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OF THE THESIS
ON
**DEVELOPMENT OF PORTS IN SAURASHTRA AND KUTCH
REGION: AN ECONOMIC ANALYSIS**

SUBMITTED TO
SAURASHTRA UNIVERSITY
RAJKOT

*FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY IN ECONOMICS
UNDER THE FACULTY OF ARTS*

SUBMITTED BY
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CERTIFICATE

This is to certify that the research work entitled "**DEVELOPMENT OF PORTS IN SAURASHTRA AND KUTCH REGION: AN ECONOMIC ANALYSIS**" is the original work of Mr. Sudhir P. Tiwari which has been conducted and completed under my supervision.

I further certify that this thesis has not been submitted either partially or wholly to any other University / Institution for the award of any Diploma or Degree.

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DECLARATION

I hereby declare that the research work incorporated is original and has not been submitted either partially or wholly to any University / Institution for the award of any Diploma or Degree.

I further declare that the content and the result presented here is in view of the advancement of the knowledge in Economics in general and in the area of Infrastructural Trends in the State of Gujarat in particular.

Signature

Sudhir P. Tiwari

Place: Rajkot

Date: 7/9/2011

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CHAPTER 1

ECONOMIC DEVELOPMENT THROUGH PORTS

1.1 INTRODUCTION

A port becomes a wheel of economy if it runs efficiently. Presently the function of a port is not only limited but has expanded to a logistical platform. The efficiency of a port is important in international trade since a seaport is the nerve of foreign trade of a country.

A seaport is the compulsory transit point for the bulk of this trade, permitting the import of goods, which the country does not itself produce in sufficient quantity and the export of items which the country has a surplus or has a competitive edge to produce contributing to the development of its economy. Besides, a port is also a place for the provision of further services, which add value to the products transported and thus helps the increasing demand of trade.

The globalization of world economy has brought about tremendous increase in exchanges of goods across the world. The world trade also accelerated as cost of shipping has increased due to the introduction of economy of scale and the development of technology in shipping.

To cope with the ever growing world trade, ports of every country will no doubt continue to play a critical and important role in providing the cheapest mode of transportation.

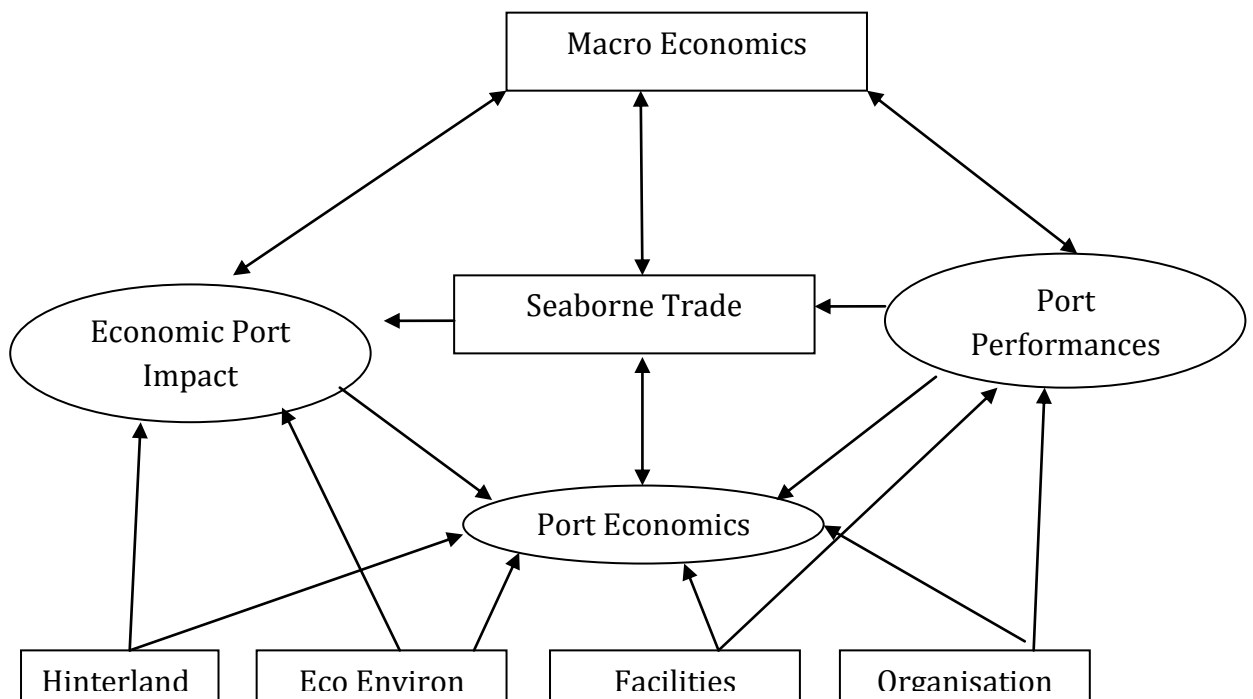
Relationship between macroeconomics, port economics and port performance

Port performance and port economics are closely related with macroeconomics hence, any changes in port traffic or operation and port / port organization has an impact on national economy particularly on the hinterland.

Indian seaports are today more than just government owned public utilities; they are indeed, focal points of convergence for several contending and competing business interests from shipping lines, port authorities, and individual terminal operators to

freight forwarders and inland logistics agencies; not to leave out the shippers (the exporter-importer fraternity) whose cargo is what is being ultimately being transported. They represent what may rightly be considered a complex mosaic of contractual and business relationships, which in turn give rise to maze of regulatory and operating institutions and procedures and ever-changing rules of dynamic inter-play.

Relationship of Port Economics And Macroeconomics Figure 1



Under the impact of first-generation port reforms, initiated since the mid-nineties, following economic liberalisation and globalisation policies, the entire gamut of existing institutional arrangements and underlying transactional and business processes in the port sector have been undergoing a profound transformation.

Consequently, conventional port and terminal ownership, management and regulatory frameworks guiding the port operations are undergoing changes in line with broader process of functional evolution of ports and global maritime trade.

The critical changes underway in the port sector have many facets that need to be brought under a comprehensive review and research scrutiny from contemporary perspective. Few attempts made in the past have merely focused on the historical and social aspects of Indian port sector, without examining the underlying business and economic processes that make port inalienable part of a larger national and international economy.

Not too surprisingly, there are hardly any significant books or research monographs that portray a contemporary emerging picture of the Indian port sector, as the gateways to global trade. This leaves a large gap to be filled and considering that Indian port projects are now increasingly becoming key destinations for strategic business investments and are increasingly becoming key links in the rapidly expanding global trade, understanding of the working of the port sector becomes an urgent and critical task both from the public policy angle and strategic business decisions.

Indeed, there have been a number of project-specific and port-specific studies and long-term forecasts on cargo traffic growth made by a number of technical and business consultants to the port and shipping sector. Recently, Rail India Technical and Engineering Services (RITES) have come up with “Perspective Plan for Indian Port Sector - Vision 2020” for the Union Ministry of Shipping.

On Gujarat port development, the Dutch government and the Gujarat Maritime Board have jointly come up with Port Development Gujarat Programme (PODEG). The Planning Commission sub-group too has recently also come out with a Report on General Cargo including Containerised Cargo for the Tenth Five Year Plan (2002-2007). The scope of these studies are however, limited to specified objectives of analysis and are not designed to contribute to wider level understanding of the process of port sector reforms and the macro-level workings of the port sector in the country.

It is against this backdrop that we thought it necessary and relevant to come out with the present report. The project is a maiden attempt to present a broader overview of the port sector in the Saurashtra, Kutch region and macro-level business and public

policy perspective. The effort has been to focus on some key issues of interest to current participants in the port sector and be discursive rather than recommendatory.

The report seeks to thus basically aggregate range of issues and viewpoints in the process; weaving together different and discrete issues and contentious points of debate in the ongoing process of port reforms in Saurashtra & Kutch.

Nevertheless, I have sought to summarize some key trends in the port sector, in terms of the changing profile of the port infrastructure development and port terminal operations, under impact of privatisation and corporatisation of ports.

The study also has a major focus on the unfolding traffic dynamics at various major and minor ports and the evolution of regulatory policy framework for the port sector both at the global and national levels. I hope this study serves an important objective of generating broader awareness and interest in macro-level issues and concerns impacting future development of port sector in the country.

I hope it will also meaningfully contribute to the national debate on the ongoing port reforms, which has key implications for the development of the national economy by more fully unleashing the potential of ports.

India's Maritime Trade

India's maritime trade comprises of export-import trade in various bulk commodities like crude oil and other petroleum products, iron ore and coal, besides general purpose cargo. Over the last ten years, since the onset of economic liberalization, there has been a significant spurt in handling of value-added goods mainly in form of containerised cargo movement, in several Indian ports.

This has given rise to many new dimensions in the development of the port sector in the country. Containerisation of cargo has brought about a significant redefinition of port services and demands for highly sophisticated handling equipment and logistics service efficiencies.

The shift away from commodity nature of India's export trade is particularly, noticeable in the marked shift towards increasing value added exports and drive for

global competitiveness. The shift in the pattern of trading is however, yet to find adequate support in terms of a maritime infrastructure.

Interestingly, in the past ten years while overall cargo growth (reckoned at about 9-10 per cent) has been quite impressive, new demands have been generated on the port sector for adding on more cargo handling capacity and creation of new-dedicated berths and cargo terminals.

Consequently, the port sector is going with considerable business optimism with respect to generation of increasing cargo traffic volumes and of trade in general in the coming years. Considerable future business potential is also seen with respect to generating enhanced earnings from port sector operations through improving efficiencies and other value-added activities contributing also thereby to making country's external trade competitive in the global market.

Though India's overseas trade in value terms is still less than one per cent of the total world trade, the physical cargo volumes handled at the seaports have however been quite sizeable. The Indian major ports have together handled 715.62 million tonnes of cargo in fiscal 2007-08 and taken together with 196.38 million tonnes of the cargo traffic handled in the same year by the minor, intermediate ports.

Development of Port Sector in India

India's has around 7517 km of natural peninsular coastline strategically located on the crucial East-West trade route, which links Europe and Far East. The coastline has 12 major ports and about 180 other minor and intermediate ports.

Most of the major ports have been established in the last few decades of post independent economic planning, while two of the older major ports like Kolkata and Mumbai were established more than hundred years back during the British colonial rule.

The development of the port sector in India till recently has been exclusively responsibility of the Central government and had grown into a natural public

monopoly of sorts. In fact, it still continues to be so despite recent trend towards privatisation of port infrastructure development.

The seaports of India have played a historical role in the development of maritime trade and economy in India. Indeed, maritime trade in India has been and continues to be almost synonymous with India's overseas trade, accounting for over 95 per cent of India's total cargo volumes.

The structure, composition and direction of India's overseas trade has however, been undergoing important changes over the last five decades since India's independence, in line with the broader macro-level changes in the economy. The last ten years of economic reforms and globalisation, in particular, have accelerated the process of change towards a more diversified commodity composition of trade.

There is also a perceptible shift in the growth of the economy, in terms of changing composition of Gross Domestic Product (GDP), initially represented by shift from pre-dominance of agriculture to increasing share of industry and subsequently of the services sector.

Table No. 1

	Units	1951	2000	2007-08
Cargo Handled at Major & Non Major Ports	Million Tonnes	22.5	334.3	715.62

Source: Statistical Outline of India

A. EXPORTS (including re-exports)

Exports during June, 2011 were valued at US \$ 29213.14 million (Rs. 131031.43 crore) which was 46.45 per cent higher in Dollar terms (41.06 per cent higher in Rupee terms) than the level of US \$ 19948.18 million (Rs. 92892.68 crore) during June, 2010.

Cumulative value of exports for the period April-June 2011 -12 was US \$ 79003.74 million (Rs 353338.87 crore) as against US \$ 54221.16 million (Rs 247574.57 crore) registering a growth of 45.71 per cent in Dollar terms and 42.72 per cent in Rupee terms over the same period last year.

B. IMPORTS

Imports during June, 2011 were valued at US \$ 36872.49 million (Rs.165386.41 crore) representing a growth of 42.46 per cent in Dollar terms (37.22 per cent in Rupee terms) over the level of imports valued at US \$ 25883.03 million (Rs. 120529.51 crore) in June, 2010.

Cumulative value of imports for the period April-June, 2011-12 was US \$ 110613.80 million (Rs. 494763.07 crore) as against US\$ 81202.60 million (Rs. 370182.12 crore) registering a growth of 36.22 per cent in Dollar terms and 33.65 per cent in Rupee terms over the same period last year.

Table No. 2

EXPORTS & IMPORTS : (US \$ Million)

(PROVISIONAL)

	JUNE	APRIL-JUNE
EXPORTS(including re-exports)		
2010-11	19948.18	54221.16
2011-12	29213.14	79003.74
%Growth2011-12/ 2010-2011	46.45	45.71
IMPORTS		
2010-11	25883.03	81202.60
2011-12	36872.49	110613.80
%Growth2011-12/ 2010-2011	42.46	36.22
TRADE BALANCE		
2010-11	-5934.85	-26981.44
2011-12	-7659.35	-31610.06

EXPORTS & IMPORTS : (Rs. Crore)		
(PROVISIONAL)	JUNE	APRIL-JUNE
EXPORTS(including re-exports)		
2010-11	92892.68	247574.57
2011-12	131031.43	353338.87
%Growth2011-12/ 2010-2011	41.06	42.72
IMPORTS		
2010-11	120529.51	370182.12
2011-12	165386.41	494763.07
%Growth2011-12/ 2010-2011	37.22	33.65
TRADE BALANCE		
2010-11	-27636.83	-122607.55
2011-12	-34354.98	-141424.20

**Ministry of Commerce and Industry
Department of Commerce, Economic Division**

Table No. 3

Cargo Traffic in Indian Ports (Million Tonnes)

	Major Ports	Non-Major Ports	Total
1950-51	20.01	2.50	22.51
1960-61	39.63	4.40	44.03
1970-71	58.14	7.90	66.04
1980-81	80.51	10.00	90.51
1990-91	152.85	12.78	165.63
2001-02	287.59	98.00	385.59
2007-08	519.24	196.38	715.62

Source: India Port report

Table No. 4

The following table gives the detailed data about the major ports of India for the financial year 2009-10 and percentage growth over 2008-09 (Source: [Indian Ports Association](#)):

Name	Cargo Handled (2010) '000 tonnes	% Increase (over 2009)	Vessel Traffic (2009-10)	% Increase (over 2008-09)	Container Traffic (2009-10) '000 TEUs	% Increase (over 2008-09)
<u>Kolkata (Kolkata Dock System & Haldia Dock Complex)</u>	46,295	-14.61%	3,462	07.50%	502	17.01%
<u>Paradip</u>	57,011	22.84%	1,531	-0.32%	4	100.00%
<u>Visakhapatnam</u>	65,501	2.49%	2,406	2.51%	98	13.65%
<u>Chennai</u>	61,057	6.20%	2,131	2.5%	1,216	6.38%
<u>Tuticorin</u>	23,787	8.07%	1,414	-7.21%	440	0.22%
<u>Cochin</u>	17,429	14.45%	872	15.19%	290	11.11%
<u>New Mangalore Port</u>	35,528	-3.17%	1,186	0.16%	31	6.89%
<u>Mormugao</u>	48,847	17.19%	465	6.89%	17	21.42%
<u>Mumbai</u>	54,543	5.14%	1,639	1.67%	58	-36.95%
<u>J.N.P.T.</u>	60,746	6.03%	3,096	4.13%	4,062	2.78%
<u>Ennore (corporate)</u>	10,703	-6.93%	273	9.2%	--	--
<u>Kandla</u>	79,521	10.10%	2,776	10.29%	147	6.52%
All Indian Ports	560,968	5.74%	21,251	02.82%	6,865	4.25%

MAJOR AND INTERMEDIATE PORTS OF INDIA



Future of Indian Ports

Will Indian port sector really see the emergence of private sector as a major player in the port sector in the future? Will major ports be fully corporative, and bring about greater rationalization and transparency in functioning? Are minor ports in India poised to take a lead over performance of major ports? Is there enough room for new green field port projects in Indian port sector?

Several of these questions loom large, as the Indian port sector is increasingly coming under the impact of wide ranging port reforms and private sector investments, in line with larger transformations underway in many global ports.

The development of the port sector is important to development of maritime trade is an axiom that no nation can afford to ignore in today's globalised world. This was equally true in the distant past, when maritime nations undertook extensive overseas maritime explorations and trade to set their mark on global economic history.

Needless to say, some of the world's most developed nations have also been among the most important maritime nations of the world, actively involved in global maritime trade.

India's shipping and port sector saw dramatic growth in the first four decades of post-independence, under the initiative of planned development and active government support. More than two-thirds of the port cargo handling capacity and more than half of India's national shipping tonnage were established in the first four decades of independence.

However, with a basically inward looking economic policy perspective that emphasized more on self-reliance and import-substituting development strategies, the overall trade and technology-driven growth of the economy remained constricted. However, with the paradigm shift in economic policy since early nineties, the government has sought to liberalize the port sector by opening it to private sector investments.

As a result, ports have now begun to assume a more proactive role as facilitators of trade with a range of value-added service offerings in terms of cargo handling efficiency and actively seeking to improve their performance with international ports.

Emerging Context for Port Reforms

Ports as one of the important maritime institutions have continued to evolve with the changing demands of the global shipping trade and are more than just stop-over points for ships to load and unload cargo. They have indeed, emerged to be highly sophisticated and integrated systems, which provide full range of services for the shipping industry and are increasingly getting integrated into logistics value chain, which extends from origin of cargo to its final destination.

However, as the strategic business attention has focused on the dynamics of shipping and global maritime trade, the importance and changing role of seaports has not been understood till recently.

After the privatization process was extended to the port sector in United Kingdom since the eighties, the debate on public policy implications of port privatisation and the regulatory framework for the port sector has now spilled to many other countries, struggling to cope with increasing demand for investment in port infrastructure and formulating a new institutional roadmap for the port sector.

Indeed, while technological changes in seaports have begun long before the containerisation boom of early seventies, it was only during nineties following globalisation of world trade that seaports have truly began to attract broader policy level and strategic business investment attention.

Concurrently, ports all over the world, especially container cargo ports have also begun to witness fierce competition for cargo, with each port trying to gain a competitive advantage over the other. While the degree of competition still varies among different ports, there are few ports today that can ignore competition from other international ports or from ports in their immediate neighborhood.

1.2 IMPORTANCE OF PORTS IN ECONOMIC DEVELOPMENT

Infrastructure is understood as an important input for industrial and overall economic development. While this is certainly true, there is no clear definition of infrastructure according to the current usage of the term in India.

As per the Economic Survey, the following sectors constitute infrastructure (**Economic Survey 2000-2001, p. 171**):

- (a) Power: Electricity generation;
- (b) Coal production;
- (c) Petroleum production: crude oil and refinery throughput;
- (d) Cement production;
- (e) Railways: Revenue-earning goods traffic and passenger kilometres;
- (f) Ports: Cargo handled at major ports;
- (g) Civil Aviation: Cargo and passengers handled at Airports Authority of India (AAI) airports;
- (h) Roads: Length of roads and length of National Highways; and
- (i) Telecommunications: New telephone connections approved

Importance of infrastructure on Indian economy

In face of the global financial crisis and the economic downturn, infrastructure sector plays an important role to counter balance against slowing economic activity and lower consumption. In India the infrastructure sector currently accounts for 26.7% of India's industrial output and thus remains a useful tool to balance the economy.

Moreover infrastructure is the lifeline of any business activity, proper infrastructure increases business activity manifold. In India, out of the proposed 31,755 km by the National Highways Development Programme, completion achieved is just 28 percent or 9,165 km, even if this project is to be completed by 2012, there will be huge opportunity for companies engaged in highway building sector. Infrastructure, including roads, power, highways, airports, ports and railways, have emerged as an

asset class with long-term growth that can provide relatively stable returns to investors.

In terms of investment attractiveness in the future, the joint study has ranked power as the most sought after segment among respondents for investment in the future (83%), followed by roads and highways (72%), ports and logistics (66%), rail (45%), airports (43%) and shipping (35%). An interesting segment identified as offering a strong growth potential was urban infrastructure, especially areas such as water management, waste-water management, sewerage system and solid waste management.

The survey conclude that if government can overcome regulatory procedures, delays in project implementation and several unplanned cost escalation create then Infrastructure industry as a whole has a great potential in India.

Table 5- Major Ports in India

Name of Port	Capacity (mn tonne)
Kandla	77.40
Paradip	71.00
Visakhapatnam	64.00
Others	343.3
Total	555.67

Source: www.evalueserve.com

Table No.6 – Key Parameters

Parameters	00–01	07–08	08–09 (provisional)
Average turnaround time (days)	4.24	2.63	2.44
Average pre-berthing time (hours)	11.04	11.4	9.95
Average output per ship per berth day (tonne)	6,961	10,071	10,464

Source: GMB administration report 2007-08

Table No.7

Capacity Expansion Plans at Indian Ports

Ports	Capacity in 2008–09 (mn tonne)	Planned Capacity by 2011–12 (mn tonne)
Major Ports	555.67	1,001.8
Non-major Ports	230	NA

The role of economic and social infrastructure in economic development

Infrastructures are basic essential services that should be put in place to enable development to occur. Socio-economic development can be facilitated and accelerated by the presence of social and economic infrastructures. If these facilities and services are not in place, development will be very difficult and in fact can be likened to a very scarce commodity that can only be secured at a very high price and cost.

According to the theory of unbalanced growth by Albert O. Hirschman LDC has sufficient endowment of resources as to enable it invest simultaneously in all sectors of the economy in order to achieve balanced growth. Balanced growth is a doctrine previously advanced by Rosenstein – Rodan in his 1943 article on “Problems of Industrialisation of Eastern and South-Eastern Europe” and developed by Ragnar Nurkse in his important study of Problems of Capital Formation in Underdeveloped Countries. Developing Rostow’s leading sector thesis, Hirschman maintains that “Investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development.

Port Studies

The development of seaports as an economic infrastructure assumes that like roads, communications and other economic infrastructure ports have a positive impact on the growth and development of countries. The economic history of maritime powers such as England, Spain and Portugal clearly documents the significant and critical role

which ports have played in the development of the global economy. Without ports, the Americas might not have been easily explored. Today, the United States of America is not only the leading economic global power. Uncle Sam is also a maritime technological and political superpower.

Port development has positive employment and revenue effects. The positive balance of trade and balance of payments effects of good ports and harbors cannot be denied. The beehive of activities in seaports all over the world clearly shows that ports have significant economic impact both locally, regionally and nationally.

In fact, the leading sector of a country like Singapore is the seaport. Ports have enabled Japan to build export processing zones that have turned Japan into exporters of goods which cannot be produced on the basis of country's factor endowment profile. Theoretically, seaports are an economic infrastructure with significant multiplier effects on the domestic economy.

The United Nations Conference on Trade and Development (UNCTAD) defines seaports as “*. . . interfaces between several modes of transport and thus, they are centres for combined transport. Furthermore, they are multi-functional markets and industrial areas, where goods are not only in transit but are also sorted, manufactured and distributed. As a matter of fact, seaports are multi-dimensional systems, which must be integrated within logistic chains to properly fulfill their functions.*

An efficient seaport therefore, requires, besides infrastructure, superstructure and equipment, adequate connections to other transport modes, a motivated management and sufficiently qualified employees”.

This rather long but comprehensive definition of a port captures all essential attributes of a seaport. The definition seeks to essentially emphasize that a port provides not just a single service to its customers but a multitude of services involving a wide range of operators.

The United Nations conference on trade and development (UNCTAD) definition also sets the benchmarks for distinguishing a modern port from many of the conventional ports, which may only provide few of the services and fall short on many others. Quite arguably, ports can be of different kinds offering some of the services but not the whole range.

The definition of port also substantially expands the scope of various infrastructure facilities that ports need to maintain to be able to offer services to their different customers. In fact, ports are themselves a crucial physical and service infrastructure for the shipping trade and economy at large; however, to be an efficient infrastructure service provider, the port establishment needs to have in place its own physical and logistics support infrastructure. These in turn determine what type of ships and commodities, a port can efficiently handle.

The kind of infrastructure that a port has or would need, would of course differ widely from port to port depending on what type of trade or cargo a port is likely to handle. While most ports perform certain common functions relating to handling of ships and cargo, each port is however, unique in terms of its location, size and importance in the national and global economy and the advantages and disadvantages that follow from it.

Type of Ports

In Indian context, the classification of ports in terms of major and minor ports has been largely derived from legal enactments, such as Indian Ports Act 1908 and the Major Ports Trusts Act 1963. However, the words “major” and “minor” which seem to suggest the size of the operations of a port are somewhat misleading considering that not all “minor” ports in the country are not really minor either in size or traffic performance, nor all “major” ports are really major performers.

For instance, the two Single Buoy Moorings (SBMs) off the port of Sikka in Gujarat alone now handles one third of the total POL traffic handled in the 12 major ports. By same token, the Kolkata port, considered a “major port” has barely handled 5 million

tonnes of cargo in 2001-02, while Haldia, considered to be its satellite port handled 25 million tonnes in the same year.

It would however, be more meaningful to arrive at a broad classification of ports based on a composite parameters like location of the port along a major global trade route, the level of cargo volume handled by a port and how the primary cargo hinterland of the port is integrated into the larger national and global market.

Leading international maritime economist Martin Stopford, in his “Maritime Economics“ offers a more meaningful and contemporary classification of ports based on the location, cargo volume and nature trade and logistics function served by a port in the national and global economy and has proposed a four-fold classification. He divides ports into four broad typologies -Local Small Ports - small and of local significance (Type 1), Large Local Ports - large but not involved in global trade (Type 2), Large Regional Ports - large port but limited to region (Type 3) and Redistribution or Transshipment Ports - large ports, wholly dependent on global trade.

The rural/urban scenario

Today, the rural population of India accounts for nearly 70 per cent of the total population, and nearly half of them still live in poverty and illiteracy. How good is the rural infrastructure? The latest report of the National Sample Survey Organisation on village facilities is a revelation in itself. To quote from the report, “One fourth of our villages do not have electricity; only 18 per cent of them get tap water; 54 per cent of them are more than 5 km away from the nearest health centre; one third of them do not have pre-primary schools and 78 per cent do not have post offices”! Yes, “India still lives in its villages”.

The Chinese tales

The Chinese success stories are told and retold by many. Can India set her standards by looking at China? Can one draw a parallel between those mega cities with the Indian ones, or its infrastructure development for that matter? It is debatable. However, what can be compared is the Chinese commitment. Look at their endeavours in making the Expressways. According to a recent newspaper report, when India completed 6000 km of her Expressways in six years, China had done

40,000 km within that time. Even today the Indian government endlessly debates the privatisation of airports. At least some of the analysts perceive a ‘damaging drag’ on the economy due to problems connected to infrastructure. Growth potential is dependent on the quality of performance of infrastructure to a great extent - a fact the Chinese realised much earlier than us. The fast growth of this Socialist country is extremely relevant.

The cost factor

There is a cost factor involved in developing the country’s infrastructure. Funds are required and so is innovation. The government should allow private participation in this area. The political class should create an environment where investors feel confident of recovering their costs and the cost of capital. It is the country’s politics that has to decide whether “only the fools should pay for infrastructure” as in the case of our power generation.

