

Options of the Proposed Policy

June 2017

Submitted to

Gujarat Maritime Board

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Abbreviations

AGL	Above Ground Level
BOOT	Built Own Operate Transfer
CEZ	Coastal Economic Zone
CRZ	Coastal Regulation Zone
DGS	Director General Shipping
DWT	Deadweight Tonnage
EEZ	Exclusive Economic Zone
GCADB	Gujarat Coastal Area Development Board
GDP	Gross Domestic Product
GID Act	Gujarat Infrastructure Development Act
GMB	Gujarat Maritime Board
GoG	Government of Gujarat
Gol	Government of India
GRT	Gross Register Tonnage
Ha.	Hectare
IALA	International Association of Lighthouse Authorities
INR	Indian Rupee
iSMS	Integrated Security Management System
IT	Information Technology
IWT	Inland Water Transport
mLAT	Meters above Lowest Astronomical Tide
MLDT	Million Light Displacement Tonnage
MMT	Million Metric Tonnes
MMPA	Million Metric Tonnes Per Annum
MoU	Memorandum of Understanding
MSP	Marine Shipbuilding Parks
NM	Nautical Miles
Ro-Pax	Roll-on/roll-off passenger
RO-RO	Roll On - Roll Off

SAARC	South Asian Association for Regional Cooperation
SDC	Sagarmala Development Company
SEZ	Special Economic Zone
TEU	Twenty-foot Equivalent Unit
USD	US Dollar
UT	Union Territory
VTMS	Vessel Traffic Monitoring System

1

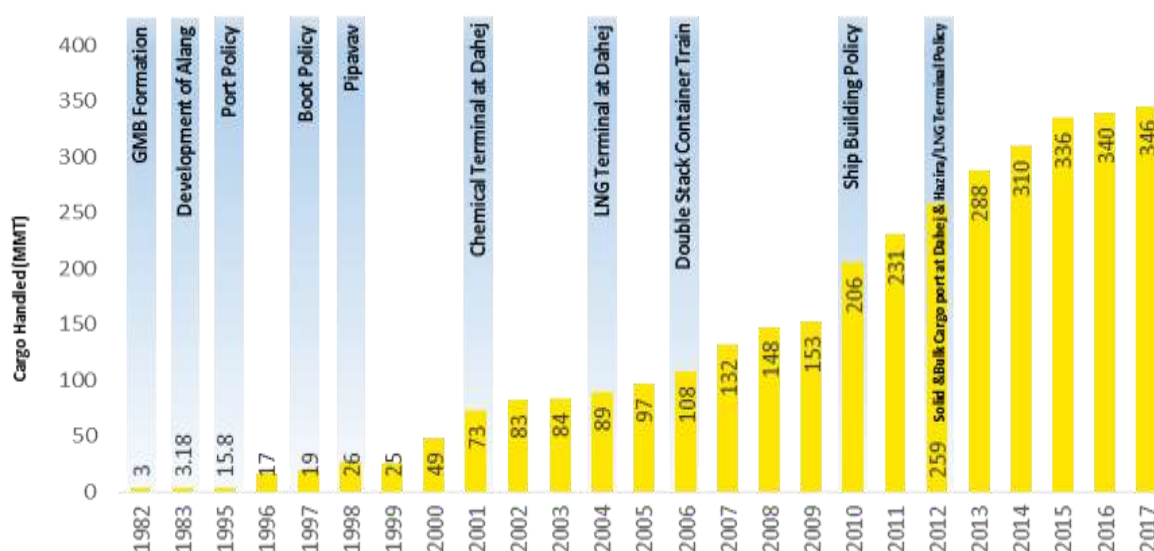
Introduction

1. Introduction

Gujarat has played a pivotal role in developing maritime infrastructure of India. Currently the state is handling around 32% of India's cargo traffic and has an installed capacity of around 466 MTPA¹. The phenomenal growth in port traffic is only attributable to the investor friendly port policy which was announced in year 1995. This policy has fuelled private sector investment in the state and has changed the maritime landscape of Gujarat.

Developing a sector like port is a long term process; Gujarat has undertaken several initiatives over the years in order to develop the port and maritime sector in the state. In order to create a strong foundation, in 1982 Gujarat Maritime Board was formed under GMB Act, 1981 for developing, operating and regulating Non-Major ports, henceforth known as GMB Ports, of the state. In 1987, Captive Jetty Policy was laid out to allow private companies to operate their own jetties in GMB Ports, acting as a catalyst for industrial growth of the state. Moving ahead the Port Policy in 1995 provided integrated port development vision with public private participation, synchronization of small and large investor in port sector and creation of market driven port sector.

Figure 1-1: Cargo traffic growth and policy impetus during the period



Source: Gujarat Maritime Board, EY Analysis

BOOT Policy in 1997 provided for port locations given on BOOT (Build, Own, Operate and Transfer) basis, operational flexibility with tariff freedom, adequate compensation on project transfer, bankable project document - Model Concession Agreement. In its aim to attract private players, GID Act in 1999 focused on fair, transparent and clear-cut mechanism for selection of developers, through competitive bidding. Whereas 2004 SEZ Act (Gujarat) Paved way for provision of minor ports and related services in Special Economic Zones in Gujarat - developer to fix and collect Tariff.

¹ Source: GMB Traffic Data

Currently the state is working on revising the existing port policy and devising a more integrated port policy covering logistics, infrastructure, industrial corridors, connectivity, strategic projects, etc.

The Gujarat's maritime growth story can be deliberated on following phases -

- ▶ **Phase 1 - Capacity addition phase:** In first phase of development in Gujarat Ports in 1990s, was fuelled by pioneering policy framework (Port Policy 1995 & BOOT Policy 1997), which helped in bringing private players to develop "best in class" port terminals through enabling policy framework. This helped in opening up of the Gujarat's ports sector for privatization as well as development of various execution models for attracting investments.
- ▶ **Phase 2 - Focusing on port led region development:** Second phase of development was strengthening and focusing on hinterland development. Gujarat was the first state to understand the importance of port linked development. India's first operational Special Economic Zone (SEZ) at Kandla was fully operational by year 2001 where the industries operating in the SEZ were hugely benefited because of the presence of ports like Kandla and Mundra in the vicinity. This has improved the logistic connectivity and in turn has improved the export competitiveness. The overall infrastructural development and state of art facility provided by the Kandla SEZ Authority (KASEZ) has created a platform for investment by the prospective investors which has proved a boon for economic development of Kutch region of Gujarat state.
- ▶ **Phase 3 - Tapping the potential of strategic location:** The third phase which is yet to be tapped by any Indian or Gujarat ports is to harness the strategic location of India's long coast line. As per Lloyd Institute report "Global Marine Trends 2030", the marine world in 2030 will be fundamentally different than today's world owing to the rise of emerging countries, new consumer classes and resource demand. China and India will sit in the top 5 list in terms of GDP ranking. China alone will contribute about 20% of the global GDP, followed by India.

Through the policy of 1995, GMB took a lead in developing several forms of privatization such as privatizing port services to facilitate private jetties, shifting from the model of joint venture ports to completely private ports etc. Therefore the policy has succeeded on various fronts, however in order to formulate a new port policy, it is important to decipher performance of the current policy by each objective that had been part of the strategy. Formulation of the new policy will take into account the areas of success as well as failures of the existing policy in addition to the future potential of maritime scenario.

1.1 Overview of the current port policy

The Port Policy of Gujarat 1995, has been followed by all the ports of Gujarat (excluding Kandla). This policy, envisaged an integrated port development, consisting of creation of port facilities, industrialization and development of infrastructure facilities like roads and railways in the hinterland.

Key Objectives of the Policy

- ▶ To increase Gujarat's share in the export and import sector in national and international trade & commerce, in pursuance of liberalization and globalization policy.

- ▶ To decongest the overburden on existing major ports on Western India to cater to 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.
- ▶ To provide port facilities to promote export-oriented industries and port based industries.

The policy supports the private investment in the existing ports, development of new port sites, privatization of services, infrastructure development, coastal shipping and marine related ancillary industries.

Impact of the Policy:

The impact of the policy can be observed in the four identified areas which was collectively handled by GMB & other departments of Government of Gujarat through various interventions, while implementing the Port Policy.

1. Port Privatization Model which includes Captive jetties (BOMT), Private joint sector ports (BOOT), Private jetties (BOT)
2. Cluster development includes Marine Shipbuilding Parks (MSP), Apparel, Automotive, Petrochemicals, Cement, Furniture, etc.
3. Port Connectivity includes rail linkages on PPP, Ro-Ro ferry services, Last-mile and hinterland connectivity, gas grid
4. Port Land Industrialization includes Port SEZs/Industrial Area, Port City: Mundra and Piplaav, Coastal Economic Zones (CEZs), Special Investment Regions (SIRs)

1.1.1 Performance of the Policy

The performance of the port policy can be measured across 8 different parameters, namely,

1. Cargo handling capacity,
2. Development of port infrastructure
3. Development of new port sites
4. Privatisation - captive jetties
5. Privatisation of services
6. Infrastructure development
7. Marketing & promotion
8. Other key initiatives

The details of the above mentioned 8 parameters is mentioned below.

A. Cargo Handling Capacity

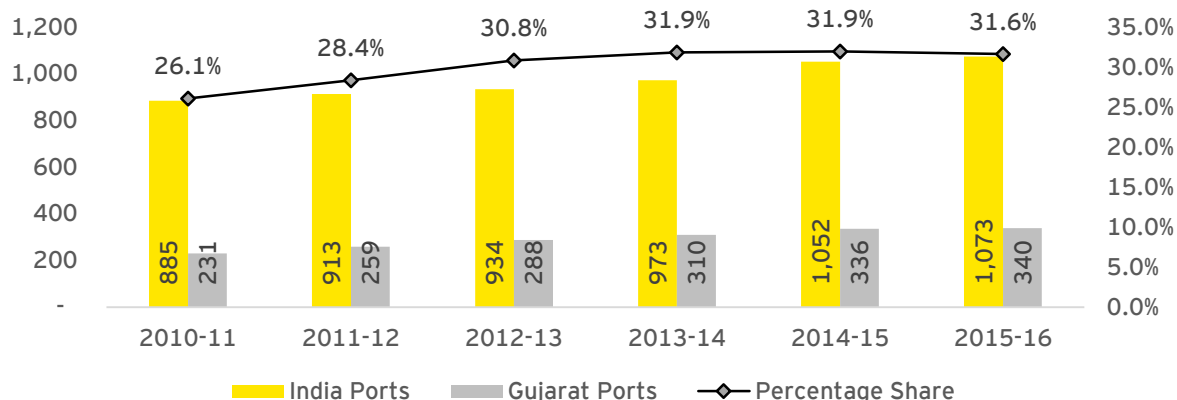
Target - It was envisaged that 50% of entire cargo for new ports will be provided by industries in vicinity of port locations

- ▶ Gujarat will be in a position to handle 100 million tons of cargo, about 25% of India's total cargo, by 2000
- ▶ An estimation of USD 3 billion (INR 10,000 crore) was made to augment required port infrastructure to help boost cargo movement

Outcome

- ▶ In Cumulatively Gujarat ports handle around 31.7% of India's cargo traffic in 2015-16, up from a meagre 3% in 1982. (During target year 2000, GMB ports had handled 48.8 MMT of cargo)

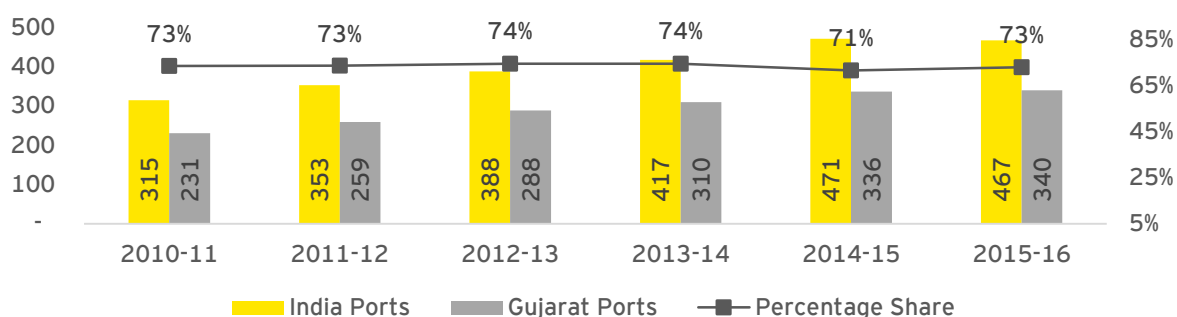
Figure 1-2: Cargo handled by all ports of India vs Gujarat Ports



Source: GMB, IPA & Ministry of Shipping

- ▶ In 2015-16, GMB ports accounted for 73% of total traffic handled by all non-major ports of India
- ▶ GMB's cargo traffic has increased to 346 million metric tonnes in 2016-17, growing at CAGR of 10% between 2010-11 and 2016-17

Figure 1-3: Traffic wise break up at all ports in Gujarat



Source: Ministry of Shipping Cargo Update Report, 2016 and GMB Traffic Data

B. Development of Port Infrastructure

Target - Private investment in existing ports, with general guidelines as:

- ▶ Incomplete works of wharf/ jetty/ quay of GMB to be privatized
 - Private entrepreneurs permitted to install modern mechanical handling equipment on wharf/ jetty/ quay
 - Privatization of construction of new wharves/ jetties in selected sites
- ▶ Entrepreneurs making investments in these locations will be given ousting priority for a period of 5 years. For higher project costs, GMB will consider to enhance this period
- ▶ Entrepreneurs to assure a minimum cargo handling from the landing place and to pay full wharfage charges to GMB for cargo undertaken on such structures
- ▶ New port locations identified to handle petroleum cargos

Outcome

Currently there are 11 operational private jetties in Gujarat. The total private investment made under these projects was approximately INR 9,322 crores.² As a part of short-term strategy, existing port facilities have been offered to private companies to develop through private investment. The aim of allotment of such private jetties is to handle cargo through mechanized handling system and to increase the efficiency. These private jetties are granted permission for a lease period varying from 5 to 25 years.

Private Jetties Frame work includes;

- ▶ Option for Privatisation of Existing GMB Jetties
- ▶ Lease Agreement period between 5 and 25 years depending on the capital investment in the project
- ▶ Strengthening & mechanisation of existing GMB jetties,
- ▶ Operational Freedom
- ▶ Concessional Wharfage (Separate rate in Schedule of Port Charges (SoPC))
- ▶ Commercial cargo allowance

Table 1-1: Operational Private Jetties in Gujarat

No.	Name of the developer	Location
1	J.M.Baxi & Co.	Rozi pier, Bedi
2	Shakti Clearing Agency Pvt. Ltd.	New Port, Rozi
3	Ruchi Infrastructure Ltd.	Rozi pier, Bedi
4	Shantilal Multiport Infrastructure Ltd.	Rozi pier, Bedi
5	Continental Warehousing Co. Ltd.	Rozi pier, Bedi
6	Saurashtra Cement Ltd.	Porbandar
7	Jakhau Salt Co. Pvt. Ltd.	Jakhau
8	Jaydeep Associates Ltd.	Navlakhi
9	United Shippers Ltd.	Navlakhi
10	Shreeji Shipping Services Pvt. Ltd.	Navlakhi
11	KRIBHCO	Hazira

C. Development of New Port Sites

Target - The port policy envisaged developing 10 sites as Greenfield ports as direct berthing deep water ports to be developed by private developer at Dholera, Maroli, Vansi-borsi, Hazira, Mithivirdi, and Simar and to be developed by GMB at Dahej, Positra, Rozi (Bedi), Mundra.

Outcome

1. **Dholera** - For the development of Dholera port, LOI has been issued to M/s. Dholera Port Ltd. (DPL- a company promoted by J K Cement Group). The company has obtained

² 31st Administrative Report 2012-13, Gujarat Maritime Board

Environment Clearance from Gol and initiated various studies. The Revised DPR for Dholera is under preparation by the developer. GMB has granted approval for induction of M/s Adani group in DPL as a Key promoter. However, due to eminent "Kalpsar" Project, GOG has now decided to shift the location of Dholera port outside the Kalpsar Catchment area. Pre-feasibility Report (PFR) shall be carried out by the Kalpsar Department of GOG.

2. **Maroli Port** - Status report - The location of the port has been shifted to Nargol. A consortium of Cargo Motors Pvt. Ltd and Israel Ports Co. has won the bid to develop Nargol port in Gujarat. Israel Ports has dropped out of the consortium and now Cargo motors is examining other possible partners.
3. **Vansi-Borsi** - Detailed Project Report has been prepared.
4. **Hazira** - Hazira Port Pvt. Ltd. had signed concession agreement with Board for 30 years BOOT period and constructed LNG terminal and put into operational, and also started development of non LNG Terminal under Phase 1B development, wherein some of the berths have been put into operational stage at Hazira.
5. **Dahej** - Oil sector PSUs of Government of India formed a joint sector company named M/s. Petronet LNG Ltd. (PLL) which has developed a terminal at Dahej and the same has been operational since February 2004. This was the first LNG terminal in India. Capacity to be increased to 12 MMTPA.
6. **Mitthivirdi** - Due to plan to develop a nuclear power plant close to the location, the proposal of developing a port at this location was cancelled.
7. **Simar** - Location of site has been shifted from Simar to Chhara. Chhara Port will be developed by Shapoorji Pallonji & Co. Ltd. with 1 no. of coal berth of 8 MMTPA capacity in initial phase.
8. **Positra** - The site is located close to marine national park and requires environmental clearance. The developers, Sea King Infrastructure Ltd (SKIL), are in process of conducting an environmental impact study to evaluate the possibility of establishing port infrastructure, which will be subsequently presented to Central Government for approval.
9. **Rozi** - Rozi is an anchorage port. GMB has constructed a jetty of 400 meters, which has been leased as private jetty for handling of cargo vessels calling at port of Bedi. Out of this, 100 meter length with suitable back-up area leased to M/s. J.M.Baxi & Co.
10. **Other Greenfield Private Ports** - Gujarat Maritime Board has successfully developed Pipavav port under BOOT model.

D. Privatization - Captive Jetties

Target - To take care of the increasing traffic until the completion of the new port projects, it is decided to make use of the existing captive jetties already constructed or under construction, for which the permission has already been given, to be utilized for specific commercial cargoes with the prior approval of the Gujarat Maritime Board.

Outcome - Many captive jetty holder companies have planned to expand the capacity of their plants to ful-fill the requirement of increasing import and export of cargo at their facilities, and accordingly their captive port facilities are also in the expansion phases. Currently, there are about 29 captive jetties operational on the Gujarat coastline (Annexure 1).

E. Privatisation of Services

Target - Privatization was envisaged for the services like Lighterage, Dredging, Piloting, Tug towing service and other essential Utility services. In addition it was envisaged that a Joint Venture with a private entrepreneur be established to form 'Dredging Corporation of Gujarat', which undertakes the dredging activity along the coast. The existing dredging equipment along with waterfront facility available with GMB will form equity for such a company.

Outcome - Privatization of dredging activities to some extent were given on pilot basis, however the model was not very successful. In addition, the privatisation of the services also did not take off as envisaged in the policy.

F. Infrastructure Development

Connectivity

Target - Three infrastructure corridors were envisioned in the policy document.

- i. Ports of Okha, Positra, Rozi, Jamnagar Refineries, Navlakhi, Kandla, Mundra and Mandvi, around Gulf of Kutch. The road connecting these ports will be linked with Rajasthan, through Radhanpur and Tharad and ultimately to Northern States.
- ii. Connecting Ahmedabad with ports of Dholera, Bhavnagar, Mithiwirdi, Alang, Pipavav, Simar and Veraval.
- iii. Dahej, Hazira, Vansi-Borsi and Maroli, which will be linked to the proposed Express Highway

Outcome - The State Roads and Building department has been very proactive in creation of road infrastructure and corridors for cargo movement from Kutch, South Gujarat regions. However road infrastructure towards Alang, Pipavav region in Saurashtra needs improvement.

Barge Mounted Power Plants

Target - Barge mounted power plants were envisioned in five coastal districts of Kutch, Junagadh, Amreli, Bhavnagar and Bharuch, with port facilities.

Outcome - Barge mounted power plants were envisioned to take care of power requirements of ports in far flung areas, away from urban agglomerations. However the power production and supply infrastructure in Gujarat has improved vastly over the years. Therefore power supply has been adequate over the years.

Coastal Shipping

Target - Many of Gujarat ports can act as 'transshipment ports' for rest of the country. It is expected that 25% of total cargo would be transported through coastal shipping. Introduction of Ro-Ro service and hovercraft/ catamaran service, joining different terminals on Saurashtra and Kutch with South Gujarat will be given highest priority. Dahej-Ghogha and Surat-Bhavnagar passenger terminal facilities will be started on a top priority basis.

Outcome - Central government formed a committee with Gujarat Maritime Board as the member and after various valuable inputs from GMB a draft policy paper was submitted to Government of

India in January 2013. Subsequently, GMB has also placed an order to acquire the hovercraft vehicle to start the said hovercraft services.

Navigational Aid in Gulf of Kutch

Target - Exclusive Vessel Traffic Monitoring System (VTMS) will be introduced in co-operation with Indian Navy. With the development of new ports, the Gulf of Kutch is likely to handle about 100 million tonnes of cargo every year. Ultra-model vessels are likely to navigate in the Gulf of Kutch in the coming years. Exclusive Vessel Traffic Monitoring System (VTMS) will be introduced in co-operation with Indian Navy.

Outcome - GMB along with Kandla Port Trust had introduced an exclusive VTMS for navigational aid in Gulf of Kutch. In addition, VTMS at Gulf of Khambhat for monitoring Ships/Vessels in VTS area covering the area extending from Jafarabad to Khambhat was also introduced. This system is operated by experts in order to supervise the activity of ships/vessels at Head office, Gandhinagar as well as at Hazira (Surat).

G. Marketing and Promotion

Target - Gujarat Maritime Board will establish a marketing wing to assess likely new cargo generation from time to time and to look for new avenues to service Gujarat ports.

Outcome - Gujarat Maritime Board instituted a Public Relationship Office to interface with the industry and port associations.

H. Other Key Initiatives

Efficiency

For the GMB operated ports, GMB has been actively undertaking the projects related to modernization of the ports by introducing mechanization projects like dust separation, capacity augmentation, revival of old ports etc. Some of the ports where investments are being made to upgrade port infrastructure are Okha, Bhavnagar, Navlakhi and Porbandar.

In Navlakhi Port, a complete mechanization and environment management activities have been undertaken with a total cost of INR 374 crore². GMB is also envisaging construction of an additional new jetty along with back up area on a reclaimed area at a cost of INR 221.6 Crore². These projects include barge unloading, stacking, reclaiming and truck loading, wagon loading and Conveyor System.

Overall, as a result of GMB's continuous efforts to improve the efficiency of the ports operated by GMB, the traffic at GMB operated ports has shown a significant increase of approximately 50% in the past 6 years from 2010-11 to 2016-17.

Investment in Infrastructure

GMB has also initiated the modernization of ship recycling yard at Alang and has sought a soft loan from Japan International Cooperation Agency (JICA). A Detailed Project Report (DPR) has been prepared and submitted to Ministry of Environment, Ministry of Economic Affairs, Ministry of Shipping and JICA. The project which has an estimated cost of about INR 1,100 crores² is likely to tap the external funding for the project to a large extent, as 85% of the project cost is to be funded by JICA, 7.5% by Government of India and the balance 7.5% by Government of Gujarat. The soft loan will be available at the interest rate of 1.4% for a period of 40 years.

GMB has also facilitated various port sector projects in the recent past. Cairn Energy India Pty. Ltd was granted permission to construct twin SPMs at Bhogat to tranship crude oil. NOC was issued to M/s. Bharat Oman Refineries Ltd for interconnection of crude oil terminals of BOREL and IOCL to ensure oil security of the country. GMB has also approved appointment of M/s GSPC LNG Ltd as sub-concessionaire for development of an LNG Terminal at Mundra and also extended the BOOT period for a further period of 20 years for this project.

Capacity Augmentation

During the year 2016-17, total cargo handling capacity at GMB ports has increased to about 465 MMTPA. GMB has over the years maintained a steady growth rate in terms of port capacity addition. GMB has a good pipeline of projects at present. The future capacity would be coming from the expansion of the private ports and captive jetties and from the development of the new ports/ terminals. A large part of the future capacity will be created for POL, containers and dry bulks.

As per Maritime Agenda 2020, the capacity of GMB ports is envisaged to reach 864 MMTPA by 2020. Considering the present rate of growth and present set of projects which GMB is undertaking, the target capacity of 864 MMTPA appears to be achievable by 2020.

Coastal Security

Government of Gujarat has taken various initiatives to secure its coast, one of them is through the advance VTMS, in Gulf of Kutch it is operational since 2008 and in Gulf of Khambhat it is operational since 2010, and GMB is planning to extend the range to the remaining coastal area from Okha to Jafrabad as well.

The Integrated Security Management System (iSMS) will be used to manage Security Management related sub systems, which would include recommendations and mandates of International Standards of Port Security (ISPS) Code and Intelligence Bureau (IB) Guidelines. The automated system will also be useful in Disaster and Environment Management activities. The system would help in proactive identification of disaster/emergencies & help in an automated response mechanism. It would therefore create a communication infrastructure, which is omnipresent in the nature with essential focus on video surveillance.

