 30-06-10. The anticipated date of signing of Concession Agreement is February,2011
(ii)	For handling Cement	Cement	2.00	2012-13 &2013-14	83.33	0.00	0.00	0.00	83.33	March2011	24Monthsform signing of LOA July,2012	Draft final Feasibility reportreceived on 23-06-10. The anticipated date of signing of Concession Agreement is March,2011
2	Structural upgradation of Coal Jetty -II	Coal	2.20	2013-14	5.00/ 9.70	9.70	0.00	0.00	0.00	March2011	March2012	First tender discharged.Action will be taken on receipt of confirmation from TTPS for Providing of shore unloadersby TTPS.
3	Development of North Cargo berth-II on DBFOT Basis	Bulk Cargoes	7.00	2014-2015	332.16	0.00	0.00	0.00	332.16	Anticipated date of Signing of Concession Agreement October, 2010	Project period 24 moths October2012	RFQ opened on 8-01-10. Security clearance from Ministry is awaited. RFP issued on 29-05-10 to the short listed bidders subject to the condition of Security Clearane form Ministry. Joint hearing meeting by TAMP for other bulk caroges held on 30-06-10. Submission of RFP is fixed on 12-07-10 and extended upto 27-07-10.
	Sub- Total		13.20		520.56	39.70	0.00	0.00	480.86			
C	PROCUREMENT OF EQUIPMENT ETC											

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT : TUTICORIN

SI No	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (' Crores)	Source of Financing (' In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
1	Conversion of Berth No.8 as second container Terminal	Container	4.80	2012-2013	150 /312.12	0.00	0.00	0.00	312.12	June2011	March2012	Based on the Judgement earlier tender was discharged. Government has to finalise the Policy decision on restriction of Monopoly. Action will be taken on receipt of the abvoe policy.
2	Up Gradation of mechanical handling infrastructure at TPT BOT Basis	NA	8.30		80.10	0.00	0.00	0.00	80.10	Anticipated date of Signing of Concession Agreement February, 2011	Project period is 6 months months	RFQ opened on 18-06-10 and evaluatin is in progress..TAMP application for fixing fupfront tariff sent on 25-02-10. Memo,RFP and DCA furnished to Ministry on 29-05-10.Joint hearing Meeting by TAMP held on 30-06-10.
	Sub Total		13.10		392.22	0.00	0.00	0.00	392.22			
D	RAIL / ROAD CONNECITIVITY WOKS											
1	Rail connectivity from marshalling to HareisInd-Phase - I,II& III	-	-	-	101.77	101.77	0.00	0.00	0.00			
	Sub Total				101.77	101.77	0.00	0.00	0.00			
E	OTHER WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		26.30		1154.55	281.47	0.00	0.00	873.08			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**II PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT : TUTICORIN**

SI No	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (Crores)	Source of Financing (In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
A	DEEPENING OF CHANNEL / BERTHS ETC											
1	Dredging in front of North Cargo Berth -III	-	-	-	140.00	140.00	0.00	0.00	0.00	2016	2017	will be taken up in appropriate time
2	Dredging in front of North Cargo Berth -IV	-	-	-	-	-	-	-	-	2019	2020	will be taken up in appropriate time
	Sub- Total		0.00		140.00	140.00	0.00	0.00	0.00			
B	CONSTRUCTION / RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Construction of North Cargo Berth-III	Coal	7.00	2016-17	332.16	0.00	0.00	0.00	332.16	2015	2017	Preparation of Techno Feasibility Report is in progress
2	Construction of North cargo Berth -IV	Coal	7.00	2019-20	332.16	0.00	0.00	0.00	332.16	2017	2019	Preparation of Techno Feasibility Report is in progress
	Sub- Total		14.00		664.32	0.00	0.00	0.00	664.32			
C	PROCUREMENT OF EQUIPMENT ETC.,											
	Sub- Total		0.00			0.00	0.00	0.00	0.00			
D	RAIL / ROAD CONNECITIVITY WOKS											
1	Double laning of rail connectivity from marshalling yard to wharf end	-	-	2016-17	40.00	40.00	0.00	0.00	0.00	2016	2017	Feasibility is being studied.
2	Zone-B Strengthening and Improvement including capital dredging upto 10.70m draught, Breakwater construction, Construction of Berths, construction of Fly over for evacuation of cargo to the storage yard at Municipal link Road.	-	-	2016-17	600.00	600.00	0.00	0.00	0.00	-	-	
	Sub- Total		0.00		640.00	640.00	0.00	0.00	0.00			
E	OTHER WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		14.00		1444.32	780.00	0.00	0.00	664.32			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERNII PROJECTS FROM 1-4-2012 TO 31-03-2017NAME OF THE PORT : TUTICORIN

SI No	Name of the Scheme	Capacity Addition (in MTPA)		Estimated Cost	Source of Financing (In Crores).				Expected date of Award / Date of	Expected date of completion	STATUS
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		14.00	1444.32	780.00	0.00	0.00	664.32			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT : TUTICORIN**

SI No	Name of the Scheme	Capacity Addition			Estimated Cost (' Crores)	Source of Financing (' In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
A	DEEPENING OF CHANNEL / BERTHS ETC											
1	Development of Outer Hasrbour (Breakwater, Dredging and Reclamation) Dredging will involve increasing the draft from 12.80m (created in Phase-I) to 14.00m	-	-	-	2250.00	1125.00	1125.00	0.00	0.00	-	-	Environmental Impact Assessment study completed on July2009. Public Hearing Meeting by Tamil Nadu Pollution control Board is scheduled to hbe held on 16-07-10.Preparatin of DPR is in progress.
	Sub Total		0.00		2250.00	1125.00	1125.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/ JETTIES, ETC.											
1	Developemnt of Outer Harbour (Cosntruction of berths & Providing container handling equipments) (BOT) Ph- I P-II	Container	3.00 16.20	-	750.00	0.00	0.00	0.00	750.00	-	2019 2020	Environmental Impact Assessment study completed on July2009. Public Hearing Meeting by Tamil Nadu Pollution control Board is scheduled to hbe held on 16-07-10.Preparatin of DPR is in progress.
2	Cosntruction of Bulk Cargo berth /Oil Terminal in the Outer Harbour	-	-	-	100.00	0.00	0.00	0.00	100.00	-	-	
	Sub Total		19.20		850.00	0.00	0.00	0.00	850.00			
C	PROCUREMENT OF EQUIPMENT											
1	Floating Crafts Procurement	-	-	-	60.00	60.00	0.00	0.00	0.00	-	-	Preliminary stage
2	Replacement ofKamaraj Tug	-	-	-	22.00	22.00	0.00	0.00	0.00	-	-	At present the scheme kept abeyance

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT : TUTICORIN**

SI No	Name of the Scheme	Capacity Addition			Estimated Cost (' Crores)	Source of Financing (' In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
3	Convdsion of Berth No 9 as container Terminal (BOT)	Container	-	-	150.00	0.00	0.00	0.00	150.00	-	-	
	Sub Total		0.00		232.00	82.00	0.00	0.00	150.00			
D	RAIL / ROAD CONNECITIVITY WOKS											
1	Constructin of Separate approach /road connectivity to Outer Harbour	-	-	-	100.00	100.00	0.00	0.00	0.00	-	-	
2	Provision of Elevated road connecting outer harbour with the VOC road beyond the VOC statue junction	-	-	2019-20	200.00	200.00	0.00	0.00	0.00	2019	2020	Part of Outer Harbour connectivity improvement Project.
	Sub Total		0.00		300.00	300.00	0.00	0.00	0.00			
E	OTHER WORKS											
1	Reclamation and Heavy duty pavement	-	-	-	15.00	15.00	0.00	0.00	0.00	-	-	Preliminary stage.
2	Construction of International Ship building yard	-	-	-	200.00	0.00	0.00	0.00	200.00	-	-	Budgetary offer called for the preparation of report for Construction of Ship Building Yard under PPP mode on 18-11-2008. The offer received from the empanelled advisory services for the preparation of DPR has been discharged. The proposed project requires huge land area. Action is being taken for acquisition of additional land from District Administration.
3	Construction of Separate signal staion including provision for VTMS and procurement of 2 Nos 32 T BP Tug, 1 No of 45 T BP Tug 2Nos of Pilot launch, 3 Nos of Mooring boat	-	-	-	60.00	60.00	0.00	0.00	0.00	-	-	Preliminary stage.
	Sub Total		0.00		275.00	75.00	0.00	0.00	200.00			
	GRAND TOTAL		19.20		3907.00	1582.00	1125.00	0.00	1200.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN

III. PROJECTS FROM 1-4-2017 TO 31-03-2020

NAME OF THE PORT : TUTICORIN

SI No	Name of the Scheme	Capacity Addition			Estimated Cost (' Crores)	Source of Financing (' In Crores).				Expected date of Award / Date of commencement of Project	Expected date of completion of Project	STATUS
		Name of Cargo	Capacity	Year in which to be added		IR	GBS	EBR and others	Private Sector			
3	Construction of Separate signal staion including provision for VTMS and procurement of 2 Nos 32 T BP Tug, 1 No of 45 T BP Tug 2Nos of Pilot launch, 3 Nos of Mooring boat	-	-	-	60.00	60.00	0.00	0.00	0.00	-	-	Preliminary stage.
	Sub Total		0.00		275.00	75.00	0.00	0.00	200.00			
	GRAND TOTAL		19.20		3907.00	1582.00	1125.00	0.00	1200.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**I.PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
A	DEEPENING OF CHANNELS/BERTHS ETC.					Nil						
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	Bunkering Terminal (Multi User Liquid Terminal)	LPG, Bunker & other POL excluding Crude	4.10	2012	211.00	-	-	-	211.00	Oct. 2010	2012	Feasibility Report prepared by IPA. M/s. Feedback Ventures Pvt. Ltd, Haryana appointed as Transaction Advisor. RFQs invited on 21/07/2009 and the Board has approved the proposal to shortlist five Applicants. The proposal for upfront Tariff Setting submitted to TAMP on 24/11/2009. Memorandum for PPPAC clearance including draft RFP and proposal for security clearance submitted to the Ministry on 04/01/2010 and 13/01/2010 respectively. As directed by the Ministry/TAMP, the PPPAC Memo and proposal for upfront tariff setting were revised and submitted on 01/07/2010 and 03/07/2010 respectively
2	International Cruise Terminal	Passenger capacity- 3,50,000 per Annum	-	2013	186.00	-	-	-	186.00	March 2011	2013	Feasibility report submitted by consultants in March 2008. Appointed Transaction Advisor in June 2008. Application seeking prior environmental clearance submitted to MOE&F in Jan. 2009 and Terms of Reference for EIA studies have been finalized. PPPAC memo submitted to Ministry in Feb.2009.As per the discussions in the Ministry, it was decided to reexamine the RFQ by the Transaction Adviser of the project and to redraft it as per the provisions of the Model RFQ so that there is no deviation from the extant Model RFQ. As advised by the Transaction Adviser, EoI were invited on 30/10/2009 to interact with the prospective bidders before finalizing the structuring of the Project so as to invite the RFQ with a firm proposal. However, there was no response to the EoI from any parties. The proposal is being reworked for project implementation on BOT mode, conforming to MCA, by utilizing the existing berths.
	Sub Total		4.10		397.00	0.00	0.00	0.00	397.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**I.PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Procurement of 2 Nos Electric Level Luffing Crane	-	-	-	34.00	34.00	-	-	-	1.10.2010	31.3.2013	Project already sanctioned by the Port Trust Board. Since the area where Cranes are proposed for installation, is coming under the flying funnel of Indian Navy, Navy's clearance for the height restriction, is necessary before processing procurement. The matter has been taken up with Navy and the clearance is awaited.
2	Replacement & Modification of Cargo handling equipments	-	-	-	50.00	50.00	-	-	-	1.4.2011	31.3.2012	Proposal to be submitted
	Sub Total		0.00		84.00	84.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
												NIL
E	OTHER WORKS											
1	Reclamation & Development of land at S/End of W/Island- Land Development works	-	-	-	10.00	10.00	-	-	-	2011	2012	Construction of reclamation wall and filling work completed in March 2007. Land development works will be taken up on finalisation of redevelopment plan for W/Island.
2	Upgradation of fire fighting system	-	-	-	20.00	20.00	-	-	-	1.4.2011	31.3.2012	Feasibility of modifying the fire fighting facilities is being carried out using in house expertise and in consultation with BPCL
	Sub Total		0.00		30.00	30.00	0.00	0.00	0.00			
	GRANT TOTAL		4.10		511.00	114.00	0.00	0.00	397.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 01-04-2012 TO 31-03-2017****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
A	DEEPENING OF CHANNELS/BERTHS ETC.											
	increased draft (in meters)											
1	Capital Dredging for creation of Berth Basin for ICTT -Phase-III A for extension of berth	-	-	2013	26.4*	-	26.40	-	-	2013	2013	*As per DPR To be taken up in line with Phase-II development of ICTT
2	Deepening of EKM channel (Q5 to Q7 frontage)	-	-	2017	35.00	35.00		-	-	2016	2017	Preliminary stage of planning
3	Deepening of Mattancherry Channel	-	-	2017	50.00		50.00	-		2016	2017	Preliminary stage of planning
	Sub Total		0.00		111.40	35.00	76.40	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	LNG Re-gassification Terminal - Phase II	LNG	2.50	2016	1200.00	-	-	-	1200.00	2012	2015	Implementation by PLL.
2	International Container Transshipment Terminal - Phase II Extension of berth by 300m & providing related facilities	Container	6.25	2013	150.00	-	-	-	150.00	2012	2013	Implementation by BOT operator
3	Reconstruction of STB	POL	-	-	40.00	40.00	-	-		2013	2013	Preliminary stage of planning
4	Reconstruction of NTB	POL	-	-	40.00	40.00	-	-		2014	2014	Preliminary stage of planning
5	Liquid cargo jetty in M/channel	POL	2.00	2016	40.00		-	-	40.00	2015	2016	Preliminary stage of planning
6	Strengthening of Q5 to Q7 berths of E/wharf	GC	1.00	2017	40.00	40.00	-	-		2015	2017	Preliminary stage of planning
7	Reconstruction of Mattancherry wharf Phase-II	Coal & Misc.	1.00	2017	100.00		-	-	100.00	2015	2017	Preliminary stage of planning
	Sub Total		12.75		1610.00	120.00	0.00	0.00	1490.00			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Spill over Scheme Procurement of 2 Nos Electric Level Luffing Crane	-	-	-	15.00	15.00	-	-	-	01.10.2010	31.3.2013	
2	New Schemes Procurement of Equipments	-	-	-	110.00	110.00	-	-	-	1.4.2012	31.3.2017	The Q7,8 & 9 now occupied by M/s IGTPPL, will become vacant when they shift to ICTT, Vallarpadam. In order to handle bulk cargoes and the containers, it is proposed to procure suitable equipments
	Sub Total		0.00		125.00	125.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
1	Widening to four-lane and strengthening of NH 47 A	-	-	-	40.00			40.00		2015	2017	To be executed by NHAI
	Sub Total	-	0.00	-	40.00	0.00	0.00	40.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 01-04-2012 TO 31-03-2017****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
E	OTHER WORKS											
1	Development of Business District at south end reclamation area at W/Island	-	-	-	300.00	-	-	-	300.00	2015	2018	Preliminary stage of planning
2	Land development at Puthuvypeen SEZ	-	-	-	25.00	5.00	-	20.00		2012	2015	Preliminary stage of planning
3	Providing Distribution park/CFS at SEZ	-	-	-	50.00		-		50.00	2012	2014	Preliminary stage of planning
4	Construction of Administrative and commercial offices and related infrastructure at SEZ	-	-	-	10.00	4.00	-	6.00		2012	2015	Preliminary stage of planning
5	Providing Electrical facilities and infrastructure at Puthuvypeen/ Vallarpadam SEZ area	-	-	-	100.00	100.00	-	-	-	1.4.2012	31.3.2017	Now CoPT is the Licensee for the distribution of power supply at Puthuvypeen and Vallarpadam area. In order to distribute power to these area for any new projects/ establishments coming up, CoPT has to provide the electrical facilities, such as providing Substations etc.
	Sub Total		0.00		485.00	109.00	0.00	26.00	350.00			
	GRAND TOTAL		12.75		2371.40	389.00	76.40	66.00	1840.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 01-04-2017 TO 31-03-2020****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
A	DEEPENING OF CHANNELS/BERTHS ETC.											
			increased draft (in meters)									
1	Capital Dredging for creation of Berth Basin for ICTT Phase III B*	-	-	2019	29.1*	-	29.10	-	-	2018	2019	*As per DPR To be taken up in line with Phase-III development of ICTT
	Sub Total		0.00		29.1*		29.10					
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	International Container Transshipment Terminal -	Container	12.5	2019	200.00	-	-	-	200.00	2017	2019	Implementation by BOT
2	Construction of 2nd oil Terminal at Puthuvypeen	POL	2.00	2020	60.00	-	-	-	60.00	2018	2020	Preliminary stage of planning
3	Outer Harbour Project for Construction of a Deep Water Port	Container, Bulk Cargo & POL	35.00	2021	2640.00	-	-	-	2640.00	2016	2021	Considering the non-availability of adequate land in Willingdon Island and heavy restrictions imposed by the Southern Naval Command because of Flight restrictions, the Port proposes to construct an Outer Harbour on the western side of Puthuvypeen area. This project will involve the reclamation of approximately 1200 acres of land, construction of breakwaters to the extent of approximately 5
	Sub Total		49.50		2900.00	0.00	0.00	0.00	2900.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 01-04-2017 TO 31-03-2020****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Replacement & upgradation of the existing slipway to slide slipway with 50 T capacity winch to accommodate bigger vessels	-	-	-	100.00	100.00	-	-	-	1.4.2017	31.3.2020	The existing slipway was installed from the very inception of Port workshop, which has to be replaced with higher capacity slide slipway with modern facilities.
2	Replacement of existing rail mounting cranes, re-railing & quay wall strenthening, at the Dry dock & Workshop area.	-	-	-	100.00	100.00	-	-	-	1.4.2017	31.3.2020	The existing cranes are very old and to be replaced
3	Procurement of a Dredger to Replace "GHD Nehru Shatabdi"	-	-	-	500.00	500.00	-	-	-	1.4.2017	31.3.2020	The dredger was procured during the year 1993 and its life span will be over by 2016 and the same has to be replaced with a higher capacity Dredger.
4	Procurement of 2 Nos Tugs to replace the existing two tugs "Baali" & "Balavan"	-	-	-	100.00	100.00	-	-	-	1.4.2017	31.3.2020	The existing two tugs "Baali" & "Balavan" will complete its life span by 2015 & 2018 which are to be replaced with new tugs.
5	Procurement of Water Barge to replace the existing water barge " Jalaprabha"	-	-	-	10.00	10.00	-	-	-	1.4.2017	31.3.2020	The existing water barge "Jalaprabha" was procured during the year 1998 and due for replacement by 2018. This has to be replaced with a higher capacity water barge.
6	Replacement of Pollution control cum buoy laying vessel "Venad"	-	-	-	15.00	15.00	-	-	-	1.4.2017	31.3.2020	This vessel was procured during the year 1996. On completion of the life saphn this has to be replaced with a similar craft.
	Sub Total		0.00		825.00	825.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 01-04-2017 TO 31-03-2020****NAME OF PORT: COCHIN**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)			Estimated Cost (in crores)	Source of Financing (in crores)				Expected date of Award/ Date of Commencement of Project	Expected date of Completion of project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others	Private Sector			
1	Construction of breakwaters	-	-	-	100.00	-	-	100.00	-	2018	2020	Preliminary stage of planning
2	Upgradation of fresh water facilities including replacement of pressed steel OH tanks.	-	-	-	15.00	15.00	-	-	-	2019	2019	Preliminary stage of planning
3	Reclamation for streamlining of flow in the Port channel for reducing siltation and for future development works	-	-	-	120.00	120.00	-	-	-	2018	2020	Preliminary stage of planning
4	Infrastructure development at SEZ	-	-	-	10.00	-	-	10.00	-	2017	2019	Preliminary stage of planning
Sub Total			0.00		245.00	135.00	0.00	110.00	0.00			
GRAND TOTAL			49.50		3999.10	960.00	29.10	110.00	2900.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-3-2012****NAME OF THE PORT:NEW MANGALORE PORT**

SL NO.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award/Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others (Pl.Specify)	Private Sector			
A	DEEPENING OF CHANNEL/ BERTHS,ETC.											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES,ETC											
1	POL berth at Oil Dock arm	POL	7.80	Dec.2012	79.17	79.17	-	-	-	Sept. 2010	31.12.2012	Tenders have been invited stipulating the receipt of bids on 10.8.2010
2	Development of Container Terminal at NMP	Container	4.50	Dec.2012	269.73	-	-	-	269.73	-	Dec.2012 subject to award of concession by sept to 2010	Bids were due for receipt on 30.6.2010. No bids have been received on the due date. The scheme is under review.
	Sub Total		12.30		348.90	79.17	0.00	0.00	269.73			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Procurement of Harbour Crane	-	-	-	30.00	-	-	-	30.00		31.12.2012	
	Sub Total		0.00		30.00	0.00	0.00	0.00	30.00			
D	RAIL / ROAD CONNECTIVITY WORKS											
1												
	Sub Total				0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		12.30		378.90	79.17	0.00	0.00	299.73			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR**II. PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT: NEW MANGALORE PORT**

SL NO.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award/Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others (Pl.Specify	Private Sector			
A	DEEPENING OF CHANNEL/ BERTHS,ETC.											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES,ETC											
1	Coal handling Berth at Western Dock arm	Coal	6.00	2015	147.00	147.00	-	-	-			
2	Multipurpose General Cargo Berth	Fertilizer	5.00	2015	150.00	150.00	-	-	-			
3	SBM to POL	Crude	18.00	2015	850.00	-	-	-	850.00		2015	MRPL Projects
	Sub Total		29.00		1147.00	297.00	0.00	0.00	850.00			
C	PROCUREMENT OF EQUIPMENT ETC.											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
D	RAIL / ROAD CONNECTIVITY WORKS											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
	GRAND TOTAL		29.00		1147.00	297.00	0.00	0.00	850.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-3-2020****NAME OF THE PORT: NEW MANGALORE PORT**

SL NO.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award/Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R	GBS	EBR and Others (*Pl.Specify)	Private Sector			
A	DEEPENING OF CHANNEL/ BERTHS,ETC.											
1	Deepening of Channel and lagoon Area to increase draft from 15.1 / 15.4 to 17.0 m	-	-	-	390.00	390.00	-	-	-			
	Sub Total		0.00		390.00	390.00						
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES,ETC											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
C	PROCUREMENT OF EQUIPMENT ETC.											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
D	RAIL / ROAD CONNECTIVITY WORKS											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
	Sub Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		0.00		390.00	390.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- MORMUGAO PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commence ment of Project	Expected Date of Completio n of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Development of Coal Berth	Coal	7.00	2013	496.00	-	-	-	496.0	May.,2010	Mar ,2013	Work in progress
	Sub-Total		7.00		496.00	0.00	0.00	0.00	496.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
	Sub-Total											
E	OTHER WORKS											
	Sub-Total		0.00		0.00	0.00	0.00	0.00	0.00			
	GRAND TOTAL		7.00		496.00	0.00	0.00	0.00	496.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- MORMUGAO PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	Sub Total		0.00		0.00	0.00	0.00					
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Mechanisation of Berth No. 11 for handling coal (taken in lieu of Modification of existing General cargo berth to handle Iron ore)	Coal	4.00	2014	425.00	--	--	--	425.00	--	Mar,2014	RFQ invited but subject to relocation of Kharewada fishing jetty
2	Construction of 2 berths at Vasco Bay	General Cargo	4.00	2016	800.00	--	--	--	800.00	--	Mar,2016	Port is in the process of rehabilitating encroachers from the project site. Development is possible only if the slums and
3	Development of Iron Ore Terminal at West of Breakwater at MPT	Iron Ore	8.00	2015	721.00	0.00	--	--	721.00	Sep.,2013	Mar,2015	RFQ invited
	Sub Total		16.00		1946.00	0.00	0.00	0.00	1946.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
1	Modernization of Mechanical Ore Handling system (This scheme is in lieu of Replacement of 1 bucket wheel reclaimer and Replacement 2 nos. of shiploaders.	Iron Ore	2.00	2014	445.80	135.20	--	310.60	--	Sep.,2013	Mar,2014	PIB note submitted to Ministry
	Sub-Total		2.00		445.80	135.20	0.00	310.60	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
												NIL
	SubTotal											

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-03-2017****NAME OF THE PORT:- MORMUGAO PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
E	OTHER WORKS											
	SubTotal											
	GRAND TOTAL		18.00		2391.80	135.20	0.00	310.60	1946.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT:- MORMUGAO PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	NIL											
	Sub-Total											
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
	NIL											
	Sub-Total											
C	PROCUREMENT OF EQUIPMENTS ETC.											
	NIL											
	Sub-Total											
D	RAIL/ROAD CONNECTIVITY WORKS											
	NIL											
	Sub-Total											
E	OTHER WORKS											
	NIL											
	Sub-Total											
	GRAND TOTAL				0.00	0.00						

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN
I. PROJECTS FROM 1-7-2010 TO 31-3-2012

NAME OF THE PORT : MUMBAI PORT

Sl. No.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (In crores)	Source of Financing (In crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others (Pl. Specify)	Private Sector			
A DEEPENING OF CHANNEL/BERTHS. ETC.												
1	Deepening of main harbour channel to (-) 13.5 m cd including providing anchorages. (Cost Rs. 900, also appearing in JNPT and Mumbai Share is Rs. 100)	-	-	-	100.00	100.00	-	-	-	Dec.2010	Jan. 2012	Work being executed by JNPT. MbPT's contribution is 1/8th of cost of common portion. Soil investigation and revised estimate are being processed by JNPT.
2	Capital dredging for deepening approach channel to 2nd chemical berth at Pir Pau to increase draft to 14 m.	-	-	-	138.00	138.00	-	-	-	Feb.2012	Mar. 2013	Work yet to be awarded.
Sub Total			0.00		238.00	238.00	0.00	0.00	0.00			
B CONSTRUCTION / RECONSTRUCTION OF BERTHS/JETTIES ETC.												
1	Construction of second berth for handling liquid chemicals/specialised grades of POL off New Pir Pau Pier.	POL	2.00	2012	116.00	116.00	-	-	-	Dec. 2010	Dec. 2012	Tender for dredging work re-invited and opened on 21.08.2009 has been scrutinised. Shortlisting approved by the Board and price bid opened on 11.01.10 & scrutinised. Since offer is high, negotiations are under process. Design for berthing dolphin & mooring dolphin received from PMC. Tender for civil work invited on 03.11.09, opened on 18.03.10 is under scrutiny.
2	Dredging & Infrastructure development for handling bigger ships at 18 to 21 ID, harbour wall berths.	General Cargo	7.00	2012	353.00	353.00	-	-	-	Dec. 2010	July 2012	Tender for dredging work received and opened on 28.07.08, was processed & negotiated twice with bidder as directed by the Board. However, Board during its meeting held on 27.01.2009 discharged the tender. Tender for dredging re-invited on 23.04.09 and opened on 12.08.09 has been scrutinised. The recommendations for shortlisting of bidders submitted to the Chairman on 04.06.10. Tender for civil work invited on 07.08.08. Tender opened on 31.07.09 has been scrutinised and discharged in March 2010.
Sub Total :			9.00		469.00	469.00	0.00	0.00	0.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Replacement of 3 nos. high capacity ELL wharf cranes.(New)	-	-	-	40.00	40.00	-	-	-	Dec. 2010	Feb. 2012	Scheme at preliminary stage.
2	Procurement of 1 no. Passenger Launch in replacement of M.L. Kamini.	-	-	-	8.00	8.00	-	-	-	Nov. 2010	Mar. 2012	Estimate has been prepared & audit concurrence to estimate is received. Board note is being prepared. Proposal is under review by Standing Committee.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN
I. PROJECTS FROM 1-7-2010 TO 31-3-2012

NAME OF THE PORT : MUMBAI PORT

Sl. No.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (In crores)	Source of Financing (In crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others (Pl. Specify)	Private Sector			
3	M.R.I. 1.5 Tesla.	-	-	-	-	-	-	-	-	Nov. 2010	Jan. 2011	Budgetary quotation received and under scrutiny.
	Sub Total :		0.00		48.00	48.00	0.00	0.00	0.00			
D	RAIL / ROAD CONNECTIVITY WORKS											
	Sub-Total :		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHERS WORKS											
1	Development of coastal shipping.	-	-	-	50.00	50.00	-	-	-			Revised estimate is being prepared.
	a) Hay Bunder Quay Wall.	-	-	-	7.50	7.50	-	-	-			
2	Construction of transit shed at Indira Dock.	-	-	-	7.00	7.00	-	-	-	Dec. 2010	Jan. 2012	Tender invited on 29.06.09 for appointment of consultant. Tender opened on 18.08.09 and evaluation completed. Consultant appointed on 01.02.10 for providing architectural and engineering services.
3	Development and operation of Ship Repair Facilities such as Slipways etc. at Clarke Basin, Mazgaon.	-	-	-	100.00		-	-	100.00	June 2011	June 2012	Scheme at preliminary stage.
	Sub-Total :		0.00		164.50	64.50	0.00	0.00	100.00			
	GRAND TOTAL		9.00		919.50	819.50	0.00	0.00	100.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**II. PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT : MUMBAI PORT**

Sl. No.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (In crores)	Source of Financing (In crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others (Pl. Specify)	Private Sector			
A DEEPENING OF CHANNEL/BERTHS. ETC.												
1	Capital Dredging for Deepening of Approach Channel to 5th Oil Berth at Jawahar Deep	POL	0.00		50.00	50.00	-	-	-	May 2012	Nov. 2013	Work yet to awarded
Sub Total			0.00		50.00	50.00	0.00	0.00	0.00			
B CONSTRUCTION / RECONSTRUCTION OF BERTHS/JETTIES ETC.												
1	Upgradation of 4th oil berth	POL	2.00	2015	50.00	50.00	-	-	-	Aprl 2012	Feb. 2015	
2	Constuction of 5th Oil berth at Jawahar Deep	POL	18.00	2014	661.50	661.50	-	-	-	April 2013	April 2016	M/s CES Ltd for appointed as consultant has submitted for final DPR in Sept 2008. Dissccsion with HPCL and BPCL for sharing the cost of consturation of berth is in progress.
3	Development and operation of two Graving Dry Docks.	-	-		200.00	-	-	-	200.00	Apr. 2012	May 2014	
4	Development of berthing facilities for offshore vessels.	-	-	2013	60.00	60.00	-	-	-	June 2013	May 2015	
Sub Total			20.00		971.50	771.50	0.00	0.00	200.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Replacement of Marine Loading Arms.	-	-	-	50.00	50.00	-	-	-	June 2012	June 2013	
Sub Total			0.00		50.00	50.00	0.00	0.00	0.00			
D RAIL / ROAD CONNECTIVITY WORKS												
Sub Total			0.00		0.00	0.00	0.00	0.00	0.00			
E OTHERS WORKS												
1	Replacement of 14" dia finishing pipeline from Pir Pau to Wadala.	-	-	-	50.00	50.00	-	-	-	June 2011	May 2012	
2	Development of a Marina for providing a floating shelter and small boat/yatch repair facilities at MbPT work shop.	-	-	-	200.00		-	-	200.00	Jan. 2012	June 2013	
3	Development of CFS- (Development of Container Freight Station for handling containers of ICTPL)	-	-	-	50.00	50.00	-	-	-	Apr. 2011	June 2012	
Sub Total			0.00		300.00	100.00	0.00	0.00	200.00			
GRAND TOTAL			20.00		1371.50	971.50	0.00	0.00	400.00			278

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN
II. PROJECTS FROM 1-4-2012 TO 31-3-2017

NAME OF THE PORT : MUMBAI PORT

Sl. No.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (₹ In crores)	Source of Financing (₹ In crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others (Pl. Specify)	Private Sector			
2	Development of a Marina for providing a floating shelter and small boat/yatch repair facilities at MbPT work shop.	-	-	-	200.00		-	-	200.00	Jan. 2012	June 2013	
3	Development of CFS- (Development of Container Freight Station for handling containers of ICTPL)	-	-	-	50.00	50.00	-	-	-	Apr. 2011	June 2012	
	Sub Total		0.00		300.00	100.00	0.00	0.00	200.00			
	GRAND TOTAL		20.00		1371.50	971.50	0.00	0.00	400.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-3-2020****NAME OF THE PORT : MUMBAI PORT**

Sl. No.	Name of the Scheme	Capacity Addition (In MTPA)			Estimated Cost (In crores)	Source of Financing (In crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and Others (Pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS. ETC.											
						Nil						
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION / RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	Development of offshore container terminal. Phase-II	Container	4.80	2020	1500.00	-	-	-	1500.00	2018	2021	
2	Development of Multipurpose cargo berth	General	2.00	2020	540.00	540.00	-	-	-	2018	2020	M/s. CES Ltd. appointed as a consultant on 08.02.2007. Consultant has submitted final DPR in Sept. 2008 which is yet to be accepted by MbPT. Dialogue with HPCL & BPCL for sharing the cost of construction of 5th oil berth.
	Sub Total		6.80 *		2040.00	540.00	0.00	0.00	1500.00			
	* 6.80 MTPA beyond 2020											
C	PROCUREMENT OF EQUIPMENTS ETC.											
						Nil						
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
D	RAIL / ROAD CONNECTIVITY WORKS											
						Nil						
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHERS WORKS											
1	New Cruise Terminal near Gateway of India.	-	-	2014	1860.00	1860.00	-	-	-	May 2017	Apr. 2019	Consultant, M/s. Zebec Marine Consultant and Services submitted DPR for location at Oyster Rock. However, Navy has objected for the location of the Cruise Terminal on security ground. Matter referred to Shipping Ministry for taking up the matter with MoD.
	Sub Total		0.00		1860.00	1860.00	0.00	0.00	0.00			
	GRAND TOTAL		6.80		3900.00	2400.00	0.00	0.00	1500.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**I. PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF PORT : JAWAHARLAL NEHRU PORT TRUST**

Sr. No.	Name of the scheme	Capacity Addition (In MTPA)			Estimated Cost (` in Crores)	Source of Financing (` In Crores)				Expected date of Award/Date of Commencement of Project.	Expected date of Completion of Project.	STATUS
		Nature of cargo	Capacity	Year in which to be added.		I.R.	GBS	EBR and others (*PI. Specify)	Private sector.			
A	DEEPENING OF CHANNEL /BERTHS, ETC.											
1	Deepening and Widening of Mumbai Harbour Channel and JN Port channel Phase I (Increase in the draft from 11.50 meters to 14 mtrs.)	-	-	-	800.00	800.00	0.00	0.00	0.00	Nov., 2011 (Award of work)	Feb., 2014	Earlier invited bids were discharged based on the directions of the Ministry. As advised by the Ministry, the port has carried out Geo technical investigations and port has invited proposal for PMC . Since only one bid was received, the Ministry has directed to re-invite tenders for appointment of the PMC.PMC tenders are re-invited. The Pre Bid meeting was conducted on 4th May, 2010. Three bids were received and M/s TATA consulting Engineers stand lowest. The proposal to award the work to M/s TATA Consulting Engineers at the cost of Rs. 6.37 Crs. + service tax is approved by the Board and proposal is submitted to the Ministry vide letter dt. 27.07.10 for its approval under section -26 of MPT Act. It is expected that the PMC will be appointed by Sept., 2010.
	Sub Total		0.00	0.00	800.00	800.00	0.00	0.00	0.00			
B.	CONSTRUCTION / RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	Extension of container berth by 330 m and other facilities. (Now known as - Development of standalone container handling facility with a quay length of 330m North of JN Port)	Container	10.00	2013-14	600.00				600.00	March., 2011 (Award of work)	March ., 2013	The Port has received envorinmental clearance in July, 08. As per the Ministry's direction vide its letter dt.14/09/2009, The Port has discharged RFQ and re-invited the same by publishing Global NIT on 11/11/09. Receipt of RFQ was on 26/02/2010, Eight parties submitted the RFQ. As per the court directives, the RFQ submission is kept unopened in safe custody. The matter is in Mumbai High court as a court case has been filed by DP World Pvt. Ltd.The matter's hearing is adjourned upto 25th August., 2010. The delay in evaluation of RFQ and thus issue of RFP is due to this court case. The port received PPPAC approval and CCI approval in Feb. 2010 for implementation of the project. The Port vide its' letter dated 1st April 2010 had applied for security clearance and the same is awaited from MOS. The achievement of the target depends upon the outcome of the court case and receipt of security clearance. Brief Revised schedule of scheme is as under : Issue of RFQ - Nov., 09 Receipt of RFQ -Feb., 2010 Issue of final RFP after receipt of security clearance,approval of MOS& PPPA Committee - Oct. 10 Issue of LOA , signing of Concession Agreement April., 2011 Likely date of completion of work-March ., 2013. Likely date of completion of work-March ., 2013.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**I. PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF PORT : JAWAHARLAL NEHRU PORT TRUST**