Distribution has to be set up where it has not been successful in arresting power theft and losses. The practical solution would be allowing private players to build and manage the infrastructure and let the users pay for the costs. One successful endeavour on this front is the model city coming up near Gandhinagar, the capital of Gujarat on the Sarkhej-Gandhinagar Highway. It is being built under private entrepreneurship - something worth emulating elsewhere in the country. This model does not have to apply just to cities, but anything really. However, these decisions call for a strong political will.

To sum up

The above discussion can be summarized under the following list of do’s and don’ts. Although this is not exhaustive, it would certainly pave the way for faster development of infrastructure.

- (i) Have a proper vision for growth
- (ii) Plan for the long-term
- (iii) Have commitment and show political will
- (iv) Give innovative ideas a chance
- (v) Remove unnecessary controls and roadblocks

- (vi) Boost investors' confidence
- (vii) Make human capital productive
- (viii) Leave all doors open so that corruption is kept away
- (ix) Spread the value of education and make it compulsory
- (x) Review and adjust the demand / supply position of infrastructure from time to time.

The country's economy has spread its wings. However, for it to truly take off, the country has to improve infrastructure. One can speed up the process, by revising, revisiting and upgrading the development plans with a long-term view. Yes, one has to firmly believe that reforms are the pre-requisite for growth and reforming infrastructure sustains growth. Who does not want to see a double-digit growth rate of the GDP in the near future?

1.3 Importance of Ports in India

India has nearly 7517 kms long coastline and presently has 12 major ports (of which 11 are operational and the 12th is under construction). There are 148 minor ports of which only 30 handle cargo. 95% of India's foreign trade by weight/volume and about 70% by value involve transportation by sea.

During the first 25 years after independence, aggregate traffic grew modestly from 20 million tonnes in 1950 to 67 million tonnes in 1975, the main commodities handled being crude oil and iron ore. However, following the liberalisation and opening up of the economy in the early 90s, there has been a significant increase in India's maritime trade. Containerisation of general cargo, which came, late in India in comparison with other Asian economies, has also shown a steady increase and is currently around 10% of all traffic in major ports.

Table No.8

Comparative Performance of Major and Minor Ports (Traffic in MMT)

No.	Port	2003-04	2004-05	2005-06	2006-07	2007-08
1	Major	344.54	383.62	423.41	463.84	519.24
2	Minor	115.32	127.09	145.53	181.11	196.38
	Total	459.86	510.71	568.94	644.95	715.62
3	Share of Major Ports	75%	75%	75%	72.95%	72.55%
4	Share of Minor Ports	25%	25%	25%	27.05%	27.45%

Source: GMB administration report 2007-08

Structure of Ports in India and governing legislation

Major ports

In India, the major ports are placed under the Union list of the Indian Constitution, and are administered under the Indian Ports Act, 1908 and the Major Port Trust Act, 1963 by the Government of India. Under the Major Port Trust Act, each major port is governed by a Board of Trustees appointed by the Government of India; their composition gives dominance to public enterprises and government departments. The powers of the trustees are limited and they are bound by directions on policy matters and orders from the Government of India.

Minor Ports

Minor ports are placed in the Concurrent list of the Constitution and are administered under the Indian ports Act, 1908. The Act defines the jurisdiction of Central and State government over ports. It lays down rules for safety of shipping and conservation of ports. It regulates matters pertaining to the administration of port dues, pilotage fees and other charges.

At the State level, the department incharge of ports or the State Maritime board (created through State legislation as in case of Gujarat), is responsible for formulation of water front development policies and plans, regulating and overseeing the

management of state ports, attracting private investment in the development of state ports, enforcing environmental protection standards etc. Maritime boards have so far been constituted only in Gujarat, Maharashtra and Tamil Nadu.

Capacity constraints

The major ports handled traffic of about 250 million tonnes in 1998-99 as against an assessed capacity of about 220 million tonnes. The overall capacity utilization for all the major ports was about 115% which indicates that the major ports were handling traffic in excess of capacity. As a result, in India ships have to wait for berths instead of berths having to wait for ships. Port traffic has been projected to grow to a level of 650 million tonnes by 2006.

Poor Performance

The productivity in Indian ports is poor as compared to other ports in the region as discussed below.

Vessel turn around time

The average vessel around time for Indian ports varies from 3.3 days to 8.3 days as compared to 15 to 35 hours in major European ports and less than a day in Singapore.

Equipment utilisation

The average availability of equipment in Indian ports is around 70% as compared to 85%-90% for other Asian ports. (World Bank, 1995). The number of containers handled per ship/ hr is 10 at JNPT port which is India's most modern container terminal, as compared to 30 in Colombo and 69 in Singapore respectively. While, efficiencies have improved since 1995, productivity of Indian Ports is still below international standards.

Labour productivity

On an average, Indian ports handled around 1424 tonnes of cargo/ employee in 1998-99. In comparison ports in U.K. handled around 47,000 tonnes of cargo per employee in 1997-98. The port of Rotterdam handled around 50,500 tonnes of cargo / employee during 1998-99. Manning scales at different ports for specific activities such as container handling and stuffing vary widely. For example, for transfer of containers from ships to quay Calcutta port employs a total of 32 persons as against 12 at haldia,

15 at Mumbai, 21 at Chennai and 4 at JNPT. Again for container stuffing/destuffing, Calcutta and Mumbai employs 28 persons, Chennai 7 and Haldia 2 for unitised and 7 for non unitised cargo. Such large manning scales result in excessive transaction and manning costs, again making Indian ports highly uncompetitive.

The main factors that have led to inefficiencies in the Indian ports are:

- Most major ports were originally designed to handle specific categories of cargo which have declined in time while other types of cargoes gained importance. The ports have not been able to adjust to the categories of cargo which grew the most. There are thus several berths for traditional cargo, which are under-utilised, and only a few for new cargo, which are overutilised.
- Equipment utilisation is very poor both because equipment is obsolete and poorly maintained.
- Over staffing at Indian ports remains rampant and productivity indicators in respect of cargo and equipment handling continue to be poor.
- Documentary procedures relating to cargo handling such as customs clearance requirements are unduly complicated and time consuming. Electronic document processing is still to be introduced in all the ports.
- Port access facilities and arrangements for moving inbound and outbound cargo are inadequate and unsatisfactory.

Absence of inter-port and intra-port competition which have been conducive to substantial productivity increases in other countries is absent in Indian due to poor inland connectivity and a policy regime that protected domestic ports against competitive pressures.

The consequences of these various shortcomings for the Indian economy are severe. Few large liner ships are willing to call on Indian ports as they cannot afford to accept

the long waiting times. Indian container cargo is transshipped in Colombo, Dubai or Singapore resulting in additional costs and transit times.

As a result the Indian exporter is not in a position to avail of “fixed-day-of-the week” services offered by the liner industry at a time when manufacturing and trading companies abroad are increasingly selling and buying on a “just-in-time” basis. Indian exporters are, therefore, operating on the basis of substantial buffer stocks which also make them less competitive.

It has been estimated that the annual incidence of these various factors such as demurrage charges, transshipment costs, pre-berthing delays and vessel turn around time could be as high as US \$ 1.5 billion per annum. These costs have ultimately to borne by the end user, raising the costs of India’s exports in international markets and the prices of imports for the Indian economy.

Ports are no longer mere modal interfaces between surface transport and sea transport. They are now logistics and distribution platforms in the supply chain network. International trade has now become transport intensive and time sensitive and Indian ports clearly are not yet ready for this changing environment. There is, therefore, an urgent need to restructure the port sector in order to improve efficiencies and reduce costs.

Models for port structuring

There are basically three types of port operating structures:

1. Service ports
2. Tool ports
3. Landlord ports

Service Port

The Port Authority provides all commercial services to ships and cargo, owns and operates every port asset, and fulfils all regulatory functions; the Service Port Authority can be either a public entity, as used to be in former socialist countries, and in Singapore, or a private one, as is the case in Felixstowe (United Kingdom), or Hong Kong. Since both Singapore and Hong Kong are outstanding references as far

as productivity of port services are concerned, this could suggest that to some extent, ownership could be a secondary matter.

However, the Service Port experience in former centralized economies clearly demonstrated its shortcomings, and the former Port of Singapore Authority was turned in 1997 into PSA Corporation, a port operating company, while regulatory powers were vested into the newly created Maritime and Port Authority (MPA).

Tool Port

The Port Authority owns the infrastructure, the superstructure and heavy equipment, rents it to operators which carry out commercial operations, and retains all regulatory functions.

Landlord Port

The Port Authority owns the basic infrastructure only, land and access and assets, and leases them out to operators, mostly on a long-term concession basis, while retaining all regulatory functions. Some of the examples of landlord ports are Rotterdam (Netherlands), Buenos Aires (Argentina), or Laem Chabang (Thailand).

The Landlord Port and Tool Port Authority are usually public bodies, owning the land and related assets on behalf of the Government, while the commercial operators leasing the facilities or renting the superstructure and equipment are private companies.

1.4 History of Ports in India

Maritime history is associated with the activities related to the oceans and seas. Maritime history of India is enormous and comprehends several eras, right from the ancient times till date. Maritime history of India has been influenced largely by the different political activities and has been really imperative in the development of trade uplifting the economy of the country.

Sea routes were indeed substantial as they supplied the means of business with foreign countries and establishing contacts with the foreign states in ancient and

medieval times. Indian maritime history traces the advent of the Portuguese to the coasts of India and the activities that resulted in this influx of foreigners to a land of great resources and wealth.

Maritime history of India commences from the 3rd millennium BC, when the citizens of the Indus Valley set into motion trading with Mesopotamia. Roman history states about an amplification in Roman trade with India following the Roman annexation of Egypt. By the period of Augustus, near about 120 ships were setting sail every year to India. Indians made their presence felt in Alexandria and the Christian and Jew settlers from Rome continued to live in India long after the fall of the Roman Empire.

As trade relations between India and the Greco-Roman world amounted to larger degrees, spices became the main import from India to the Western world, leaving behind silk and other commodities. Indian commercial connection with South East Asia testified crucial to the merchants of Arabia and Persia during the 7th and 8th century.

On the orders of Manuel I of Portugal, four vessels under the domination of navigator Vasco da Gama winded the Cape of Good Hope, continuing to the eastern coast of Africa to Malindi to sail across the Indian Ocean to Calicut (present day Kozhikode, Kerala). Indian and oriental treasures were now exposed to the Europeans to explore. The Portuguese Empire was one of the earliest European empires to grow from spice trade.

The world's first tidal dock is believed to have been built at Lothal around 2300 B.C. during the Harappan civilisation, near the present day Mangrol harbour on the Gujarat coast. Sea gained a prominent position with time and maritime activities began to grow with the different conquests. With various invasions, the water-bodies came under the developmental procedures that they undertook as a means of fulfilling their own motives. Like, north-west India came under the influence of Alexander the great, who built a harbour at Patala and his army returned to Mesopotamia in ships built in Sindh. Similarly other kings from different dynasties like Maurya, Chola, Satavahanas etc. also contributed immensely to the Indian maritime history.

Being surrounded on the three sides by water bodies India is in an advantageous position in terms of trade practises at home and abroad. Without proper navigational skills this achievement would not have been possible, two famous Indian astronomers, Aryabhata and Varahamihira, helped in this regard by mapping the positions of celestial bodies, and developing a method of computing a ship`s position from the stars.

Naval expeditions, which occupied parts of Burma, Malaya and Sumatra, while suppressing the piratical activities of the Sumatra warlords, were also carried out from India in 984-1042 AD by the Chola kings. Indian maritime history mentions the sudden disappearance of the maritime power when the Portuguese arrived in India because they imposed a system of license for trade.

Again the late seventeenth century, there is witnessed a notable revival of maritime activities with the alliance of Siddhis of Janjira allied and the Mughals. Indian shipbuilders continued to hold their own well into the nineteenth century in spite of the British domination. The Bombay Dock completed in July 1735 is still in use even today.

The significant aspects of the Indian maritime historical tradition from the days of ancient India render an astonishing panorama. Starting from the Indus Valley Civilization, Indian maritime history even surpasses western civilization in its origin. A myth had always overridden that the white man was a great adventurer and a superior being, who was invincible and could conquer many nations across the vast oceans.

The Portuguese were pawns under the Europeans in maritime India. Having entrenched themselves along the coast, the Portuguese realised soon enough that they could not expand into interior India. Portugal did not have the resources, human and material for that. Once the futility of it all became ostensible, the Portuguese abandoned their mission in favour of remaining put in their tiny enclaves on the west coast until the time came for India to reclaim them. The encounter, which followed with western and northern Europe is a most significant interregnum in the long and chequered history of maritime India which begins with the Indus Civilization.

Indians feared the sea as a result of which they remained a land bound people, despite their blessed maritime situation. Their sights have been fixed firmly towards the north, the northern passes which were the geneses of so much Indian history. The last of the conquerors of India came by sea, established their footholds along the coasts before expanding inland.

There is, however, evidence available that ancient Indian crews did cross the Arabian Sea and Bay of Bengal to the opposite shores of Indian Ocean in large numbers and in gigantic ships that were indigenously built. Many of the Indian built ships were legendary in history. The reason behind it can be attributed to Indian teak, which was a superior timber to the European oak.

Growth of maritime power of southern India in Indian history in this regard was significant. The Cholas exploited their maritime strength and nurtured overseas territorial ambitions. In this context of Indian maritime history, the geography of north Indian Ocean played an important role in making the people of the littoral seek the sea for trade and economic gain.

The chief sea lanes of the north Indian Ocean served as conduits of trans-continental as well as inter-regional trade. Since the parallel silk route was too crowded, the emphasis shifted toward the seas.

Modern India is very much keeping its maritime traditions alive, a tradition of navigation and seamanship skills, of shipbuilding and innovation, which the sea-friendly civilization of Mohenjodaro and Harappa had displayed. Maritime history of India first had its seeds planted during this highly knowledgeable civilization.

The Indus Valley refinement did survive through the ages, as shown in Rig Veda and Arthashastra, till the Kalingas, Cholas and the Andhras. The history of the Indian Ocean and India's involvement in trade and commerce since times immemorial is the fundamental governing fact under Indian maritime history. This exactly demonstrates how active this area was long before the now developed world.

Thriving trade existed in 2400 B.C. between the Indus valley and Mesopotamia. The dock at Lothal established the seafaring capabilities of the Harappans. Indians had already sailed through the Indian Ocean long before the Arabs, Egyptians and the Greeks. The monsoon winds enabled India to be at the centre of the trading network between the East and the West.

The Chinese had started trading with Calicut (present day Kozhikode, Kerala) in the seventh century A.D. A benign Indian influence grew in Southeast Asia and blended with culture and religion. Till the end of tenth century, Sri Vijaya kingdom ruled the ocean, when the Cholas challenged their supremacy. Hindu sea power finally came to an end in the fourteenth century with the downfall of the Sri Vijaya Empire.

The advent of the Portuguese followed. The Zamorins and the Marrakkars resisted but their navy, being coastal in nature could not match the Portuguese. The exploits of Kunjali admirals and later of Kanhoji Angre are a legend for passing years.

Geographically India lies across the major Sea Lanes of Communication (SLOC) in the Indian Ocean, which lends it a considerable strategic importance and potential. In the long history of India's links with South-East Asia, the South-East Asian empire of the Sri Vijayas is a remarkable chapter.

The city of Vijaynagar was a teeming marketplace for both exports and imports. Indian maritime history comprises the extensive dealings with foreign places, which even have a mention in the Bible and by Sappho. South India was along the trade routes for the export of spices like cinnamon and cassia which originated from China and south East Asia.

During the Sultanate period, everyday usable articles as well as luxury articles were exported to Syria, Arabia and Persia from Bengal and Cambay. These included silks, exquisitely designed clay pots and pans, gold-embroidered cloth caps, knives, guns, and scissors. Other major things of export were indigo, sugar, oils, ivory sandalwood, diamonds, spices, other precious gems and coconuts. East Africa, Malaya, China and the Far East were the places where things were exported. Arab traders shipped Indian

goods to European countries through the Red Sea and the Mediterranean ports. Indian textiles were in great demand in China.

Chandragupta was the founder of the Mauryan Empire, ruling from 324 to 301 B.C. He along with the help of Chanakya (Kautilya) destroyed the Nanda rulers of Magadha and established the Mauryan Empire. After this the expansion continued with Punjab, Kabul, Khandahar, Gandhara and Persia from Seluces. Indian maritime history was much affected by the rise of the Mauryan kingdom. Indian maritime history has the reference of the first organisation of ships in the Mauryan Empire.

Chandragupta`s reign was fraught with Roman connections and victories which necessitated brisk trade developments. Kautilya in the cases of navigation and seafaring guided him as well. In his much celebrated work, Kautilya included a whole chapter on the state department of waterways under `navadhyaksha` which after translated, means `superintendent of ships`.

Chandragupta Maurya established an admiralty division under a Superintendent of ships as part of his war office, with a charter including responsibility for navigation on the seas, oceans, lakes and rivers.

Mauryan Empire encouraged extensive maritime activities which helped in the boom of trade practices in the south. This expansion in the south was especially under Bindusara, whereas Chandragupta had expanded the territories to the northern side. Plenty of availability of pepper and other spices, the navigability of the rivers connecting the high mountains with the seas and the discovery of favourable trade winds which carried sailing ships precipitated overseas trading. Exports generally included silk goods and textiles, spices and exotic foods. The Empire was enriched further with an exchange of scientific knowledge and technology with Europe and West Asia.

The Cholas were a Tamil dynasty that ruled the south of India till the 13th century. Indian maritime history records extensive overseas venture in the south of India under the Chola dynasty. The Cholas encouraged sea trade by developing harbours and providing quarters, warehouses and workshops for Roman sailors and merchants.

Trading relations in the south were improved and they had long trading correspondence with the west through trans-shipments at the Northern ports.

Navigational facilities were provided in the ports, which included repair yards, pilotage, wharfs, and even light houses. Malays and Indonesians participated in the growing exchange when the voyages between India and South east Asia became frequent. Muzirs, Poduca, and Sapatma were the important trading ports. Raja Rajendra was a powerful of the Chola dynasty in the 10th century, who knew the great importance of foreign trade and built a powerful navy meant for trade and war.

The Chola dynasty no doubt helped to enhance the maritime activity which has contributed to the Indian maritime history. It was the failure of the Mughals to appreciate the magnitude of sea power that led to the subjugation of India by the British, which ended two hundred years later.

There was a huge scope of maritime development that took place from the beginning of the civilization prior to the western accomplishments. Tracing Indian maritime history, one comes across the extent of progress that was being made in this field, which aided in the development of trade and commerce in the country.

Indian maritime history spans a huge era of seafaring, which is impressive till today, where one can still find its evidence, and is a part of the heritage. Maratha Navy also had participated hugely in Indian maritime history under Shivaji Bhonsle and Kanhoji Angre, which however did decline under Nanasaheb`s rule. It was then that the British East India Company took over the maritime business in early 17th century, with shipping of spices.

Britain`s Royal Navy had full control of the Indian navy section in early 19th century, which had participated jointly in First World War. Indian ship-builders however did weaken under British supremacy, building some legendary vessels at the Bombay Dockyard.

Tracing down historical lines, the Andaman and Nicobar Islands were a significant bunch of islands, contributing much to Indian maritime history. Its history from the

early period till the eighteenth century and thereafter under the British rule till independence of India are legendary in today's ages. These islands had a strategic importance, which was realised by the Cholas and even Sri Vijaya rulers.

There has been reference to these islands by the ancient sea voyagers of many countries including the Indians, Europeans, Arabs and the Chinese. Most of them, however, left these islands alone.

Only in 1789 did the British make the first attempt to establish a settlement in the harbour now known as Port Blair. They were given a hostile reception by the locals and withdrew. It was after the Sepoy Mutiny in 1857 that the British found these islands to be ideally suited for a penal colony to hold the freedom fighters; something they continued to do till 1938.

Post Indian independence in 1947, the Republic of India's navy consisted of 33 vessels and 538 officers to safe-lock a coastline stretching more than 4660 miles (7500 km) and 1280 islands. To add further to the rich Indian maritime history, the Indian Navy conducted annual Joint Exercises with other Commonwealth naval forces all through the 1950s.

The navy wing witnessed severe action during several of the country's wars, including Indian consolidation of Junagadh, the freedom of Goa, the 1965 and 1971 wars. After the ensuing commotion in receiving spare parts from the Soviet Union, India also went ahead in its gigantic indigenous naval designing and production programme, aimed at manufacturing destroyers, frigates, corvettes and submarines.

Maritime history of India assimilated within itself the Coast Guard Act, which was passed in August 1978. The India Coast Guard took part in Operation Cactus in Sri Lanka among other anti-terrorist operations. The Indian navy was also commissioned in numerous United Nations peacekeeping missions.

The proud Indian navy also repatriated Indian nationals from Kuwait during the first Gulf War. The Kargil-Drass War in 1999 happened as a major turning point in maritime Indian history, placing Navy under direct international brilliance scanner. As

a consequence of the escalating strategic ties with the western world, Indian navy has conducted joint naval exercises with its western counterparts, including the United States Navy. Bettered relations with the United States of America and Israel have led to joint patrolling of the Straits of Malacca.

Besides the military sections, maritime history has also made giant strides in its civil sailing section, with the top ports bringing in bulk profits for Indian administration. Some of the hi-tech and sophisticated ports in India comprise: Paradip, Visakhapatnam, Chennai, Cochin, New Mangalor Port, Mormugao, Mumbai, J.N.P.T., Ennore and Kandla.

1.5 Global Scenario

Global Trade and Container Traffic

More than 90% of world merchandise trade is carried by sea and over 50% of that volume is containerised. In today's era of globalisation, international trade has evolved to the level where almost no nation can be self-sufficient and global trade has fostered an interdependency and inter-connectivity between countries. Shipping has always provided the most cost-effective means of transportation over long distances and containerisation has played a crucial role in world maritime transport.

Global trade drives containerisation

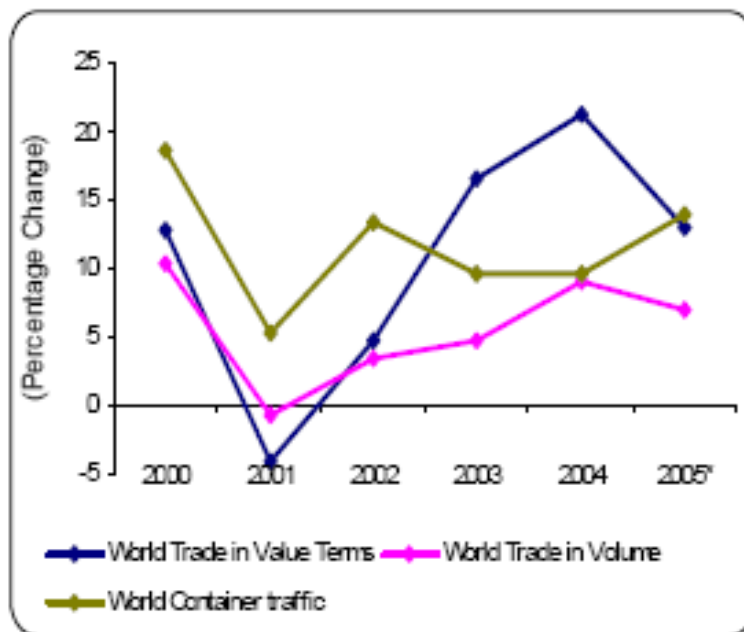
Global merchandise trade has been growing at compound annual growth rate (CAGR) 10.3% (value terms) during 2001-2005, which was the highest average growth rate of world merchandise trade in the last three to four decades. The high merchandise trade has pushed container traffic worldwide. In 2005, it is estimated that world merchandise trade has witnessed an excellent growth rate of 13% in volume terms and container traffic has registered an estimated growth rate of 13.89%. Containerisation accounts for over 50% of world merchandise trade and is expected to go up further.

During 2001-2005, world container traffic has increased at CAGR 9.2%. Liberalisation of international trade and globalisation has contributed significantly towards this robust world trade, which in turn increased the container traffic.

Moreover, the strong world economic growth has also increased the momentum of world merchandise trade.

Development of information and technological progress also attributed to the rapid growth of global container traffic by prompting trading prospects, particularly the movement of highly perishable goods.

Chart 1: World Merchandise Trade and Container Traffic Growth

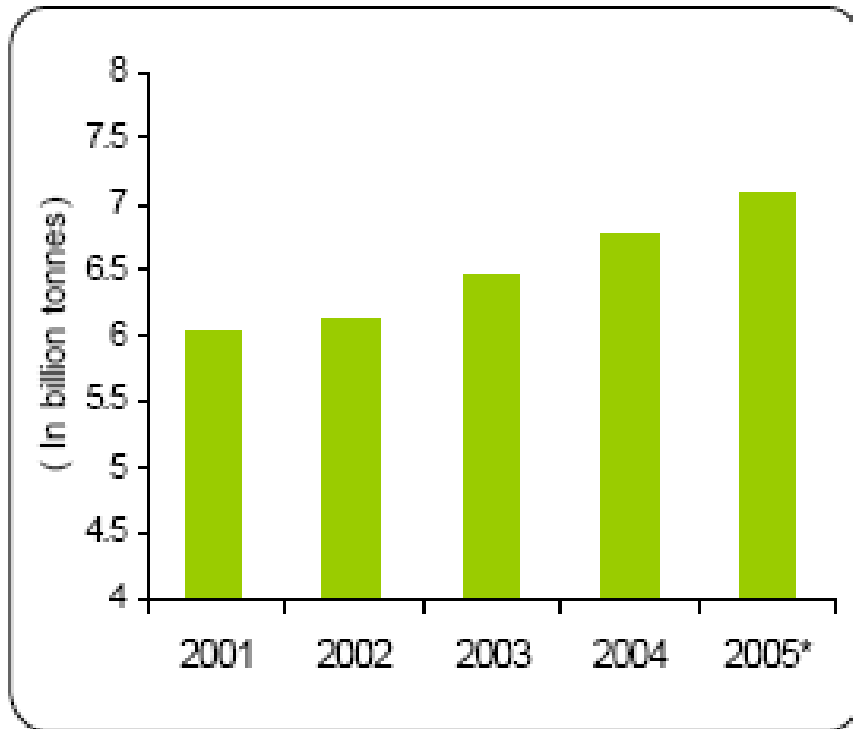


Source: WTO, Cygnus Research
**2005- Estimated*

World seaborne trade registered 4.76% growth rate in 2005

In 2005, world seaborne has increased strongly and is estimated to have reached 7.08 billion tonnes, registering a growth rate of 4.76%. Dry cargo accounts for about 66% of total seaborne trade, while remaining 34% is by tanker cargo. Asia contributes the largest share of world seaborne trade with 38.4%, while Europe contributes about 23%; North America contributes 21.4%, Africa 8.6% and others 8.6%.