The project is planned to be implemented in two phases, in phase-1 the locations to be included are Navlakhi Port, Okha Port, Porbandar Port, Jamnagar Port, Surat Port and Gandhinagar Head Office. The system would include Video Surveillance, Perimeter Intrusion Detection, Incident / Disaster Response, Central Command & Control, Physical Screening Systems In long run weather alerts & information shall be integrated with iSMS, to provide suitable real time alerts to all the stakeholders

Maritime University

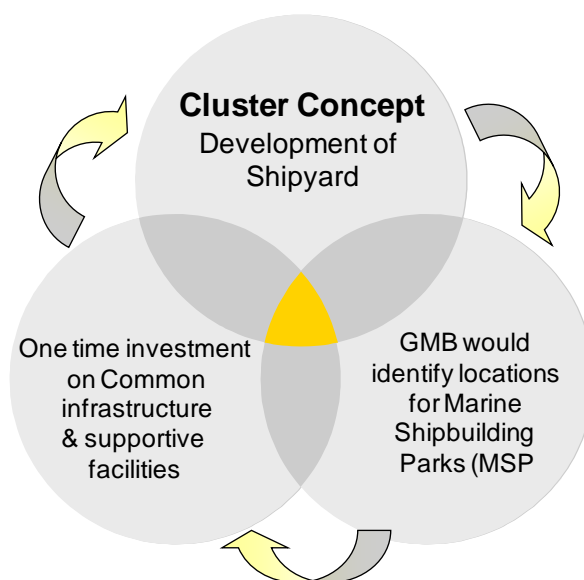
With the rise of India as a major economy of the world, the Indian maritime trade will rise significantly over the coming years and the need for skilled manpower with different maritime skills would be severe going forward. GMB is in process of establishing a premium Maritime University with the state-of-art facilities for enabling training as well as maritime research & development under the Gujarat Private Universities Act, 2009. GMB envisages that the university will train and establish a new generation of port operators, seafarers, engineers, surveyors, etc. in shipping & chartering, ship building and various onshore based positions within the maritime sector globally. The university will serve as the regional centre of excellence catering to the needs

of India as well as Far East, SAARC, African and Middle Eastern countries. Gujarat Maritime University Act has also been notified in 2016.

Shipbuilding/Repairing Yard

Government of Gujarat has ambitious plan to grab at least 60% of the County's share and thus 5% of global shipbuilding industry by 2020. To achieve its goal GMB is actively developing high capital intensive shipbuilding yards in participation with private players.

Figure 1-4: GMB's Approach of Development



The business model employed by GMB to develop its new shipyards is as below:

1. In Cluster " Within Marine Shipbuilding Parks (MSP)"
2. Within the Port limit of GMB ports
3. Within the Private Ports
4. Stand-alone proposals at isolated locations-only in exceptional cases

Under the shipbuilding policy of the state government of Gujarat has identified five stretches along the coast for the development of Marine Ship building Parks, at:

- ▶ Along the north bank of Narmada river in Dahej region
- ▶ In the area of old Bhavnagar port
- ▶ Coastline in the Bhavnagar district in the Gulf of Cambay
- ▶ Coastline between Navlakhi to Jodiya
- ▶ Coastline near Mandvi in the Gulf of Kutch

Coastal Area Development

Government of Gujarat has constituted "Gujarat Coastal Area Development Board (GCADB)" to develop the marine/coastal resources at the 1,600 km coastline of Gujarat. GMB along with GCADB will primarily look into tourism, forest & environment, fisheries development, industrial development and natural calamity management etc. GMB has envisaged a set of marine tourism projects to lure the tourists worldwide.

1.1.2 Areas of hits and misses

The port policy of Gujarat that was drafted in the year 1995 has had a great success for GMB. Many other maritime states of India announced their port policies in line with Gujarat's Port policy. The policy has seen many success stories through effective implementation by bringing in right private players through several innovative models of privatization such as privatization of port services, private jetties, joint ventures and Greenfield ports. The policy has also led to an implementation of a unique business model which is responsible for growth of the Gujarat ports ensuring that they place themselves as benchmarks for other states to follow. Even though the policy has been successful, there are certain areas that the government of Gujarat needs to focus on. The achievements and the major issues of the policy are as below.

Table 1-2: Hits and Missis of GMB Port Policy - 1995

Achievements	Misses
<ul style="list-style-type: none"> ▶ Envisaged to handle 100 MTPA (25% of total India's cargo) by FY 2000 - currently handling about 31.7% of total India's cargo ▶ Decongested the major ports - took some share of the existing major ports on Western India ▶ Promotion of Export Oriented Industries - focus on Industrial investment - port based gained importance ▶ Developed 4 greenfield ports under BOOT policy ▶ Improved road connectivity for new and existing port locations ▶ Implemented the VTMS system for enhanced traffic control in the Gulf of Kutch and Khambhat 	<ul style="list-style-type: none"> ▶ Establishment of shipbuilding, ship repair and manufacturing facilities for cranes, dredgers, floating crafts, etc. ▶ Setting up of barge mounted power plants ▶ Privatization of the maritime services like lighterage, dredging, pilotage, etc. ▶ Tapping the potential of other services like bunker, sludge cleaner, etc. ▶ Utilization of the coastal shipping potential ▶ Development of 3 levels of corridors that would connect all the ports and cities through express corridors

Source: EY Analysis

1.1.3 Need for revision of the policy

Since 1995 the Global and Indian maritime environment has evolved significantly. Though GMB has introduced forward looking policies for BOOT and Ship Building, the port policy has been in static for a period of two decades. Commonly industrial and maritime policies published with a validity period of 5-7 years and are revised thereafter, therefore providing the opportunity to incorporate changing requirements. Some changes which necessitate formulation of a new policy are:

- ▶ Other than increasing competition from other states, there is a need to position Gujarat ports globally to tap into transshipment market (transshipment of cargo meant for Middle East, South Asia, and African markets)
- ▶ Implementing new or innovative projects which would become arduous due to restriction in type of project implementation framework

- ▶ Need for integrated seamless multimodal hinterland connectivity which has become a norm in countries which have led the world in port-led industrialization
- ▶ Take benefit from Central Government's initiatives like 'Sagarmala Project, 'Make in India', etc.

It is therefore required to develop a new port policy

- ▶ Which is comprehensive, specifying strategy and action plan for development / promotion of Greenfield port and other allied maritime sector
- ▶ Focus on monetization and efficient utilization of port assets
- ▶ Emphasize on skill development and employment generation
- ▶ Strengthening port connectivity as well as developing logistic improvement projects
- ▶ Emphasize on port led development and ensuring trade, tourism, coastal safety-security-environment compliance etc. is not compromised and ensuring holistic development.

Providing impetus to ports operating in Gujarat and making them ready for serving the future potential of industrial development and international trade, contributing to integrated logistic value chain in future industrial development.

1.2 Global Maritime Scenario

Shipping has been an important human activity throughout history, particularly where prosperity depended primarily on international and interregional trade. Due to a number of technological, economic, and socio-cultural forces, only the rare circumstances can a country keep itself fully isolated from the economic activities of other countries. Indeed, many countries have seen astonishing economic growth in the recent past due to their willingness to open their borders and markets to foreign investment and trade. Globalization has increased the demands for maritime shipping, while maritime shipping (as an integrated component in a larger goods movement system) has more fully enabled globalization.

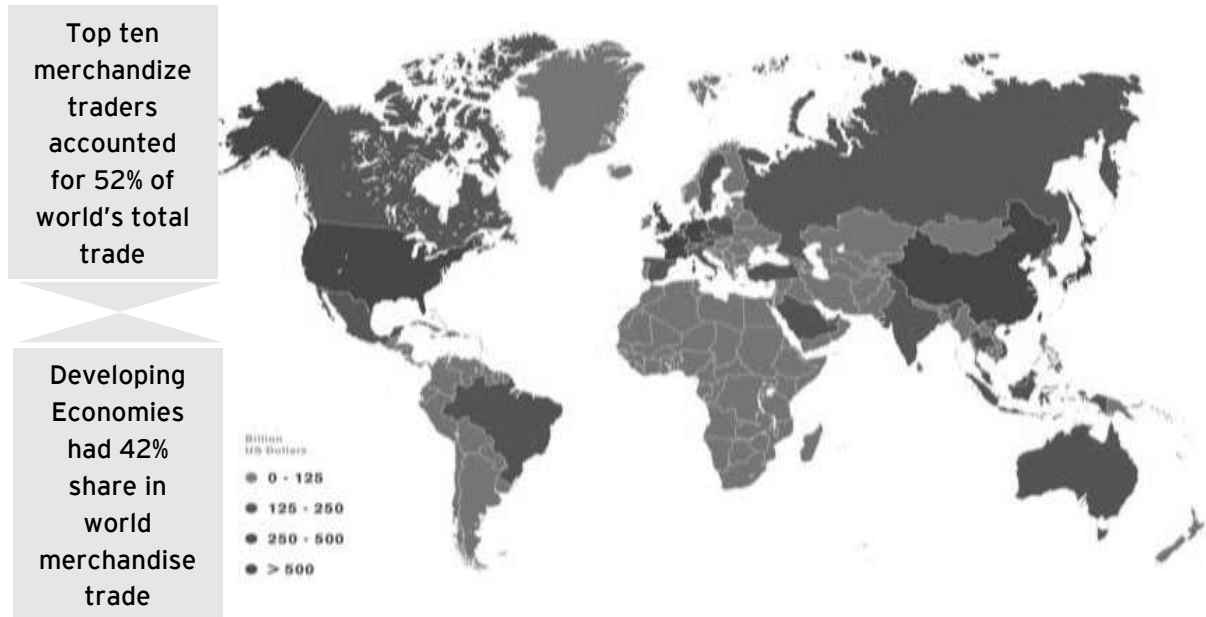
1.2.1 Overview of Industry

In 2016, world gross domestic product rose by 3.1 percent, marginally higher than 2.5 percent in 2015³. Diverging individual country's performance unfolded against the background of collapsing world oil prices in 2014, weak global demand and a slowdown in China. China's transition from an investment and export led-growth model has had an impact on global manufacturing activity, aggregate demand, and investment and commodity prices. An additional factor dampening global growth was the reduced positive effect of lower oil prices, partly offset by the negative impact on investment in the oil sector and the import demand of oil-exporting countries. Growth of Developing Countries across the globe decelerated from 4.4 percent in 2014 to 3.9 percent in 2015, although still accounting for 70 percent of global expansion. India is now growing faster than China, as its GDP growth, supported by factors such as infrastructure investment, accelerated to 7.2 percent in 2015⁴.

³ *World Economic Outlook (WEO) update, July 2016, International Monetary Fund*

⁴ *International Monetary Fund, 2016*

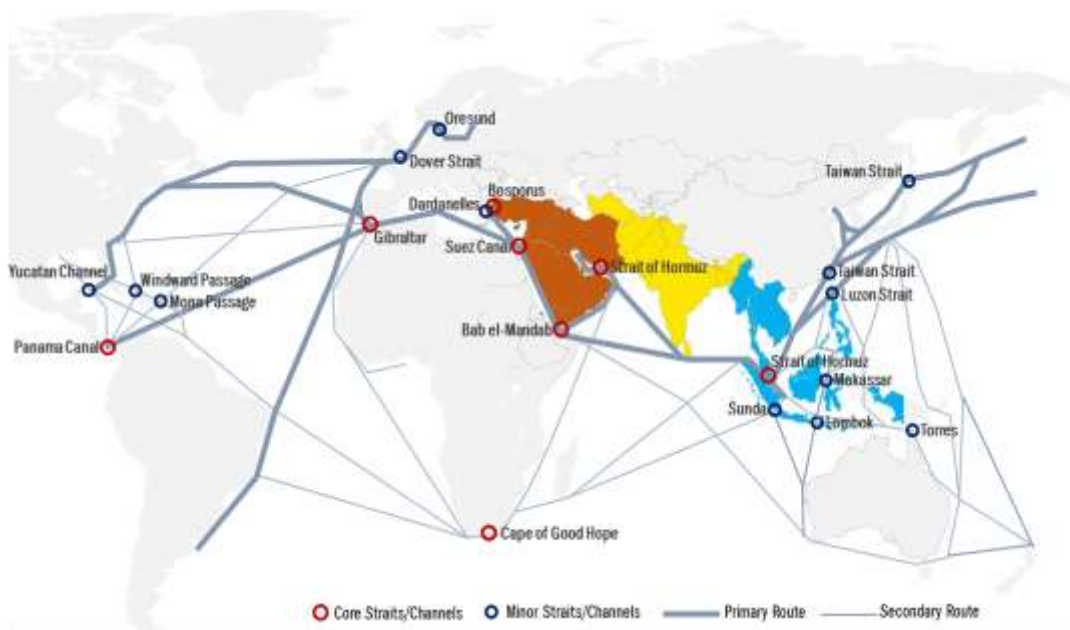
Figure 1-5: Economies of by size of merchandise trade



Source: World Trade Statistical Review, 2016

Lloyd Institute’s report on Global Maritime Trade suggests USA, China and India are most likely to dominate world economy by 2030. India will join the top three in the 2020s, growing to nearly three times the size of Japan and around 80 percent of the size of USA by 2030.

Figure 1-6: Global Maritime Scenario | Shipping routes



Source: EY Research

1.2.2 Factors affecting Maritime Trends

World GDP to Maritime Trade ratio

A trend with potentially long-term implications for seaborne trade and shipping is the apparent weakening of the trade-GDP growth ratio. In recent years, world merchandise trade has been

expanding at a relatively slower pace, either matching or below world GDP growth levels, while in earlier years, on average, international trade grew significantly faster than world GDP. The trade-GDP growth ratio was estimated at 0.62 in 2015, down from 0.94 in 2014 and 1.4 in 2013⁶.

Growth in the volume of world trade was expected to remain sluggish in 2016 at 2.8 percent, unchanged from the 2.8 percent increase registered in 2015⁵. Imports of developed countries were projected moderate in 2016 year while demand for imported goods in developing Asian economies was expected to pick up. However Global trade should rise to 3.6 percent in 2017.

With the continued observed shift in the trade-GDP relationship, it is increasingly evident that projecting seaborne trade flows based on a linear extrapolation from GDP and merchandise trade growth may no longer be valid. Forecasting methods need to be reconsidered, and to reflect variables other than GDP, including fiscal and environmental policies, as well as transport costs and regulatory aspects.

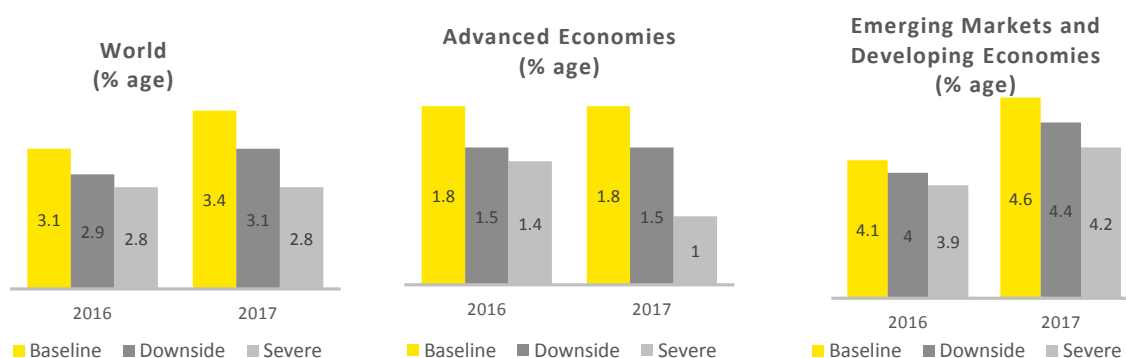
Brexit

The outcome of the U.K. vote, which surprised global financial markets, implies the materialization of an important downside risk for the world economy. As a result, the global outlook for 2016-17 has worsened, despite the better-than-expected performance in early 2016. This deterioration reflects the expected macroeconomic consequences of a sizable increase in uncertainty, including on the political front. The financial market reaction so far has been generally orderly and contained. However, global confidence effects and tighter financial conditions—amid the prolonged negotiations that are likely to precede a new relationship between the United Kingdom and the European Union—could affect global growth negatively beyond what is envisaged in the baseline scenario.

Emergence of other frontiers

South-South trade is gaining momentum, and planned initiatives such as the One Belt, One Road Initiative and the Partnership for Quality Infrastructure, as well as the expanded Panama Canal and Suez Canal, all have the potential to affect seaborne trade, reshape world shipping networks and generate business opportunities.

Figure 1-7: Economic forecasts under different scenarios



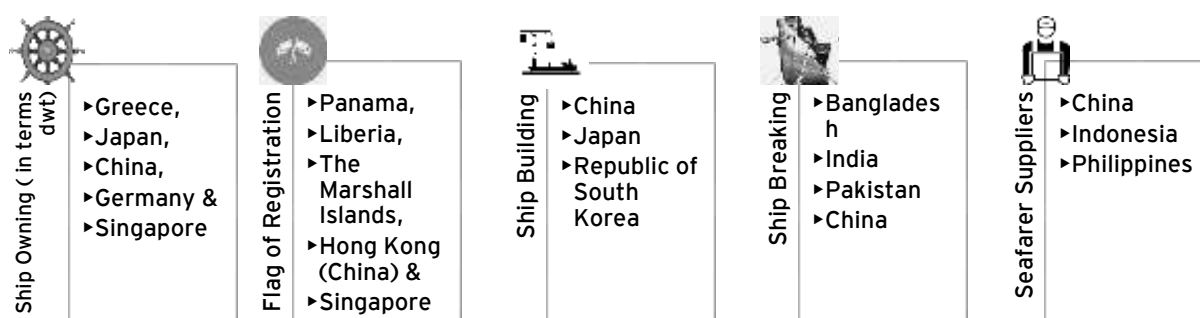
Source: Press release on Merchandise Trade Growth, 7 April 2016, World Trade Organization (WTO)

⁵ Press release on Merchandise Trade Growth, 7 April 2016, World Trade Organization (WTO)

Leaders of World Shipping

Different countries participate in different sectors of the shipping business, seizing opportunities to generate income and employment. Top economies contributing to shipping industry as of January 2016

Figure 1-8: Top economies contributing to the shipping industry



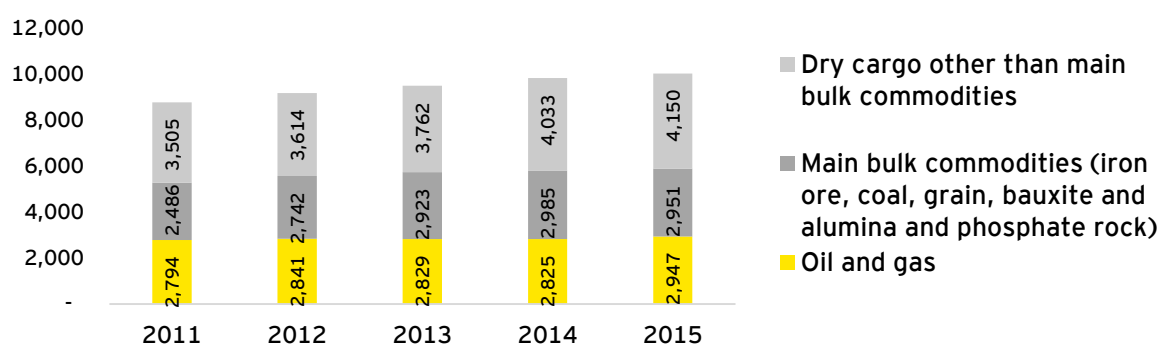
Source: Review of Maritime Transport, 2016 - UNCTAD

World Seaborne Trade

Maritime transport is the backbone of globalization and lies at the heart of cross-border transport networks that support supply chains and enable international trade. An economic sector in its own right that generates employment, income and revenue, transport - including maritime transport - is cross-cutting and permeates other sectors and activities. Maritime transport enables industrial development by supporting manufacturing growth; bringing together consumers and intermediate and capital goods industries; and promoting regional economic and trade integration.

In 2015 world seaborne trade volumes were estimated to have exceeded 10 billion tons⁶. However, shipments expanded by 2.1 percent, a pace notably slower than the historical average and below rates recorded over the last decade, when volumes were lifted by strong import demand from China. Dry cargo shipments accounted for 70.7 percent of total seaborne trade volumes, while the remaining share was made up of tanker trade, including crude oil, petroleum products and gas. Also in 2015, volumes increased by 1.6 percent, down from 4.1 percent in 2014⁶.

Figure 1-9: International Sea borne trade (in millions)

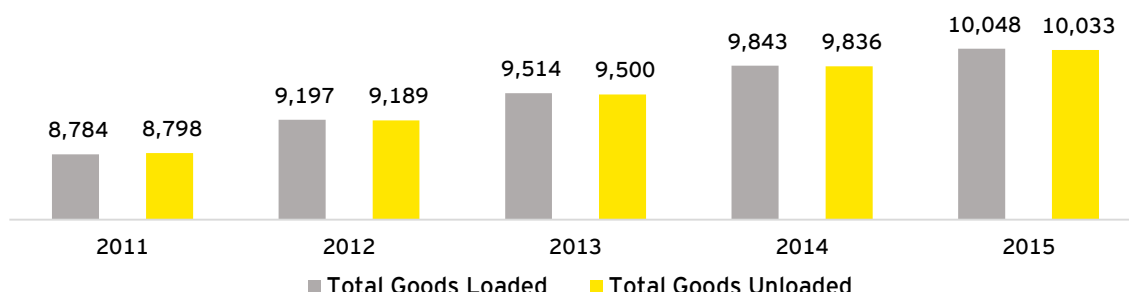


Source: Review of Maritime Transport, 2016 - UNCTAD

⁶ Review of Maritime Transport, 2016 - United Nations Conference on Trade and Development (UNCTAD)

Growth in world seaborne trade by ton-miles – providing a more accurate measure of demand for ship-carrying capacity, as it takes into account distances travelled – also decelerated; world seaborne trade totalled to an estimated 53.6 billion ton-miles, up from an estimated 52.7 billion ton-miles in 2014⁶.

Figure 1-10: Sea borne cargo trade in last 5 years

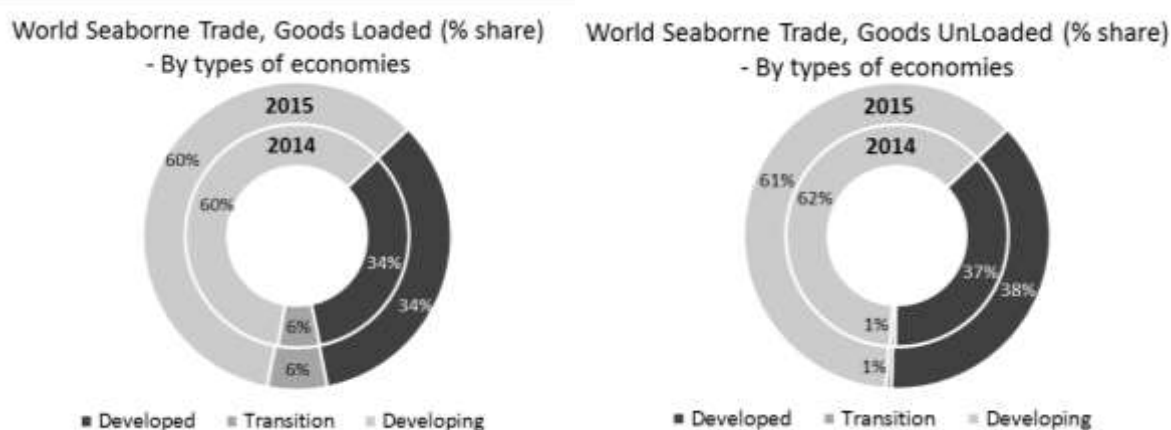


Source: Review of Maritime Transport, 2016 - UNCTAD

In 2015, dry cargo shipments increased by 1.2 percent, a much slower pace than the 5 percent growth in 2014. Trade in dry bulk commodities totalled 4.8 billion tons, with volumes declining by a marginal 0.2 percent, the first decline since 2009⁶. Growth was constrained by a fall in shipments of the five major dry bulk commodities (-1.3 percent), in particular coal (-6.9 percent) ⁶, which contracted for the first time in about three decades. The slowdown in construction and infrastructure investment by China and the decline in steel output have affected iron ore trade, which accounted for 13.6 percent of total seaborne trade in 2015⁶.

Developing countries continued to contribute larger shares to the total volumes of international seaborne trade. Their contribution with regard to global goods loaded is estimated at 60 percent, and their import demand as measured by the volume of goods unloaded increased, reaching 62 percent.

Figure 1-11: World sea borne trade



Source: Review of Maritime Transport, 2016 - UNCTAD

Tanker Trade⁶

- ▶ Crude Oil - China accounted for half the growth in volumes of crude oil trade. India is the third largest importer of crude oil.

- ▶ Refined petroleum products - Trade in petroleum products and gas increased by 5.1 percent in 2015, reaching a total volume of 1.17 billion tons. Import growth was also fuelled by strong import demand in India.
- ▶ Gas - Global natural gas trade expanded by 1.6 percent, down from 2.5 percent in 2014. Trade has expanded by 8.3 percent in 2015, owing to continued export growth in the USA and rising demand in the petrochemical and household sectors in China and India.

Dry Cargo Trade⁷

Global dry bulk shipments contracted by 0.2 percent, and their volume was estimated at 4.8 billion tons. Slowdown in steel production in China has heavily affected import shipping of iron ore and coal. Shipment of five major bulk commodities (iron ore, coal, grain, bauxite and alumina and phosphate rock) totalled to 2.95 billion tons. Trade in iron ore and coal is still led by China. Grain import shipping is led by Asia and Africa where as The United States and Russia are the biggest exporters. India leads the charts in Coal Imports closely followed by Japan.

Containerized Cargo⁶

Total containerized trade across the mainline East-West, secondary East-West, intraregional, South-South and North-South routes recorded a significant slowdown, with volumes increasing by 2.4 percent to reach 175 million TEUs. Three main factors combined to limit containerized trade growth, namely, the decline in volumes on the head haul of the Eastern Asia-Europe trade route; the limited growth of North-South trade, owing to the impact of low commodity prices on the terms of trade and purchasing power of commodity exporting countries; and the pressure on intra-Asian trade resulting from the slowdown in China.

1.2.3 Future trends

Competition is bound to increase in the global market by 2030. There will be an upset in the power balance and it will be rebalanced by a new league of economies. The traditionally developed countries like the USA, Japan and Western European countries will lose their economic dominance in the next two decades. Taking their place, would be the countries from the developing region like China, India and Brazil with China having the most share of the world's economy.