Sr. No.	Name of the scheme	Capacity Addition (In MTPA)			Estimated Cost (` in Crores)	Source of Financing (` In Crores)				Expected date of Award/Date of Commencement of Project.	Expected date of Completion of Project.	STATUS
		Nature of cargo	Capacity	Year in which to be added.		I.R.	GBS	EBR and others (*PI. Specify)	Private sector.			
2	Development of 4 th Conatiner Terminal: Phase I	Container	30.00	2013-14	4100.00				4100.00	Dec., 2010	November ,2013.	<p>The Port has received envorinmental clearance in July, 08.</p> <p>The project received PPPAC clearance from MOF vide Ministry's letter dt. 1st Dec.09.</p> <p>The project also received CCI clearance on 16/02/2010. RFQ are received from 9 parties on 31st Dec.,09. RFQ of APM Terminal & CONCOR is kept in sealed cover in safe custody as per directions of the Court. M/s APM Terminals was one of the RFQ applicants. Due to a restrictive clause in their existing licence agreement, they were not allowed to bid. However the Mumbai High Court had in its interim order directed the Port to receive their RFQ and keep the same in sealed condition.</p> <p>In the final order the Mumbai High Court has held the disqualification of APM Terminals as valid.Later M/s APM Terminal have filed the SLP in Supreme Court . Supreme Court have directed to go ahead with the tender process subject to final disposal of the SLP.</p> <p>The RFQs have been evaluated and the RFP are issued to seven short listed bidders. Security clearance is awaited from the Govt. of India. Pre bid meeting was held on 29.06.2010. Bid due date is extended from 22.07.2010 to 02.09.2010. The target achievement may be affected due to any adverse verdict by the Hon'ble Supreme Court in the SLP filed by APM Terminal and the receipt of security clearance.</p> <p>Brief Revised schedule of scheme is as under : Issue of LOA , signing of Concession Agreement -December.-10 Likely date of completion of work - November -2013 (Phase-I)</p>
	Sub Total		40.00		4700.00	0.00	0.00	0.00	4700.00			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Acquisition of 3 nos. of RMQCs and shifting of 2 old RMQCs to SWB.	Container	2.75	2012-13	112.00	112.00	0.00	0.00	0.00	Jan., 2011	April., 2012	The scheme is at tender stage.Tenders are invited. Pre bid meeting was held on 23/07/10. Tender submission is due on 06/09/2010.
	Sub Total		2.75		112.00	112.00	0.00	0.00	0.00			
D	RAIL /ROAD CONNECTIVITY WORKS											
1	Construction of grade separators through SPV for Port connectivity				279.00				279.00	Jan , 2012	Dec., 2014	The proposal is under active consideration of NHAI. The SPV formed between NHAI, JNPT and CIDCO assessed the cost involvement . The proposal for sharing the cost is submitted to the MOS , approval is awaited.
	Sub Total				279.00				279.00			
												* Various works are ongoing. Other works will be taken up

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**I. PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF PORT : JAWAHARLAL NEHRU PORT TRUST**

Sr. No.	Name of the scheme	Capacity Addition (In MTPA)			Estimated Cost (` in Crores)	Source of Financing (` In Crores)				Expected date of Award/Date of Commencement of Project.	Expected date of Completion of Project.	STATUS
		Nature of cargo	Capacity	Year in which to be added.		I.R.	GBS	EBR and others (*PI. Specify)	Private sector.			
E	OTHERS WORKS											as per the requirements of the ISPS codes.
1	Development of SEZ Phase I				3000.00	1000.00 (As Land Cost)			2000.00	Dec., 2011	Dec., 2014	Ph I development includes development of 277 ha of SEZ for port based industries. Scheme is at RFQ stage. Estimated cost of the development is about Rs. 3000 Crs. out of which Rs. 2000 Crs will be invested by the Private sector and the remaining part of the investment will be by the Port in the form of land, In the SPV to be formed between the Port and the Investor. Port's share shall be 26% in the proposed SPV, in the form of land.
2	Other infrastructure works in zone -II				25.00	25.00				December., 2010	December., 2013	Various parking development and other works are being taken up.
3	Other infrastructure works in zone -V				35.00	35.00				March., 2011	March 2013.	Development of Escape Route, connecting roads are proposed in this scheme.
4	Upgradation of Computer system.	-	-	-	19.00	19.00				Dec-10	December., 2012	Various computer system upgradation related works are identified.
i)	Appointment of IT consultant	-	-	-	2.00	2.00						The works will be taken up under consultation of the IT Consultant. Tendering for appointment of IT Consultant is in process.
	Implementation of ERP	-	-	-	9.00	9.00						
	Implementation of GIS	-	-	-	3.00	3.00						
	Upgradation of network	-	-	-	2.00	2.00						
	Renovation of data centre	-	-	-	3.00	3.00						
5	Development of integrated parking zone for TT	-	-	-	122.00	113.00			9.00	Jan., 2011	Jan.,2013	Planning stage.
6	Development of renewable energy project for generating electricity to the tune of 70 lacs units per month for captive use. (Captive power Plant)	-	-	-	350.00	350.00				Dec-12	Dec-13	Planning stage.
7	Augmentation to water supply and sewerage scheme from Zone I to V	-	-	-	25.00	25.00				March 2012.	March., 2017.	Planning stage. (Replacement of main water supply pipeline from MJP.)
	Sub Total		0.00		3576.00	1567.00			2009.00			
	GRAND TOTAL		42.75		9467.00	2479.00	0.00	0.00	6988.00			

* Note : The schemes were not identified in NMDP but taken up by the port in 11th five year plan and are on going.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN

II. PROJECTS FROM 1-4-2012 TO 31-03-2017

NAME OF THE PORT: JAWAHARLAL NEHRU PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of Financing (In Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	Nil											
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
1	* Development of 4 th Conatiner Terminal: Phase II	Container	30.00	2015-16	2600.00	0.00	-	-	2600.00	Dec., 2013	Nov. 2015.	The Phase II works are proposed to be taken up after completion of the 4th Contianer terminal Phase I . Likely completion year Phase II: 2015-16.
	Sub-Total		30.00		2600.00	0.00	0.00	0.00	2600.00			
C	PROCUREMENT OF EQUIPMENTS ETC.											
1	Acquisition of 6 RTYGCS	Container	-	2017	30.00	30.00	-	-	-	2016	2017	The Scheme is being reviewed in view of report of National Tribunal Award on manning Scale The scheme will be converted into replacement against 6 RTYGCS i.e. 3 acuires in 1995 & 3 in 1997 on completion of their economic life.
2	Replacement of 1 RMGC	Container	-	2015	23.10	23.10	-	-	-	2014	2015	The Scheme is at Planning Stage and will be included in 12th Five year Plan. The estimated cost is taken considering the award cost of 1 RMGC in 2009.
3	Acquisition of 4 RTYGCS	Container	-	2015	26.00	26.00	-	-	-	-	-	The Scheme is at Planning Stage and will be included in 12th Five year Plan.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN

II. PROJECTS FROM 1-4-2012 TO 31-03-2017

NAME OF THE PORT: JAWAHARLAL NEHRU PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of Financing (In Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
4	Repalcement of 20 nos of Tractor Trailer acquired in the year 2006.	Container	-	2016	20.00	20.00	-	-	-	2015	2016	The scheme will be included in 12th Five Year plan.The scheme will be executed after review of completed operational life time and health of the equipment.
5	Acquisition of 2 nos super-post panamax size RMQCs at Main Container Berth and shifting of 2 nos existing RMQCs from MCB to SDB.	Container	1.87	2017-18	90.00	90.00	0.00	0.00	0.00	March .,2016	June., 2017	The scheme is prposed to be included in 12th Five year plan. Under this scheme it is proposed to shift RMQC 3 & 4 (acured in the year 2002) from MCB to SDB and the existing two RMQCs at SDB will be replaced as they will be completing their economical life & 2 new RMQCs acquired against these will be palced on MCB. However,
Sub Total:			1.87		189.10	189.10	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
1	Construction of second evacuation road from Container Gate to CFS / Dronagiri	-	-	-	45.00	45.00	--	--	--	April 2015	Dec.,2017	The Techno-feasibility report is submitted by the Consultants. Proposal for development of the road is being reviewed w.r.to the mangroove problem and proposed development of SEZ .
Sub-Total			0.00	0.00	45.00	45.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN

II. PROJECTS FROM 1-4-2012 TO 31-03-2017

NAME OF THE PORT: JAWAHARLAL NEHRU PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of Financing (In Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. specify)	Private sector			
E	OTHER WORKS											
1	Environmental measures	-	-	-	5.00	5.00	--	--	--	April., 2012	March ,2017.	Scheme is at planning stage. Environmental measures for the infrastructure development pertaining to 4th Container Terminal development will be under taken .
2	Development of SEZ Phase II	--	--	--	9000.00	3000.00	--	--	6000.00	Jan., 2015	Dec., 2017	
3	Automation of Conatiner gates	--	--	--	12.00	12.00	--	--	--	April., 2012	March., 2013.	Planning stage.
	Sub Total		0.00		9017.00	3017.00	0.00	0.00	6000.00			
	GRAND TOTAL		31.87		11851.10	3251.10	0.00	0.00	8600.00			

* Note : The scheme was not identified in NMDP but taken up by the port in 11th five year plan alongwith 4th Container Terminal PH I development.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR PATTERN**III. PROJECTS FROM 1-4-2017 TO 31-03-2020****NAME OF THE PORT:- JAWAHARLAL NEHRU PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (` in Crores)	Source of Financing (` In Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A	DEEPENING OF CHANNEL/BERTHS , ETC.											
	NIL											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.											
	Sub Total											
C	PROCUREMENT OF EQUIPMENTS ETC.											
1	Replacement of 1 RMGC	Container			23.10	23.10	0.00	0.00	0.00	2017	2018	Decesion on replacement will be taken at appropriate time.
	Sub Total				23.10	23.10						
D	RAIL/ROAD CONNECTIVITY WORKS											
	NIL											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											
	NIL											
	Sub Total	--	0.00		0.00	0.00	0.00	0.00	0.00	--	--	
	GRAND TOTAL		0.00		23.10	23.10	0.00	0.00	0.00			

Note : Merry go round rail project is dropped from the Perspective plan as the proposed alignment falls into mangrooves area and port operational area where the circulation will be difficult .

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF THE PORT:KANDLA PORT TRUST**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)		Year in which to be added	Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity			I.R.	GBS	EBR and others* (Pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS ETC.					Nil						
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	Development of dry bulk terminal off veera near Tuna outside Kandla creek	General Dry bulk cargo excpet liquid and container	14.00	2012-13	1140.00	240.00	-	-	900.00	2010-11	2012-13	PPPAC and security clearance has been received. Environment Clearance being obtained. Upfront tariff being fixed with the approval of TAMP.
2	Setting up of off-shore liquid terminal	Liquid cargo	9.00	2012-13	830.00	0.00	-	-	830.00	2010-11	2012-13	PPPAC memo alongwith draft RFP, RFQ and DCA has been sent to the Ministry.Environment Clearance being obtained. Upfront tariff being fixed with the approval of TAMP.
3	Barge handling facilities at Bunder basin on PPP model	General cargo excpet liquid and container	4.50	2012-13	41.40	7.40	-	-	34.00	2011-12	2012-13	Feasibility Report is under preparation.
4	Construction of barge jetty at IFFCO	Captive cargo (Raw material)	2.00	2012-13	27.00	0.00	-	-	27.00	2010-11	2012-13	In-principle approval has been received from SFC. DCA submitted to the Ministry for approval,
5	Construction of barge jetty at Tuna	General cargo excpet liquid and container	6.00	2012-13	100.00	100.00	-	-	0.00	2011-12	2012-13	At planning stage, feasibility report is being framed by Transaction Advisor.
	Sub Total		35.50		2138.40	347.40	0.00	0.00	1791.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 01-07-2010 TO 31-03-2012****NAME OF THE PORT:KANDLA PORT TRUST**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)		Year in which to be added	Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity			I.R.	GBS	EBR and others* (Pl. Specify)	Private Sector			
C PROCUREMENT OF EQUIPMENT ETC.												
1	Mechanization of dry cargo berth design, manufacturing, supply erection, testing and commissioning of 2 Nos. of 25 Ton and 60 Ton and above capacity Mobile Harbour Cranes at dry cargo berths including AMC for the period of three years commencing after expiry of guarantee period of two years (2 nos. of crane through IR and 04 nos. of Cranes through PPP Model)	General cargo except container	2.00	2013-14	120.00	40.00	-	-	80.00	2010-11	2013-14	In respect of 4 nos. of cranes to be procured on PPP Model, the tender documents are under preparation. For 2 nos. of cranes to be procured through internal resources, the Board has resolved that M.s, Gottward Port Technology, Germany may be given seven days for compliance of deviation failing which the bidder may be dis-qualified and price bid may be opened subject to confirmation from CVC guidelines regarding opening of single price bid.
Sub Total			2.00		120.00	40.00	0.00	0.00	80.00			
D RAIL/ROAD CONNECTIVITY WORKS												
Sub-Total												
E OTHER WORKS												
1	Construction of Ship bunkering Complex		2.00	2012-13	90.50	-	-	-	90.50	2010-11	2012-13	Feasibility Report approved by Board. RFQ will be invited shortly.
2	Development of Godown (Phase-III)	General cargo	0.00	2012-13	400.00	-	-	-	400.00	2011-12	2012-13	Scheme under formulation.
3	Modification and strengthening of berth No. 1 to 6	General cargo except container	4.80	2015-16	277.00	277.00	-	-	0.00	2011-12	2015-16	Draft PIB Note submitted to Ministry.
4	Development of liquid tank-Phase-I	Liquid cargo	0.00	2012-13	900.00	0.00	-	-	900.00	2010-11	2012-13	Offer received. Decesion is to be taken regarding allotment.
5	Development of additional 40 hectares	Genereal dry cargo	40 hectoros	2013-14	49.00	49.00	-	-	0.00	2011-12	2013-14	Scheme under formulation.
Sub Total			6.80		1716.50	326.00	0.00	0.00	1390.50			
GRAND TOTAL			44.30		3974.90	713.40	0.00	0.00	3261.50			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 01-04-2012 TO 31-03-2017****NAME OF THE PORT:KANDLA PORT TRUST**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)		Year in which to be added	Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity			I.R.	GBS	EBR and others* (Pl. Specify)	Private Sector			
A	DEEPENING OF CHANNEL/BERTHS, ETC.					Nil						
	Sub Total											
B	CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES ETC.											
1	Barge handling facility within Kori Creek	General cargo except liquid and container	4.00	2015-16	100.00	-	-	-	100.00	2013-14	2015-16	It is in planning stage but it is proposed to develop presently ten barge jetties.
2	2 Product jetties, RoRo/LoLo jetty and 1 SPM	Liquid	15.00	2014-15	660.00	-	-	-	660.00	2012-13	2014-15	Will be taken up at appropriate time.
3	Construction of T-shaped Jetty at Tuna (Phase-II)	General cargo except liquid and container	14.00	2018-19	1000.00	-	-	-	1000.00	2016-17	2018-19	Will be taken up after signing of concession agreement with BOT operator of stage-I T-shaped jetty.
	Sub Total		33.00		1760.00	0.00	0.00	0.00	1760.00			
C	PROCUREMENT OF EQUIPMENT ETC.											
1	Mechanization of berth No. 1 to 6 on PPP	General cargo except liquid and container	0.70	2018-19	50.00	-	-	-	50.00	2016-17	2018-19	Scheme under formulation.
	Sub Total		0.70		50.00	0.00	0.00	0.00	50.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
1	Modernization of railway connectivity	General cargo	16 km	2014-15	100.00	100.00	-	-	-	2012-13	2014-15	It is planned to lying railway line between National Highway 8-A upto Tuna.
2	Tuna Port four lanning	General cargo	10 km	2014-15	15.56	15.56	-	-	-	2012-13	2014-15	Board note is being submitted for approval of Block estimate.
	Sub Total				115.56	115.56	0.00	0.00	0.00			
E	OTHER WORKS											
1	Development of Godow (Phase-IV)	General cargo	-	2014-15	400.00	-	-	-	400.00	2012-13	2014-15	Scheme under formulation.
2	Development of liquid Tank (Phase-II)	Liquid cargo	-	2014-15	900.00	-	-	-	900.00	2012-13	2014-15	Scheme under formulation.
3	Modification and Upgradation of 7th Cargo berth	General cargo except liquid and container	1.00	2016-17	60.00	60.00	-	-	0.00	2013-14	2016-17	Will be taken up at appropriate time
4	Development of SEZ	Liquid cargo	-	2015-16	10950.00	-	-	-	10950.00	2012-13	2015-16	Board of approval accorded the approval for development of PBSEZ on 5000 ha. The project will be implement by SPV (100% equity of KPT). Approval of formation of SPV from MoS is awaited.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN**II. PROJECTS FROM 01-04-2012 TO 31-03-2017****NAME OF THE PORT:KANDLA PORT TRUST**

Sl. No.	Name of the Scheme	Capacity Addition (in MTPA)		Year in which to be added	Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award / Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity			I.R.	GBS	EBR and others* (Pl. Specify)	Private Sector			
5	Strengthening of liquid cargo jetty	Liquid cargo	2.40	2015-16	50.00	50.00	-	-	-	2012-13	2015-16	IIT, Madras is assigned the work of check stability of oil jetties for handling vessels of 13 m / 14 m draft.
6	Godown inside Custom bounded area	General cargo	--	2018-19	30.00	0.00	-	-	30.00	2016-17	2018-19	
7	Ship Repair facility at Kandla on PPP Model		0.00	2014-15	337.00	0.00	-	-	337.00	2012-13	2014-15	Scheme under formulation.
8	Deepening of the sogal channel beyond 13.00 mtrs.draft	-	-	2017-18	100.00	100.00	-	-	-	2013-14	2017-18	The scheme will be taken up after techno-econo feasibility report.
	Sub Total		3.40		12827.00	210.00	0.00	0.00	12617.00			
	GRAND TOTAL		37.10		14752.56	325.56	0.00	0.00	14427.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECTS HEADS & THEIR FUNDING PATTERN
III. PROJECTS FROM 01-04-2017 TO 31-03-2020

NAME OF THE PORT: KANDLA PORT TRUST

Sl. No.	Name of the Scheme	Capacity Addition (in MMTPA)			Estimated Cost (in Crores)	Source of Financing (in Crores)				Expected date of Award/Date of Commencement of Project	Expected date of Completion of Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others	Private Sector			
A DEEPENING OF CHANNEL/BERTHS, ETC.												
Sub Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00			
B CONSTRUCTION/RECONSTRUCTION OF BERTHS/JETTIES ETC.												
1	Construction of 3rd T-Shaped Jetty at Tuna	General cargo except liquid and container	14.00	2019-20	1000.00	-	-	-	1000.00	2018-19	2019-20	Will be taken up at appropriate time.
2	Creation of berthing facilities for liquid cargo at Vadinar	Liquid cargo	6.00	2018-19	40.00	-	-	-	40.00	2017-18	2018-19	The Advisor submitted the draft Feasibility report which is under scrutiny.
Sub Total			20.00		1040.00	0.00	0.00	0.00	1040.00			
C PROCUREMENT OF EQUIPMENT ETC.												
1	Replacement of 5 Nos. of Tug	-	5 tugs	2019-20	270.00	270.00	-	-	-	2018-19	2019-20	Will be taken up at appropriate time.
Sub Total			5 tugs		270.00	270.00	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
Sub Total			0.00		0.00	0.00	0.00	0.00	0.00			
E OTHER WORKS												
Sub Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00			
GRAND TOTAL			20.00		1310.00	270.00	0.00	0.00	1040.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Campbell Bay old jetty		6 to 8 Mtrs	2010-11	-	-	-	-	-	-		Estimate under preparation .
2	Campbell new Break water jetty		1 to 10 Mtrs	2010-11	-	-	-	-	-	Oct' 2010		work in progress
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Conducting feasibility study for construction of jetty at Lalaji Bay (Long Island)	-	-	2010-11	0.60	0.00	0.60	-	-	after approval the work will be	12 months after approval	Estimate received and under scrutiny
2	Construction of small jetty at Tapong(Nancowrie)	-	-	2011-12	3.50	0.00	3.50	-	-	-	-	Estimate under preparation .
3	Construction of a jetty at Upper Katchal and connecting CC footpath to Upper Katchal	-	-	2011-12	3.50	0.00	3.50	-	-	-	-	Estimate under preparation .
4	Construction of jetty at Chowra	-	-	2011-12	4.00	0.00	4.00	-	-	-	-	Estimate under preparation .
5	Conducting feasibility studies for construction of Transshipment port at South bay in Great Nicobar Island	-	-	2010-11	4.97	0.00	4.97	-	-	14th Feb'2008	Sept'2010	Work in progress
6	Special repairs to Phoenix Bay jetty at Port Blair	-	-	2010-11	1.19	0.00	1.19	-	-	after approval the work will be commenced	within 8 months after approval.	Estimate received & under scrutiny
7	Construction of passenger Shelter roofing in front of entrance gate No.1& III at Haddo Port Complex	-	-	2010-11	0.87	0.00	0.87	-	-	after approval the work will be commenced	-	Estimate received & under scrutiny.
8	Area development and beautification of Neil Island Port	-	-	2010-11	1.54	0.00	1.54	-	-	after approval the work will be commenced	18th months from the date of sanction	Estimate received & under scrutiny

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PORT BLAIR PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
9	Techno Economic feasibility study for establishment of Dry Dock facilities at Port Blair	-	-	2010-11	4.30	0.00	4.30	-	-	Aug'2010	36 weeks from the date of award of work	Tender received and under scrutiny.
	Sub Total		0.00		24.47	0.00	24.47	0.00	0.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Replacement of 1 No old 8 Ton capcity Forklift and procurment of 1 No. additional 8 Ton Forklift for Chatham Wharf.	-	-	2010-11	0.73	0.00	0.73	-	-	after approval the work will be commenced	within 8 months after approval.	Estimate received & under scrutiny.
2	Replacment of 6 Nos old 3 Ton capcity forklif at Haddo Wharf.	-	-	2010-11	0.62	0.00	0.62	-	-	after approval the work will be commenced	within 6 months after approval.	Estimate received & under scrutiny.
3	Replacement of 2 Nos old 5 Ton capcity Forklift at Haddo	-	-	2010-11	0.43	0.00	0.43	-	-	after approval the work will be commenced	within 6 months after approval.	Estimate received & under scrutiny
4	Replacement of the 6 Ton ELL Wharf Crane stationed at Hut Bay	-	-	2010-11	0.50	0.00	0.50	-	-			Estimate under preparation .
5	Providing of emergency battery bank to Port Control Tower with trickle charger at Chatham and Hut bay	-	-	2011-12	0.05	0.00	0.05	-	-	10-Nov	March'11	Tender under preparation.
6	Supply , Installation and commissioning of local navigation Light Equipments at Rangat - 4Nos,,Mayabunder-1 ,Long Island passage -13	-	-	2011-12	0.60	0.00	0.60	-	-			work in progress.
7	Procurement and installation of one No. XBIS for Port security at Ports of A&N Islands	-	-	2010-11	0.20	0.00	0.20	-	-	Nov'2010	Mar'2011	Tender under preparation.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**I. PROJECTS FROM 1-7-2010 TO 31-03-2012****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
8	Procurement of Hazardous materials identification system for the use in the New Passenger Terminal at Haddo Wharf	-	-	2010-11	0.20	0.00	0.20	-	-	Nov-11	Mar'2012	Tender under preparation.
9	Installation of CCTV and Smart Card Access systems at Port of A&N Islands	-	-	2010-11	0.98	0.00	0.98	-	-	letter of acceptance issued on July'10	Sept'2010	Stores expected to be made available at site around 15th August for inspection and subsequent in stallation
10	Supply and Installation of 4 Nos navigation Lantern at Long Island Range and Navigation Lantern for Shore Beacon at coxen point at Rangat	-	-	2010-11	0.60	0.00	0.60	-	-	Nov'11	Mar-12	Tender under prepration.
11	Special repairs to 6Ton ELL Wharf crane at Haddo Wharf	-	-	2012-13	0.28	0.00	0.28	-	-	after approval the work will be commenced	within 6 months after approval.	Estimate received & under scrutiny.
12	Special repairs to 25 Ton Capacity Forklift at Haddo Wharf	-	-	2010-11	0.19	0.00	0.19	-	-	after approval the work will be commenced	within 9 months after approval.	Estimate received & under scrutiny
13	Special repairs to 3 Ton forklift at Rangat	-	-	2010-11	0.10	0.00	0.10	-	-	-	-	Estimate under preparation.
14	Acquisition of 500 Ton capacity self propelled water barges	-	-	2011-12	1.50	0.00	1.50	-	-	after approval the work will commence	6 months after awarding of work	Tender under preparation.
15	Aquisition of inspection Launch	-	-	2011-12	2.50	0.00	2.50	-	-	after approval the work will commence	6 months after awarding of work	Tender under preparation.
	Sub Total		0.00		9.48	0.00	9.48	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			
E	OTHER WORKS											

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PORT BLAIR PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
1	Construction of 200 Ton capacity RCC sump with pumping and pipe line arrangements from source to sump to deep water Wharf for supply of fresh water to ships calling at Campbell Bay Port	-	-	2010-11	1.00	0.00	1.00	-	-	-	-	Estimate under preparation.
2	Providing of bunkering facilities at campbell Bay Port Viz Construction of 200x3 Tons xcapacity MS Tank along with pumping and piping arrangements for reception and delivery of HSD at Deep Water Wharf at Campbell Bay	-	-	2010-11	6.56	0.00	6.56	-	-	-	-	Estimate received and under scrutiny.
3	Construction of one number 3 storied RCC Labour Barracks of Size 50 mtrs x 12Mtrs at Dairy Farm after dismantling the existing dilapidated labour barracks	-	-	2011-2012	2.00	0.00	2.00	-	-	-	-	Estimate under preparation.
4	Construction of Operational Office with Computer facilities for Container handling operation near to the recently constructed canteen building at Haddo Wharf	-	-	2011-12	0.10	0.00	0.10	-	-	-	-	Estimate under preparation.
5	Renovation of Canteen building at Mayabunder	-	-	2010-11	0.09	0.00	0.09	-	-	after approval the work will be commenced	within 8 months after approval.	Estimate received & under scrutiny
6	Special repairs to Passenger Hall at Kamorta	-	-	2010-11	0.50	0.00	0.50	-	-	after approval the work will be commenced	within 8 months after approval.	Estimate received & under scrutiny

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN

I. PROJECTS FROM 1-7-2010 TO 31-03-2012

NAME OF THE PORT:- PORT BLAIR PORT TRUST

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
7	Construction of VHF station at Baratang (Nilambur and Kadamta) and Neil Island	-	-	2010-11	0.88	0.00	0.88	-	-	after approval the work will be commenced	within 12 months after approval.	Estimate received for baratang & under scrutiny
	Sub Total		0.00		11.13	0.00	11.13	0.00	0.00			
	GRAND TOTAL		0.00		45.08	0.00	45.08	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Port Blair Wharf	-	7 to 10 mtrs	2015	20.00	-	20.00	-	-	-	-	Various Studies under progress
2	Phoenix Bay Complex	-	1 to 5 mtrs	2014	-	-	-	-	-	-	-	
3	Strait Island jetty	-	2 to 5 mtrs	2014	-	-	-	-	-	-	-	
4	Neil Island jetty	-	2.5 to 5 mtrs	2014	-	-	-	-	-	-	-	
5	Kamorta Jetty	-	4.5 to 10 mtrs	2015	-	-	-	-	-	-	-	
6	Chatham Jetty	-	9 to 11 mtrs	2015	-	-	-	-	-	-	-	
Sub Total			0.00		20.00	0.00	20.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Construction of Vehicle Ferry jetty at Panighat in Port Blair	-	-	2013-14	3.00	-	3.00	-	-	work will commence after approval	18th months after approval	Feasibility study in progress.
2	Forming a joint Venture company for Establishment and development of the proposed Transshipment Container at Great Nicobar Island(GNI)	-	-	2012-13	3.50	-	3.50	-	-	-	-	On receipt of feasibility report further action will be initiated.
3	Construction of new alternative jetty for inter Island Vessels at Safed Balu in Teressa (including Nav aids , dredging etc.)	-	-	2013-14	15.00	-	15.00	-	-	-	-	MOEF clearance awaited

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
4	Development of harbour for Mainland Vessels at Katchal	-	-	2015-16	19.00	-	19.00	-	-	-	-	MOEF clearance awaited
5	Establishment of Dry Dock	-	-	2016-17	1000.00	-	500.00	500.00	-	-	-	work will be awarded if techno economic feasibility study report is found to be viable .
Sub Total			0.00		1040.50	0.00	540.50	500.00	0.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
1	Acquisition of 1 No 20 Ton BP tractor Tug with external fire fighting arrangements and pollution control equipments.	-	-	2016-17	45.00	0.00	45.00	-	-	Nov'2009	2010. Work in progress.	Since tenders in this regard could not be finalised MOS has been requested to award the work to Cochin Shipyard on nomination basis as Ministry of shipping already decided to award the work of two tugs under Central Sector to Cochin Shipyard.
2	Supply, Installation and commissioning of VHFRT repeater station at bathew Point & Middle Andaman	-	-	2013-14	0.10	0.00	0.10	-	-	the work will be executed after trial	6 months after successful trial	Trials will be conducted and if feasible work will be executed.
	Supply , Installation and commissioning of Local Navigation Light Equipments 5 Nos at Havelock and 3 Nos at Hut Bay	-	-	2012-13	0.25	0.00	0.25	-	-	The work will commence after RCC structure	6 months after handing over of RCC structure	The estimate for construction of RCC structure for installation of navigational lights are under preparation.

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
3	Supply , Installation and commissioning of SATCOM –C/fleet77 at PCTs at Port Blair& Hut bay ,Car Nicobar , Kamorta & C/bay	-	-	2013-14	0.25	0.00	0.25	-	-	the work will commence if found feasible	6 months after award of work	traffic study under progress based on the past traffic Scope of work will be taken up
4	Supply , Installation and commissioning of SATCOM –C/fleet77 at Diglipur , Mayabunder, Rangat	-	-	2013-14	0.25	0.00	0.25	-	-	the work will commence if found feasible	6 months after award of work	traffic study under progress based on the past traffic Scope of work will be taken up
5	Procurement of one number Fire Tender for Port Fire Station at Haddo Wharf	-	-	2012-13	0.50	0.00	0.50	-	-	work will commence after award of work	6 months from award of work	Work being retendered as on earlier two occation , no valid offer was received.
6	Procurement of Fire Tenders with 63 HP Trailer mounted Fire pump for Port Fire Station at Hut Bay Port	-	-	2012-13	0.25	0.00	0.25	-	-	work will commence after award of work	6 months from award of work	Work being retendered as on earlier two occation , no valid offer was received.
7	Special repairs of 3 Ton Capcity Godrge Forklift stationed at Rangat Bay	-	-	2012-13	0.03	0.00	0.03	-	-	after approval the work will be commenced		Estimate received & under scrutiny
8	Special repairs to 6 ton capacity ELL Wharf cranes at Mayabunder	-	-	2012-13	0.10	0.00	0.10	-	-			Estimate under preparation.
	Sub Total		0.00		46.73	0.00	46.73	0.00	0.00			
D	RAIL/ROAD CONNECTIVITY WORKS											
	Sub Total		0.00		0.00	0.00	0.00	0.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**II.PROJECTS FROM 1-4-2012 TO 31-3-2017****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*Pl. Specify)	Private sector			
E	OTHER WORKS											
1	Extension and Renovation of existing office building at Mayabunder	-	-	2014-15	0.10	-	0.10	-	-	-	-	Estimate under preparation .
2	Renovation of passenger hall, toilet Blocks and canteen Building at Diglipur	-	-	2014-15	0.10	-	0.10	-	-	-	-	Estimate under preparation .
3	Special repairs to existing Godown at Diglipur	-	-	2014-15	0.10	-	0.10	-	-	-	-	Estimate under preparation .
4	Construction of parking area at Bamboo flat ,Chatham and Phoenix Bay	-	-	2012-13	2.00	-	2.00	-	-	-	-	Estimate under preparation .
5	Construction of Type- I,II,III ,IV & V quarters at various ports of A&N Islands	-	-	2014-15	2.00	-	2.00	-	-	-	-	Estimate under preparation .
	Sub Total		0.00		4.30	0.00	4.30	0.00	0.00			
	GRAND TOTAL		0.00		1111.53	0.00	611.53	500.00	0.00			

PORT-WISE DETAILED LIST OF PROJECTS TO BE UNDERTAKEN FOR MAJOR PORTS UNDER 5 PROJECT HEADS & THEIR FUNDING PATTERN**III.PROJECTS FROM 1-4-2017 TO 31-3-2020****NAME OF THE PORT:- PORT BLAIR PORT TRUST**

Sl. No.	Name of the Project.	Capacity Addition (in MTPA)			Estimated cost (in Crores)	Source of financing (in Crores)				Expected Date of Award/ Date of Commencement of Project	Expected Date of Completion of the Project	STATUS
		Nature of Cargo	Capacity	Year in which to be added		I.R.	GBS	EBR and others* (*PI. Specify)	Private sector			
A DEEPENING OF CHANNEL/BERTHS , ETC.												
1	Hope Town Wharf	-	9 to 11 mtrs	2017	15.00	-	15.00	-	-	-	-	Estimate under preparation .
2	Long Island	-	2 to 5 mtrs	2017	-	-	-	-	-	-	-	
3	Rangat Bay jetty	-	3 to 5 mtrs	2017	-	-	-	-	-	-	-	
4	Diglipur jetty	-	3 to 5 mtrs	2020	-	-	-	-	-	-	-	
5	Havelock jetty	-	5 mtrs	2020	-	-	-	-	-	-	-	
Sub Total			0.00		15.00	0.00	15.00	0.00	0.00			
B CONSTRUCTION /RECONSTRUCTION OF BERTHS/JETTIES, ETC.												
1	Additional jetty for Mainland Vessels at Kamorta	-	-	2016-17	10.00	0.00	10.00	-	-	-	-	Estimate under preparation .
2	Establishment of bunkering Wharf at Campbell Bay	-	-	2019-20	600.00	0.00	600.00	-	-	-	-	
Sub Total			0.00		610.00	0.00	610.00	0.00	0.00			
C PROCUREMENT OF EQUIPMENTS ETC.												
Sub-Total			0.00		0.00	0.00	0.00	0.00	0.00			
D RAIL/ROAD CONNECTIVITY WORKS												
Sub Total			0.00		0.00	0.00	0.00	0.00	0.00			
E OTHER WORKS												
1	Supply & Installation and commissioning of 30 Ton xcapacity electronic Weigh Bridge including construction of weighing room at inter- Island ports	-	-	2017-18	-	-	-	-	-	-	-	Estimate under preparation .
Sub Total			0.00		0.00	0.00	0.00	0.00	0.00			
GRAND TOTAL			0.00		625.00	0.00	625.00	0.00	0.00			

PART – III

SHIPPING

CHAPTER-13

Overview for Shipping Sector

Shipping plays an important role in the transport sector of India's economy. India has one of the largest merchant shipping fleet among the developing countries and is ranked 16th in the world. Indian maritime sector facilitates not only transportation of national and international cargoes but also provides a variety of other services such as cargo handling services, shipbuilding and ship repairing, freight forwarding, light house facilities, training of marine personnel, etc. The Indian shipping industry is subject to the macro-economic factors of international trade and commerce as well as the national economic scenario.

13.2 Global and Indian seaborne trade:

13.2.1. The world economy has been coming out of the recessionary phase witnessed during late 2008 to 2009 and is on a recovery path. While the developed economies were leading the downturn, the developing economies have registered moderate growth during the period. Indian economy has proved its strong fundamentals with a consistent growth rate of over 9 per cent during the period from 2005-06 to 2007-08 and a growth rate of 7.4 and 6.7 during 2008 & 2009 respectively. For the year 2010-11, the GDP is expected to grow at a rate of 9 per cent, far better than the last two years.

13.2.2. The Indian seaborne trade has been growing at a CAGR of 11.38 % for the last 10 years from 1998-99 to 2008-09. However, the CAGR for the period 1998-99 to 2007-08, i.e. prior to the global slowdown has been higher at 12.25%.

Indian Seaborne EXIM Trade

Year	in mill tonnes
1998-99	203.7
1999-00	224.6
2000-01	244.3
2001-02	273
2002-03	280.3
2003-04	345.7
2004-05	400.6
2005-06	447.1
2006-07	497.8
2007-08	576.4
2008-09	598.7

13.2.3. Considering the CAGR of 12.25%, the Indian seaborne trade can be expected to grow from the last year's level of 598.70 million tonnes to the level of 2,134 million tonnes by the year 2020 (in terms of cargoes loaded and unloaded in India) i.e. about 3.56 times the current trade.

13.2.4. The global seaborne trade during 2008 reached 8.17 billion tonnes (total cargo loaded). During the past three decades, the annual average growth rate of world seaborne trade is estimated to have been 3.1% per annum. At this rate of growth, UNCTAD expects global seaborne trade to increase by 44% by 2020 and double by 2031, potentially reaching 11.5 billion tonnes and 16.04 billion tonnes, respectively (*Source: Review of Maritime Transport, 2008, UNCTAD (UNCTAD/RMT/2008)*).

13.2.5. At the EXIM trade of 598.7 million tonnes, the Indian seaborne trade constitutes about 3.66% of the global seaborne trade. Based on the above assumptions of Indian seaborne trade growing at 12.25% p.a. and global seaborne trade growing at 3.1% p.a., by the year 2020 India's share in the world trade can reach a significant 9.3% from the current level of 3.66%.

13.3 Indian Shipping:

13.3.1. In terms of fleet size the Indian shipping industry is presently 10 million GT and forms a marginal share of just above 1% of the global fleet. While the Indian seaborne trade has been growing at a rate of 12.25%, the share of Indian ships in carriage of the country's overseas trade has been declining over the years despite the total volume of cargo moving in India's trade expanding progressively. From about 40% in the late '80s, it has fallen to around 8.4% (2008-09), which essentially indicates the tremendous scope for growth of Indian shipping.

13.3.2. One of the primary reasons for the declining trend in its share has been the inadequate growth of the Indian fleet, which is not commensurate with the growth of the Indian seaborne trade. The share of Indian ships in the carriage of the country's overseas trade has been declining over the years. Considering the fact that the Indian seaborne trade could increase 3.56 times by 2020, the Indian shipping tonnage needs to be augmented to similar levels in order to arrest further decline in the share of Indian ships. Accordingly, the Indian shipping should aspire to reach a level of 130 million GT by 2020.