**Chart 2: International Seaborne Trade
(Goods Loaded)**

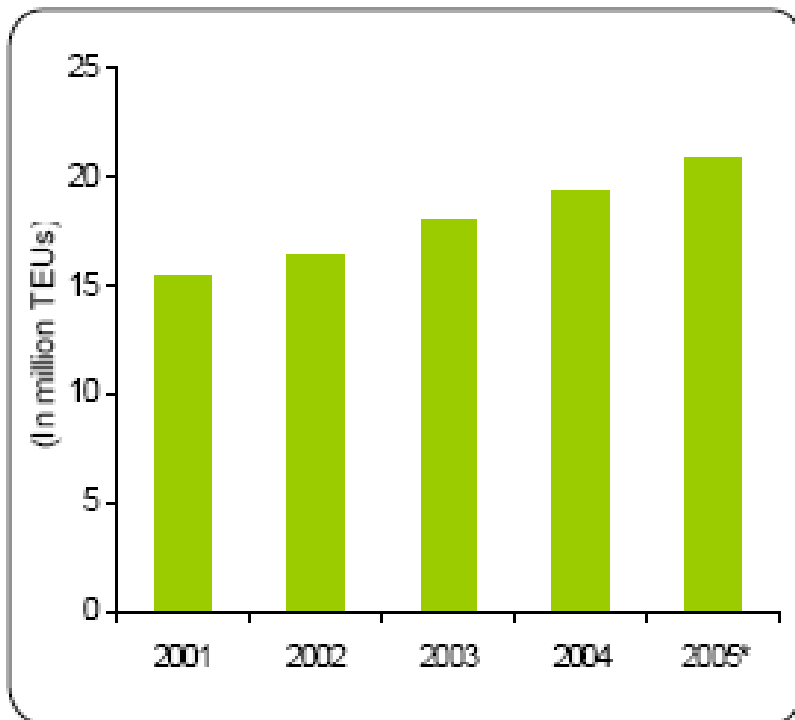


Source: UNCTAD & Cygnus Research

Robust growth in world containerisation has driven the number of container fleet worldwide in the last couple of years. In 2005, the container fleet has witnessed an estimated growth rate of around 7.7% to around 20.8m TEUs. The fleet ownership is split between container lessors and sea carriers.

In 2005, the container fleet owned by sea carriers accounted for around 55% of total world container fleet and the remaining by the lessor's fleet. In 2005, fleet owned by lessors had registered a growth rate of 7.1%, while fleet owned by sea carriers registered 8.1%. In 2002 and 2003, lessors increased the size of their container fleets at a faster rate than the sea carriers, but in 2004 and 2005, lessors were more cautious due to the rise in box prices. In 2004, prices of dry freight containers increased by over 50% due to the rising prices of steel and timber.

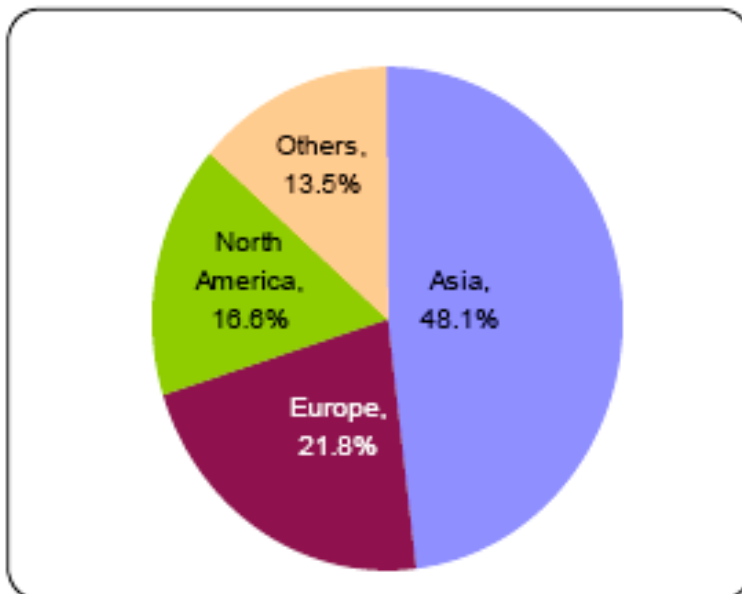
Chart No.3



Source: UNCTAD & Cygnus Research
**2005 Estimated*

Asia accounts for highest container traffic in the world

Chart No.4



Source: Drewry Consultant & Cygnus Research

Asia region has emerged as a major hub with around 48.1% share of world container traffic. Burgeoning trade growth in China and India has played a pivotal role in Asia's dominance of container trade in the world.

Some of the factors that are instrumental in Asia's contribution towards world container traffic are: sound medium to long term growth prospect in Asian countries; regional free trade agreements such as ASEAN's Common Effective Preferential Tariff Scheme and very close relationship among number of economies at different levels. In addition the increase in the rate of FDI inflows in the region has fuelled containerisation in the region. This reflects improved economic performance and greater acceptance of containerisations in the region.

HPH accounted for 26% of world container traffic:

The increased opportunities in the private investment in the port sector have influenced international port operations. Hutchison Port Holding (HPH) accounted for 26% of world container port capacity with container throughput of around 48m TEUs in 2004. Hong Kong, the original stronghold of HPH, has wide range of investments in the Chinese mainland and other regions such as Middle East, Africa, Americas, Asia and Europe.

Far East region will constitute lion's share of global container traffic

Far East region will drive the global container traffic. The contribution of Far East region to global container traffic is expected to reach 40% in 2009 from 36% in 2004. Booming trade in the region, particularly countries like China, Japan, South Korea and Singapore will push global container traffic. It is estimated that container trade volumes on the East-West routes will increase at an average 7.5% per annum from 2006 to 2009. The biggest deep sea liner route is the trans-pacific trade between Asia and North America, which will play a crucial role in Far East region's dominance in the global container traffic movements.

Container traffic expanding 20 per cent annually in India

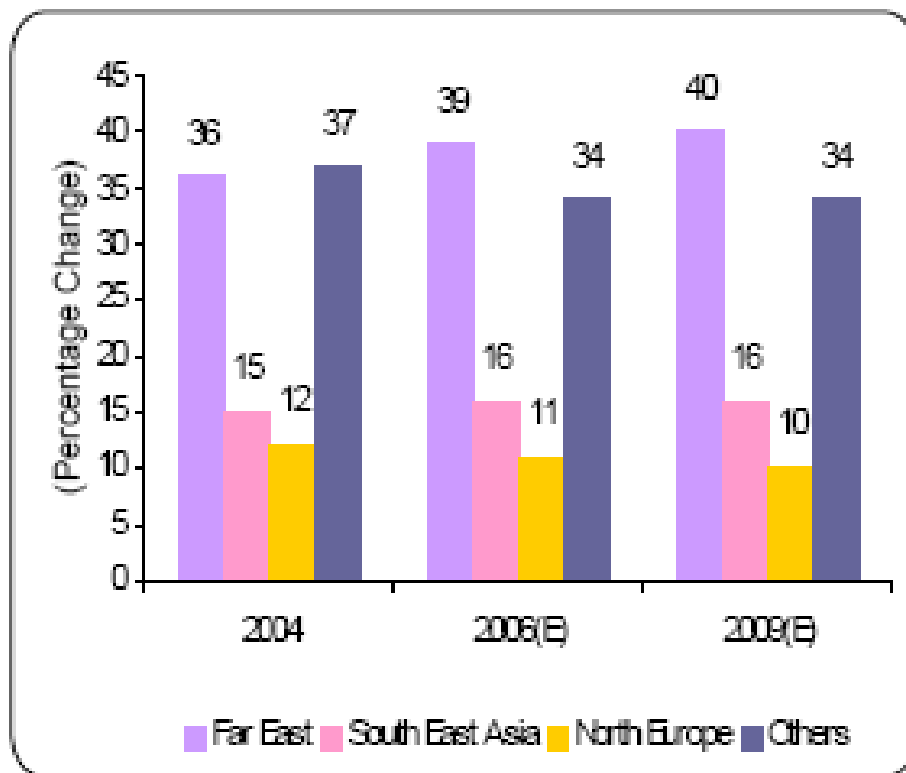
The container business in India is growing at a brisk clip, as importers and exporters are increasingly shifting away from general cargo. Containerised traffic is growing by

almost 20 per cent annually, nearly double the global average. Container traffic is expected to double to 110 million tonnes in just less than five years.

According to Sabyasachi Hajara, chairman, Shipping Corporation of India (SCI), the container business is expected to grow at an average rate of 18 per cent in the next decade.

Major Indian ports currently handle container vessels with a capacity of 9,000 TEUs (twenty foot-equivalent units), but this is likely to go up to vessels with a capacity of 13,000 TEUs shortly.

Chart No.5



Source: Drewry Consultant & Cygnus Research

Chapter II

SIGNIFICANCE OF STUDY OF KANDLA PORT

2.1 Research Problems

Statement of the problem

I have chosen this topic to study about economic pattern of Kandla & Non Major Ports with socio economic conditions and port development in Saurashtra and Kutch region. The study is mainly focused on various types of ports that are developed in the said region. This study highlights the problems during the development of ports and on other side gives suitable suggestions to improve their performance.

2.2 Objectives of Research

- To study the income and expenditure statement of Kandla Port.
- To study how port facilitate foreign trade volume.
- To study about the cargo traffic of major and non major ports.
- To study the ports infrastructural development.
- To find out the income and expenditure pattern of Kandla port.
- To identify the benefits and problems of ports.
- To study future prospects and SEZ development of port.
- To give suggestions for the improvement of ports.

2.3 Area of Research – Gujarat, Kandla.

Kandla port plays a major role in the country's international trade. Having notched up a string of success, it has emerged as a forerunner, and has carved a niche for itself, by its steady growth and economy of operations.

The Port of Kandla was declared a major port in 1955. The Kandla Port Trust was created by law in 1963 to manage the new port. The Port of Kandla Special Economic Zone (KASEZ) was the first special economic zone to be established in India and in Asia. Established in 1965, the Port of Kandla SEZ is the biggest multiple-product SEZ in the country.

Covering over 310 hectares, the special economic zone is just nine kilometers from the Port of Kandla. Today, the Port of Kandla is India's hub for exporting grains and importing oil. This self-sufficient port is one of the highest-earning ports in the country. Major imports entering the Port of Kandla are petroleum, chemicals, and iron and steel machinery, but it also handles salt, textiles, and grain.

Figure 2



Kandla Port, a national port, is one of the eleven most important ports of India. This port is situated on Kandla stream. The first investigation of this stream was undertaken by the British Royal India Navy in 1851 and a detailed survey done in 1922. This port is developed by Joint project of Maharao Shree Khengarji-III and British Government in the 19th century.

The Kandla port came into existence in the year 1931 with a single Peir construction. Later on with the loss of Karchi port to Pakistan during partition, after independence the government of India chose Kandla as an ideal sea outlet. Thus the Kandla Port was developed and since then Kandla port has played a pivotal role in enhancing country`s maritime trade. Standard dry cargo treatment capacity of Kandla Port is 24,000 metric tons per day. The port is under Ministry of Commerce and is managed by a Port Trust with a Chairman as its head.

The Kandla Port Trust is run by a board of trustees. There is an administrator - representative of the ministry of Commerce - appointed for the management of a free trade zone known as the Kandla Free Trade Zone placed near the port where hundreds of small and international companies are also sited. Owing to fast progress of Kandla port close city like Gandhidham also developed faster. Kandla port plays a major role in the country`s international trade. Having notched up a string of success, it has emerged as a forerunner, and has carved a niche for itself, by its steady growth and economy of operations.

Kandla port is well equipped with infrastructural. It has 10 berths, 6 oil jetties, 1 maintenance jetty, 1 dry dock and small jetties for small vessels, which can accommodate from large to small vessels. Near all these terminals and jetties there are storage facilities for cargo from containers to petroleum. The port is also outfitted with Sixteen Wharf cranes. Apart from this, the port also provides for additional facilities for international traders. Due to its strategic location it is the connecting hub for Northern, Western and Central India.

Kandla also has the country`s only Free Trade Zone Kandla Port, the foundation stone for which was laid by Pandit Jawaharlal Nehru, has 1800 metres of dry cargo berths where in a straight line, ten ships could easily be accommodated. It has berths for a tanker also where chemicals, vegetable oil etc are handled. Kandla today has become the hub of India`s foodgrains and oil imports.

Kandla is a self sufficient, self enhancing Port. It is also among the highest revenue earning Port of India. The Port is the nearest, most economical and most convenient for handling imports and exports of the highly productive granary and industrial belt stretching across Jammu & Kashmir, Punjab, Himachal Pardesh, Haryana, Rajasthan and Gujarat. Kandla Port is the most economical major port in terms of tariff and operational expenditure.

The efficiency and all requisite user facilities nevertheless confirm to international standards. The Port is up to date with the latest technological innovations. Happy labour-management relations and economical handling of heterogeneous cargo is considered the key element to the success of the Port of Kandla.

The port has floated a global tender for a two-year capital dredging contract of 20 million cubic metre at an estimated cost of Rs 100 crore. Kandla Port attained new levels of performance in fiscal 2006-07, establishing a new record by handling a cargo volume of 52.98 million tonnes, in the process entering into the select league of ports that have registered a throughput of 50 million tonnes or more.

Excellent infrastructural facilities, well-connectivity with the rest of the country by road and rail networks, all-round services provided with efficiency and transparency, lowest port tariff and the envious cost-effectiveness are the major strengths of Kandla Port.

LOCATION

The Major Port of Kandla, situated about 90 km off the mouth of Gulf of Kachchh in the Kandla Creek at Latitude 23 degree 1 minute North and Longitude 70 degree 13 minutes East, is the lone Major Port on the Gujarat coast line along the West Coast of the country.

Amongst the 12 Major Ports in the country, Kandla occupies an enviable position, both in terms of international maritime trade tonnage handled and financial stability and self-sufficiency attained year after year. A gateway to the north-western part of India consisting of a vast hinterland of 1 million sq. km stretched throughout 9 states from Gujarat to Jammu & Kashmir, the Port has a unique locational advantage. The Port's hinterland is well connected with infrastructural network of metre gauge and broad gauge railway system as well as State and National Highways.

HISTORICAL LEGACY:

As a humble beginning in the year 1930 by the great visionary, the late Maharao Khengarji III of the princely State of Kachchh, for a deep-draught closed port in his kingdom, the Kandla Port on, with the loss of Karachi port to Pakistan during partition, independent India was deprived of a sea outlet in its North-West region.

In order to offset this loss, the Indian government chose Kandla Port as an ideal sea outlet to be developed as a Major Port on the West Coast for carrying on the international maritime trade of the country and thus, Kandla Port was developed as a

Major Port. Port of Kandla, since then, has been playing a pivotal role in the country's international maritime trade, contributing its mite for the growth and development of the national economy.

The Port has grown and matured itself not only in age but also in creating infrastructural facilities in and around the Port, handling volumes of import and export trade year after year and attaining a very sound financial status ahead of a number of other Major Ports in the country. Thus, Kandla Port has been playing a pivotal role in the national economy and contributing a handsome amount of foreign exchange earnings to the national Exchequer every year.

THE EVOLUTION

Due to the loss of Karachi Port to Pakistan after independence, the onus of entire Indian trade was shifted to the Mumbai Port putting tremendous strain on its facilities. Under the inspirational and able guidance of the great visionary and the Iron Man of India, Sardar Vallabhbhai Patel, the Indian government on 17th February, 1948 constituted an Expert Committee known as the West Coast Major Port Development Committee to explore the possibilities of establishing a deep-sea port to cater to the vast hinterland comprising the north-western states of the country. The Committee submitted its report on the 30th April, 1948, recommending that a Major Port should be sited at Kandla.

Accordingly, on January 20, 1952, Pandit Jawaharlal Nehru, the then Prime Minister of India, laid the foundation stone at Kandla for the new port on the western coast of India. It was declared as a Major Port on April 8, 1955 by Late Lal Bahadur Shastri, the then Union Minister for Transport. The Kandla Port Trust was constituted in 1964 under the Major Port Trusts Act, 1963. Since then, this Major Port of Kandla has come a long way in becoming the 'Port of the New Millennium'.

VISION

"To be Asia's Supreme Global Logistic Hub"

MISSION

To transform the Port of Kandla into a most globally competitive logistics hub with international excellence leaving imprints in the international maritime arena by exploring its fathomless growth potentialities.

STRATEGIC & CLIMATIC ADVANTAGE

- All-weather port.
- Tropical and dry climatic conditions to handle any type of cargo throughout the year
- Temperature varying from 25 degree Celsius to 44 degree Celsius.
- Scanty rainfall facilitates round-the-year operations.
- Uninterrupted and smooth port operations on 365 days a year.
- No adverse wave effect, being a protected and sheltered harbour situated in the Creek.
- The only Indian Major Port nearest to the Middle East and Europe.

THE PORT LOGISTICS

NAVIGATIONAL FACILITIES:

- Round-the-clock navigation.
- Permissible draught 12.6 mtrs.
- Ships with 240 mtrs. length overall and 65,000 DWT are accommodated presently.
- Safe, protected and vast anchorage at outer harbour for waiting and lighterage purpose.
- 22 lighted navigational buoys with solar lights, as per IALA system, are provided in the navigational channel.
- Light house as an aid for night navigation.
- Fully equipped signal station operational round-the-clock.
- Four lighted shore beacons.

STEEL FLOATING DRY DOCK:

- Length: 95 mtrs.

2.4 Research Methodology

The Present research is an analytical study of Development of Ports in Saurashtra and Kutch region. The various aspects of performance of various ports are analyzed with the help of the information contained in the research papers, reports, journals, websites, reference books, newspapers and magazines. Secondary data are used in this study. Income statement, Balance sheets, Annual reports of concerned companies, Concerned books, Magazines are referred for collection of secondary data. Data provided in the internet have also been used.

2.5 Significance of study

The study done on the above topic will give an idea of how the ports are developed and what are the problems are faced when developing a new port. The project will be help full in finding out what strategies to make in order to fulfill the needs of the port environment and requirements have been analysed to construct the ports in the Saurashtra and Kutch region.

2.6 Research Hypothesis

If growth of port is related to foreign trade volume **then** more increases in the port growth the bigger will be the foreign trade volume.

2.7 Review of Literature

1. The article written by Swaminathan & Anklesaria Aiyar appeared in the Business Standard on Dec. 11 2008 which based on benefits of port liberalization: highlights the efficiency of port industry of Gujarat which also developed new industries like ship building. Gujarat has implemented various forms of port liberalization since 1990's. This has helped it become the country's fastest growing state.

2. According to ADB (2000) report based on private sector participation mentioned following objectives.
 - (i) Provide services which are efficient and cost effective from the port user's perspective.
 - (ii) Respond to changes in cargo handling technologies.
 - (iii) Respond to the changing requirements of the port users.
 - (iv) Provide choice of services and faster competition.
 - (v) Make timely capital investment to improve efficiency and expand capacity
 - (vi) Generate funds needed to finance investments.
 - (vii) Enforce labour discipline in the face of strong trade unions.

3. Roach D.K. (1982) Improving port performance: Management of general cargo operation, Trainee's workbook, Cardiff, U.K.: Droke educational associates U.K. Book. Roach mentioned in his studies about to reduce the cost of transport cost. According to him "Ship turn around time is an excellent indicator the speed of services being provided to ship operators. It is very important element in maritime transport costs."

4. According to the study of ASSOCHAM in year 2010 on 30 new ports may come up along Gujarat coast: Explained about scope for development of about 30 new ports along the 1600 Km Gujarat coast. Therefore, Gujarat would see an investment of nearly Rs. 90,000 crore in the coming five years. The study also pointed out increase in employment opportunities.

5. The thesis written by Michele Acciaro in 2003-04 at Erasmus university, Rotterdam on private sector financing of container terminal infrastructure: proposes and evaluates some obstacles in this and explains why they prevent private financing of container terminal infrastructure. It also indicates possible solutions to overcome these obstacles finally it assess the level of private financing of container terminals achievable in Europe.

6. Article published by Kevin Cullinane, Mahim Khann in journal of transport geography in year 1999 : given about to increase sufficient infrastructure

facilities like berths, depth of water and craneage which fewer ports will be in position to compete for these larger and larger ships.

7. According to (World Bank, 2001) “private sectors involvement in the port should not be an end in itself, but only a mean to achieve specific and well-defined public interest objectives”.

These objectives obviously vary from port to port and from context to context, but in general larger private involvement in the **port sector is motivated by:**

- The need to increase competitiveness in the port;
 - The desire to stimulate the port based regional economy;
 - The need to reduce public budget expenditure.
8. To focus on the integrated development of the sector for its sustained growth, Gujarat Maritime Board, along with confederation of Indian industries has organized a conference on “Port led development in Gujarat” on 29th June 2010: The theme was in tune with the current scenario focusing on the holistic and inclusive development near ports and along the coast, to sustain long term development of ports and port led activities.

Further in the creation and sustenance of these support activities, these centers have to be socially livable and acceptable for the overall socio- economic development of the region.

The special focus was given to the logistic policy formulation, integrated logistics solutions, skill development, and capacity enhancement of the existing ports, coastal shipping building of support infrastructure and other activities in support of strong and road connectivity.

2.8 Limitations of Research

- There is limited literature available in market about the subject.
- The procedure to visit the place and collect the data complex.
- In this study, only sample data from different sources are taken due to time and cost constraints.
- Online references sometimes mismatch with one another therefore accuracy of reports presented in thesis is limited.
- Complete accuracy not possible due to errors in feedback.
- Few persons have conduct the research in the region on the port therefore It was difficult to gate information about the same.
- Feedbacks might not be entirely truthful which depends on secondary source.

Chapter 3

PORT DEVELOPMENT PROCESS IN GUJARAT

3.1 Role of ports in infrastructural development – Share and contribution

India's economic reforms have necessitated the expansion of infrastructure. Commissioning of the Konkan railway along the western coast in January 1998 was a major step towards infrastructure development in India.

It provided an impetus for the development of the coastal areas by connecting the major ports like JNPT (Nhava Sheva), Mormugao, and New Mangalore, which directly benefited on the completion of the Konkan railways.

A port is a key component or a vital system of infrastructure, indispensable to the smooth operations of international trade. Efficient, economical, and expeditious infrastructure is a necessary precondition for the growth of exports. In its role as a transfer point between land and sea transport networks, ports serve as a pivotal element in the circulation of trade flows.

They also function as a funnel through which the impulses of modernization and development are channeled along with imports. A port is a visible manifestation of economic activity, a symbol of integrated growth center and an agent of balanced regional development.

The up gradation and expansion of ports are vital to strengthen India's position in the world trade and to handle the growing volume of international trade. India is ranked in the list of 17th maritime nations in the world. Ports and harbors in India played a significant role in expanding the economy of the nation during the ancient and medieval period.

The proportion of foreign trade in the Indian GDP has increased from 13% to 26% in the past two decades and is the biggest factor driving the growth of India.

Commissioning of the Konkan railway in January 1998 was a major step towards infrastructure development in India. The Konkan railway touches most of the important ports of Maharashtra, Goa, and Karnataka. Prior to it, due to the lack of connectivity, some port towns remained aloof from each other.

The Konkan railway is unique in the world because of its length and alignment running more or less parallel to the coast. It connects several major ports and is an influence on their volume and composition of traffic. The completion of the Konkan railway has provided an impetus to the development of coastal areas by connecting ports or providing connectivity to ports on the Western coast.

Role of Ports in Economic Development

With ever increasing globalization around the world, world trade is bound to increase. Many countries around the world have benefitted by opening up their economies and integrating with world economies by removing trade barriers. As world trade started growing, it was imperative for all the countries to be competitive and become more cost and quality conscious. Ports are backbone of world trade, and play a key role in inward and outward movement of goods, and countries which built good ports with excellent infrastructure became competitive manufacturing centers / hubs.

World trade has increased at a CAGR of 11.7% during 2000-2007 while India's trade has increased at a CAGR of 19.8%. During last 10 years share of India in world's merchandised trade is doubled from 0.7% in 2000 to 1.4% in 2010. Good quality port infrastructure is essential for the growth of trade and competitiveness of the manufacturing sector.

Port sector is destined to play an important role in the growth of Indian economy. 90 percent of trade by volume and 70 percent of trade by value is carried out by maritime transportation which involves handling through port. Trade or manufacturing based economy cannot grow without sufficient high quality port infrastructure.

Port plays an important role in the growth of manufacturing and mining sector. Core manufacturing sector like steel, refinery and automobiles are dependent on trade for raw materials and sale of finished products. Logistics cost plays an important role in the cost of production and hence profitability of the business as volume of material to be transported are huge.

In steel industry raw material requirement is around 2.5 times of the steel to be produced. So increase in logistics cost of raw material by Rs 100/MT will have an impact of Rs 250/MT in the price of finished products. Deep draft and fully mechanized ports reduces the sea logistics cost and ship waiting time.

Trend in the shipping business is movement towards larger ships which reduces per unit cost of transportation. In bulk category trend is towards capesize vessels of 170,000 DWT, in containers size of biggest ship has increased from 2000 TEUs in 1970s to 14000 TEUs at present while in crude oil trade VLCC of size 300,000 DWT are the most preferred vessel.

These large ships require high draft ports which may not be naturally available and hence huge investment is required in capital and maintenance dredging of the channel. Larger vessels reduces the per ton capital cost of the vessel by around 20% and fuel cost by around 40%.

Average discharge rate at the port has increased from 25,000 ton per day to 70,000 - 100,000 ton per day in highly mechanized ports like one at Hazira port of Essar. Similarly, for the containers number of moves by a gantry crane in an hour has increased from 15 moves to 25-30 moves and it is expected to increase to 40 moves per hour. High cargo handling rate at the port reduces the cargo handling time at the berth and ship waiting time.

Port plays an important role in development of industries in its hinterland. Export and import based industries like steel plants, refinery, power plants based on imported coal and LNG benefits from development of deep draft mechanized ports.

Land transportation cost through rail and road are much higher than sea transportation cost. It has been observed that development of ports has influenced the development of industries around the port and eventually led to development of cities, many port cities around the world are example of that.

There are several challenges in development of ports, the key ones being getting environmental and other approvals and acquisition of land for the port and port based industries. High investment will be involved in the capacity expansion in the port sector.

Investment will be required in 3 fronts – creation of deep draft port and providing tranquility, development of highly mechanized facility and yards, and connectivity of ports to the hinterland by railway network or good quality road capable of handling high traffic flow. Most of the ports in India do not have natural draft for direct berthing of large size vessels.

Huge investment in dredging of channel is required to increase the draft at the port. Port connectivity is the biggest challenge facing the port sector. Most of the ports are lacking because of the bottleneck in the evacuation. Ports need to be connected to the hinterland by high quality road and rail infrastructure. Creation of road and rail infrastructure requires involvement of several government agencies for approvals, acquisition of land, and development of the facilities.

Essar's port business is committed towards development of high quality port infrastructure for its customers. It has developed deep draft ports with highly mechanized handling facilities to reduce the logistics cost of its customers. All weather deep draft port at Hazira is an example of creation of high quality port infrastructure.

Port is created by dredging the channel to the draft suitable for handling minicape vessels. It has installed highly mechanized bulk raw material handling facilities capable of discharging 100,000 tonnes in a day. Essar has also constructed and operating SPM and petroleum product jetties at Vadinar, Gujarat and its SPM can handle VLCCs up to 325,000 DWT and can discharge a VLCC in 1.5 days.

It has shown exemplary track record in safety, quality and environment protection. It has received 'Sword of Honour' from British Safety Council and has become the first terminal in East of Suez channel to receive such award. It is operating with 1500 LTI free days and has received ISO 9001, ISO 28000 and ISO 29001 certifications.