Four factors will be affecting the commercial shipping sector by 2030: demography, economy, resources and environment. Economy will have the highest impact amongst these factors. The rise in living standards increases the middle classes and generates demand for resources, consumer goods and service.

Urbanization and industrialization will be increasing on a large scale in the oncoming years. Urbanization means building cities with much denser populations, and infrastructure to connect them. This generates demand for raw materials such as iron ore which may not be available locally. Bulk carriers are required to ship the raw materials across the oceans from producing countries to consuming countries.

In the meantime industrialization generates demand for electricity to power industrial growth. This generates demand for fossil fuels such as coal, crude oil and oil products which are carried by tankers. As countries develop their industrial capacity, they start to export manufactured goods to consumers around the world. This generates demand for container ships to carry

⁷ Update on Indian Port Sector, September 2016, Ministry of Shipping

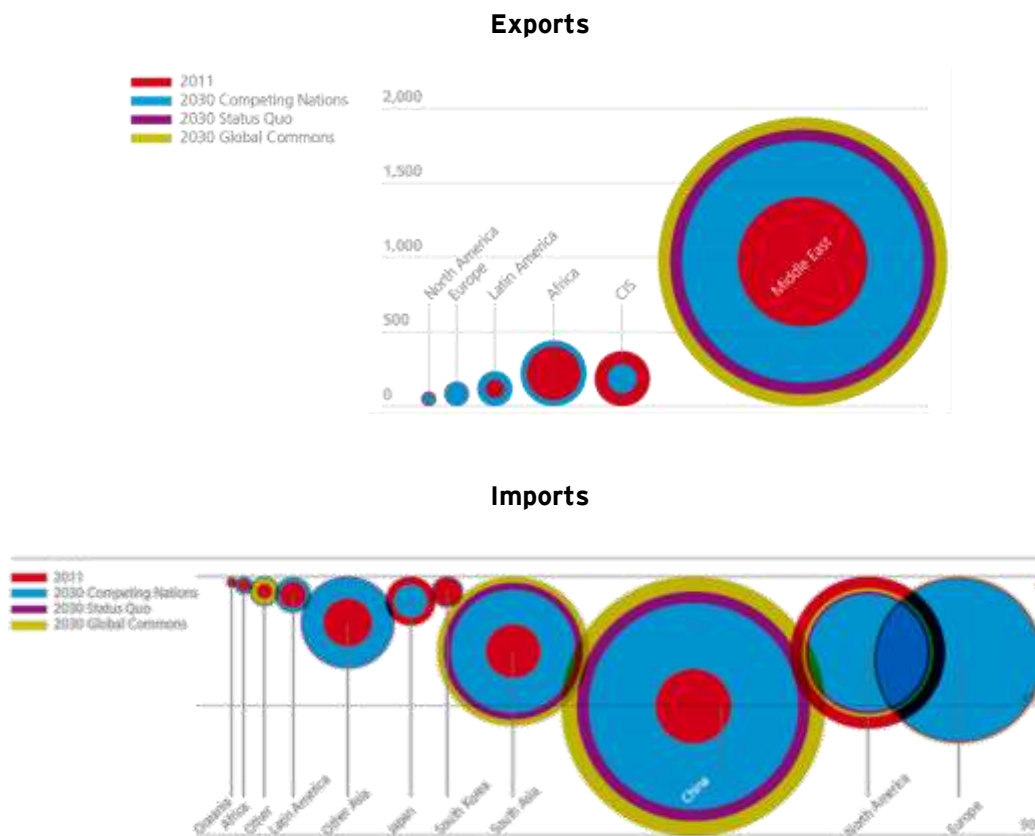
manufactured goods from production centres to consumers around the globe. This all affects the trade of the commodities and their potential would be considered as follows.

Liquid and Natural Gas

Crude oil is one of the most important seaborne cargo accounting for about a quarter of goods shipped by sea. Middle East/Arabian Gulf will still be dominating the crude oil exports in 2030. China and South Asia will significantly increase their crude oil imports by 2030. They will join Western Europe as dominant importers. Japan will decrease its imports gradually over time.

In 2030, the largest increase in seaborne oil trade will come from the Arabian Gulf, Black Sea, and Latin America to China and other Asia. The rise will be caused by increased transport demand in these emerging regions. Japan will reduce seaborne oil imports over the next 20 years, benefiting from fuel efficiency gains, alternative energy supplies such as light tight oil and new transport technologies. There will be a trend to diversify Russia’s export to Asia, with a particularly significant increase to China. By 2030, the regions of South East Asia will be one of the major importers of product oil.

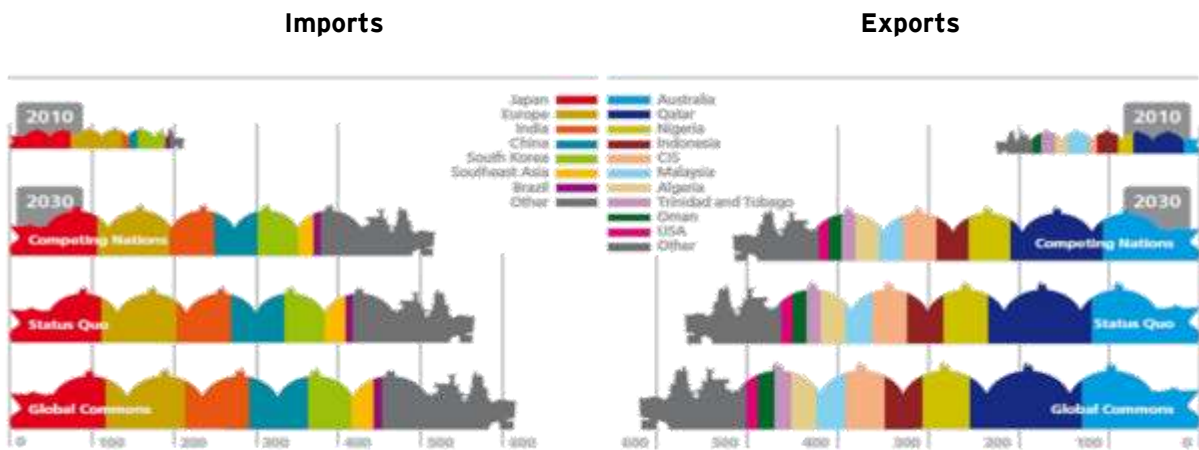
Figure 1-12: Crude Oil Export & Imports



Source: *Global Maritime Trends 2030, Lloyd’s Register*

The largest import requirement will come from India and China in the year 2030 for LNG. The natural gas import will be dominated by Japan, India and China by the year 2030. LNG export will be dominated by Qatar in 2030. Currently Qatar is the highest exporter of LNG. East Africa, and Mozambique in particular, has the potential to be an export hotspot due to its recent large offshore discoveries.

Figure 1-13: LNG Export & Imports

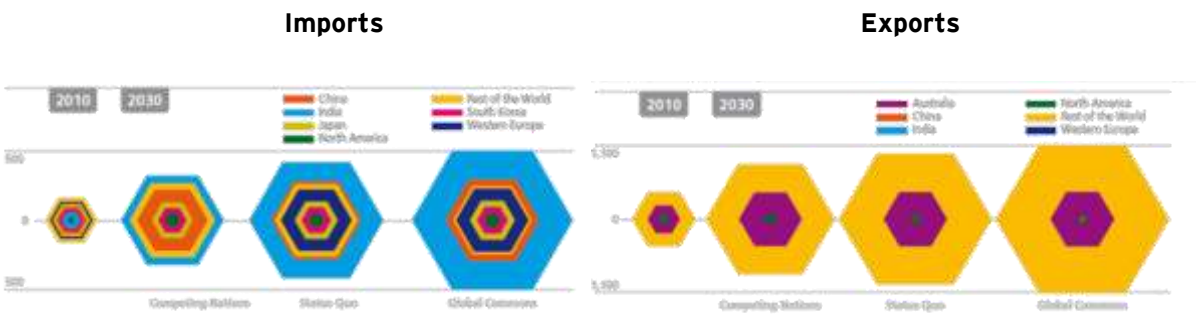


Source: Global Maritime Trends 2030, Lloyd's Register

Dry Cargo

Iron ore and coal are the two major dry-bulk cargoes. About two-thirds of coal transported is steam coal, used in power stations. A third of coal is coking coal, essential for steel production.

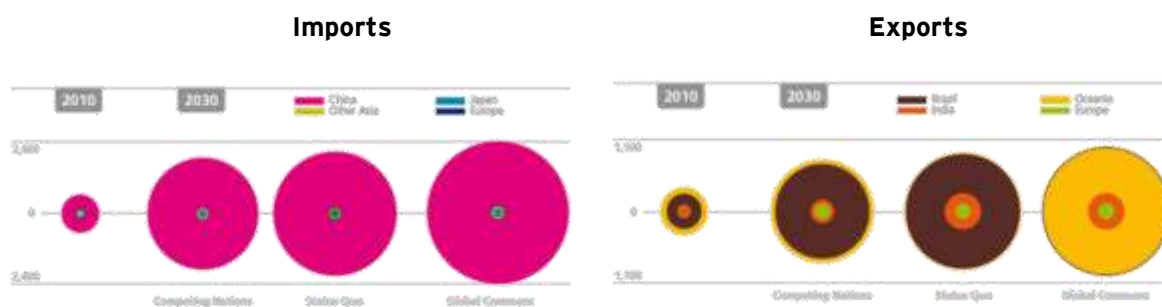
Figure 1-14: Coal Export & Imports



Source: Global Maritime Trends 2030, Lloyd's Register

Coal import will be dominated by India and China in 2030. India will overtake China and become the biggest coal importer before 2030. There is high uncertainty about China's coal trade in the long term. China is the world's largest coal producer, and yet it only became a coal importer in 2009. This is due to the need for high quality coking coal as well as the transportation constraint of accessing China's further inland coal supply. The enhanced productivity of these inland coal production will also be pivotal to the global coal trade. There is also uncertainties resulting from China's unconventional natural gas development which could change the country's energy profile.

Figure 1-15: Iron Ore Export & Imports

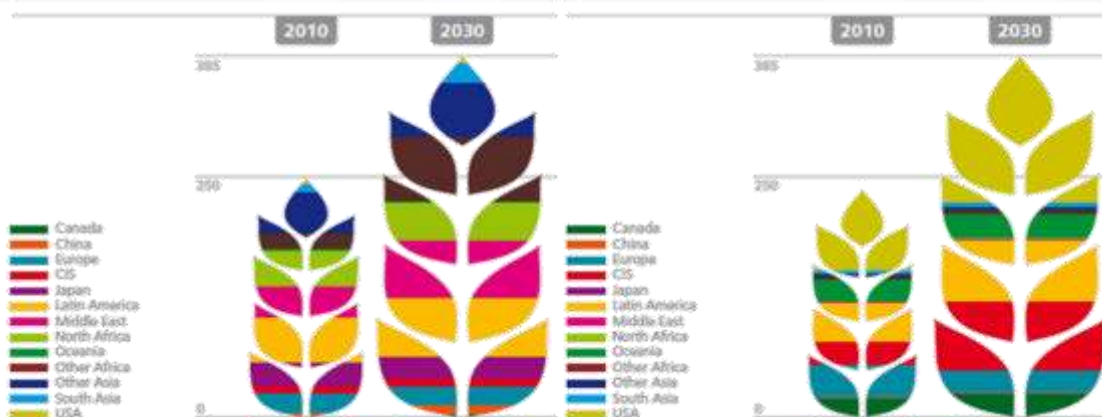


Source: Global Maritime Trends 2030, Lloyd's Register

Iron ore import will be driven by demand which is linked to urbanization and industrialization, particularly in Asia. Although China's steel intensity will decline as the country develops, China's robust economic development and urbanization will see its absolute dominance in iron ore import remain intact. China is a major iron ore producer, but its domestic mines only met 34 percent of the demand in 2010. This is because China needs to import higher grade iron ore from overseas. Chinese iron ore has a low iron content only reaching 28 percent by weight, compared to other major producers averaging over 60 percent. India will remain number three in terms of exporting iron ore, although growing less rapidly.

Grain will be imported more in Africa and Middle East in 2030. The import of grain will be dominated by Africa, Middle East and South East Asia.

Figure 1-16: Food Grains Export & Imports



Source: Global Maritime Trends 2030, Lloyd's Register

Container

In 2030, China will still be the leading role in primary container trades. Southeast Asia will be third position in container business. The largest transshipment container lifts will still take place in Southeast Asia in 2030. China and the Middle East has the potential to do remarkable progress by 2030.

The greatest growth in the container trade will take place between the Far East and the Middle East for the next two decades. The Indian Ocean and the Asia Pacific will be at the centre of the global container market.

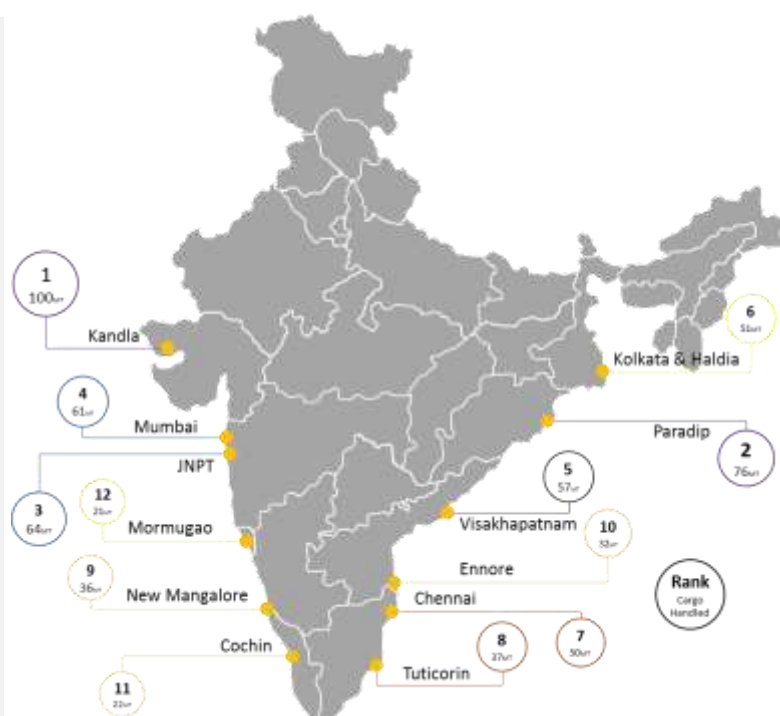
1.3 Indian Maritime Scenario

India is fast becoming the global epicentre of economic growth and external trade as well as the second fastest growing economy in the world after China. The country's marine sector is intricately linked with its economic activity and trade and has been a critical contributor to its competitive position in global trade. India has an extensive coastline of more than 7,500 km and around 95% of the country's external merchandise trade by volume, and 70% by value, is transported through maritime transport.

1.3.1 Overview of the market

India has 12 major ports governed by autonomous bodies (except for Ennore) and 200 non-major ports governed by State/UT governments. The Indian ports and shipping industry plays a vital role in sustaining the growth in the country's trade and commerce. The Indian government plays a pivotal role in supporting the ports sector and it has allowed Foreign Direct Investment of up to 100 percent under the automatic route for port and harbour construction and maintenance projects. It has also facilitated a ten year tax holiday to enterprises that develop maintain and operate ports, inland waterways and inland ports.

- ▶ India has coastline of more than 7,500 km
- ▶ Around 95% of the country's external merchandise trade by volume, and 70% by value, is transported through maritime transport.
- ▶ India has 12 major ports (Haldia and Kolkata clubbed under one) governed by autonomous bodies and 200 non-major ports governed by State/UT governments.
- ▶ FDI of up to 100% under the automatic route for Port and allied projects



Source: Update on Indian Port Sector, September 2016, Ministry of Shipping

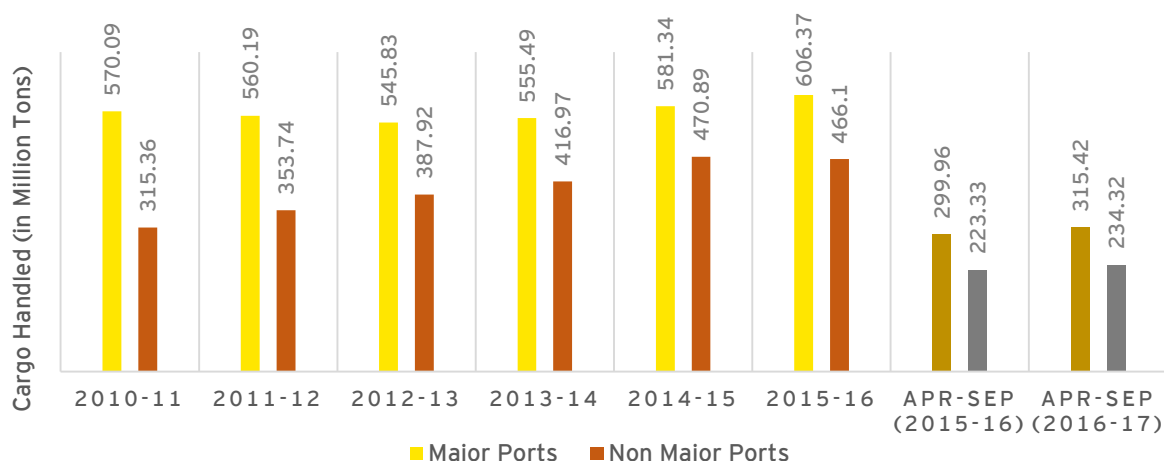
Cargo handling capacity in India

The handling capacity of major ports in India is sufficient to match the trade demand. The capacity utilization for the year 2015-16 was around 63 percent. Furthermore as per internationally accepted norms, the gap between the traffic and capacity is usually around 30 percent. Currently there are 44 ongoing projects undertaken at major ports in India, with total investment of over 3.9 billion⁸.

⁸ IBEF sectorial update report on Shipping Industry and Ports, January 2017

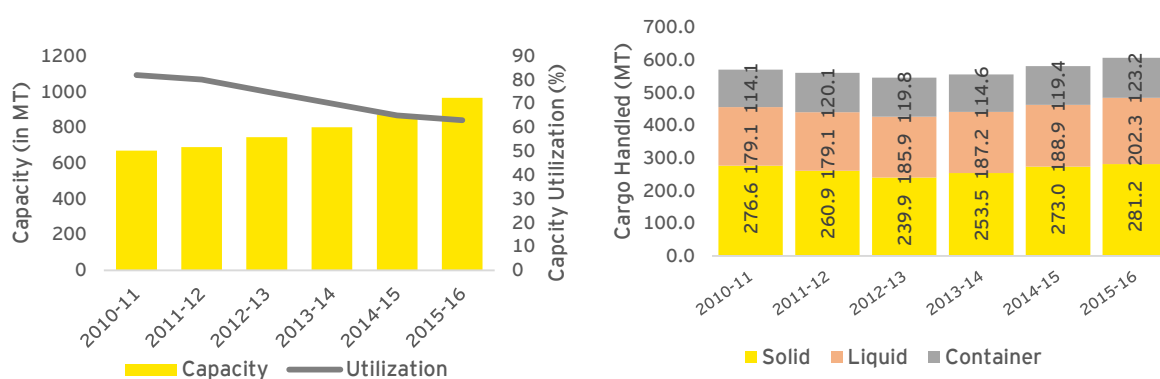
During first six months (April-September) of 2016-17, Major and Non-major Ports in India have accomplished a total cargo throughput of 549.7 million ton reflecting an increase of 5.1 percent over the corresponding period of the previous year 2015-16. The growth in cargo handled at Major and Non-major ports in first six months (April-September) of 2016-17, were 5.2 percent and 4.9 percent respectively. The share of Major Port in the total traffic handled at Indian Port increased from 57.3 percent in first six months (April-September), 2015-16 to 57.4 percent in the same six months of 2016-17⁹.

Figure 1-17: Trends in traffic handled at Major and Non-major Ports



Source: Update on Indian Port Sector, September 2016, Ministry of Shipping

Figure 1-18: Capacity & Utilization and Cargo handled at Major Ports



Source: IBEF sectoral update report on Shipping Industry and Ports, January 2017

The development of non-major ports due to growing private sector participation has led to a shift of cargo traffic from major ports that operate at above-optimum capacity, to the non-major ports. There has been an uneven development of port infrastructure across the country. As the addition of handling capacity has gradually outpaced the cargo traffic at ports, capacity utilization at the major ports has decreased. Non-major ports are gaining shares and a major chunk of traffic has shifted from major ports to non-major ports. The contribution of non-major port's traffic to total traffic rose to 43.5 percent in FY16 (estimated 46.5 percent in FY17) from 35.6 percent in FY11⁸.

⁹ Update on Indian Port Sector, September 2016, Ministry of Shipping

Cargo handling capacity at major ports grew to 965.4 MT in 2016⁸. Despite this capacity increase, utilization rates have gone down owing to global economic slowdown of 2008. At ~63 percent, the utilization rate of major ports is much above world’s average.

Historically, ports along the west coast have dominated the cargo traffic due to their proximity to India’s major consumption centres and the industrial belt in North - West India. China’s emergence as India’s leading trade partner, India’s ‘Look East’ Policy and overcapacity at the west coast ports provide the east coast ports the opportunity to develop. The 50 ports that are situated along this coast is said to drive the overall growth increasing the total trade and capacity addition.

Coastal Shipping

It is highly relevant in India, since the country has a long peninsular coastline. In recent years the rising delays and costs due to high road and rail congestion has been driving companies to consider coastal shipping to transport their goods. It is significantly underutilized when compared with other emerging and developed countries. At 7 percent, the share of coastal shipping in India in overall cargo movement is low compared to that of the United States, some European and Asian countries.

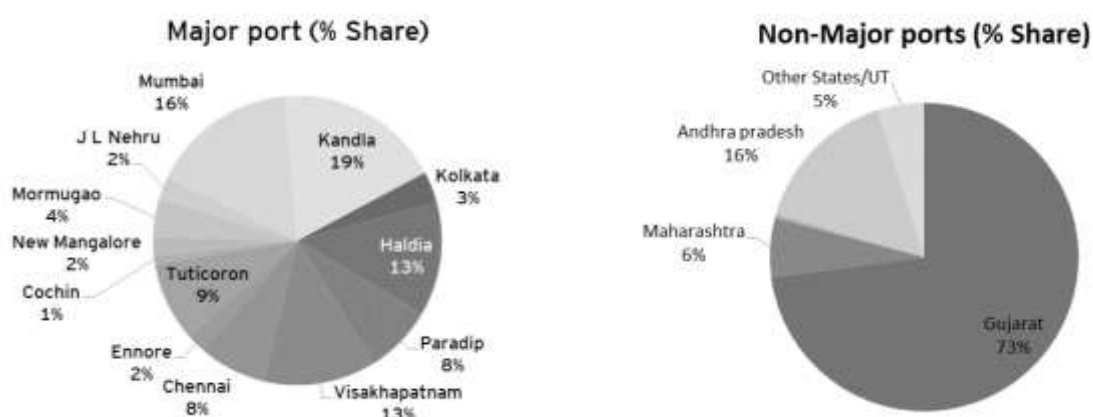
Container Freight Station and Inland Container Depots

The shippers are digressing from general or bulk shipping to container transport, thus increasing India’s share in the global container traffic. This phenomenon is largely unique to India but plays a pivotal role in the decongesting container traffic at ports, adding value to container trade and also enhancing the operational capacity of the ports. Containerized cargo shipping in India has grown by a CAGR of 15.8 percent. This increase in containerization levels is driven by the escalation of containerization of commodities, such as textiles, electronics and automobiles.

Key competing ports in India

About 31.7 percent of total national cargo is handled only by Gujarat Ports (2015-16), up from a meagre 3 percent in 1982. Out of the total traffic handled by the ports in India Other than the Major Ports, Gujarat’s share is about 73 percent⁹. Kandla Port also accounts for a notable share of 16% of total cargo handled at all major ports in India in 2015-16; and a 9% share of total cargo handled by all ports across India⁹. Gujarat Ports contribute massively to India’s cargo handling, with only non-major ports of Andhra Pradesh (Gangavaram, Krishnapatnam & Kakinada) and Maharashtra providing any real competition.

Figure 1-19: Percentage share of cargo handling



Source: IBEF sectoral update report on Shipping Industry and Ports, January 2017

1.3.2 Central Government Initiatives

Some of the key initiatives taken by the government to promote the ports and shipping sector are as follows:

- ▶ The Ministry of Road Transport and Highways and National Highways Authority of India (NHAI) plan to take up 82 highway development projects under the Bharatmala project, which would help in improving connectivity to both major as well as minor ports in the country.
- ▶ The Ministry of Shipping plans to install 160.64 megawatts (MW) of solar and wind based power systems at all the major ports across the country by 2017, thereby promoting the use of renewable energy sources and giving a fillip to government's Green Port Initiative.
- ▶ The Union Cabinet is planning to propose amendments to the Multi Modal Transportation of Goods Act, 1993, with a view to increase transparency in the shipping and logistics sectors and to discourage container freight stations from overcharging both importers and exporters.
- ▶ The Government of India plans to introduce a new framework on renegotiation of Public Private Partnership (PPP) contracts, which will allow renegotiations based on sector-specific issues, especially for national highways and ports, and provide greater flexibility to the parties involved.
- ▶ The Ministry of Shipping, India and the Ministry of Oceans and Fisheries, Korea have signed a Memorandum of Understanding (MoU) for cooperation in terms of sharing technology and experiences in port development and operation, and joint port-related construction, building and engineering projects.
- ▶ Government of India has set an ambitious target to convert 101 rivers across the country into waterways to promote water transport and propel economic growth.
- ▶ The Ministry of Shipping, in collaboration with Rajasthan government, has planned to develop an Inland Shipping Port at Jalore, Rajasthan.