13.3.3. Ideally, the country should have adequate control on the shipping arrangements specifically from the point of view of creating strategic shipping reserves for import of commodities like crude oil and coal. While increasing owned tonnage under the Indian flag would be the most ideal situation, control over shipping arrangements can also be achieved by way of in-chartering tonnage in the absence of owned tonnage by Indian

shipping companies. As a stop gap arrangement, till the time Indian tonnage increases to a significant level, the Indian shipping lines must be encouraged to cater to larger share of India's seaborne trade, 1/3rd of which can be catered to by owned and time chartered tonnage and 2/3rd by controlled tonnage. Accordingly, by 2020 the Indian shipping companies should at least reach a level of 43 million GT (1/3rd of targeted 130 million GT) which would be about 4.3 times the current level of 10 million GT. However, creation of conducive environment for the shipping companies would be a prerequisite for the same.

13.3.4. In this backdrop, SCI will aim to achieve 30% of this 43 million GT identified above which is roughly about 13 million GT. Presently, SCI has identified for the period 2010~2020 acquisition of 110 vessels of about 5.21 million GT at a total cost of Rs. 27,668 crores which will take SCI's total tonnage to about 7 million GT by 2020. SCI will aim to be a 13 million GT company by 2020 including chartered vessels and will identify more vessels for acquisition and chartering to achieve the targeted tonnage.

CHAPTER-14

SHIPPING

14.1 INTRODUCTION:

14.1.1. Shipping industry is one of the most globalised industries linked to the world economy and trade. Considering that the major volume of trade is borne by Maritime Transport, the boom in shipping in the last few years is understandable. The development of World Sea borne Trade for various commodity groups in terms of quantity shows the fastest growth in dry bulk and container transport. Further, the growth in cargo availability has fuelled an impressive growth in the shipping sector.

14.1.2. The importance of maritime transportation in the economic development of the country can be seen from the fact that 95% of the country's trade by volume and 70% by value, moves by sea. While the total volume of India's trade has been increasing every year, the Indian tonnage has not been able to keep pace with it. The tonnage levels targeted during the various plan periods and the tonnage actually reached are given below.

Plan Period	Target (m.Gt)	Achievement (m.Gt)
5 th Plan	8.64	5.58
6 th Plan	7.5	6.32
7 th Plan	7.5	5.91
8 th Plan	7.00	6.92
9 th Plan	9.00	6.93
10 th Plan	Not fixed	9.72 (as on 31.03.2010)

14.1.3. In order to achieve impressive growth of Indian shipping framing of correct policies, implementing them with a facilitative regulatory regime and appropriate monitoring at various stages are essential. A long term vision will definitely go a long way in achieving the objectives of improvement. Therefore, a plan for Shipping for the period from 2010 to 2020 is framed which is elaborately discussed below.

14.2. Vision

To be recognized globally as a highly effective, efficient, responsible and progressive maritime administration.

14.3. Mission

The mission is to:

- provide an effective supervisory and regulatory regime conducive to;

- 1.1 achieve safe, efficient and secure shipping;
- 1.2 protect the marine environment; and
- 1.3 all round growth of the maritime industry;

- Develop and implement a holistic and integrated maritime development programme that has a positive impact on the national economy;
- Develop and implement policies that facilitate an environment which is conducive for promoting investment in the expansion of a modern merchant fleet under the Indian flag and develop globally competitive ship building and repair facilities;
- Ensure good governance by adhering to the highest standards of integrity, quality and efficiency in delivery of shipping services through constant innovation, technology up-gradation and value addition;
- Develop measures to ensure compliance of relevant International instruments relating to safety and security of ships, protection of environment and welfare of seafarers.

14.4. Strategies to achieve the mission

- Mindful, of the vision, challenges and the mission, *four key strategic directions* has been identified for enhancing effectiveness of maritime administration, as under:

- 1.1 Development of regulatory framework;
- 1.2 Effective compliance of Safety and Environmental regulations;
- 1.3 Training, certification and database of Indian seafarers;
- 1.4 Monitoring and review mechanism.

- For each of the above four strategic directions, related activities have been identified. These activities aim to implement the strategic directions over the coming years and will be updated regularly and tracked as part of an ongoing integrated planning process;

14.5. Increasing Tonnage in the National Register:

Currently Indian Tonnage stands at 10.11 million GT and ranks 16th in the world shipping Tonnage. The Indian flagged vessels are carrying presently around 8.4% of Indian export - import cargo. Indian Shipping companies should aim to reach a level of 43 million GT by 2020 which will include owned and chartered tonnage. Out of this, 30 million GT may be the owned tonnage. For achieving this tonnage an investment of around Rs. 120,000 crores is estimated including private investment. Out of this, SCI has presently identified projects worth Rs.27,668.40 crores which will roughly take SCI owned tonnage to 7 million GT.

14.6. PROPOSED PROJECTS

14.6.1. Navigational Safety in Ports Committee (NSPC).

The above Committee was set up by the Ministry to look into navigational safety aspects of private ports being set up all around the coast of India. In the light of the recent accidents within the jurisdiction of the major ports, it is imperative that the scope of NSPC may be extended to major as well as minor ports and the duties to include port navigational safety issues, cargo related safety aspects, oversight function of oil pollution response mechanism and reception facilities in the ports etc. It is proposed to set up an NSPC wing, which will carry out the oversight functions related to oil response, safety and navigational matters in the major and minor ports. The estimated cost for setting up the NSPC Wing and the recurring cost for the next 5 years would be approximately 10 crores.

14.6.2 Ro-Ro Ferry Services.

In order to develop coastal shipping, it is proposed to setup jetties for the Ro-Ro Ferry service network in Gulf of Kutch, Gulf of Cambay and western / southern coastal states up to Kerala. The Ro-Ro ferry service would save traveling distance, fossil fuel, and time. It also has the advantage of being the least polluting and environment friendly mode of transport and it would decongest the road traffic. It is proposed to provide subsidy for construction of Ro-Ro jetties as an infrastructure with additional subsidy for a project involving construction of a pairs of jetties in order to facilitate movement of cargo between specified ports and also to cater to specific cargoes. The Ro-Ro Ferry service will not only cater to transportation of vehicles but also carry a substantial quantum of passengers and cargo.

The approximate cost for setting up jetties would be 100 crores.

14.6.3 Pollution Response arrangements to deal with Pollution incidents on the coast of India.

It has been observed that the Oil Pollution Response arrangements set up in sea ports, oil terminals, offshore structures with the coast guard is inadequate to deal with major oil spill between 700-10,000 ton or above. Being party to OPRC Convention it is the obligation of Government of India to establish adequacy in Oil Pollution Combating Equipment stockpiles along the coast line including the offshore area. The following is the estimated expenditure in this regard:-

There are 13 major ports and 62 operational non-major ports which are dealing with EXIM trade. The approximate capital cost of inventory of Tier I level equipment is as follows :-

a. Major port inventory	1.5 crores
b. Minor port inventory	1 crores
c. Oil Platform inventory	2 crores
d. SBM inventory	50 lacs

The estimated cost for the inventory, additional manpower / resources for undertaking the risk analysis, preparation of Regional mitigation plan, auditing, recurring expenditure, follow up action subsequent to a pollution incident, settlement of claims, participation in the Fund meeting etc would be approximately 100 crores.

14.6.4 Designation of Emission Control Area (ECA).

In October 2008, International Maritime Organisation (IMO) agreed to amend MARPOL Annex VI adopting new tiers for control of NOx emission and sulphur contents in fuel. The most stringent of these new emission standards apply to ships operating in designated ECAs, including the newly-designated North American ECA. The proposal is for designation of an Emission Control Area (ECA) for specific portions of Indian coastal waters, for the control of nitrogen oxides (NOx), sulphur oxides (SOx), and particulate matter (PM) emissions. Adoption of the proposed ECA will result in significant reduction in ambient levels of air pollution along the coast of India. This will result in achieving substantial benefits to human health and the environment.

The cost of implementing and complying with the ECA are expected to be small in comparison with the cost of achieving similar emissions reduction through additional controls on land-based sources. However, there will be improvement in air quality, reduction in premature mortality and other benefits resulting from designation of the proposed ECA, which will be a step forward for control of emissions.

As this proposal requires extensive research and data collection and inter-ministerial co-ordination, especially Ministry of Environment, organizations like TERI, NEERI etc, a period of at least five years may be considered for preparation of the proposal. The total cost of the project is estimated to be Rs. 100 crores.

14.6.5 Proposal for designation of Particularly Sensitive Sea Areas.

Particularly Sensitive Sea Area (PSSA) is an area that needs special protection through action by International Maritime Organization (IMO), because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities.

It is proposed to carry out study for designation of the Lakshadweep Island, Andaman and Nicobar Island and any other area which qualifies for

PSSA. The exercise will involve other Ministries, such as Ministry of Environment and Forests and organizations like NEERI, TERRI, to carry out the study and prepare a proposal for IMO. The estimated cost of the project is around Rs. 50 Crores and the time frame for completing the report is estimated to be 3 years.

14.6.6 Strengthening of Port State Control and Flag State Inspections.

All major IMO conventions mandate Port State Control and Flag State Inspection of vessels to be meticulously carried out by all member States. India had already implemented this requirement. However, a complete implementation could not be practiced due the varied reasons and at present we are only able to carry out inspection of about 4% foreign ships calling at Indian Ports under PSC and 40% of Indian ships under FSI. Indian Maritime Administration is recognized world over for its effectiveness in implementing such conventions. In order to have the quality of management in our regulations and regulatory works, and to prevent sub standard foreign ships operating in our waters, these inspections have to be strengthened in the years to come. The main constraint in the implementation is the availability of manpower. It is therefore proposed to recruit more surveyors for this propose so as to achieve 10% PSC inspections of foreign ships calling at our Indian Ports by 2015 as mandated by IOMOU. It is also proposed to carry out 100% FSI inspections of Indian ships by 2020.

In order to enhance the PSC and FSI inspections, it is estimated that an additional 200 surveyors will be required. The expenditure for this project is estimated to be around 100 crores.

14.6.7 Legislative updation.

With the rapid changes in the International Maritime Regulatory measures and as a result of adoption of various maritime IMO/ILO Conventions, it becomes imperative to constantly update our national legislation, in order to keep pace with the International regulatory measures. It is envisioned that the period between the adoption of International convention and National legislation be reduced to 3 years by 2015 and to 1 year by 2020. The following conventions are proposed to be legislated between 2010 and 2020.

1. Ballast water Convention
2. Anti fowling Convention
3. Recycling Convention
4. HNS Convention
5. London Dumping Convention
6. Wreck Removal Convention
7. Bunker Convention
8. Maritime Labour Convention

In addition, the new conventions that are going to be adopted by IMO will also be taken up during the period. In the absence of regular legal professionals in the directorate, the legal expertise has to be hired, the expenditure for which upto 2020 is expected to be Rupees 12 Corers.

14.6.8 Formation of Marine Casualty Investigation Cell.

Investigation into marine casualties, such as groundings, sinking, or collision of vessels, or death, grievous injury to seafarers, is an obligation upon each flag state under the Article 94 (7) of UNCLOS. It requires each state to cause an inquiry to be held by a suitably qualified person.

Over the years, radical changes in the size and structure of the Maritime industry have created the need for a more structured approach to investigating marine casualties and incidents. The complexities of handling investigations are heightened by the variations that exist across nations between legal systems, difficulties of access to key witnesses across borders, and often the inadequate co-operation between countries, provoking Government to urge the adoption of guidelines at the international level that give Substantially Interested States – being the state to which the victim or the accused belongs – observer status in investigations into shipboard crime while recognizing the centrality of flag state jurisdiction.

With the total strength of only 25 nautical officers spread over nine MMDs on the coast of India, also tasked to attend to Life Saving Equipment surveys, Flag state inspections, Port state Control Inspections, Inspections of Maritime Training Institutions, and the examinations of all candidates for Certificates of Competency for Mates, very few investigation reports could be followed up for drawing systemic lessons from them. In general terms, it takes up-to nine months to a year to complete an investigation into a serious casualty and write a report.

The proposal for the formation of the Marine Casualty Investigation Cell has already been approved by the Government with a staffing of nine personnel. Funds to the tune of Rs.10 crores have been estimated for five years for further development of the cell. Budget provision for Rs. 4.5 crores has already been made in the Plan Budget of DG Shipping for the year 2010-11. The project is proposed to be commenced during 2010-11 and to be made fully operational by 2015.

14.6.9 Voluntary IMO Member State Audit Scheme (VIMSAS).

India has offered for Voluntary IMO Member State Audit Scheme (VIMSAS) and will be audited from 13th September to 20th September, 2010. International Maritime Organization is working towards making the Audit Scheme mandatory and commencement of an institutionalized audit scheme is expected to enter in to force by 2014.

Once, the Audit Scheme is made mandatory, the Member States may be required to be audited once in five years. The Scheme will enhance the maritime administration's performance and also the port and Coastal State duties and responsibilities within the IMO instruments, which are of equal importance to those of flag States in ensuring that global maritime transport is safe, efficient and environmentally sound. The expenditure for the preparatory work and the execution of the next round of audit, is estimated to be Rs 2 crores.

14.6.10 Marine disaster emergency response (Emergency towing vessel).

A disaster prevention plan has been drawn up on the model of other maritime countries. Minimally, this would require the availability of at least two 100 T bollard pull tugs on each coast; the basic equipment for tow and de-canting of bunker oil from tanks of ships in distress; and a team of salvagers who will be available at short notice. It is proposed to purchase the heavy duty Emergency towing vessels and the basic equipment and, for the salvage expertise, to invite world renowned salvage companies to set up their firms in India. The fund requirement for the procurement and operation of the Emergency Towing vessel is estimated to be Rs. 250 crores.

14.6.11 Ballast Water Management.

While transporting cargo, ships transfer around 0.66 billion tones of ballast sea water from one port to another and from one part of the world to another. Since these ballast water contains various harmful micro organism it not only deteriorate the ocean but also affects the territorial waters of other countries. The problem of bio invasion has therefore to be addressed at the earliest. The Marine Environment Protection Committee of the IMO has developed guidelines for the Ballast Water Management System.

On the basis of these guidelines, the safety, environmental acceptability, and biological properties of the ballast water are evaluated. Such evaluation comprises, inter alia, the monitoring / assessment of quality of water in and around port, and also the ready availability of facility of Ballast water treatment verification technology. In the absence of the verification technology facilities, such systems cannot be approved by the maritime administration.

However, as per the convention, all ships constructed after 2010 onwards have to install ballast water system. This compels India to develop its testing facilities. It is reported that Bilge Water Management Systems are developed by multi-national companies that have a sales, service and spares network already in place around the world. The testing facilities for the appropriate certification of the technologies that are being developed are rather practically not available.

In nutshell, the scheme involves two projects outlined below with financial implications:

PROJECT 1: Port biological baseline survey and risk assessment of nine major ports.

Subsequent to the conclusion of the Globallast pilot programme in the port of Mumbai, the field work related to “port biological baseline survey” and “risk assessment” at the ports of Goa and Visakhapatnam have been completed.

In order to continue with the project an additional fund of Rs.15 crores for replicating the exercise at the ports of Kandla, Mangalore, Kochi, Tuticorin, Chennai, Paradip, Kolkata & Haldia are required. Period of completion of the project is five years. The project is proposed to be completed as below with following budgetary estimations.

Phase	Ports	Estimate
Phase I	Mangalore, Cochin, Chennai and Haldia	Rs. 8 Crores.
Phase II	Kandla, Tuticorin, Paradeep and Kolkata	Rs. 7 Crores.

PROJECT 2 : Setting up of the facility of Ballast Water treatment Technology: verification and certification.

Since there is a pronounced dearth of facility for this technology vis-à-vis the number of ships expected to join the world fleet in the next 7 to 8 years it is prudent of the Government, commercially and strategically to promote setting up of this testing facility, particularly since no such facility is available in South Asia, Middle east and Australia.

The cost of the project, as estimated by National Institute of Oceanography is approx. Rs 50 Crores, which includes a recurring expenditure of Rs. 3.9 Crores. The time estimated for the project to be operational is 36 months with partial operation from the second year.

In a nut shell the total estimate and time required for the projects are as below:

Project	Estimate	Time Required
Project 1	Rs. 15 crores	5 Years
Project 2	Rs. 50 crores	3 Years

14.6.12 P & I - Club:

India is emerging as a major Maritime nation. In present day scenario the maritime insurance of the ships, wreck removal, maritime causality both for the ship and seafarers are catered by P & I Clubs of foreign origin. Establishing the P & I Club in India not only brings increase in trade but also provides foreign exchange earnings when these clubs are used by foreign companies. It is therefore proposed to initiate action for establishing one P & I Club in Indian League by 2015 and one more in the IG League by 2020. The initial expenditure for this is estimated approx. 2 crores.

14.6.13 Opening of a second register:

A strategic proposal to bring in a policy regime for opening a second register was initiated aiming at attracting FDI. While conditions equal to the national are to be provided, the distinction is drawn by offering the national flag cabotage protection and for the second register, relaxation in manning controls. It was considered that with the second register, the target of doubling of the Indian tonnage by 2020 is economically feasible.

No significant initiative to activate the scheme has taken place on the policy front. Further, the prevailing recessionary conditions have prompted the Industry to seek further tightening of cabotage regulations. Demand for a liberalized manning regime, however, persists.

14.7. Comparison of financial aspects with periodicity of requirement.

The comparison of budgetary provisions given in the proposal with periodicity of requirement is tabulated below :

No.	Details	Fund requirement		
		2010-12	2012-17	2018-20
1	Increasing tonnage in the National Register	30,000	60,000	30,000
2	Navigational Safety in Ports Committee (NSPC)	-	10	-
3	Coastal Shipping	-	70	30
4	Pollution Response arrangements to deal with Pollution incidents on the coast of India	-	70	30
5	Designation of Emission Control Area (ECA) subject to the ratification of MARPOL Annex VI by India	-	80	20
6	Proposal for designation of Particularly Sensitive Sea Areas	-	50	-
7	Strengthening of Port state control and flag state inspection	20	30	50
8	Legislative updation	02	07	03
9	Upgradation & Strengthening of Marine causality cell	04	06	00
10	Voluntary IMO Member State Audit Scheme (VIMSAS)	01	00	01
11	Emergency Towing Vessels (Marine disaster emergency response)	40	200	10
12	Ballast Water Management.	10	40	15
13	P & I Club	00	1.5	0.5
	Total:	30077	60564.50	30159.50

Total:

Rs. 120801 Crs.

14.8.The Shipping Corporation of India

14.8.1 Introduction

The Shipping Corporation of India is the country's premier Shipping Line, presently owning a fleet of 74 vessels of 29.09 Lakh tonnes GT i.e. 51.13 Lakh tonnes DWT (as on 01.10.2010), with a share of about 32% (in DWT) of the total Indian tonnage. SCI's owned fleet includes Bulk carriers, Crude oil tankers, Product tankers, Container vessels, Passenger-cum-Cargo vessels, Phosphoric Acid / Chemical carriers, LPG / Ammonia carriers and Offshore Supply Vessels. In addition, SCI mans / manages 64 vessels of 3.18 Lakh tonnes GT and 2.2 Lakh tonnes DWT on behalf of various Government and private organizations.

The Government of India has conferred the "Navratna" status to SCI on 01.08.2008; granting enhanced autonomy and delegation of powers to the Company towards capital expenditure, formation of Joint Ventures, mergers, etc. During the year 2009-10, the company has earned net profit of Rs. 376.91 crore on turnover of Rs. 3,463.12 crore.

14.8.2. Vision:

To emerge as a team of inspired performers in the field of Maritime Transportation serving Indian and Global trades with focus on:

- Maintaining its "Numero Uno" position in Indian Shipping
- Establishing a major global presence in Energy – related, Dry Bulk and niche container shipping markets.
- Evolving suitable business models to exploit emerging opportunities in Offshore Oil Sector, Port / Terminal Management, Logistics etc.
- Safety of people and property and protection of Environment.

14.8.3. Mission:

To serve India's overseas and coastal seaborne trades as its primary flag carrier and be an important player in the field of global maritime transportation as also in diverse fields like Offshore and other marine transport infrastructure.

14.8.4. Present Status:

Sailing through for nearly five decades, the SCI today has a significant presence on the global maritime map. The highly diversified fleet of the SCI

includes modern and fuel-efficient ships giving it a qualitative status as also a distinct competitive edge over other fleet owners.

Under the NMDP, SCI had envisaged acquisition of 76 vessels of different types and sizes with an outlay requirement of about Rs. 15,000 crore. As against this, till date SCI has been able to order 43 vessels of total 2.00 million GT. Out of the 43 vessels ordered by SCI, 15 vessels of 1.096 million GT have been delivered to the company and balance 28 vessels are under construction at various shipyards. SCI had proposed acquisition of 4 Chemical tankers as part of the NMDP projects. However, these vessels have been acquired under the SCI's Joint Venture company viz. SCI Forbes Pvt. Ltd. and these vessels have also been included as part of the NMDP.

Out of the balance 33 projects of NMDP, while some projects are under process, the remaining projects would be undertaken by the company during the next two years. Accordingly, the balance projects of NMDP have been included under Phase-I projects of SCI's Perspective Plan 2010~2020.

14.8.5. Strategy:

Core Business:

SCI's strategy for the long term is guided by SCI's vision and mission statements stated above. To achieve these, SCI has taken into account the phase out schedule of its older vessels by the year 2020 and the vessels which are presently on order and scheduled for delivery in next two years. Replacement of the tonnage to be phased out is the first step towards ensuring that SCI is able to maintain its numero uno position. In order to maintain its market share and be able to serve India's overseas and coastal seaborne trade as its primary flag carrier, SCI would acquire tonnage in addition to replacement of phased out vessels.

Transportation of Crude oil and Petroleum products has been SCI's core business and this segment is expected to grow substantially considering India's energy requirements for the future. Taking this into account, by the year 2020, SCI plans to acquire 25 crude oil tankers of about 2.50 million GT, which would comprise of VLCC, Suezmax tankers, Aframax tankers and 4 MR size product tankers of about 0.12 million GT.

In the Dry Bulk sector, growth of coal fuelled Power generation is expected to increase import of Coal to India by manifold. At the same time, growth in infrastructure in developing Asian countries like India and China would definitely increase the trade activities in this region. Under the Bulk carrier segment, SCI plans to acquire 30 vessels of about 1.40 million GT by the year 2020, comprising of Capesize, Kamsarmax and Supramax vessels. SCI also proposes to acquire 4 Kamsarmax bulk carriers of 0.17 million GT through its Joint Venture company viz. SAIL SCI Pvt. Ltd.

In the container segment, SCI is currently catering to the trade in the European, Far-East and Middle-East regions and plans to increase its market share in these sectors. Further, SCI also plans to enter new sectors, like the Mediterranean region, which are throwing major growth opportunities. Accordingly, SCI plans to acquire 15 container vessels of about 0.72 million GT by the year 2020. SCI would be acquiring a mix of large and medium sized container vessels so as to effectively utilize them as per the sector specific requirements. A detailed scenario for container services has been provided in **Annexure-II**.

In the offshore Services Sector, SCI plans to make further inroads by acquiring specialized Multi Support Vessels and Rigs. SCI has accordingly planned to acquire 23 offshore vessels of different capacities comprising of AHTSVs, PSVs, MSV and Rig.

In the LPG and Chemical transportation segment, SCI plans to acquire 2 LPG carriers of 0.06 million GT and 4 Chemical tankers of 0.09 million GT. SCI also proposes to acquire 2 Chemical tankers of 0.04 million GT through its Joint Venture company viz. SCI Forbes Pvt. Ltd.

Considering the above opportunities available in the different shipping segments, the phasing out of SCI's older vessels and SCI's quest to become a global maritime player, SCI plans to acquire 110 vessels of about 5.21 million GT in the next ten years. This acquisition target includes SCI's 24 vessels on order (as of 01.01.2011) of about 0.74 million GT. Acquisition of the proposed vessels would lead to the SCI fleet touching level of 7.0 million GT by 2020.

Inorganic / Lateral Growth:

In addition to expanding by way of acquisition of tonnage, SCI also plans to take the inorganic route so as to establish itself as an important player in the field of global maritime transportation. SCI has already entered into Joint Venture (JV) agreements for LNG transportation, Chemical transportation and Dry bulk transportation with companies of international repute. SCI further plans to enter other profitable segments by way of JV's and ensure that it is able to establish a global presence in major as well as niche markets.

14.8.6. Proposed projects during 2010~2020:

SCI proposes to acquire 110 vessels of different types and sizes based on the requirement of the trade. Out of the proposed 110 vessels, 24 vessels are presently on order (on going projects) which will be delivered to SCI by 2012. Balance 79 vessel acquisition projects will be processed by SCI and 7 vessel acquisition projects will be processed by SCI's Joint Venture companies in the dry bulk carrier, Chemical tanker and LNG segments. The summary of the projects is enclosed at **Annex-I**. SCI would be reviewing its

acquisition strategy and streamline the same on an ongoing basis to determine the size of the vessels.

14.8.7. Financing of projects:

All the vessel acquisition projects proposed by SCI will be financed through a mix of debt and equity, preferably in the ratio 80:20 (80% through commercial loan and 20% through Internal Resources). No Budgetary support will be required from Government for SCI's proposed projects.

The total investment required for SCI's vessel acquisition Plan during the period 2010~2020 is estimated to be Rs. 27,668.40 crore. The break up of investment is as below:

Ongoing Projects -	Rs. 4,765.00 crore
Phase – I Projects -	Rs. 9,632.40 crore
Phase – II Projects-	Rs. 13,271.00 crore

Annexure-I**Projects Proposed for the period 2010~2020**

Name of the Project	No. of vessels	Total GT
On going Projects		
Aframax tankers	3	181,500
AHTSV (80T)	3	4,500
Handymax bulk carriers	6	204,000
Panamax bulk carriers	4	172,000
AHTSV(120T)	2	4,000
PSV	2	4,400
Kamsarmax bulk carriers	4	172,000
Sub Total	24	742,400
Phase-I Projects (2010-2015)		
VLCCs	4	648,000
6500 TEU container vessels	3	220,500
3500 TEU container vessels	3	111,000
80T AHTSV	6	9,000
Kamsarmax bulk carriers #	4	172,000
Suezmax tankers	2	165,000
Aframax tankers	2	121,000
Capesize bulk carriers	4	408,000
Supramax bulk carriers	4	136,000
1500 TEU container vessels	3	60,000
LPG carriers	2	60,000
LNG tanker #	1	70,000
120T AHTSVs	2	4,000
Sub Total	40	2,184,500
Phase-II Projects (2015-2020)		
VLCCs	4	648,000
80T AHTSVs	4	6,000
MR product tankers	4	116,000
Suezmax tankers	6	495,000
Kamsarmax bulk carriers	4	172,000
Jack Up Rig	1	6,000
1500 TEU container vessels	3	60,000
Supramax bulk carriers	4	136,000
MSV	1	5,500
8000 TEU container vessels	3	270,000
Chemical tankers	4	88,000
PSV	2	4,000
Aframax tankers	4	242,000
Chemical tankers#	2	40,000
Sub-Total	46	2,288,500
TOTAL	110	5,215,400

- Projects to be taken up by SCI's JVCs

Project wise details of outlay

Name of Project	Approx. cost (in Rs. Crore)	Funding pattern			Year of project preparation/comencement	Expected date for completion of project
		Budgetary support	IEBR (Rs. Crore)	Private /Other		
Ongoing projects						
Aframax Tankers	971.11	-	971.11	-	2007	2011
AHTSV (80T)	308.02	-	308.02	-	2007	2011
Handymax Bulk carriers	1239.24	-	1239.24	-	2007	2012
Panamax Bulk carriers	1095.72	-	1095.72	-	2008	2012
AHTSV(120T)	280.60	-	280.60	-	2009	2011
PSV	257.60	-	257.60	-	2009	2011
Kamsarmax bulk carriers	612.72	-	612.72	-	2010	2012
Sub-Total	4765.00		4765.00	-		
Phase-I Projects (2010-2015)						
VLCCs	1932.00	-	1932.00	-	2010	2014
6500 TEU container vessels	1035.00	-	1035.00	-	2010	2013
3500 TEU container vessels	690.00	-	690.00	-	2010	2013
80T AHTSVs	552.00	-	552.00	-	2010	2013
Kamsarmax bulk carriers#	644.00	-	322.00	322.00	2010	2013
Suezmax tankers	644.00	-	644.00	-	2011	2014
Capesize bulk carriers	1104.00	-	1104.00	-	2011	2014
Supramax tankers	588.80	-	588.80	-	2011	2014
LPG carriers	506.00	-	506.00	-	2011	2014
Aframax Tankers	552.00	-	552.00	-	2012	2015
1500 TEU container vessels	414.00	-	414.00	-	2012	2015
LNG carrier #	690.00	-	345.00	345.00	2012	2015
120T AHTSVs	280.60	-	280.60	-	2010	2012
Sub-Total	9632.40	-	8965.40	667.00		

Phase-II Projects (2015-2020)

VLCCs	2125.20	-	2125.20	-	2013	2017
80T AHTSVs	404.80	-	404.80	-	2013	2016
MR product tankers	728.64	-	728.64	-	2013	2016
Suezmax tankers	2125.20	-	2125.20	-	2014	2017
Kamsarmax bulk carriers	708.40	-	708.40	-	2014	2018
Jack Up Rig	506.00		506.00		2014	2018
1500 TEU	455.40	-	455.40	-	2015	2018
Supramax bulk carriers	647.68	-	647.68	-	2015	2019
MSV	759.00	-	759.00	-	2015	2019
8000 TEU container vessels	1518.00	-	1518.00	-	2016	2020
Chemical Tankers	1254.88	-	1254.88	-	2016	2019
PSV	253.00	-	253.00	-	2017	2020
Aframax tankers	1214.40	-	1214.40	-	2017	2020
Chemical Tankers #	570.40	-	285.20	285.20	2017	2020
Sub-Total	13271.00	-	12985.80	285.2		
TOTAL	27668.40		26716.20	952.20		

- Projects to be taken up by SCI's JVCs

Container Services Forecasts worldwide, India and SCI.**Section 1.01 Global Scenario**

The container trade started showing signs of recovery in the 3rd quarter of 2009-2010, after the global recession in 2008-09. This growth is expected to reach double figures from the year 2011-12 onwards. The projections given by Drewry projections upto 2011 are as under :

2.1 World container port traffic:

Year	Million (TEUS)
2007	141.5
2008	148.6
2009	133.9
2010	145.4
2011	156.1

Note : The industry witnessed recession in the year 2009.

Forecast of Container Growth By Region (in 000 TEUs)

Region	2009	2010	2011
North America	39,768	42,189	44,459
Western Europe	78,657	82,070	85,893
Far East	178,200	197,262	215,350
South East Asia	65,493	71,815	76,756
Middle East	30,403	33,095	35,662
Latin America	32,102	34,423	36,552
Oceania	8,842	9,408	9,870
South Asia	14,054	15,650	17,333
Africa	20,324	21,715	23,206
Eastern Europe	5,116	5,656	5,969
World	472,970	513,284	551,050

Forecast of Growth of Containerization in % age (Region wise)

Region	2009	2010	2011
North America	-13.4%	6.1%	5.4%
Western Europe	-14.3%	4.3%	4.7%
Far East	-8.4%	10.7%	9.2%
South East Asia	-8.1%	9.7%	6.1%
Middle East	-1.3%	8.9%	7.8%
Latin	-13.4%	7.2%	6.2%
Oceania	-4.9%	6.2%	4.9%
South Asia	-5%	11.4%	10.7%
Africa	-2.1%	6.8%	6.9%
Eastern Europe	-36.1%	10.6%	5.5%
World	-9.8%	8.5%	7.4%

Source : Drewry : It may be noted that year 2009 was the recession year and not the general trend.

All regions participated in the recovery, though South Asia and Eastern Europe led the way with very strong growth of over 25%. Relative laggards were Oceania, Africa and Western Europe – all below 10% year-on-year(y-o-y)

Indeed, this picture is replicated in most regions, despite the very strong y-o-y performance in the first quarter. In the most obvious interpretation, this could be seen as a re-establishment of normal seasonality trends. The industry is expected to regain its annual global growth figures of 9.3% in the years to come.

It may be noted that as per the forecasts, the world wide growth rate is expected to be in the region of 7% per annum, with the South Asia region expected to have maximum growth in this market around 10-11% . India will be a significant player of this growth. As the only Indian Shipping Line in the international container services trade, the role of SCI will also be significant as a participant in this expected growth of container shipping in South Asia. The annual containerised throughput in the South Asia region is expected to reach about 40,870,000 TEUs by 2020 as against 17,333,000 TEUs expected to be achieved by 2011, assuming a CAGR of about 10% in the South Asia region. Out of this 15 million TEUs should be controlled by Indian shipping interests out of which 5 million TEUs by owned/chartered vessels and 10 million TEUs by foreign flagged Indian controlled vessels. SCI aims to control 30% of the 5 million TEUs i.e. 1.5 million TEUs by 2020.

Indian Containerised Trade & Future Opportunities

New analysis from Frost & Sullivan, predicted India will be handling 21 million TEUs by 2014 from the 9 million TEUs in 2009. Asia is expected to be the most important region of growth after the recession ends in 2010-11. India will catch up with the increasing industrialization. Over the past 20 years, loaded global container traffic is estimated to have increased at an average annual rate of 9.3%, (*which currently has been revised to 10%*) and Asia confirms its position as the most important region. (Source: Drewery - August 2009 and Presentation by Deutsche Bank Research).

SCI's CONTAINER TRADE:

SCI currently operates in a niche market and is a niche player serving the Indian EXIM Trade carrying the Indian Flag all over the world. This gives us a sense of National Pride as SCI, with its limited capacity competes with the global container lines. Also all the SCI services are India Centric. SCI's presence in the market acts as a stabilizer of freight rates for the Indian market, which is beneficial for the Indian consumers. Also, SCI, being the National line and flag carrier, SCI is important for carrying of the sensitive cargoes like defence GOI cargoes etc.

SCI being a Public Sector Company needs to synchronize its goals with the Government objective on economic development. SCI needs to ensure that the Indian Products are competitive in the Global market but at the same time we need to ensure that the Indian Exporter is not exploited. SCI, also needs to ensure that the Indian Industry/Consumers get imported raw materials / goods at cheaper rate.

The trade lanes that SCI operates in and the tonnage that has been deployed by SCI in the respective trade lanes is as given below:

❖ EXISTING SERVICES :

Currently SCI has the following services:

(i). INDIAN SUB-CONTINENT EUROPE SERVICE (ISES)

Port Rotation: Colombo / Nhava Sheva / Pipavav / Mundra / Salalah / Felixtowe / Hamburg / Antwerp / Jeddah / Colombo.

(ii). INDFEX 1 SERVICE

Busan / Shanghai / Ningbo / Hong Kong / Singapore / Port Kelang / Colombo / Nhava Sheva / Colombo / Port Kelang / Singapore / Hong Kong / Busan

(iii). INDFEX 2 SERVICE

Xingang / Dalian / Qingdao / Busan / Hong Kong / Shekou / Singapore / Port Kelang / Chennai / Vizag / Singapore / Hong Kong / Xingang.

(iv). SMILE SERVICE

Colombo / Mundra / Jebel Ali / Mundra / Pipavav / Cochin / Tuticorin / Colombo

(v) IMED SERVICE

Colombo / Nhava Sheva / Mundra / Salalah / Port Said /Istanbul / Barcelona / Genova / La Spezia / Port said / Salalah / Colombo.

The deployment of the vessels (owned / in-chartered) in the existing container services is as follows :

- 1) ISES : SCI has three vessels in this service – 2 owned and 1 chartered, namely:

Owned vessels :	SCI CHENNAI	(4400 TEUs)
	SCI MUMBAI	(4400 TEUs)
In-chartered vessel :	SCI NEW DELHI	(3500 TEUs).

- 2) Indfex service : has one vessels, in-chartered vessels :
SCI KOLKATA (3500 TEUs)

- 3) Indfex 2 service : has one vessel, in-chartered vessel :
SCI PRESTIGE (2850 TEUs)

- 4) Smile service : smile service has three SCI owned vessels, namely :
MV LAL BAHADUR SHASTRI (1870 TEUs)
MV INDIRA GANDHI (1870 TEUs)
MV RAJIV GANDHI (1870 TEUs)

- 5) IMED service: has 2 vessels, in-chartered vessel:.
HANSA INDIA (3424 teu)
SCI PRIDE (3129 teu)

EXPANSION PLANS FOR SCI CONTAINER SERVICES

SCI is in the process of upgrading the existing services that we are catering to. We want to have a mix of the in chartered tonnage and acquired tonnage which is the norm world over. SCI has already placed an order for 3 x 6500 teu vessels which are likely to be delivered to SCI from August 2013. Considering the fact that in the next 10 years the markets are expected to grow and India is expected to be the center of growth, SCI would like to be a market leader and would like to expand the existing services and also enter in the new markets both India Centric and Non India Centric, which so far we have not ventured into.

SCI proposes to upgrade all the existing services and following is what is being proposed for upgrading the services:

ISE Service which is today being operated in a consortium with 2 x 4400 teu vessels and 1 x 3500 teu vessel is to be upgraded into 2 strings as follows:

India (East Coast / UKC)	3 X 3500 teu vessels
India (West Coast / UKC)	3 X 6500 teu vessels

Mediterranean Service which is today being operated in a consortium with 2 X 2500 teu vessels to be upgraded to 3 X 3500 teu vessels

INDFEX -1 Service which is currently being operated in a consortium with 1X 3500 teu vessel to be upgraded to 2 x 4400 teu vessels

INDFEX-2 Service which is currently being operated in a consortium with a 1 x 2850 teu vessel to be upgraded with 1 x 4400 teu vessel.