Essar is also developing all weather deep draft port at Salaya, Gujarat for handling bulk cargo. This facility will be highly mechanized and will be capable of berthing minicape vessels. Essar has been awarded to develop 2 terminals at Paradip – one for handling coal and the other for handling bulk cargo. Focus of Essar in port business is to build large world class ports with contemporary technology and high discharge rates.

Port sector is crucial for the growth of the economy and it has been driving force for trade and growth of the economy since ancient times. Most of the ancient cities were port based cities and port will remain the focal point of urbanization in modern age as well. Need of the hour is to promote port development and facilitate full utilization of port assets.

3.2 Ports development in India - History and development process

India has a long coastline spanning 7517 kilometers forming one of the biggest peninsulas in the world. It is serviced by 12 governments and 1 corporate major port and 187 notified minor and intermediate ports. The latest addition to major ports is Port Blair on June 2010. With the declaration Port Blair has become the 13th major port in the country.

Major ports handled over 74% of all cargo traffic in 2007. However, the words "major", "intermediate" and "minor" do not have a strict association with the traffic volumes served by these ports. As an example, Mundra Port, a newly developed minor port in the state of Gujarat registered cargo traffic of around 28.8 million tonnes per annum during the financial year of 2008, which is higher than that of many major ports.

The classification of Indian ports into major, minor and intermediate has an administrative significance. Indian government has a federal structure, and according to its constitution, maritime transport falls under the "concurrent list", to be administered by both the Central and the State governments. While the Central Shipping Ministry administer the major ports, the minor and intermediate ports are administered by the relevant departments or ministries in the nine coastal states of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra and Gujarat.

Several of these 185 minor and intermediate ports are merely "notified", with little or no cargo handling actually taking place. These ports have been identified by the respective governments to be developed, in a phased manner, a good proportion of them involving Public-private partnership.

Cargo handling is projected to grow at 7.7% until 2013-14. Some 70% of India's container traffic is handled by the Mumbai Port and Jawaharlal Nehru Port Trust in Navi Mumbai. It has just 9 berths compared to 40 in the main port of Singapore. It takes an average of 21 days to clear import cargo in India compared to just 3 in Singapore.

India's maritime history predates the birth of Western civilisation. The world's first tidal dock is believed to have been built at Lothal around 2300 BC during the Harappan civilisation, near the present day Mangrol harbour on the Gujarat coast.

The Rig Veda, written around 2000 BC, credits Varuna with knowledge of the ocean routes commonly used by ships and describes naval expeditions using hundred-oared ships to subdue other kingdoms. There is a reference to *plava*, the side wings of a vessel which give stability under storm conditions, perhaps the precursor of modern stabilizers. Similarly, the Atharva Veda mentions boats, which are spacious, well constructed and comfortable.

In Indian mythology, Varuna was the exalted deity to whom lesser mortals turned to for forgiveness of their sins. It is only later that Indra became the King of the Gods and Varuna was relegated to become the God of Seas and Rivers.

The oceans recognized as repository of treasure, was churned by the Devas and Danavs, the sons of Kashyap by queen Aditi and Diti, in order to obtain Amrit, the nectar of immortality. Even today, the invocation at the launching of a warship is addressed to Aditi.

The influence of the sea on Indian Kingdoms continued to grow with the passage of time. North- west India came under the influence of Alexander the great, who built a harbour at Patala where the Indus branches into two, just before entering the Arabian sea. His army returned to Mesopotamia in ships built in Sindh. Records show that in the period after his conquest, Chandragupta Maurya established an admiralty division under a Superintendent of ships as part of his war office, with a charter including responsibility for navigation on the Seas, Oceans, lakes and Rivers. History records that Indian ships traded with Countries as far as Java and Sumatra, and available evidence indicates that they were also trading with other countries in the Pacific, and Indian Ocean.

Even before Alexander, there were references to India in Greek works and India had a flourishing trade with Rome. Roman writer Pliny speaks of Indian traders carrying away large quantity of gold from Rome, in payment for much sought exports such as precious stones, skins, clothes, spices, sandalwood, perfumes, herbs and indigo.

Trades of this volume could not have been conducted over the countries without appropriate Navigational skills. Two Indian astronomers of repute, Aryabhatta and Varahamihira, having accurately mapped the positions of celestial bodies, developed a method of computing a ship's position from the stars. A crude forerunner of the modern magnetic compass called Matsyayantra was being used around the fourth or fifth century AD.

Between the fifth and tenth centuries AD, the Vijaynagaram and Kalinga kingdoms of southern and Eastern India had established their rules over Malaya, Sumatra and Western Java. The Andaman and Nicobar Islands then served as an important midway for trade between the Indian peninsula and these kingdoms, as also with China.

The daily revenue from the western regions in the period 844-848 AD was estimated to be 200 maunds (eight tons) of gold. In the period 984-1042AD, the Chola kings dispatched great naval expeditions which occupied parts of Burma, Malaya and Sumatra, while suppressing the piratical activities of the Sumatra warlords.

In 1292 AD, Marco Polo described Indian ships as "built of fir timber, having a sheath of boards laid over the planking in every part, caulked with iron nails. The bottoms were smeared with a preparation of quicklime and hemp, pounded together and mixed with oil from a certain tree which is a better material than pitch." A fourteenth century description of an Indian ship credits it with a carrying capacity of over 700 people giving a fair idea of both ship building skills and maritime ability of seamen who could successfully man such large vessels.

Another account of the early fifteenth Century describes Indian ships as being built in compartments so that even if one part was shattered, the next remained intact, thus enabling the ship to complete her voyage. This was perhaps a forerunner of the modern day subdivision of ships into watertight compartments, a concept then totally alien to the Europeans.

The decline of Indian maritime power commenced in the Thirteenth century, and Indian sea power had almost disappeared when the Portuguese arrived in India. They later imposed a system of license for trade, and set upon all Asian vessels not holding permits from them.

The piratical activities of the Portuguese were challenged by the Zamorins of Calicut when Vasco da Gama, after obtaining permission to trade, refused to pay the customs levy. Two major engagements were fought during this period. First, the battle of Cochin in 1503, clearly revealed the weakness of Indian navies and indicated to the Europeans an opportunity for building a naval empire. The second engagement off Diu in 1509, gave the Portuguese mastery over Indian seas and laid the foundation of European control over Indian waters for the next 400 years.

Indian maritime interests witnessed a remarkable resurgence in the late seventeenth century, When the Siddhis of Janjira allied with the Moghuls to become a major

power on the West Coast. This led the Maratha King Shivaji to create his own fleet, which was commanded by able admirals like Sidhoji Gujar and Kanhoji Angre. The Maratha Fleet along with the legendary Kanhoji Angre held away over the entire Konkan Coast keeping the English, Dutch and Portuguese at bay. The death of Angre in 1729 left a vacuum and resulted in the decline of Maratha sea power. Despite the eclipse of Indian kingdoms with the advent of western domination, Indian shipbuilders continued to hold their own well into the nineteenth century.

The Bombay Dock completed in July 1735 is in use even today. Ships displacing 800 to 1000 tons were built of teak at Daman and were superior to their British counterparts both in design and durability. This so agitated British shipbuilders on the River Thames that they protested against use of Indian built ships to carry trade from England. Consequently active measures were adopted to cripple the Indian shipbuilding industries. Nevertheless, many Indian ships were inducted into the Royal Navy, such as HMS Hindostan in 1795, the frigate Cornwallis in 1800, HMS Camel in 181 and HMS Ceylon in 1808. HMS Asia carried the flag of Admiral Codrington at the battle of Navarino in 1827 the last major sea battle to be fought entirely under sail.

Two Indian built Ships witnessed history in the making. The Treaty of Nanking, ceding Hong Kong to the British was signed onboard HMS Cornwallis in 1842. The national anthem of USA "Star Spangled Banner", was composed by Francis Scott Key onboard HMS Minden when the Ship was on a visit to Baltimore. Numerous other ships were also constructed, the most famous being HMS Trincomalee, which was launched on 19 Oct 1817, carrying 86 guns and displacing 1065 tons. This ship was latter renamed Foudroyant.

The period of 4000 years between Lothal and Bombay Dock, therefore, offers tangible evidence of seafaring skills the nation possessed in the days of sail. In the early seventeen century, when British naval ships came to India, they discovered the existence of considerable shipbuilding and repair skills, as well as seafaring people. An ideal combination was thus available for supporting a fighting force in India.

3.3 Ports development in Gujarat - History and Development process

Traffic handled

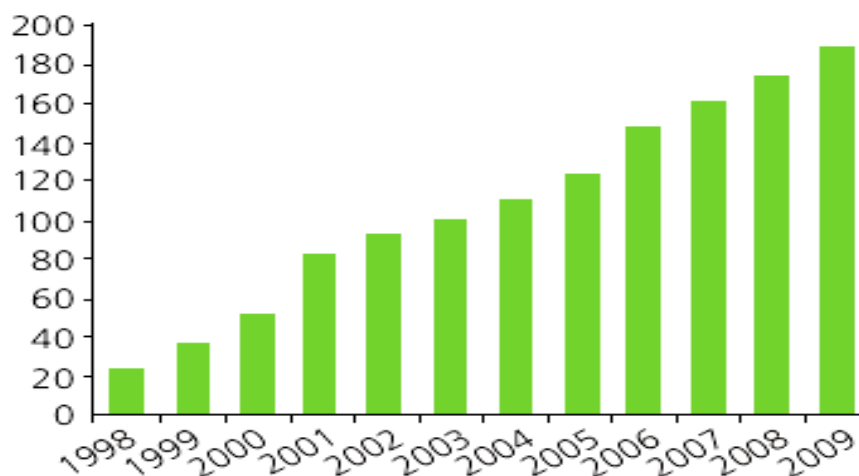
Gujarat's port sector has shown rapid development due to the proper planning, clear policies, and focused investment initiatives announced & driven by Gujarat Maritime Board and facilitated by the entrepreneurial spirit of the state's businessmen. The state of Gujarat boasts of four important private ports viz Pipavav (India's first private port), Mundra Port & SEZ, Dahej and Hazira.

The state has 42 ports, of which Kandla is the major port, while the balances are non-major ports. Of the 41 non-major ports, 19 are operational.

In 2006-07, Gujarat handled around 185.42 million tonnes of cargo, with Kandla accounting for 29 % and the remaining 71 % being handled by the non-major ports. Gujarat has the distinction of handling the maximum non-major port cargo traffic in India. Figure 4 indicates the growth trends in the traffic at the GMB ports (excluding Kandla & Vadinar).

Figure 4 : Growth trends in GMB Ports

In Mn tonnes



Source: Gujarat Infrastructure Development Board

Estimates show the GMB ports are expected to handle cargo traffic to the tune of 324 MMTPA by 2015-16. To facilitate and meet the cargo projections, GMB has proposed the development of some new ports at Dholera; Positra; Simar; Vansi-Borsi; Mithivirdi; Bedi; Maroli; Suthrapada; Modhawa; Khambhat; Mahuva.

The huge investments in the port sector would demand investments in the infrastructure facilities like roads and railways for faster and efficient handling of the cargo movement. With the development of the new ports with modern handling facilities, many of the ports in Gujarat would be acting as gateway ports for rest of the country, especially the North-West hinterland.

Magdalla, Jafrabad, Mul-Dwarka, Sikka, Dahej and Jakhau are the locations of captive jetties currently used by various companies including Essar, Reliance, Gujarat Ambuja, L&T, Kribhco, GSFC, IPCL, Sanghi Industries. An overview of the referred cargo belts is presented in the subsequent section.

Hinterland

The hinterland for which the port acts as the Gateway can be classified into the three regions of primary, secondary and tertiary depending on the proximity of the hinterland to the port. The primary hinterland would be the immediate geographical area close to the port and a source of assured cargo to the port (say in the vicinity of 40-50 kms); the secondary hinterland can be defined as areas that have an option of two or more ports close by on a single coastline, while the tertiary hinterland would be termed as geographical areas that have the alternative of using multiple coastline / ports.

The cargo hinterland for the ports of Gujarat usually stretches from the areas of Gujarat, Rajasthan, and Western U.P & Madhya Pradesh up to NCR, Punjab and Haryana. An overview of the profile of these cargo belts is indicated below.

Gujarat Cargo Belts

As per Gujarat Industries Commissionerate, the state accounts for 17.2% of fixed capital investment, 15.6% of value of production, 20.0% of India's industrial output and 22.0% of India's exports. Gujarat has achieved the distinction of being the most industrially developed state in India in respect of investment in industrial sector.

In 1960s only four cities namely Ahmedabad, Baroda, Surat and Rajkot and some isolated locations witnessed industrial development. Today, the industrial development is widespread throughout the state.

Saurashtra & Kutch Cargo belt

The cargo regions of Saurashtra and Kutch include Amreli, Bhavnagar, Porbander, Veraval, Junagadh, Rajkot, and Surendranagar. While cargo belts in Saurashtra act as the primary hinterland to the port of Pipavav; those in Kutch & areas close to Central Gujarat act as the primary hinterland for Kandla & Mundra.

The commodities imported in this belt are coal, fertilizers and food grains. Exports commodities include agriculture products and containers. The preferred mode of cargo movement of these belts to the ports of Kandla, Pipavav & Mundra is by road.

Central & North Gujarat Belt

This belt comprises of areas of Vadodara, Ahmedabad, Mehsana, Godra, Palanpur, Kadi, Anand, Khambhat, Himat Nagar.

The containerized cargo export from this region moves through JNPT through ICD Ahmedabad due to good rail connectivity & availability of mother vessels. Import of bulk commodities like coal, fertilizers and food grains for this belt is usually through ports of Bedi, Magdalla, Mundra, Navlakhi, Pipavav and Kandla. Exports from this belt include pharmaceutical products, machinery, engineering goods etc.

South Gujarat

The regions in this cargo belt include Baruch, Ankleswar, Vapi, Valsad, and Surat. Most of the containerized exports from this region are routed to JNPT. Due to the proximity of the Mumbai ports for this region, it makes more economic sense to ship through Mumbai / JNPT. Road is the preferred mode of transport to JNPT for the cargo emanating from this belt.

Other cargo belts

Rajasthan – Cargo belt under Southern Rajasthan (Chittodgarh, Udaipur, Kota, Siroi, Bilwara) is the primary hinterland for the ports of Kandla & Mundra and mode of inland transport is through road. The cargo belts of North Rajasthan (Jaipur, Jodhpur, Alwar, Bikaner) prefer JNPT due to good rail –road network.

National Capital Region –Delhi, Dadri, Rewadi, Noida, Gaziabad, Gurgaon, Faridabad fall under this cargo belt. Around 75% of the containers from this cargo belt are routed through JNPT; with the balance routed to the ports of Pipavav, Mundra & Kandla in Gujarat.

Western U.P & M.P – The western U.P belt comprising of Moradabad, Saranpur, Meerut generates reasonable volume of EXIM cargo of which again around 75% are routed through the Mumbai region ports mainly because of good road connectivity. Cargo from Indore / Bhopal and parts of M.P are routed through Gujarat.

Punjab, Haryana – The cargo belt region comprises large volume of containerised cargo due to the presence of industrial towns of Ludhiana, Jalandhar and Amritsar. Majority of the cargo is routed to JNPT.

As observed from the above, a significant portion of the cargo from the secondary and tertiary hinterland especially the containerized cargo is routed to JNPT, though these belts are closer to ports in Gujarat. Some of the reasons why ports in Gujarat are unable to attract cargo from these belts are due to factors like lack of adequate shipping lines options, mother vessels not calling on ports in Gujarat, unavailability of direct connections by the existing shipping lines to important destinations, preference to FCL cargo over LCL cargo by ports in Gujarat, inadequate equipments available for stuffing & loading at ports, greater transit time, low awareness about the port facilities in Gujarat amongst the shippers (importers / exporters), preference of the forwarders for JNPT. In addition, better inland connectivity to JNPT also acts as a significant factor that influences the decision of the Shippers to route their cargo to that port.

Ports require an excellent supporting inland infrastructure to offer cost competitive solutions to its clients. While most of the ports in Gujarat are no doubt connected through rail and road as depicted in Table 5, there are issues related to the quality of inland connectivity that acts as the stumbling block in attracting more cargo and challenges seamless movement.

It is imperative that with the development of growth centers like ports and industries, the supporting infrastructure of roads and railways must also be upgraded to reap the benefits of development driven by the referred growth centers. A significant portion of the containerized cargo generated within the state of Gujarat (and that which could be served by the ports in Gujarat, especially that of Central Gujarat) is serviced by JNPT.

If these cargo volumes are routed through the ports in the state, the overall savings in transportation cost would have a ripple effect on the State's GDP and facilitate further economic growth. In the event of better road & rail connectivity of the Gujarat cargo belts to these ports, the manufacturers would have a lesser transit time and hence a faster turnaround time of their cargo goods.

State inland connectivity

In addition, the hassles and time lost in interstate movement especially at the Octroi Check posts in Maharashtra would be averted. Ports of Pipavav & Mundra also offer the facility of double stack container trains, which can be leveraged by the shippers to reduce their overall transportation & shipment cost. The social benefits accrued due to the routing of the cargo to the Gujarat ports in terms of employment generation & technical skills up gradation of the personnel involved in the supply chain, development of ancillary support infrastructure around the port locations would also lead to a direct impact on the State's economy & in turn the National productivity.

Superior & a dependable inland transportation infrastructure allow businesses to receive inputs to production facilities and to transport finished goods to overseas/ domestic market in an efficient manner.

A seamless inland transport system allows companies to lower overall transportation costs, which lowers production costs and enhances productivity and profits. It is therefore vital that the quality of the rail and road connectivity to the ports is enhanced.

Figure No. 4

Gujarat Port Map



Ports Nearest rail link

1. Bedi
2. Bhavnagar
3. Dahej
4. Gujarat Adani Port Ltd.
5. Gujarat Pipavav Port Ltd.
6. Jafarbad
7. Jakhau
8. Mandvi
9. Magdalla
10. Mundra (Old)
11. Navlakhi
12. Okha
13. Porbander
14. Simar
15. Vansi -Borsi
16. Veraval
17. Jamnagar Rly Station (7 Kms from Bedi)

Road linkage

Gujarat has an extensive road network and boasts of the largest percentage of paved roads in the country. The Committee of Secretaries (CoS), GoI has recommended that minimum 4-lane road and double line rail connectivity must be provided for major ports. One can vouch for the recommendation of the CoS for the Kandla Port Trust road connectivity.

The existing road linkage to the major port of Kandla is good. Internal Roads in Kandla Port have been broadened and strengthened and there is four-lane smooth road connectivity to all the Port Trust Gates. This has been triggered by the Gandhidham - Samakhiali Packages I, II & III covering 56.2 km under the port connectivity scheme of NHAI. These port-road connectivity projects are being implemented through Special Purpose Vehicles (SPVs) formed by NHAI.

It may be also worthwhile to consider implementing the recommendation of the CoS of having 4-lane road connectivity to the other ports in Gujarat that are already handling a reasonable cargo volume including Bedi, Dahej, Mundra, Pipavav, Hazira, Jafrabad, Magdalla, Mul-Dwarka, Navlakhi, Okha & Sikka. Most of the roads connecting the referred ports are either district roads/ village road. The Gujarat government had initiated a World Bank loan in 2000 to upgrade 850 km and periodic maintenance of around 1,000 km of State Highways.

However in spite of the said efforts of the Government, the present conditions of the roads to some of the above referred ports are not in a good shape, with the roads practically becoming inaccessible during the monsoons due to inadequate maintenance.

The poor condition is compounded with the movement of heavy trailer axle load to & from the port and inherent deficiencies in structural thickness. For e.g. a stretch of road to Mundra 10 kms prior to the port is damaged; certain portions of the road leading to Pipavav are congested. In case of cargo originating from South Gujarat, there is huge congestion and bottleneck near Surat due to the presence of only one bridge connecting Surat Mumbai by road. The railways have always provided a crucial link to the various growth centres / economic hubs including ports. Railways

have provided an efficient and safe mode of cargo transportation and over the past few years has attracted cargo traditionally moving by road.

3.4 Kandla - History and development process

Kandla port plays a major role in the country's international trade. Having notched up a string of success, it has emerged as a forerunner, and has carved a niche for itself, by its steady growth and economy of operations.

The Port of Kandla is located on the Gulf of Kutch on the northwestern coast of India some 256 nautical miles southeast of the [Port of Karachi](#) in Pakistan and over 430 nautical miles north-northwest of the [Port of Mumbai](#) (Bombay).

Located some 90 kilometers from the mouth of the Gulf of Kachchh on the Kandla Creek, the Port of Kandla was opened as a natural deep-water harbor in the 1930s to serve the hinterland of and beyond the state of Gujarat.

Port History

The British Royal India Navy first appraised the Kandla stream in 1851 for suitability as a port; however, they did not conduct a detailed survey until 1922. The Port of Kandla was created in 1931 with a single pier. After Indian independence in the late 1940s, the new government selected the Port of Kandla as a promising outlet to the Arabian Sea.

When the Port of Karachi was lost to India, maritime trade in the area shifted to the Port of Mumbai (formerly Bombay). Mumbai's facilities were soon strained beyond capacity.

In early 1948, the Indian government created the West Coast Major Port Development Committee to study the feasibility of building a major seaport to replace the Port of Karachi that went to Pakistan during partitioning. The Committee recommended locating a port at Kandla.

In 1952, Prime Minister [Pandit Jawaharlal Nehru](#) laid the foundation stone for the new port on India's northwestern coast. The Port of Kandla was declared a major port in 1955. The Kandla Port Trust was created by law in 1963 to manage the new port.

The [Port of Kandla Special Economic Zone](#) (KASEZ) was the first special economic zone to be established in India and in Asia. Established in 1965, the Port of Kandla SEZ is the biggest multiple-product SEZ in the country. Covering over 310 hectares, the special economic zone is just nine kilometers from the Port of Kandla.

Today, the Port of Kandla is India's hub for exporting grains and importing oil. This self-sufficient port is one of the highest-earning ports in the country. Major imports entering the Port of Kandla are petroleum, chemicals, and iron and steel machinery, but it also handles salt, textiles, and grain.

Port Commerce

The [Kandla Port Trust](#), under India's Ministry of Commerce, is responsible for managing and operating the Port of Kandla. Since its creation in 1963, the Trust has established an impressive history of successes that make it a major contributor to the country's international trade and the national economy.

The ultimate goal of the Kandla Port Trust is to make the Port of Kandla Asia's dominating global logistics hub by making it the most economical modern port in the region offering high-quality and cost-effective services to its customers. Among the Trust's strategic objectives is creating facilities that exceed international standards and offer fast turn-around times for vessels, maintaining a well-trained up-to-date workforce, protecting the environment, and contributing to the society at large.

In the 2006-2007 shipping season, the Port of Kandla set a new record, handling almost 53 million tons of cargo.

In the 2005-2006 shipping season, total foreign trade was 40.8 million tons, including 31.6 million tons of imports and 9.2 million tons of exports. Of that total, liquid cargoes dominated (27 million metric tons) and bulk cargoes were significant (8.1 million metric tons). In 2005-2006, the Port of Kandla also handled 4.3 million metric tons of breakbulk and 2.1 million metric tons of containerized cargoes.

The Port of Kandla is open year-round, protected from weather and winds by its location at the head of the Gulf of Kachchh. The Port of Kandla has capacity to handle 24 thousand metric tons of dry cargo per day.

Today, the Port of Kandla offers maximum permissible draught of 12 meters, but projects are underway to deepen the port to 14 meters. Today, the Port of Kandla can accommodate ships up to 240 meters in length and 65 thousand DWT.

The Port of Kandla offers a huge anchorage area for vessels waiting to enter the port and for lighterage services in the outer harbor. The Port of Kandla's navigation channel is marked with 22 lighted navigational buoys, and a light house also assists navigation.

The Port of Kandla offers 12 dry cargo berths with a total quay length of 2532 meters. It also operates six oil jetties, one deep-draught mooring, and four cargo moorings in the inner harbor. The Port of Kandla contains 253 hectares within its custom bonded area.

The Port of Kandla's Chemical and Liquid Handling Complex has total storage capacity for 21.9 Lakh kiloliters. Private sector storage terminals have capacity for 9.8 Lakh kiloliters. The Port of Kandla has the largest capacity in India for storing liquid cargoes, and it is served by a modern pipeline network. The storage facility for liquefied petroleum gas has capacity for 30 thousand cubic meters.

Within the bonded custom area, the Port of Kandla offers outstanding facilities for storing dry cargoes. The Port of Kandla's container handling facilities include 545 meters of quays equipped with four rail-mounted quay cranes and two harbor mobile cranes.

The container facilities include an almost 11-hectare container yard, a 6.5 thousand square meter container freight station, and 90 reefer points for refrigerated containers. The Port of Kandla is connected to its hinterland by the four-lane national highway, and it is served by a fully-developed network of roads within and around the port to

facilitate cargo-handling. It is also linked to the nation's rail network, and the Port of Kandla is about 17 kilometers from the Kandla Airport.

Mission

To be the most economical modern Major Port, rendering cost effective services to our Customers.

The Key Objectives of Kandla port

- To provide the Clientele, efficient and economical Port services. To render value for money and value added services to the Customers, to their utmost satisfaction.
- To create facilities of international standards, and facilitate quicker turnaround of vessels. To maintain peaceful industrial relations by recognizing the work force as an asset and develop them to adopt to the changing Port scenario.
- To participate in social development by contributing the mite to the society at large.
- To be Environment friendly

Geographic Location

Kandla port is situated in the the Kandla Creek and is 90 kms. from the mouth of the Gulf Of Kachch. It is a protected natural harbour.

Latitude: 23o 01' N

Longitude: 70o 13' E

3.5 New Port Policy - Kandla (Major port)

Kandla Port practices trade friendly, output oriented and progressive berthing policy. The berthing policy categorizes vessels into Export group, Import Group, Container Group.

The highlights of the policy are as follows:

- Allotment of two berths for container vessels.
- Four berths for export cargo.
- Three berths for import cargo.
- One berth for senior most vessels.

Within the above groups, the following priorities are followed:

- Priority berthing for costal vessels.
- One berth in exports group reserved for food grains.
- One berth each in export & import groups for vessels assuring 6000 MT throughput per day.
- Any other priority accorded by the Government from time to time in respective groups.

Port Clearance

Goods shall not be removed from the port premises unless respective entry in the customs import bill of entry or export shipping bill and also submission of the receipt of all port dues. Port charges on goods landed together with any other charges incurred under the boards scale of rates shall be paid before removal of goods from the port premises.

Projections

To make Kandla Port a state of art port after the world class facilities, substantial amount is kept for the infrastructure development in next five year plan. The yearwise projections are as below

Table 9

Year	Funds (In crores)
2002-2003	95.10
2003-2004	97.95
2004-2005	100.55
2005-2006	101.45
2006-2007	102.65

Operating Conditions

- All weather port
- Tropical and dry climatic conditions.
- Temperature varies from 25oC to 44oC during summer and from 10oC to 25oC during winter.
- Scanty rainfall thereby enabling round the year operations.
- Uninterrupted and smooth port operations round the year due to ideal climatic conditions.
- No adverse wave effect being a sheltered harbour situated in the creek.
- The only Indian port which is nearest to the Middle East and Europe.

Regulations and Notes

KPT is abided by the Kandla Port Regulations 1967 and for the employees KPT is also employee's regulations.

Hazardous Goods

KPT handling different varieties of Hazardous Cargo as per the safety and security norms of Govt. of India.