The Government is undertaking the following measures for the ports' capacity expansion:

- ▶ Up to 100 percent FDI would be allowed under the automatic route for port development projects.
- ▶ Income tax incentives would be allowed as per the Income Tax Act, 1961.
- ▶ Bidding documents such as RFQ, RFP and Concession Agreement have been standardized.
- ▶ The Shipping Ministry's power to delegate finances has been enhanced to accord investment approval for PPP projects.
- ▶ Security clearance procedures have been streamlined.
- ▶ The major ports' developmental projects are being closely monitored.

A. Maritime Agenda 2010-2020

In 2011, the Government of India had launched the lofty Maritime Agenda, a perspective plan of the Shipping Ministry for the present decade. The Maritime Agenda projects a total traffic of 2,494.9 million tonnes for all major and non-major ports taken together and a capacity of 3,280 million tonnes. The proposed investments in ports by 2020 is expected to be INR 119,449.4 crore and in non-major ports it is INR 167,930.8 crore.

The agenda for the decade for the Ports are:

- ▶ Create Port capacity of 3200 M.T. for handling about 2500 M.T. of cargo
- ▶ Increase India's share in global ship building to 5 percent.

- ▶ Increase India's share of seafarer to 9 percent of the global strength by 2015
- ▶ Develop Two New Major Ports one each on east and west coasts
- ▶ Establishing 'Indian Ports Global' for overseas investments by Indian Ports

The agenda for the decade for the Ports are:

- ▶ Declaration of Coastal Shipping Policy
- ▶ Establishment of a 'Freight Exchange'
- ▶ Creation of Ombudsman/ Tribunals for shipping matters
- ▶ Formation of an independent Marine Casualty Investigation Cell
- ▶ Ro-Ro Ferry service in Gulf of Kutch, Gulf of Cambay and other suitable places.

The agenda also envisages:

- ▶ Enactment of a new Indian Ports Act replacing Indian Ports Act 1908 and the Major Port Trusts Act 1963
- ▶ Enactment of Shipping Trade Practices Act
- ▶ Control of piracy through concerted international action
- ▶ Renewal and strengthening of Indo-Bangladesh Protocol on Inland Water Transport
Bilateral maritime agreements with selected countries/regions for mutual benefit

B. Smart Port Cities

The Government of India is working on an ambitious plan to build One Smart City within the port community at the country's 12 major ports, at an estimated total investment of INR 50,000 crore. These cities are proposed to be green cities.

Salient features

- ▶ Each smart city to be constructed at a cost of INR 3,000-4,000 crore
- ▶ Green energy generation to be prioritised in these smart cities
- ▶ Port water to be recycled, vehicles to be incentivised to use biogas, which will be produced from waste at the ports
- ▶ Emphasis on SEZs, ship-breaking and ship-building centres, allied port activities in these cities

The first of these is going to be developed at Kandla Port. The land bank of Kandla Port is to be used to develop Smart Industrial Port City (SIPC) at Kandla-Gandhidham - Adipur Complex and township incorporating green initiatives and smart city components. Detailed studies for Kandla and JNPT have been initiated.

C. Inland Water Transport

Inland waterways comprise mainly rivers, lakes, canals, creeks and backwaters. It extends about 14,500 km across the country. However, potential of this mode of transport has not been fully exploited so far.

Advantages Inland waterways are recognised as a fuel efficient, cost effective and environment friendly mode of transport. The statutory status to the inland waterways would pave for investments in inland waterways transportation sector which has been neglected in the past. It would provide a cheaper mode of transport and reducing traffic burden and congestion on roads and railways. It would play pivotal role in reducing logistic cost of transportation of goods and

ultimately lead to reduction in their price in the market benefiting trade, industry, farmers, and fishermen. Being clean mode of transportation it will also help in reducing pollution.

Inland Waterways Policy, 2001

The objective of the policy was to make inland waterways more attractive for investment and use to the industry.

- ▶ To actively promote the IWT sector for it to take a reasonable share in the inter-modal mix of inland transport
- ▶ Increasing the coverage of National Waterways and provision of necessary infrastructure for shipping and navigation and in augmenting the IWT fleet
- ▶ Large-scale private sector participation both for creation of infrastructure and for fleet operations to supplement the government efforts

Integrated National Waterways Transport Grid (INWTG)

The government is considering a proposal to set up an Integrated National Waterways Transport Grid (INWTG), which covers primarily five national waterways. The INWTG plan involves the development of these national waterways with at least 2.5 metres of least available depth (LAD), upgrade/setting up of priority terminals, and establishment of road connectivity (wherever feasible) and rail and port connectivity. The Central Government has approved amendments to 'The National Waterways Bill, 2015' which will provide for enacting a Central Legislation to declare 106 additional inland waterways, as the national waterways.

National Waterways Act, 2016 (The National Waterways Bill, 2015)

The Act was recently passed by the Government to make provisions for existing national waterways and to provide for the declaration of certain inland waterways to be national waterways and also to provide for the regulation and development of the waterways for the purposes of shipping and navigation. The Act identifies and institutes an additional 106 inland waterways across the country taking the count to 111.

D. National transport development policy committee report

The National Transport Development Policy Committee (NTDPC) was constituted by Government of India in 2010 to formulate a long term transport Policy. The committee drafted the 'India Transport Report: Moving India to 2032', devoted to setting conditions for coherent transport strategy for India in the long term for two decades from the beginning of the 12th five year plan to the end of 15th. The report was prepared with a vision to create a well-developed and competent institutional system for planning, management and execution of transport.

The committee's recommendations for port sector:

The report states that, investment in both Major and Non Major ports has been done in somewhat haphazard manner, resulting in sub optimal hinterland connectivity, inadequate infrastructure and draught, and low level of containerization, all these in turn having a bearing on port congestion, cargo evacuation and higher transaction costs.

Investment in Key Mega Ports

Government should prioritize investment in four to six Mega Ports over the next 20 years, with two to three on each coast. India can benefit from several critical aspects of developing these Mega Ports.

- ▶ **Economics of Scale:** Average costs of handling are reduced when more volumes are put through the port
- ▶ **Economics of Port:** Larger ports are able to handle larger variety of goods. Capital assets installed to handle one type of goods can be used for other goods without additional capital costs.
- ▶ **Agglomeration economies:** Larger ports can host many types of companies, suppliers, industrial complexes, and logistic companies. Being clustered together in one port, they benefit from the presence of each other in terms of synergies and shared infrastructure.
- ▶ **Economic:** Multiplier larger ports are simulators of larger economy. They create jobs, facilitate trade and attract companies.
- ▶ **Intra-port competition:** Larger ports may host multiple competing companies, for instance, terminal operators, creating a competitive environment within their field of operation in the port. This might benefit the customers by lower handling charges.
- ▶ **Transshipment hub:** Conversion of a prospective port into a transshipment hub. A large port with the capability to handle larger mother vessels and having large container yards could be a transshipment hub.

Mega ports and smaller ports can act very well together. Especially in the container segment, where large and small ports can act in hub and spoke manner. For Mega Ports to be a success it would require the government to, improve hinterland connectivity (Roads, Dedicated Freight Corridor, Inland Water Ways)

Strategic Institutional Shift: Land Lord Port Model

The current governance structure of Major Ports, the public service port model, lacks potential to attract private capital and therefore competitiveness. The governance model requires a significant change. The utilization of term 'privatization' should be used to introduce private sector into public domain by privatizing terminal services under a landlord port regime. To implement the shift, a three step approach is recommended

- ▶ Transform the current port trusts into statutory landlord port authorities
- ▶ Subsequently unbundle all Major Ports and corporatize terminal operations of port trusts as public sector corporations
- ▶ The corporatized public sector terminal operations could potentially be disinvested, listed, and possibly privatized at a later stage.

Role of Regulatory Authority

Given the relative success of Non-Major Ports, their governance structure should be retained and the management of the ports should continue to be performed by the Maritime states. The existing regulatory mechanism of Major Ports, however, have to be suitably revamped to make it more responsive to the needs of capacity augmentation. Maritime states can look to adopt the Australian Landlord Port model.

Port Legislation

The Indian Ports Act, 1908 and Major Port Trusts Act (MPTA), 1963 should be kept separate by modernized.

Strengthening of Project Implementation

- ▶ High-Power group for port implementation - The role of the group should be, to identify key projects involving investments above INR 5 billion and up to INR 10 billion, prescribe time limits for requisite approvals, monitor project portfolio and port performance.
- ▶ Capacity Building - Build skill set of public sector port managers.
- ▶ Improve operational performance of ports (use of ICT in improving performance)

Increase National Tonnage

This will help in spawning associated shore-based services, such as stevedoring, ship repairs, logistics, manning and cargo movement.

Cargo Assurance through long term charters

Need for long-term charters by public sector enterprises for critical energy cargoes of crude oil, petroleum products and natural gas should be explored exclusively with Indian ship owners for Indian flag vessels.

Incentives for Coastal Shipping

- ▶ Priority terminal to services coastal ships should be set up at Major ports
- ▶ Provide adequate road and rail connectivity
- ▶ Allow coastal ships to import bunker fuel as well as spare parts at same concessions as ocean going vessels
- ▶ Provide fiscal incentives to consigners
- ▶ Have absolute cabotage for import and export of crude, critical energy cargoes and defence equipment/parts

Inland Water Transport

- ▶ Navigational Infrastructure - Development of adequate depth (LAD), efforts should be made to develop deeper stretches of rivers (at least 2.5m, preferably 3m LAD year round)
- ▶ Adequate air draft - Funding may be made available through specific budget provisioning for raising the bridges to at least 5 m above high flood level
- ▶ Modal Integration - IWT terminals need to have sufficient connectivity with road and rail for last mile connectivity
- ▶ Development of IWT feeder routes

1.3.3 Sagarmala Project

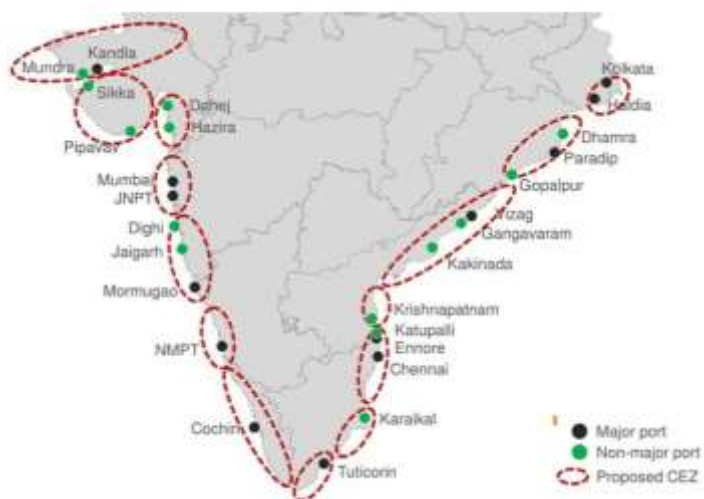
The key objective of Sagarmala Project is develop maritime infrastructure which culminates into efficient and cost effective hinterland cargo movement. It also includes establishment of rail / road linkages with the port terminals, thus providing last mile connectivity to ports; development of linkages with new regions, enhanced multi-modal connectivity including rail, inland water, coastal and road services. Four Pillars of Sagarmala Project - The initiative focuses on:

- ▶ Port Modernization
- ▶ Port Connectivity
- ▶ Port-led Industrialization
- ▶ Coastal Community development

Administrative framework adopted to implement objectives of Sagarmala:

- a) **National Sagarmala Apex Committee** - At apex level, a National Sagarmala Apex Committee (NSAC) will be created to provide overall policy guidance. It will be headed by shipping minister.
- b) **Sagarmala Development Company (SDC)** - In September 2016, Indian Government has incorporated the Sagarmala Development Company (SDC) under Companies Act, 2013. It would be having initial Authorised Share Capital of INR 1,000 crore and a Subscribed Share Capital of INR 90 crore. This company will serve as a special purpose vehicle (SPV) in project development and also as a nodal agency for coordination and monitoring of Sagarmala project. Other functions include:
 - Preparation of detailed master plans for the Coastal Economic Zones (CEZs) identified as part of the NPP and provide a framework for ensuring the integrated development of Indian maritime sector. The report proposes 14 CEZs across all coastal districts of India. Three CEZs have been identified in Gujarat
 - To manage the coastal community development scheme and fund coastal community development projects identified under the Sagarmala Project. (skill development, uplifting fishermen and other local communities, island development)

Figure 1-20: 14 CEZs comprising all coastal districts in India



Source: National Perspective Plan - Sagarmala Report

- c) **National Perspective plan** - The Union Government would prepare a National Perspective Plan (NPP) for the entire coast of India integrating the Industrial Corridors, Dedicated Freight Corridors, National Highway Development Programme, and Industrial Clusters and so on. The coastal states have been suggested to set up State Sagarmala Committee to be headed by Chief Minister/Minister in Charge of Ports with members from relevant Departments and agencies.

Key Activities

- ▶ Port-led industrialization
- ▶ Port based urbanization
- ▶ Port based and coastal tourism and recreational activities
- ▶ Short-sea shipping coastal shipping and Inland Waterways Transportation

- ▶ Ship building, ship repair and ship recycling
- ▶ Logistics parks, warehousing, maritime zones/services
- ▶ Integration with hinterland hubs
- ▶ Offshore storage, drilling platforms Specialization of ports in certain economic activities such as energy, containers, chemicals, coal, agro-products, etc.
- ▶ Offshore Renewable Energy Projects with base ports for installations
- ▶ Modernizing the existing ports and development of new ports.

1.3.4 Other States' Initiatives

The nine Coastal states of India have become increasingly competitive, aiming to extract the maximum out of their maritime potential. In the recent past, all these states have undertaken various initiatives for the development maritime industry. The initiatives are in the areas of growth oriented strategies, hinterland connectivity, port led industrial development, etc.

A. Macro Planning - States which have formulated policy/policies to promote their maritime infrastructure, have chosen certain 'Areas of Thrust'. Selection of these thrust areas are concurrent to the overall vision of the policy, and help structuring the policy and incentives.

Cargo Growth oriented:

- ▶ To increase share of the State in import and export
- ▶ To decongest major ports to improve productivity

Hinterland Connectivity oriented:

- ▶ To cater to cargo traffic of hinterland
- ▶ To decongest roads/ highways by promoting coastal shipping
- ▶ To enhance overall port connectivity through expansion of rail/ road/ inland waterways/ coastal shipping
- ▶ To consider ports as a part of logistics supply chain and incorporate such perspective
- ▶ To enable integrated development of ports along with industries and inland infrastructure connectivity
- ▶ To facilitate optimum utilization of port infrastructure

Ancillary Areas oriented:

- ▶ To encourage ship building, repairing, breaking and manufacture of cranes and floating crafts

- ▶ To promote power generation by providing port facilities for fuel

Industrial Development oriented:

- ▶ To catalyse large-scale manufacturing-led economic development
- ▶ To ensure that State support, including land and other investments, are minimized and well-targeted to yield maximum value for money

Performance oriented:

- ▶ To encourage greater competition and transparency in port development
- ▶ To be user-centric in terms of efficiency and competitive environment
- ▶ To increase revenues to sustain and increase the ambit of its activities
- ▶ To enable efficient and optimal use of scarce and sensitive coastline and coastal land resources

B. Innovative Strategies - In order to create a niche area or an unique competence, innovative strategies are adopted by States

Maharashtra:

- ▶ Port development models for Greenfield port, captive jetty, multi-

purpose jetty, State Jetty, shipyard, coastal shipping

- ▶ Skill development for ship building/ repair
- ▶ Fishing Clusters in Coastal Economic Zones
- ▶ Compensation to Fisherman at the project developer's cost

Tamil Nadu:

- ▶ Transshipment ports: new ports with modern facilities for TN & adjoining states and international trade

Kerala:

- ▶ "Business of ports" will include development and operations of port infrastructure as also port related industries

Andhra Pradesh:

- ▶ Port models for all 4 types (1. Future ports 2. Private ports 3. Captive ports 4. State Ports) of ports defined
- ▶ Institution of Coastal Economic Region Development Authority (CREDA) for planned and sustainable development of Coastal Economic Regions

- C. Incentive Schemes:** Other than common incentives of exemption in duties and taxes, some states chose to specially incentivize the specific thrust areas. The incentives could be terms of subsidy/rebate, lower charges, financial assistance, [and land assistance, etc.

Maharashtra:

For Industrial Clusters in Coastal Area

- ▶ Subsidy on land purchases on the basis of ready reckoner rates
- ▶ Subsidy on capital investment on plant & machinery for mega/ ultra-mega projects
- ▶ Power tariff subsidy for mega/ ultra-mega projects

Coastal Shipping

- ▶ Rebate in wharfage charges @20% for within Maharashtra and @15% for within India
- ▶ Applicability of wharfage charges only once for coastal cargo

Kerala:

Coastal Shipping

- ▶ Direct subsidy of one rupee a tonne per km of cargo.
- ▶ Lower port charges for coastal vessels
- ▶ Soft loan will be provided to buy vessels at an interest rate of 2% for up to 40% of the cost of the vessel, and at a rate of 10% for up to 80% of the vehicle's cost.
- ▶ Budget provision of INR 300-crore fund to finance the incentive scheme

- D. Role of Maritime Body:** State Port Policies have specified functions to be performed by the Maritime Body achieving the objectives of the Policy. These roles and functions are concurrent with the existing activities of the Maritime Body as well as additional services that would be provided in the future

Maharashtra Maritime Board:

- ▶ Specify timelines and monitor development works.
- ▶ Provide necessary support to the developer in getting approvals and clearances.
- ▶ Specify performance standards for operations and maintenance.
- ▶ To be declared as a Special Planning Authority under Town Planning Act.

- ▶ Conduct valuation of government land. MMB will be responsible for valuation and allotment of intertidal and tidal land

Tamil Nadu Maritime Board:

- ▶ Coordinate activities of ports to optimize their efficiency and effectiveness, to reduce congestion

Andhra Pradesh Maritime Board:

- ▶ Empowered to be the State's regulator for all non-major ports.
- ▶ Shall play a responsive facilitator in enabling investments by the private developers.
- ▶ Prepare a rolling Maritime Master Plan.
- ▶ Undertake capacity audit of all port connectivity projects.

- ▶ Define performance parameters and conduct financial/ performance audits. Board also to conduct independent user surveys

Odisha Maritime Board:

Act as a single window agency for development of ports and inland waterways and also to implement integrated marine development plan

E. Captive Jetty/Terminal: Some States have specifically encouraged captive jetties in Port Policy

Maharashtra:

- ▶ Captive jetties to eligible mining industries and industries classified under secondary sectors, on a nomination basis. Captive jetties will be allowed to handle commercial cargo, up to 25% of total cargo, at 1.5 times the charges, if no desired port facility available in a notified distance

Tamil Nadu:

- ▶ Companies making substantial investment in coastal areas requiring port based facilities will be allotted sites for construction of ports/ jetties, for handling both captive & commercial cargo

Karnataka:

- ▶ Private entrepreneurs/ industrial units will be permitted to construct captive jetties.

Odisha:

- ▶ Permission restricted, only in case of viable projects considering quantum of investment and need for specialised facilities

F. Concession Period: States seem to have taken different approaches towards concession period; fixed & extendable

Maharashtra:
35 years

Andhra Pradesh:
30+10+10 years

Karnataka:
30 years, with
option for extension

Odisha:
25-30 ears

G. Land Acquisition & Land Cost: Useable coastal land parcel is a high value and scarce resource. Therefore land acquisition is a crucial issue for port development.

Odisha: Land Acquisition & Government land cost

- ▶ For greenfield ports, cost of private land acquisition shall be borne by the developer, cost to be adjusted against the future revenue streams accruing to OMB/ Government
- ▶ Where land reverts back to Government on expiry of concession period, land to be leased at annual 6% of lease premium for relevant zone, with escalation every 3 years at cost inflation index of IT Authorities.

Karnataka:

- ▶ Government property would be given on lease

Andhra Pradesh: Land Acquisition & Government land cost

- ▶ Government land will be given on lease
- ▶ Funding - (1) Government funds the land acquisition & leases to developer (2) Government acquires, funded by developer, leases it to developer, cost to be adjusted against future payments due to GoAP.

- ▶ Annual lease rate of 6% of market value of land, with an escalation of 2% per annum

Maharashtra: Land Acquisition

- ▶ Developer will purchase private land, ownership of land vests with the project SPV.
- ▶ If developer is not able to purchase, MMB will acquire the land, acquisition cost & 10% facilitation charges to be paid by the developer.

1.4 Expectations from the Proposed Policy

Considering the background Gujarat Port growth story, it is of utmost priority for GMB to revise their targets and tailor made its maritime policy based on economic scenario. Some of the broad aspects which needs to be revisited are as listed



Options of the Proposed Port Policy of Gujarat



In this context, GMB shall envisage for a forward looking port policy which would be a trendsetter and a guiding principle for maritime sector development in India. The revised policy would comprehensively cover the global best practices and addresses all the issues which Indian and global maritime sector is facing.

2

Performance of Gujarat Maritime Board

2. Performance of Gujarat Maritime Board

Gujarat Maritime Board (GMB) is the frontline organization that has shown vision in converting the non-major ports into some of the biggest ports of the country. Thus, it becomes necessary to analyse the performance of GMB as an organization to understand how its performance would impact the port policy. The factors that come into play while considering the performance of GMB would include its performance as an organization, the performance of its ports, its financial performance, the infrastructure developed, the focus on safety & security, and how innovative GMB has been.

2.1 Organisation

During the late 70s and 80s all the then existing major ports were having the monopoly over the sea freight and there was little or no port capacity with any of the State Governments. Under this circumstances, in 1980, Gujarat Maritime Board (GMB) was established by virtue of GMB Act 1981. GMB had the primary function of administration, control and management of non-major ports of Gujarat. It had to provide necessary facilities and carry out the necessary work which were required for the execution of the port.

The traffic for GMB ports was merely 3% in 1982-83. This traffic has consistently increased over the years because of the various policies and interventions implemented by the GMB & Government of Gujarat on the whole. As of 2015-16, Gujarat Ports handle 31.7% of the total national traffic. The share of the major ports during this period has fallen from 94% to 55%. Gujarat's share, however, in this period has increased to 71.5% of the traffic for non-major ports of India⁷.

Over the last three decades, GMB institutionalized the concept of integrated port led development. This concept was focused primarily on the development of the minor ports and it was supported by last mile road/rail connectivity. This was effectively implemented by bringing in the right private partners and forming private jetties, captive jetties, private ports and other ports through various models of development.

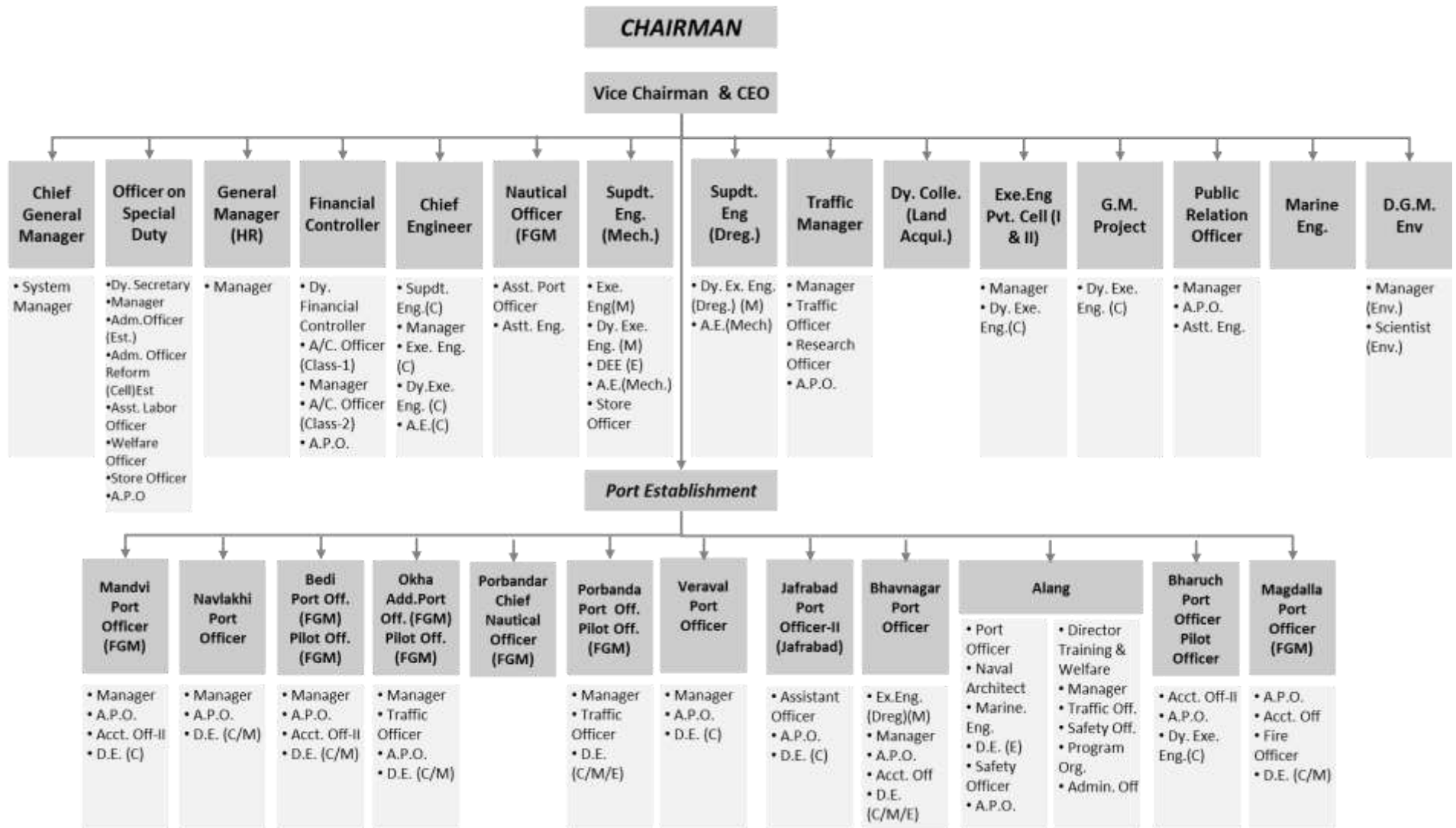
2.1.1 Organisation Structure

GMB was created with the primary function to develop the ports in Gujarat. Over the years, GMB evolved itself to perform dual role; regulator as well as an operator. GMB is continuously led by strategic leadership, one which has a vision for its regulatory authority as well as competency in port operations. Due to this successful administration and operational capabilities, the GMB ports are able to achieve the growth as mentioned earlier.