SMILE Service is today being operated solely by SCI with 3 X 1870 teu vessels. These vessels will complete their economic life in 2018 (completing 25 years) after which we will need to replace these vessels with 3 x 2500 teu capacity vessels.

In addition to upgrading the existing services, SCI sees a huge potential in the following sectors on the **India Centric Trade Lanes:**

Article II. INDIA/ Africa Sector:

India's exports to Africa are very diverse and concentrate upon a wide range of products where as the imports are limited to few commodities.

Throughput - The total throughput India /Africa(including East Africa, West Africa, South and North Africa) is approx **1,54619 teus** per annum(2009-2010 fiscal) out of which **108205 teus** constitutes export volumes from all major ports out of India and **46,414 teus** pertains to imports to all major ports of India. The trade volume to and from Africa is mostly for/to Nhava Sheva (56%), followed by 22% for/to Gujarat ports of Pipavav and Mundra , 15 % for/to Chennai and 7 % for / to Kolkata .

Pakistan/East Africa . Pakistan exported about 30000 TEUS to East Africa and imported 10000 TEUS (mostly tea). Most of the carriers combine India, Pakistan together for their East Africa service.

SCI is commencing the India/ East Africa Service with effect from end November, 2010 on slot swap basis. Once we have made our presence felt in the market we propose start a direct individual service into East Africa for which we will need to induct **3 x 1800 teu vessels**. These vessels in addition to the Indian Cargo will also cater to the cargo from the entire Indian Subcontinent including Pakistan and Far East. Bharati Telecom and Tata Motors are investing heavily in Africa. PSUs like IRCON, BHEL, MMTC, IFFCO have bagged significant contracts. All these developments have led to increased shipping opportunities. SCI needs to get contracts on long term basis from such companies.

In addition to the service to East Coast of Africa it is also proposed to start a service in consortium with other partners on the INDIA/SOUTH AFRICA/ SOUTH AMERICA / GULF/ INDIA, run by deploying 3 X 4500 teu vessels in the service. In this trade lane there is substantial cargo that moves from India to South Africa; from South Africa there is a huge potential for South America. While there is hardly any cargo that moves from South America to Indian sub continent there is enough cargo which moves from South America to South and East Africa, hence the lines make the reverse call. There is also cargo from Africa to Gulf; hence this sector is also covered by the same service. SCI will soon be initiating dialogue with the current players in the sector and will soon commence a service to this sector.

India USEC Service:

The India / US Trade is of strategic importance to SCI. Besides the commercial cargo there are large volumes of Government cargoes that are expected to be imported on this sector. SCI in the past has been forced to withdraw from these services but would reenter the market in a consortium with 2 x 4500 teu vessels. These are the type of vessels that are plying in the current services. As and when the services are upgraded, SCI too will upgrade the service by redeploying the higher capacity vessels.

The other services that SCI intends to enter are the INTRA ASIA SERVICES, which will cater to very niche markets and will also act as feeder vessels to their main line vessels:

- INDIA/COLOMBO/CHITTAGONG 3 X 1800 teu vessels
- INDIA/COLOMBO/PAKISTAN 3 X 1200 teu vessels
- INDIA/VIETNAM/THAILAND/S'PORE(in consortium) 1 X 2500 teu vessel

On the NON – INDIA CENTRIC TRADE LANES:

Besides being in the India Centric trade lanes there are certain sectors that all the major carriers are catering to. SCI too will start to participate in these trade lanes.

The 2 major trade lanes that have been earmarked where we will start at the earliest are:

- CHINA/ UKC (In consortium) 2 x 8400 teu vessels
- CHINA/WC of USA (In consortium) 2 x 8400 teu vessels

Following is the table of the services that we will upgrade and start and the vessels required for the same:

Sector	Capacity Tonnage	Period
India (East Coast / UKC)	3 X 3500 teu vessels	2011 -2015
India (West Coast / UKC)	3 X 6500 teu	2011-2015
Mediterranean Service	3 X 3500 teu	2011-2015
INDFEX -1 Service	2 x 4400 teu	2011-2015
INDFEX-2 Service	1 x 4400 teu vessels	2011-2015
SMILE Service	3 x 2500 teu vessels	2016-2020
India/ East Africa Service	3 x 1800 teu vessels	2011-2015

India/ S. Africa/South America Service	3x4500 teu vessels	2016-2020
India USEC Service:	2 x 4500 teu vessels	2011-2015
INDIA/COLOMBO/CHITTAGO	3 X 1800 teu	2011-2015
INDIA/COLOMBO/PAKISTAN	3 X 1200 teu vessels	2011-2015
INDIA/VIETNAM/THAILAND/S'PORE	1 X 2500 teu vessels	2011-2015
CHINA/ UKC (In consortium)	2 x 8400 teu vessels	2016-2020
CHINA/WC of USA (In consortium)	2 x 8400 teu vessels	2016-2020

CHAPTER-15

HUMAN RESOURCES DEVELOPMENT

15.1. Introduction

When India is set to increase its share in the world trade and also to increase its share of manpower supply to the global demand, there is an urgent and absolute need to go beyond the training of the seafarers and to offer programmes which are to enhance the capacity not only of the seafarers but also to provide the requisite skill enhancement through various courses for the personnel working in the industry.

15.2. Vision

Develop and sustain a high quality human resource management catering to the needs of the global including national maritime industry for competent seafarer.

15.3. Issues

India is well-poised to take a major part in growth in shipping worldwide given the tradition of seafaring, long coastline with large potential for coastal shipping, growing EXIM trade, established public and private maritime institutes. Given the millions of English speakers, a large talent pool, and growing shipping businesses onshore, India can aim to supply more seafarers to the global maritime industry. Personnel in the Indian maritime sector could be vertically divided into two groups – (i) the seafaring personnel; and (ii) other personnel who are responsible for the movement of the ships and handling of cargo.

The McKinsey report projects global cargo growth at 5 - 7 % on 3% global GDP based on current World economic outlook for 2010-2020. Container traffic is estimated to grow from 114 million to 200 million (TEU) through CAGR 7%. Both wet bulk and dry bulk are expected to grow at a slightly slower rate of 5 % (2009: 2.7 billion- 2.8 bn :: 2020: 4 bn- 4.5 bn)

Growth in ship types up to 2020 is expected to be as follows:

Containerships: The industry expects to add 1,600 ships (3.6 per cent CAGR), driven by resurgent demand and high orders currently, which makes containerships one of the fastest growing ship segments along with tankers.

Tankers: The highest vessel growth is expected in tankers with addition of 2,500 vessels (4.1 % CAGR), although slower than the historical growth (6.9 % CAGR 2005:2009). **Bulk carriers:** Lower growth is expected in bulk carriers with 1,500 vessels (3.3 % CAGR compared to historical trends (4.3 % CAGR 2005: 2009> historical CAGR 3.1 %).

General cargo and support boats: Around 2,000 general cargo and support ships are likely to be added, as their growth is highly dependent on that of tankers, containers and bulk carrier ships, and increased offshore activity.

Global demand for seafarers is expected to increase from 1.15 million currently to 1.6 million by 2020, driven by growth in cargo and a corresponding increase in fleet size. The current demand is 550,000 Officers (270,000 nautical, 280,000) and about 600,000 Ratings. By 2020, the global demand for each is expected to increase by 20 per cent: 660,000 Officers and 720,000 Ratings, an additional 110,000 Officers and 120,000 Ratings. In alternative GDP scenarios, growth in the number of seafarers could vary between 12 per cent and 26 per cent through 2020.

India can aspire to strong growth in Officers and Ratings by 2020. The share of high-quality Officers can increase from 6.3 in 2009 to 9.0 per cent in 2020, whereas Ratings could see a moderate growth from 7.5 per cent in 2009 to 9 per cent in 2020 by significantly improving their quality. This implies an additional 65,000 Officers and 45,000 Ratings taking in to consideration annual attrition, which will require expanding annual training capacity from 5,600 to 15,000 Officers and from 4,600 Ratings to 9,000 Ratings.

Demand for Indian Ratings was estimated to be 45,000 in 2009, leading to an oversupply of 10,000 within the country. In addition, Indian Ratings are perceived to be of lower quality. Therefore, India can set itself an aspiration to grow moderately in the number of Ratings and attain a market share of 9 per cent from the current 7.5 per cent. This implies doubling capacity in the next 10 years and significant improvement in attitude, communication, work ethics, and technical skills. India would have to supply an additional 45,000 Ratings, which may vary depending on the attrition rate. High crude activity is likely to drive manning demand for Ratings for Offshore Supply Vessels (OSV). In addition, developed economies having high Near Coastal Voyage (NCV) traffic should be targeted as these countries have a shortage of domestic seafarers.

The ramping up of capacities in Pre Sea and Post Sea training should not present any major difficulties as the entry of the private sector since the late nineties has led to strong and continuing growth. The real challenge is in providing adequate sea training berths which are in short supply thereby choking the entire supply chain (relatively less tonnage under Indian flag 1.5%: sea farers 6%) . Currently sea training berths on Indian ships are not mapped and it is not possible to either accurately estimate the total existing or potential training accommodation available or verify the claims of the training institutes for adequate tie ups of training berths for prospective students. The institutes run by shipping companies or where a tie up exists for a certain no of seats sponsored by Indian or foreign owners or manning companies to meet their own requirements understandably attract the best candidates as chances of success are much higher both for obtaining training slots as well as employments prospects. It is the standalone institute that presents the major difficulty. The true cost of training is neither reflected in the course fees as “cost” of the training slot is not

factored in nor is sufficient information in the public domain available on performance in the entry level COC examinations or made available during “counseling” sessions which could perhaps provide a useful guide and indication to starry eyed aspirants in quest for a quality institution correlated and assured sea career.

This situation had lead to development of a grey market for sea training berths throwing open possibilities of opportunistic rent seeking and mushrooming of low quality training institutions which promise sea training slots not backed by adequate underlying capacity. The uncertainty leads to exploitation and deters good quality sea faring aspirants particularly at the ratings level.

15.4. STRATEGIES

Following strategies are suggested:-

- 1) An efficient and more transparent market mechanism has to be created for Shipping Companies (Indian and foreign) and training institutes to trade (i.e. buy /sell) in training slots and cost of sea training berths should be factored in the course fees itself to enable candidates to organize funding through normal banking channels. The initial steps could be taken by utilizing funds (generated by Maritime Training Trust under the Tonnage tax obligations, levies on overage offshore vessels and penalties arising out of obligation created by mandating compulsory training slots on chartered vessels) to buy bulk sea training slots in the Indian and foreign markets and offer them to the standalone institutes unable to make their own arrangements.
- 2) Weightage to training on Coastal, River Sea and IWT ships while determining Sea training requirements.
- 3) Seamless inter-modal mobility.
- 4) Opening up the offshore sector to nautical officers of Indian Navy giving due consideration to individual sea experience and custom designed skill gap bridge in service courses or resettlement as part of resettlement programs without insisting on written and oral examinations thereby tapping into a large pool of disciplined and qualified manpower. The artificers and petty officers are important targets for upgrade to MCV officers through the NCV, RSV IWT route as sea training requirements can be rationalized after factoring in sea service and relevant experience.
- 5) Additional capacity
 - a) Creation of additional capacity by exploiting the opportunity offered by seasonal nature of passenger traffic on vessels plying from the main land to the island territories as well as in the inter-island traffic (Lakshadweep and Andaman and Nicobar).

- b) Encourage additional cabins for trainees in ship to be ordered under order/construction or through temporary arrangements such as accommodation modules, portable accommodation containers etc
 - c) Adding berths in existing crew cabins.
 - d) Aligning manning requirements with international safe manning/rest hour norm releasing existing accommodation for training berths.
 - e) Mandating training slots/berths in chartered vessels while granting licenses or penalty to be paid in lieu.
 - f) Additional levy on chartering of overage foreign vessels to be set off against provision of training berths over and above mandated while granting license.
- 6) The training requirement of seafarers to be aligned to STCW provisions. Existing duration of sea training for nautical cadets and presea training for engineering officers exceeds STCW provisions.
- 7) E-examination: -

The examinations conducted by the Directorate for various grades of Engineering and nautical competency certificates are proposed to be conducted online as per the following schedule:-

<u>Engineer's examination grade</u>		<u>Year</u>
Class - IV	-	2011
Class - II	-	2012
Class - I	-	2013
<u>Nautical's examination grade</u>		<u>Year</u>
2 nd Mate	-	2011 - 2012
1 st Mate	-	2013
Master	-	2014

Various courses to meet the sectoral demands of the various industries within the maritime sector have to be designed. The target group planned under this are as follows:

- (i) Maritime administrators;
- (ii) Engineers and Technologists engaged in marine engineering and allied industries;
- (iii) Personnel engaged in ports, cargo-handling and other allied industries;

- (iv) Personnel engaged in harbour engineering, dredging, offshore engineering, etc.;
- (v) Personnel engaged in shipbuilding, ship repair and naval architecture;
- (vi) Personnel engaged in legal matters;
- (vii) Personnel engaged in marine science and allied subjects.

All the programmes have to be designed with a curriculum to meet both the knowledge content as well as the practical requirement.

To increase knowledge base and HR capacity in the maritime sector it is important that each sub sector is manned by personnel adequately trained through courses. The road map for the Government and other training institutions in the private sector in the Perspective Plan is at Annexure 1.

15.5. FOREIGN COLLOBORATION

An MSc Shipping and Port Management is being started in collaboration with World Maritime University at Maritime Training Institute (MTI) of Shipping Corporation of India. For faculty resources, MTI would take recourse to a large of pool of experts already trained by WMU as also visiting faculty from outside. It is contemplated that the course would have duration of 12 months to 14 months depending on the credit requirements of the affiliating University. The course will also have an input of visit/field studies at Shipping companies, Shipyards, and other maritime players to give an overall exposure to the participants. The course will be open to the seafarers holding certification of competency as also others with specified experience at managerial/supervisory levels holding a bachelors degree.

The intake is contemplated at 50 participants. The course will be entirely residential and suitable residential accommodation in the form of an studio apartment is contemplated to be provided.

International Maritime Law Institute, (IMLI) Malta runs a PG course in Maritime Law. No Indian University offers masters in Maritime law, the common perception being that Maritime law is the preserve of a select few and may not provide a rewarding career to aspiring law graduates. The possibility of introducing electives in Maritime Law in undergraduate courses at a few premier law institutes located in and around Mumbai, Chennai and Kolkata campuses as part of a seeding program is worth exploring. The Government will provide the required faculty support to these institutes for two to three years. The faculty required for developing and delivering law modules for relevant specializations can also be tasked with developing the seeding and subsequently a PG program, creating expertise in maritime law education. Visiting faculty from IMLI will also be arranged.

15.6. PROPOSED PROJECTS BY DG (SHIPPING)

15.6.1 Increasing the share of Indian officers in the world shipping

The no. of merchant navy officers globally is currently estimated to be 5,50,000, which will increase to 6,60,000 by 2015 assuming major supplying nations continue to train officers at historical rates. Shortage in officers is expected to become acute by 2013 as a result of higher growth in fleet size. India is the 5th largest supplier of officers with a global share of 6.3%. India can aspire to substantially increase the no. of its officers and achieve a market share of 9%. For this, India would have to supply 65,000 additional officers in the next 5 years, which would require that the training capacity almost triples in the next 5 years while the quality does not go down. This will require sustained promotional campaign, including mass media advertising campaign, direct marketing campaign, school and college contact programme, ground activation programme, interactive campaign and PR campaign. All these campaigns have to be carried out through a consultancy firm. The estimated expenses for such campaign are Rs. 4 crores per annum and the same has to be carried out over the five year period.

The expected cost of the project is Rs.20 crores.

15.6.2 Dedicated training ships for giving on board training.

Currently there are approximately 4000 training slots available for those coming out of various pre-sea training institutes in India. However this has to be substantially increased if we have to aspire to achieve a market share of 9% in the next five years. The total training berths for achieving this market share is estimated to be 16000. In order to create the additional training berths it is proposed that Government through SCI may acquire dedicated training ships. Such a vessel, which can carry 400 trainees, is estimated to cost approximately Rs. 125 crores. It is proposed to acquire 4 such ships by 2015. The approximate total cost of the project is estimated to be Rs.500 crores.

15.6.3 Project for Welfare of Seafarers.

At present, the employers of seamen i.e. Indian Shipping Companies and Foreign Shipping Companies are remitting Pension/Annuity Contribution and Additional Voluntary Contributions in terms of NMB Agreement and Collective Bargaining Agreement executed with them by the Recognized Union of Seafarers in India. The accumulations are presently paid in lump sum to seamen. SPFO intends to launch Contributory Annuity Scheme for seamen subject to Government's approval under which these accumulations would be handed over to select Life Insurance Company for the purpose of

making deferred payment to seamen as Annuity throughout their life time.

Pension/Annuity Contributions, Additional Voluntary Contributions and Ex-Gratia have been considered as the corpus for introducing Contributory Annuity Scheme for the seamen. The Annual accretion under the Pension/Annuity Contributions and Additional Voluntary Contributions in respect of 34000 seamen is around Rs.45 crores. If Government contributes 50% of the Annual accretion from the year 2010-2011, the financial implication would be around Rs.25 crores p.a.

Around 12,700 seamen who are having Provident Fund Accounts would be deprived of any benefit on account of Annuity due to zero balance in their account under the head Pension/Annuity Contributions and Additional Voluntary Contributions. Government may bring these seamen under the cover of Contributory Annuity Scheme by way of a grant of Rs.10,000 p.a. in individual account. The financial out-go for this project is expected to be Rs.13 crores. Thus the outgo of the two projects together will be about Rs. 38.00 crores p.a. But it will create considerable goodwill among the seafaring community.

Considering an average increase of 6000 seamen per year, the estimated financial outgo for this project would be approximately 400 crores for the period, 2010 to 2020.

15.6.4 Restructuring & Up gradation of Directorate General of Shipping and MMD offices.

Expansion of MMDs and opening new MMDs at Kandla, New Mangalore, Paradip, Haldia and Noida were carried out in 10th plan. The work of setting up of infrastructure for these MMDs has been taken up in the 11th Plan especially for building of infrastructures and providing equipments. With the increase in the Indian shipping tonnage and the shipping traffic, to and from, the Indian ports, it is necessary that the MMD offices are to be set up at all major and minor ports, which has a traffic of more than 100 ships in a year for effective implementation of a regulatory regime as per the requirements of IMO. The budgetary estimate for constructing the buildings at 10 locations is estimated to be Rs. 50 crores.

The manpower at the existing MMDs and the newly proposed MMDs has to be also strengthened/created. It is proposed to create the new offices with at least three surveyors and six administrative/supporting staff. The expenditure for the above will work out to Rs. 10 crores/year, totaling to Rs. 100 crores during the period from 2010 to 2020.

The infrastructure of DG Shipping at Mumbai is more than fifty years old. The Indian Maritime Administration has diversified its

activities pursuant to the adoption of various IMO and ILO Conventions. With the increasing activities the space constraints of the Directorate is explicitly felt. Therefore, the need for establishing a new office for the Directorate in a vaster area, probably at Navi Mumbai, is proposed to be mooted and implemented before 2020. The Proposal envisages acquiring at least one hectare of land in Navi Mumbai from the special government beneficiary scheme from CIDCO either on lease or on outright purchase. It is proposed to construct a multi- storeyed building to house the office of the Directorate.

Expenditure for this project can be divided into two phases namely acquisition of land and construction of the building. The expenditure for acquiring the land is estimated to be Rupees 50 crores. The construction of the building may cost approximately 100 crores. The whole project is estimated to be completed by 2020.

15.6.5 Seamen Welfare - Establishing more infrastructure for seamen's hostels.

As per section 218 of MS Act the National Welfare Board of Seafarers is responsible for the creation of infrastructure for seamen welfare activities. The NWBS in its meeting on 06.05.2010 had made concerns on this issue and directed the committee constituted for this purpose to give its recommendation on the infrastructure to be created at different ports for seamen welfare.

It is proposed to improve the infrastructure at the major ports and create new facilities in areas where it is not available by 2015. The projected expenditure for this phase-I will be approximately Rs. 40 crores.

In the 2nd phase of the project it is proposed to create new infrastructure for seamen's hostel/club in minor ports by 2020 with an estimated expenditure of approx. Rs. 60 crores.

15.6.6 All India Maritime Services.

Indian shipping sector is emerging as a promising area of investment and the activities in this sector is always on a steady increase. With the adoption of various conventions of IMO, the regulatory regime is also becoming stronger, whereby more technical expertise is required for implementing them. The shipping activities are an amalgamation of practical and administrative experiences. Moreover, legal and financial expertise are also required for the smooth sailing of various activities in this sector. Due to the high remuneration prevailing in this field, this sector is always short of expert manpower. At present, the regulatory authorities like the Directorate and the implementing authorities like ports etc are functioning with substantial hired manpower. Such a scenario is not

a healthy one especially for the regulatory and the implementing authorities. Therefore there is an urgent need to create a pool of Maritime experts drawn from general administration, technical, legal and finance, suitably train them so that there is a continuous availability of marine experts to the Directorate General of Shipping without any break. Thus, creating an Indian Maritime Service in line with other civil services of the nation is an urgent need at this stage. It is therefore proposed to set up the Indian maritime services by 2020. The initial expenditure for this project may be approximately 5 crores.

Development of Information Technology.

i) e-Examination

Modernization of examination pattern and conduct of various examinations have commenced in DG Shipping and allied offices since April, 2010. In this module, applying for examination, checking of certificates, writing of examination etc are proposed to be brought under electronic mode. The initial work has already been started in this regard. It is proposed that by 2020 all the grades of all the examinations are to be conducted online. The estimate for the above project works out to be Rs. 50 crores.

ii) Integration of e-modules

The directorate had developed various e modules on subjects like COC, CDC, RPS, INDOS, SPFO. The various details of seafarers are available in these modules and being updated by the concerned agencies. At present these modules are stand alone, which makes it difficult for accessing the data by any one for checking and other purposes. It is proposed to integrate these modules so that accessing all data by any person will be easier. This will make the work of MMDs and DG Shipping simpler and the lead time of replying to seafarer's queries and issuance of services to them can be streamlined and expedited. The project is already in the infant stage of implementation and proposed to be implemented before 2015. The monitory requirement for this project is worked out to Rs. 50 crores.

15.7. Comparison of financial aspects with periodicity of requirement.

The comparison of budgetary provisions given in the proposal with periodicity of requirement is tabulated below :

No.	Details	Fund requirement (Rs in crores)		
		2010-2012	2012-2017	2018-2020
1	Increasing the share of Indian officers in the world	02	15	3
2	Dedicated training ships for giving on board training	-	500	-
3	Project for Welfare of Seafarers	120	200	80
4	Restructuring and Up gradation of DG Shipping and MMD offices	70	150	80
5	Seamen's Welfare – Establishing more infrastructure for Seamen's Hostel	10	60	30
6	All India maritime services	00	03	02
7	Development of Information Technology	50	50	00
	Total:	252	978	195

Total:

Rs. 1425 C

15.8. INDIAN MARITIME UNIVERSITY

15.8.1 INTRODUCTION

The Indian Maritime University (IMU) is established as a Central affiliating University by the Ministry of Shipping, Government of India and came into existence on 14th November 2008. The objective of IMU is to facilitate and promote maritime studies and research in all areas of maritime field. The key areas which the IMU to concentrate is in providing educational courses, undertaking research work, providing training in specialized areas and to provide support to promote the growth of maritime sector by way of supply of quality human resources.

The IMU was established with the amalgamation of the then existing seven government-run institutions, viz., National Maritime Academy, Chennai, Marine Engineering & Research Institute (MERI), Mumbai, Lal Bahadur Shastri College of Advanced Maritime Studies and Research, Mumbai, Training Ship Chanakya, Navi Mumbai, National Ship Design & Research Centre, Visakhapatnam, Indian Institute of Port Management, Kolkata and MERI, Kolkata. Accordingly, the headquarters at Chennai and the four regional campuses at Chennai, Mumbai, Kolkata and Visakhapatnam formed the structure of the University. During the academic year 2009-10, an additional campus at Cochin was established to meet the demand from that region.

Each of the five campuses has been focussing its academic activities on certain areas, though there could be overlap in offering certain academic programmes. The Perspective Plan is prepared taking into the account the plan projection made to the EFC and considering the expertise and specialisation developed by the individual campus during the past.

15.8.2. VISION

The vision for the IMU is as follows:

“To achieve top ranking position among the Maritime Universities of the world in providing quality education, research and training and to develop top class quality human resource needed for the maritime sector.”

15.8.3. MISSION:

- (i) To provide higher end educational courses needed for the entire maritime sector with a view to transform the Indian maritime industry to achieve excellence; and
- (ii) To develop top class marine personnel to man the ships and marine crafts; and
- (iii) To undertake research in all disciplines to promote institution-industry interface and to provide the Government in matters of maritime policy and technology.

15.8.4. PRESENT STATUS

IMU Headquarters

- (i) IMU Headquarters is located at Chennai and presently functions from the erstwhile National Maritime Academy premises. MBA Programmes in Port and Shipping Management and International Transportation and Logistics Management are being offered by IMU Headquarters.

- (ii) The Government has acquired 300 acres of land for establishment of the IMU Headquarters and the National Maritime Complex. Out of this, 106 acres of land have been initially allotted for development of the IMU Headquarters.
- (iii) Development of infrastructure and construction of the required facilities are in progress.

IMU Mumbai Campus:

- (i) IMU Mumbai campus is one of the oldest campuses of the University comprising the *Training Ship Chanakya*, LBS CAMSAR & MERI-Mumbai.
- (ii) T.S. Chanakya presently has more than 700 cadets. It is the first institute in the country to have started degree programme course curriculum for those aspiring to become nautical officers on-board ship. Ex-cadets of this institute have done very well both professionally and otherwise and are seen to be at the helm of affairs in the various segments of the industry.
- (iii) Lal Bahadur Shastri College of Advanced Maritime Studies and Research [LBSCAMSAR], which is rich in infrastructure including modern simulators, was started in 1949 and is dedicated to post-sea maritime education in India. More than 6,500 students pass out from this institute every year.
- (iv) Marine Engineering and Research Institute (MERI) Mumbai, which is more than 50 years old, was inaugurated by the first Prime Minister of India and has produced finest of Marine Engineers. Presently all around the globe ex-cadets of MERI are seen at the forefront in the marine and non-marine industry, having diverted their career in various fields including extreme fields like space science, nuclear power, nano technology, etc.
- (v) The following programmes are offered at this Campus:
 - (a) T.S. Chanakya – DNS Programme and B.Sc. Nautical Science;
 - (b) LBS CAMSAR – Post-Sea Modular Courses; and
 - (c) MERI-Mumbai – B.Sc. Maritime Studies and GME 1-year programme.

IMU Kolkata Campus:

- (i) The erstwhile Indian Institute of Port Management and MERI-Kolkata have been merged with the University to form the IMU Kolkata Campus. It is located in 33-acre land with the required

infrastructure such as academic blocks, laboratories, simulators, a small Training Vessel TS Bhopal, workshops, etc.

- (ii) B.E. in Marine Engineering, Diploma in Nautical Science (DNS) leading to award of B.Sc. degree in Nautical Science, Post-Graduate Diploma courses on Export-Import Management, Port & Shipping Management, Logistics & Supply Chain Management, Pre-Sea and Post-Sea Courses, and short-term management development programmes are being offered currently at IMU Kolkata Campus.

IMU Visakhapatnam Campus:

- (i) IMU Visakhapatnam Campus (erstwhile National Ship Design and Research Centre) is located in a 5-acre land with infrastructure facilities such as class rooms, library, computing facility and drawing hall and also student accommodation. IMU Visakhapatnam Campus has also been allotted 102 acres of land by the Government of Andhra Pradesh in the Sabbavaram Mandal which is about 35 km from the present location. The site allotted is a part of an identified academic complex earmarked for a Central University, a Law university, etc.
- (ii) IMU Visakhapatnam Campus, is presently having two Schools – School of Naval Architecture and Ocean Engineering and School of Maritime Design and Research. The School of Naval Architecture and Ocean Engineering offers a B.Tech programme and an M.Tech programme in Naval Architecture and Ocean Engineering in Visakhapatnam Campus.

IMU Chennai Campus:

- (i) The erstwhile National Maritime Academy forms the Chennai Campus of the IMU, which is located in 20 acres of land with custom-built facilities for conducting educational and training courses. It is a self-contained campus with required infrastructure for providing academic and training programmes, and support facilities such as playground, swimming pool, residential quarters for faculties and students.
- (ii) The IMU Chennai Campus offers the following programmes:
 - (a) Diploma in Nautical Science (DNS) leading to award of B.Sc. degree in Nautical Science;
 - (b) B.Tech., in Marine Engineering;
 - (c) Modular Courses for seafaring personnel;
 - (d) Competency courses for seafaring personnel; and
 - (e) Short term training courses for port personnel.

IMU Cochin Campus:

This is a campus newly started from the academic year 2009-10. It is at present functioning from the premises given by the Cochin Port Trust. Construction of academic facilities and renovation of the Cochin Port Trust building for hostel is under progress. The Campus is currently offering the following courses :

- (a) Diploma in Nautical Science (DNS) leading to award of B.Sc degree
- (b) B.Sc in Shipbuilding and Repair
- (c) MBA in Port & Shipping Management
- (d) PG Diploma in Marine Engineering

15.8.5. APPROACH

While the campuses of the IMU at places other than Cochin are the erstwhile maritime institutes/academies functioning earlier, the Cochin campus is newly formed during 2009-10. Hence, the four Campuses other than Cochin were already conducting various courses both short term and long term in various maritime disciplines. Through the delivery of these courses, a good degree of expertise had already been developed on specific areas chosen by these institutions during the past period. Hence, it is prudent to take advantage of it and build further on.

A review of programmes conducted and activities carried out by these Campuses indicate that the specialisation could be on the following areas shown against each of the campuses.

- | | |
|---------------|---|
| Mumbai | - Nautical Science, Business School; |
| Kolkata | - Marine Engineering, Inland Water Transport; |
| Visakhapatnam | - Naval Architecture, Ship Design, Ocean Engineering and Technology; and |
| Chennai | - Nautical Science, Marine Engineering, Port & Shipping Management (Business School). |

The Cochin Campus was started with the introduction of Diploma in Nautical Science leading to B.Sc., Nautical Science course. During the academic year 2010-11, B.Sc., in Ship Building and Repairs, MBA in Port and Shipping Management and Post Graduate Diploma in Marine Engineering had been commenced.

The Headquarters started with two MBA programmes in Port and Shipping and International Transportation and Logistics.

Based on this status, the approach to draw up the future plan for IMU will be on the following lines.

- (i) The Campuses will vertically integrate courses in the areas where they are strong (as indicated above)
- (ii) The Campuses will continue to run lower end courses.
- (iii) The headquarters will offer mostly higher end courses (Master Degree) and research in all disciplines progressively.
- (iv) Higher end courses in Campuses will also be replicated based on need and specialisation of the particular campus.
- (v) Training in specialised areas and consultancy work can be promoted in Headquarters and all Campuses.
- (vi) The infrastructure required will be created for conduct of the programmes and research to achieve quality and to move towards the vision.
- (vii) Conforming to challenging standards expected by contemporary technology-driven organisations.
- (viii) Undertake research in all disciplines to promote industry-institution interface.
- (ix) Establish additional campuses or centres in maritime states of India or overseas based on the need
- (x) Have joint academic programmes with institutions of excellence in India and abroad.

15.8.6. **PROPOSED PROJECTS AND FINANCIAL PROJECTIONS**

IMU headquarters

As a policy, it is proposed to conduct only the Masters' Degree programmes at the Headquarters and also to undertake research activities in various disciplines. The following programmes had been slated under the Headquarters as per the projection made to the EFC:

- (i) M.Sc., in Maritime Affairs;
- (ii) M.Tech. in Marine Technology;
- (iii) M.B.A. in Port & Shipping Management; and
- (iv) M.B.A. in International Transportation & Logistics Management.

As per the projection indicated, the Headquarters will offer more number of Masters' Degree programme in Marine Engineering, Port & Shipping, Maritime Law, Business School, and Marine Science. Accordingly, the following programmes are planned for the Perspective Plan period.

- (i) M.Tech. in Marine Technology;
- (ii) M.Tech. in Dredging & Offshore Engineering;
- (iii) M.Tech. in Marine Environment;
- (iv) M.Tech. in Harbour Engineering;
- (v) M.Sc. in Maritime Safety and Environment Administration;
- (vi) M.Sc. in Maritime Policy;
- (vii) M.L. in Maritime Law;
- (viii) M.Sc. in Marine Biology;
- (ix) M.Sc. in Marine Biotechnology;
- (x) M.Sc. in Oceanography;
- (xi) M.B.A. in Shipping Finance; and
- (xii) M.B.A. in Shipping Operation.

The additional requirements towards infrastructure for conducting these additional programmes have been projected and given in para 8.7.

IMU Mumbai Campus

The Mumbai Campus has planned the following additional programmes to be offered during the Perspective Plan period:

- (i) E-M.B.A. programme;
- (ii) M.Tech. in Marine Engineering; and
- (iii) M.Sc. in Nautical Science;

The requirement of infrastructure for organising these new programmes and also for replacement of the existing simulators, training equipment, etc., and the capital cost requirement have been estimated. In addition, the cost of replacement of furniture, office equipment, etc., are also included in the requirement. Details of this requirement are given in para 8.7 below.

IMU Kolkata Campus

In addition to the programmes being currently offered in the Kolkata Campus, the following new programmes have been planned during the Perspective Plan period:

- (i) M.Tech. in Marine Engineering;
- (ii) M.B.A. in Port & Shipping Management;
- (iii) M.B.A. in International Transportation & Logistics Management;
- (iv) B.Sc. Dredging;
- (v) Marine Engineering for Graduate Engineers;
- (vi) Marine Engineering for Diploma Engineers; and
- (vii) M.Tech. in Marine Communication.

The additional requirements towards infrastructure for conducting these additional programmes have been projected and given in para 8.7 below.

IMU Visakhapatnam Campus

In addition to the programmes being currently offered in the Visakhapatnam Campus, the following new programmes have been planned during the Perspective Plan period:

- (i) M.B.A. in Shipping Operation;
- (ii) M.Sc. in Maritime Safety and Environment;
- (iii) M.L. in Maritime Law;
- (iv) M.Tech. in Naval Architecture & Shipbuilding;
- (v) B.Tech. in Ship Production & Technology; and
- (vi) B.Sc. in Inland Waterways.

The additional requirements towards infrastructure for conducting these additional programmes have been projected and given in para 8.7 below.

IMU Chennai Campus

In addition to the programmes being currently offered in the Chennai Campus, the following new programmes have been planned during the Perspective Plan period:

- (i) B.Tech. in Dredging & Offshore Engineering;
- (ii) B.Tech. in Marine Environment;
- (iii) B.Tech. in Harbour Engineering;
- (iv) B.Sc. in Marine Science; and
- (v) B.Sc. in Nautical Science.

The additional requirements towards infrastructure for conducting these additional programmes have been projected and given in para 8.7 below.

IMU Cochin Campus

The Cochin Campus will provide courses in shipping, maritime law, naval architecture and inland waterways, in addition to the courses currently offered. The following programmes are planned:

- (i) M.B.A. in Shipping Operation;
- (ii) M.Sc. in Maritime Safety and Environment;
- (iii) M.L. in Maritime Law;
- (iv) M.Tech. in Naval Architecture and Shipbuilding;
- (v) B.Tech. in Ship Production Technology; and
- (vi) B.Sc. in Inland Waterways.

The infrastructure requirements for the future period to conduct the proposed programmes have been projected and given in para 8.7 below.

Establishment of additional campuses/centres

The major ports in maritime states of Gujarat, Karnataka are keen to promote and support IMU to establish campuses in respective port towns. Ports of Kandla, New Mangalore, Tuticorin are showing interest to have an IMU Campus established in the port location based on the demand for education and training in maritime industry. Infrastructure requirement will be met by them. Under the circumstances the IMU is only to establish and run the campus. A proper workable administrative model is to be worked out for each place taking into account the ground realities. Though there would not be any huge capital expenditure for infrastructure development as this would be met by the ports, IMU will still need to spend a bare minimum amount in terms of equipments etc. Hence a small lumpsum provision is made.

Similar request for establishment of campus in overseas are also received by the IMU. For establishment of such offshore campus, a token provision is made.

Several maritime universities in the world are having their own training ships. In the long run it is worthwhile for IMU to acquire a training ship, which could be put into multiple use such as for studies, research etc, besides training. Provision is made to acquire one.