Port Labour

Port is having three category of Labour (A,B,C) where A category labour are permanent, the labour of B category will be available as and when required and the labour of C category is daily rated (Causal). Port is having total of 47 gangs of A category +2 gangs of B category labour . There are 14 labour and 1 mukadam in one gang. The average gang shift output is 408 tones.

3.6 Kandla Free Trade Zone

Kandla Special Economic Zone (KASEZ) earlier known, as the **Kandla Free Trade Zone** is located at the port town Gandhidham in the state of Gujarat. One of the most significant features of this special economic zone at Kandla is that it is strictly a union government zone amidst others with more of private participation.

The Kandla Special Economic Zone (KASEZ) is the first in Asia and largest multi-product Special Economic Zone in India. The concept of the Special Economic Zone at Kandla has been formulated on the basis of the new Special Economic Zone (SEZ) scheme introduced in the Export and Import Policy from the year 2000.

The main purpose is to offer an environment for export production that is internationally competitive and free from hazards. The KASEZ offers all facilities to the exporters and hence it is in demand among the export-oriented manufacturing units in India.

The net foreign exchange earning of the Kandla Special Economic Zone is more than 60%, the highest among others across the country. There are over 15,000 workers employed in the units of Kandla SEZ including many women workers.

The Kandla Special Economic Zone following the Govt. of Gujarat's Policy on SEZ offers infrastructural facilities encompassing land, factory premises, abundant labor supply, co-operating administration support, water, power, clearance benefits, telecommunications, and urban transport services. Recently, TATA Consultancy Services has announced the launch of PKI or Public Key Infrastructure solution for the Kandla Special Economic Zone (KASEZ). As a result KASEZ today is a part of Tata Consultancy Services Certifying Authority (TCS-CA) trust network and will behave as a Registration Authority to TCS-CA.

Moreover, the SEZ at Kandla is the largest in India and the most spacious among all other SEZs within the country. Along with the highly developed infrastructure the Kandla Special Economic Zone has a noteworthy geographically strategic position, as it is located only at a distance of 9kms away from the modern and all-weather friendly port of Kandla in Gujarat. Such facilities within the Kandla SEZ make it the best possible and most lucrative SEZ unit for manufacturing goods for export-oriented trading activities. The major industries operating their export-oriented units in the Kandla Special Economic Zone includes Gems and Jewellery, Electronic, Software, Textile and Garments, Engineering Goods, Sports Goods, and Leather Products.

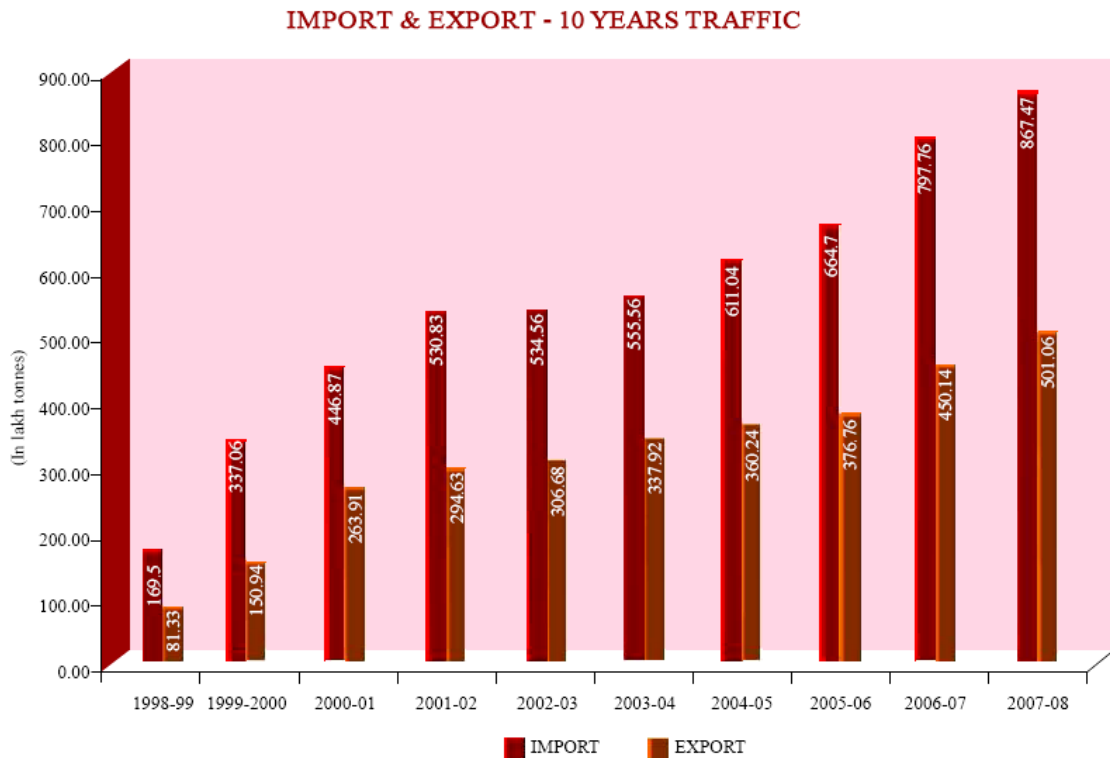
The highlights of the infrastructure and incentives of the Kandla SEZ are –

- The SEZ unit at Kandla is treated as foreign territory for the purpose of trade operations and duties and tariffs.
- For import activities no licence is required and import of capital goods, spares, consumables, and raw materials is exempt from customs duty.
- 100% Foreign Direct Investment is permitted in the manufacturing sector and for the development of infrastructure.
- Subcontracting abroad is permitted.
- The import and export cargo items are free from all routine examination by Customs.
- The Kandla SEZ provides support services like banking, post office clearing agents, restaurants, and dispensary within the zone complex. State Bank of India, Bank of Baroda, Punjab National Bank, and Dena Bank all have their branches in the Kandla Special Economic Zone (KASEZ).

3.7 Kandla Past, Present: Share in exports earnings

Kandla port has for the third year running emerged as the top port of the country by handling over 79 million tonnes of cargo during the financial year 2009-10.

Chart 6



(SOURCE: Kandla Port Authority 2009-10)

This is a remarkable achievement for the port faced many odds and stiff competition from the country's first private sector port at Mundra. Port achieved the distinction of being the top cargo handling port of the country for the third consecutive year with the cooperation of port users, employees and others.

The government had fixed a target of 78 million tonnes for the port. Port would undertake a mega expansion programme with an outlay of over Rs 3,000 crore in the financial year 2010-11. This will include deep-draft Tuna Tekara jetty at a cost of Rs1, 140 crore, one single-point mooring (a Japanese device to handle very large crude carriers) at Veera, development of Bunder basin at Kandla, and bunkering and dry dock facility.

Tuna project has been cleared by the government and only environmental clearance was awaited, he said adding that efforts were on to see that the project of constructing four more dry cargo jetties was implemented soon. Incidentally, Kandla port also has a satellite oil port at Vadinar in Jamnagar district. Vadinar oil port handled more

crude and finished petroleum products than the Kandla port this year too. Vadinar handled over 36 million tonnes of crude import and exported over 7 million tonnes of finished petroleum product this year. In comparison, the main Kandla port handled 25.28 million tonnes of imports and 9.95 million tonnes of exports.

Port sources said that among imported goods, fertilizers was the top single commodity handled (over 4 million tonnes), followed by timber logs (over 2.5 million tonnes), and steel (1.86 million tonnes). Other cargoes amounted to five million tonnes. In exports at Kandla, the single most handled cargo was salt (2.07 million tonnes) - a local product - followed by soya (1.89 million tonnes) and containerised cargo (1.4 million tonnes).

Table 10

Financial Performance

Particulars	Actual 2001-02	Actual 2002-03	Actual 2003-04
Cargo Handled (MMT)	37.73	40.63	41.52
No. of Vessels Handled	1672	1813	1823
Operating Income	179.65	211.98	216.25
Operating Expenditure	104.93	139.72	159.76
Operating Ratio (%)	58.41%	65.91%	73.88%
Operating Surplus	74.72	72.26	56.49

Source: Kandla Port Authority

Current Development Kandla

The total cargo handled by the Kandla port in quantitative terms has increased from 648.93 lakh tonnes in the year 2007-08 to 722.25 lakh tonnes in the year 2008-09, showing an increase of 11.30 % over the previous year (including transshipment). With this performance, the imports and exports from Kandla port have increased by

13.86 % and 9.18 % respectively during the year 2008-09 as compared to the previous year. During the year 2009-10 (April to Nov. 2009) the total cargo handled by major port Kandla was 532.52 lakh tonnes (including transshipment).

Particulars	2007-08	2008-09	2009-10
Cargo Handled (Lakh Tonnes)	648.93	722.25	532.52
			(April to Nov. 2009)

Source: Kandla Port Trust

Table: 10A

Rs.38 bn development package for Kandla port

The Kandla port in Gujarat will be developed under a Rs.38 billion (\$828.7 million) package, including measures to accommodate larger ships and the addition of new berths, The port's output is 14,000 tonnes per ship per day as against the national average of 9,000 tonnes." The development package will include construction and development of a new satellite port at nearby Tuna at a cost of Rs.4.24 billion, deepening draughts to accommodate bigger ships and adding six new berths at a cost of Rs.3.5 billion. The package for developing Kandla port includes a Rs.2.25-billion container terminal, two single buoy moorings worth Rs.6 billion at Vadinar to handle crude, a Rs.3.5-billion bunkering terminal, and a Rs.5-billion ship repair facility.

India's maritime development programme envisages the investment of Rs.600 billion to expand and develop 12 major ports over the next decade. It estimates the capacity requirement at these ports by 2013-14 would be around 800 million tonnes a year, compared to the current figure of 395 million tonnes.

The government has also cleared a proposal to construct four cargo berths under a public-private partnership model with an investment of Rs.4.3 billion. Kandla Port Trust has appointed Mumbai-based IDFC Limited as project advisor for these berths. Cargo traffic at Kandla increased from 24.1 million tonnes during April-October last year to 26.6 million tonnes in the same period this year.

CHAPTER 4
GUJARAT MARITIME BOARD:
MINOR PORT POLICY AND SCHEMES

4.1 Gujarat Maritime Board

Introduction

Gujarat is a pioneering, futuristic and entrepreneurial state of the country. In particular, Gujarat's maritime sector is considered to be the most proactive and well developed sectors of India. During the year 2009-10, ports handled about 206 million tonnes of cargo, which accounted for 80 per cent of the total cargo handled by all the minor ports of India.

The milestone achieved by the State of Gujarat in the port sector is by a virtue of its 1600 kms long coastline, its innovative strategic initiatives, proactive measures by the Government and above all a competent and channelized guidance provided by its regulatory body named 'Gujarat Maritime Board'.

FIGURE 5



GMB - Vision, Mission and Objectives

Vision

To capture the strategic advantage of India's longest coastline and develop the coastal areas to make them the growth engines of the State.

Mission

To sustain, facilitate and excel in developing multi purpose port and logistic facilities, and shipping related industry via its competent services and timely infrastructure development.

Objectives

- To maximize coastal benefits and strategic advantages of Gujarat Ports
- To capture maximum traffic at Gujarat Ports and enhance container traffic at GMB Ports.
- To further strengthen its role in liquid and bulk cargo
- To develop Gujarat as a Shipbuilding/Repair Hub
- To promote various other port led development as Ro-Ro Ferry Terminal services, Jetty Services, Marine Tourism, Logistic Parks.
- To provide services, property and infrastructure support that will promote private investment.
- To ensure and protect ecological balance and safeguard social and environmental issues.
- To bring innovation and implement latest technology at all ports
- To ensure safety and security at all levels of operation

Evolution of Gujarat Maritime Board

Gujarat Maritime Board was founded in 1982 under the Gujarat Maritime Board Act, 1981, to manage, control and administer the minor ports of Gujarat.

Inception of Gujarat Maritime Board brought all stakeholders under one roof and resolved the then existing issues in the Port sector like obsolete technology, low loading rates, congestion and delays, poor connectivity with the hinterland etc.

Over the next two and half decades of operation, GMB planned the integrated development of new ports, along with the required road and rail links. It also took a lead in developing several forms of privatization such as privatizing port services to facilitating private jetties, shifting from the model of joint venture ports to completely private ports etc.

The State's Port Policy Statement of December 1995 spelled out an explicit strategy of port-led development, including the creation of 10 completely new, world-class ports, in which private-sector participation played a dominant role. At the crack of new millennium, the sector received a thrust, which put the port sector in Gujarat in a completely new orbit. GMB explicitly came out with many policies as BOOT Policy, Captive Jetty Expansion Policy, and New Shipbuilding Policy (proposed) to promote port led development in the State.

GMB presently manages the 41 minor ports of the State with a vision 'To enhance and harness ports and international trade as vehicles for economic development'. It is perhaps the only maritime body with an enviable feat, nationally and internationally.

History

The strategic location of Gujarat, as it opens out into the Arabian Sea, has been historically important for trade and commerce, with ancient countries like Sumer, Phoenicia, Rome, Iran, Egypt, East Africa, Malaya, Sumatra and China etc. As narrated in various religious and ancient literatures, Gujarat had a well documented maritime trade dating back to 4500 years.

Ancient period was the Golden Age of Shipping and Ship-building activities. Sir William Jones, a renowned scholar is of opinion that the Hindus "must have been navigators in the age of Manu, because bottomry (the lender of money for marine insurance) is mentioned in it."

A vast repository of ancient literature has random references to a brisk seafaring trade. Harivansh Purana mentions that the Prosperity of Yadavas was due to the sea. Kautilya has also mentioned in his Arthshashtra that the main occupation of people living in coastline was navigation. The Bible refers to Phoenician sailors who sailed to Ophir (Abhira in Gujarat) and brought back treasures.

The Greek 'Periplus of the Erythrean Sea' contains many detailed references to the Gujarat seaports as Barygaza(Bharuch, Gujarat). Even, the Greek author Galazy has mentioned in his book Batiyas about the shipping activity of Kachchha in circa 246. The well known historian Huian- Tsang described Saurashtra as Sa-la-ch'a and referred it as 'the highway to the sea where all inhabitants were traders by profession'.

Ancient Gujarat marks one of the glorious chapters in Indian history. The State possesses a strong maritime lineage with a remarkable mastery over the seas, extensive trade links and expertise in Shipbuilding.

Ancient maritime centers which flourished at the Gujarat coastline are:

1. **Lothal** - The ancient city of Lothal has the oldest dockyard in the world. The city boasted of 30 ships of 60 tonnes each. Lothal was an important maritime trading centre and had trade linkages with Egypt, Arabian and Sumerian cities.
2. **Padri** - Padri, a site in the Gulf of Khambhat had also a strong maritime presence. It is believed that Harappans of Padri had mastered the technique of deep sea fishing, traversing the ocean in huge boats.
3. **Kuntasi** – Kuntasi locally known as 'Bibino Timbo' was a port situated at the creek mouth during Harappan period. It was a centre for acquiring and processing raw materials for manufacturing articles for export.
4. **Dholavira** – Dholavira, another Harappan site was an active port which was a safe harbour for anchoring boats.

5. **Bet Dwarka** – It was a small port established in 2nd millennium BC. Dwarka was a well planned township. Its harbour consisted of a rocky ridge modified into an anchorage for berthing vessels, a unique feature in harbour technology which was attempted later by the Phoenicians.
6. **Malvan** – Malvan was a post Harappan estuarine Port, dating back to 1400 BC. It was located on the banks of an oxbow lake formed by the Dumas branch of the Tapti river.
7. **Vallabhi** – An ancient city located in Saurashtra Peninsula was a flourishing seaport during the Maitraka dynasty from the 5th to 8th centuries CE. It was famous for its catholicity and drew students worldwide.
8. **Bhagatray** – Barygaza or Bharuch was the most important ancient port. It was a commercial centre situated on the Narmada estuary. It established itself as shipment centre and a ship-building port. It acted as a link port to Asia, Africa, Europe and Mediterranean basin. Bharuch acquired a strategic importance during Maurya and Gupta periods. Around 4000 ships passed through the port.
9. **Khambhat** – Khambhat was a prominent port during 11th to 17th century, was a great seat of a flourishing trade renowned with its silk and gold articles. While indigo and fine buckram, agate and carnelian ornaments were prized products, a good deal of cotton and leather too were also exported.
10. **Mandavi** – Mandavi or the Mart, also called as Maska, was an ancient ship-building centre on the right bank of Rukmavati River. The Port had multi-hued pennants fluttering atop ships from over eighty countries.
11. **Surat** –Surat was positioned on the most important sea routes between Arabia, Europe and the East. The city emerged as a minor trading centre during the 1500s and reached its peak during 16th century. It acted as an export outlet for agro based products from Magdalla Port.

Ports like Jakho, Lakhpat, Tuna, Mundra and Koteswar had successfully been carrying out overseas business along the 352 Km stretch of Kutch seashore.

No. of Ports (GMB Operated Ports) and its functions

1. Magdalla (Surat)
2. Bharuch
3. Bhavnagar
4. Jaffrabad
5. Veraval
6. Okha
7. Jamnagar
8. Navlakhi
9. Mandvi
- 10.



About the Bhavnagar port

Bhavnagar port is an all-weather direct berthing port for smaller vessels. It has a draught of up to 4 m and is located in the Gulf of Cambay on the West Coast of India. The port is having a Lock gate for tidal advantage.

Present Infrastructure

The port is well connected with the State Highway and B G railway line. The city of Bhavnagar is about 10 kms from the new port. Daily air services are available between Bhavnagar and Mumbai. Nearest international airport is Ahmedabad.

Present facilities

The port has a dry dock for repair of tugs, launches and barges. The port has two workshops-general workshop and running workshop. Flotilla units can be repaired at both these workshops. The general workshop is used to carry out repairs on flotilla units and mechanical instruments.

The running workshop takes care of the day-to-day repairs and maintenance requirements. Both workshops have different sizes of lathe machines, drilling machines and shaping machines. Electric and gas welding facilities, a cutting machine, foundry shop, etc. are also available at the workshops.

The port has a tug boat, Jai Somnath that would be deployed for patrolling of the Bhavnagar-Alang section under the ISPS code. Survey work for the tug boat has already been completed. Electrification in the port area has been completed. Five high-mast towers have been installed at the port and for emergency power supply; 75 KVA DG set is also available.

All the godowns at the port have been repaired and are now available for use. Internal roads of the port are being paved. Recently, the port has also been connected with a broad gauge railway line for which GMB has requested the Railways to continue the line as per the cargo guarantee action plan to be submitted by the trade and the chambers of commerce.

Dry Dock: 1 no.

Tugs: 2 nos.

Barges: 1 each of 250 tonnes

Water Barges: 1no of 600 tonnes

Harbour Structures

The concrete jetty is 270 m in length and 12.8 m in width. There is no swell or current of any kind. High tide at concrete jetty is 22 minutes earlier than the time given. Vessels that are to berth alongside the concrete jetty must pass through the Lock Gate. Vessels up to 19.8 m width and 143.8 m in length can pass through the gate, but permissible draught is only 4 m. The North quay on the North of the basin is 141 m long and has adequate backup and storage area.

Proposed additional facilities/Investment plans

Revival of Bhavnagar port: The Lock Gate at Bhavnagar port has been repaired and is functional. The jetty work is in progress and is likely to be completed by May 2010 .

Jafrabad Port

Geographical Location

Longitude 71° 21' 50"E

Latitude 20° 51' 56"N

Port Capacity

6.04 MMTPA

Commodity Handled

IMPORT: Coal, Coke

EXPORT: Clinker, Salt

About the port

Jafrabad is an all-weather direct berthing port for small ocean-going vessels. It is situated in the Gulf of Cambay on the south-west coast of Saurashtra, inside the Jafrabad Creek on the West Coast of India.

Present Infrastructure

Jafrabad is connected by NH 8E at 20 kms . The broad gauge railway line is available at Rajula which is 22 kms away from the port. Nearest airport is at Diu, which is 75 kms, away from Jafrabad.

Present facilities

Harbour Structures

1. RCC Jetty for loading Clinkers (near ClinkerJetty): length - 211 m permissible draft - 4 m Loading is done mechanically by conveyor belt.
2. RCC Jetty for loading salt and miscellaneous cargo: length - 45 m
3. Slope for cargo vessel: length - 30 m
4. Fish-landing wharf: length - 450 m

Port Infrastructure and Facilities:

Berthing facilities

- New Clinker Jetty for small coastal steamers, with a working length of 211 m. and 4 m. draft. Small coastal steamers berth at the new clinker jetty for export of Clinker and jetty for export of Coal and Coke on account of M/s Narmada Cement Co. Ltd., Jafrabad .
(Subsidiary of M/s Ultra Tech Cement Co. Ltd.)
- RCC Jetty for sailing vessels traffic, with a length of 45 m and a draft of 1 m.
- One fish-loading wharf for fishing activities, with a length of 400 m with suitable draught.
- Three landing slopes, with a length of 30 m and 0.30 m draft for passenger and small boats

Cargo handling equipment

M/s Narmada Cement Co. Ltd., has been taken over by M/s Ultra Tech Cement Co. Ltd to load Clinker through use of their own conveyor belt system which has a speed of 600 MT per hour. They discharge coal by their own cranes and the average discharge is about 9,000 to 10,000 MT per day.

Warehousing and storage facilities

There are seven godowns available, with an area of 1,310 sq. mtrs. They have a storage capacity of 2,500 MT. Sufficient open space is available. Private bunkering and ship stores are available.

Proposed additional facilities/Investment plans

One fisheries harbour project amounting about INR 17 crore is under procedure.

Income and Expenditure:

GUJARAT MARITIME BOARD			
BALANCESHEET AS ON 31st MARCH 2009			
Rs. in Lac.			
Particulars	Sch.	AMOUNT	
[A] SOURCES OF FUND			
I Head Office Account (Contra)			
II Reserves & Surplus			
Revenue Reserves & Acc. Surplus	A		77 086
Capital Reserves	B		15 094
General Reserve	C		
III Loan Funds	D		
Secured			
Unsecured			
TOTAL			92 180

[B] APPLICATION OF FUNDS

IV	Fixed Assets	E	
	Gross Block		53 495
	Less: Depreciaton		15 956
	Net Fixed Assets		37 540
	Add: Capital work in Progress		4 236
	TOTAL(1)		41 775
V	Investments	F	
	Investments in Equity Shares		14 050
	Investments in Bonds & Deposits		3 419
	TOTAL(2)		17 468
VI	Current Assets and Loans and Advances		
	Stores	G	358
	Sundry Debtors	H	26 648
	Deposit works for other Departments	I	2 136
	Loans & Advances	J	288
	Cash & Bank Balances	K	31 094
	Total Current Assets(3)		60 524
	Less:		
VII	Current Liabilities & Provisions		
	Current Liabilities	L	20 761
	Provisions	M	6 828
	Total Current Liabilities(4)		27 588
	NET CURRENT ASSETS(3)-(4)		32 936
VIII	Miscellaneous Expenditure	N	
	(to the extent not written off)		
	TOTAL		92 180

4.2 New Port Policy (Minor Ports)

Introduction

Gujarat, situated on the western coast of India, is a principal Maritime State endowed with favourable strategic port locations. The prominence of Gujarat is by virtue of having nearly 1600 kms long coastline, which accounts for 1/3 rd of the coastline of India and being the nearest maritime outlet to Middle East, Africa and Europe.

In 1991, Government of India initiated various economic, trade and industrial reforms, through the policy of liberalization to enhance industrial and trading activities. The rationalization of import duties and stress on export promotion has seen imports increasing by 24% and exports by 25%. Gujarat State is one of those frontline States that can take up the policy of liberalization and privatization announced by the Government of India through a process of globalization.

Gujarat itself is experiencing a phenomenal interest in investments both from Mega-Industrial sectors within the country and also from top Multi-National abroad. Investments to the tune of \$30 billion are already in the pipeline. From an analysis of the present investments and those that are flowing in, one can perceive a particular trend which is manifesting itself - investments are converging in and around potential port sites.

Investments of over Rs.16,000 crores are taking place at Hazira, Rs.15,000 crores are planned at Varga, Rs.20,000 crores are planned in areas near Pipavav and near Jamnagar port locations. The logic of locating these industries is rather clear, viz. the large business houses want to import industrial raw-materials and want access to the international market through sea routes, which is definitely more viable and feasible as against the surface transport or air transport. Another major advantage is that, Gujarat has a vast hinterland consisting of fast developing Northern and Central Indian States generating cargo.

The States of Rajasthan, Madhya Pradesh, Western Uttar Pradesh, Delhi, Haryana,

Punjab, Himachal Pradesh and Jammu & Kashmir, which constitute 35% of the total exports, are potential customers for Gujarat ports. Export of surplus foodgrains from these major grain producing States and import of fertilizers to these major consumers, offer great potential for growth of cargo in near future. Any economic development, taking place in these hinterland States have a direct bearing on Gujarat port.

Indian ports handled 197 million tones of cargo in 1994-95, 90% of which were contributed by the Major ports. The port activity, in terms of ship turnaround time, waiting time and average ship per day output, has a significant influence on development scenario. The existing major ports are under tremendous pressure to handle the increasing cargo traffic, resulting into demurrages and huge loss in foreign exchange.

In the global scenario, during the last decade, new technology development has taken place, especially in the container handling equipment and new port layout to accommodate container traffic. This technology developments demands new institutional set-up and major investments to help in solving the problems of port modernization. With the global shipping industry introducing supersized vessels, the 'Port of Future' will be totally integrated with inter-modal cargo flows and co-oriented sea vessels and hinterland vehicle arrivals and departures. The new proposed port locations of Gujarat are highly sited to adapt itself to the current technology development in the areas of communications, automation, cargo handling and ship technology, which needs drastic changes in the physical layout of ports as well as equipments, operations and managements. It is in this perspective that it is imperative, Gujarat approaches the problems, by focusing on an integrated strategy, incorporating 25 to 30 years future demands scenario. It makes itself evident, that any globalisation that is to take place, has to take place through ports of international class.

Present Status of the Gujarat Ports

Along the 1600 Kms. of coastline of Gujarat, there are 41 ports, of which Kandla is a major port. Out of remaining 40 ports, 11 are intermediate ports and 29 are minor ports under the control of Gujarat Maritime Board. These ports can be broadly classified into three categories.

I. Three all weather ports viz: Porbandar, Okha and Sikka with all weather direct berthing facilities.

II. Seven ports are all weather lighterage ports.

III. The remaining thirty ports are fair weather lighterage ports for sailing vessels and fishing boats.

The minor and intermediate ports of Gujarat handled about 8.5% of national shipping cargo. Nevertheless, Gujarat ports handle about 16 million tones of cargo, which accounts for 70% of the total cargo handled by all minor ports of India

Drafts of 8 to 10 meters are available at Porbandar, Okha and Sikka, where ships ranging from 15000 to 25000 tonnes are directly berthed. Except for Porbandar which handles container cargo for fish exports, container cargo handling facility do not exist in other ports. There is limited scope for expanding berthing facilities in the existing minor and intermediate ports.

All that is possible is, to enhance the handling facilities by modern equipments, which can increase the traffic from present 16 million tones to 24 million tones. Due to the inherent limitations in the existing ports, it is essential to identify potential "green field sites" on Gujarat coast for port development.