The various departments of GMB and their roles are explained in the Annexure 2. All these departments can be primarily classified into the following four broad categories based on their role:

- ▶ Administration
- ▶ Project Management
- ▶ Operation/Development
- ▶ Additional Services

Figure 2-1: GMB Organization Structure



Source: GMB

As mentioned in the Annexure 2, the primary departments of GMB include Engineering, Human Resource, Finance and Accounts, Nautical, Mechanical, Dredging, IT, Business Development Cell, Projects, Privatization, Environment and Alang. Of these departments Human Resources, Finance and Accounts, and IT fall under Administration. The departments of Engineering and Projects fall under Project Management. The departments of Mechanical, Dredging, Privatization, and Alang falls under Operation/Development. The Engineering department also falls under Operation/Development. It cross-cuts across two categories. The departments of Nautical, and Environment are Additional Services. The Business Development cell cross-cuts across all categories except Administration.

Other than this, there is a subsidiary of GMB which is Gujarat Port Infrastructure and Development Cell. The primary function of this subsidiary includes the identification of investment opportunities, generate fund for the projects identified and finally, execution of the project.

2.1.2 Powers

The legal framework within the Gujarat provides for institutional structure and powers and functions of different institutions. The GMB Act provides for creation and functioning of the GMB.

The Gujarat Maritime Board Act, 1981

This act was enacted in 1981 to make provision for the constitution of a maritime board for non-major ports in the state of Gujarat and to vest the administration, control and management of such ports in that board and for matters connected therewith. The board is responsible to provide necessary facilities at the port like wharves, quays, docks, jetties, pier, roads bridges etc. Reclaiming, excavating and raising any part of the foreshore of the port or port approaches which may be necessary for the execution of the works is authorized by this act.

The Act has provided the powers to the Board to undertake the services like - stevedoring, landing, slipping or transshipping passengers and goods between vessels in port and the wharves, piers, quays or docks belonging to the Board. As per section 35, the Act provides the power to GMB to permit erection or fixation within the limits of port or port approached any wharf, dock, quay, stage, jetty, and pier, place of anchorage, erection or mooring or undertake any reclamation of foreshore. The Board has the powers to frame a scale of rates from time to time at which and a statement of the conditions under which any of the services like transshipping of passengers and goods, stevedoring, landing, shipping of passengers, wharfage and storage etc. are performed by itself or any other person authorized.

The Gujarat Infrastructure Development Act, 1999

The Gujarat Infrastructure Development Act, 1999 has been framed which supports the principles for the BOOT Policy that has been drafted in 1997. The Act provides for a regulatory framework for the private sector participation in financing, construction, maintenance and operation of infrastructure projects. The Act is followed by fair, transparent and clear-cut mechanism for selection of developers, either through international competitive bidding, or through direct negotiations, with the very strong element of transparency and competitive arrangement. The Act gives details of all the procedures of single window framework for infrastructure projects, global competitive bidding, transparent selection procedure of developer, scope of State participation for initial stage development or strategic partner, bankable project document - Model Concession Agreement, scope for sub concession for development of specialized port facilities and scope for development of add on projects. Salient features of the private developer selection process specified in the Act are summarized below; refer the Act for further details.

Table 2-1: Gujarat Infrastructure Development Act, 1999

<p>Section 9: <i>Selection of a person by competitive public bidding</i></p>	<ul style="list-style-type: none"> ▶ A public notice inviting persons to participate in competitive public bidding ▶ The person intending to participate shall provide information with regard to his legal, technical, managerial and financial capacity and other required information ▶ Before the Consortium enters into Agreement, if there is a change in consortium, the Government. shall ask the Consortium to include constituent within 30 days so the consortium fulfills the pre-qualification criteria
<p>Section 10: <i>Inviting comparative bids</i></p>	<ul style="list-style-type: none"> ▶ Where a proposal for undertaking a project and a proposed concession agreement prepared by a person are submitted to the State Government., it shall consider it from all aspects (including technical & financial) and modify, if required, in consultation with the person ▶ The Government. shall adopt the proposal and follow the procedures specified in Section 9 for competitive bidding ▶ Where the proposal of the earlier proposer is not preferable to the selected proposal, the earlier proposer shall be given an opportunity to make his proposal competitive within a period of 30 days ▶ Where a concession agreement has not been entered into with the earlier proposer, the cost of preparation of the proposal and the concession agreement incurred by him shall be reimbursed by the Government.
<p>Section 10A: <i>Direct Negotiation</i></p>	<ul style="list-style-type: none"> ▶ Government. is conferred power to directly negotiate "Projects of Special Nature", as specified below: <ul style="list-style-type: none"> ○ A project which is innovative or involves proprietary technology or franchise which is exclusively available with the person globally. ○ A project wherein competitive public bidding as provided in section 9 has failed to select a developer. ○ A project to provide social services to the people including community services and public utilities. ○ An infrastructure project which is an essential link for another bigger infrastructure project owned or operated by the same person.

2.1.3 Additional Powers under Various Policies

Major policies of the Gujarat Maritime Board to promote and facilitate the development of port sector in the state are as below:

Port Policy, 1995

The Port policy, effective from 1995, has to be followed by all the non-major ports of Gujarat. Under this policy, it envisages an integrated port development, consisting of creation of port facilities, industrialization and development of infrastructure facilities like roads and railways in the hinterland. The objective of the port policy identifies various parameters related of development. To increase Gujarat's share in the export and import sector in national and international trade & commerce, in pursuance of liberalization and globalization policy. To decongest the overburden on existing major ports on Western India to cater to 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. To provide port facilities to promote export- oriented industries and port based industries. The policy initiates private investment in the existing non-major and intermediate ports, Development of new port sites, privatization of services, infrastructure development, coastal shipping and marine related ancillary industries. Salient features of the policy are summarized below, refer policy for further details.

Table 2-2: Highlights of the Port Policy 1995

<p>Gujarat Maritime Master Plan</p>	<ul style="list-style-type: none"> ▶ It is expected that 50% of entire cargo for new ports will be provided by industries in vicinity of port locations ▶ Gujarat will be in a position to handle 100 million tons of cargo, about 25% of India's total cargo, by 2000 ▶ Gujarat Maritime Board (GMB) has undertaken a study to inventories the likely cargo from hinterland states ▶ GMB will establish marketing wing to assess likely new cargo generation from time to time and to look for new avenues to service Gujarat ports ▶ GMB will evolve a master plan for each of new port locations for integrated port development approach covering industrial development, power generation and infrastructure development
<p>Private investment in existing non major and intermediate ports</p>	<ul style="list-style-type: none"> ▶ Private investment in existing non-major and intermediate ports, with general guidelines as: <ul style="list-style-type: none"> ○ Incomplete works of wharf/ jetty/ quay of GMB to be privatized ○ Private entrepreneurs permitted to install modern mechanical handling equipment on wharf/ jetty/ quay ○ Privatization of construction of new wharves/ jetties in selected sites ▶ Entrepreneurs making investments in these locations will be given ousting priority for a period of 5 years. For higher project costs, GMB will consider to enhance this period ▶ Entrepreneurs to assure a minimum cargo handling from the landing place and to pay full wharfage charges to GMB for cargo undertaken on such structures ▶ New port locations identified to handle petroleum cargos
<p>Development of new port sites</p>	<p>GMB has identified 10 Greenfield sites for development as direct berthing deep water ports to be developed by private developer at Dholera, Maroli, Vansi-borsi, Hazira, Mithivirdi, and Simar and to be developed by GMB at Dahej, Positra, Rozi (Bedi), Mundra.</p>
<p>Development of new port sites</p>	<ul style="list-style-type: none"> ▶ Port locations will be given on BOMT (Build, Operate, Maintain and Transfer) basis. Only the wharfage/waterfront charges will be collected as per schedule decided by GMB, the promoters free to charge any other service charges with prior approval of GMB ▶ After BOMT period, the ownership of port and its assets will get transferred to GMB and will examine to give it further on lease to the same promoter ▶ On new GMB ports, the superstructures like handling facilities and on shore facilities in form of warehousing, tank farms, etc. will be privatized

<i>Captive jetties for industries</i>	<ul style="list-style-type: none"> ▶ Permissions for captive jetties would be given only in exceptional cases, looking to the quantum of investment and need for specialized facilities ▶ Captive Single Point Mooring (SPM) facilities of industries located in Gujarat will be charged at concessional rate of wharfage for their captive consumption
<i>Privatization of Services</i>	<ul style="list-style-type: none"> ▶ Privatization of services in lighterage, dredging, piloting, tug towing and other essential utility services ▶ JV with private entrepreneur to form Dredging Corporation of Gujarat. The existing dredging equipment along with waterfront facility available with GMB will form equity for such a JV
<i>Barge Mounted Power Plants</i>	<ul style="list-style-type: none"> ▶ Barge mounted power plants in five coastal districts of Kutch, Junagadh, Amreli, Bhavnagar and Bharuch ▶ Wharfage would be charged at a concessional rate of 25% of existing rate
<i>Infrastructural Development</i>	<ul style="list-style-type: none"> ▶ The huge investments in port sector would demand equal investments in infrastructure facilities like roads and railways for faster and efficient handling of cargo movement. ▶ The existing port locations have been identified where broad gauge railway link and good road network exist.
<i>Coastal Shipping</i>	<ul style="list-style-type: none"> ▶ Many of Gujarat ports can act as 'transshipment ports' for rest of the country. It is expected that 25% of total cargo would be transported through coastal shipping. ▶ Introduction of Ro-Ro service and hovercraft/ catamaran service, joining different terminals on Saurashtra and Kutch with South Gujarat will be given highest priority. Dahej-Ghogha and Surat-Bhavnagar passenger terminal facilities will be started on a top priority basis.
<i>Maritime Related Industries</i>	<ul style="list-style-type: none"> ▶ Priority to maritime related industries in the field of ship building, ship repairing, dredgers and other flotilla units like tugs, barges, launches and support crafts. ▶ Traditional boat building activities at Mandvi and Veraval would be expanded.

BOOT Policy, 1997

The BOOT policy, effective from 1997, has to be followed by all the non-major ports of Gujarat. The BOOT principles will serve as a framework for involvement of private sector in the construction and operation of these new ports. The BOOT principles have been formulated for the operation of new private and joint sector ports in Gujarat. The guiding principles explain the timeliness of infrastructure creation, efficiency of operations and operational autonomy of private sector, connectivity to hinterland, maintain government role in appropriate areas and ensuring that Government financial liabilities. Further it includes the various parameters related to development - the minimum role of State in development, maximum operational flexibility with tariff freedom, maximum concession, and lowest water front royalty - single levy of state government, no business development restriction and adequate compensation on project transfer. Salient features of the policy are summarized below, refer policy for further details.

Table 2-3: Highlights of the BOOT Policy 1997

BOOT Framework	<ul style="list-style-type: none"> ▶ Government will grant license/concession to private developer to build, own, operate and manage port facilities for specified time. ▶ Government will permit the developer to create a mortgage/ hypothecation of real estate as a security for lenders to project up to BOOT period, thereafter the assets will be transferred back to Government. ▶ The ownership of the land and waterfront will always vest with Government.
Guiding Principles	<ul style="list-style-type: none"> ▶ To create an environment for timely creation of port facilities ▶ To provide operational autonomy to developer, to operate in commercial and market driven environments and to encourage competition and efficiency ▶ New ports to become hubs of industrial activity and serve as catalysts for economic growth in hinterland area ▶ Other than Port's strategic importance, the role of Government. to minimal areas, with suitable regulatory framework ▶ To finance the port facilities through private developer and to keep recourse to Government. at minimum
Build Stage	<ul style="list-style-type: none"> ▶ Land acquisition will be the responsibility of GMB ▶ Land will be allotted on lease for a period concurrent to concession period, with lease rental determined based on cost of land acquisition ▶ Government. will facilitate future expansion of port related activity in vicinity of the Port ▶ Government. may provide tax concession in the form of lower stamp duty & registration fee ▶ Government. intends to demarcate port area and award it a status of 'Notified Area' ▶ Developer would be responsible for obtaining all relevant clearances ▶ Developer will have flexibility to decide capacity/ configuration/ cargo for a site, subject to conformance of environment safety and technical sufficiency ▶ Members of bidding consortium must retain their commitment for min. 5 years ▶ No permission required for reducing commitment up to 51% in first 5 years of operation, but further reduction will require concurrence of Government. ▶ Government. to initiate concomitant development of road & rail corridors and industrial parks ▶ Road and rail linkage from port to nearest highway/ railway head will be structured as separate BOOT package, Port Developer will have first preference
Ownership Rights of Diff. Parties	<ul style="list-style-type: none"> ▶ Government. vested with sovereign rights as owner, overseer and conservator of waterfront and licensor to the Contract ▶ Ownership rights of Developer:

	<ul style="list-style-type: none"> ▶ Right to mortgage/ hypothecate or execute such covenants for effectively vesting a charge on port assets in favor of lender to the project ▶ Right to sell, convey or transfer to another entity, the right title and interest and concession vested in the Developer, on request of lender to the project, subject to contractual documents
<p>Operation State - Operational Issues</p>	<ul style="list-style-type: none"> ▶ Developer to take on responsibility of conservancy function of port ▶ Developer may operate port as a Full Service or Landlord Port. Government. will permit subleasing or subcontracting of services, Developer to remain overall responsible ▶ Developer will be encouraged to add capacity over and above capacity contracted in concession agreement. Such expansion eligible for incentives such as land acquisition, extension of royalty holidays, etc. ▶ Government. to encourage competition, Captive jetties would not be granted except in exceptional circumstances
<p>Operation State - Commercial Issues</p>	<ul style="list-style-type: none"> ▶ Developer given complete flexibility in setting and collecting tariffs ▶ GMB will publish schedule of charges for 'waterfront royalty' to be charged on a per-ton-per-type-of-cargo basis ▶ Government. will not partake a share in revenue from any other core/ value added port service ▶ Developer will be granted a concession on royalty payable during 'Royalty Holiday Period', Developer to pay INR 10 per ton of liquid cargo and INR 5 per ton of solid cargo ▶ Balance royalty will be permitted as set off against approved capital cost ▶ In case of major expansion of facility, Royalty Holiday Period will be extended, Max. two major expansions will be eligible for concession
<p>Transfer of Assets</p>	<ul style="list-style-type: none"> ▶ Duration of BOOT package 30 years. It can be greater than 30 years for project which entail sizeable investment due to site specific marine conditions & back-up infrastructure ▶ Immovable assets for a consideration that reflects 'fair value' ▶ Developer will have option to take away all movable assets including equipment and infrastructure. If Developer does not exercise the option, Government. would take over all movable assets for a consideration that reflects 'fair value'
<p>Options after Transfer</p>	<ul style="list-style-type: none"> ▶ At the time of transfer, Government. could choose any of following options: ▶ Offer the developer a roll-over option ▶ Take over the port and offer it to another developer ▶ Take over the port as a landlord port and farm out services to private sector on lease or management on contract basis ▶ Take over the port and operate as full services port

Shipbuilding Policy, 2010

The policy has been enacted with an objective to maintain market share of more than 60% of the national target in shipbuilding/repair market. For that purpose, the Government has identified five locations for development of clusters of shipyards as Marine Shipbuilding Parks (MSP). The Board

will acquire Government land and allot to the company on lease basis for the license period. In addition, GMB will provide following facilities and assist in approvals:

- ▶ To provide basic infrastructure such as road, water supply, power, drainage, capital dredging, and navigational aids, etc. for the MSP/cluster development and efforts for gas & power supply.
- ▶ To permit a Shipyard Company to construct outfitting jetty
- ▶ To provide complete operational autonomy to the Shipyard company (within the framework of relevant legislations)
- ▶ To safeguard of national security, defense, environment and economic development
- ▶ To take overall clearance under the Environment Impact Assessment Notification-2006

Salient features of the policy are summarized below, refer policy for further details.

Table 2-4: Highlights of the Shipbuilding Policy 2010

Current scenario and need for shipbuilding policy	<ul style="list-style-type: none"> ▶ The total forecast of new shipbuilding requirement up to 2015 is nearly 1000 million DWT. The share of India in global order book is 1.12% ▶ Gujarat shares and intends to continue sharing more than 60% of the national target ▶ This requires accelerated growth in shipbuilding/repair capacity in the state from present 1.11 million DWT to 3 million DWT
Priority of location of Ship Building Parks	<ul style="list-style-type: none"> ▶ The priority of locating shipbuilding park would be as under <ul style="list-style-type: none"> ○ Within Marine Shipbuilding Parks (MSP) ○ Within port limit of existing GMB ports ○ Within Private ports ○ Standalone proposals at isolated locations-only in exceptional cases
Marine Shipbuilding Parks (MSP)	<ul style="list-style-type: none"> ▶ 5 locations identified as potential shipbuilding yards <ul style="list-style-type: none"> ○ Along the north bank of Narmada river in Dahej region. ○ In the areas of old Bhavnagar port. ○ Coastline in the Bhavnagar district in the Gulf of Cambay ○ Coastline between Navlakhi and Jodiya. ○ Coastline near Mandvi in the Gulf of Kutch ▶ Allotment of land in Marine Shipbuilding Park would be on lease basis ▶ Earmarking of areas for medical facilities, housing, human resources development and other allied Facilities
Within Private Ports	<ul style="list-style-type: none"> ▶ No 'BOOT' status for shipbuilding projects ▶ Sub-concession/ sub-lease of the shipbuilding yard shall only be with prior proposal of Government/GMB ▶ Responsibility to provide infrastructure and access will be that of the private port developer
Within limit of GMB ports	<ul style="list-style-type: none"> ▶ Upgradation/modification of existing infrastructure for locating shipbuilding/ repair industry with private investment

	<ul style="list-style-type: none"> ▶ Identification of Shipbuilding/repair yards considering present and future port activities, proximity of existing shipyards, scope of port expansion
Standalone proposals at isolated locations	<ul style="list-style-type: none"> ▶ Prima facie, such proposals will be discouraged ▶ GMB will acquire back up Government land and allot on lease basis ▶ Shipyard company to provide required infrastructure, linkages and other facilities, at their cost
Role and Responsibility of GMB	<ul style="list-style-type: none"> ▶ Acquisition of Government land for MSPs and other shipbuilding yard sites ▶ Development/ assistance in development of land, infrastructure, roads, common user jetty, and safety services. ▶ Conducting technical studies and preparing development plans. ▶ Provide navigational aid and dredging at MSP. ▶ Identify and earmark areas for common amenities like institutes, R&D, Banking/Postal services, weigh bridges, etc. ▶ Ensuring Key aspects like national security, defense, environment and economic development.
Human Resource Development Program	<ul style="list-style-type: none"> ▶ Encourage educational institutions in private sectors imparting technical education. ▶ Allocation of land for setting up of Training and Educational Research Institute. ▶ Encourage setup of Shipbuilding Skill Development Center in private sector
Sub leasing/ transfer of Shipyard	<ul style="list-style-type: none"> ▶ No sub-lease, Sub-let, transfer, assign, or part with the procession of leased property without prior approval of GMB ▶ Lead promoter has to maintain interest of 26% for 7 years. ▶ Lead promoter along with key Promoters have to maintain 51% equity of minimum 7 years. ▶ Any change in the ownership of the Shipyard Company shall require prior GMB approval

Ship Recycling Regulations 2015

The Gujarat Maritime Board had come up with the detailed procedures and conditions for granting permission for utilizing Ship Recycling Plots in January 2016. A comprehensive regulation cum policy for ship recycling in Gujarat was first published in the year 1994 with a horizon of 10 years. Subsequently, in 2006, these regulations have been revised with a revival package. Various changes have been incorporated in the policy. Various charges were being collected from the industry and considering the changes in the industry outlook a revision was made in the regulations in 2015.

Salient features of these regulations are summarized below, refer policy for further details.

- ▶ GMB may establish / develop new ship recycling yards in land or foreshore vested in Board in addition to those already established

- ▶ GMB may adjust/ readjust/ align/ realign the plots from time to time as may be necessitated by technical requirement of the ship recycling activities, safety aspects and/or for protection of the environment.
- ▶ Amalgamation of Vacant Plot will be offered so as to enhance the width of working plot to minimum of 45 m by clubbing or rearranging the plot boundaries.
- ▶ As per the regulations, the Development charges that have been stipulated may be reviewed after three years
- ▶ The performance of the permission holder of the working plot shall be considered for lease rentals. In case the permission holder did not comply with the requirement of minimum LDT during the period of five years, permission will be renewed only on payment of charges for "LESS LDT" @1.5 times the rate prescribed
- ▶ Recycling charges will be increased or decreased every year as per WPI of "steel" for each financial year

2.1.4 Challenges

The major challenges that GMB faces related to its governance are as follows.

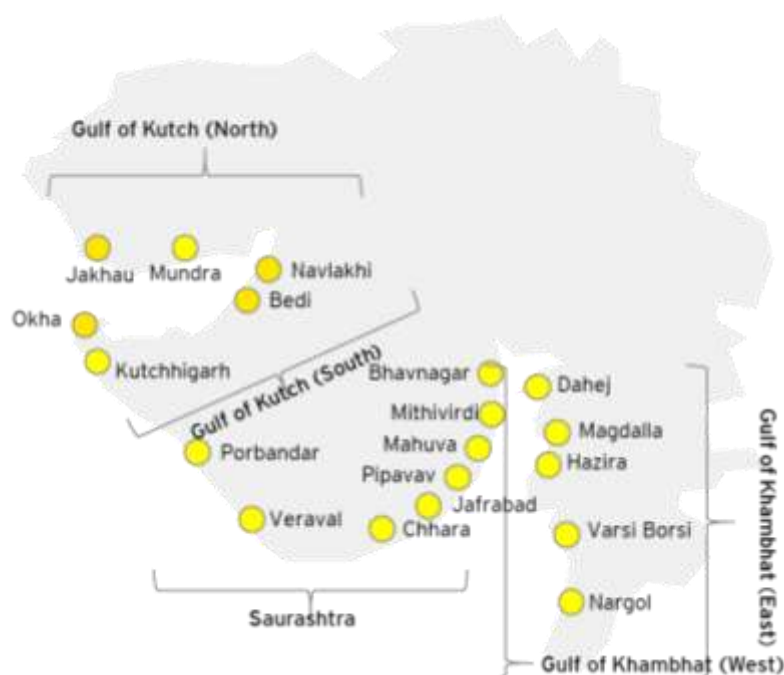
- ▶ GMB currently performs dual roles; regulation and operations. The Board manages 11 ports and has its own dredgers for carrying out dredging operation, it also manages training institutes along with other regulatory role. Because of this, it is overarching its role in maritime development
- ▶ GMB is facing a challenge in case of dependency on government for funding large projects
- ▶ GMB is facing a challenge in case of acquiring approval for development and execution of projects. For e.g. any infrastructure project that lasts up to 5 years, GMB has the authority to give approval for it. For a project greater than 5 years, the state government approval is required
- ▶ GMB acts as a co-ordinating body but does not have the powers to get regulatory and environmental clearances through a single window clearance. GMB is facing difficulty in co-ordination with the various agencies within the government and also the state government which leads to a delay in required regulatory and environmental clearances approval
- ▶ HR needs to address the challenge of developing a training or capacity building plan for the existing employees
- ▶ HR also faces the challenge of filling the gaps in the GMB posts. HR also has to consider the retirement of people while considering a hiring plan for the empty posts

2.2 Ports' Performance

During the year 2016-17, all the ports in Gujarat, including the Major Port, Kandla (termed as "Gujarat Ports") handled about 451 MMT of cargo.

In this section, we will be analysing the performance of the GMB ports. For the purpose of our analysis, the ports have been divided into five regions. This classification has been detailed out in Figure below. The GMB ports and their regions are as follows.

Figure 2-2: Geographical distribution of GMB ports



2.2.1 GMB Ports

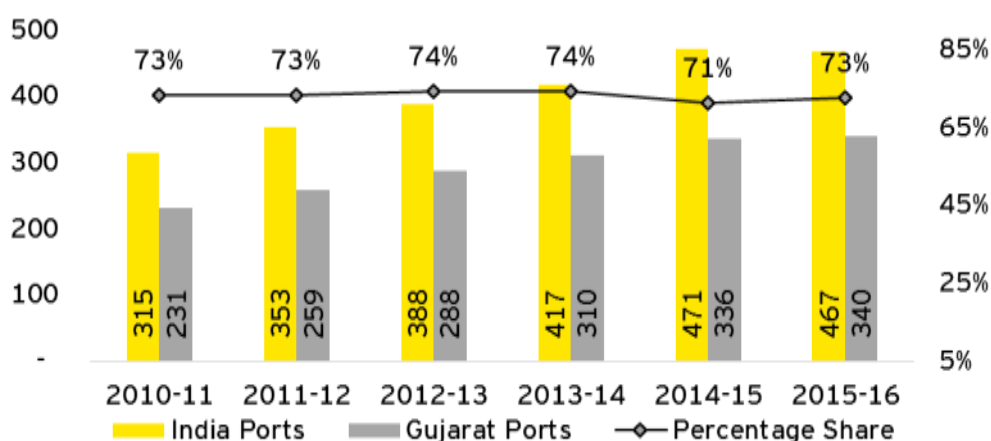
GMB Ports are all the non-major ports of Gujarat. This would include the private ports, private jetties, captive jetties, and GMB jetties. In the year 2016-17 Gujarat has handled about 451 MMT of traffic. This includes the traffic of the major as well as non-major ports. When you consider only the GMB ports, then they have handled around 346 MMT in 2016-17¹⁰. When you compare the performance of the GMB ports with the non-major ports of India, then you can find that GMB forms 73% of the total traffic of non-major ports as evident from Figure 2-3.