15.8.7. The total requirement of the capital cost for the Headquarters and the five Campuses at Mumbai, Kolkata, Visakhapatnam, Chennai and Cochin work out to **Rs.1280.00 crores.**

IMU HEAD QUARTERS - CHENNAI CAPITAL COST REQUIREMENT

Sl. No.	Name of the Project	Approx. Cost	Year of Project Preparation	Year of Project completion
1	Construction of Academic Block	22.0	2011-12	2015-16
2	Hostel Block	25.0	2011-12	2015-16
3	Sports Complex	15.0	2014-15	2018-19
4	Convention Centre	30.0	2015-16	2017-18
5	Laboratory / Simulator / Workshop	40.0	2011-12	2015-16
6	Regional Maritime Hub	20.0	2016-17	2019-20
7	Training Ship	100.00	2013-14	2016-17
	Total	252.00		

IMU KOLKATA CAMPUS				
1	Construction of Academic Block	30	2011-12	2015-16
2	Construction of Hostel Block	25	2011-12	2015-16
3	Simulators	10	2011-12	2015-16
4	Laboratories	10	2013-14	2015-16
5	Towing Tank	20	2016-17	2019-20
6	Renovation, replacement	30	2016-17	2019-20
7	Provision for acquiring additional land of 50 acres	200	2013-14	2015-16
	Total	325		

IMU MUMBAI CAMPUS

Sl. No.	Name of the Project	Approx. Cost	Year of Project Preparation	Year of Project completion
1	Replacement of Simulators	20.0	2011-12	2013-14
2	Auditorium	10.0	2011-12	2013-14
3	Seaside Wall and jetty	3.0	2016-17	2016-17
4	Office cum Training Equipment	10.0	2013-14	2017-18
5	Towing Tank, Model Test Basin Caviation Tunnel, Fatigue Testing Flume Tank	20.0	2017-18	2019-20
6	New Hostel – TSC New Hostel – LBS	20 20	2015-16 2014-15	2016-17 2015-17
7	Residential Quarters	15.0	2018-19	2019-20
8	Furniture	10.0	2013-14	2019-20
9	Working diesel engine, Alternator, Training Ship, Sailing Boat/Yacht	8.0	2014-15	2017-18
10	Renovation & Replacements	30.0	2013-14	2019-20
11.	Additional land and development	50.0	2012-13	2014-15
	Total	216		

IMU VISAKHAPATNAM CAMPUS

Sl. No.	Name of the Project	Approx. Cost	Year of Project Preparation	Year of Project completion
1	Towing Tank with shallow water facility and Wavemaker	15.0	2011-12	2014-15
2	Circulating Water Channel with motor and impeller and visual chamber	5.0	2011-12	2014-15
3	Ship Structural Laboratory	5.0	2011-12	2014-15
4	Dredging Simulator	12.0	2014-15	2017-18
5	Ship Machinery Laboratory	6.0	2014-15	2017-18
6	Construction of Academic Blocks Construction of Hostel Blocks	30.0 30.0	2015-16	2019-20
7	Renovation of Existing Buildings	2.0	2017-18	2019-20
8	Library Facilities	1.0	2013-14	2015-16
9	Additional land and development	17	2012-13	1014-15
	Total	123		

IMU CHENNAI CAMPUS

1	Construction of Academic Block	28.0	2011-12	2015-16
2	Construction of Hostel Block	32.0	2011-12	2015-16
3	Towing Tank	20.0	2015-16	2017-18
4	Workshop	10.0	2016-17	2018-19
5	Laboratories	10.0	2011-12	2015-16
6	Simulators	10.0	2017-18	2019-20
	Total	110.0		

IMU COCHIN CAMPUS

Sl. No.	Name of the Project	Approx. Cost	Year of Project Preparation	Year of Project completion
1	Construction of Administrative & Academic Blocks	20.0	2011-12	2014-15
2	Construction of Marine Workshop	5.0	2011-12	2013-14
3	Setting up of full mission Engine Simulator	5.0	2011-12	2013-14
4	Construction of Swimming pool	5.0	2014-15	2014-15
5	Construction of Gents Hostel and Guest House	10.0	2014-15	2014-15
6	Development of Simulator Centre for various simulators	10.0	2015-16	2015-16
7	Construction of Ladies Hostel	10.0	2015-16	2015-16
8	Development of Laboratories for all Branches of Studies	10.0	2015-16	2015-16
9	Construction of Auditorium	10.0	2016-17	2016-17
10	Construction of Towing Tank for model testing	20.0	2017-18	2017-18
11	Setting up of full mission Ship Handling Simulator	5.0	2018-19	2018-19
12	Construction of Additional Academic & Administrative Building/Hostel	30.0	2018-19	2019-20
13	Construction of Boundary Wall	15.0	2018-19	2019-20
14	Library facilities & IT facilities	10.0	2012-13	2015-16
15	Campus development and improvement	10.0	2012-13	2019-20
16.	Additional Land & Development	100.00	2012-13	2014-15
	Total	204.00		

ESTABLISHMENT OF ADDITIONAL CAMPUSES

Sl. No.	Name of the Project	Approx. Cost	Year of Project Preparation	Year of Project completion
I	WITHIN INDIA			
1.	Establishment of campus at Kandla	5.0	2010-11	2011-12
2.	Establishment of campus at New Mangalore	5.0	2011-12	2012-13
3.	Establishment of campus at Tuticorin	5.0	2011-12	2012-13
4.	Establishment of Campus at Goa	5.0	2011-12	2012-13
5.	Establishment of Campus at Paradip	5.0	2011-12	2012-13
6.	Establishment of Campus at Andaman	5.0	2011-12	2011-12
II	OVERSEAS			
1.	Establishment of campus at Malaysia	10.0	2010-11	2011-12
2.	Establishment of Campus at African/Arab region	10.0	2012-13	2014-15
	TOTAL	45		

CONSOLIDATED STATEMENT

SL.NO.	HEAD	APPROXIMATE COST(Rs. In Crores)
01.	Capital Cost Requirement	
	(a) IMU Head quarters	252.00
	(b) IMU Kolkata Campus	325.00
	(c) IMU Mumbai Campus	216.00
	(d) IMU Visakhapatnam Campus	123.00
	(e) IMU Chennai Campus	110.00
	(f) IMU Cochin Campus	204.00

		<u>1230.00</u>
02.	Establishment of additional campuses	
	(a) Within India	30.00
	(b) Overseas	20.00
	TOTAL	1280.00

ANNEXURE 1

INLAND WATER SECTOR	Type of course	Where employed	Entry Requirement	Course duration
Skill training at the lowest level for				
Boat construction and repair	certificate course	Boat construction and repair yards as workers	class 10	1 or 1 and half years
boat operation	certificate course	floating vessels as technical helpers	class 10	1 or 1 and half years
Supervisor level training				
boat design, construction and repair	B.Sc.	boat design, construction and repair yards as draughtsman and supervisors	10+2	3 years
boat operation	diploma course	floating vessels as deck and engine operators	10+2	3 years
Higher level education				
design, construction, repair, transportation economics and management	B.Tech	designers, builders, operators, planners, Govt. and regulatory bodies	10+2	4 years
survey, river geology, measurement, protection and dredging	Integrated M.Sc	ports, river authorities, IWAI, river survey and Govt. organizations	10+2	5 years
OCEAN SECTOR				
Skill training at the lowest level for				
ship and ocean structure construction and repair	certificate course	marine construction and repair yards as workers	class 10	1 or 1 and half years
ship operation	certificate course	floating vessels as technical helpers - conventional crew training	class 10	1 or 1 and half years
Supervisor level training				
marine design, construction and repair	B.Sc.	marine design, construction and repair yards as draughtsmen and supervisors	10+2	3 years

ship operation	diploma course or DNS	floating vessels as deck side trainees	10+2	1 or 1 and half years
ship operation	diploma course in Marine engineering	floating vessels as marine trainees	10	3 years
Higher level education				
Naval architecture and ocean engineering	B.Tech	designers, builders, operators, planners, Govt. and regulatory bodies	10+2	4 years
Marine engineering	B.Tech	operating engineers in ships and offshore installations	10+2	4 years
Nautical Technology	B.Tech	(modified polyvalent program) emphasis on offshore operation	10+2	4 years
Nautical Science	B.Sc.	operating nautical officers in ships and offshore installations	10+2	3 years
Marine technology (marine engines and systems design and construction)	B.Tech	designers, builders, operators, planners, Govt. and regulatory bodies	10+2	4 years
Naval architecture for Indian Navy	B.Sc.	Indian Navy (sponsored program)	10+2	3 years
Naval architecture for Indian Navy	B.Tech	Indian Navy (sponsored program)	10+2	4 years
Ocean Electrical and electronics and communications	B.Tech	ancillary industries, consultants, Indian navy, govt. bodies	10+2	4 years
Other 3 and 4 year degree programs such as marine environmental engineering, marine quality control etc. could be taken up based on demand requirement.				

POST GRADUATE EDUCATION				
Shipping Management	Masters in Ship management	shipping and related companies and govt.	B.Sc/ M.Sc/ B.Tech	2 years
Transportation logistics	Masters in transportation logistics	shipping and related companies, transportation planners and govt.	B.Sc/ M.Sc/ B.Tech	2 years
Maritime law	Masters in Maritime law	shipping and related companies, transportation planners and govt. and private practice	LLB	2 years
Naval architecture and ocean engineering	M.Tech	designers, builders, operators, planners, Govt. and regulatory bodies, Research institutes	B.Tech	2 years
Marine technology	M.Tech	designers, builders, operators, planners, Govt. and regulatory bodies, Research institutes	B.Tech	2 years
Naval architecture for Indian Navy	M.Tech	Indian Navy and naval shipbuilding and repair yards	B.Tech	2 years
Ocean Electrical and electronics and communications	M.Tech	ancillary industries, consultants, Indian navy, govt. bodies	B.Tech	2 years
Shipbuilding Management	M.Tech	designers, builders, operators, planners, Govt. and regulatory bodies, Research institutes	B.Tech	2 years
Dredging and harbour engineering	M.Tech	coastal ZM organization, consultants, ports, govt, and regulators	B.Tech	2 years
Ports and Infrastructure development and management	M.Tech	coastal ZM organization, consultants, ports, govt, and regulators	B.Tech	2 years
SubSea Technology	M.Tech	Indian navy, R&D organizations, Offshore organizations	B.Tech	3 years

Marine Science Post graduate programs				
Marine Earth Science (including energy from the ocean bottom)	Integrated M.Sc	geological survey organizations, oil prospecting companies, regulators and govt.	10+2	5 years
Oceanographical Science (including Tsunamis)	Integrated M.Sc	CZM groups, ports and river bodies, Govt., higher studies	10+2	5 years
Ocean Climatic Studies (including Antarctica and Global warming)	Integrated M.Sc	meteorological depts., r&d organizations, higher studies	10+2	5 years
Marine Life Science	Integrated M.Sc	CZM groups, R&D groups, biotech organizations, govt.	10+2	5 years
Marine Archeology (Emerging)	Integrated M.Sc	Archeological survey of India, R&D organizations, museums etc.	10+2	5 years
All subjects	Ph.D.	Teaching, Research and consultancy firms	M.Sc., M.Tech, B.Tech in exceptional cases	3-4 years

CHAPTER-16

COASTAL SHIPPING

India has a coastline over 7000 km long. Yet coastal shipping in the country is still in its infancy with the coastal fleet of about 700 ships accounting for just about a million GT or 10% of the total Indian tonnage whereas 337 ships engaged in overseas trade account for about 9 million GT. The average age of the coastal fleet is much higher compared to that of the overseas fleet. In terms of composition too (Table – 1), coastal shipping is dominated by Tugs followed by OSVs, port crafts etc; indicating a lopsided development. Finally, it is noteworthy that India's EXIM cargo in terms of volume is approximately 611 million tons valued at about 279 billion dollars while the coastal cargo accounts for about 133 million tons in 2009-2010. Clearly there is a case for boosting the coastal trade in the country. Hence, the need for a cogent Coastal Shipping Policy.

Table 1

SUMMARY OF COASTAL VESSELS as on 30.6.2010				
Sr. No.	Type of Vessels	No. of Vessels	G.T.	D.W.T.
1	Dry Cargo Liner	71	121843	177836
2	Tug	228	68361	23140
3	Dry Cargo Bulk Carrier	12	237220	364928
4	Tankers (Product Carriers)	13	40035	43226
5	Tankers (Crude Oil Carriers)	2	50080	82246
6	Passenger-cum-Cargo	31	86173	27232
7	Passenger Service	52	16473	1930
8	Ethylene Gas Carriers	3	8727	6558
9	Ro-Ro	1	956	1386
10	Dredgers	28	121893	76152
11	Offshore Supply Vessels	110	117679	133896
12	Specialized Vessels for Offshore Services	38	88201	50480
13	Port Trusts & Maritime Boards	93	45199	15702
	Grand Total (Vessels) Coastal Trade	682	1002840	1004712

It is not that the coastal shipping policy has to be formulated totally anew. Draft policy documents have been proposed in the past as well. Nevertheless there are new developments that need to be considered while formulating a coastal shipping policy today e.g. the recent recessionary phase, developments in the port sector, growth of offshore sector and other support services, emergence of LNG as a fuel or new manpower requirements. Equally important has been the growth of the logistics sector which forces us to recognize that coastal shipping is not a stand alone activity but is a part of the logistics chain that provides an end to end solution to movement of cargo or passengers. This makes the linkages with the connectivity related

infrastructure, including the inland water transport, the road connectivity and the rail-head availability, critical for development of coastal shipping. It can no longer be viewed in isolation.

16.2. Another difficulty faced with many a policy recommendation is their distance from the actionable aspects. While a policy is not expected to look at micro details, it is important to set up certain goals and the time frame in which these need to be achieved. This makes the policy statement effective in the long run. It is in this context that the following framework of 3X3 table or nine sub heads is proposed to categorize different components of the policy.

- a. Ideas that can be implemented by a) the Directorate b) the Ministry of Shipping and c) Ministries or other bodies outside the M/o Shipping.
- b. Among these, ideas that can be implemented a) within current financial year, b) current 5 year plan and c) the 12th plan or after.

16.3 At a different level, the draft policy should also aim to boost i) the coastal cargo, ii) coastal trade, iii) various support services as well as iv) the carriers. While suggesting various measures for this purpose, specific attention is required to be paid to each of the four components of the coastal shipping i.e. IV (inland vessels), the RSV or the river-sea-vessels, the MS (Coastal-ships) as well as MS (Cross trade compatible). Otherwise promotion of just one component, say, bulk cargo moved across the coast by large MS ships may mask other smaller components if disaggregated data are not looked at. It will be necessary therefore that the policy should also suggest a set of Key Performance Indicators which should measure the growth of coastal shipping in each of its segment as well as for its overall growth.

16.4 Within the overall framework indicated above the policy measures can be formulated under following heads;

- i. Promoting River-sea vessels
- ii. Manning relaxation without compromising on the safety
- iii. Financial incentives
- iv. Infrastructural facilities
- v. Modal shift in cargo from rail and road
- vi. Legal issues
- vii. Declaration of IV limits in different states
- viii. Data-base and communication infrastructure
- ix. Cabotage policy support

Policy measures suggested under these heads are listed below indicating clearly the level at which the task is to be carried out i.e. DGS, MoS and MoF / Others and the time frame i.e. FY 2010-11, 11th FYP and 12th FYP or beyond

16.5 Promoting River Sea Vessels:

- i. Finalising the RSV notification for type 1 to type 4 vessels (**DGS, FY 2010-11**)
- ii. Facilitate smooth switching over between IV and RSV category on one hand and RSV and MS category on the other, as per the need of the trade. (**DGS, FY 2010-11**)
- iii. Create easy facility for e-notification of change of command, category of vessel and crew. (**DGS, FY 2010-11**)
- iv. Consider extending the limit of 3000 GT / 3000KW further for RSVs, after examining the legal provisions in respect of NCV segment and after re- assessment of the safety requirements for such category of MS coastal vessels. (**DGS, 11th Plan**)
- v. Consider extending the scope of RSVs to other types of vessels such as oil tankers and other specialized vessels (**DGS, 11th Plan**).

16.6 Infrastructure:

- a. Set up more minor ports along the coast, at least one port at a distance of every 100 kms. (**MoS 11th & 12th Plan**)
- b. Setting up dedicated berths for coastal ships (**MoS 11th & 12th Plan**)
- c. Promotion of Ro-Ro jetties (**MoS 11th & 12th Plan**)
- d. Promoting repairing jetties (**MoS 11th & 12th Plan**)
- e. LNG supply facilities (**MoS 11th Plan**)
- f. Setup dedicated warehouses for coastal cargoes (**MoS 11th Plan**)
- g. Setup rail and road connectivity at the ports to the nearest rail heads (**MoS 11th & 12th Plan**).
- h. Set up adequate ship repair facility and dry-docks along the Indian coast for catering to the growth of coastal shipping (**MoS 11th & 12th Plan**)
- i. Deepening of sea channels at minor ports (**MoS 11th & 12th Plan**)

16.7 Financial incentives including subsidies:

- a. Remove the lower limit of 80 M on ship – building subsidy in the new scheme proposed (**MoS FY 2010-11**).
- b. Implement an aggressive ship-building subsidy policy with special focus on coastal vessels, tugs, OSVs, etc (**MoS FY 2010-11**)

- c. Include subsidy for LNG use facility both on retrofitting basis for existing ships and for new ships (**MoS 11th & 12th Plan**).
- d. SRU status to individual ships (**MoS FY 2011-12**)
- e. Subsidy for Ro-Ro jetties, repair jetties and a higher level of subsidy for a pair of jetties dedicated to coastal shipping (**MoS 11th & 12th Plan**)
- f. Tariff for coastal ships to be cheaper than those vessels which are on foreign run (**MoS 11th Plan**).
- g. Delink port tariff for coastal vessels from FG vessels and reduce it further by 30% (**MoS 11th Plan**).
- h. Waive service tax on costal/inland sea-freight as well as charter-hire of coastal/inland vessels (**MoFin 11th Plan**).
- i. Establish a Coastal Development Fund for coastal ships. This fund may be used for an interest subsidy scheme for acquisition of coastal ships (**MoS 11th & 12th Plan**).
- j. All Indian ships should be granted the status of SRU thereby reducing the cost of maintenance for coastal vessels (**MoS 11th Plan**).
- k. Duty free bunkers to coastal vessels (**MoFin 11th Plan**).
- l. Exemption of Customs Duty on import of certain categories of vessels (e.g. Tugs, Pusher Crafts, Dredgers and Floating Docks/Cranes/ Production Platforms etc) (**MoFin 11th Plan**).
- m. Reduction/waiver of wharfage for coastal cargo (**MoS 11th Plan**)
- n. Coastal vessels should be treated as movable infrastructure and therefore granted such status for the purpose of ensuring competitive funding and fiscal benefits (**MoFin 11th Plan**).
- o. Introduce fiscal incentives for building & operating small ports (upto 5 m draft) dedicated for coastal vessels (**MoS under NMDP**).
- p. Confer “Declared Goods” status to bunkers being consumed by coastal/inland vessels (**MoFin 11th Plan**).
- q. Introduce fiscal incentives, duty waivers and low-interest finance schemes for adopting “green technology – LNG powered vessels, etc(**MoS 11th Plan**).
- r. Exemption on tax for ship construction (**MoFin 11th Plan**)

16.8 Manpower issues including manning scales:

- a. Upgrading of IV crew to RSV crew through bridge courses (**DGS 11th Plan**)

- b. Permitting CoC (FG) holders of MS vessels to jump one level up in manning RSVs (**DGS 11th Plan**)
- c. Permitting foreign CoC holders working on Indian coastal ships for a specified period before permitting them to appear for Indian CoC examinations (**DGS 11th Plan**)
- d. Establish a RSV cadre for officers-Master (RSV), Mate (RSV), 2nd Mate (RSV), MEO CI III (RSV-Ch. Engg), MEO CI IV (RSV) (**DGS 11th Plan**)
- e. The courses & examinations for RSV cadre in order to source candidates from I.V. CoC holders (**DGS 11th Plan**).
- f. Candidates with certificates from ITI's should be allowed to work on coastal vessels with certain bridge courses (**DGS 11th Plan**).

16.9 Cabotage Policy Support

- a. Absolute cabotage for coastal trade other than transhipped EXIM containers, including empty containers. (**MoS FY 2010-11**).
- b. Restore the right to issue NOC to foreign flag vessels on coastal run to ICC instead of INSA. (**DGS FY 2010-11**).
- c. Increase the Right-of-First-Refusal price band to 25% above the lowest foreign-bid (up from current 10%).(**DGS FY 2010-11**).
- d. Promote RoR for BBCD vessels and India built vessels (**Implemented**).

16.10 Declaration of IV limits for different states

- a. Declaration of smooth and partially smooth water limits (**DGS FY 2011-12**).
- b. All maritime states to notify model IV rules for construction and survey of IV vessels for operating in smooth and partially smooth waters (**DGS FY 2011-12**).

16.11 Promoting modal shift from road and rail to coastal shipping

- a. Improve competitive ability of coastal ships and facilitate shifting of cargo from road and rail to sea (**MoS FY 2011-12**).
- b. A carbon credit scheme to be introduced with support from MoEF (**DGS FY 2011-12 and MoS**).

16.12 Data base and communication infrastructure

- a. Establish & maintain a robust system/database for collection of accurate voyage specific data on coastal shipping (**MoS, DGS & INSA FY 2010-11**)
- b. Coastal Association to publish annual report on coastal tonnage and coastal cargo and work towards a coastal index (**INSA FY 2010-11**)

- c. Data on the quantum of coastal cargo at various ports (**MoS, DGS & INSA FY 2010-11**).

It is expected that these measures will provide a significant boost to coastal shipping in the country within a foreseeable future and the effects can be measured using the key performance indicators suggested above. Readers are requested to suggest any further measures or elaborate the ones suggested here. A review of these measures every year is both necessary and feasible and that will show us the progress made. If the policy document appears short on rhetoric and long on action the choice is deliberate and it is expected to deliver in terms of concrete outcomes. Test of pudding is, as the saying goes, in its eating. We feel confident the draft policy will succeed on this score.

CHAPTER-17

AIDS TO NAVIGATION

17.1.1. GENESIS

From time immemorial, shipping has been one of the main arteries of International Commerce and Lighthouses have throughout been playing their part as 'Lamp posts of the Ocean'.

The hymns of **Rigveda** and **Satapatha Brahmana** mention navigation in **purva** (east) and **paschima** (west) **samundra**. The **Rig Veda** describes sea voyages by **Varuna** and **Vashistha**. The rescue of '**Manu**', the Indian Noah, from a flood with a resurrection also reflects their knowledge of sea and navigation. Excavations relating to the Indus Valley civilization in 3000 B.C. revealed a period of maximum trade between India and Mesopotamia (Iraq) from the period of Sargon of Akkad.

The dockyard excavated at Lothal on the sea plains of Saurashtra, SE of Mohenjo Daro, was a great brick basin of 220 m by 37 m with extant brick walls 4.6 m high. At one end was a spillway with a locking device. Here was a dock where ships could be brought in from the nearby estuary via an artificial channel kept clear of silt by the controlled flow of water from the spillway. Harappan cities in Sindh and the peninsula of Saurashtra were vital, thriving trade centres in ancient times, with the trade of beads, gems and valuable ornaments reaching the far corners of West Asia and Africa.

Pillars found along the coast of Gujarat during archeological excavations might be the marks of earliest aids to navigational structures.

In days bygone, when barges and country boats were the only craft in vogue, the mariners were guided by burning heaps of wood or coal on the high pinnacles of rocks or mountains flanking the coastline. With the progressive adoption of improved sailing craft, the earlier lighthouses, viz. the bonfires, were gradually replaced by large wick-burners and oil lamps and subsequently with state of the art high efficacy electrical lamps. False Point lighthouse located on the mouth of river Mahanadi near Paradeep, Cuttack is one of the oldest operational lighthouses in India constructed and commissioned in 1838 during British period.

17.1.2 Pre-independence

- (i) Prior to 1927 there was no uniform system of management of Lighthouse services in British India which included Myanmar, Pakistan, Bangladesh and also various Princely States. As a first step to centralize the Administration of Lighthouses, the government decided to administer about 32 Lighthouses in the six Lighthouse Districts viz. Aden, Karachi, Bombay, Madras, Calcutta and Rangoon.

The Lighthouse act was passed in 1927 and came into force in April 1929. However, after passing of the Act, the administration of Lighthouses in Aden District was transferred to Her Majesty's Government in the U.K. The Government of India continued to administer the Lighthouses in Persian Gulf financed from the Persian Gulf Lighting Services Fund.

- (ii) As a result of reforms introduced, Burma (Myanmar) was separated out from rest of India. But Government of India continued to administer the General Lighthouses in Burma under the terms of an introductory agreement between two Governments.
- (iii) During the World War II, the activities of the Directorate were very limited as several Lighthouses had to be doused in order to prevent the enemies from making use of them.
- (iv) At the time of Independence, administration of only 17 general lighthouses was vested with the Government of India. Administration of another 50 lighthouses was taken over from the Princely/Maritime states as a part of federal financial implication. **(Annexure-1).**

17.1.3 Post-independence

- (i) After independence, the Karachi district and Lighthouses presently in Bangladesh were separated out. Thus the Directorate was left with three Districts with their Headquarters at Calcutta (Kolkata), Madras (Chennai) & Bombay (Mumbai). About 51 Lighthouses, which were earlier under the jurisdictions of Maritime Princely States, became direct responsibility of the Central Government since 1950, resulting in creation of Saurashtra & Kachchh (now Jamnagar Lighthouse Distt). In sixties, two new Lighthouse districts at Port Blair (1960-61) and Cochin (1969-70) were established. One more Lighthouse district at Visakhapatnam has been set up in the year 2001 for better management and administration of the Aids to Navigation along the coast of Andhra Pradesh.
- (ii) In order to cope with developmental activities, post independence, the Lighthouse Department which was under the Ministry of Commerce and later part of Directorate General of Shipping, was re-constituted into a separate Department as the Department of Lighthouses & Lightships under the Ministry of Transport. It was again renamed in the year 2002 as Directorate General of Lighthouses and Lightships under the Ministry of Surface Transport - now Ministry of Shipping.
- (iii) The present inventory of the Directorate has 289 Aids to Navigation Set up covering visual and radio aids along the entire Indian Coastline including the Andaman & Nicobar & Lakshadweep Islands. **(Annexure-1).**

17.2 ROLE OF DGLL

- 17.2.1 IMO Resolution A 860(20) defines navigation as “the process of planning, recording and controlling the movement of a craft from one place to another”. National authority of each signatory country is required to assist in this task for safe navigation. Directorate General of Lighthouses and Lightships (DGLL), being the national authority have been endeavoring in this task by providing mix of aids to marine navigation, be it visual or radio, in and around the coastal waters of India stretching over 7517 km. The Directorate is headed by the Director General for the purpose of administration and management of Lighthouses. This ATON service is established and delivered to the recognized standards set by the International Association of Marine Aids to Navigation and Lighthouse Authorities so as to meet the responsibilities of the Government of India under the International Maritime Organization (IMO) Safety of Life at Sea Convention (SOLAS) 1974, as amended.
- 17.2.2 The term “Lighthouse” represents all Aids to Marine Navigation including Light Vessels, used for the guidance and safe passage of ship. There are two categories of Aids to Marine Navigation namely “General” and “Local” as defined in the Lighthouse Act, 1927. The ‘General’ Lighthouses are those, which the Central Government may by notification in the Official Gazette, declare to be General Lighthouse and it generally caters to the needs of navigation outside ports limit. The superintendence and management of “General” Aids to Navigation is vested in the Directorate General of Lighthouses and Lightships. “Local” lighthouses are those, which are established at the entrance of Ports/Harbours by local authorities like State Govt/Port Trusts to enable smooth passage to the vessels entering/leaving ports. The management of Local Lighthouses is the responsibility of the State Maritime Board, Port Trusts, etc.
- 17.2.3. A statutory body of Advisory Nature has been provided under the Lighthouse Act called the Central Advisory Committee for Lighthouses (CACL). Representatives of Shipping, Sailing Vessels Association, Chambers of Commerce, etc are nominated to this committee. It has 15 members with Secretary, Ministry of Shipping as its ex-officio Chairman and the Director General of Lighthouses & Lightships as its member secretary. The committee advises the Government on matters relating to the establishment, maintenance, removal and various activities pertaining to lighthouses and meets at least once in a year. The Committee is constituted after every two years.

17.3 MARITIME AGENDA - AIDS TO NAVIGATION AND COASTAL SECURITY - DGLL'S ROLE

- 17.3.1 Of late, with the changing security perspective, particularly post 26/11, the role of DGLL has gone sea change where lighthouses due to its even geographical spread and availability of technical manpower have been identified for establishment of Radar, AIS, Optical Sensors to thwart any future eventuality from sea. Accordingly projects related with the issue are included in the perspective plan.
- 17.3.2 Further the hitherto role of DGLL in providing passive aid has also undergone change with introduction of interactive aids to navigation like Vessel Traffic Service.
- 17.3.3 DGLL has taken up the improvement of local aids to navigation to bring them at par with international standard where in DGLL has been continuously interacting with the maritime states. The proposed implementation of National AIS Network along the Indian Coast Line and establishment of static sensors by the MOD (Coast Guard) utilizing the existing infrastructure of the DGLL and operational staff has also resulted in major changes in the operational and advisory role of the DGLL.
- 17.3.4 The role of the DGLL in effective auditing and making ensuring fail free operation of all aids to marine navigation facilities under the state authorities is an important requirement for which necessary mechanism has to be introduced. Similar to the functioning of the Apart from the role of DGLL envisaged in NSPC in case of upcoming minor ports, a larger regulatory role of DGLL as per the provisions of the Lighthouse Act in effective monitoring of aids to navigation facilities in minor ports / non-major ports is required to be outlined.
- 17.3.5 DGLL is providing general aids to marine navigation catering to the navigational safety of ships entering and transiting in general waters, whereas the jurisdiction of maritime boards are to cater to the navigational need within port limits. However in the adjoining waters there is duality of jurisdiction resulting in confusion, erosion of federal authority and increased cost on trade. With the development of coastal VTS and chain of AIS base stations which will enhance the safety aspects manifold being established by DGLL, there is a necessity to clearly define the jurisdiction/area of operation of the maritime boards to avoid confusion.
- 17.3.6 Real-Time Kinematic (RTK) system - a technology which is most suitable for measuring tidal and current variations in real time can be technically and economically exploited in berth to berth navigation and carrying of extra cargo. DGLL proposes to establish

the system in the Gulf of Khambhat and the Gulf of Kachchh where tidal and current variations are quite appreciable.

- 17.3.7 Aids to Marine Navigation are established at the locations which facilitates easy detection by the mariners and thereby these locations generally are isolated and far flung where utilization of fossil fuels like diesel are maximum. The Directorate has embarked into a policy of utilization of solar and wind energy so that consumption of diesel are almost zero. Efforts will also be made to explore the possibility of wave/tidal energy at some critical applications like buoy.
- 17.3.8 Aids to navigation stations are located at far flung areas generally not approachable easily, especially in remote islands. All radio aids are operational round the clock. To know the functional status of the ATON station the Directorate has incorporated SCADA (Supervisory Control and Data Acquisition) system to monitor its functioning, which will be fully operational by 2012. The DGLL will be in a position to directly monitor the status of each and every Aids to navigation stations instantly and take corrective measures. In past 60 years the number of lighthouses have increased from 67 to 179 in addition to 22 numbers deep sea channel marking buoys and establishment of number of Radio aids viz DGPS, AIS & VTS. For trouble shooting and to maintain the operational efficiency to the highest standard, it is necessary to improve the quality & quantity of human resources, improve mobility and upgraded infrastructure.
- 17.3.8.1 **Human resource:** For increasing the quality manpower and management capabilities there is a great need for restructuring the cadre to an organized service and upgrading the post of Director General. With the introduction of high end technology like Coast Guard Static Sensor, AIS and other ancillary equipment like wind generators, etc at Lighthouses, the quality and quantity of manpower need to be appropriately addressed. Conducting periodical workshops on operations and developments of Aids to Navigation based on IALA guidelines, to train personnel from state maritime boards as well as from various ports is envisaged.
- 17.3.8.2 **Mobility:** Apart from improving road mobility for timely attention to aids to navigation, better mobility by sea is envisaged by acquiring modern lighthouse tender vessels/launches. Heli-deck in such vessels will further help in timely approach to remote islands for operational need as well as for disaster management and welfare of staff.
- 17.3.8.3 **Infrastructure:** Modernizing the head quarter office at Noida and all the regional offices by providing latest facilities like e-

governance, video conferencing, etc in order to establish national data center / control centers.

17.4 BEAUTIFICATION OF LIGHTHOUSES

The cultural heritage of lighthouses extends beyond the architectural value of the buildings, to the whole area of maritime traditions and history, including shipping trading patterns, navigational safety and wrecks. This needs to be preserved and evidence documented for the benefit of future generations. The many Lighthouse Authorities World over like UK, Spain, Sweden, South Africa have identified number of heritage lighthouses and are managing them. Identifying heritage Lighthouses in the country and to preserving them for posterity is proposed to be done shortly. Lighthouses have also great tourism potential. Developing tourism in select lighthouses is envisaged.

17.5 DGLL ROLE WITH INTERNATIONAL ASSOCIATION

17.5.1 DGLL role in the International Association of Marine Aids to Navigation and Light house Authorities IALA has appreciably increased due to DGLL involvement in number of high end projects in India like VTS, AIS, Navtex, etc.

17.5.2 The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) is a non Governmental Association bringing together services and organisations concerned with the provision or maintenance of marine aids to navigation systems and allied activities, at sea and on inland waterways. The aim of IALA is to foster the safe, economic and expeditious movement of vessels, through improvement and harmonisation of aids to navigation world wide and other appropriate means, for the benefit of the maritime community and the protection of the environment. In the process, IALA has been continuously interacting with IMO where it has observer status and has been major contributors in developing number of state of the art techniques for meeting the IMO performance standard India has been a member of the IALA since its inception and remain a major contributor to the field of Lighthouse Engineering. India has remained in the Council of IALA – a policy making body since 1980.

17.6. VISION

To deliver reliable, accurate, efficient, internationally compatible & cost effective aids to marine navigation service so that our waters continue to be amongst the safest & secured to navigate in the world.

17.7. MISSION

To deliver reliable, accurate, efficient & internationally compatible mix of aids to Marine Navigation Service, for all the mariners plying in the Coastal Waters specially ensuring better than 5m seamless accuracy in position fixing.

17.8. STRATEGY

- To continue to provide an appropriate mix of A to N based on relevant technology for general and local aids to navigation
- To work with key stake holders, nationally and internationally, to promote the safety of marine navigation based on harmonized international standards, recommendations and guidelines;
- To maintain reliability, efficiency and cost-effectiveness while ensuring the safety & security of navigation;
- To continuously endeavor to improve the quality of human resources by regular training and induction of quality manpower.

17.9. NATIONAL MARITIME DEVELOPMENT PROGRAMME (NMDP)

17.9.1 Schemes valued at Rs 685 crore with budgetary support of Rs 500 crore are presently under the ambit of the NMDP. An expenditure of about Rs 140 crore is incurred till 30.06.2010. Out of these, two schemes namely Establishment of Vessel traffic Service in the Gulf of Khambhat and Establishment of Static Sensors at strategic locations is being carried out by Gujarat Maritime Board and Coast Guard respectively. Following schemes have been completed:

- (i) Establishment of Racons
- (ii) Long Range Identification & Tracking

17.9.2 Following three schemes are likely to be completed by March 2012.

- (i) Vessel Traffic Service for the Gulf of Kachchh
- (ii) Automation of Lighthouses
- (iii) Establishment of Shore Based AIS

17.9.3 Following schemes under NMDP fall under continuous schemes and therefore in our perspective plan they will be treated afresh:

- (i) Improvement of Aids to navigation
- (ii) Establishment of New Lighthouses
- (iii) Procurement of Lighthouse Tender Vessels

17.10. RESOURCE GENERATION

17.10.1 The Directorate functions as a self-financing organization. Its income is being derived from light dues levied on ships entering and

leaving Indian ports. The light dues are levied on the basis of Net Registered Tonnage (NRT) of the vessels. Presently the Directorate is charging light dues on foreign going vessels only at the rate of Rs.8.00 per tonne.

- 17.10.2 After meeting the revenue expenditure of the Directorate out of the total receipts, the balance is transferred to General Reserve Fund. An amount of Rs 616.05 crore (provisional) is available in the General Reserve Fund as on 31.3.2010. Capital Expenditure on the plan schemes of the Directorate is met out of its own resources to the extent the amount is available in the GRF and the uncovered balance is met out of general revenues of the Govt. as a loan to be repaid subsequently.
- 17.10.3 The total internal resources from Light dues are expected to be of the order of Rs 733 crore during the Eleventh Plan Period. There has been an annual growth about 10% on light dues collection during the 11th Plan so far. Considering the same growth during the period from 2012 to 2020, a revenue collection of Rs 3800 crore is envisaged at the present rate of light dues.
- 17.10.4 Considering that 50% of light dues collection is spent on revenue expenditure, an estimated sum of Rs 1900 crore is anticipated to be available for capital expenditure. Further during the remaining two years of the current plan, another 150 crore is anticipated to be added in the GRF. Thus GRF as on 31.03.2012 is anticipated to be Rs 766.05 crore. If the existing GRF is added to the anticipated collection, a sum of Rs 2666.05 crore is anticipated to be available for our perspective plan (2011-2020).

17.11. PROPOSED PROJECTS (01.01.2011 – 31.12.2020)

There are about 18 projects costing about 1594 cr in the perspective plan. The detailed brief on the proposed projects are placed at **annexure – II**.