With major coastal based mega cement plants coming up in Kutch and Saurashtra, cement and clinker exports through sea will play a major role in marketing of cement nationally to Middle-East countries opens up avenues for locating petroleum refineries and storage of petroleum products for hinterland consumption. Export of salt and import of coal are other major potential cargo apart from the existing items of import and export.

As indicated earlier, the massive spurt in industrialization also opens up scope for import of industrial raw materials and export of finished goods to the global market through ports. The vast coastline of Gujarat, also offers tremendous potential for marine fisheries and subsequent processing and exports. Over and above this, any development in the hinterland State have a direct impact on Gujarat ports.

Against this future potential, at present, the ports are being planned totally in insolation , without taking into consideration the requirements of industry, trade and commerce. No integrated plan exists to create ports of international design and status, linked with hinterland with multi-channel roads that carry cargo efficiently and other related infrastructure.

Pipavav port is an ideal location for a direct berthing port facility. Gujarat Maritime Board, alongwith a private sector company, is developing this port as a joint venture project. An estimated Rs.260 crores is likely to be invested in Pipavav port during the coming five years, developing it into a modern port in the Saurashtra region.

Current Details of Non –major ports

Non-major ports in Gujarat have registered a growth of 11.31 % in cargo handling in the first quarter of 2011-12 at 63.20 million tonnes, Gujarat Maritime Board (GMB) sources on July 2011. GMB run ports maintained upward trend in cargo handling at 63.20 MT in the first quarter ending June against 56.84 MT handled in the corresponding period a year ago, showing a growth of 11.31 %.

Gujarat continues to lead in cargo traffic handling. The cargo handling capacity of Gujarat's non-major ports has increased from 73 MT in 2000-01 to 231 million tonnes in 2010-11 as compared to national growth of 368 MT in 2000-01 to 821MT in 2009-10. The cargo traffic has increased at ports like Magdalla, Hazira, Bedi, Okha, Porbander, Navlakhi and Dahej. Cargo traffic at Dahej port has and Traffic at Magdalla and Hazira port combined has increased.

Objectives

Based on the above mentioned emerging scenario, the following objectives are identified for the new Port Policy.

1. To increase Gujarat's share in the Export and Import sector, in national and international Trade & Commerce, in pursuance of liberalization and globalization policy.
2. To decongest the overburden on existing major ports on Western India to cater on the needs of increasing traffic of western and northern States, by providing efficient facilities and services and to support the country's domestic and international trade.
3. To handle 100 million tones of cargo in Gujarat Maritime water accounting approximately for 25% of India's total cargo by 2000 AD.
4. It is estimated that 50% of total industrial investment coming to Gujarat will be port-based.
5. Taking fullest advantage of the strategic location of Gujarat coast, in the World Maritime Scenario.
 - To encourage ship building, ship repairing and establish manufacturing facilities for Cranes, Dredgers and other Floating Crafts.
 - To provide facilities for coastal shipping of passenger and cargo traffic between Kutch, Saurashtra and South Gujarat and further extension of these services to important places like Bombay, Goa etc.
6. To fulfill future power requirements of Gujarat.
 - by establishing barge mounted power plants.
 - by providing exclusive port facilities for importing different kind's of power fuels, etc.
7. To attract private sector investments in the existing minor and intermediate ports and in the new port locations.

Strategy

Gujarat envisages an integrated port development strategy, consisting of creation of port facilities, industrialization and development of infrastructure facilities like roads and railways in the hinterland. It is estimated that around 3 Billion Dollars (Rs.10,000 crores) would be required to create new port facilities alongwith necessary infrastructure in the coming 5 years.

In view of the fact that ships of large sizes are used in the transportation, for economies of scale in international trade, ports would be developed with direct berthing facilities and speedy mechanical handling facilities, so as to reduce waiting period of the ships and saving in the cargo expenses. To expedite creation of port facilities by 2000 AD, it is proposed to have the participation of private enterprise in the development of port infrastructure. The following strategies are proposed.

1. GUJARAT MARITIME MASTER PLAN

With the liberalization of trade and industrial policy, the cargo which are likely to be generated by 2000 AD. in Gujarat and hinterland Stated of Northern and Central India, are likely to increase enormously. The industrialization of Gujarat will coincide with port development and both these activities would be synchronized so that the port has assured cargo right from the beginning and industries avail port facilities immediately. It is expected that 50% of the entire cargo for each of the new ports will be provided by industries in the near vicinity of port locations.

Port development is an integrated approach covering industrial development, power generation and infrastructural development. To co-ordinate this integrated approach and to achieve a balanced regional development, Gujarat Maritime Board will evolve a master-plan for each of the new port locations.

2. PRIVATE INVESTMENT IN THE MINOR AND INTERMEDIATE PORTS

The existing ports under Gujarat Maritime Board, which handle 16 million tones of traffic, have shown a growth rate of 22% during the last two years. The demand on these existing ports is increasing day by day. In order to handle as much cargo as possible, during the period of 5 years till new ports are likely to come into operation, it is decided to invite private investments in the existing minor and intermediated ports. General guidelines of privatization are as follows:

1. Incomplete works of wharf/jetty/quay of GMB will be privatized.
2. Private entrepreneurs will be permitted to install modern mechanical handling equipment on the wharf/jetty/quay
3. Privatisation of the construction of new wharves/jetties in selected sites.

The entrepreneurs making investment in these locations will be given 'outing priority' for period of 5 years from the date on which it is awarded. For Projects with higher investment, Gujarat Maritime Board will consider to enhance this period.

The entrepreneurs should assure a minimum cargo handling from the said landing place. The party has to pay full wharfage charges to Gujarat Maritime Board for cargo undertaken on such structures. The Gujarat Maritime Board has already identified such sites and activities in the existing minor and intermediate ports. The privatization of these facilities will be done by open tender bids within one month.

With liberalization of Parallel Marketing of Petroleum products by Govt. of India, the demand for port facilities for handling LPG, Kerosene, HSD, other petroleum products and liquid chemicals have increased tremendously. Looking to the specialized facilities and high safety standards required for handling these commodities, the existing minor and intermediate ports are not found suitable to handle such cargoes.

In the new port policy, specific new port locations have been identified to handle petroleum cargoes. Nevertheless, Gujarat Maritime Board has identified one location in one of the existing intermediate ports to extend facilities for handling these cargoes, by privatization.

4. DEVELOPEMNT OF NEW PORT SITES

Gujarat Maritime Board has identified 10 "Green Field" sites for development as direct berthing deep water ports. These sites have been identified taking into consideration the availability of draft, general marine conditions, minimum burden on the existing infrastructure, proximity to the hinterland cargo and promotion of regional development concept. Looking to the location and generation of cargo, each port has been earmarked for specific commodities to facilitate the movement of cargo through the existing infrastructure and also to ensure the financial viability of each project. The following ports are identified and short details of draft condition, cargo and nature of the port are given below.

Brief details of identified sites for development

1. DHOLERA

Dholera is situated on existing short route from Ahmedabad to Bhavnagar and is 30 kms. away from the nearest town of Dhandhuka. This port, in Malclon channel, can be developed for general cargo. At the suggested location, a draft of 10 mtrs. is available within a distance of 3 kms. from the off-take point on the shore - near village Jaswantpur. This will be an all weather direct berthing port for general cargo.

2. MAROLI

This is a virgin site, north of Bombay, having favourable features for development as an all weather port with protective structure like breakwater. The development plan envisages the port facilities in 10 mtrs. depth at 3 kms. from the shore to handle industrial and general cargo, the major portion of the approach is running on high bank and shallow waters.

3. VANSI-BORSI

This location is indentified for handling petroleum and liquid chemical cargo of immediate hinterland. it is suggested to provide adequate matching port facilities in 10 mtrs. depth at 5 kms. from the shore with break water arm. The proposed site is 13 kms. from the nearest broad gauge railway link at Navsari and is 30 kms. south of industrial town of Surat.

4. **HAZIRA**

Magdalla (Surat), located on the bank of river Tapi, is an existing intermediate port handling general cargo. On the right bank of this river and near Hazira lighthouse, Mega Industrial Houses have established their own captive port facilities. On the western side of these facilities, and near Suvali point, a deep draft port is suggested. The berthing facility for industrial cargo will be provided in 15 mtrs. contour at a distance of 3 kms. from the shore. A protective structure in form of a breakwater will also be necessary.

5. **DAHEJ**

Dahej, 42 kms. from the District Headquarters of Bharuch, is witnessing a massive industrialization with substantial capital investments. It is suggested to develop an all weather port for large ocean-going vessels at a location 2.0 kms. from the shore, where an adequate depth of 18 mtrs. is available. The port development envisages handling industrial cargo. Alternatively a 'lagoon' port is also possible with excavation on land and dredging of the channel for a 10 mtrs. deep harbour.

6. **MITHIVIRDI**

The site with a very favourable marine features, located 40 kms. south of Bhavnagar and 10 mtrs. north of the existing ship breaking yard at Alang, is suggested to be developed as an all weather port for steel and automobile exports. The port facilities will be provided in deeper elevation of 20 mtrs. available at an approximate distance of 3 kms. from the shore.

7. **SIMAR**

Simar is 27 kms. south-west of existing minor port of Jafrabad and 90 kms. east of Veraval. The availability of draft at the location is quite favourable having running of 20 mtrs. contour, just at a distance of 1 kms. from the shore to accommodate ocean-going vessels of 1,00,000 DWT. This port is suggested for development to handle LNG, Coal and other fuel requirements for power generation to be located in the vicinity of the port. This site has a natural protection of "Diu" Island. Power can be

"evacuated" or "displaced" by Power grid system catering to the rest of the country.

8. **POSITRA**

Positra, situated near intermediate port of Okha, is at the entrance of Gulf of Kutch having natural protection from south-west monsoon conditions. It will consist of Positra-1, an exclusive modern container port at the historic Dwarka Beyt Island with 12 mtrs. draft. Positra-II will be a petroleum and coal port with a draft of 18 mtrs. The nearest railway broad gauge link is only 15 kms. from the port site.

9. **ROZI (BEDI)**

The existing intermediate port of Bedi currently handles 2.5 million tones of cargo per annum by lighterage operations. It is proposed to develop an all weather direct berthing port near the anchorage to handle bulk carriers at a distance of 5 kms. from Rozi Pier at a depth of 15 mtrs. to be exclusively developed as an "Agriculture Port" with modern handling facilities.

10. **MUNDRA**

Mundra, 70 kms. west of the major port of Kandla, is proposed for development as an all weather direct berthing port to handle general cargo. The location near Navinal Lighthouse having a draft of 20 mtrs. at a distance of approximately 2.5 kms. is suggested for development of port facilities to accommodate large ocean going vessels of 40,000 tonnes. General cargo like salt, cement, minerals, food grains etc. can be handled at this port and it is the nearest location to Rajasthan.

In today's globalisation scenario, Dubai and Singapore have been developed as "Free Ports". Looking to the strategic Maritime location of Gujarat coast, one of the new port locations can ideally be developed as a "Free Port". Government of Gujarat will request Government of India to declare one of these ports in Gujarat as "Free Port". Out of the identified 10 port locations, 4 ports will be developed by the State Government and 6 ports will be open for total private investment.

2) Ports to be developed by Gujarat Maritime Board. The following ports will be developed by Gujarat Maritime Board alongwith consortium of State Government public sectors and/or consortium of private sector companies.

Rozi (Bedi)	Agriculture Port
Positra	Container
Dahej	Industrial Port
Mundra	General Cargo Port
Vansi-Borsi	Petroleum & Liquid Chemical Port
Maroli	Industrial Port

The ports will be privatised through a global tender bid. Gujarat Maritime Board will do a preliminary techno-economic feasibility report of all these five locations except Dholera, through a global bid to facilitate prospective bidders. Dholera, being an ancient port and privatization bids were invited in the past, no techno-economic feasibility will be done for this location. Dholera port will be the first port to be opened up for privatisation by global tendering. For remaining locations based on the preliminary techno-economic study, global tenders will be invited for privatization. General guidelines are given below:

These port locations are to be given BOMT (Build, Operate, Maintain and Transfer) basis. The investment in infrastructure projects like ports being capital intensive, with higher gestation period compared to other sectors of investment, Government of Gujarat is very particular that the port projects taken up by private entrepreneurs should be profitable proposition to them.

The viability of port project depends upon the location, the maritime conditions, scale of investment and the kind of cargo to be handled. The port project has to be assured at a reasonable rate of return after accounting for capital recovery and interest repayment. Hence, it is essential that each port project is evaluated based on an investment analysis; consisting of capital cost, revenue receipts, revenue expenditure and capital recovery. Gujarat Maritime Board will study the financing pattern adopted

by the World Bank and the Asian development Bank and other Financial Institutions to evolve a comprehensive package.

Highlight Loading/Unloading

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Loading	294.63	306.68	337.92	360.24	376.76	450.14	501.05	447.09	615.79
Unloading	530.83	534.56	555.56	611.04	704	874.28	974.93	1080.93	1444.02
Total	825.46	841.24	893.48	971.28	1080.76	1324.42	1475.98	1528.02	2059.81

Source: Gujarat Meritime Board

Table: 10 B

The overview of Traffic handled at Major Ports, Non Major Ports of India is as under.

GMB has handled traffic of 205.51 MMT during the year 2009-10 compared to the traffic 153 MMT handled for the year of 2008-09.

GMB has attained a considerable Growth Rate of 34% in the year of 2009-10 compared to previous year. This is an achievement for the Gujarat State economy and GMB as well.

Looking to the table appended hereunder, Total National Traffic Growth Rate is 13.14% approximately. Major Ports Traffic Growth Rate is 5.90% and the growth rate of Non Major Ports is 35.07%.

Import Growth Rate is 33.73% and Export Growth Rate is 37.39%.

Source: Gujarat M. Board 2009-10

TABLE 11

Sr.No.	Ports	Traffic (in MMT)	Growth Rate (in %)
1	Major Ports	558.22	5.90%
2	Non Major Ports	258.32	35.07%
3	National Traffic	816.55	13.14%
4	GMB Ports	205.51	34.32%
5	Kandla Port	78.47	8.66%

Source: Gujarat M. Board 2009-10

Cargo handling at non-major ports up 12.34% in FY 2011

The non-major ports in Gujarat have registered a traffic growth of 12.34 per cent over last year with cargo handling rising from 206 million tonnes in 2009-10 to 231 million tonnes in 2010-11.

This traffic growth was also significant compared to growth rate of 1.1% achieved in this FY upto February 2011 by the major ports administered by the central government, a statement issued by Gujarat Maritime Board (GMB) said.

Major traffic growth was achieved by the ports at Mundra (old), Mundra (new), Bhavnagar, Sikka, Dahej by registering a growth of 55 per cent, 28 per cent, 523 per cent, 8 per cent and 14 per cent.

Mandvi port observed a complete change in the traffic as total traffic handled was 2.15 lakh tonnes at the port against almost nil traffic reported in the previous year. The container traffic has also shown significant growth at Mundra and Pipavav with 38 per cent growth in total tonnage handled. Meanwhile, the total port capacity of the Gujarat's non-major ports grew by 16 per cent this year, reaching 284 million tonnes per annum compared 244 million tonnes last year.

This capacity addition was achieved due to expansion of Magdalla jetty with a capacity of 15 million metric tonnes per annum (MMTPA) by Essar group, coal terminal at Mundra to 15 MMTPA, Fifth berth by Reliance group at Sikka with 5 MMTPA, solid cargo terminal at Dahej with 3 MMTPA, block wharf at Okha with 1MMTPA and revival of KRIBHCO jetty with 1 MMTPA.

Greenfield Ports

GMB under its Port Privatisation Model has been actively promoting and developing Greenfield Ports. It has identified 11 Greenfield sites to develop all weather direct berthing ports in participation with well known private port players. These capital incentives port projects are being developed under BOOT policy (Build Own Operate Transfer) and will be transferred back to GMB after completion of 30 years BOOT period.

Developed Greenfield Ports

Pipavav Port:

The Port of Pipavav has been developed in joint venture with GMB and Gujarat Pipavav Port Ltd. (GPPL). The Port is currently being developed single handedly by GPPL under BOOT Policy. It became operational since 1996 and takes pride for the presence of International players like Mearsk. The Port of Pipavav also takes pride in being the first port in India to receive double-stacked container trains, which has a capacity of carrying 180 TEUs as against 90 TEUs carried in a single stack train. GPPL has taken up its expansion plan vigorously with several developmental projects. Of which, development of 385 mt container berths has been completed, which will augment container handling of the port upto 1.07 Million TEUs. In the year 2008-09, the port handled total 2.02 million tones cargoes and containers 0.2 million TEUs.

MUNDRA PORT

Gujarat Adani Port Ltd. (GAPL) – now, Mundra Port SEZ Ltd. (MPSEZL) is developing the Mundra Port under the BOOT Policy. The port has been operational since 1998 with 4 multipurpose berths and with a berthing efficiency of 80000 DWT. GAPL has established broad gauge rail link of 57 km. which is operational since 2002. The port has also facilities of double-stacked container rail. The port has handled about 25.78 million tons cargo and 1.15 million TEUs containers during the year 2008-09.

DAHEJ PORT

Dahej Port has been envisaged by Petronet LNG Ltd. and GMB. The port has been operational since 2004 with a terminal handling capacity of 10 MMTPA LNG handling. The port has handled 6.46 million tones of LNG during the year 2008-09. The company is also constructing a solid cargo berth at its port which is expected to be completed by June 2010/11.

Chemical Port Terminal

Further augmenting its role Dahej Port has developed a Chemical Port Terminal at its base, in 2001.

HAZIRA PORT

Hazira Port is being developed by Hazira Port Pvt. Ltd., a company promoted by international Oil and Shipping player called Shell Gas B.V. The port which started its operation in 2005 is in plans to develop a non LNG terminal. The Port handled LNG cargo of about 1.56 million tones in the year 2008-09.

GMB traffic

TABLE 12

GMB traffic From 2003-04 to 2007-08

No.	Port	2003-04	2004-05	2005-06	2006-07	2007-08
1	Import	555.56	611.04	703.99	874.30	974.93
2	Export	337.92	360.24	376.76	450.12	501.05
	Total	893.48	971.28	1080.75	1324.42	1475.98

Source: Gujarat Maritime Board

Intermediate and Minor Ports

The Intermediate and Minor Ports of Gujarat handled a total cargo of 1528.14 lakh tonnes during the year **2008-09** as against 1475.98 lakh tonnes handled during the preceding year, showing an increase of about 3.53 %. The main items of imports through intermediate and minor ports are Crude Oil , Neptha, Coal, Iron ore, Rock phosphate, Fertilizer, Ammonia, Machinery, Ethylene, Paraxylene, Clinker, Cement, Steel Coils, LPG, propylene etc. The main items of exports through these ports are Neptha, Petrol, Clinker, Cement, Oil cakes, Bauxite, Salt, Soda Ash, Foodgrain etc. During the year **2009-10** (April – December 2009) intermediate and minor ports have handled the total cargo of 1497.34 lakh tonnes.

Liberalization policy in ports and benefits to Gujarat

The Government of India has accepted the liberalization policy. The main goal of the liberalization policy is to develop important sectors through private investment. The Government of Gujarat has implemented the same in port sector. The state of Gujarat has formulated a port policy in December 1995 to fulfill the requirement of import/export demand. As per the port policy, Gujarat Maritime Board has identified 10 green field sites for development as direct berthing deep water ports.

Gujarat's ports have not just enhanced its industry's efficiency, but also spawned a slew of new industries like ship-building. In contrast to the rest of India, where it is the government that predominantly owns and manages ports, Gujarat has implemented various forms of port liberalisation since the 1990s. This has helped it become the country's fastest growing state.

Gujarat's economy has grown at an average of 10.14 per cent per year from fiscal year 2001 to fiscal year 2006, the last five years for which data are available. This is comparable with China's average growth rate since 1978, and is distinctly faster than the growth of the other Asian tigers in the 15 years before the Asian financial crisis of 1997.

TABLE 13

GROWTH OF STATE GDP			
(in per cent per annum)			
State	2000-01 to 2005-06	1991-92 to 1998-99	1980-81 to 1990-91
Gujarat	10.10	8.20	5.10
W Bengal	6.30	7.00	4.70
Haryana	8.30	5.10	6.40
Karnataka	5.80	5.90	5.30
Andhra Pradesh	6.50	5.20	5.60
Maharashtra	7.10	8.00	6.00
Tamil Nadu	4.90	6.00	5.40
Punjab	4.20	4.80	5.30
ALL INDIA	7.00	6.50	5.50

Source: Gujarat Maritime Board

TABLE 14

LARGEST PORTS, BY STATE (millions of tons loaded, 2006–07)			
State / UT	Major ports	Minor ports	Total
All India	463.80	171.90	649.20
Gujarat	53.00	123.60	176.60
Maharashtra	97.20	11.80	109.00
Tamil Nadu	82.10	0.60	82.70
Andhra Pradesh	56.40	18.60	75.00

Source: Gujarat Maritime Board

The only major port that the central government built in Gujarat was at Kandla, in the remote Gulf of Kutch. This port had only a meter-gauge railway and so could not connect with the major broad-gauge railways of the hinterland. Road links were also poor. So international traffic to and from North India, which in the 18th and 19th centuries passed mainly through Gujarat's ports, passed in the 20th century mainly through Mumbai, Kolkata, and Visakhapatnam.

However, the state's resourceful politicians found a way out. The Constitution nowhere defined the size of a major or minor port. Major ports were simply those covered by a central government law. Thus, Gujarat found that it could keep expanding its "minor ports" without limit, even if they became larger than some major ports! The state now has as many as 40 minor ports including so-called captive ports built by big industries.

For most of the last decade, India's biggest port has been Visakhapatnam in Andhra Pradesh. But in 2004–05, the minor port of Sikka in Gujarat overtook Visakhapatnam to become India's top port. The latest data show that Visakhapatnam once again became number one in 2006–07, with 56.3 million tons of cargo compared with Sikka's 55.9 million tons. However, projections suggest that Sikka will soon regain the top spot, and handle 127 million tons by 2020.

The state's deeply indented shores provide 1,600 kilometers of coast, the most of any state. Almost all India's coastline is hit by seasonal monsoons, necessitating the construction of costly breakwaters (jetties without breakwaters have to stop loading in the monsoon months). The Gulf of Kutch in Gujarat is the only coastal area in India that is monsoon-free, and so ports and jetties located there can function all year without breakwaters.

The Gulf of Kutch also has the deepest water a natural draft of 17 meters without dredging is available at ports like Mundra and Positra, deep enough to accommodate the biggest container ships and large bulk carriers. Very large crude carriers of up to 400,000 tons can anchor at single-point moorings in deep waters many kilometers from the shore, and unload their cargo through pipelines. No other part of India's long coastline can accommodate such large vessels.

Contribution to Development

One way of measuring the value added by the state's port-led development policy is to look at the proportion of Gujarat's international trade that serves the hinterland of North India, and the portion that serves the state's own industries. One study estimates that as much as 70 per cent of the state's imports are used within the state, and only 30 per cent go to the hinterland. This suggests that Gujarat's ports have not been gateways to North India as much as gateways to Gujarat's own industries. It suggests that ports have contributed, and will continue to contribute, a great deal to the addition of value within the state and to its overall growth.

Three of India's biggest cement companies — Grasim, Gujarat Ambuja Cement, and Sanghi Industries — have a total of seven captive jetties in the state, and other major Indian and international corporations have set up captive jetties or specialised terminals as well. By far the biggest captive jetties are those of Reliance Industries Ltd at Sikka, which currently load 52 million tons per year of crude oil, refined products, and chemicals. According to projections made by Crisil, additional port capacity to be created by 2020 will be 127.57 million tons at Sikka, 97.86 million tons at Mundra, 45.23 million tons at Pipavav, and 37.07 million tons at Dahej. To put these figures in perspective, Visakhapatnam, India's biggest major port, handled no more than 55.8 million tons in 2005–06.

The new ports have also helped bring forth new industries. The most important example of this is the emergence of a global pipeline hub at Anjar, near Mundra port, which caters to the burgeoning oil and gas industry worldwide, as well as to Indian needs for water and sewerage pipes. Five companies have already set up a combined pipeline capacity of 1.5 million tons per year, and this is being doubled. These companies make the entire range of gas, oil, and water pipes, including the extra-wide and thick pipes required for the deepest ocean waters.

Heavy plate, which is needed for manufacturing oil and gas pipelines, is currently being imported from Europe. To overcome this dependence, Welspun Gujarat Stahl Rohrer has set up a captive plate mill, and plans to set up a captive steel plant too. Jindal Saw has set up a blast furnace to produce iron for ductile pipes. And other companies are also contemplating steel-making facilities. So, the pipeline hub is becoming a steel hub, too. The new steel plants use imported coal and iron ore, so their port location is ideal. Pipe factories have also been built at Dahej. BK Goenka, CEO of Welspun Gujarat Stahl Rohrer, estimates that India now accounts for almost a quarter of world steel pipe exports.

Another example of port-induced industrialisation is the ship-building industry. For a long time, Gujarat was famous for ship-breaking rather than ship-building. It boasted the biggest ship-breaking yard in the world at Alang. Alang is now declining, but new shipyards and repair facilities are sprouting. ABG Shipyard is setting up a major ship-building facility at Dahej, capable of constructing very large crude carriers.

The Adani group is setting up another major shipyard at Mundra, capable of building Panamax-size bulk carriers. SKIL Infrastructure Ltd is setting up a major shipyard at Pipavav, where it earlier built a private port. L&T has long been building offshore platforms and support vessels at Hazira. Smaller facilities for building and repairing ships are operated by Alcock Ashdown in Bhavnagar, and Orum Shipyard in Porbandar.

Gujarat's future port policy appears to have two prongs. One is to become India's main gateway to the North Indian hinterland. The second is to create Special Economic Zones adjacent to its new ports to attract export-oriented industries. Gujarat has created special purpose vehicles (SPVs) for building rail links. The state government, private port players, and the railways all participate in these SPVs. Through SPVs, broad-gauge links have been built between the new ports at Mundra and Pipavav and the Delhi-Mumbai rail artery, thus providing national connectivity to the minor ports.

To meet India's burgeoning traffic needs, the railways now plan to build a new, dedicated Delhi-Mumbai freight corridor. Gujarat is getting ready to link its ports to this new rail corridor. By doing so, it hopes to get the lion's share of hinterland traffic. It can also hope to add at least 10 per cent in value to hinterland cargo through consolidation, packaging, and processing. Gujarat has pioneered the concept of port liberalisation in India and used this to become the country's fastest-growing state. These results hold salutary lessons for other Indian states.