From Figure 2-2 we can see that the GMB ports have been divided into five regions. These regions would be the Gulf of Kutch, North and South, Gulf of Khambhat, East and West, and Saurashtra. While talking about the Gulf of Kutch (North) region, Mundra is a major traffic contributor. Gulf of Kutch (South) has relatively less traffic when comparing it with its northern counterpart, but Navlakhi is doing well in this region. The other regions are doing okay with Porbandar being best in Saurashtra region and Dahej and Magdalla doing well in Gulf of Khambhat (East) Region. For Gulf of Khambhat (West) Alang is major contributor with its shipbuilding yard.

Considering the commodity wise trend, GMB ports handle all the three commodities viz. dry and liquid bulk cargo and containers. GMB ports handle majorly liquid cargo with its share being 53 percent of the total cargo. The liquid imports have been increasing steadily over the years while the exports are mostly constant. The GMB ports handle container the least, a share of mere 12 percent of the total cargo. However, the container traffic has been increasing at an annual rate of almost 25 percent. Dry cargo has also been doing well in these few years. The growth of dry cargo (4.88%) has been greater than liquid cargo (2.67%)¹⁰.

¹⁰ GMB Traffic data, 2016-17

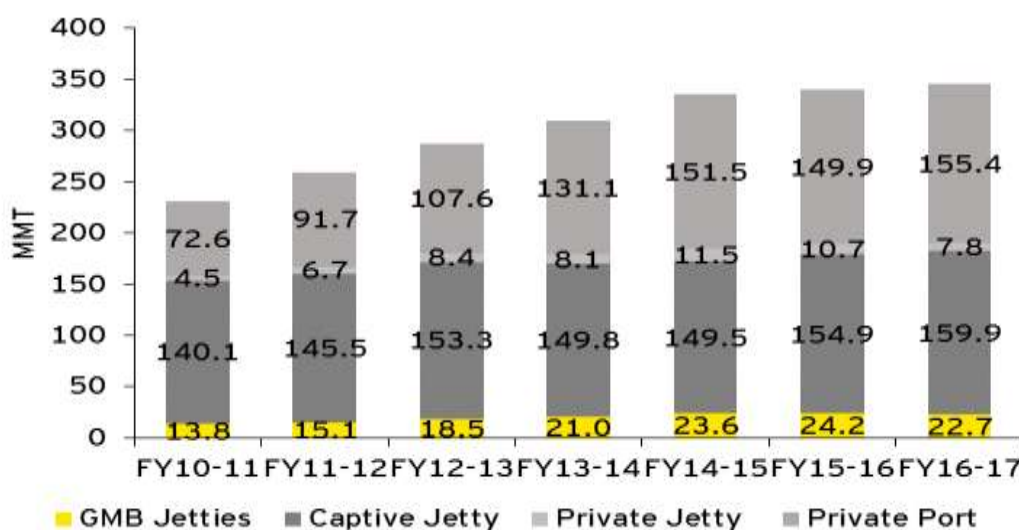
Figure 2-3: Cargo handled at non-major ports of India



Source: GMB Traffic data, 2016-17

Breaking up the 346 MMT which was handled by the non-major GMB ports, in financial year 2016-17, we find that the captive jetties are the major contributors of the traffic with about 38.3 percent of the traffic being handled by them. The private ports are the next major contributors with about 31.2 percent of the traffic handled. The jetties that are operated by GMB have not handled much traffic. They contribute to around 5% of the total traffic handled with a CAGR of 8.7 percent¹⁰.

Figure 2-4: Traffic break up trends for GMB ports



Source: GMB Traffic data, 2016-17

Even though the captive jetty has handled the most traffic over the years, its CAGR is only 2.2 percent while the private ports have a CAGR of 13.5 percent. From this we can clearly see that the private ports are going to bring major traffic in the oncoming years¹⁰.

While considering the capacities, the overall utilization is 69 percent. This means that the GMB ports are having a decent utilization of their terminals as evident from the table below.

Table 2-5 Utilization of GMB Ports

	Capacity	Traffic 2016-17	Average Utilization Level (%)
GMB Jetties	24.3	22.7	93
Private Jetties	13.0	7.8	60
Captive Jetties	235.8	159.9	68
Private Ports	228.0	155.4	68
Total	501.1	345.7	69

Source: GMB Traffic data, 2016-17

The major concern is for GMB jetties. The private and captive jetties and private ports have a decent utilization. Only the GMB jetties have a very high utilization. Moreover, some of the jetties are over utilized while some are highly under-utilized as evident from table below.

Table 2-6 Utilization of GMB jetties

GMB Jetties	Capacity	Traffic 2016-17	Average Utilization Level (%)
Magdalla	0.58	2.9	501
Bedi	1.91	4.9	256
Okha	4.96	4.2	85
Porbandar	4.62	1.4	29
Bhavnagar	1.91	2.0	105
Navlakhi	4.23	3.6	86
Veraval	2.17	0.0	0
Mandvi	0.48	0.0	6
Alang	1.03	2.78	269
Dahej	2.44	0.0	0
Total	24.33	22.7	93

Source: GMB Traffic data, 2016-17

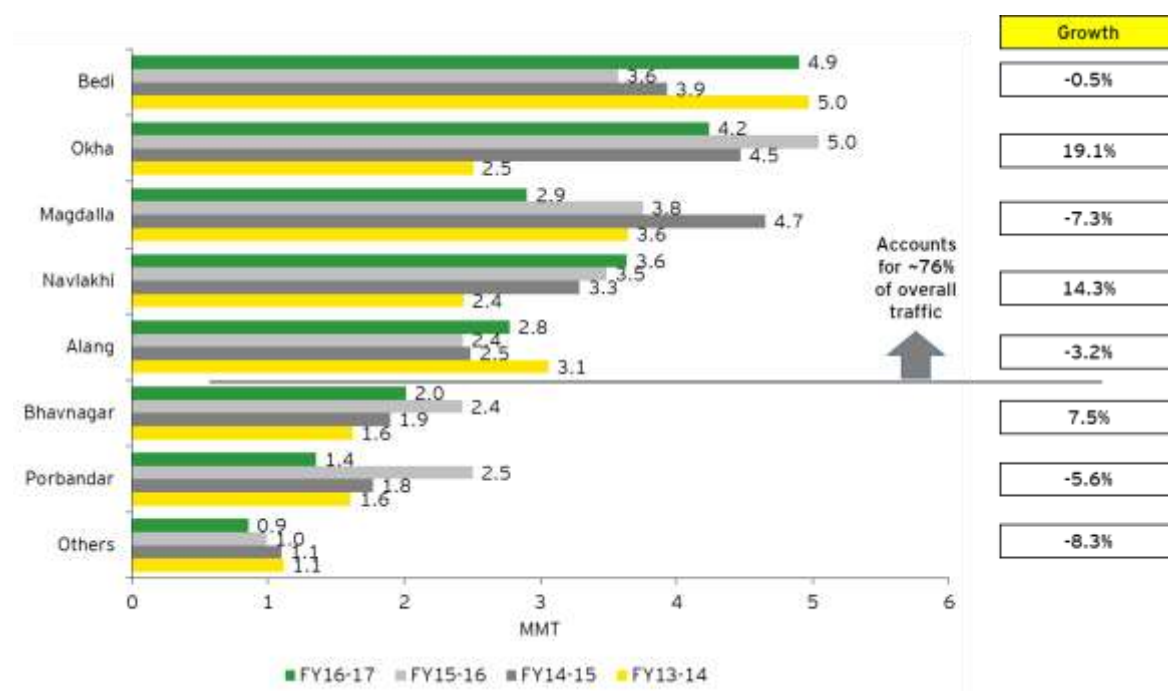
As can be seen from the table above, the jetties at Magdalla, Bedi, Bhabnagar and Alang have very high utilization. This means that capacities of these jetties needs to be increased. Moreover for Veraval and Mandvi, there is hardly any utilization. Decision needs to be taken as to what is to be done for these jetties. Dahej has not had any utilization because the ferry is still under development there but capacity has been developed.

2.2.2 GMB Jetties

Traffic share of GMB jetties have slightly reduced from 7 MMTPA (7.4% of total traffic) in 2004-05 to 22.7 MMTPA (6.6% of total traffic) in 2016-17. There are 11 jetties of GMB and their names with the traffic is shown in Table 2-6. Most of traffic now is handled at Bedi, Okha, Magdalla,

Navlakhi and Alang. Other GMB jetties/ ports have registered negligible traffic growth in recent times.

Figure 2-5: Traffic distribution at GMB jetties



Source: GMB Traffic data for past 5 years

The traffic handled is not much with the Gulf of Kutch (North) region giving the least traffic which is 1% of the total traffic handled by GMB ports over the years. It is 0 in the financial year 2015-16. Only the Gulf of Kutch (South) has had a decent traffic forming 44% of the total traffic handled by GMB ports over the years.

Table 2-7 Traffic at GMB Operated Ports Region Wise

Region	Traffic ('000 tons)	Ports	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16
Gulf of Kutch (North)		Mandvi	216	434	0	0	0	0
Gulf of Kutch (South)	Total		4301	4772	7747	9917	11687	12100
		Navlakhi	2157	2116	2892	2437	3289	3487
		Bedi	993	1030	3111	4970	3929	3571
		Okha	1151	1626	1744	2510	4469	5042
Gulf of Khambhat (East)	Total		4302	3083	2822	3642	4653	3753
		Dahej	40	0	4	0	0	0
		Magdalla	4262	3083	2818	3642	4653	3753
	Total		3141	4755	4974	4684	4387	4858
		Alang	2816	3847	3848	3060	2490	2432

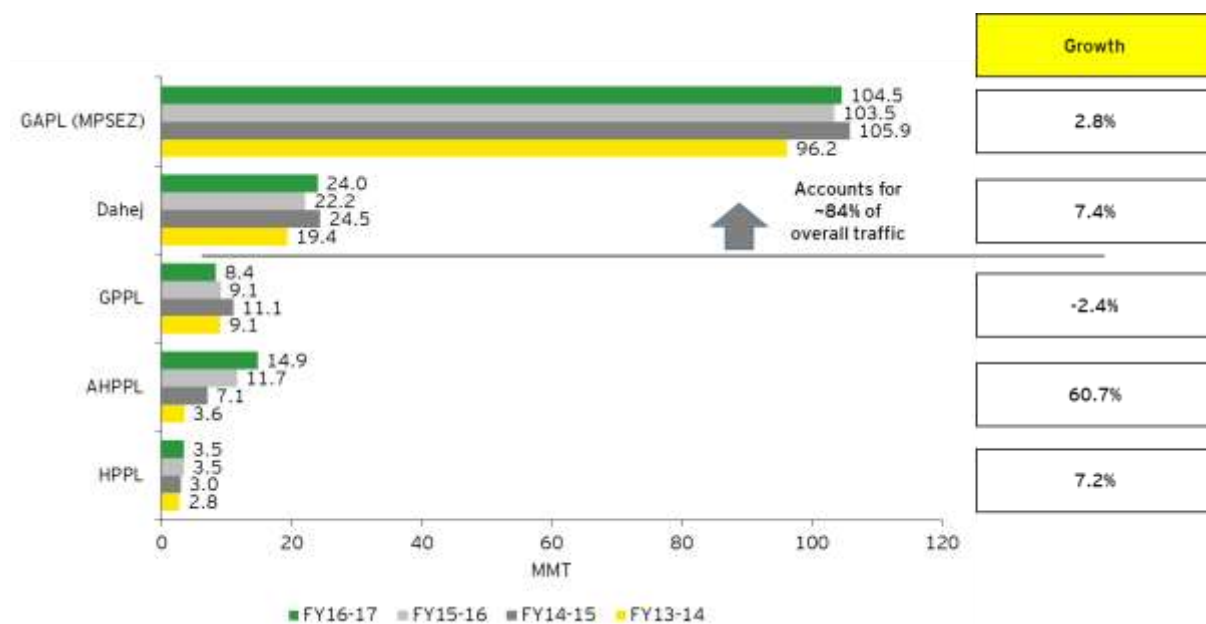
Region	Traffic ('000 tons)	Ports	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16
Gulf of Khambhat (West)		Bhavnagar	325	908	1126	1624	1897	2426
Saurashtra		Total	1629	1850	2934	2621	2778	3407
		Porbandar	544	636	1854	1608	1771	2504
		Veraval	74	38	25	7	9	4
		Jafarabad	1011	1176	1055	1006	998	899

Source: GMB Traffic data for past 6 years

2.2.3 Private Ports

Private ports witnessed highest growth in share from 8 MMTPA (8.4% of total traffic) in 2004-05 to 155 MMTPA (44.9% of total traffic) in 2016-17. However, most (84%) of the growth came from just two ports, namely Mundra and Hazira. These ports were able to materialise greater investments into port infrastructure over PPP operators.

Figure 2-6: Traffic distribution of private ports

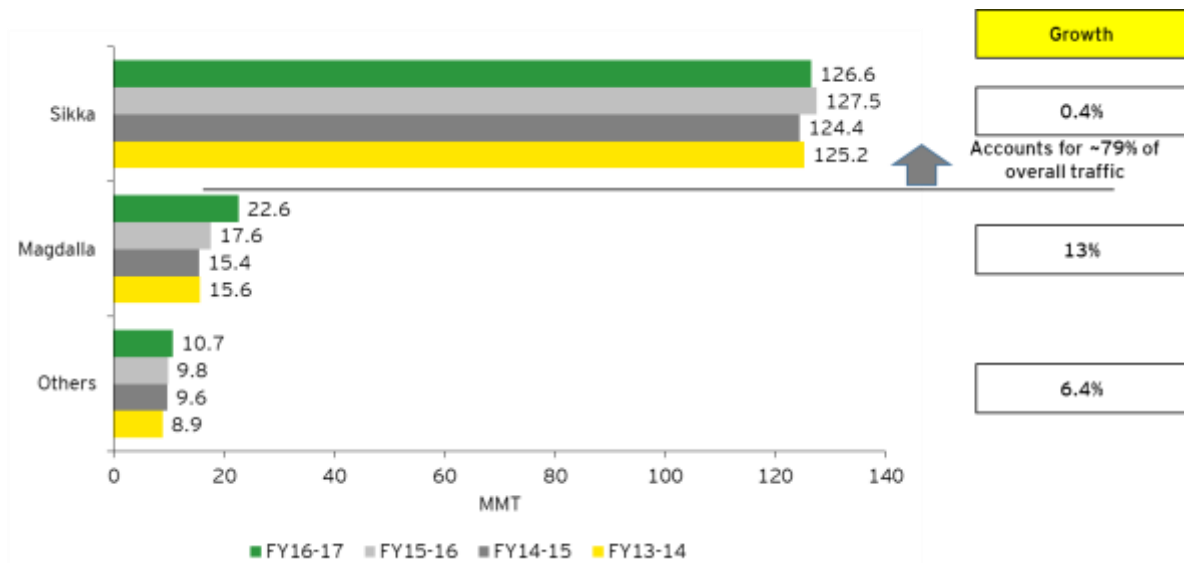


Source: GMB Traffic data for past 5 years

2.2.4 Captive Jetties/ Private Jetties

Captive jetties witnessed decline in traffic share from 71 MMTPA (74.7% of total traffic) in 2004-05 to 160 MMTPA (46.2% of total traffic) in 2016-17. However, most (79%) of the growth came from just one captive jetty (out of total 33 captive jetties), namely Sikka. After Sikka, only Magdalla fared well. This is largely attributed to rapid growth in demand for POL from captive refineries, which was significantly higher than demand for other commodities by their respective captive industries. The other captive jetties did not have much traffic to talk about.

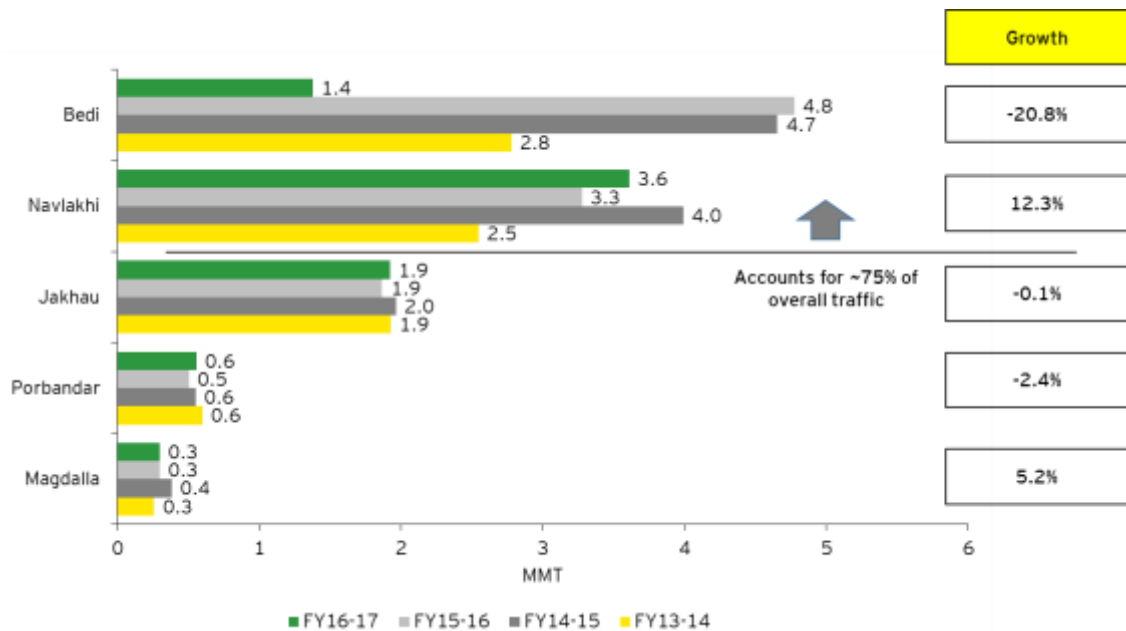
Figure 2-7: Traffic distribution of captive jetties



Source: GMB Traffic data for past 5 years

Currently, of all the private jetties with GMB, around 75% of traffic is handled at Bedi and Navlakhi port. This is largely attributed to under-investment in infrastructure by private operators for reasons explained in following section. Private jetties have also witnessed decline in traffic share from 9 MMTPA (9.5 % of total traffic) in 2004-05 to 8 MMTPA (2.2% of total traffic) in 2016-17.

Figure 2-8: Traffic distribution of private jetties



Source: GMB Traffic data for past 5 years

2.2.5 Challenges

The major challenges that are affecting the performance of the GMB ports can be considered as follows.

- ▶ Capacity utilization: Many GMB jetties are showing 2 to 5 times the traffic against recorded capacity. This leads to a theoretical over capacity and requirement of increasing the overall capacity of the ports. Moreover, most of the GMB jetties are under-utilized or dysfunctional.
- ▶ Moreover, there is a need for enhancing the capacities of the existing assets. The existing assets need to be upgraded/modernized or additional mechanical equipment needs to be procured.
- ▶ Considering the case of traffic, the GMB jetties are not doing well with less traffic share and growth over the years.
- ▶ For captive jetties other than Sikka and Magdalla, the traffic that was handled was not high. This puts the need for more captive jetty development into perspective.
- ▶ The private jetties are also affected with poor traffic performance with a negative traffic growth.

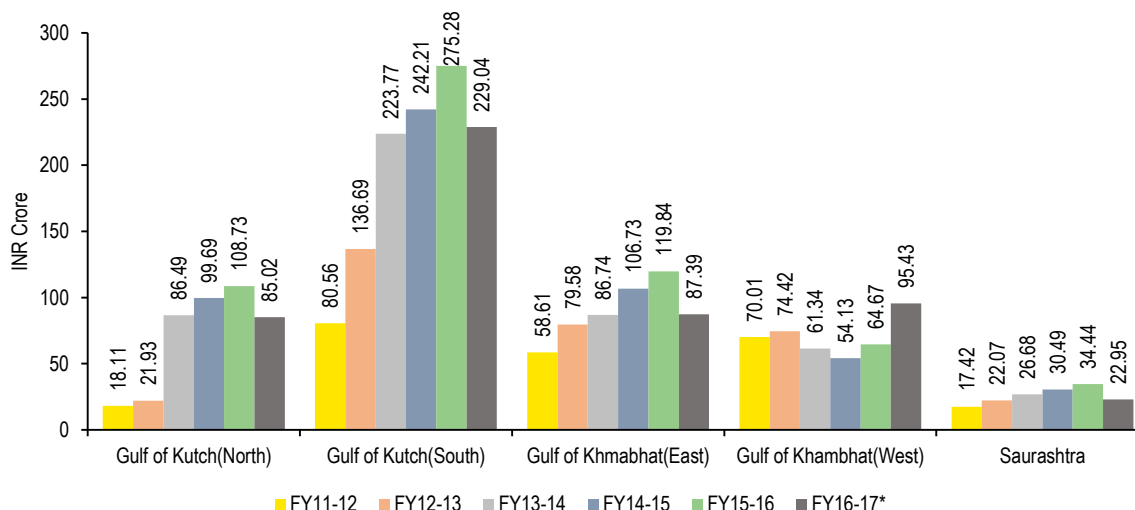
2.3 Financial Performance

In the earlier section we understood how GMB is performing in case of traffic. Now we need to understand how GMB is performing financially. The financial performance is a good indicator of how GMB is utilizing its resources while catering to the customer requirements. For this purpose analysis will be done on the income, expenditure and capital expenditure of GMB.

2.3.1 Income

GMB ports have been doing well over the years in generating income. The Gulf of Kutch (South) region is the best performer of all the five regions. The major revenue generation for this region is the services that it provides in the marine section. The other regions are also performing well in generating revenue except for Saurashtra region. This region is not performing well because of the presence of fisheries which is hindering port operations. The trend of the revenue generated over the years is as follows.

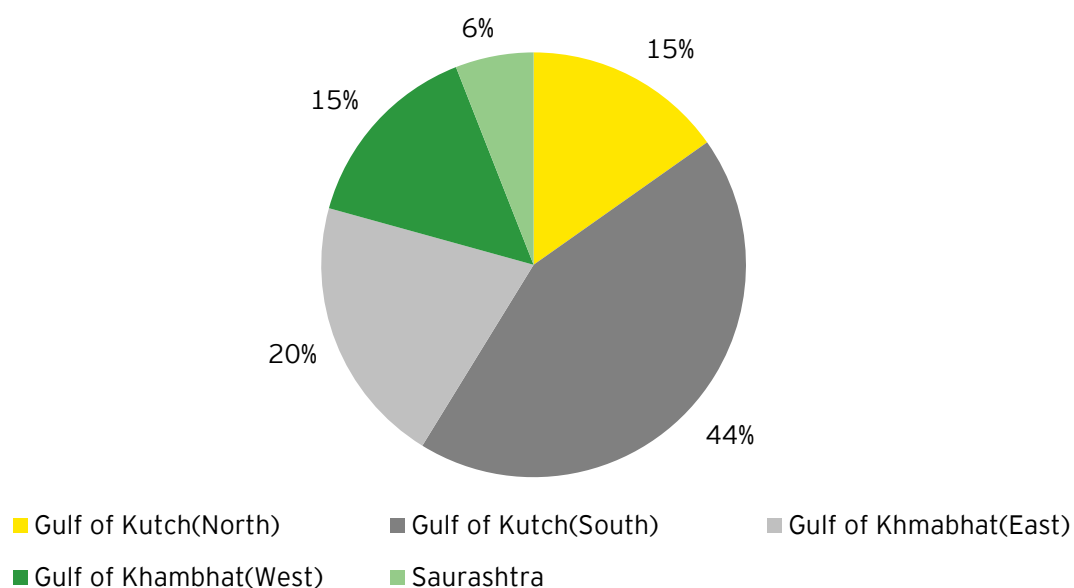
Figure 2-9: Geography Wise Income of GMB



Source: Source: GMB, Finance & Accounts Department ¹¹

¹¹ The figures for FY 16-17 are Budgetary Figures

Figure 2-10 Average Income Share Region Wise from 2011-12 to 2015-16



Source: GMB, Finance & Accounts Department¹¹

From the figure above we can see that the average income over last few years has been maximum for Gulf of Kutch (South) region. Saurashtra is the region with the least share even though it has three ports. The other regions are doing well with almost similar share.

Even though the Gulf of Kutch (South) has the most income, it does not have the maximum growth rate. The Gulf of Kutch (North) has the maximum growth of 36% while Gulf of Kutch (South) has a growth rate of 23%. The other regions have a low growth rate with Gulf of Khambhat (East) showing a growth rate of 8% and the other regions showing a growth rate of 6% respectively. So Gulf of Khambhat (West) and Saurashtra are the regions with the least growth rate.