The projects at a glance are given below:-

(Rs in crore)

<i>Article No</i>	Name of Project	Approx. Cost	Year of Project preparation/ Commencement	(a) Expected date for Completion
1	2	3	7	8
1	Visual Aids	50.00	2011	2020
2	Recapitalization of DGPS	25.00	2012	2013
3	Establishment of Racons	05.00	2011	2020
4	Vessel Traffic Service	150.00 300.00	2011 2012	2020 2015
5	Establishment of National AIS Network	90.00	2011	2013
6	Establishment of Navtex Chain	20.00	2011	2013
7	Establishment of e-Loran Chain	350.00	2014	2018
8	Measurement of Tides and Currents in Gulf of Kachchh & Gulf of Khambhat	100.00	2014	2016
9	e-Navigation	25.00	2015	2017
10	e-Governance	25.00	2011	2015
11	Automation of Cochin/Chennai/Vishakhapatnam/Kolkata Lighthouses	30.00	2011	2014
12	Replacement/Acquisition of Vessels	350.00	2011	2020
13	Improvement of Local Aids to Navigation (i) Improvement of Local Lighthouses (ii) Vessel Traffic Service for Minor Ports	10.00 300.00	2011 2012	2017 2015
14	Provision of Green Energy at Lighthouses	20.00	2011	2015
15	Construction of Deep Bhawan & Staff Quarters at Visakhapatnam	12.00	2011	2014
16	Beautification of Lighthouses	20.00	2011	2020
17	Human Resource Development	10.00	2011	2020
18	ISO Certification for the DGLL	02.00	2015	2016
	Total	1594.00		

Inventory of Aids to Marine Navigation

1. At the time of Independence, only 17 general lighthouses were transferred to the Govt of India. They are -

(i) False Point,		Calcutta Presidency
(ii) Santopilli		
(iii) Sacramento Shoal		
(iv) Armagon		
(v) Pulicat		
(vi) Seven Pagoda (Mahabalipuram)		Madras Presidency
(vii) Calimere (Pt Calimere)		
(viii) Manapad Point		
(ix) Cotta Point (Kadalur Point)		
(x) Caph, (Kaup)		
(xi) Oyster Rock		
(xii) Vengrula Rock		
(xiii) Viziadurg (Rajapur Bay)		
(xiv) Jaigarh,		Bombay Presidency
(xv) Arnala		
(xvi) Piram		
(xvii) Kennery (Kanhoji Angre)		

2. **51 local lighthouses were taken from the Part B States**

- (i) Saurashtra - 33
- (ii) Kutch -5
- (iii) Travancore – Cochin - 13

3. **Aids to Marine Navigation (Present Inventory)**

The Directorate of Lighthouses and Lightships is at present maintaining a number of Aids to Marine Navigation, details of which are as given below:

(i) Lighthouses	: 178	No
(ii) Lightships	: 01	No
(iii) Differential Global Positioning System	: 23	No
(iv) Racons	: 64	No
(v) Deep Sea Lighted Buoys	: 21	No
(vi) Wreck Marking Buoys	: 02	No

DIRECTORATE GENERAL OF LIGHTHOUSES & LIGHTSHIPS

- 1.1 The Directorate is headed by the Director General for the purpose of administration and management of Lighthouses. Four Deputy Director Generals and ten Directors in the Engineering discipline of Civil, Electronics and Mechanical assist him. The coast line is divided into 7 lighthouse districts with headquarters at Jamnagar, Mumbai, Cochin, Chennai, Vishakhapatnam, Kolkata and Port Blair. Each district is headed by a Director (Regional), who has under him officers belonging to various engineering disciplines.
- 1.2 The increased availability of established Aids is indispensable for a National Authority. In order to minimize the accident, which in turn results in economic, environmental and social losses for the country, the Aids to Navigation of International standards are required to be established and maintained along the Indian coast. The objective of the Directorate is to provide such Aids to Navigation, in the coastal waters of the nation, which ensure safety of mariners and minimizes environmental pollution. The Directorate's perspective for coming years (up to 2020) at an estimated provision of Rs.1594 crore is described in subsequent paragraphs.
- 1.3 This plan reflects the level of service the Directorate targets to provide to all users, taking advantage of evolving technological and operational improvements. However, there are other developments in the external environment that could affect the proposed plan and result in inclusion/omission of new/proposed schemes in the Directorates perspective plan.

2. Visual Aids (Rs 50 crore)

Lighthouse by itself is visual aid to marine navigation used by mariners for position fixing. Till the end of the twentieth century, lighthouses in literal term were considered the major means of aids to navigation. But with the advent of GNSS, particularly GPS in the early nineties, the bridge of the large vessels are equipped with navigational equipment which derive lat and long directly thus diminishing the importance of lighthouses. Nevertheless, the importance of lighthouses in general for all categories of vessel has not diminished inspite of shrill made by the industry. Rather its importance for confirmation of position, spatial awareness and primary means of navigation for fishermen in our waters who do not have latest technological wherewithal is very much there. In this context, the following lines from the GLA (General Lighthouse Authorities) Radio Navigation Plan is worth quoting:

“It is clear from in-depth consultation with users, both in the commercial and leisure sectors, that lighthouses, buoys and beacons will continue to play a vital role in the balanced A to N mix. Additionally, the role of A to Ns is often understated when considering the protection of the marine environment, marine coastal industries and the general public.”

The visual aids consists of (i) Lighthouses (ii) Floating Buoys which can be further categorized into Channel Marking and Wreck Marking. The Directorate envisages improvement of the existing visual aids and establishment of new Lighthouses in the remaining coastline and on islands, which are not uniformly covered. The ultimate objective shall be to provide a lighthouse at an interval of 30 Nautical Miles all along the coastline and islands by 2017 AD so that a seamless visual coverage of the entire Indian Coast line is available. The other works like marking of wrecks, channel and improvement are continuous work and hence the work will continue to be spread over the entire perspective plan period.

The Directorate is in the process of establishing an off shore lighthouse about 20 NM from Okha which will facilitate in cutting voyage of VLCCs/ULCCs coming from the Gulf by about 30 NM. The Directorate is contemplating to establish a new deep channel North West of existing Salaya Channel in the Gulf of Kachchh which will meet the present Channel near Kachchh buoy.

3. Recapitalization Differential Global Positioning System (DGPS) (Rs 25 crore)

DGPS enhances GPS through the use of differential corrections to the basic satellite measurements. DGPS is based upon accurate knowledge of the geographic location of one or more reference stations, which is used to compute pseudorange corrections based on its measurements. These differential corrections are then transmitted to GPS users, who apply the corrections to their received GPS signals or computed position. The Directorate DGPS Chain, which seamlessly covers the Indian water and provide better than 5m accuracy up to 100 NM from the coast, remains the internationally accepted means of providing DGPS corrections and integrity information to maritime users. These systems are now at fag end of their useful lives and are due for up gradation not only for revival but to make them compatible with other GNSS Systems like GLONASS, Galileo, etc. The work is likely to commence from 01.01.2012 and will be completed by 30.06.2013.

4. Radar Beacon (Racon) (Rs 5 crore)

Mariners place a high importance on Racons (Radar Beacons) as an integral part of the A to N mix particularly at night, in reduced visibility and adverse weather conditions. IMO has recognized the value of new radar technology to improve the detection of small craft under poor conditions and, from 2008 onwards, has removed the obligation for S-band radars to trigger racons. Nevertheless, the system is likely to be operational beyond 2020. The Directorate plans to further increase the number of Racons as per the demand and also upgrade / replace Racons as per technological advances and requirements. This will be a continuous scheme and therefore prevail over entire perspective plan period.

5. Vessel Traffic Service (VTS) (Rs 150 crore)

IALA defines VTS as the functional framework of harmonized measures and services to enhance the safety, security and efficiency of shipping and the protection of the marine environment in all navigable waters. For this purpose number of sensors like Radars, AIS, Direction Finders, Mateo, Hydrological sensors are integrated an overall scenario of the subject waters and vessels are developed on a display from where an appropriate advise can be given to the master of the vessel. The Directorate establishes the VTS in common waterways from where the requirement of number of ports is met. The Directorate is also contemplating to establish Vessel Traffic Service for TSS wherever implemented/being implemented. The Directorate is presently implementing the Vessel Traffic Service for the Gulf of Kachchh which will need upgrade by 2020. Further there is likely hood of establishment of VTS for Port Blair and under such waters. The project will run through currency of the perspective plan.

6. Establishment of National AIS Network (Rs 90 crore)

The Automatic Identifications System (AIS) transmits ships related information to adjoining ships or on shore for effective identification of vessels and other management information. Further a shore based AIS can provide information to ships about the type, position and functioning of a particular aids to navigation. DGLL is in the process of establishing a National AIS Network which will significantly enhance and complement existing Aids to Navigation. The work for first phase is presently in progress and the approval of the competent authority for award of contract is awaited. The contract could be signed by 30 Sep 2010 and the first phase of the work will be completed by 31st March 2012. The second phase of this network which will encompass islands of Andaman's & Nicobar and Lakshadweep will take shape in the starting of the 12th Plan period and is likely to be completed by 31.03.2013. Further since the existing network envisages provision of

a third frequency which will enable tracking of small vessels with a compatible transponder, appreciable expenditure on this account too likely to incur by the Directorate.

7. Establishment of Navtex Network (Rs 20 crore)

Navtex is an international automated direct-printing service for promulgation of navigational and meteorological warnings and urgent information to ships. The Directorate is in the process of establishing a Navtex Network of 7 transmitters. The administrative approval of the scheme is awaited. The work is likely to commence from 01 April 2011 and is likely to be completed by 31st December, 2013.

8. Establishment of eLoran (Enhanced Long-Range Navigation) chain (Rs 350 crore)

Enhanced Loran is an internationally-standardized positioning, navigation, and timing (PNT) service for use by many modes of transport and in other applications. It is the latest in the longstanding and proven series of low-frequency, Loran systems, one that takes full advantage of 21st century technology. *eLoran* meets the accuracy, availability, integrity, and continuity performance requirements for aviation non-precision instrument approaches, maritime harbor entrance and approach maneuvers, land-mobile vehicle navigation, and location-based services, and is a precise source of time and frequency for applications such as telecommunications.

eLoran is an independent, dissimilar, complement to Global Navigation Satellite Systems (GNSS). It allows GNSS users to retain the safety, security, and economic benefits of GNSS, even when their satellite services are disrupted.

Enhanced Loran (*eLoran*) is rapidly emerging as the primary GNSS backup for the new, global, maritime e-Navigation concept. Europe was ready to turn off all the Loran transmitters at the end of 2005. However, an increased understanding of GNSS vulnerability and a growing appreciation of *eLoran's* role within e-Navigation, a new interest has arisen in the UK and France who are experimenting with the system. The USA too is contemplating to use its existing Loran resources for the purpose of *eLoran*. Saudi Arabia has already floated the bid for induction of *eLoran*. The existing Loran operating countries like South Korea, Japan and Russia too are actively contemplating for the change to *eLoran*.

India too had Loran systems which was discontinued during 2007- 08. The Directorate contemplates to utilize the existing resources at these stations apart from adding more stations in Southern Peninsula to provide an independent PNT service for vessels plying up to our EEZ.

The project is likely to be commence from 2014 and will be completed by 2018.

9. Measurement of Tides and Currents in Gulf of Kachchh & Gulf of Khambhat (Rs 100 crore)

The advent of GPS Real-Time kinematic (RTK) in recent years has realized a significant advancement of GPS to provide three dimensional navigation at the centimeter level of accuracy. One of the fastest emerging trends in hydrographic surveying is the use of the vertical component of RTK GPS to determine real-time water level corrections. The system becomes most suitable for the Gulf Khambhat and the Gulf of Kachchh where tidal and current variations are appreciable and real time corrections of these parameters can indeed help in berth to berth navigation and also enable vessels in carrying extra cargo thus having a long term economic implications. It is proposed that the system is established by the Directorate whereas post processing of data can be carried out by the NHO and relayed to the vessels in real time. The project is likely to start in the year 2015 and will be completed by 2017.

10. e-Navigation (Rs 25 crore)

If current technological advances occur without proper coordination, there is a risk that marine navigation systems of the future could be hampered by a lack of standardization (ashore and shipborne), incompatibility between vessels, and an unnecessary level of complexity. Hence harmonization of such aids by way e-Navigation is needed which is a holistic concept of enhanced navigation through electronic systems, based on user needs and derived user requirements. In particular, the e-Navigation concept simultaneously targets:

- the harmonization of shipborne and shore-based functionality;
- the harmonization of shore-based operational and technical functionalities and services of different shore-based stakeholders;
- multi-dimensional quality improvements of shore-based operational and technical services;
- demonstration of service levels achieved, using appropriate management and engineering methods.

Clearly, there is a need to equip both ship borne and shore-based users responsible for safety of shipping with modern proven tools that are optimized for decision-making. The overall goal is to reduce errors by making maritime navigation and communications become more reliable and user-friendly.

While the full scope of e-Navigation is not fully known, it is expected that it will be far-reaching and impact the entire maritime navigation domain on a national and international level. IMO too has recognized the potential of e-navigation and is advising member countries in this direction. The Directorate being custodian of marine aids to navigation plans to venture into harmonization activities as and when it evolves. The project is likely to commence in the year 2015 and shall be completed by 2017.

11. e-Governance (Rs 25 crore)

The Directorate is having seven Regional Offices spread along the coastline at Jamnagar, Mumbai, Kochi, Chennai, Vishakhapatnam, Kolkata and Port Blair. All these lighthouse regions are being networked with their Regional Offices under Automation/AIS Network. Thus, all the Regional offices will have updated information on functioning of lighthouses and other aids. It is planned to network all this regional offices to the headquarters at Noida through a Wide Area Network having dedicated hub for ease in flow of information grazing and gathering. In addition, the networking will facilitate flow of administrative and technical information. In other words, it is planned to link all the lighthouse installations, regional offices and headquarters in real time through a Wide Area Network. The scheme will be taken up in the year 2011 and will be completed by 2015.

12. Automation of Cochin/Chennai/Vishakhapatnam /Kolkata Lighthouses (Rs 30 crore)

Article IV.

The aids to navigation established by the DGLL are at locations, which are conspicuous to the mariners from the seaward side. These locations are generally difficult to approach and maintain. The staff posted at these locations faces numerous logistic problems. In order to improve upon the reliability and availability of aids to navigation and also to alleviate the difficulties faces by the staff; DGLL has planned to automate the lighthouses.

There are seven regions namely Jamnagar, Mumbai, Cochin, Chennai, Kakinada, Kolkata and Port Blair under the Directorate. The scheme is being implemented in phased manner. In the first & second phase, the Directorate has already carried out automation of lighthouses under Jamnagar & Mumbai Region. Work for Port Blair in progress. In the last phase, automation of Cochin, Chennai, Vishakhapatnam & Kolkata is proposed. The project will commence from 01.01.2011 and will be completed by 31.03.2014.

13. Replacement/Acquisition of Vessels (Rs 350 crore)

Presently the Directorate has two ocean going vessels for tending to requirements of island lighthouses and buoy maintenance. Apart from tending, these vessels are required to continuously monitor of ATONs. One of the vessels, MV Pradeep which is in service since 1984, needs immediate replacement. With increase in activities of the Directorate, number of offshore ATON will become part of the Directorate. In view of this, the Directorate proposes to acquire one more ocean going vessel which will help the Directorate in improvement of delivery of service. Directorate also plans to induct new launches in place of ML Jamvijay and ML Piram which were earlier written off and the necessity is now felt due to sensitiveness of the region. Since the project envisages replacement /acquisition of vessels, the work may continue during the entire perspective plan period.

14. Improvement of Local Aids to Navigation

14.1 Improvement of Local Light Houses (Rs 10 crore)

Local Aids to Navigation being maintained by the local maritime bodies/states are generally not in pink of health. Lighthouse Act provides for arrangement under which these aids can be looked after by the Directorate. A subcommittee of the CACL has also gone into details and has recommended for taking over of 21 local lights and improvement of 45 local lights at an estimated cost of Rs 25.22 crore. Out of these, 6 lights have since been taken over and modernized. Process of taking over and modernization of 3 more lighthouses are in progress. The remaining lighthouses will be improved during the 12th Plan period.

14.2 Vessel Traffic Service for Minor Ports (Rs 300 crore)

The prevailing security environment necessitates maintaining an effective vigil in the Indian Ocean to monitor mercantile traffic transiting through our areas of interest or approaching the Indian Coast. The high density of merchant traffic has made identification as one of the biggest problems in maritime reconnaissance. It is therefore imperative for all stakeholders in the maritime domain to have enhanced awareness of the traffic entering the Indian Ocean and its extended choke points, to be able to effectively detect, identify and act against seaborne threats. This can be achieved through implementation of a Maritime Domain Awareness (MDA) mechanism. Indian Navy, in this context, has come out with this proposal where intelligence from every possible sensors/organization will be integrated & the data collected and collated by them. In the process, they have suggested for establishment of VTS at 37 non major ports/minor ports. Since these ports are not in a position to fund such activity,

Indian Navy has suggested implementing this project by the Ministry of Shipping under central funding. Since VTS is an aids to navigation and DGLL being the domain expert of the VTS and also the central agency under Ministry of Shipping for aids to navigation can take up such implementation under its charter. Accordingly it is proposed to implement the scheme of VTS at Minor Ports as a part of improvement of local aids to navigation at an estimated cost for Rs 300 crore. The scheme on approval can be taken up from the year 2011 and can be completed by 2015.

15. Provision of Green Energy at Lighthouses (Rs 20 crore)

Marine Aids to Navigation are established at the location which facilitates ease in navigation. These locations generally are isolated and far-flung where utilization of fossil fuels like diesel is the maximum. The Directorate has embarked upon a policy of utilization of solar and wind energy so that consumption of diesel is almost zero. In the process, about 25 KW of solar energy is being generated to power 63 lighted beacons and 13 island lighthouses. Recently the Directorate has established 5 KW solar- wind hybrid energy at False Point. Work for another two locations at East Island (28.2 KW) and Kanho Ji Angre (5 KW) are in progress. The Directorate plans to introduce hybrid energy at all the lighthouses by the end of 2015. Efforts will also be made to explore the possibility of wave/tidal energy at some critical applications like buoy.

16. Construction of Deep Bhawan & Staff Quarters at Visakhapatnam (Rs 12 crore)

The Directorate is having its own administrative building and staff quarters at all the regional centres where central pool accommodation are not available except at Vishakhapatnam where the Directorate is presently functioning from the Port premises. The premises provided by the Port is in Dock Labour Board building where regular transportation of coal takes place resulting in working inconvenience to the staff. Further the accommodation provided is not sufficient for day to day working. The staff has to stay in rented accommodation making the living conditions quite prohibitive. Also, the Directorate needs additional space for accommodating additional staff for the upcoming projects and for better facilities. Keeping in view the above, it is proposed to construct an office building complex and staff quarters at Vishakhapatnam.

Directorate had approached Visakhapatnam Port Trust for allotment of land who has agreed to help. Total estimated cost of the project is amounting to Rs.12.00 crore including upfront fees of land to be paid to VPT.

The project is proposed to commence in the Year 2010-11 and will be completed by 2013-14.

17. Beautification of Lighthouses (Rs 20 crore)

Lighthouses are show case of the engineering prowess and architecture beauty of the past. Its location too make them attractive for tourists as these are not considered scenic but a unique part of the national heritage, to be treated differently from other assets, as they are a strong symbol of the World maritime heritage and hold great significance to local and national communities.

The cultural heritage of lighthouses extends beyond the architectural value of the buildings, to the whole area of maritime traditions and history, including shipping trading patterns, navigational safety and wrecks. This is required to be preserved and evidence documented for the benefit of future generations. Recording present traditions and changes is also important, as they will become part of the cultural heritage for future generations.

In this context, some of the Lighthouses like Villinjam, Dolphin's Nose, Minicoy, Little Andaman, etc are at important tourist location where it would be most beneficial to extend the facility to the visitors who intend to explore lighthouses and its adjoining beauty. Therefore, if the landscape of some of these locations is developed to make it more beautiful and also some of the quarters of Light keeper's which are vacant can be developed into a full-fledged Tourist Hut, significant number of tourist can be attracted to such locations. The directorate during the subject perspective plan proposes to develop number such lighthouses for the purpose.

18. Human Resource Development (Rs 10 crore)

Human Resource Development is a vital activity for a vibrant organization. The activity interalia includes continuous improvement of quality of manpower by rigorous knowledge based training and induction of quality manpower.

Effective training ensures that an organization's human resources use the tools and test equipment, documentation, and spare parts efficiently to provide the required system operational reliability, through the proper installation, operation and maintenance of the prime mission equipment **(IALA)**.

The Directorate is presently maintaining a training centre at Kolkata which needs to be developed in training institute of repute for in house training of the Lighthouse Staff. The major limitation of the existing training centre is non availability of dedicated faculty with domain expertise. It is proposed to develop the existing training facilities by

way of inducting dedicated faculty, state of the art equipment and ever evolving training curricula.

The close and effective interaction with Indian Navy, Coast Guard, IMD and State Maritime Organisations on a day to day basis for improving the coastal security scenario in the country necessitates induction of more number of officers and elevating their status to match with the hierarchy of other organisations for effective and meaningful interaction.

19. ISO Certification for the DGLL (Rs 2 crore)

DGLL is a service provider for Aids to Marine Navigation in India. Of late, these Aids to Marine Navigation, as a part of Coastal States infrastructure, are subjected to IMO Audit. In order that DGLL provides the Aids to Marine Navigation which complies with IMO performance standard and is as per SOLAS Regulations, the Directorate plans to evolve a comprehensive quality manual which will lead to ISO certification.

CHAPTER 18

SHIP BUILDING AND SHIP REPAIR

18.1. INTRODUCTION

18.1.1 There are 27 well known Shipyards in the country, 8 in the Public Sector and the remaining 19 in the Private Sector. The list of shipyards in Public Sector is at **Annexure-I**. The maximum size of vessel, which can be built in India in the public sector, is 1,10,000 DWT at Cochin Shipyard Ltd. and 80,000 DWT at Hindustan Shipyard Ltd. These sizes of vessels are relatively small compared to the current trend of building large size vessels worldwide. The current capacity of all the yards is 5, 00,000 DWT approximately. The Indian Shipbuilding Industry, which had only about 0.1% share of the world shipbuilding in 2002, expanded over tenfold to claim 1% share by 2007/2008 riding on the global boom and supported by a subsidy scheme.

18.1.2 Shipbuilding turnover for Private and Public Sector Shipyards excluding Defence Shipyards has grown about 14 fold in the last nine years from about Rs.440 crores in 2001-2002 to an estimated Rs.6200 crores in 2010-2011. A table showing improvements in turnover, employment generation, investments, order book and deliveries of Indian Shipyards from 2002 to 2007 is annexed and marked as **Annexure II**

18.1.3 Cargo handled at Indian Ports more than quadrupled from 180 million tonnes in 1993-94 to 850 million tonnes in 2009-2010 as compared to the 8 billion tonnes global sea borne cargo transported in 2008. India's EXIM trade has been increasingly serviced by foreign flagged vessels whose share has shot up from 60% in 1980s to about 92% by 2009-2010 as growth in Indian tonnage has been slow compared to burgeoning merchandise trade volumes. As much as 40%, of Indian ships, will need to be replaced over the next 5 years owing to age (above 20 years) and mandatory IMO Regulations for phasing out single hull tankers, which, in the absence of sufficient acquisition, may result in further erosion. At present domestic shipping companies rely heavily on foreign yards for acquisition or repairs. Policies encouraging greater participation from Indian shipping and incentivizing acquisition from local yards would facilitate in retaining a higher share of the expanding seaborne trade within the domestic economy.

18.1.4 Government of India extended the Shipbuilding Subsidy Scheme, for both export and domestic orders also to private sector Indian shipyards with the approval of Cabinet Committee on Economic Affairs on 25.10.2002. Earlier, the Scheme was open only to the Public Sector Shipyards. The share of Indian Shipbuilding industry in the global order book expanded rapidly from less than 0.1% share

in 2002, to 1.3% by 2007/08. The above Subsidy Scheme was applicable for contracts signed upto 14th August 2007.

18.1.5 In the face of global recession and in the absence of Government support in the form of a subsidy scheme post August, 2007, Indian shipyards have been languishing for want of new orders. Indian Yards could book very few orders either for export or domestic shipping lines as foreign yards; especially the Chinese Yards have been outbidding them fairly consistently. The momentum created by a combination of boom conditions and subsidy support has been arrested by the discontinuation of the subsidy scheme and recession post 2007. Lapsing of the subsidy scheme has also resulted in a progressive attrition in the share of Indian yards in global order book. While during 2002 and 2007, orderbook increased fourfold from 0.3 million DWT to nearly 1.3 million DWT accompanied by an impressive increase in global market share, after 2007, the share in the new orders has progressively declined from 0.67% in 2007 to 0.02% in 2009 and 0.13% in 2010 [Source-Clarksons].. This clearly suggests that the momentum built up during the subsidy scheme is being lost. It is important to note that this decline in share is not evident for yards in other countries like China and Korea as they continued to receive support, both direct and indirect even during the recession. A Table depicting cost profile of the industries in China and Korea and supporting evidences for the key items impacting the cost differential is annexed as **Annexure III**. A chart depicting the change in global market share of Indian Yards in the context of post and pre subsidy and recession is placed at **Annexure IV**.

18.1.6 The National Manufacturing Competitive Council (NMCC) has been emphasizing the need for a shipbuilding policy to enable Indian Yards to compete effectively in both the domestic and export markets to help build a strong shipbuilding sector in the country, given its potential for employment generation as well as its strategic importance. In a meeting held on 7th January, 2010 NMCC recommended that the Shipbuilding Industry in India needs to be granted Infrastructure status and be also declared as a Strategic Sector. A copy of the extracts of NMCC's recommendations is annexed and marked as **Annexure V**.

18.1.7 Ship Repair activity in India is largely concentrated around 18 small sized commercial dry docks, equally divided between the public and private sectors. This is supplemented by 'wet berths' in major ports and captive repair facilities of the Navy.

The ship repair business worldwide is estimated to be around 12 billion \$ (approx Rs 55,000 crs). India as a whole gets a revenue of not more than 100 million \$ per annum (Rs 463 crs) which is less than 1% of world ship repair share. It is estimated that the total potential of the ship repair market available in the Indian region is of the order of Rs

2440 to Rs 2790 crs per annum as shown below. As the repair industry is labour intensive it is easy to translate turnover to jobs which is estimated to be around 20,000 additional jobs in the skilled and semi-skilled category.

Type of Ships	Repair Potential Per Year (Rs Crs)
Foreign Ships on overseas trade visiting Indian Ports	1150-1400
Domestic ships on overseas trade	200
Coastal/Service Vessels	190
Offshore Rig Repairs	300-400
Navy and Coast Guard Vessels	100
Other Merchant Vessels in Region	500
Total	2440 - 2790

18.1.8 The ship repair activities in India are regulated through designated Ship Repair Units (SRUs) registered and licensed by the DG Shipping. The SRUs are a mixed lot where except few shipyards (CSL and HSL) that have comprehensive facilities for major repairs and Dry Docking most other are small to medium size firms that can carry out limited repairs to machinery and equipment only. Only designated SRUs are allowed to avail of the custom duty and excise concessions.

There are a total of 30 SRUs registered with DG Shipping in the entire country and only 4-5 shipyards out of a total of 27 in the country carry out any significant repair jobs. Even those shipyards that were earlier undertaking repair activities are reducing this activity in favour of shipbuilding seen to be more attractive. There is a recent suggestion from the industry that every vessel be declared as SRU to facilitate repair of ships

18.2. VISION

18.2.1 With respect to Indian Shipbuilding and Ship Repair Industry, following is envisaged :

“To have a well developed shipbuilding and ship repair industry of international standard in India which will be self sufficient in building and repairing commercial vessels required by the country by 2020 and generate huge investment and employment opportunities.

18.2.2 Following targets can be set for the Indian Shipbuilding industry:

- (a) To achieve a global market share of 5% by 2020.
- (b) To develop a strong ancillary base in the country by 2020.

- (c) To generate additional employment for 2.5 million persons (0.5 million direct and 2.00 million indirect) by 2020 in the core shipbuilding as well as the ancillary and supporting industry sector.
- (d) To develop strong R&D facilities and design capabilities for the commercial shipbuilding.
- (e) To be self-sufficient in ship repair requirements of the country and to emerge as a dominant ship repair centre replacing Colombo, Dubai, Singapore and Bahrain.
- (f) To achieve a share of 10% by 2020 in global ship repair industry.

18.3. PROBLEMS FACED BY SHIPBUILDING INDUSTRY AND MEASURES REQUIRED TO ADDRESS THEM

Broadly 4 gaps viz. manufacturing gap, technology gap, resources gap and skill development gap have been identified in the promotion of shipbuilding/ship repair sector.

18.3.1 Manufacturing Gap:

- 18.3.1.1 **Shipbuilding Subsidy Scheme:** This scheme was operational for contracts signed during 2002-2007 i.e. the date till the scheme was operational. Recently, CCEA approval has been obtained for discharging committed liabilities for contracts signed before 14th August, 2007. This will help the shipbuilding sector to grow.

Simultaneously a new shipbuilding subsidy scheme needs to be formulated to promote Indian shipbuilding keeping in mind various taxes and duties imposed on shipbuilding industry and global shipbuilding scenario. The projections for shipbuilding subsidy upto the year 2017-2018 are annexed hereto and marked as **Annexure-VI** Long-term survival of the industry will depend on continued flow of orders from both the export and the domestic market. For this to happen, a level playing field for the industry is a necessity vis-à-vis competitors abroad, especially with respect to taxes and duties. Further, in this regard, a need has been felt to incentivize purchase of ships by Indian ship-owners from domestic shipyards. Further, the restriction for minimum size of vessel eligible for shipbuilding subsidy needs to be removed. A need has also been felt to incentivize dredging and costal shipping by Indian flagged vessels through this Scheme.

- 18.3.1.2 **Setting Up of Ship Repair Units/Maintenance Hubs :** Ship repair units/maintenance hubs need to be set up in all major ports and at least big non-major ports. This may be taken up with all the major ports and various State Governments. Further, declaring of ship as SRU will be examined.

18.3.1.3 **Infrastructure Status:** A proposal has been forwarded to Department of Economic Affairs and Planning Commission to consider granting infrastructure status to shipbuilding industry.

18.3.1.4 **Strategic Sector:** A proposal has been forwarded to National Security Council Secretariat for declaration of Shipbuilding as Strategic Sector.

18.3.1.5 **Incentivising Domestic Shipyards:**

(a) There is a need for a shipbuilding policy to enable Indian Yards to compete effectively in both the domestic and export markets to help build a strong shipbuilding sector in the country, given its potential for employment generation as well as its strategic importance.

(b) The present eligibility requirements for acquisition by Central Government organizations including PSUs emphasize past experience of building similar vessels, often effectively prevent participation by Indian yards which are still developing. These requirements have evolved from experience of earlier orders when the capacities of Indian shipyards were limited and the Indian industry was in a moribund state with delays and defaults being endemic. With the recent expansion/ modernization and creation of new capacities rivaling global standards, eligibility requirements need to focus on requisite infrastructure rather than experience (based on deliveries of similar vessels) with checks and balances in the form of stringent penalties for non-performance. This would also be in line with similar practices being followed in other developing countries like Brazil where ships are being ordered on local yards even without infrastructure being in place as part of their oil exploration policy.

(c) There has been a demand to consider introducing purchase preference to Indian shipyards by matching the lowest price for ship acquisition including dredgers by Government organizations/Public Sector Undertakings in global tenders to address predatory pricing particularly by foreign yards where the element of Government support is not very transparent. This would enable competitive prices and at the same time encourage Indian yards to compete for local orders. This policy could be applicable to vessel acquisitions by all public entities i.e. all organizations or bodies of the Central Government including PSUs. This policy could also cover Defence acquisitions when global competitive bids are being invited.

18.3.2 **Technology Gap:**

18.3.2.1 **Transfer of technology:** Transfer of technology for shipbuilding particularly in high end segment needs to be considered by way of purchase or tie up with foreign firms. A scheme of capital subsidy to incentivise technology upgradation and using LNG as alternate fuel will be examined.

18.3.2.2 **Modernization of shipyards:** Shipyards need to go in for modernization by installing cranes of higher capacity and improving other infrastructure facilities available within the shipyards. The higher capacity of cranes will ensure that construction period in dock is reduced thereby increasing capacity of the shipyard.

18.3.2.3 **Promotion of Design Capabilities:** Many of the shipyards have set up their small design centers and some independent design centers have also been established but broadly the country is purchasing conceptual design from foreign firms and doing detailed designing within the country. To address lack of capability at the conceptual design stage we need higher number of graduates in design capabilities and larger input in R&D projects. Incentivisation of domestic design needs to be considered. Further, foreign design companies need to be encouraged to set up shop in India.

18.3.2.4 **Ancillarisation:** India presently does not have expertise and capability in had production of engines, manufacturing of gears, etc. Around 20-25 foreign companies have set up or are in process of setting up of ancillarisation units in India. Setting up of clusters for ancillarisation needs to be promoted and a policy may be formulated for this. An offset policy for ship acquisition will be examined to promote ancillarisation in India.

18.3.3 Resources Gap :

18.3.3.1 **Special Quality Steel:** It is felt that India is not able to produce special quality steel which goes into shipbuilding. Further, it has been pointed out that the import of steel for shipbuilding is without any tariff whereas 8% Excise duty and 4% VAT is payable on steel produced domestically by Indian Steel companies. A need has been felt that steel supply to shipbuilding units may be considered as deemed exports or concessions on excise duty and VAT may be provided to steel companies for steel provided to shipyards.

18.3.3.2 **Funding:** Shipbuilding sector may be considered as a priority sector for funding requirements of shipbuilding industry both for setting up new plants and for working capital requirements.

18.3.4 Skill Development Gap :

18.3.4.1 **Shortage of Naval Architects and Qualified Engineers:** New courses have been introduced in IMU, Chennai and Vizag Campus. More courses needs to be introduced in these institutions and private sector to improve the number of maritime architects and qualified engineers graduates every year.

18.3.4.2 **Shipbuilding Education and Training:** To cater to the requirement of skilled personnel, various shipyards including both private and public sector shipyards need to adopt ITIs as per the new scheme of the Government. Further, to promote Shipyard related trades in ITIs, a scheme to provide equipment etc. to them to start such trades can be formulated.

18.4. PRESENT STATUS

18.4.1 NMDP Projects

- (a) Cochin Shipyard Limited has been making profits since 1994-1995 and has been conferred the Category I Miniratna status in July, 2008. Net worth of Cochin Shipyard Limited as on 31st March, 2010 is Rs.680 crores. Cochin Shipyard Limited has secured shipbuilding orders worth more than Rs.2600 crores and Rs.500 crores for export and indigenous respectively, in the last five years. In addition, order for first indigenous Aircraft Carrier for Indian Navy has been secured worth conversion cost of Rs.1160 crore (Phase I) plus provisional Rs.3000 crore (Phase II).
- (b) Small Ship Division – The Small Ship Division Project of CSL envisages simultaneous construction of smaller vessels in the Building Dry Dock alongwith the Aircraft Carrier. The project was approved by Government on February, 2008 at an estimated cost of Rs.98.63 crores. It is financed by CSL's internal resources. The project was completed in March, 2010.
- (c) Hindustan Shipyard Limited, a Public Sector Shipyard which was earlier under the administrative control of Ministry of Shipping, has since been transferred to Ministry of Defence for strategic purposes.
- (d) Hooghly Dock and Port Engineers Limited (HDPE) is presently constructing one Hydraulic Surface Dredger, one Self Loading Cargo Vessel, six Work Boats and four Fuel Barges. A proposal for restructuring of HDPE is under consideration.
- (e) National Ship Design and Research Centre (NSDRC), primarily set up for carrying out ship design and research activities, was proposed to be strengthened under National Maritime Development Programme. NSDRC has been merged into Indian Maritime University in November, 2008. Strengthening of NSDRC is an ongoing process and grants in aid for carrying out R&D activities and Conducting Studies in Shipbuilding are proposed to be provided to IMU, Vizag Campus (NSDRC).

- (f) National Maritime Development Programme had envisaged setting up of two international size shipyards, one on East Coast and the other on the West Coast of India. Recently it has been decided by the Ministry that since the private sector has come up with setting up of two International Size Shipyards one on the east coast by L&T and another on the west coast by Pipavav Shipyards Ltd. the Government may not pursue the matter regarding setting up of two International Size Shipyards and may act only at facilitator.

18.5. PROPOSED PROJECTS

18.5.1 Cochin Shipyard Limited

18.5.1.1 IPO of CSL

(a) Cochin Shipyard has posted impressive performance in the last few years with the turnover growing by almost five times since 2004-05 (Rs 276 crores to Rs 1249 crores in 2009-10) and the net profit growing by almost 19 times during the period i.e. from Rs 12 crores to Rs 223 crores. The yard witnessed continuous enquiries and orders based on the reputation gained in the first few international shipbuilding orders. It was quite obvious that given the situation, the yard would easily saturate in one or two years time when the growth will come to a standstill at the present level of capacity. CSL therefore conceived a proposal for creation of third dry dock. It was perceived that CSL should go for an IPO to finance its drydock project.

(b) The DRYDOCK project envisages creating a new high definition dock in the northern part of the CSL estate. The dock would be capable of taking in vessels upto 200000 DWT. The dock would be covered and would be capable of handling shiprepair, upgradation and conversion. The dock is conceived to help CSL to diversify into niche high tech products, which would help the company to sustain its growth in future.

(c) The Internal Resources to part finance the 3rd Dry Dock will be generated through the proceeds of the IPO. Initially it was perceived that Indian Navy will part finance the project. CSL has to now review its financing pattern and seek other business partners. Another aspect is that although the Dry Dock will be set up in CSL premises, additional water front and land belonging to FSI and NIFPHTT will be required for parking and repairing/refitting of the vessels

(d) CSL is aiming to hit the IPO in 2011- 12 alongwith the launching of Indigenous Aircraft Carrier which would give the company tremendous publicity and ensure good valuation. In the interim the company should complete other ancillary activities like

acquiring land adjacent to CSL estate for the quay and thorough market analysis on the new products.

18.5.1.2 Proposed Projects

(a) Quay 3 extension to Southern side:

Out of the total available quay length of about 960m, Q3 of 460m is utilized for outfitting of vessels built in CSL. Once the Indigenous Air Craft carrier under construction in CSL is undocked in 2011 the quay length required for its outfit shall be 312m. In addition to above, other vessels under construction in CSL require around 315m of quay length. Considering total requirement of around 630m, it is required to extend the Q3 by another 170m. All facilities including crane tracks shall be extended to cater to total quay length of 630m.

(b) Implementation of Integrated Project Management system of International standards (ERP)

- (i) Ship Building and Ship Repair activities in CSL have increased multi-fold and CSL now builds and repairs multiple and varied projects for different owners both Indian and Foreign. The complexity of operations has increased many folds and a state of the art integrated ERP system is the need for improving the operational efficiency and Productivity.
- (ii) The integrated-process framework by ERP enables standardization, visibility, traceability, and controllability over the business. An ERP system as business software system allows an organization to
- Automate and integrate the major part of its business processes
 - Share common data, procedures and practices across the entire enterprise
 - Produce, share and access information in a real-time environment
 - Provide the ability to analyze data real-time and carry out what-if analysis and support business planning and reporting.
- (iii) CSL plans to implement an Integrated ERP connecting all its Business Process. A strong program management is also planned for the ERP Implementation to ensure completion of the project without time and cost overruns.