5.1 Development of Ports in Saurashtra and Kutch region

REVENUE INCOME OF KANDLA PORT

SUMMARY OF FINANCIAL REVIEW 2008-09

The financial results of the Kandla Port Trust for the year ending 31st March 2009 has been drawn up in the prescribed formats as required under section 102 (1) of the Major Port Trust Act 1963. The Annual Accounts is to be submitted to the Resident Audit Officer, Gandhidham representing the Accountant General, Gujarat, Ahmedabad latest by 10.6.2009 duly authenticated by Board as per the time Schedule prescribed by the Central Government. Accordingly, the Annual Accounts is prepared and attached herewith. The salient feature of the financial performance is analysed as under: -

2. Traffic

The year 2008-09 recorded a increase of 11.00% in traffic. The Port has handled 72.22 million tonnes of cargo during 2008-09 as against 64.92 million tonnes in 2007-08. The traffic at Kandla and Vadinar is tabulated below:

TABLE 15

(In lakh tonnes)

	Actual 2007-08	R.E 2008-09	Actual 2008-09
Import at Kandla	181.08	180.08	176.88
Export at Kandla	118.37	129.38	109.72
<u>Total at Kandla</u>	299.45	309.46	286.60
Import at Vadinar	285.98	320.00	354.77
Export at Vadinar	46.79	70.00	70.47
Total at Vadinar	332.77	390.00	425.24
Transshipment	16.98	7.96	10.40

Source: Kandla Port Trust

3. Financial Result

The summary of the financial performance of the Port for the year 2008-09 is as under: -

TABLE 16

(Rs. in crores)

	Actual	R.E	Actual
	2007-08	2008-09	2008-09
Operating Income	341.57	389.67	408.76
Operating Expenditure	247.97	318.65	326.46
<u>Operating Surplus</u>	93.60	71.02	82.30
Non-Operating income	164.19	189.48	182.96
Non-Operating exp.	10.71	38.87	41.76
<u>Profit before tax</u>	247.08	221.63	223.49
Provision for Income tax	69.21	51.00	63.05
<u>Profit/(-)Loss after tax</u>	177.87	170.63	160.44

Source: Kandla Port Trust

3.1.1 The operating income increased by 19.67% over previous year. This is mainly due to :-

- Increase of Rs. 16.72 crores in cargo handling income due to increase in traffic.
- Increase of Rs. 46.08 crores in vessel related charges due to increase in the GRT of the vessel handled and BOT vessels.
- Increase of Rs.4.39 in estate rentals due to implementation escalation clause.

3.2 There is increase in operating expenditure by Rs. 78.49 crores (31.65%) as

compared to previous year due to:-

- Increase in Salary & wages by Rs. 25.41 crores.
 - Increase in operation & maintenance expenditure by Rs. 45.71 crores.
- Increase in hire of crafts expenditure by Rs. 0.48 crores.
- Increase in dredging expenditure by Rs. 30.21 crores.
- Increase in fuel expenditure by Rs.2.86 crores & water expenditure by Rs. 1.00 crore.
- Increase in Office & Administration and Medical Expenditure by Rs. 3.92 crores.

The break up of the operating expenditure is as follows: -

TABLE 17

(Rs. In crores)

Particulars	2007-08	2008-09
Salary and wages	104.64	130.05
Stores	5.69	5.27
Office and administration expenses	5.68	7.98
Dredging	43.52	73.72
Operation and maintenance expenses	39.64	55.12
CISF	7.07	10.04
Medical	5.50	6.17
Depreciation	34.12	34.08
Other expenditure	2.10	4.03

Source: Kandla Port Trust

3.3 The major source of non operating income are:

TABLE 18

(Rs. in crores)

	Actual 2007-08	R.E. 2008-09	Actual 2008-09
Interest Income	161.71	179.49	178.78
Other Misc. Income	2.48	9.99	4.18
Total	164.19	189.48	182.95

Source: Kandla Port Trust

3.4 The F&M income has gone up by Rs. 18.76 crores as compared to previous year is on account of increase in investible surplus fund and re-investment of fund in increased rates in the year 2007-08.

3.5 The finance & miscellaneous expenditure comprises of the following major items.

TABLE 19

(Rs. in crores)

	Actual 2007-08	R.E. 2008-09	Actual 2008-09
Contribution to Pension	0.09	20.35	23.34
Contribution to gratuity	2.11	2.00	5.75
grant-in-aid	3.45	12.50	6.64
Welfare expenditure	1.93	2.00	2.04
Fringe Benefit tax	0.32	0.31	0.46
Misc.expenses	2.48	1.71	0.27
Prior period expense	0.33		1.92
Total F & M	10.71	38.87	40.42

Source: Kandla Port Trust

3.6 The profit before tax for the current year thus stands at Rs. 223.49 crores as against Rs. 247.09 crores of previous year.

3.7 The income tax liability for the financial year 2008-09 works out Rs. 63.05 crores. The net profit after tax is therefore comes to Rs. 160.44crores.

3.8 The profit after tax of Rs. 160.44 crores has been appropriated to the following reserves and funds.

TABLE 20

(Rs. in crores)

1	Capital asset replacement reserves	0.37
2	Two 3% MPC reserves	81.75
3	General reserve	78.32

Source: Kandla Port Trust

4 Financial Position

The following table indicates the financial position of the Port Trust.

TABLE 21

(Rs. in crores)

A.	LIABILITIES	2007-08	2008-09
a)	Capital Reserve	1005.46	1064.20
b)	Revenue Reserve	1486.19	1711.63
d)	Capital debt	16.12	16.12
e)	Current Liability & Provisions	273.72	177.46
	Total Liability	2781.49	2969.41

B.	ASSETS		
a)	Fixed asset less depreciation	697.44	710.66
b)	Capital work in progress	80.10	114.98
c)	Investment	1642.55	1750.10
d)	Current asset	361.40	393.67
	Total Asset	2781.49	2969.41
C.	Working capital	87.68	216.21
D.	Capital employed	785.12	926.87
E.	Net Worth	2491.65	2775.84
F.	ROR on Capital employed	22.66%	17.30%
G.	Operating ratio	72.60%	79.86%

Source: Kandla Port Trust

5. Capital Expenditure:

The capital expenditure incurred on plan and non-plan work is shown below: -

TABLE 22

(Rs. in crores)

	Actual 2007-08	R.E 2008-09	Actual 2008-09
Plan	41.39	57.05	59.21
Non-Plan	17.35	30.57	26.96
Total	58.74	87.62	86.17

Source: Kandla Port Trust

On capital expenditure, 98.35% of the allocated fund has been utilized during the year. The total plan and non-plan capital expenditure has been funded out of internal resources of the Port.

6. Capital debt

The initial capital debt of 1611.62 lakhs prior to forming the Port Trust Board is still exhibiting in the financial statement, as no decision for its repayment is finalised by the Ministry. Barring this the Port has no loan fund liability.

7. An amount of Rs. 2.04 crores has been spent for the staff welfare expenses against of Rs. 1.97 crores spent in the year 2007-08.

8. Work-in progress amounting Rs. 29.33 crores has been capitalized during the year.

9. The Port has appointed M/s. Khimji Kunverji & Co., Gandhidham as Income Tax consultant for the purpose of Tax Audit for the financial year 2008-09 also as required under the Income Tax Act.

ALANG PORT

Alang is a [census town](#) in [Bhavnagar district](#) in the [Indian state](#) of [Gujarat](#). In the past three decades, its beaches have become a major worldwide centre for [ship breaking](#). The [shipyards](#) at Alang recycle approximately half of all ships salvaged around the world. The yards are located on the [Gulf of Khambat](#), 50 kilometres southeast of [Bhavnagar](#). Environmentalists note that before shipbreaking began there in June 1983 the [beach](#) at Alang was pristine and unspoiled.

However, locals say that the work provides a reasonably paid job by local standards, with a steady income used to support their families. Large [supertankers](#), [car ferries](#), [container ships](#), and a dwindling number of [ocean liners](#) are beached during high tide, and as the tide recedes, hundreds of manual laborers dismantle each ship, salvaging what they can and reducing the rest into scrap. Tens of thousands of jobs are supported by this activity and millions of tons of [steel](#) are [recovered](#).

Alang has a very high inter-tidal gradient. This enables the ship to beach right at the shore during high tide and when the tide recedes the ship stands almost at a dry-dock. This not only makes work easy but also makes easy in terms of collecting the valuables and the waste items from the sand. Usually heavy items are dropped into the sea-water during high tide and this minimizes damage. Due to high tidal gradient, larger ships can come straight into the shore. This reduces the total working time on each ship.

The shipyards at Alang recycle approximately half of all ships salvaged around the world. The yards are located on the Gulf of Khambat, 50 Km. southeast of Bhavnagar. Large supermarkets, car ferries, container ships and a dwindling number of ocean liners are beached during high tide and as the tide recedes, hundreds of manual laborers dismantle each ship, salvaging what they can and reducing the rest into scrap. Tens of thousands of jobs are supported by this activity and millions of tons of steel are recovered.

Alang had received more than 125 ships in the three months of 2009 alone, compared to 136 ships in all of 2007 and 2008. Currently, there are about 6,000 labour engaged in ship recycling through direct employment, with the indirect beneficiaries amounting to as much as 1 – 1.5 Lac. Alang has capacity to recycle about 400 ships per year, which generated more than 3.5 million tones of re-rollable steel. It has a total of 173 plots available for ship recycling, spread over a 10 km stretch along the coast aligned from the NE to SW direction.

TABLE 23

Alang Performance

Year	No. of Ships
1995-96	183
1996-97	348
1997-98	347
1998-99	361
1999-00	296
2000-01	295
2001-02	333
2002-03	300
2003-04	294
2004-05	196
2005-06	101
2006-07	136
2007-08	136
2008-09 (up to 31/8/08)	78

Source: Gujarat Maritime Board

VERAVAL PORT

Veraval is a fair-weather lighterage port, situated in the south-west coast of [Saurashtra](#) on the west coast of India. It is designed mainly for fishing activities. Anchorage lies about two km offshore, where three vessels can work at a time. The port was developed during the 18th century.

During the early part of the 20th century, a regular passenger cum cargo steamer service from here to [Mumbai](#) was introduced. The vessels from here sailed to Ceylon, Arabia and ports on Indian coast-[Mangalore](#), [Malabar](#) and Mumbai. Visitors can see the fishing vessels of all sizes, built completely by hand.

The Veraval-based fishing industry, with an annual turnover of over Rs 1,500 crore. The Port of Veraval is primarily used to support fishing, and commercial activities are limited. The port is considering providing separate facilities for commercial and fishing interests to provide more support for commercial activities. Aside from fishing, cement company Gujarat Sid is located in the Port of Veraval.

The Port of Veraval has connections to the nation's rail and highway networks. Commercial vessels visiting the port carry exports of oil cakes, onions, fish, lime stone and powder, cement, and soda ash. They also carry imports of wood pulp, fertilizers, food grains, coal and coke, and pig iron. The modern Port of Veraval can accommodate 800 fishing boats comfortably; however, four thousand boats anchor there regularly.

FISHERIES

Gujarat has a long coast-line of 1600 kms., which is broken by several bays, inlets, estuaries and marshy lands. The area available for fishing activities extends from Lakhpat in Kachchh district in north to Umargaon in Valsad district in south. Important commercial varieties of fish namely Pomfret, Jew fish, Bombay duck, Shrimp, Lobster, Squid, Cuttle, Silver bar, Hilsa, Shark, Catfish, Mulletts, etc., are caught in large quantities in these areas. In addition, the Gulf of Kachchh has congenial conditions for growth and sustenance of different type of Oysters, Shell fish and Sea-Weeds.

According to the Seventeenth Live Stock Census 2003, there are 970 fishing landing centres scattered in the remote places of the State, classified into Marine (217), Inland (665), Estuarine (88) villages inhabited by 4.93 lakh fishermen, out of which 1.72

lakh were active fishermen who were engaged in fishing, marketing of fish and repairing of boats/nets, etc.

During the year 2004-05, total fish production in the Gujarat State has been estimated at 6.36 lakh tonnes worth Rs. 1701.10 crore.

The marine fish production constitutes about 92.03 per cent of total fish production of the State. There were 30153 fishing boats in the State, out of which 18369 were mechanised boats and 11784 were non-mechanised boats.

During the year 2004-05 through foreign export of 119951 tonnes fish and fish products, the State has obtained an exchequer of Rs. 704.59 crore.

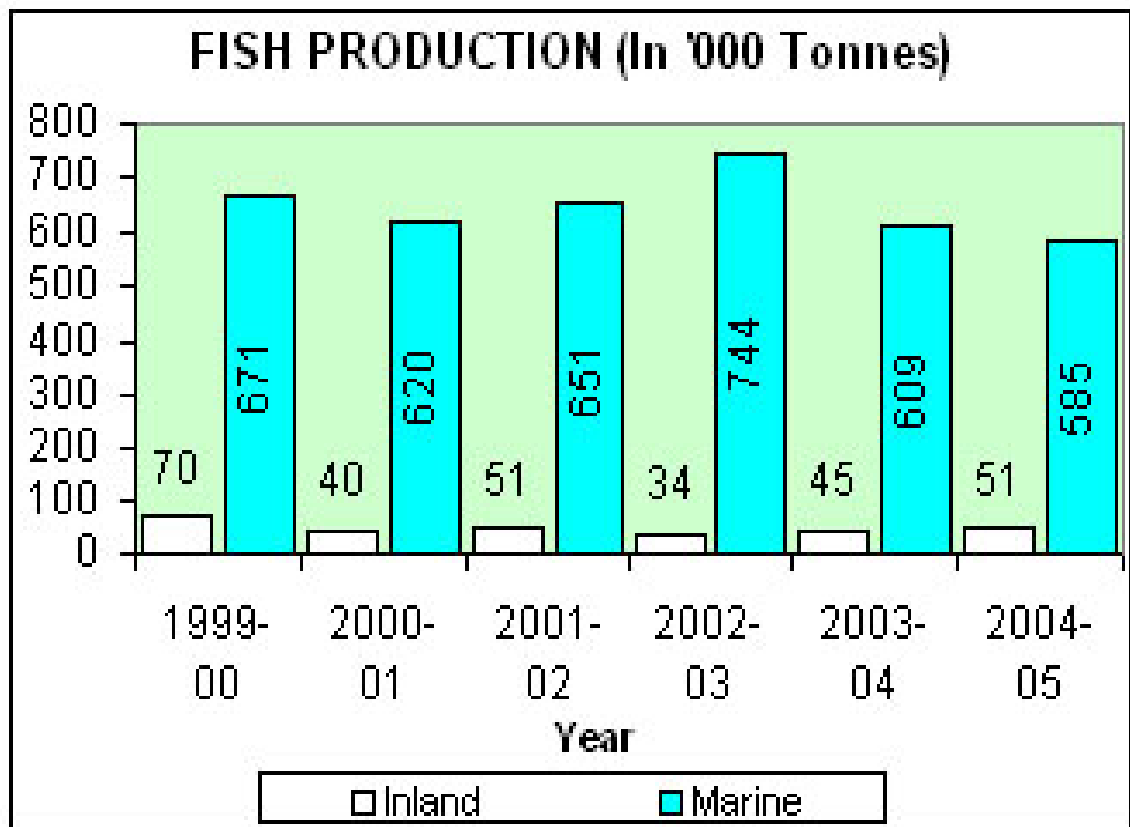
During the year 2005-06 (April-September, 2005), the total fish production has been estimated at 2.09 lakh tonnes (Marine fish production is 1.78 lakh tonnes and the remaining inland) having worth of Rs. 559.29 crore.

Foreign export of fish and fish products is estimated at 17684 tonnes, worth of Rs. 119.93 crore.

At the end of October 2005, there were 30713 fishing boats registered in the State, out of which 18600 were mechanised boats and 12113 were non-mechanised boats.

During the year 2005-06 6115.95 lakh fish seed (spawn) have been produced to meet the ever growing demand of the State in inland sector.

Chart 6



Source: Gujarat Maritime Board

The Contribution of Ports to Development

The Gujarat state's business climate is such that it would have fared comparatively well even had it been landlocked. But one way of measuring the value added by the state's port led development policy is to look at the proportion of Gujarat's international trade that serves the hinterland of North India, and the portion that serves the state's own industries.

One study estimates that as much as 70 percent of the state's imports are used within the state, and only 30 percent go to the hinterland. This suggests that Gujarat's ports have not been gateways to North India as much as gateways to Gujarat's own industries. The newports have also helped bring forth new industries. The most important example of this is the emergence of a global pipeline hub at Anjar, near

Mundra port, which caters to the burgeoning oil and gas industry worldwide, as well as to Indian needs for water and sewerage pipes.

Five companies have already set up a combined pipeline capacity of 1.5 million tons per year, and this is being doubled. These companies make the entire range of gas, oil, and water pipes, including the extra-wide and thick pipes required for the deepest ocean waters. Pipes for oil and gas are bulky, up to 20 meters long, and Mundra has ample space for handling such pipes (whereas this would be difficult at big ports in major cities like Mumbai). Heavy plate, which is needed for manufacturing oil and gas pipelines, is currently being imported from Europe.

In India, the railways are a monopoly of the central government. Despite many decades of planning, the railways have been unable to meet the needs of even these major ports, and so have lacked both the finances and motivation to help develop the minor ports run by state governments.

To get past this problem, Gujarat has created special purpose vehicles (SPVs) for building rail links. The state government, private port players, and the railways all participate in these SPVs. This arrangement has overcome the usual financial and managerial constraints: the railways are happy to collaborate in ventures that require limited funds from them but generate substantial additional revenue. Through SPVs, broad-gauge links have been built between the new ports at Mundra and Pipavav and the Delhi- Mumbai rail artery, thus providing national connectivity to the minor ports.

In order to accelerate the development of ports and putting their working on commercial

footing a nodal maritime authority viz. Gujarat Maritime Board (GMB) has been constituted on 5th April 1982. 11 intermediate and 29 minor ports of Gujarat State are being administered by GMB.

Major Port-Kandla

The total cargo handled by the Kandla Port in quantitative terms has increased from 415.23 lakh tonnes in the year 2003-04 to 415.51 lakh tonnes in the year 2004-05, showing an increase of 0.07 percent over the previous year (including transshipment).

With this performance, Kandla Port ranked fourth among all Major Ports of the Country. The imports of Kandla port have increased by 0.99 percent during the year 2004-05 as compared to the year 2003-04 and the exports have decreased by 7.40 percent during the

year 2004-05 over the previous year.

During the year 2004-05, Kandla port handled 4.03 lakh tonnes of cargo on 15th March,

2005 and established a National record in single day cargo handling at Kandla Port. During the year 2005-06 (April - October, 2005) the total cargo handled by major port Kandla was 260.70 lakh tonnes (including transshipment).

Intermediate and Minor Ports

Gujarat has 40 out of 142 Intermediate and Minor ports in the country, handling about 80percent of the tonnages handled by the intermediate and minor ports in the country. The intermediate and minor ports of Gujarat handled a total cargo of 971.28 lakh tonnes during the year 2004-05 as against 893.48 lakh tonnes handled during the preceding year, showing an increase of about 8.71 percent.

The cargo of 971.28 lakh tonnes in 2004-05 includes the ship breaking of 9.39 lakh tonnes of Alang near Bhavnagar and 0.33 lakh tonnes of Sachana near Jamnagar. In

comparison to previous year, the imports through intermediate and minor ports have increased by 9.99 percent, while export have increased by 6.61 percent.

The main items of imports through intermediate and minor ports are Crude Oil, Nephtha, Coal, Iron Ore, Rock Phosphate Fertilizer, Ammonia, Machinery, SKO, Ethylene, Paraxylene, Clinker, Cement, Steel coils, LPG, Propylene, Waxy residue, LDT etc., The main items of exports through these ports are HSD, Nephtha, Petrol, Clinker, Cement, Oil Cakes, Bauxite, SKO, Paraxylene, Salt, Soda Ash, Food grain, Cement Clinker, Ethylene, I.O.F., LPG, Pet-cock etc.

During the year 2005-06 (April-October, 2005), intermediate and minor ports of Gujarat handled a total cargo of 583.50 lakh tonnes. The Government of India has accepted the liberalization policy.

The main goal of this liberalization policy is to develop important sectors through Private Investment. Ports is one of the important sectors like power project, import of LPG gas, roads, etc. those are selected for development through private participation.

The Government of Gujarat has adopted and implemented the liberalization policy of Government of India. In fact, the private investment policy in Port Sector was adopted very early and to improve the port operations, private investors were granted permission to handle cargo through private barges.

The State of Gujarat has formulated a port policy in December 1995 to fulfill the requirement of import/export demand of the 21st Century. As per the Port Policy, Gujarat Maritime Board has identified 10 Greenfield sites for development as direct berthing deep-water ports. Out of 10 ports, 4 ports will be developed by GMB along with consortium State Government, public sector and/or private companies, whereas remaining sites, by exclusive private sector investment.

5.2 Contribution of major and minor ports in employment generation

Employment Generation in Gujarat

World economy is undergoing a lot of changes. This change is affecting all economies irrespective of whether it is a transition economy, controlled, socialist or market economy. The result of it is paradigm shift in employment structure of most of the countries. A common trend observed worldwide is that employment is moving away from traditional agriculture to industry and more to services.

Employment Generation Strategies

There are two popular models, which can be adapted to Gujarat's conditions.

1. The so-called "Input based model" involves high mobilisation of labour and capital in high growth export oriented manufacturing industries and controlling domestic services sectors through strict regulations. This results in high employment growth. Flip side of this strategy is resulting growth is difficult to sustain.

2. Second model which is "productivity based" relies on fully liberalized capital, labour and product markets and encourages best practice companies to enter the country and invest in all economic activities. But corresponding increase in employment is less relative to Input based model. Case of Gujarat requires that both models be combined to ensure that a high rate of employment generation is achieved while increasing productivity and giving a suitable environment to best practice companies.

Gujarat has been dependent on Primary sector over the years for a major portion of employment. But there is gradual shift from this sector to secondary and tertiary where the per capita income is higher. This is shown by the decreasing percentage of

employment generated by this sector which has come down from 59% in 1991 to 56% currently.

Primary sector

The growth rate of primary NSDP for the state has been 7.29% from 1993 to 1998. The share of primary in the NSDP has come down from 26.14% in 1993 to 24.91% in 1998. This shows that the growth in primary has been slower than the growth in secondary, tertiary sectors. The growth of primary is likely due to the - Improvements in the yields due to better technology, farming methods, . Augmentation in the infrastructure due to investments, Results in better price yields for crops.

Secondary Sector

The share of the workforce in the secondary sector has increased marginally from 17% in 1981 of workforce to 18% in 1991. The factors that will affect the worker employment in this sector will be as follows:

. Average growth rate of secondary sector

The per capita value added in the sector.

The projections for the employment in these sectors are else where in the document.

The trend based projections show the workforce to increase to 46 lakhs workers in 2010 at 3.14% growth. Efficiencies of production increases with increased growth in this sector will affect the employment share in this sector.

Share of workforce in industry likely to increase marginally since the growth in per capita value added in industry is likely to be the highest for this sector. This would be higher than the growth in absolute numbers of people employed in this sector therefore the net share in the employment is likely to increase marginally from the 18% in 1991 to 19% in 2010.

The total number of workers in 2010 employed in the secondary sector is projected to be 48 lakhs. The growth rate between 1991 to 2001 is 3.1%, between 2001 to 2010 is 3.5%.

Tertiary Sector

The share of NSDP of the tertiary sector is 42.65% in 1991. The growth in this sector has been 9.07% from 1993 to 1998. The growth does not include the high rates that have been achieved by the information technology sector. Industry groups covered by this sector are

. Trade & Commerce

. Transport, Storage & Communication

. Information Technology

. Workers in other services

The growth rates have been projected on the basis of the employment share of these sectors from 1991. The projections for the workforce have been done as follows: -

The growth rate of employment for this sector has been 3.94% from 1981 to 1991. The trend based projections indicate that the workforce is to grow from 32 lakhs in 1991 to 63 lakhs in 2010 at a rate of 3.54%. The highest employment growth rates are projected for this sector.

This is due to the following reasons

The high growth rate will be commensurate with employment growth. The value added per capita will be lower than the secondary sector. Therefore elasticity of employment growth with sectoral growth will be lower. The net result of interventions in terms of investment will result in a higher growth in employment in this sector.

The intervention based projections show the workforce to increase from 32 lakhs in 1991 to 79 lakhs in 2010. The share grows from 22% in 1991 to 27% in 2010.

5.3 Development of Ancillary Industries in Gujarat

Bunkering

Bunkering Industry – GujaratBunkering is one of an important ancillary industry, driving the overall growth of the maritime industry. Presently, the industry is dominated by Singapore Port, Fujairah Port, and Rotterdam Port. India is still in its nascent stage of growth with Mundra port (Gujarat), Mumbai Port and Chennai Port picking the market.

Bunkering Scenario-Gujarat

Bunkering is an emerging sector in Gujarat. The Port led business development model employed by Gujarat Maritime Board has given a required strategic thrust to the bunkering sector. The State plans to take advantage of its strategic located coastline and pick up a share of Fujairah.

GMB is in plan to set up a bunkering terminal at its coastline. Currently Gujarat is anticipating a 3 fold increase in handling traffic, with an augmentation in its port infrastructure which will entitle it for a significant growth in the entire maritime sector.

Gujarat Bunker Sale Volume

At present, Gujarat accounts for approximately 70,000 Mt/month of duty free bunker sales volume. Bunker potential in Gujarat is immense. Currently Gujarat is catering to around 0.76 million ton of bunker annually with 63% of total Indian bunker supply, out of this 63% share, Gulf of Kutch shares the predominate chunk of bunker volume. Bunkering is predominantly carried out at four ports of Gujarat, & these terminals suffice the bunkering requirement of other ports of Gujarat.

The prominent bunkering locations are:

- Mundra
- Kandla
- Dahej
- Various upcoming bunkering locations in Gujarat with their total bunker volume supplied per month are as below:

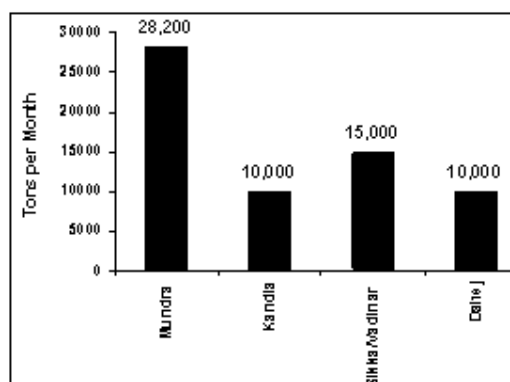
FIGURE 6

Bunker Volume Catered in Gujarat Coast



CHART 7

Bunkering Location – Gujarat



Source: Gujarat Maritime Board

Gulf of Kutch (Mundra, Kandla & Sikka) does a monthly bunkering of 53,000 ton where as Gulf of Khambat (Dahej & Magdalla) roughly accounts for bunkering of 15,000 ton per month. Presently ports in Gujarat caters to inherent ship calls only, many small players suppliers supply bonded fuels to ships, though Chemoil-Adani joint venture has just begun its operation a year back and have even established a foot in the region.

Shipbuilding Industry – Gujarat:

With the continuous penetration of economic globalization, Gujarat shipbuilding industry, whose share has kept rising in recent years, is becoming the significant shipbuilding centers of the world. The State is strongly emerging as a new shipbuilding destination in South Asia with many projects in pipeline.

Gujarat boasts a share of 47% of Indian shipbuilding order book with 3.92 Million DWT order book as on June 2008. Presently, Gujarat has six shipbuilding yards in

operation, three under execution, eight under the process of approval and Gujarat Maritime Board (GMB) has envisaged for thirteen more notable shipbuilding projects.

With Indian companies planning to drop anchors on Gujarat's shores, the State is likely to harbor huge investments in the development of shipyards.

The sector has witnessed a major thrust with 45 proposed projects with an envisaged investment of INR 15,000 Crore by well established private players. Among the players who have shown interest in developing shipyards in the state includes ABG Shipyard, Dolphin Offshore Enterprises (India), AFCONS Infrastructure, Bharati Shipyard, Jindal Shipyard and Pipavav Shipyard etc.