The “Income Heads” of GMB have been classified under 11 categories. These income heads are

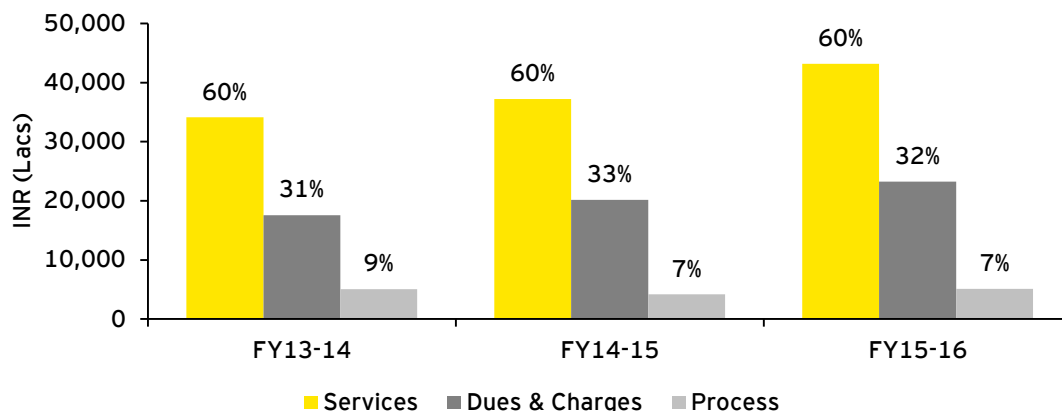
- i. Port Infrastructure facilities,
- ii. Marine Services,
- iii. Cleaning, forwarding and stevedoring,
- iv. Storage are and Land rental,
- v. Equipment and Harbor craft rental,
- vi. Ship Recycling yard, ‘
- vii. Ship Building yard,
- viii. Income from other services,
- ix. ‘State income’,
- x. Financial Services and
- xi. Other income

For the purpose of analysis, the above mentioned heads are classified into 3 major categories, namely

- ▶ **Dues & Charges-** this includes State Income, Port Infrastructure Facilities and Other Income
- ▶ **Process** - this includes Ship Recycling Yard and Ship Building Yard income heads

- ▶ **Services** - this includes Financial Services, Marine Services, Cleaning, Forwarding & Stevedoring, Storage Area and Land Rental, Equipment & Harbour Craft Rental, and Income from Other Services.

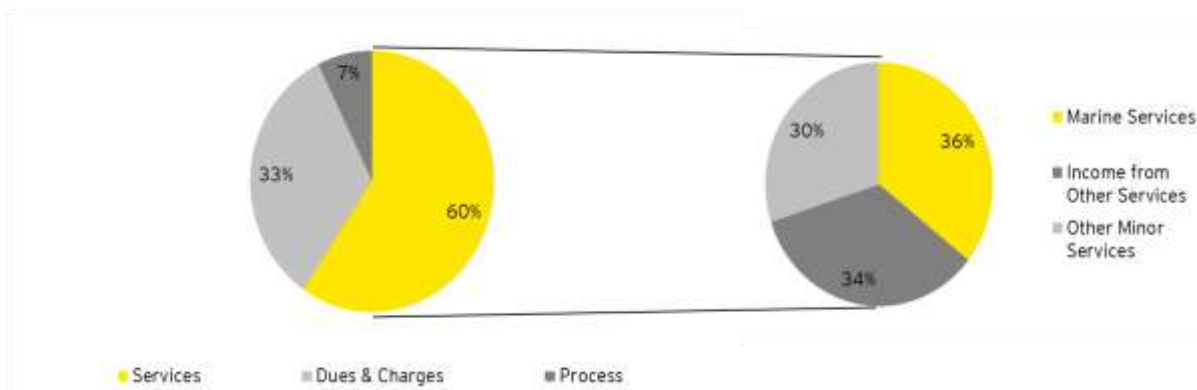
Figure 2-11: Income Head Categories Wise Distribution



Source: GMB, Finance & Accounts Department¹¹

Of the three defined categories, Services contribute the maximum with 60% of the income coming from services. It has been constant over the last three years. The other major contributor is the “Dues & Charges” category which fluctuated between 31% and 33% in the last 3 years. The smallest contributor is the Process category, which has been on decline from 9% to 7%.

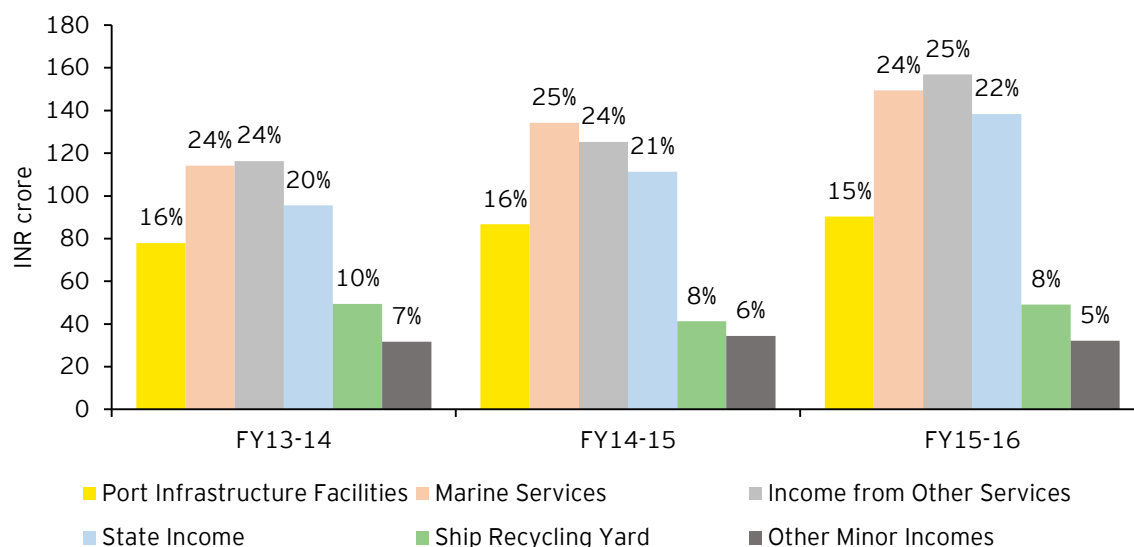
Figure 2-12: Income Distribution Major Categories wise FY15-16



Source: GMB, Finance & Accounts Department¹¹

In the Services category, ‘Marine Services’ has the highest share of 36% with ‘Income from Other Services’ forming 30%. The rest of the services do not form a major share and so they are clubbed together to form ‘Other Minor Services’.

Figure 2-13: Income Heads Wise Distribution



Source: GMB, Finance & Accounts Department¹¹

When considering the individual income heads, 'Income from Other Services' is the highest generator of income with 'Marine Services' the second highest. There is not much difference between the two with 'Marine Services' forming 24 percent of the total share and 'Other Services' forming 25 percent of the total share. The 'State Income' is another head which also has a major contribution to the income having 22 percent of the total share. Between these three income heads, a major part of the Income generated by the GMB ports gets covered¹¹.

While considering the growth over the years, the income generated from 'State Income' has the maximum growth of 20 percent. However, this income is a fixed income from the state. Till now it was 15 percent of what the state earned and now it has reduced to 5 percent. 'Financial services' and 'Marine services' have the second most growth rate of 14 percent each. The other services have also been growing well with 'Port Infrastructure facilities' having a growth of 8 percent and 'Income from Other Services' having a growth of 12 percent. The minor incomes consisting of other revenue sources have had a slow growth of 3 percent with income heads 'Cleaning, Forwarding & Stevedoring' and 'Ship Building Yard' having a negative growth¹¹.

Gulf of Kutch (North) is highly dependent on 'Income from Other Services' for income. The 'Income from Other Services' contributes to about 66.3 percent of Gulf of Kutch's (North) total income with a growth of 16.7 percent. The next major contributor for this region is 'Other Income' and it forms 29.7 percent of Gulf of Kutch's (North) total income. The other income heads do not contribute much to the income of this region and they form only 4 percent of the total region's income. However, in case of growth, 'Other Income' has had the most growth followed by 'Financial Services'. 'Port Infrastructure facilities' is a cause for concern with a negative growth rate¹¹.

For Gulf of Kutch (South) region, the major income is divided between four income heads. These income heads would be 'Port Infrastructure facilities', 'Marine Services', 'Income from Other Services' and 'State Income'. Of these, 'Marine Services' forms the major part of the income with its share of 33.8 percent of the total income of the region with a growth of 9 percent. The next major income head is 'Income from Other Services' with 24.5 percent share of the total income and a growth of 6.5 percent. 'Port infrastructure facilities' and 'State Income' contribute 21.4 percent and 16.9 percent to the total income respectively with a growth of 1.4 percent and 38.9 percent. The other income heads only contribute 3.4 percent to the total income of this region¹¹.

'State Income' has had the maximum growth in this region while 'Other Income' and 'Financial Services' are causes of concern with a negative growth rate.

The three major income heads of Gulf of Khambhat (East) region are 'Port Infrastructure facilities', 'Marine Services' and 'State Income'. The 'State Income' is the major contributor with 35.6 percent share followed by 'Marine Services' with 34.8 percent share. 'Port Infrastructure facilities' form 21.1 percent of the total income of this region. The other 8.5 percent is divided between the other income heads. 'Marine Services' has the maximum growth of 43.1 percent while 'Equipment & Harbor Craft Rental', 'Ship Recycling Yard', 'Ship Building Yard', 'Other Income', and 'Financial Services' are all having a negative growth rate. So this region needs to be focused upon because of many income heads having negative growth¹¹.

Gulf of Khambhat (West) is highly dependent on 'Ship Recycling Yard' for income with this income head forming 77.6 percent of the total income for this region. The other 22 percent is divided between the other income heads with no income head having a large share. 'Other Income' has had the maximum growth in this region at 104 percent with 'Ship Building Yard' coming second at 63.7 percent. 'Cleaning, Forwarding & Stevedoring' and 'Financial Services' in this region have a negative growth rate and must be considered for improving.

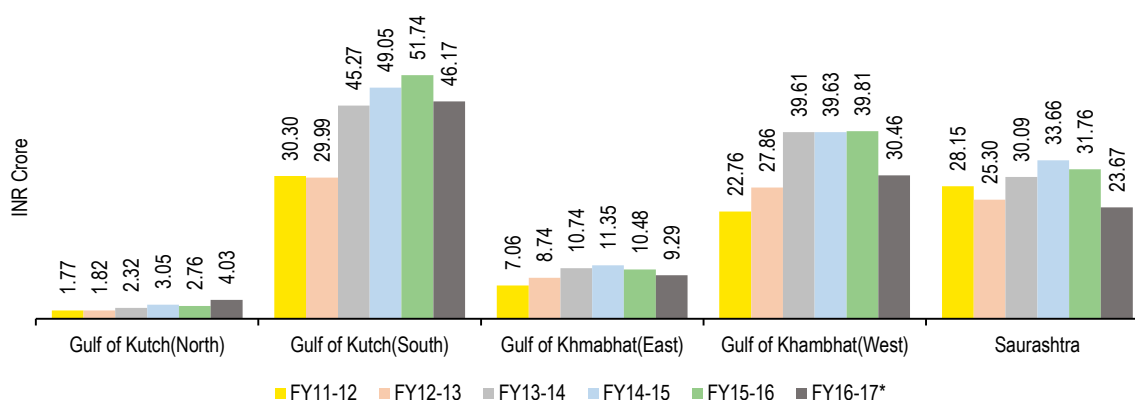
For Saurashtra region, there are five income heads that are the major contributors to the income of this region. The major contributor is 'Port Infrastructure facilities' with 26.9 percent share. The next is 'State income' and 'Marine Services' with 19.4 percent of share each, then 'Storage Area & Land Rental' with 15.7 percent share and finally 'Equipment & Harbour Craft Rental' with 12.8 percent share. The other income heads do not have much contribution to the total income. For Saurashtra, 'Equipment & Harbor Craft Rental' shows the most growth at 41.9 percent followed by 'Port Infrastructure facilities' at 24.3 percent. 'Storage & Land Rental Area', 'Ship Building Yard', 'Income from Other Services', 'Other Income' and 'Financial Services' are the heads showing negative growth. 'Ship Building Yard', 'Income from Other Services' and 'Other Income' are showing high negative growth and must be addressed. The graphs for the analysis done can be found in the Annexure¹¹.

2.3.2 Expenditure

Overall, the revenue expenditure of GMB is not that high. However, while considering region wise, Gulf of Kutch (South), Gulf of Khambhat (West) and Saurashtra have high expenditure. Gulf of Kutch (North) and Gulf of Khambhat (East) are regions with less expenditure. The expenditure of Gulf of Kutch (South) is justified with the traffic it handles. However, Gulf of Khambhat (West) and Saurashtra have high traffic without any traffic to justify. Gulf of Kutch (North) is the most efficient in handling its expenditures. Gulf of Khambhat (East) is doing decently well too.

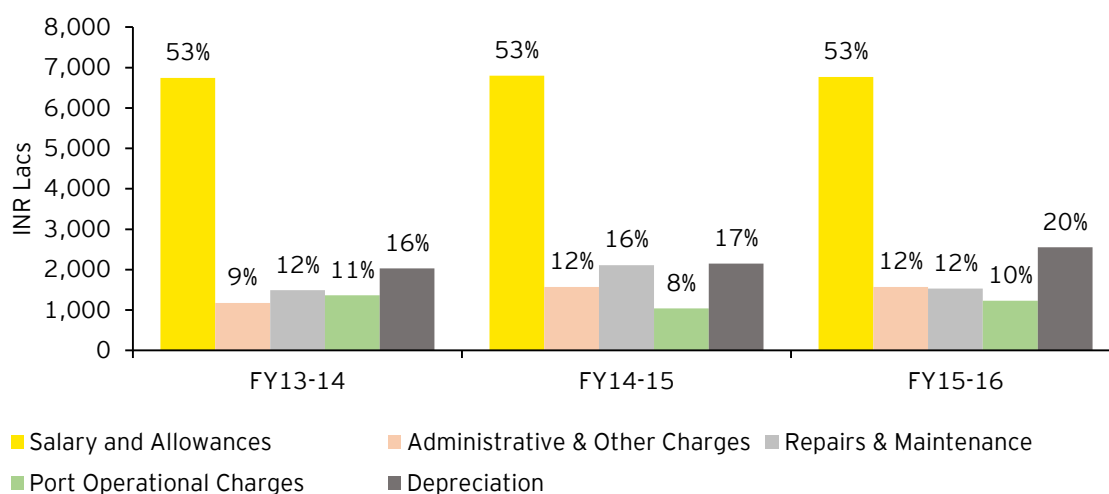
Even though Gulf of Kutch (South) has the highest revenue expenditure, it has a growth of 14.3% and is the second highest growth. The Gulf of Khambhat (West) has the maximum growth of revenue expenditure of 15%. The Gulf of Kutch (North) and Gulf of Khambhat (East) have a growth of 11.8% and 10.4% respectively. Saurashtra has had the least growth of 3.1%¹¹.

Figure 2 - 1 Geography Wise Revenue Expenditure



Source: GMB, Finance & Accounts Department¹²

The major components that form the revenue expenditure for the GMB operated ports are 'Salary and Allowances', 'Administrative and other charges', 'Repairs and maintenance', 'Port operational charges', 'Finance charges', 'Depreciation', 'Contribution to trust fund', and 'Advance tax provision'. These are called the revenue expenditure heads. The expenditures that fall under the heads, 'Contribution to trust fund', and 'Advance tax provision' are incurred at Gandhinagar and not at the port locations.

Figure 2-14: Revenue Expenditure Distribution¹³

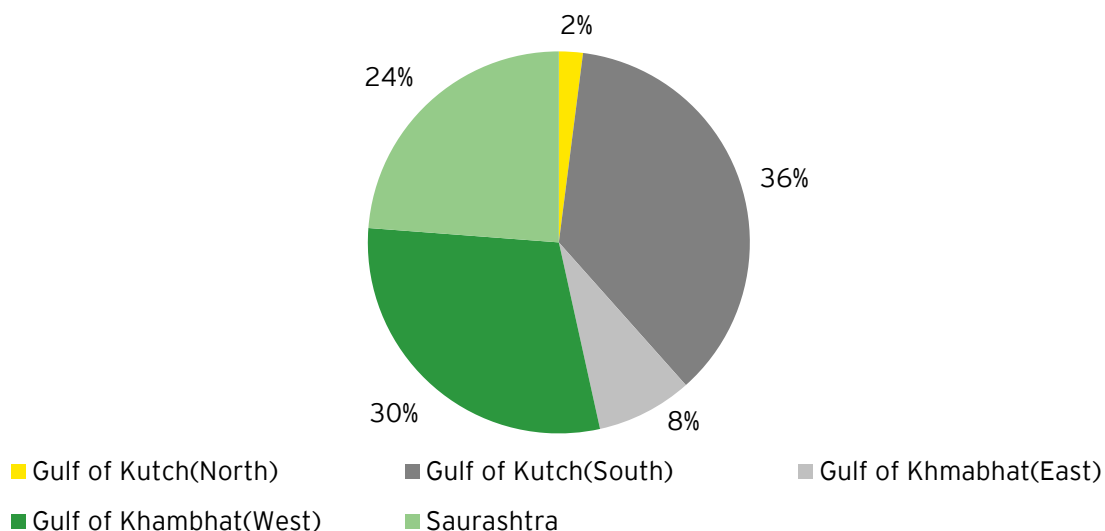
Source: GMB, Finance & Accounts Department¹²

The major component for the revenue expenditure for all regions is 'Salary and Allowances' forming 51% of the total revenue expenditure spent by the GMB. The next major expenditure comes out to be 'Depreciation'. However, it is only 13% of the total revenue expenditure spent by GMB. We will be considering only analysis of 'Salary and Allowance' region wise as the other expenditure heads do not contribute much for any region. Thus, 'Salary and Allowance' is the most important expenditure head which needs to be explored further.

¹² The figures of FY16-17 are budgeted and not the actual figures

¹³ Finance charges have been clubbed with Administrative & Other Charges

Figure 2-15: Breakup of Salary and Allowances Region Wise



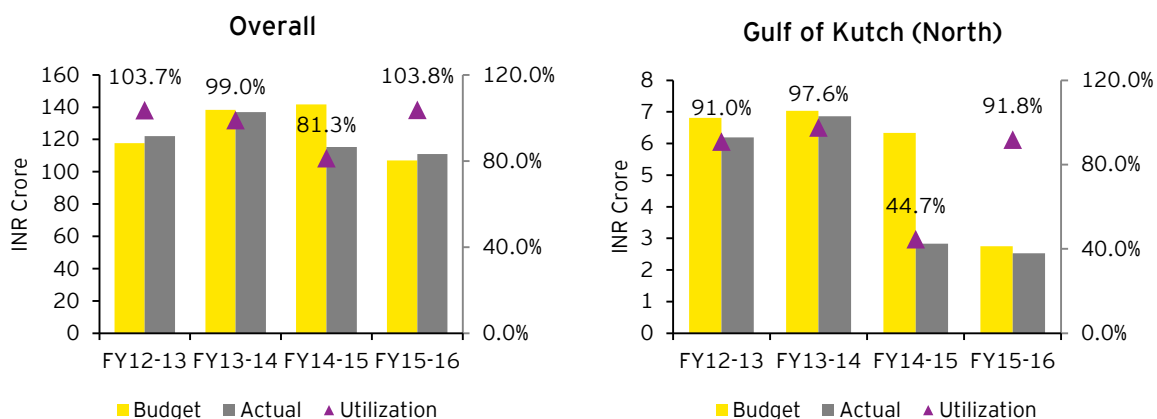
Source: GMB, Finance & Accounts Department¹²

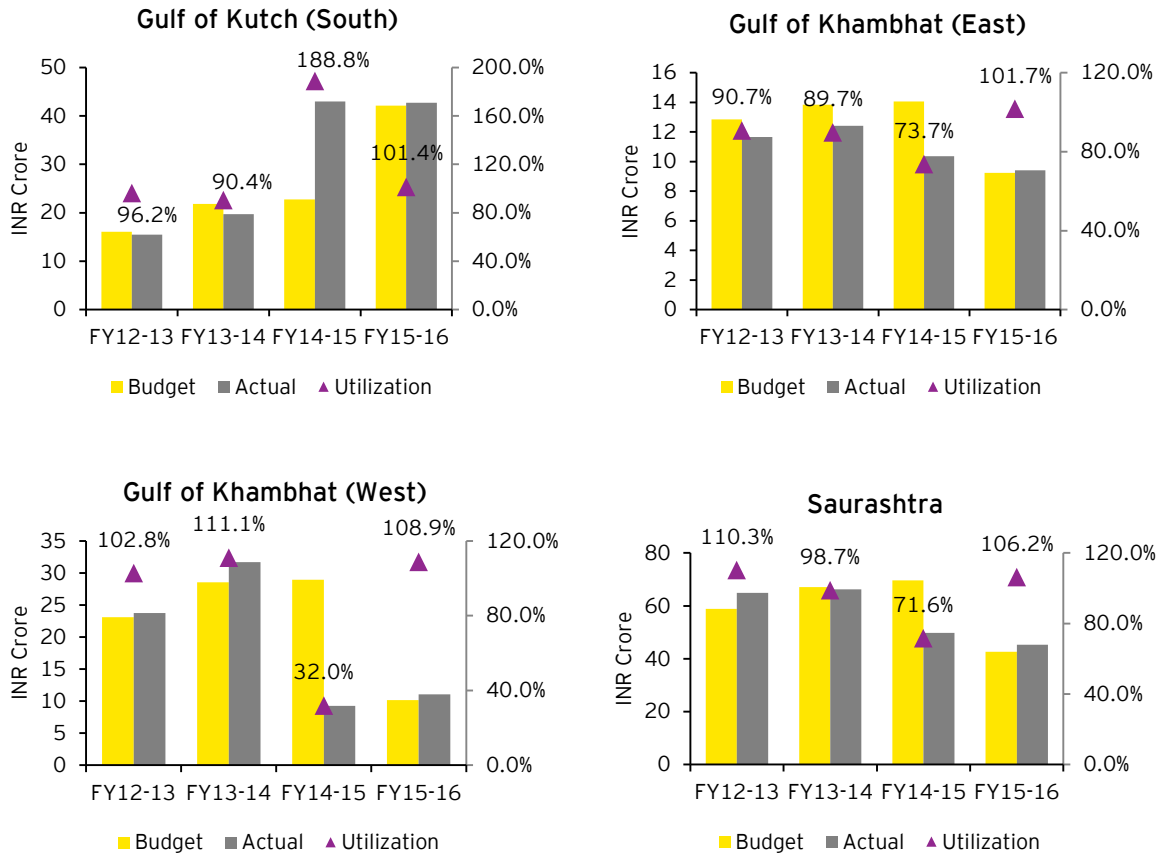
While breaking up the major component of the revenue expenditure, which is 'Salary and Allowances', we can see that the major portion i.e. 36% is being distributed in the Gulf of Kutch (South) Region. This can be justified with the traffic handled and the income of this region. However, the Gulf of Khambhat (West) and Saurashtra are two regions where neither the traffic nor the income generated by the ports is high. Still the regions contribute to 30% and 24% respectively to the 'Salary and Allowances' head. The Gulf of Kutch (North) has the least contribution of all. Gulf of Khambhat East also has a less contribution in 'Salary and Allowances'¹².

For 'Salary and Allowances' Gulf of Kutch (North) has the maximum growth rate of 6.3%. Gulf of Kutch (South) has a low growth rate of 2.5%. The other three regions are doing well in this case. Gulf of Khambhat (East) has almost a 0 growth rate for this expenditure head. Gulf of Khambhat (West) and Saurashtra have a negative growth rate of -1.5% which is considered to be good¹².

While comparing the budget with the actuals, we find that overall, GMB is utilizing almost as much as it is budgeting. This means that there is not much difference between the budgets and actuals of revenue expenditure and GMB is able to predict its revenue expenditure for its subsequent year with high accuracy on an overall basis.

Figure 2-16: Budget vs Actuals for Revenue Expenditure



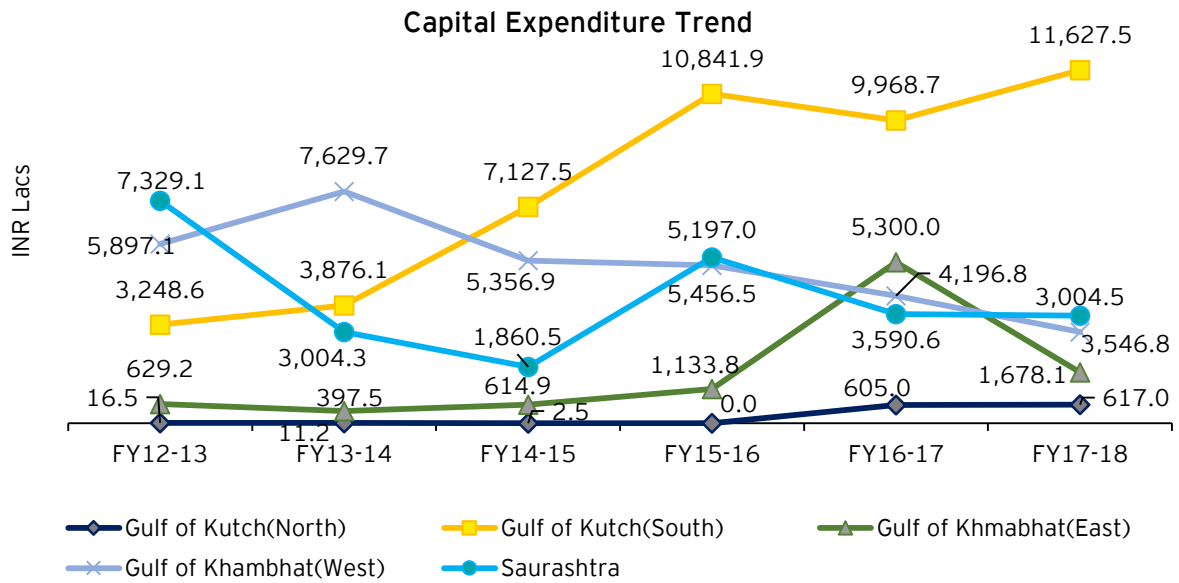


GMB, Finance & Accounts Department¹²

When considering region wise budget and actual figures, the GMB has been able to figure out the utilization with high accuracy. However, from Figure 2-16 we can see that in the financial year 2014-15, there were high variation in utilization of revenue expenditure for all the regions. It did not affect the overall utilization by much but regions had variable utilization. Gulf of Kutch (South) utilized higher than what it had budgeted while the other regions had considerably less utilization as per their budgets. This could be attributed to the reason that budgeting of the regions would have been mixed up and budget that should have gone to Gulf of Kutch (South) region went to the other regions.