(c) Augmenting facilities for increasing intake of Marine engineering trainees and develop training for highly skilled manpower

CSL has facilities for training 140 marine engineers every year. Considering long term requirement in shipping industry, demand for qualified marine engineers shall be on an increase and can sustain for more than 15 years. It is proposed to increase the intake of 200 trainees every year to its Marine Training Institute. Infrastructure facilities have to be augmented and updated to meet future demands. CSL is contemplating introduction of new training schemes for developing skilled manpower necessary for shipyards and shipping industry as a whole. A few areas for which no facility is presently available are:

- 1) Aluminium and Stainless steel welding
- 2) Rigging
- 3) Safety

(d) Implementation of siltation control at quay sides

Maintaining water depth of about 8m throughout the year in CSL quays has been a perennial problem due to heavy siltation in Cochin backwaters. This leads to limitation on capacity for shipbuilding and ship repairs in yard. CSL has been spending exorbitant amount towards maintenance dredging every year. Many a times dredging is critically affected due to shortage of dredgers. It is found necessary to undertake studies on the siltation pattern in the quays of yard to evolve suitable remedial methods for controlling siltation to reasonable limits.

(e) Automation in fabrication / welding facilities

Shipbuilding/Ship Repair industry is highly labour oriented. Labour expenses are steadily on the increase leading to high conversion costs. Further productivity and quality levels in the industry in India are found deficient to compete in international market. The alternative is to resort to automation in areas like preparation, subassembly, assembly including handling, welding etc. Yard contemplates introduction of systems of latest international standards.

(f) Environment friendly blasting techniques

Blasting of hull units in CSL are undertaken in marine coating shops under controlled conditions. However, open blasting is resorted on ships in dry docks for building and repairs. Presently granulated copper slag is used for open blasting where pollution is found less than in case of sand, quartz, copper slag etc which were earlier employed in the yard. Matching with latest technique in this field, yard is examining possibility of deploying environmental friendly

blasting techniques like slurry, μ -jet, hydro- blasting, etc. This will reduce pollution to very low levels.

- (g) Dry dock 280m x 75m x 13m, for large ships inside yard premises

Or

Ship Lift & transfer system (3000t lightweight ships)

+ Quay 1 extension to northern side.

(i) DRY DOCK + QUAY 1 EXTENSION to northern side

About 35 acres of land on the northern part of the yard set apart for future expansion is ideal for constructing a dry dock of 280m x 75m x 13m size. Docks No.1 and 2 in the yard were designed for merchant ships and the loading capacity of their floors are considered insufficient to take concentrated loads of some of the Aircraft Carriers. Indian Navy had expressed their willingness to have a dry dock on joint venture in the premises of Cochin Shipyard. A project report and a draft MOU in this regard were given to the Navy in March and July 2009 respectively. The proposal is to design and construct the dock with 50% financial participation from the Navy. Naval ships can be dry docked here with priority based on their annual dry docking schedules. In case there is time slot available other merchant ships will be taken in this dock for repairs. For the viability of the venture it is also mentioned that at least 50% of the annual dock occupancy by defence ships is to be ensured by the Navy. The proposal also includes extension of the quay for about 200m into the property of adjacent Fisheries institutions of the Central Government for which inter-ministerial cooperation is needed. Official comments from the Navy are still awaited on yard's proposals.

(ii) SHIP LIFT & TRANSFER SYSTEM + QUAY 1 EXTENSION to northern side

On the proposal for the joint venture dry dock project Indian Navy has not come up with any remarks or comments for the last one year. For expansion on the ship repair front, northern end of the yard is the only area available in Cochin Shipyard. Alternatively, it is proposed to install a suitable ship lift in this area for repair of small ships. This can also be used for erection and launching small ships like PSV/AHTS built in the yard without depending on availability of dry docks. Dry docks can be dedicated to building and repair of large ships as per their designed sizes. With the limitation in draft at the quayside and due to the heavy silting in the Ernakulum channel, a ship lift for docking draft up to 4.0m and light weight up to 3000t is under active consideration. This investment is being delayed for a final decision on the JV proposal with Navy for dry dock. This proposal also includes extension of quay 1 as above.

(h) Green Field Shipyard for larger Vessels

Cochin Shipyard has capacity to build up to 1,10,000dwt ships and repair ships up to 1,25,000dwt. So far this is the largest in India. Present trend in the world is much larger ships for international voyages. Based on the Government guidelines to have new shipyards on the east and west coasts, a green field shipyard for building and repairing larger ships can be set up at a suitable location in Kerala / West coast. Experience built up by the officers and workmen of this yard will be an added advantage for the success of such a new venture. Educated manpower available here in plenty can be trained and kept ready by this yard in case there is a concrete proposal for the same. Free hold land to the extent of 150 to 200 acres with developments like rail-road connectivity, breakwaters (if required), nearby sources for electricity, fresh-water, etc. are to be ensured by the respective Government for constructing a green field shipyard.

(i) Technology development/ Modernization of infrastructure for specialized and latest technology ships

Presently CSL is equipped to build ships like bulk carriers, crude oil tankers, cargo ships, passenger ships, dredgers, all types of small ships, naval ships etc. Considering future demand for ships like LNG/LPG/chemical carriers, high tech off shore vessels, specialized dredgers and conversion jobs of FSO and FPSO etc it is necessary to equip CSL with latest technology in building/ conversion jobs. Existing facilities are required to be augmented and updating of design and construction techniques are contemplated. Few facilities to be introduced are: slope reception/ disposal facility, vacuum blasting, robotic blasting, tank coating systems, etc.

18.5.2 Restructuring of Hoogly Dock & Port Engineers Limited (HDPE)

18.5.2.1 M/s IL&FS IDC was appointed as Consultant for conducting initial techno-commercial feasibility for formation of joint venture and to assist HDPE in a big process management for selection of prospective joint partner. The Consultant has recommended that HDPE should form JV with a private partner. In the JV, HDPE is to hold 49% or 26% stake while majority of stake (51% or 74%) to remain with PSP. HDPE to give both its work units on long term lease to the JV Company or opt to give Nazigunge work unit only. The private player is to be selected through an open competitive bidding process engaged in similar kind of activities having experience in the field of production, planning, production management, design development, training, marketing, R&D etc. along with financial capabilities. The existence of HDPE will be retained. Further, HDPE will be restructured before inviting private sector participation. The expenditure on the proposed restructuring will be approximately

Rs.700 crore. Further, an amount of Rs.100 crore is expected to be invested by the private partner for modernization of the facilities/ infrastructure.

18.5.3 **Setting up of international Standard Shipyard**

18.5.3.1 The Cabinet in its meeting held on 22nd December, 2009 considered the proposal of Ministry of Shipping for transfer of Hindustan Shipyard Limited (HSL), Visakhapatnam to Ministry of Defence and gave 'in principle' approval for setting up of a new shipyard of international standard on PPP mode as a joint venture under MOS. The project report shall be prepared by MOS for a new shipyard, with an appropriate financial structure as a PPP project for which investment decisions would be taken with the approval of the competent authority in Government of India after due appraisal. Shipping Corporation of India (SCI) has expressed its interest in participating in shipbuilding venture on PPP basis. SCI is in the process of appointing a Consultant for detailed feasibility study. A joint venture is likely to be set up under PPP mode by the year 2014 at a cost of approximately Rs.3500 crore.

18.5.4 **Grants in Aid for R&D Projects and Conducting Studies in Shipbuilding**

18.5.4.1 Grants in aid to Research and Educational Institutions are provided by the Ministry from time to time for carrying R&D Projects and Conducting Studies in Shipbuilding. The following thrust areas have been identified:

- (a) Developing Basic design and test facilities
- (b) Expansion of capacities for detailed design
- (c) Standardisation of Design to encourage series production for tugs dredgers off shore vessels
- (b) Energy Conservation & Emission Control and green shipping and ports
- (c) Improvement in Communication System
- (d) Ancillarisation

It is proposed to provide approximately Rs.1000 crores during the period 2011-2020 for carrying out R&D and Studies in design testing Shipbuilding and ship repair Projects.

18.6. Financing of Projects

18.6.1 Cochin Shipyard Limited

An amount of Rs.5485 crore is expected to be spent on various projects out of Rs. 2035 crore from IEBR and Rs. 3450 crore from private sources/others. A list of projects proposed by for Cochin Shipyard Limited aimed at capacity extension augmentation improved

productivity automation modernization environment and green expansion is annexed.

18.6.2 Hooghly Dock and Port Engineers Limited

Restructuring of HDPEL with GBS of Rs. 700 crores to clean up the balance sheet and joint venture with private partner investing about Rs.100 crore is envisaged.

18.6.3 Setting up of International Standard Shipyard in lieu of Hindustan Shipyard Limited

International standard shipyard in lieu of Hindustan Shipyard Limited through PPP (Rs.3500 crores: Equity component of Rs.1000 crore. Part of the Public equity funded through GBS)

18.6.4 Grants in Aid for R&D Projects and Conducting Studies in Shipbuilding

through GBS support of Rs.500 crores for R&D & Studies in Shipbuilding and Repair with equal contribution from Public and Private Sector.

A list of the above mentioned projects is at **Annexure VII.**

ANNEXURE-I**Statement showing details of Shipyards in Public Sector:**

S No	CPSU/SPSU	Shipyard	ADM. Control
1	CPSU	Cochin Shipyard Ltd,	Ministry Of Shipping
2	CPSU	Hooghly Dock & Port Engrs Ltd, Kolkata	Ministry Of Shipping
3	CPSU	Mazagon Dock Ltd, Mumbai	Ministry Of Defence
4	CPSU	Garden Reach Shipbuilders & Engrs Ltd. Kolkatta	Ministry Of Defence
5	CPSU	Hindustan Shipyard Ltd Visakhapatnam Ltd	Ministry Of Defence
6	CPSU	Goa Shipyard Limited, Goa	Ministry Of Defence
7	State PSU	Shalimar Works Ltd, Kolkata	Govt. Of West Bengal
8	State PSU	Alcock Ashdown (Gujarat) Ltd	Govt. Of Gujarat

Statement showing details of Order Book position and delivery of the vessels from 2002 to 2007

1. Benefits under earlier subsidy scheme

Subsidy scheme

Indian ship building industry grew rapidly during 1997 – 2007, on the back of supportive subsidy scheme from Government of India. Below is a historical summary of subsidy schemes to ship building industry from Government of India

Table 1: Details of the subsidy scheme

Year	Scheme applicable to	Scheme
1993	Public sector shipyards	<ul style="list-style-type: none">▪ 30% subsidy on the Price of ocean going vessels built in Indian Public sector yards.▪ Shipping companies were entitled for loans at concessional rate of 9% to the extent of 80% of the cost of ship
1997	Public sector shipyards	<ul style="list-style-type: none">▪ 1993 subsidy policy extended for 5 years substituting loans at concessional rate by arranging loans through ECB.
2002	Public sector shipyards & Private sector shipyards	<ul style="list-style-type: none">▪ 30% subsidy applicable to ocean going vessels of 80 meters and above.▪ The 30% subsidy policy also extended to Private shipyards, for the first time.▪ Policy to expire in 2007

Order book, Turnover, Investment and Employment benefits to private sector shipyards from subsidy

On account of the extension of Govt. support to both Public and Private sector shipyards in 2002 and the subsequent boom, shipbuilding in India witnessed tremendous growth in next 5 years as can be seen from the table below:

Table 2: Benefits to select private sector shipyards from subsidy scheme during 2002-2007

	Increase in Order book from 2002 to 2007 (INR cr)	Increase in Turnover from 2002 to 2007 (INR cr)	Increase in Investments from 2002 to 2007 (INR cr)	Increase in Direct Employment from 2002 to 207 (Nos.)
Amount	17145	2772	3968	6546

Table 3: Benefits to select private sector shipyards from subsidy scheme during 2002-2007

Shipyards	Increase in Order book from 2002 to 2007 (INR cr)	Increase in Turnover from 2002 to 2007 (INR cr)	Increase in Investments from 2002 to 2007 (INR cr)	Increase in Direct Employment from 2002 to 207 (Nos.)
ABG	8,017	1390	508	1,300
Bharati	4,800	651	264	2,600
Chowgule	660	124	75	585
Tebma	1,450	138	47	572
Pipavav	3540	-	3,000	4906*
CSL	2218	469	74	1491
Total**	20680	2772	3948	11454

Source-SAI and Cochin Shipyards Limited

**Pipavav Shipyards was commissioned after 2007 and the figures indicate the employment level in 2009*

***Figures for L&T are being collected and will be added at the stage of the final Note.*

Changing profile of vessels built by India

Till 2002 Indian shipyards used to build simple vessels like Tugs, Asphalt/Bitumen Tankers, General Cargo vessels, Passenger ships etc. However, after support from government, Indian shipyards expanded their portfolio to include sophisticated vessels like Multi utility craft, Bulk Carriers, and Products Tanker. Additionally Indian shipyards got order for building Panamax Bulk Carriers¹ also.

¹ Currently Pipavav shipyard alone has orders for 21 Panamax Bulk Carrier. Source: Pipavav shipyard

Table 4: Deliveries by Indian shipyards (DWT)²

Ship Type	2002	2007	Increase in 2007 from 2002 (%)
Anchor Handling Tug Supply	1,300	15,280	1075%
Asphalt/Bitumen Tanker	3,500	-	-100%
Bulk Carrier	-	332643	High
Diving Support Vessel	-	1,485	High
General Cargo Ship	2,193	11,000	402%
Passenger Ship	328	-	-100%
Platform Supply Ship	-	16250	High
Products Tanker	-	1,561	High
Tugs	335	1962	486%
Water Tanker	-	1,136	High
Total	7,656	396,667	5081%

² Source: Llyods Register

Shipbuilding Turnover of Major Non-Defence Shipyards from 2001 to 2010

(Rupees in Crore)

S.No.	Shipyard	2001-2002	2002-2003	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011 (Anticipated)
1.	ABG Shipyard Limited	154.28	147.81	704.36	966.84	1412.22	1807.3	2100
2.	Bharati Shipyard Limited	58.98	61.03	360.10	642.05	934.10	1254.24	1502
3.	Chowgule & Co. Ltd.	27.18	2.62	Nil	62.83	147.52	199.05	288.33
4.	L&T Limited			45	179	181	255	317
5.	Modest Infrastructure Limited			2.07	23.36	86.65	65.36	70
6.	Pipavav Shipyard Limited	Nil	Nil	Nil	Nil	Nil	445	<i>445</i>
7.	Shoft Shipyard Private Limited	0.08	0.07	13.44	36.06	56.14	58.73	<i>58.73</i>
8.	Tebma Shipyards Limited	16.87	0.98	139.04	443.66	321.37	208.91	250
9.	Alcock Ashdown (Gujarat) Limited	83.48	83.48	83.48	65.5	66.43	66.43	<i>66.43</i>
10.	Cochin Shipyard Limited	102	110	478.18	58.64	986.13	1012.13	1130
	Total	442.87	405.99	1825.67	3000.94	4191.56	5372.15	6227.49

Figures in Italics are based on previous year's or next year's figures. Actual figures are expected to be higher.

Source – Shipyards Association of India and Cochin Shipyard Limited

Table based on cost profile of the industries in China and Korea and the corresponding key items impacting the cost differential

Cost Disadvantages Versus Foreign Yards (%)

Sector	Domestic Sale		Export Sale	
	China	Korea	China	Korea

Differential Impact of Statutory Levies

CD, ED, VAT and Octroi	8.30%	8.30%	2.91%	2.91%
Service Tax	1.48%	1.48%	1.48%	1.48%
Corporate Tax	1.40%	-	1.40%	-

Cost Differential on account of Financial Charges

Charges towards Bank Guarantees	0.86%	0.86%	0.86%	0.86%
Interest on Working Capital	2.60%	1.60%	2.60%	1.60%
Interest on Capital Expenditure	0.74%	0.74%	0.74%	0.74%
Insurance Charges	0.40%	0.40%	0.40%	0.40%

Cost Differential on account of Import Dependence

Sea Freight Differentials	3.90%	4.32%	3.90%	4.32%
Clearing and Forwarding	0.30%	0.66%	0.30%	0.66%

Other Costs due to External Factors

Bulk purchase discounts on purchase on inputs	3.25%-6.50%	3.25%-6.50%	3.25%-6.50%	3.25%-6.50%
Forex Rate Disadvantages	23.33%	-	23.33%	-
Total Cost Disadvantage	47%-50%	22%-25%	41%-44%	16%-19%
Price Disadvantage due to Discount	5%-10%	15%-20%	5%-10%	15%-20%
Total Disadvantage	52%-60%	37%-45%	46%-54%	31%-39%

Downslide of Indian Shipbuilding Industry after removal of Subsidy Policy

Indian Shipbuilding Industry grew rapidly during 2002-2007, on the back of supportive Subsidy Scheme from Government of India. It can be seen below that once the subsidy policy was removed in 2007, Indian shipbuilding industry started losing new orders and its market share declined.



Extracts from the Prime Minister's Group on "Measures for ensuring sustained growth of the Indian manufacturing sector", National Manufacturing Competitiveness Council (NMCC)

A.4 NMCC's recommendation for developing Indian ship building Industry

- India has a vast coastline as well as a huge external trade requiring large fleet of ships both for civilian and military purposes. With increasing incomes demand for cruise vessels is also increasing. The existing facilities for shipbuilding are inadequate even for the limited demand at present let alone the demand that would be generated by high growth. India's emergence as a major economic power would mean greater integration in terms of trade with the rest of the world requiring huge shipping tonnage. Also, the need for strengthening the naval forces would place an extra urgency on ship building activities. Therefore, a comprehensive plan to enhance domestic ship building needs to be drawn up.
- Prepare on an urgent basis a comprehensive plan to enhance domestic ship building capabilities and building large new shipyards.
- Adopt a Mission mode approach for the purpose. In this context, the examples of both Korea and China be studied; and
- A continuing mechanism be evolved to synergize the efforts of the naval authorities under Ministry of Defence and the Ministry of Shipping for meeting long term requirements of the country"

Item	Units	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-2017	2017-18
Total Seaborne Cargo handled at Indian Ports	Million Tons	850	978	1124	1293	1487	1710	1966	2261	2600
Exim Cargo	Million Tons	650	722	801	889	987	1095	1216	1350	1498
Exim Traffic Carried on Indian Flagged Vessels	Million Tons	49	55	61	67	75	83	92	102	114
Projected Indian Tonnage in DWT	Mn DWT	15	18	20	23	27	31	35	41	47
Additional Indian Tonnage in DWT	Mn DWT		2.30	2.64	3.04	3.49	4.02	4.62	5.31	6.11
Replacement Tonnage	Mn DWT		0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63

India's requirement (DWT)										
Large size Vessels (like VLCC's, Capesize etc.)	Mn DWT		0.88	0.98	1.10	1.24	1.39	1.57	1.78	2.02
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	Mn DWT		1.90	2.13	2.38	2.68	3.02	3.41	3.86	4.38
Small size relatively complex ships (like Dredgers, OSV/PSV)	Mn DWT		0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13
Small size low complexity ships (barges, tugs etc.)	Mn DWT		0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.20

India's requirement (DWT) for New Vessels										
Large size Vessels (like VLCC's, Capesize etc.)	Mn DWT		0.53	0.59	0.66	0.74	0.84	0.94	1.07	1.21
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	Mn DWT		1.14	1.28	1.43	1.61	1.81	2.05	2.32	2.63
Small size relatively complex ships (like Dredgers, OSV/PSV)	Mn DWT		0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08
Small size low complexity ships (barges, tugs etc.)	Mn DWT		0.05	0.06	0.07	0.07	0.08	0.09	0.11	0.12
Delivered planned as per the current Orderbook (Mn DWT)										
Large size Vessels (like VLCC's, Capesize etc.)	Mn DWT		0.00	0.00	0.00	0.51	0.51	0.00	0.00	0.00
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	Mn DWT		0.35	1.39	0.90	0.00	0.00	0.00	0.00	0.00
Small size relatively complex ships (like Dredgers, OSV/PSV)	Mn DWT		0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Small size low complexity ships (barges, tugs etc.)	Mn DWT		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

India's Net requirement for New Vessels (DWT)										
Large size Vessels (like VLCC's, Capesize etc.)	Mn DWT		0.53	0.59	0.66	0.23	0.32	0.94	1.07	1.21
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	Mn DWT		0.79	0.00	0.42	1.61	1.81	2.05	2.32	2.63
Small size relatively complex ships (like Dredgers, OSV/PSV)	Mn DWT		0.02	0.03	0.04	0.05	0.06	0.06	0.07	0.08
Small size low complexity ships (barges, tugs etc.)	Mn DWT		0.05	0.06	0.07	0.07	0.08	0.09	0.11	0.12

India's net requirement for New Vessels (USD mn)										
Large size Vessels (like VLCC's, Capesize etc.)	USD Mn		163	182	204	71	100	292	330	374
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	USD Mn		385	0	204	784	884	998	1130	1282
Small size relatively complex ships (like Dredgers, OSV/PSV)	USD Mn		233	320	536	602	679	767	868	985
Small size low complexity ships (barges, tugs etc.)	USD Mn		42	47	53	59	67	76	86	97

Share of Indian yards in Indian requirement (USD Mn)										
Large size Vessels (like VLCC's, Capesize etc.)	USD Mn		8	9	10	4	5	15	17	19
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	USD Mn		96	0	51	196	221	250	283	320
Small size relatively complex ships (like Dredgers, OSV/PSV)	USD Mn		163	224	375	422	475	537	608	689
Small size low complexity ships (barges, tugs etc.)	USD Mn		21	24	26	30	33	38	43	49
Share of Indian yards in Global requirement (Mn DWT)										
Share of New Global Orders of Indian Yards	% Share			0.20%	0.22%	0.24%	0.27%	0.29%	0.32%	0.35%
Share of New Global Orders of Indian Yards (mn DWT)	Mn DWT			0.16	0.18	0.19	0.21	0.23	0.26	0.28
Large size Vessels (like VLCC's, Capesize etc.)	Mn DWT			0.00	0.00	0.00	0.01	0.01	0.01	0.01
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	Mn DWT			0.10	0.11	0.13	0.12	0.13	0.14	0.16
Small size relatively complex ships (like Dredgers, OSV/PSV)	Mn DWT			0.02	0.03	0.03	0.04	0.05	0.05	0.06

Small size low complexity ships (barges, tugs etc.)	Mn DWT				0.03	0.04	0.04	0.04	0.05	0.05	0.06
Share of New Global Orders of Indian Yards (USD mn)											
Large size Vessels (like VLCC's, Capesize etc.)	USD Mn				0	0	0	3	4	4	4
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	USD Mn				51	56	61	57	63	69	76
Small size relatively complex ships (like Dredgers, OSV/PSV)	USD Mn				292	321	354	519	570	627	690
Small size low complexity ships (barges, tugs etc.)	USD Mn				26	28	31	34	37	41	45

Subsidy on Indian orders											
Large size Vessels (like VLCC's, Capesize etc.)	USD Mn				1.45	1.63	0.57	0.80	2.33	2.64	2.99
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	USD Mn				0.00	8.16	31.37	35.35	39.93	45.20	51.26
Small size relatively complex ships (like Dredgers, OSV/PSV)	USD Mn				44.78	75.02	84.34	95.05	107.37	121.54	137.84
Small size low complexity ships (barges, tugs etc.)	USD Mn				3.77	4.23	4.75	5.35	6.05	6.85	7.76

Subsidy on Foreign orders											
Large size Vessels (like VLCC's, Capesize etc.)	USD Mn				0.00	0.00	0.00	0.39	0.43	0.48	0.52
Medium size vessels (like Panamax, Kamsarmax, ~6500TEU vessels)	USD Mn				6.09	6.69	7.36	6.85	7.54	8.29	9.12
Small size relatively complex ships (like Dredgers, OSV/PSV)	USD Mn				46.75	51.42	56.57	82.96	91.26	100.39	110.42
Small size low complexity ships (barges, tugs etc.)	USD Mn				3.07	3.38	3.72	4.09	4.50	4.95	5.44

Total Subsidy	USD Mn				106	151	189	231	259	290	325
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Total Cash Outflow of subsidy	USD Mn					4	106	151	189	232	260
Net Present Value in FY 11	USD Mn									774	
Net Present Value in FY 11	INR Cr									3,484	

Annexure VII

Shipbuilding and Repair Sector

Projects Identified for the period April 2010 to March 2020

S. No.	Name of Project	Agency	Est. cost	Funding Pattern			Project Start	Expected completion
				GBS	IEBR	Private/ Other		
	<i>Capacity Extension and Greenfield Expansion</i>							
1.	Greenfield Shipyard for large ships (VLCC)	CSL	3500		500	3000	2012	2017
2	Dry Dock 280Mx75Mx13M for Aircraft Carrier and larger ships OR Ship Lift and Transfer System (3000T lightweight ships) + North Side Ext. Quay 1	CSL	1500		1050	450	2012	2016
3	Southern Side extension to Quay 3	CSL	55		55		2010	2013
4	International Standard Shipyard under PPP	MoS/SCI	3500	250	250	3000	2011	2014
	<i>Automation & improved productivity</i>							
5	Implementation of World Class Project Management System (ERP)	CSL	50		50		2011	2014
6.	Siltation control at quay sides	CSL	100		100		2012	2016
7	Automation of fabrication/welding facilities		50		50		2012	2015
8	Technology development/ Modernisation of Infrastructure for specialized and latest technology ships	CSL	150		150		2015	2020
	<i>Research & Development</i>							
9	Environment friendly blasting techniques	CSL	50		50		2012	2014
10	R&D Projects and Studies in Shipbuilding	MoS/IMU	1000	500		500	2011	2020
	<i>Human Resources Development</i>							
11	Augmenting facilities for increasing intake of Marine Engineering Trainees and develop training for highly skilled manpower	CSL	30		30		2011	2014
	<i>Restructuring & Rehabilitation</i>							
12	Restructuring of Hooghly Dock and Port Engineers Limited	HDPEL /MoS	700	700			2011	2012
13	Restructuring of Hooghly Dock and Port Engineers Limited through Formation of JV	HDPEL	100.00			100	2011	2014
	TOTAL		10785	1450	2285	7050		

CHAPTER-19

INLAND WATERWAYS

19.1. INTRODUCTION:

An efficient transport sector, particularly for transportation of bulk goods, is vital for development of economy of any country. Railways, roadways, inland waterways, pipelines and coastal shipping are the important modes of transportation of bulk goods. In the liberalised economy, in which the private and public sectors is expected to contribute large share in the GDP, it is necessary that Government takes adequate measures to develop all these transport modes so that the industries are able to provide least cost of production to the consumers by utilising optimum mix of transport network using strengths of each of these modes on case to case basis.

In India, the Rail and Road (which are the main modes of transportation of bulk cargo) are overburdened and saturated and their large scale capacity enhancement is very difficult. Inland Water Transport (IWT) is a fuel efficient, environment friendly and cost effective mode of transport (especially for bulk goods, hazardous goods and over dimensional cargo) having potential to supplement the over burdened rail and congested roads. India has many rivers, canals, creeks etc. which can be developed as commercially viable waterways providing port- hinterland connectivity. It is therefore necessary that IWT mode is developed to a level at which it becomes competitive in a multi-modal transport network.

Development of IWT offers several distinct advantages. IWT routes are developed along existing rivers/ canals and do not require extensive land acquisition; the per km cost of development of waterways is about 5 to 10% of the cost of developing an equivalent four lane expressway or railway. Maintenance cost of inland waterways is of the order of 20% of that of road. IWT, in most situations is the most economical, least energy consuming and least hazardous mode of transportation, as may be seen from Annexure-1. However, the development of this mode has been grossly neglected for a long time and consequently, the share of IWT today is just 0.4 % (in terms of tonne-km). Till 1986, there was even no Institutional body to oversee its development which resulted in practically insignificant investment for its development compared to Rail and Road infrastructure.

For inland waterways to become a commercially viable mode of transport, it is necessary that three basic infrastructural facilities are developed and maintained. These are: (i) depth and width required for movement of inland vessels for round the year operation; (ii) terminals for loading and un-loading of cargo; and (iii) navigation aids for safe navigation during day and night. Once these basic

infrastructure are provided/ maintained with adequate reliability only then one can expect that the forth critical element, 'the inland vessels for carriage of cargo' shall be developed mainly with private sector's investment.

But investment made for creation of these infrastructure had been negligible compared to road and rail sectors due to which except in some regions e.g. Goa, West Bengal, Assam, Kerala and Mumbai (where IWT has natural advantages) and NW-1, 2 & 3 (which are being developed by IWAI), these infrastructure are still inadequate to make this mode a commercially viable proposition for private sector to invest in acquisition and operation of IWT vessels. **Therefore major thrust has to be given on creation of this infrastructure and at the same time steps have also to be taken for augmentation of IWT fleet primarily by private sector.**

The Inland Waterways Authority of India (IWAI) was set up in 1986 for development and regulation of inland waterways. For executing projects for development of NWs, IWAI receives grant from Ministry of Shipping (MoS). There also is a new Central Sector Scheme for development of IWT in North Eastern states under which funds are released to States by MoS but assistance in sanctioning and implementing the projects by the State Govts is provided by IWAI to MoS.

IWAI's primary responsibility is development and regulation of National Waterways (NW). In this process, the Authority carries out surveys, bandalling and dredging for improving/maintaining depth in navigational channel and provides other infrastructural facilities namely, terminals and navigational aids on national waterways. It also undertakes techno economic feasibility studies and detailed project reports to assess development potential of other waterways. The Authority also advises Central Government on matters related to IWT.

In the initial years of IWAI, the funds allocated to it were meager therefore, in the initial 11 years from 1986-87 to 1996-97 it could invest only Rs 71 crore in development/ maintenance of this IWT infrastructure on NW 1, 2 & 3. The level of investment increased to some extent from 9th Plan (1996-97 to 2001-02) when it spent Rs 151 crores and thereafter to 385 crore in 10th Plan and Rs 360 crores in first three and half years of 11th Plan. Still since 1986-87, the total investment made by IWAI on IWT infrastructure is less than Rs 1,000 crore; which is insignificant compared to investments made in Rail and Road sectors. **Hence, it is also necessary that quantum jump in public investment is made to develop IWT sector if the wish to utilize the potential of this fuel efficient, cost effective and environment friendly mode of transport, since by not using it to its potential the country is paying price in terms of lost opportunity cost.**

19.2. Vision:

The vision/objective of development of inland waterways of the country is their increased utilization for transportation of cargo to about 20 billion tonne km by 2020 (from present level of about 4.0 billion tonne km).

19.3. Mission:

19.3.1 To develop all potential inland waterways with adequate IWT infrastructure both through public and private funding to make them a commercially viable mode for transportation of goods to act as supplementary mode of transport with respect to rail and road modes.

19.4 Strategy:

Since this sector remained totally neglected over many decades while conceptualizing its development strategy it is necessary to take a holistic picture of the sector and aim for its development in an integrated manner touching upon all relevant aspects simultaneously. This would call for a Paradigm shift in approach to development of IWT during the decade (2010-2020). Such a Paradigm shift was also considered/ analyzed in depth by the Working Group on Shipping and IWT for preparation of the 11th Plan [which was headed by Secretary (Shipping)]. Since this suggested Paradigm shift could not be acted upon due to inadequate funding provided to the sector during the 11th Plan and also since IWAI could not be strengthened as an organization to absorb higher level of funds, it still holds good for perspective planning of development of IWT sector for the decade 2010-2020. Based on the development perspective suggested by the Working Group for 11th Plan, 'the Perspective Plan 2010-20' is proposed to include (a) development of IWT infrastructure namely; reliable fairway with assured least available depth for round the year and round the clock navigation, terminals for berthing of vessels and interface with rail and road modes on all National Waterways as well as other waterways to make them fully functional for commercially viable operations, (b) Quantum jump in public funding for development of IWT sector, (c) identification and implementation of projects for specific cargo transportation with PPP funding, (d) Connecting remote areas by adopting fish bone model and development of State waterways, (e) Up-gradation of Indo – Bangladesh IWT & T Protocol routes, (f) Development of IWT training institutes in States and their integration with NINI, (g) Promoting river tourism/ cruises, (h) Taking steps for IWT fleet augmentation by private sector, (i) Encouraging modal shift to IWT mode through incentives, (j) providing incentives for modernization/up-gradation of country boats, (k) integration of Inland waterways and coastal shipping modes; and (l) Institutional capacity building of IWAI and State level IWT set ups.

19.5. Present status:

There are five NWs namely (i) the Ganga from Haldia to Allahabad (NW-1, 1620 km), (ii) the Brahmaputra from Dhubri to Sadiya (NW-2, 891 km), (iii) the West Coast Canal from Kottapuram to Kollam along with Udyogmandal and Champakara canals (NW-3, 205 km), (iv) the Kakinada-Puducherry stretch of Canals with Godavari and Krishna rivers (NW-4, 1078 km) and (v) the East Coast Canal with Brahmani river and Mahanadi delta (NW-5, 588 km). These waterways were declared as NWs in 1986, 1988, 1993, 2008 and 2008 respectively. In addition, declaration of Barak river from Lakhipur to Bhanga (121 km) as sixth NW is under consideration of the Ministry.

After formation of IWAI in October 1986, systematic and sustained efforts to develop IWT mode started. But during initial years (i.e upto 8th Plan) IWAI could not be provided with significant funding. From 9th Plan onwards, funding pattern of IWAI somewhat improved. In the entire 8th plan the investment for IWT infrastructure was only of the order of Rs. 35cr. This rose to Rs.151cr during the 9th plan, and further to Rs 385 cr in 10th Plan. In first 3years of 11th Plan IWAI has utilized Rs 310 cr. However, the total investment made for its development since independence is still insignificant when compared to Road and Rail.

On NW-1, 2 & 3, IWAI is developing IWT infrastructure. For NW-4 & 5 efforts are being made to develop more commercially viable stretches in initial phase through PPP mode. There is a Central Sector Scheme for development of waterways of North Eastern States under which one project of Govt of Mizoram has been sanctioned.

IWAI is implementing projects for making National Waterways 1,2 & 3 fully functional by March 2012 . This envisages fairway with 3 m/2m/1.5 m depth, a judicious mix of fixed and floating terminals and facilities for 24 hrs navigation alongwith DGPS connectivity. Some important projects have already been implemented/ advanced significantly under this process as explained below:

IWAI has 11 dredgers on NW-1, 2 and 3 (of these 3 are added in 2010) and 6 more are being added in next one year. With this, IWAI shall be trying to provide higher LAD in NW-1 and 2, [3 m in Haldia-Farakka (against 2.5 m at present), 2.5 m in Farakka- Patna (against 2.0 m at present), 2 m between Patna and Varanasi for 330 days (against 270 days at present) in NW-1 and 2.5 m between Dhubri and Neamati (against 2.0 m at present)]. With these depths, viability of IWT operations on NW-1 and 2 shall increase.

Low level jetties of permanent river terminals at Patna and Pandu have been constructed and high level Jetties at these places are under construction. Two more permanent terminals are being constructed at Varanasi and Kolkata. On NW-3, nine permanent terminals have been constructed and one more is under

construction. In addition, floating pontoon jetties have been set up at 16 places on NW-1 and 7 places on NW 2.

National Inland Navigation Institute (NINI) was set up by IWAI to train IWT personnel, particularly the crew for inland vessels and has been imparting training since February 2004. Training programmes are also being conducted for personnel of paramilitary forces.

IWAI is also working on some projects for specific movement of bulk cargo by IWT mode. One of the important projects in this respect was movement of coal from Haldia to Farakka and Kahalgaon for the power plants of NTPC. Another interesting potential is the possibility of movement of project cargo to several hydro-power projects coming up in Arunachal Pradesh on various tributaries of Brahmaputra.

There had been many successful movements of Over Dimensional Cargo (ODC) on NW-1, 2, and 3 in last two years. Considering that IWAI has upgraded IWT infrastructure on NW-1, 2 and 3 and based on interaction. IWAI had with various project promoters and logistics operators, it is expected that ODC movement on NWs, is going increase substantially in coming years. Therefore from 1st January 2010 IWAI has started levying user charges @ Rs.1.50 per tonne per km for movement of ODC on NW-1, 2 and 3.

Cargo movement by IWT sector has been showing increasing trend over the years. However, the increase is mainly in Goa and Mumbai Waterways. It has increased from 45.6 million tones in 2004-5 to 69.7 million tones in 2009-10. Fly ash export through IWT from Kolkata/Haldia to Bangladesh has also increased from 4.78 lakh tonnes in 2005-06 to over 13 lakh tonnes in 2009-10. Operation of inland cruise vessels has also increased substantially on NW-1, 2 &3 in last five years or so.

Detailed Project Reports for NW-4 & 5 have been prepared and as advised by the Planning Commission, efforts are being made to explore the possibility of developing these NWs in a phased (prioritized) manner in PPP mode. Declaration of one more waterway i.e Barak river as National Waterway is also under consideration.

IWAI was appointed by Ministry of External Affairs (MEA) as Project Development Consultant (PDC) for implementation of Kaladan Multimodal Transit Transport Project in Myanmar. The project is piloted and funded by MEA. It provides alternative connectivity (through road, IWT & merchant shipping) of Mizoram with Kolkata through Myanmar. IWAI modified the DPR prepared by RITES and selected successful bidder to be the main contractor for the project. MEA accordingly has signed the agreement with the main contractor i.e. M/s. Essar Projects.