'Make hay while the sun shines' going with the quote Gujarat Maritime Board (GMB) is expecting to reap maximum benefit from the emerging Shipbuilding industry and as a result is formulating an independent policy for the Shipbuilding industry in Gujarat.

Shipbuilding is a highly labor intensive industry, contributing 60% of total share of major industries. Hence, GMB with its vision for economic development of the coastline is formulating shipbuilding policy for Gujarat.

Future Plans of Gujarat Shipbuilding Industry:

The State is expected to harness a huge investment in the Shipbuilding Sector. The State Government along with GMB is committed to develop the industry and utilize all the competitive advantage of its positioning. GMB is promoting the strategy of cluster form of Shipyards development known as Marine Shipbuilding Parks (MSP) at multiple locations with private player participation.

The high-flying Shipbuilding cluster being developed is ‘Dahej Shipbuilding cluster’. In addition, various potential capital intensive projects are being developed by Pipavav Shipyard Ltd., Bharti Construction and Marine Ltd., ABG Shipyard, Affcon Infrastructure, Modest Infrastructure, Dolphin Offshore etc. at multiple locations in Gujarat.

Figure 7



Source: Gujarat Maritime Board

Cluster Development Model of Shipbuilding / Marine Shipbuilding Park:

Gujarat Maritime Board has envisaged developing a cluster based shipyards or Marine Shipbuilding Park (MSP) within a stretch of 5 to 8 km along the waterfronts of Gujarat coasts.

For the development of the cluster, GMB will assist the private developers for getting Clearances and other statutory approvals. The waterfront will be provided for development on a long-term basis. Government has also taken initiative to establish /upgrade training institutes to provide training.

5.4 Future Prospects of Internal trade, Benefits of Long coastal area and tourism

Meaning of Internal Trade

Internal trade is the sum total of activities which brings the producers and consumers within the same country together. It involves distribution of goods and services from the point of production to the point of consumption within the boundaries of the same country.

Importance

The importance of Internal Trade is as given:

1. It facilitates the exchange of goods and services between the producers and the ultimate consumers within the country.
2. It helps in improving the standard of living and quality of the life of the people.

3. It helps the growth of the industry in the country by facilitating the availability of raw materials and other inputs, and distribution of the finished products.
4. It provides opportunity for the people to get employment in trading organisations as well as to be self employed as trader.
5. It also helps in the growth of agriculture. Agriculture products are sold to consumers across the country and the seeds, fertilizers, tools and equipment which are used by farmers are made available to them only through the services of the traders.
6. It promotes foreign trade. It is not always possible to sell and buy from other countries directly. It is generally done through the agencies involved in internal trade.

Specific situation of coastal areas

[Coastal areas](#) are transitional areas between the land and sea characterized by a very high biodiversity and they include some of the richest and most fragile ecosystems on earth, like [mangroves](#) and [coral reefs](#).

At the same time, coasts are under very high population pressure due to rapid [urbanization](#) processes. More than half of today's world population lives in coastal areas (within 60 km from the sea) and this number is on the rise.

Additionally, among all different parts of the planet, coastal areas are those which are most visited by tourists and in many coastal areas [tourism](#) presents the most important economic activity. In the [Mediterranean region](#) for example, tourism is the first economic activity for islands like Cyprus, Malta, the Balearic Islands and Sicily.

Main sources of impact

- Residence in the coastal zone
- Fisheries and [aquaculture](#)
- Shipping
- [Tourism](#)
- Land-use practices (Agriculture, Industrial development)
- [Climate change](#)

Tourist infrastructure

In many areas, massive new tourist developments have been built - including airports, marinas, resorts, and golf courses. Overdevelopment for tourism has the same problems as other coastal developments, but often has a greater impact as the tourist developments are located at or near fragile marine [ecosystems](#):

Benefits of Sustainable coastal tourism

Economic benefit

The main positive economic impacts of [sustainable](#) (coastal) [tourism](#) are: contributions to government revenues, foreign exchange earnings, generation of employment and business opportunities. Further information on economic contributions of tourism can be found on the website of the [World Travel and Tourism Council](#).

Contribution to government revenues

Government revenues from the tourism sector can be categorised as direct and indirect contributions. Direct contributions are generated by income taxes from tourism and employment due to tourism, tourism businesses and by direct charges on tourists such as ecotax.

Indirect contributions derive from taxes and duties on goods and services supplied to tourists, for example, taxes on tickets (or entry passes to any protected areas), souvenirs, alcohol, restaurants, hotels, service of tour operators.

Foreign exchange earnings

Tourism expenditures, the export and import of related goods and services generate income to the host economy. Tourism is a main source of foreign exchange earnings for at least 38 % of all countries ([World Tourism Organisation](#)).

Employment generation

The rapid expansion of international tourism has led to significant employment creation. Tourism can generate jobs directly through hotels, restaurants, taxis,

souvenir sales and indirectly through the supply of goods and services needed by tourism-related businesses; for e.g. conducted tour operators.

Tourism represents around 7 % of the world's employees ([World Tourism Organisation](#)). Stimulation of infrastructure investment Tourism can influence the local government to improve the infrastructure by creating better water and sewage systems, roads, electricity, telephone and public transport networks. All this can improve the standard of living for residents as well as facilitate tourism.

Contribution to local economies

Tourism can be a significant or even an essential part of the local economy. As environment is a basic component of the tourism industry's assets, tourism revenues are often used to measure the economic value of protected areas.

Part of the tourism income comes from informal employment, such as street vendors and informal guides. The positive side of informal or unreported employment is that the money is returned to the local economy and has a great multiplier effect as it is spent over and over again.

The [World Travel and Tourism Council](#) estimates that tourism generates an indirect contribution equal to 100 % of direct tourism expenditures.

Direct financial contributions to nature protection

Tourism can contribute directly to the conservation of sensitive areas and [habitats](#). Revenue from park-entrance fees and similar sources can be allocated specifically to pay for the protection and management of environmentally sensitive areas.

Some governments collect money in more far-reaching and indirect ways that are not linked to specific parks or conservation areas. User fees, income taxes, taxes on sales or rental of recreation equipment and license fees for activities such as hunting and fishing can provide governments with the funds needed to manage natural resources.

Competitive advantage

More and more tour operators take an active approach towards sustainability not only because consumers expect them to do so but also because they are aware that intact destinations essential for the long term survival of the tourism industry.

More and more tour operators prefer to work with suppliers who act in a sustainable manner, e.g. saving water and energy, respecting the local culture and supporting the well being of local communities.

MARINE TOURSIM IN GUJARAT

Gujarat offers a variety of strategic and competitive advantages for developing marine tourism in the State.

FIGURE 9

Gujarat boasts of 1600 Km of long and clear coastline, which presently is being developed as a world class tourist spot

A dedicated Marine Park, along with the development of Beach Tourism, connected with the rich heritage of Gujarat will attract tourists worldwide

Most of the areas selected for marine tourism projects are virgin areas which will ensure a high revenue and will be a source of employment for locals

Government of Gujarat and Gujarat Maritime Board is dynamically promoting the Marine Tourism Industry with various proactive measures

Various developmental models have been identified to develop the Marine Tourism Sector in Gujarat as development of Beach Resort, Cruise Lines, Flotels, Marinas etc.

Various locations finalised for the marine tourism projects are: Nagrol, Umbharat, Poshitra, Simar, Suvali, Pirotan, Shivrajpur, Gopanath etc.

Gujarat Maritime Board will offer set of incentives for the developers interested in Marine tourism projects.

Various Incentives proposed are:

1. Subsidies on Bunkers
2. 100% Luxury tax exemption for Private Entrepreneur developing resort for 2 years.
3. 100% electricity duty exemption for five years
4. 100% stamp duty exemption

Figure 10

Opportunities for investors - Marine Tourism



Source: Gujarat Maritime Board

RO-RO SERVICE IN GUJARAT

- With two gulfs dividing the State in three segments, Gujarat is an ideal location to run the ferry service.
- GMB has planned to establish the dedicated RoRo ferry service to grab the advantage of saving in traveling distance, fuel, expenses and safe mode of transport.
- GMB has decided to develop the world class Ro-Ro ferry terminal at (Gogha and Dahej) in Phase-I and will extend upto Mumbai in subsequent phases.

5.5 Problems and Prospects of Major Port Kandla and its future importance

Long Term Strategies

The long-term strategy of tech port will be adequate infrastructure and competitive tariff.

- Additional infrastructure
 - Deepening the channel to handle vessels up to 14 mtrs. draft.
 - Installation of Eight ELL cranes of 20/25 tons capacity.
 - Deep draft multi-purpose berths at Vadinar.
 - Commissioning of 13th cargo berth.
 - Development of container Terminal on BOT basis.
- Privatization of various port services.
- E-Customer relationship management.
- Entering into long-term contracts with various exporters/importers who assure guaranteed traffic. To provide the required infrastructure and other handling facilities by the port and fix separate tariff of such long-term contracts.
- Offering of the existing infrastructure facilities to various exporters/importers on BOT basis to enhance the traffic.

Short Term Strategies

Under the present scenario, the short-term strategy by Kandla Port will be to retain the present cargoes and customers. The growth rate in the present cargoes and organizational growth of the present customers will translate into growth of the Port Of Kandla, therefore, the short term relation is adopted by Kandla Port.

- Lowest cost strategy.
- Retention of cargo based on strength of the port.
- Making the efforts to overcome the weakness and threats
- To adopt a pro-active marketing strategy.
- Augmentation of the existing infrastructural port facilities.
- The work relating to extension of customs bounded area for storage of bulk cargo by an area of 76.5 hectares is already under implementation and the total cost of this project is Rs. 15 crores. After commissioning of the scheme there will be addition of 10 lakh tones storage capacity and this scheme is likely to be completed by the year 2002.

• It is also planned to provide railway siding facilities in the area at the estimated cost of Rs. 10 crores.

- It is planned to undertake dredging to handle vessels upto 12 mtrs. draft and there by increasing the parcel size of bulk cargo and bigger container vessels.

• A 50 tons BP bugs being procured at a cost of Rs. 20 crores for handling ULCCs at Vadinar.

- 210 meter quay face barge handling facility at bunder basin would be constructed with open stacking area measuring 40000 sq. meters to store the additional cargo of 88000 tons. The estimated cost of the scheme is Rs 18.97 crores and its likely to be completed by March 2003.

- Conversion of Samakhiali - Palanpur railway track to broad guage to reduce the distance by 130 kms. from the hinterland, to be executed through SPV at the cost of Rs.342.96 crores. Kandla Port shall contribute Rs. 51.44 crores to the SPV being 30% equity share holding of the 50% estimated cost of the project to be contributed by promoters.

- Modernization and extension of railway network at a cost of Rs.2.00 crores to enable faster movement of cargo from that port.

- Four new godowns are being constructed at a cost of Rs. 6.00 crores. The additional storage capacity of 85000 MT would become available. The new godowns are likely to be completed by March 2002.
- The tenders for 11th cargo berth have been received for Rs. 36 crores. Work order will be awarded to the lowest tenders M/s. NEC Ltd. Vishakhapatanam after receiving clearance from Ministry Of Environment And Forest.
- The scheme relating to procurement of Eight ELL cranes of 16 MT capacity and 25 MT capacity is being implemented at the estimated cost of Rs. 70 crores to be installed and commissioned by October 2004 to October 2005.

Medium Term Strategies

- Augmentation of infrastructure facilities for handling bulk, break-bulk, container and liquid cargo.
- Commissioning of 12th cargo berth.
- Deeping of the channel to handle vessels upto 13 mtrs draft.
- Commissioning of two new godown with 4300 MT capacity.

5.6 Problems and Prospects of Minor Ports

The minor and intermediate ports of Gujarat handled about 8.5% of national shipping cargo. Nevertheless, Gujarat ports handle about 16 million tones of cargo, which accounts for 70% of the total cargo handled by all minor ports of India.

Drafts of 8 to 10 meters are available at Porbandar, Okha and Sikka, where ships ranging from 15000 to 25000 tonnes are directly berthed. Except for Porbandar which handles container cargo for fish exports, container cargo handling facility does not exist in other ports.

There is limited scope for expanding berthing facilities in the existing minor and intermediate ports. All that is possible is, to enhance the handling facilities by modern equipments, which can increase the traffic from present 16 million tones to 24 million tones. Due to the inherent limitations in the existing ports, it is essential to identify potential "green field sites" on Gujarat coast for port development.

With major coastal based mega cement plants coming up in Kutch and Saurashtra, cement and clinker exports through sea will play a major role in marketing of cement nationally to Middle-East countries opens up avenues for locating petroleum refineries and storage of petroleum products for hinterland consumption.

Export of salt and import of coal are other major potential cargo apart from the existing items of import and export. As indicated earlier, the massive spurt in industrialization also opens up scope for import of industrial raw materials and export of finished goods to the global market through ports.

The vast coastline of Gujarat, also offers tremendous potential for marine fisheries and subsequent processing and exports. Over and above this, any development in the Hinterland State have a direct impact on Gujarat ports.

Against this future potential, at present, the ports are being planned totally in insolation, without taking into consideration the requirements of industry, trade and commerce. No integrated plan exists to create ports of international design and status, linked with hinterland with multi-channel roads that carry cargo efficiently and other related infrastructure.

FUTURE PROSPECTS IN GUJARAT

Issues/ Suggestions / Recommendations of Conference held on 29th June 2010 organized by Gujarat Maritime Board on “Port Led Development in Gujarat.”

The key issues /suggestions/ recommendations of the conference are as follows:

1) Integrated logistics parks

Ports are the pivotal node in the supply chain mechanism of various goods and services and logistic services are the integral part of the port led development. The major issues discussed during the conference regarding the logistics industry are-

- ▶ Despite of very high potential of the logistics in the country, the industry is not very well developed, as 90% of the logistics market is in the unorganized sector.
- ▶ Logistics cost is very high in India, close to 13-14% of the total GDP as compared to 9% in USA, which showcases that logistics in India is highly inefficient.
- ▶ There is a lack of value added services at the logistics centers in India.

These identified issues could be addressed by the following measures-

- ▶ Rail capacities needs to be augmented quickly and **multimodal connectivity** should be strengthened.
- ▶ Process of ensuring appropriate land availability and the resolution mechanism of related issues such as R&R, environment clearance etc. should be streamlined.
- ▶ Transaction costs and time needs to be streamlined. e.g. customs clearance &

other regulatory clearances

Value addition services should be promoted in the logistics parks to lower the existing logistic cost to 4-5%

► In Shenzhen, companies have **common logistic services and supplies** which avoid duplication of facilities and lower the overhead cost, so this approach can be adopted in India.

► A comprehensive **logistics policy** should be formulated covering all the aspects of promotion of third party logistics service provider, human resource training & development, multimodal connectivity, improving ease of doing business, etc.

Coastal shipping

Coastal shipping is the most economically viable, efficient and environmentally sustainable way of transporting goods over long distances. It reduces the freight cost from 25-75% over other transport modes. The conference identified the potential of coastal shipping in the state, as-

► Strategic location of the state & potential for cargo movement from north to south and from west to east

► 20 million tonnes of Cement produced by the Kutch only could be transported through the coastal shipping

► Coastal shipping should be promoted as 4000 MW of power is generated through the domestic coal from Orissa, which could be transported by the coastal shipping

► The state already caters to 35% of the coastal cargo

This huge potential of coastal cargo in the country could be tapped by adopting the **hub and spoke concept** of development. The conference identified the findings of the TCS in the sector, according to which Hazira could be developed as an ideal destination with the estimated cost of INR 530 million.

Capacity enhancement of existing ports

The conference has highlighted the issue of the inadequate and inefficient capacity of the

ports. The ports of Gujarat, except Mundra, cannot handle large size of vessels. Apart from the fact, the port utilization capacity varies from 90-95% which is very high as compared to the international standards, indicating the long waiting time of ships and inefficient cargo handling at the ports.

Therefore, to meet the standard of the 70% port capacity utilization, new berths should be added to the ports along with their increased capacity to handle the large vessels to make them able to compete in the global arena, where the ship sizes are increasing by the day.

The largest container vessel which can handle at the Indian ports is of 8000 TEUs while China can handle of 13000 TEUs capacity ships. Thus, to make the ports able to compete globally, their capacity building creation at minor ports is essential, as the most of major ports are facing issues of land scarcity and congestion.

Improved regulatory framework

Regulatory approvals in the ports & logistics sector consume lot of time and involve complexities. To attract more and more private entrepreneurs, this tedious process should

be made flexible and reduced through the **Green Channel** approach.

For the port led integrated development, there is a need to have a dialogue between the union and the state government, as ports are placed in the state list while the port services are in the hands of the union government. So, for the planned integrated development this center state government dialogue is very essential.

Port connectivity

Connectivity of the ports is an integral part of the port led development. Other than few bigger ports, the connectivity of the Gujarat ports is not as per the requirement. So this connectivity needs to be reinforced to further strengthen the backward and forward linkages of the ports. Statistics shows that the state GDP of Gujarat has grown faster than China in past 10 years, this increasing trend will put immense pressure on the existing infrastructure available in the state.

To cope with the growing economy, there is a dire need of the support infrastructure. Keeping in mind, in the 11th Five Year Plan outlay, the Government of India has dedicated 500 bn USD for infrastructure and this is expected to increase to 1650 bn USD during 12th Five Year Plan (2012-2017). Out of this planned outlay 30% of the funding is expected to come from private sector through PPP mode. Railway projects account for 10% share of the total plan outlay.

The conference pointed out that **Last Mile Rail (LMR)**, which connects the rail to doorstep, is essential and need of the hour in the state to execute the port led development. The ministry of railways has a vision for 2500 km of Trunk Rail System by 2020 costing 300 bn USD. To support these main rail lines, LMR feeders are necessary as it connects consumption centers to the production centers.

Thus, LMR is a key to growth and success in the state, but it has certain major impediments in the way, as-

- ▶ Land availability
- ▶ Viability gap funding

Human skill development

India is one of the most progressive economies in the world, yet the country has many challenges to face. 90% of the workforce in the country is working in the unorganized sector, which is very alarming and this fact can be attributed to the presence of large scale unskilled workforce in the country.

There are some challenges which needs to be addressed such as-

- ▶ Given India's employment elasticity (0.16), 8 million new jobs are needed to freeze Unemployment .
- ▶ capacitating the people by making them self-reliant and independent of external support
- ▶ Skill Development of the youth

Train huge pool of unskilled and unemployable labour to meet huge demand for those trained in simple skills. The conference highlighted that if Indian maritime sector needs to emerge as key facilitator and accelerator towards economic development it needs to be competitive in a global market place to ensure infusion of both local and foreign capital, technology upgradation and development of the sector.

Certain determinants of International Competitiveness for Indian Maritime Sector has been pointed out, as-

- ▶ Large trade volumes (Size+ Growth)
- ▶ Natural advantage: large geography, large young population, long coastline
- ▶ Availability of advanced Information Technology
- ▶ High profitability & low manpower cost

- ▶ Highly developed financial and capital markets

Thus, there is a need for the **Blue Revolution** which would enable us to achieve number one position in the area of sea farers in the world.

Viability gap funding

Viability gap funding seeks to bridge the gap between economic and financial rates of return. Though the government first spoke about it in 2003, but still there is a lack of viability gap funding in the infrastructure projects in the country. Due to the long gestation period and lower cost recovery, there is an urgent need to focus on this aspect by the government to promote the entrepreneurs in this direction to sustain the GDP growth and development of the state.

Shipbuilding and ship repair industry

Ship building and ship repair industry needs to be promoted as the industry has very high economic multiplier effect and employs a huge pool of labour force in the sector. It was pointed out that if the ambitious plans of Gujarat Maritime Board concerning the Marine Shipbuilding Parks and other developmental approach documented in the Shipbuilding policy of the state materializes even at 50 per cent of the targeted shipbuilding capacity, then there will be a tenfold increase within a span of five years.

However the HR factor does not get proper attention from policymakers. For example, it was pointed out that, there is not a single university or engineering college in Gujarat that imparts specialized courses for naval architecture and shipbuilding.

Indian Shipbuilding Association has conducted a study which pointed out that shipbuilding industry can grow at more than 30 per cent and this momentum needs to be maintained for the next 10 years in order to reach the level of 11th Five- Year Plan target of 5 million DWT order book as against 1.3 million in the 10th Plan.

It is expected that by 2017, more than 7.5% global order book, which is 9 billion USD or Rs 40,500 crore, is targeted to be achieved by India, in comparison to 1.1% share today. Thus, there is necessity for 3-tier institution, from engineers to technicians, in Skill upgradation and development. There is a need of the action plan to implement the targeted development model of MSP by the GMB.

Gujarat government's proposed policy to facilitate landlocked states set up ports along its long coastline is likely to see development of 30 new ports over the next five years, a study by Associated Chambers of Commerce and Industry of India (Assocham) said.

The recent study titled 'India's Ports, Shipping & Maritime Logistics' by Assocham also recommended to other coastline states to adopt a strategy similar to that of Gujarat government for the development of the ports sector.

According to the study, there exists scope for development of about 30 new ports along the 1600 km Gujarat coast, not only by the land locked states of North and Central India, but also by the private enterprises from these regions

The development of a full fledged port initially requires an investment of about Rs 3,000 crore. Therefore, Gujarat would see an investment of nearly Rs 90,000 crore in the coming five years," the study said.

"This investment would be supplemented by matching investments in the development of infrastructure in both Gujarat and land locked states," it added. The study also pointed out increase in employment opportunities following the development of ports in Gujarat.

Development of these ports along Gujarat coastline could see generation of 60,000 new jobs through direct and indirect employment in the ports and logistics.

Conclusion

Gujarat has pioneered the concept of port liberalization in India and used this to become the country's fastest-growing state. It has shown vision in converting "minor ports" into some of the biggest ports in the country. The state has broken new ground with different forms of privatization.

The state's private ports have greatly improved its ability to take advantage of the central government's recent scheme for Special Economic Zones. Historically, ports have been inefficient government monopolies. Gujarat has demonstrated that various forms of private participation can greatly improve the availability and efficiency of port infrastructure.

Those improvements, in turn, can create industrial centers (such as the pipeline hub at Anjar and several new shipyards) that did not exist earlier. These results hold salutary lessons for other Indian states. Having seen Gujarat's success, other Indian coastal states want to follow suit.

Most have now set up their own state maritime boards, but it will be a long time before they catch up with Gujarat. The Maharashtra Maritime Board aims to upgrade Maharashtra's 48 minor ports, typically with private participation, and make some of them bigger than existing major ports.

Rewas port is going to be developed by Reliance Industries Ltd. as the deepest port in the state, serving a Special Economic Zone being setup by the same company. Finally, Gujarat's experience holds lessons for other developing countries wishing to convert minor ports to major ones, and for those seeking to introduce private-sector investment and management in ports.

Summary

Chapter 1

This chapter mainly covers the importance of port in increasing economic development of the country with the help of necessary infrastructure. It also contains the history of ports in India and its importance at global perspective in modern world.

Chapter 2

This chapter contains various research problems, area of research with various objectives. It also gives the information about the methodology of research, review of literature based on the subject including limitations of research.

Chapter 3

This chapter covers the importance of port in foreign exchange earnings and contains the history and developmental process of port in Gujarat with highlights of new port policy.

Chapter 4

This chapter covers the details of Gujarat Maritime Board authority with its objectives and highlights of the new port policy for the minor ports and new schemes in this area.

Chapter 5

This chapter contains developmental process of saurashtra and kutch region ports including its share in employment generation. It also shows the development of ancillary industries and future prospects because of port development in the region.

Chapter 6

It contains summarized of all the chapter of present study.

Findings

The success of the ports attributes to the following factors:

- Strategic location
- Bigger Size & Multiple productivity
- Provision of Infrastructure facilities
- Liberal Economic Policies
- Proper planning & Management
- Export performance & Total Investment

The Issues have been identified based on the above factors

Identified Issues for the study:

There are mainly five issues are studied.

Physical Issues: Location advantage, Infrastructure facilities

Social Issues: Employment generation, quality of life of workers,
labour laws

Economical Issues: Export/Import performance

Socio-Economic Issues: Basic facilities & Cultivation

Environmental Issues: Impact of Dumping

Physical Issues:

Railway & Road are the two modes used maximum for transportation for import & export. The industries prefer Mundra port for import & export. Because of the lower draught (12.5) it cannot accommodate large vessels & there is lot of traffic congestion at Kandla Port which is not handled.

The satisfaction level of power & telecommunication is very high, for transportation is high but utilities it is bad.

Social Issues:

There is provision of other social infrastructure like hospitals, commercial facilities with in the zone. The satisfaction level for social facilities is average. There is an increase in the employment level after 2002.

Primary survey of workers:

The workers are classified in three categories namely skilled, semi skilled & unskilled. Out of total workers more than 50% are migrants. Majority of them were from Bihar, Uttar Pradesh, West Bengal & Rajasthan. There is negative impact due to migration. The population is increasing & there is pressure on the existing infrastructure systems. The wages are given as per the minimum wage act.

Economical Issues:

The exports from the Kandla Port & other Non-Major Port have been continuously increased. The container & cargo traffic has also increased.

Socio-Economic Issues:

The region plays a catalyst role in the socio-economic development of this region. Two towns (Gandhidham & Kandla) are affected by the floating population because of development of Kandla Port & Kandla special economic zone. There is lack of social infrastructure such as school, colleges, hospital in the Kandla town because of which lot of people have moved towards Gandhidham. Kandla region is not fit for cultivation as Kutch region falls under coastal zone only 2% zone is use for agricultural purpose.

Kandla SEZ has maximum industrial area which covers almost more than 70%, which according to new guidelines should be 50% for SEZ having area more than 100 hectares hence not much land is provided for social infrastructure.

Environmental Issues:

There is no common effluent treatment plant in the Zone. So all the units dispose of the waste & scrap in the dumping yard & then it is transported for further process. Due to the development of Kandla Port & special economic zone, the fishing industry is adversely affected. The suggestions are:

- Kandla falls under central regional zone norms therefore future development should be as
CRZ norms.
- To contribute greater growth this sector requires greater scale of liberalization, better
social infrastructure & environmental protection facilities.
- Efficiencies of operations would be improved & there are chances of more investment.
- The social infrastructure & townships would give better quality of life & living standards
to the employees.
- Environment management plan & Environment impact assessment are to be made
mandatory for all proposals.

IMPACT ANALYSIS OF KANDLA PORT

Three major success factors are:

1. Earning Foreign Exchange
2. Employment generation
3. Revenue generation

Kandla Port & Kandla special economic zone is responsible for three major success factors. Land, labour & raw materials are easily available because of the strategic location. It also has multimodal connectivity so there is convenient transportation of goods & services.

Recommendations

Impact at local level is more than at regional level but this impact can be kept under control by improving zone infrastructure, developing social amenities & providing proper environmental management systems.

- Kandla falls under central regional norms so future development should be as CRZ norms.
- To contribute greater growth this sector requires greater scale of liberalization, better social infrastructure & environmental protection facilities.
- Efficiencies of operations would be improved & there are chances of more investment.
- The social infrastructure & townships would give better quality of life & living standards to the employees.
- Environment management plan & environment impact assessment are to be made mandatory for all purpose.