19.6. Proposed projects:

With the foregoing strategy, following projects are proposed under this perspective plan:

A) On going projects

Making National Waterway - 1 fully functional: As mentioned earlier, IWAI is implementing Action Plan for making NW 1 fully functional by March 2012. This Action Plan envisaged investment of Rs 445 cr from 2007 – 08 to 2011-12. Out of this, Rs 133 cr have been spent up to March 2010. Therefore, balance requirement up to 2012 is Rs 312 cr. Under this Action Plan targeted basic IWT infrastructure namely navigational channel, terminals and navigation aids will be provided after which it is expected that the private sector shall start investing on operation of inland vessels since these shall become commercially viable. The entire funding for this project shall be through public funds.

Making National Waterway 2 fully functional: Like NW 1, Action Plan for making NW 2 fully functional is also under implementation. Out of the total requirement of Rs 187 cr for the period 2007-12, Rs 110 cr have been spent during 2007-10. Hence, there is balance requirement of Rs 77 cr which is proposed to be funded through budgetary sources.

Making NW-3 fully functional: Action Plan for making NW 3 fully functional is also under implementation. Due to problems being encountered in completing capital dredging between Allapuzha-Kollam, this project is likely to be completed only by March 2013. Out of total requirement of Rs 143 cr for the period from 2007-13, Rs 53 cr have been spent during 2007-10 and the balance requirement of 2010-13 is Rs 90 cr which also is proposed to be funded through budgetary sources.

NINI and setting up of SCTCs: It is proposed that the National Inland Navigation Institute functioning at Patna since 2004 shall be upgraded. Moreover, State Crew Training Centres (SCTC) should be set up in some of the riverine States and these should be networked with NINI. A provision of Rs 100 cr for this purpose as budgetary support to IWAI/respective State Govts is proposed for this project.

Joint Venture (PPP projects) : The three JV Companies already formed by IWAI for acquisition and operation of cargo vessels on NW-1 & 2 require equity of Rs 11 cr by IWAI. As per Act, IWAI can enter into JV for IWT activities. There are good possibilities for forming JVs for construction of terminals, operation of vessels etc for which some spade work has been made. A provision of Rs 400 cr is proposed to meet IWAI's contribution in these projects (@ 3:2 debt equity ratio) The corresponding EBR component shall be Rs 2100 cr. Thus the total outlay proposed is Rs 411 cr (BS) and Rs 2511 cr under EBR.

IWT promotion activities: At the present stage of development of IWT, it is necessary that IWT promotion activities namely demonstrative cargo transportation voyages by IWAI, seminars, conferences and other promotional measures for IWT sector are carried out. For this purpose, a provision of Rs 50 cr @ Rs 10 cr per year for the period 2010-20 is proposed entirely through budgetary sources.

IT related activities: At the rate of Rs 1 cr per annum, a provision of Rs 10 cr is proposed for up gradation/ procurement of computers and software for head office and field offices of IWAI their networking, MIS etc during 2010-20.

Technical studies: Some technical studies in progress are: techno-economic feasibility of Narmada river and Mumbai waterways, environmental study for NW-4 and 5, hydrographic surveys of river Gumti in Tripura, DPR for terminal at Allahabad etc. Some new techno-economic feasibility studies. These include Goa waterways, feeder routes of existing and new National Waterways, waterways of other States etc. It is also proposed to take up DPR for proposed NW-6, extension of NW-3 in north and south sides, DVC Canal. Study on integration of Coastal Shipping and IWT etc. For all these studies, and more, the total outlay proposed during 2010-20 is Rs 25 cr.

Inland vessel building subsidy scheme: An Inland Vessel Building Subsidy Scheme was introduced during 10th Plan period. However this was discontinued during 11th Plan. Its continuation is considered critical for achieving goal of 20 btkm by 2020. Planning Commission has said that MoS may take up proposal for continuation of the scheme during 12th Plan. It is expected that entrepreneurs/ IWT operators will come up for availing the IVBSS and procure vessels for operation in National Waterways and Indo-Bangladesh Protocol route. For 20 btkm by IWT, entrepreneurs will have to procure about 1500 vessels by availing this facility during 2012-20. At Rs 6 cr per vessel (average cost), the cost of the vessels shall be Rs 9000 cr and 30% subsidy under IVBSS works out to be Rs 2700 cr. The corresponding EBR shall be Rs 6300 cr. Hence the same is proposed during 2012-20.

Indo Bangladesh Protocol routes: Since Protocol routes in Bangladesh are critical for providing connectivity of NER with Kolkata & Haldia ports, the status of these waterways in Bangladesh determines overall efficacy of IWT operation between NER and Kolkata/Haldia ports. While infrastructure on NW 1, 2 and Indian portion of the Protocol routes shall be upgraded by India, the portion in Bangladesh should be developed by them. But it is not likely. Govt of India therefore has to step forward to develop waterways of Bangladesh also, atleast for those routes which are critical for NER connectivity. Govt of India has already agreed for a line of credit of \$ 1 billion to Bangladesh for various projects including development of IWT. With this background, a project for development of IWT of certain stretches of waterways in Bangladesh at a lump-sum provision of Rs 200 cr is proposed under this perspective plan of 2010-20.

Central Plan Scheme for development of waterways in NER: Fish one model ought to be adopted for development of important tributaries of Brahmaputra with a view to operate vessels of smaller capacity ranging from 50- 150 tonnes. Besides, some other rivers in NER have potential for development. Already a Central Plan Scheme for development of waterways of NER exists providing for 100% financial assistance. An outlay of Rs. 200 cr is proposed for this scheme.

B. New projects

Development of NW-4 After declaration of this waterway as NW-4 in November 2008, Detailed Project Report has been prepared. The total cost of the project is Rs 1515 cr. However Planning Commission by letter dated 13.05.2010, have informed the Ministry that it may not be possible to increase the outlay of IWT in 11th Plan. The Planning Commission has suggested that the Ministry may therefore identify projects for development of waterways that can be funded and implemented by the private sector and in order to make these projects remunerative for the private sector, they may provide the Viability Gap Funding (VGF). Therefore, based on the potential of cargo movement on different independent stretches of the waterway and estimated cost of development thereof, the Ministry/ IWAI has prioritized a phased development of the waterway as; Phase I – Godavari & Krishna rivers, Kakinada & Eluru canals, and Phase II – Commamur canal, Buckingham canal and Kaluvelly tank. Hence efforts shall be made to explore the possibility of developing this NW in a phased (prioritised) manner in PPP mode. It is proposed that 40% funding (Rs 600 cr) as VGF may come from Central Govt and remaining 60% (Rs 915 cr) from private sector.

Development of NW-5 Similarly, declaration of NW-5 was also made in November 2008 and its DPR has been prepared. The total cost of the project is Rs 4210 cr. In its case also, the Planning Commission have expressed their inability to provide outlay in the 11th Plan and suggested the Ministry to get it implemented by the private sector with VGF by the Govt. Therefore, based on the potential of cargo movement on different independent stretches of the waterway and estimated cost of development thereof a prioritized, phased development is proposed for this waterway as well: Phase I – Brahmani river and delta portion from Charbatia to Dhamra and further to Paradip and Phase II – East Coast Canal from Geonkhali to Charbatia.

Considering that there is enormous potential of movement of coal from Talcher to Dhamra and Paradip (up to 25 million tonnes per year) the efforts are being made to ascertain possibility of private sector participation in the Phase-I stretch followed by Phase II. It is proposed that 40% funding (Rs 1700 cr) may come from Central Govt as VGF and remaining 60% (Rs 2510 cr) from private sector for development of entire NW-5 during 2010-20.

Development of proposed NW 6: Through Indo-Bangladesh protocol routes, river Barak is also connected with Kolkata and Haldia ports, thus providing connectivity with West Bengal not only for Assam but also for Tripura, Mizoram, Manipur and Nagaland. Inland vessels already ply between Kolkata/ Haldia and Karimganj (on Barak river) from time to time, particularly in monsoon season. Declaration of river Barak from Lakhipur to Bhanga (121 km) as sixth NW is under active consideration of the Govt. Its estimated cost is Rs 90 cr. Being in remote area of NER and considering its strategic importance, it is proposed that the entire funding for its development may come through Budgetary Support.

Other New Waterways:

Some more new waterways may be considered for declaration as National Waterways during 2010-2020 or atleast their funding for development may be by Govt as VGF. For Example, Goa Waterways, Extension of NW-3 (Kollam to Kovalam in the south and Kottapuram to Kasaragod in the north), Mumbai waterways, Sunderbans, DVC Canal, Narmada river etc. A provision of Rs 6,800 cr is estimated for undertaking development works in these waterways as per following estimates (In these cases also, 40% VGF from Govt funding and balance 60% by private sector is assumed.

		(Rs in Cr)		
Waterway		Total cost	VGF(40%)	Pvt funding(60%)
Goa Waterways	Rs 600 cr	600	240	360
Extension of NW 3	Rs 2000 cr	2000	800	1200
Mumbai waterways	Rs 2100 cr	2100	840	1260
Sunderbans waterways	Rs. 100 cr	100	40	60
DVC canal	Rs 1000 cr	1000	400	600
Other waterways	<u>Rs 1000 cr</u>	1000	400	600
Total		6800	2720	4080

Incentives for IWT Operators

It is proposed to introduce incentives to the IWT entrepreneurs @20 paisa/ tonne-km for movement of cargo through the national waterways for non-availability of sufficient infrastructural facilities. Payment of this incentive is proposed till IWAI makes the existing national waterways fully operational with provision of mechanical loading/ unloading+ facilities at all the terminals. A provision of Rs 320 cr (@ 20 paise per tone-km for 16 btkm incremental movement) is proposed to meet this requirement.

New Scheme for Unorganized Sector

The Inland Vessel Building Subsidy Scheme was not applicable to country crafts. It has been observed that in NER and in other parts of the country, a lot of transportation activity (both passengers and cargo) takes place through small country crafts of upto 40-50 ton capacity. Mechanization of these small vessels and fitting appropriate safety devices/ appliances on board will improve the productivity of these vessels, bring down transportation cost, improve overall transportation efficiency and make IWT operations safer. Hence, there is a need to introduce a new scheme for upgrading the country crafts. This will also facilitate poverty alleviation through employment generation and enable remote area connectivity. The funding pattern suggested is 50% by Govt. and 50% by the owner of country craft. The Govt's share be met fully by the Central Govt. Further details and modalities of implementation of the Scheme will be worked out in consultation with the state Govts. BS proposed is Rs. 100 cr. Corresponding EBR share will be Rs 100 cr.

Vessel leasing Special Purpose Vehicle (SPV)

IWT operators are by and large averse to the financial risk of owning IWT vessels. At this stage, they would rather feel comfortable, if vessels are available in the market on lease basis. To facilitate this, a SPV is proposed to be formed with IWAI partnering with reputed financial Institutions. IWAI's contribution may be pegged at Rs. 100 cr equivalent to 40% equity contribution in the JV that would manage vessel leasing operation. Accordingly, an outlay (Budgetary Support) of Rs. 100 cr is proposed on this account. Corresponding Extra Budgetary Resources (EBR) provision shall be Rs 525 cr @ Debt Equity Ratio (DER) of 3:2.

Dedicated IWT Development Fund (for JV of acquisition of vessels)

IWAI Act provides for equity contribution for various types of JV projects and the IWT policy stipulates upper limit of 40% on IWAI's participation in such JV's. In order to affect modal shift in favor of IWT it is proposed to promote vessel acquisitions through JV route. Thus, it will be desirable to have a dedicated IWT corpus fund built up through budgetary support and through contribution made by FIs, one of whom could be Fund Manager as well. This corpus could be used for funding JV projects for acquisition of vessels @ 3:2 DER. An outlay of Rs. 500 cr (Budgetary support) is proposed on this account. Corresponding EBR is Rs 2625 cr @ DER of 3:2.

Funding for composite Transportation projects

Ministry of Finance has issued guidelines for viability gap funding for infrastructure development under public- private partnership projects. It is proposed to introduce a new scheme for funding of composite transportation projects in the IWT sector. The funding would be limited to a maximum of 40% of project cost. The composite projects would comprise infrastructure facilities

(terminals with mechanical loading/ unloading facilities), vessel acquisition and operation between identified origin and destination pairs. An outlay of Rs 500 cr (Budgetary support) is proposed for meeting the viability gap funding for composite transportation projects. The corresponding EBR component shall be Rs 750 cr.

6. Financing of projects:

IWAI is not expected to have substantial Internal Resources even the 2020. Hence the funding for all the above mentioned projects is considered through Budgetary sources (BS) and private funding (EBR). The Summary of Ongoing Schemes in respect of BS & EBR and New schemes is given below:

	(Rs in Cr)			
	Budgetary Support (BS)	Internal Resources (IR)	Private Funding (EBR)	Total
Ongoing projects	4175	-	8400	12575
New projects	6630	-	11505	18135
Total	10805	-	19905	30710

Therefore total financial implication of the proposed Perspective Plan for 2010-2020 is Rs 30,710 cr [BS- Rs 10,805 cr and EBR (i.e. private funding) - Rs 19,905cr]. Details for each scheme are given in **Annexure**.

ANNEXURE

INLAND WATERWAYS AUTHORITY OF INDIA

(Rs.in Cr)

S.no	Name of Project	Approx cost	Funding pattern			Year of project preparation/ commencement	Expected date for completion of project
			Budgetary Support	IBER	Private/ other		
1	2	3	4	5	6	7	8
A)	<u>On going projects</u>						
1	Making National Waterway 1 fully functional	312.00	312.00			2010	2013
2	Making National Waterway 2 fully functional	77.00	77.00			2010	2013
3	Making National Waterway 3 fully functional	90.00	90.00			2010	2013
4	NINI and setting up of STCTC	100.00	100.00			2010	2020
5	Joint Venture (PPP projects)	2511.00	411.00		2100.00	2012	2020
6	IWT promotion activities	50.00	50.00			2010	2020
7	IT related activities	10.00	10.00			2010	2020
8	Technical studies	25.00	25.00			2010	2020
9	Inland vessel building subsidy scheme	9000.00	2700.00		6300.00	2012	2020
10	Indo Bangladesh Protocol routes	200.00	200.00			2012	2020
11	Central Plan Scheme for development of waterways in NER	200.00	200.00			2010	2020
	<u>Sub-total ongoing projects</u>	12575.00	4175.00		8400.00		

B	<u>New projects</u>						
1	Development of NW-4	1515.00	600.00		915.00	2010	2020
2	Development of NW-5	4210.00	1700.00		2510.00	2010	2020
3	Development of proposed NW-6	90.00	90.00			2012	2015
4	Other New Waterways	6800.00	2720.00		4080.00	2012	2020
5	Incentive for IWT Operators	320.00	320.00			2012	2020
6	New Scheme for Unorganized Sector	200.00	100.00		100.00	2012	2020
7	Vessel leasing Special Purpose Vehicle (SPV)	625.00	100.00		525.00	2012	2020
8	Dedicated IWT Development Fund (for JV of acquisition of vessels)	3125.00	500.00		2625.00	2012	2020
9	Funding for composite Transportation projects	1250.00	500.00		750.00	2012	2020
	Sub-total new projects	18135.00	6630.00		11505.00		
	Total	30710.00	10805.00		19905.00		

CHAPTER-20

Proposed Policy Measures Initiatives & Expected Outcomes

20.1. SHIPPING SECTOR

The following issues have a bearing on the growth of Indian shipping industry.

i) Increasing Indian tonnage :

A clear policy to support the growth of an indigenous fleet needs to be formulated. It is proposed that the cabotage should be continued and the fiscal/tax regime be rationalized so as to attract fresh tonnage in to Indian registry. This is to be supported by a policy that would sustain existing tonnage, make investment in shipping attractive to new investors and provide special incentives aimed at energy security needs. To make the national register attractive, the effective tax rate should be brought down to a level that will enable shipping companies to compete globally.

ii) Legislative updation :

With the rapid changes in the International Maritime Regulatory measures and as a result of adoption of various maritime IMO/ILO Conventions, it becomes imperative to constantly update our national legislation, in order to keep pace with the International regulatory measures. A greater emphasis is required to bring in all new IMO instruments into the national law, for an effective implementation. It is envisioned that the period between the adoption of International convention and National legislation be reduced to 3 years by 2015 and to 1 year by 2020.

iii) Marine disaster and Pollution Response arrangements

It has been observed that the Marine disaster and Oil Pollution Response arrangements set up in sea ports, oil terminals, offshore structures with the coast guard is inadequate to deal with major oil spill. Being party to OPRC Convention it is the obligation of Government of India to establish adequacy in Oil Pollution Combating Equipment stockpiles along the coast line including the offshore area. For marine disaster response arrangements, minimally, this would require the availability of at least two 100 T bollard pull tugs on each coast; the basic equipment for tow and de-canting of bunker oil from tanks of ships in distress; and a team of salvagers who will be available at short notice.

iv) Coastal Shipping :

Coastal shipping policies have to be formulated especially in areas such as Promoting River-sea vessels. Manning relaxation without compromising on the safety, Financial incentives, Infrastructural facilities, Modal shift in cargo from rail and road, Legal issues, Declaration of IV limits in different states, Data-base and communication infrastructure, Cabotage policy support, custom processes and procedures for the development of seamless movement of cargo and growth in Coastal shipping.

v) Human Resource Development

India can aspire to strong growth in Officers and Ratings by 2020. The share of high-quality Officers can increase from 6.3 in 2009 to 9.0 per cent in 2020, whereas Ratings could see a moderate growth from 7.5 per cent in 2009 to 9 per cent in 2020 by significantly improving their quality. This implies an additional 65,000 Officers and 45,000 Ratings taking in to consideration annual attrition, which will require expanding annual training capacity from 5,600 to 15,000 Officers and from 4,600 Ratings to 9,000 Ratings. The ramping up of capacities in Pre Sea and Post Sea training should not present any major difficulties as the entry of the private sector since the late nineties has led to strong and continuing growth. The real challenge is in providing adequate sea training berths which are in short supply thereby choking the entire supply chain

vi) Administrative issues :

Restructuring and upgradation of DG Shipping / MMD Offices for better regulatory/monitoring of shipping activities in India needs immediate attention. Further, all major IMO conventions mandate Port State Control and Flag State Inspection of vessels to be meticulously carried out by all member States. India had already implemented this requirement. However, a complete implementation could not be practiced due the varied reasons, particularly, shortage of manpower and at present we are only able to carry out inspection of about 4% foreign ships calling at Indian Ports under PSC and 40% of Indian ships under FSI.

20.2. SHIPBUILDING SECTOR

i) **Introduction of new Shipbuilding Subsidy scheme:** In order to provide a level playing field to the indigenous shipbuilding industry which needs a continuous flow of orders a new shipbuilding subsidy scheme is under consideration for neutralization of various taxes and duties imposed on shipbuilding industry. It is proposed to achieve 5% share in the new order book position in the global market by 2020.

- ii) **Grant of Infrastructure Status:** A proposal for grant of infrastructure status to shipbuilding industry has been forwarded to Ministry of Finance. It is expected that with the grant of infrastructure status the indigenous shipbuilding industry would be able to utilize the tax benefits and availability of easy credit for improvement in the technological development, infrastructural facilities and modernization.
- iii) **Provision of Capital Subsidy:** There is need to promote technological up gradation and development of green technologies in shipbuilding industry and a scheme for capital subsidy encouraging adoptions of world class technologies by indigenous shipbuilding industry in these fields is proposed as a follow up of shipbuilding subsidy scheme. The scheme will help in transfer of technology and modernization of Indian shipyards.
- iv) **Purchase Preference for Indian Shipyards:** Foreign shipyards enjoy various policy and fiscal incentives which are not transparent and some of these yards adopt predatory pricing policies which affect Indian shipyards. It is therefore proposed to consider introducing purchase preference for Indian shipyards by matching the lowest price for ship acquisition including dredgers by Government in global tenders. The aim is to build up volumes and capacities of Indian shipyards.
- v) **Offset Scheme for Government procurement:** The development of indigenous shipbuilding industry is at a nascent stage. It is proposed to examine an offset scheme for ship acquisition so that the indigenous ship ancillary industry gets a boost in their development and growth.
- vi) **Formulation of a policy to promote/facilitate Maritime clusters:** It is considered that there is a need to promote/facilitate formation of maritime clusters including shipbuilding & ship repair hubs and ship ancillary units for an integrated development of these sectors. The multiplier effects of these industries on the Indian economy in the form of employment generation, self reliance and multifaceted skill building capability are huge and worth promoting.
- vii) **Centers in Shipbuilding education & training:** There is a need to promote the skills in shipbuilding for workers, supervisors, managers the Government may facilitate/ incentivize setting up of such institutes and centers. Budgetary provision for such scheme may be considered.
- viii) **Encourage the major ports to set up ship repair and maintenance hubs:** The major ports and big non major ports need to be encouraged to set up ship repair and maintenance hubs so that there is optimum utilization of their resources and indigenous ship repair industry gets the requisite support for development/growth.

ix) **Liberalization of scheme for registration of ship repair unit:** The existing scheme for registration of ship repair units is very cumbersome and time consuming and needs to be liberalized so that the ship repair industry can grow unfettered. There is a proposal to consider registering individual ships as ship repair unit which will incentivize ship repair within the country.

20.3. IWT SECTOR

Development of IWT infrastructure:

(i) One of the major policy measures is development of IWT infrastructure namely reliable fairway with assured least available depth for round the year and round the clock navigation, terminals for berthing of vessels and interface with road and rail modes on all National Waterways to make them fully functional for commercial viable operations.

Public Investment:

(ii) Public investment in IWT sector is negligible vis-a-vis road, rail and aviation sector. It is felt that for reaching threshold level of IWT development to make the waterways commercially viable, there ought to be quantum jump in public funding in IWT sector. There would be around 10,000/- cr. by 2020 in terms of budgetary support.

Private Participation:

(iii) To promote Inland Water Transport, there is a need for private participation in IWT infrastructure. Development of stretches of national waterways those are commercially viable and have potential for private participation are to be considered for development through PPP mode initially. It is proposed to raise 60% of cost of these IWT projects through private participation which would be around Rs. 20,000/- cr.

Feeder Routes to National Waterways:

(iv) All riverine states to develop feeder routes to National Waterways or major waterways of that state specifically North-East states adopting fish bone model wherever feasible through their annual plans. Development of inland waterways by connecting different rivers in North East would be provided to NE states through 100% assistance under Central Plan Scheme.

Indo-Bangladesh Protocol of IWT & T:

(v) Indo-Bangladesh Protocol on IWT&T is required to be renewed for a longer period. The proposed NW-6 (Lakhipur to Bhanga stretch of Barak River) would extend the protocol route upto Lakhipur. Stretches of Gumti and Howrah river of Tripura could be connected with Meghna and Titas rivers of Bangladesh for their inclusion in Protocol route. There is possibility of movement of containerized cargo to and fro Narayanganj/Ashuganj in Bangladesh in future.

Man-power requirement:

(vi) To meet the requirements of trained manpower of IWT sector, it is necessary that all riverine and coastal states set up state level Crew Training Centres. They may also be in close interaction with NINI, Patna.

River Cruise:

(vii) There is a vast potential for river cruise in India. Many commercially viable operations of cruise vessels by private operators already take place on NW-1, 2 & 3. There is need for its expansion with govt. and private investment in developing tourism related infrastructure in the waterfront in coordination with Ministry of Tourism, GOI and other State Tourism departments.

Increasing the number of Inland Vessels:

(viii) There is an acute shortage of inland vessels. There is a need to re-introduce Inland Vessels Subsidy Scheme (30% subsidy for construction/acquisition of inland vessels for national waterways and Protocol route) in 12th Plan and beyond to provide necessary boost for increasing the availability of inland vessels.

Modal Shift:

(ix) Modal share of movement of cargo through IWT in the country is 0.28% i.e is about 4 BTKM. Rail and road transport mode is saturated. It is envisaged to increase the modal share of IWT along with coastal Shipping to 10% by 2020.

Modernization of country boats:

(x) Modernization and improvement of country boats in North East and other areas of the country will improve the productivity of IWT vessels and improve connectivity in remote areas besides generating employment.

Integrate of IWT & Coastal Shipping:

(xi) India with over 7000 km long coastline, coastal shipping is still in its infancy accounting for just about 1 million GT. It is necessary to integrate IWT and coastal shipping to achieve optimum potential of these two water borne modes. Inland Vessels Act, 1917 has been amended and definition of inland waters has been enlarged. River-sea vessels for use in Coastal as well as IWT are being designed for seamless transportation of cargo from one inland waterway to another through coastal shipping. Policy measures are required to further strengthen the integrate of IWT & coastal shipping.

4. Aid to Navigation Sector:

(i) **Establishment of VTS in Gulf of Kutchh(GOK)** at a sanctioned cost of Rs.165 crore consists of 9 Radar sites 3 Repeater stations and 6 Port Monitor Stations. This project has been planned to facilitate safe movement of vessels in the GoK, the safety of marine life and protection of environment. The project involves civil engineering works including installation of Radar and microwave equipment at 9 Radar sites viz. Kandla, Navinal, Chhachi, Jakhau, Koteshwar, Mandvi which are on the Kachch side and Okha, Chudeswar and Balachadi on the Saurashtra side. About 80% of the civil engineering work is complete and radars at 4 sites have been installed including the Port Monitor at Kandla and part system is on trial run. Commissioning of VTS in GoK is expected by 31st January,2011. DGLL also intends to implement the Scheme of VTS at minor ports at an estimated cost of Rs.300 crore.

(ii) **Establishment of National AIS Network:** The Automatic Identification System (AIS) is a device to facilitate the Coastal ship reporting system. VTS & Ports will be benefited on exchange of real time ship data. DGLL is in the process of establishing a shore-based National AIS Network which will significantly enhance and complement existing aids to navigation. The project was approved at RCE stage for Rs.75.20 crore The work order has been signed on 18.11.2010. This project is expected to be completed in 2012.

A second phase of this project will encompass islands of A&N and Lakshadweep and is proposed to be taken up by DGLL in the 12th Plan period.

(iii) **Automation of Lighthouses in Cochin/Chennai/ Vishakhapatnam /Kolkata Light Houses Districts** at an estimated cost of approx Rs.30.00 crores has been approved. This will facilitate real time monitoring of Aids to Navigation from a convenient location for appropriate and fast corrective measures.

(iv) Establishing the GPS-RTK (Real time Kinematic System)

In addition to the above, DGLL proposes to (a) establish the GPS-RTK(Real Time Kinematic) system to determine real time water level corrections at an estimated cost of Rs.100 crores. This system becomes most suitable for the GoK and Gulf of Khambhat where tidal and current variations are appreciable and real time corrections of these parameters can help in berth to berth navigation and also enable vessels in carrying extra cargo thus having long term economic implications;

(v) Green Energy:

One of the policy outcome is to promote a policy of utilization of solar and wind energy to bring down the consumption of diesel.

PART – IV

**MARITIME
AGENDA**

CHAPTER 21

AGENDA FOR THE DECADE

21.1 The Indian maritime sector needs simultaneous multiple interventions to achieve certain goals which are concomitant with the economic growth of the country. Some of the goals to be targeted for achievement by the end of the decade (2020) are

- Create Port capacity of 3200 M.T. for handling about 2500 M.T. of cargo (This would necessitate an investment of about Rs 3 lakhs crores)
- Improve Port performance on par with the best in the world
- Increase tonnage under the Indian flag as well as under Indian control (This would need an investment of about 1.20 lakh crores)
- Increase Coastal shipping and facilitate hassle-free multimodal transport
- Increase India's share in global ship building to 5%
- Promote use of the inland waterways for cargo movement
- Increase the strength of Indian seafarers to 9% of the global strength by 2015 and sustain above this level

21.2 This would involve several policy measures as well as programmes and projects. This document has identified the major ones for consideration and decision/action by all concerned. The important items in the agenda are listed below:

I. PORT CAPACITY

1. Implementation of the Port development projects identified in this document
2. Major ports to provide draft of not less than 14 metres and hub ports 17 metres
3. Full mechanisation of cargo handling and movement in the Major Ports
4. Development of adequate storage areas in the Major Ports
5. A new policy on dredging

6. Strengthening DCI through new acquisition of dredgers
7. Identification and implementation of projects for rail, road and inland waterway connectivity to the Ports
8. Development of two hub ports on each of the West and the East coasts – Mumbai (JNPT), Kochi, Chennai and Visakhapatnam
9. Development of two new Major ports
10. Encouraging the major ports to set up ship repair and maintenance hubs
11. Facilitation for cruise shipping at selected ports
12. Action on the Sethusamudram Canal Project based on Supreme Court orders.

II PORT POLICY MEASURES

1. Corporatisation of Major Ports
2. Major ports to be landlord ports
3. Periodic review of the processes and documents for Public Private Partnerships
4. A new land policy for the Major ports
5. A policy on monopoly in the Major Ports
6. A new policy for captive berths in the Major Ports
7. Establishing a Port Regulator for all the ports for setting, monitoring and regulating the service levels and the technical & performance standards.
8. Review and simplification of the tariff fixation mechanism for the Major Ports
9. Proposing simplification of the environment clearance process for the port projects
10. Shifting of transshipment of Indian containers from foreign ports to Indian ports
11. Defining Corporate Social Responsibility of the Major Ports
12. Policy on societal integration of the ports

13. A framework for cooperation between Indian ports and those in other countries
14. A policy on cooperation and competition among Indian ports
15. Establishment of 'Indian Ports Global' for overseas investments by Indian Ports
16. Ports to work towards being 'green ports'
17. Review the systems for the handling of dirty and dangerous cargoes in ports

III TECHNOLOGY FOR EFFICIENCY, SAFETY AND SECURITY

1. Ports to use information technology for quality performance
2. Port Community system to be fully integrated with all stakeholders
3. Non-major ports also to have PCS
4. Introduction of modern security systems in the ports
5. Security of SPMs
6. Review of safety systems in the ports
7. VTMS for all ports handling EXIM cargo
8. Integration of e-modules on COC, CDC, RPS, INDOS, SPFO etc for the benefit of seafarers
9. Establishment of AIS network along the coast
10. Completion and operationalisation of the VTS in the Gulf of Kutch
11. Establishment of Real Time Kinematic (RTK) system in the Gulf of Kutch and the Gulf of Khambat

IV ENVIRONMENT

1. Ports to work towards being 'green ports'(II.16)
2. Designation of an Emission Control Area (ECA) for specific portions of Indian coastal waters
3. Designation of Particularly Sensitive Sea Areas.
4. Ballast Water Management.

- Port biological baseline survey and risk assessment of nine major ports.
 - Setting up of the facility of Ballast Water treatment Technology verification and certification
5. Marine disaster and oil pollution response mechanism
 - At least two 100 T bollard pull tugs on each coast;
 - The basic equipment for tow and de-canting of bunker oil from tanks of ships in distress;
 - A team of salvagers who will be available at short notice
 6. Use of non conventional sources of energy for the Lighthouses and the aids to navigation
 7. Promotion of the building of 'green ships'
 8. Proposing simplification of the environment clearance process for the port projects (II.9)

V HUMAN RESOURCES

1. Human Resources Development in shipping

- The share of Officers to increase from 6.3 in 2009 to 9.0 per cent in 2020
- Ratings to see a growth from 7.5 per cent in 2009 to 9 per cent in 2020 by significantly improving their quality.
- Expanding annual training capacity from 5,600 to 15,000 Officers and from 4,600 Ratings to 9,000 Ratings.
- Providing adequate sea training berths

2. Online examinations for seafarers

3. Align training requirements with STCW provisions

4. Review of manning scales in line with international norms

5. Additional campuses for the Indian Maritime University in major coastal cities

6. New courses in specialised areas in Engineering, Management, Law etc in IMU campuses.

7. Collaboration of IMU with top global academic institutions in the maritime sector
8. Contributory Annuity Scheme for seamen
9. Creation of additional facilities and improvement of seamen's hostels
10. Capacity building for Port personnel
11. Pilots' training
12. Improving port based facilities for seafarers
13. Centres in Shipbuilding education & training to promote the skills in shipbuilding
14. Enhance capabilities for ship design
15. State level Inland Waterways Crew Training Centres in close interaction with NINI, Patna.
16. Promotion of Research in various areas in the maritime sector

VI SHIPPING POLICY

1. Increase Indian tonnage through necessary policy interventions
2. Declaration of a new Coastal shipping policy
 - Promoting River-sea vessels.
 - Manning relaxation without compromising on the safety,
 - Financial incentives,
 - Infrastructural facilities,
 - Modal shift in cargo from rail and road,
 - Legal issues,
 - Declaration of IV limits in different states,
 - Data-base and communication infrastructure,
 - Cabotage policy support,
 - Customs processes and procedures
3. Policy on cargo support
4. Policy on liner cooperatives
5. Establishment of a 'Freight Exchange'
6. Creation of Ombudsman / Tribunals for Shipping matters

7. Formation of an independent Marine Casualty Investigation Cell
8. Establishing a P & I Club in India
9. Opening of a second register
10. Review of TRANSCHART

VII FINANCE

1. A Maritime Finance Corporation
2. Study of Taxation Systems
 - Tonnage Tax
 - Income Tax for the ports
 - Income Tax for seafarers
 - Service Tax
 - Customs duties on bunkers and repair materials

VIII SHIPPING PROGRAMMES

1. SCI to have ambitious vessel acquisition plans to lead the growth in Indian tonnage
2. SCI to increase container handling capacity
3. Introduction of passenger ferry services between India and Sri Lanka
4. Introduction of passenger ferry services between India and Maldives
5. Introduction of passenger ferry services between India and other nearby countries
6. Introduction of coastal ferry-cum-passenger services for Chennai to Kanyakumari, and other suitable places
7. Introduction of faster vessels to Lakshadweep
8. Strengthening the Navigational Safety in Ports Committee (NSPC)
9. Ro-Ro Ferry service in Gulf of Kutch, Gulf of Cambay and other suitable places
10. Strengthening of capacity for Port State Control and Flag State Inspections.
11. 10% PSC inspections of foreign ships calling at Indian Ports by 2015 as mandated by IMU.

- 12.100% FSI inspections of Indian ships by 2020.
- 13.Promotion of multi modal transport operations for door to door delivery
- 14.Restructuring and upgradation of DG Shipping / MMD Offices for better regulation/monitoring of shipping activities
- 15.Promotion of a Salvage Company in India, with Viability Gap Funding if required

IX SHIPBUILDING AND REPAIRS

1. Introduction of new Shipbuilding Subsidy scheme
2. Grant of Infrastructure Status to shipbuilding industry
3. A scheme for capital subsidy for encouraging adoption of world class technologies by the Indian shipbuilding industry
4. Purchase preference for Indian shipyards in procurement of ships by Government through global tenders.
5. Offset Scheme for Government procurement
6. Expansion of Cochin Shipyard
7. Promotion of the building of 'green ships' (IV.7)
8. Formulation of a policy to promote/facilitate maritime clusters including shipbuilding & ship repair hubs and ship ancillary units
9. Centres in Shipbuilding education & training to promote the skills in shipbuilding (V.13)
- 10.Enhance capabilities for ship design (V.14)
- 11.Liberalization of scheme for registration of ship repair units

X TOURISM

1. Development of the tourism potential of the Lighthouses
2. Facilitation for cruise shipping at selected ports (I.11)
3. Promotion of River Cruises

XI INLAND WATERWAYS

1. Development of IWT infrastructure:
 - Reliable fairway with assured least available depth for round the year and round the clock navigation,
 - Terminals for berthing of vessels and interface with road and rail
2. Quantum jump in public funding in IWT sector
3. Declaration of River Barak as National Waterway no.6
4. Development of national waterways 4 & 5
5. Development of stretches of National Waterways through the PPP mode.
6. Extension of National Waterway No.3 in Kerala
7. States, especially North-East states to develop feeder routes to National Waterways or major waterways
8. Renewal and strengthening of Indo-Bangladesh Protocol of IWT & T
9. State level Crew Training Centres in close interaction with NINI, Patna. (V.15)
10. Promotion of River Cruises (X.3)
11. Increasing the number of Inland Vessels and Re-introduction of Inland Vessels Subsidy Scheme
12. Modernization and improvement of country boats in North East and other areas.

XII INSTITUTIONAL DEVELOPMENT

1. Formation of an Indian Maritime Council to bring together all sectors of maritime activities, both public and private.
2. Creation of a Shipping Sectoral Innovation Council
3. Establishment of a National Maritime Museum
4. Promotion of Research in various areas in the maritime sector (V.16)
5. A Maritime Finance Corporation (VII.1)

XIII LEGISLATION

1. Enactment of a new Indian Ports Act replacing Indian Ports Act 1908 and the Major Port Trusts Act 1963
2. Enactment of Admiralty Act
3. Enactment of Shipping Trade Practices Act
4. Review of the law on the Multimodal Transportation of Goods
5. Revision of the law on Lighthouses and Lightships
6. Amendment of MS Act to take care of
 - Ballast water Convention
 - Anti fouling Convention
 - Recycling Convention
 - HNS Convention
 - London Dumping Convention
 - Wreck Removal Convention
 - Bunker Convention
 - Maritime Labour Convention
 - New Conventions that may be ratified

XIV INTERNATIONAL MATTERS

1. Control of piracy through concerted international action
2. Bilateral maritime agreements with selected countries / regions for mutual benefit
3. A framework for cooperation between Indian ports and those in other countries (II.13)
4. Establishment of 'Indian Ports Global' for overseas investments by Indian Ports (II.15)
5. Introduction of passenger ferry services between India and Sri Lanka (VIII.3)
6. Introduction of passenger ferry services between India and Maldives (VIII.4)
7. Introduction of passenger ferry services between India and Other neighbouring countries (VIII.5)

8. Collaboration of IMU with top global academic institutions in the maritime sector (V.7)
9. Renewal and strengthening of Indo-Bangladesh Protocol on Inland Water transport (XI.8)

XV GENERAL

1. Establishment of State Maritime Boards in all the coastal States
2. Bringing out an annual report card on the decadal maritime agenda in May every year upto 2020