GMB has been steadily investing in capital over the years. The following figure shows the budget trend of capital spent by GMB for its operating ports.

Figure 2-17: Trend of Budget Allocation on Capital Expenditure

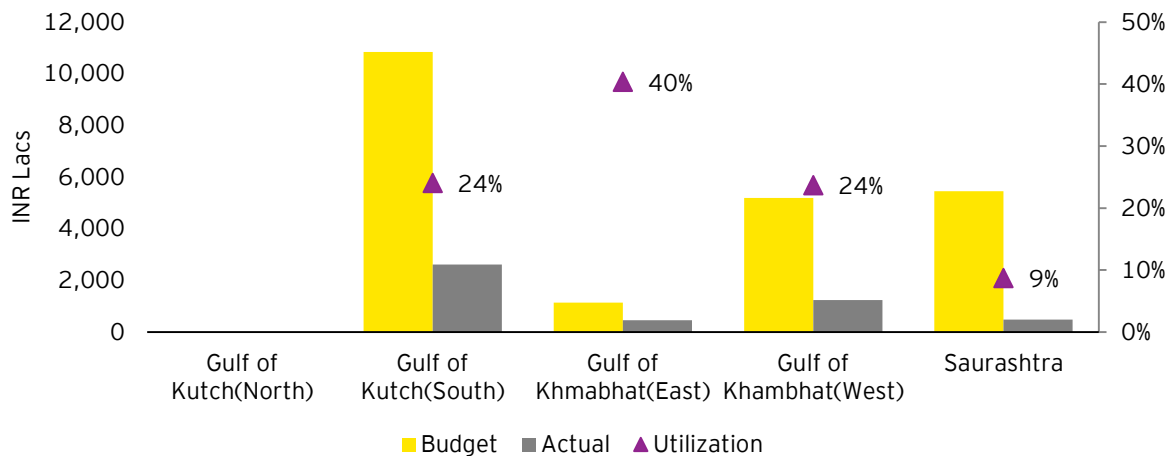


Source: GMB, Finance & Accounts Department¹²

From the trend it is clearly seen that GMB is not interested in investing in Gulf of Kutch (North) region. The investment for this region has been decreasing over the years and it was zero in the financial year 2015-16. The reason for not investing in this region is the presence of high traffic yielding ports of Mundra and Kandla. However, a plan is made for developing a jetty for local small scale customers and budget for it will be allocated in the oncoming years.

GMB is currently focusing on the Gulf of Kutch (South) region as is evident from the figure. The investment in this region has been increasing substantially over the years and it continues to increase in the oncoming years. GMB is steadily losing interest in the Gulf of Khambhat (West) region. For the other regions, the capital investment is in varying proportions over the years.

Figure 2-18: Capital Expenditure - Budget Allocation and Actual spending



Source: GMB, Finance & Accounts Department

Even though GMB is investing millions of INR in capital, it is not utilizing capital as budgeted. Figure 4-5 depicts the actual usage of the capital when compared to the budgeted figure for the financial year 2015-16.

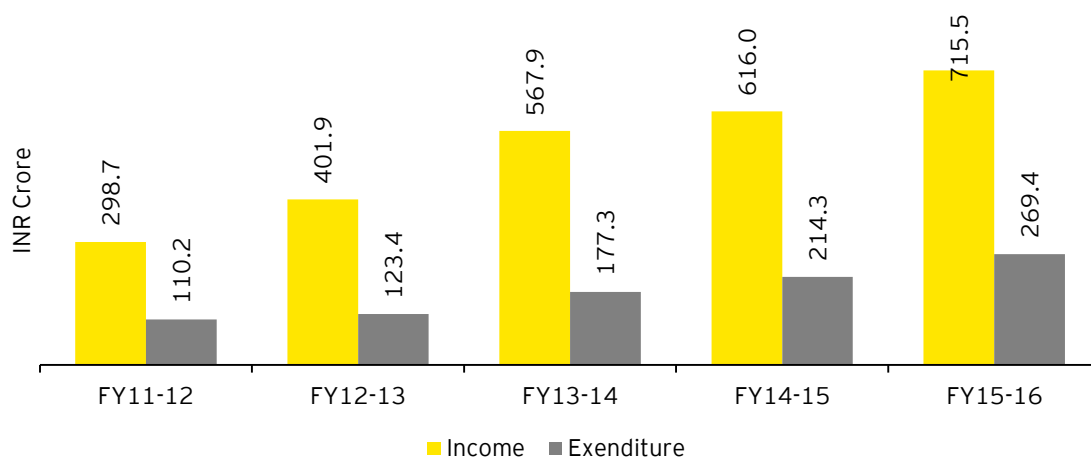
Even though GMB wish to invest more in the Gulf of Kutch (South) region, the utilization of that capital is only 24%. GMB has not done much capital investment in Gulf of Khambhat (East) region but its utilization is the maximum at 40%. GMB needs to have a control over budgeting for the capital expenditure and should focus on the actuals of the previous years for this exercise.

Note: For capital expenditure, the actuals for the port wise was provided by GMB for financial year 2015-16. For the rest of the years, port wise budgeted figures were provided by GMB. In addition to this, the capital expenditure head wise data was not provided by GMB.

2.3.3 Performance

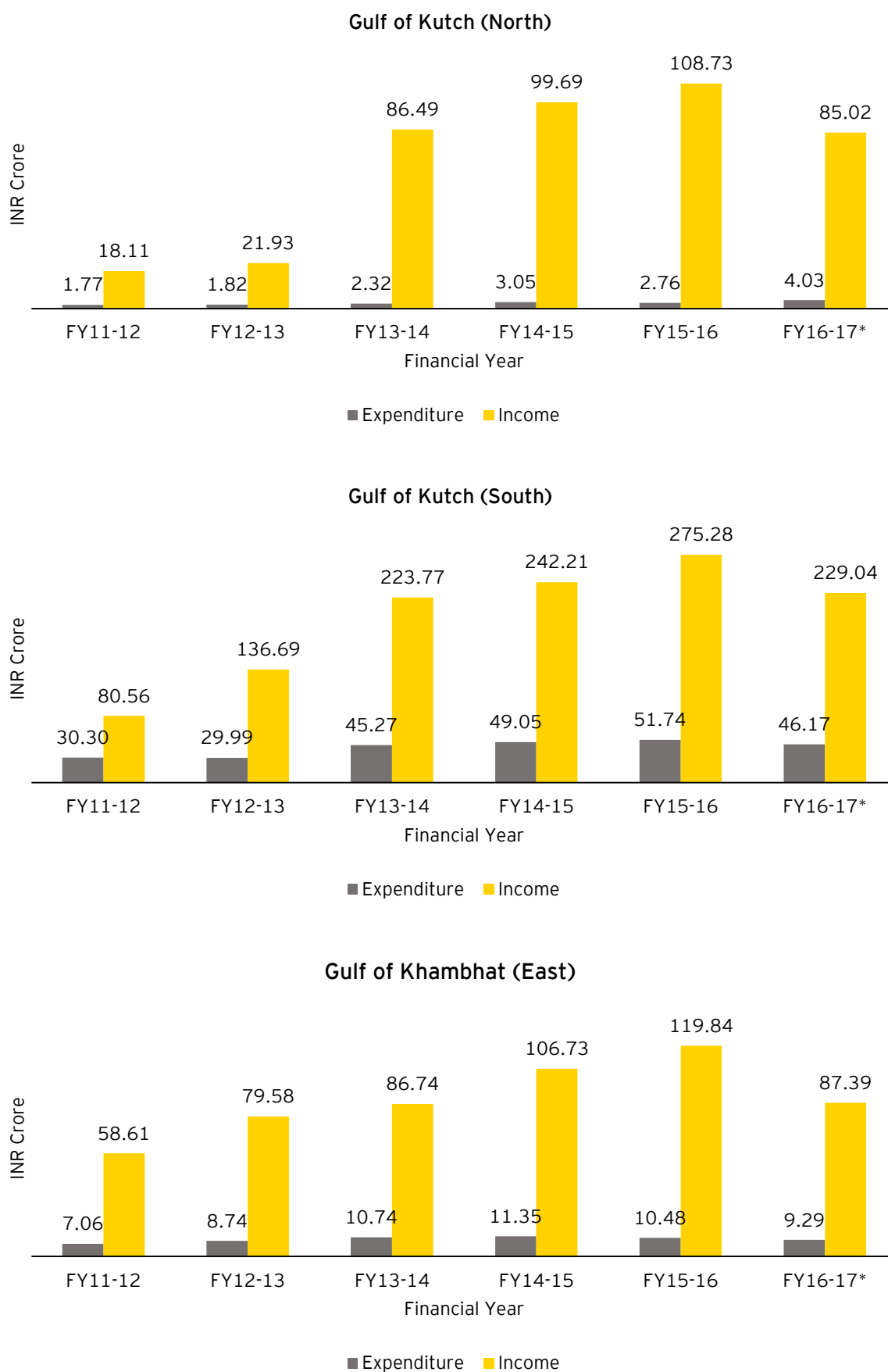
Comparing income of GMB with its revenue expenditure, overall the income has been higher than the expenditure over the years. Moreover, the overall growth of income is good with a rate of 24.4% per annum. The overall revenue expenditure has been less but it has been growing at a rate of 25% per annum which is a high rate.

Figure 2-19: Overall GMB Income vs Expenditure

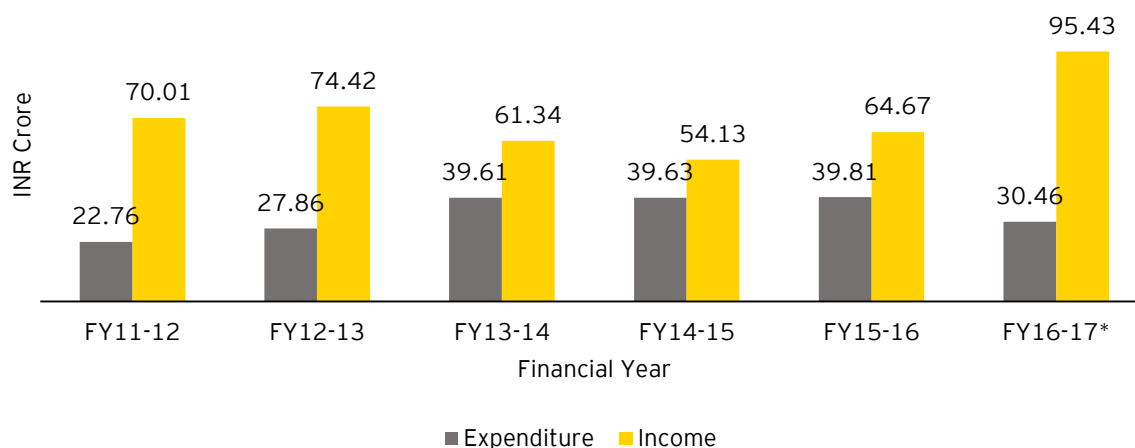


Gulf of Kutch (North) has minimal revenue expenditure compared to income. This would mean that this region earns more from other income than port operations. This other income is mainly generated as charges of private port, majorly Mundra. Gulf of Kutch (South) has some revenue expenditure but it's still not up to the income generated leading to inference that a major chunk of its income is other than port operations. Gulf of Khambhat (East) has some revenue expenditure but it's still not up to the income generated leading to inference that a major chunk of its income is other than port operations. Gulf of Khambhat (West) has considerable revenue expenditure. The major source of their income and revenue expenditure is their 'Ship Recycling Yard'.

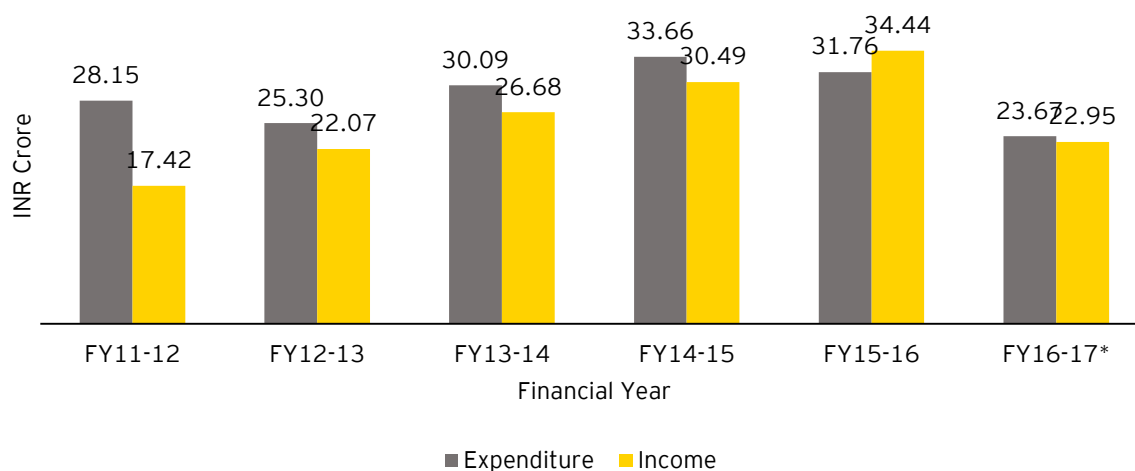
Figure 2-20: GMB Regions - Income V/s Expenditure



Gulf of Khambhat (West)



Saurashtra

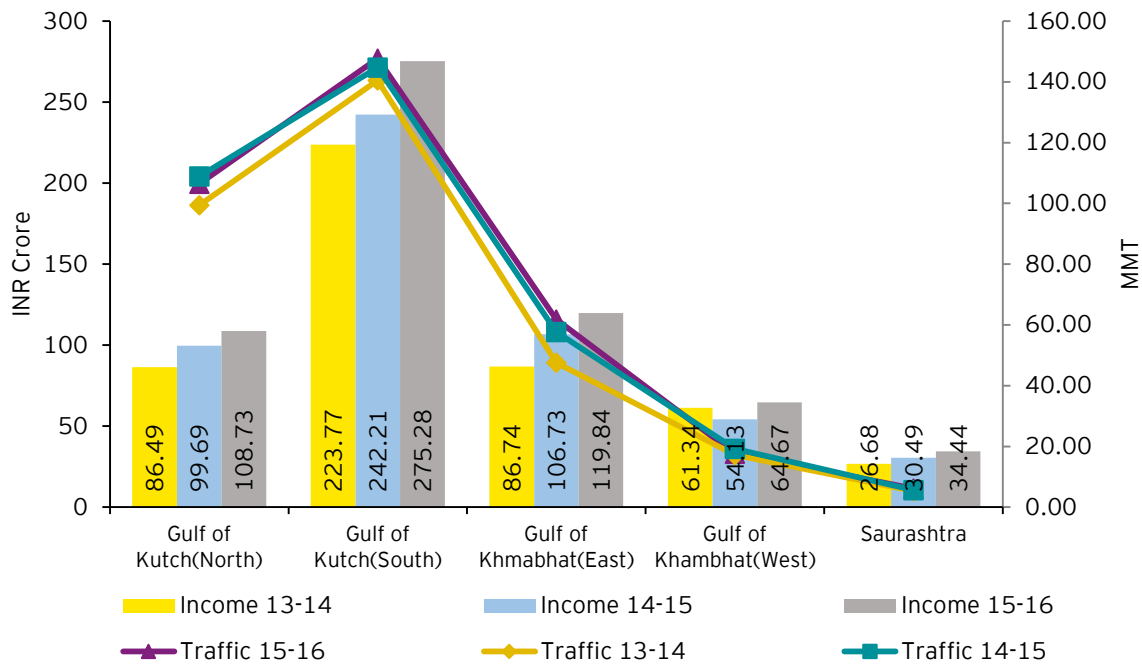


Source: GMB

Saurashtra region is not doing well as can be seen from the graph. The revenue expenditure is greater than the income in financial years 2011-12, 2012-13, 2013-14 and 2014-15. This is becoming stable only in financial year 15-16 but still does not have much difference. The major reason for Saurashtra region not doing well is the port of Veraval. The fisheries are present in the Veraval region. Because of their presence, trade is not being done at that port but expenses are occurred each year to maintain that port.

A correlation analysis was done for traffic and income and also for income and expenditure. Overall, the traffic and income has a strong positive correlation. While correlating traffic with income region wise, a strong positive correlation was observed for all regions except Gulf of Khambhat (East). This is because, in this region the major source of income is Alang which is a ship building yard. So the income in this region is highly dependent on shipbuilding rather than traffic. For the other locations, the growth of traffic is strongly responsible for generating income.

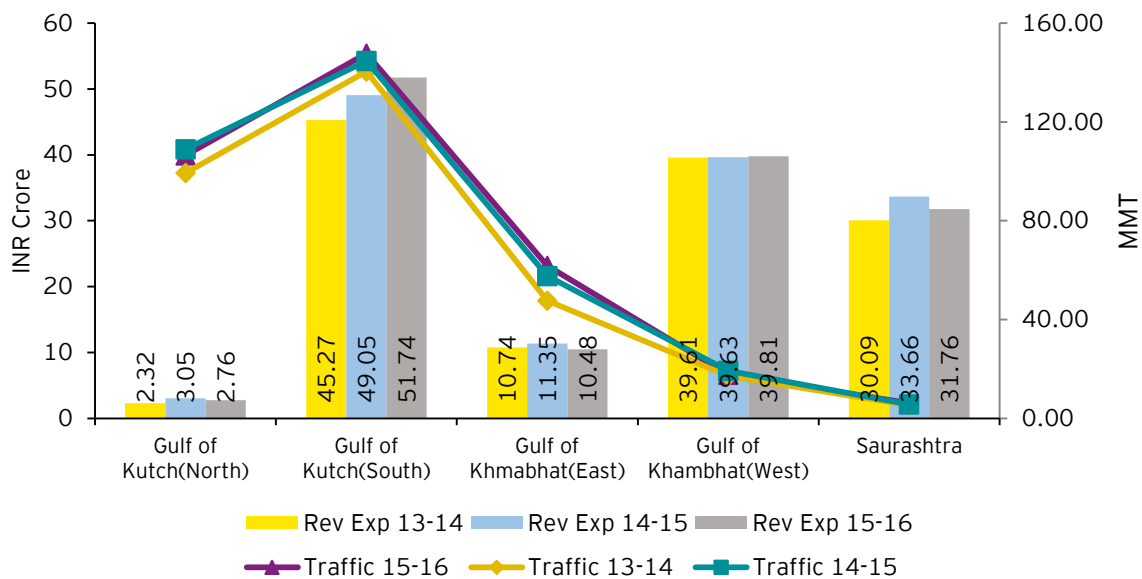
Figure 2-21: Traffic vs Income



Source: GMB Traffic and Accounts data

A correlation analysis was also done for traffic and expenditure. Overall, traffic and expenditure show strong positive correlation. Region wise, we find that the Gulf of Kutch North and South have strong positive correlation. Saurashtra has a weak positive correlation while the remaining two regions have a weak negative correlation. This means that incurring expenses in the Gulf of Kutch region will lead to an increase in traffic of that region. Similar will be the case of Saurashtra but the traffic growth will be less. However, for Gulf of Khambhat region, the increase in expenditure will have a negative impact on increase in traffic.

Figure 2-22: Traffic vs Expenditure



Source: GMB Traffic and Accounts data

An overall comparison of income and expenditure is given in Figure 2-19. While correlating income with expenditure, we find varied reasons for different regions. However, overall there is a strong positive correlation between income and expenditure. Gulf of Kutch (South) has a strong positive correlation. This means that investing in revenue expenditure leads to increase in income. Gulf of Kutch (North) and Gulf of Khambhat (West) have a positive correlation. This means that investing in revenue expenditure would not lead to a great increase in income. Saurashtra region has a weak positive correlation. So increasing its revenue expenditure will increase its income but by a negligible amount. Gulf of Khambhat (East) has a negative correlation. It signifies that the expenditure in this region needs to be decreased in order to increase revenue.

Table 2-8: Operating Expense Ratio

Group of ports	OER		
	FY13-14	FY14-15	FY15-16
Alang	32%	31%	32%
Bharuch	6%	5%	5%
Bhavnagar	132%	150%	111%
Jafarabad	23%	26%	24%
Jamnagar	12%	13%	12%
Mandvi	3%	3%	3%
Magdulla	20%	19%	13%
Navlakhi	53%	49%	52%
Okha	108%	77%	64%
Porbandar	144%	127%	86%
Veraval	187%	183%	225%
Total	26%	26%	23%

Source: GMB database

Mandvi and Bharuch have the best OER of all the jetties. Bhavnagar and Veraval are causes of concern with high OER. Jamnagar has the maximum income and is maintaining a decent OER. Even though Mandvi has the best OER, its income primarily comes from other services. Bharuch has good OER but less income when compared to other ports. OER should ideally be as low as possible. From the above table we can see that Bhavnagar, Okha, Porbandar and Veraval are causes of concern in case of OER and analysis needs to be done as to why this is.

Table 2-9: Traffic, Revenue Expenditure, and Income Distribution Region Wise

Geographical Location	Traffic	Revenue Expenditure	Income
Gulf of Kutch (North)	High	Low	High
Gulf of Kutch (South)	High	Moderate	High
Gulf of Khambhat (East)	Moderate	Moderate	High
Gulf of Khambhat (West)	Low	Moderate	Moderate

Geographical Location	Traffic	Revenue Expenditure	Income
Saurashtra	Low	Moderate	Low

Source: GMB database

Combining the correlation analysis that we have done above and OER, we find that overall, the traffic is high and incurring expenditure leads to a better traffic and income generation. Considering the region wise analysis, The Gulf of Kutch (North) has strong correlations overall and its OER is also low. Thus, the traffic here is high and is generating good income while incurring less revenue expenditure. This means that this region is doing well. This can mainly be attributed to the Mundra port in this region. Similar is the situation with Gulf of Kutch (South) region. For this region, Sikka is the key port.

For Gulf of Khambhat (East), the traffic is moderate. The income is high but the expenses are also higher. Expenditure here is required for maintaining the operations but this expenditure is not affecting the traffic or the income. Although the income is still dependent on traffic. An example can be the siltation problems that Dahej port is facing.

For Gulf of Khambhat (West) has low traffic but expenditure is moderate. The income is also on a moderately higher side. Here expenditure is required to maintain operations but it does not affect the traffic. However, expenditure affects the income more than traffic does. This could be attributed to the existence of shipbuilding yards in this region.

For Saurashtra region, the income and expenditure are almost on a similar level. Moreover, they are moderately high. However, the traffic for this region is the lowest. Still an increase in expenditure leads to an increase in traffic and income but the OER of this region is too high. As a result, focus should be on increasing the income and traffic without increasing the expenditure. A major reason for this as mentioned earlier is the presence of fisheries industries that hinder port operation.

2.3.4 Challenges

The major challenges faced by GMB are as follows.

- ▶ GMB allocates considerable capital budget GMB ports. However, there is limited utilization of this capital budget.
- ▶ The OERs of some GMB ports are high. These ports include Bhavnagar, Okha, Veraval and Porbandar. This means that their expenditure is greater than income. These ports need to focus on reducing their expenditure.
- ▶ For Sautashtra region, the fisheries industries are affecting the port operations. This is a cause of concern and a solution needs to be developed for it.
- ▶ Gulf of Khambhat (West) and Saurashtra are regions with less income and a moderate revenue expenditure. Detailed analysis needs to be done for these regions regarding their financial performance and there is a need to explore options for revenue generation for this region.

2.4 Infrastructure Development

The efficient movement of goods is crucial to economic growth. In developing countries, the lack of proper infrastructure, including ports, can mean the difference between sustainable progress and persistent under-development.

Gujarat Ports have been an important contributor to the state's and nation's economy. They service the industries in direct hinterland i.e. Gujarat as well as the internal land locked hinterland of Northern and Central India. An integral component of the 1995 Port Policy was to develop and augment port related infrastructure facilities like roads, railways and coastal shipping into the hinterland along with port facilities in order to support industrialization in the hinterland.

2.4.1 Investment in Infrastructure

To achieve this GMB has regularly and extensively invested in developing port and hinterland side infrastructure for better vessel and cargo handling as well as evacuation of cargo. Gujarat has always been forefront in developing quality connectivity infrastructure and the ports have been well connected by road and rail. Greater evacuation capacity and efficient service delivery has helped in increasing cargo share of GMB operated ports to 73% of total traffic handled by all non-major ports of India growing at a CAGR of 10% in the past 5 years.

In financial year 2016-17 alone Gujarat Maritime Board had spent INR 48 crores¹⁴ over INR 45 crores spent in financial year 2015-16, in infrastructure projects relating to augmenting and enhancing port efficiency and connectivity. The nature of projects were divided under the following heads

Table 2-10: GMB's expenditure in infrastructure related projects

Sr. No.	Nature of Projects	2015-16	2016-17	Budgetary Provision 2017-18
1	Enhancement in Cargo Handling Capacity	4.77	3.25	10.02
2	Improvement in Port Operational Efficiency	38.15	27.21	51.58
3	Improvement of Asset Utilization	2.20	14.39	15.65
5	Improvement of connectivity to port	0.00	2.66	6.58
	Total Expenditure/Provision	45.12	47.51	83.83
All figures in INR Cr		<i>Source: GMB, Finance & Accounts Department</i>		

The expenditure on infrastructure projects made up approximately 15 percent of total budgetary expenditure in financial year 2016-17. A further budgetary provision of approximately INR 84 crores has been made for financial year 2017-18, 76 percent higher than the actual expenditure in 2016-17.

2.4.2 Port and Hinterland side infrastructure

GMB operates 11 jetties of the total non-major ports dotting Gujarat's coast line. The primary function of GMB, towards providing infrastructure, is construction of the port complex and jetty, maintaining the shipping channels through dredging and developing last mile connectivity.

A. Vessel Side

In order to maintain & sustain port activities, GMB provides shipping, berthing, beaching, piloting & dredging facilities for smooth & efficient working. The facilities provided are at par with changing

¹⁴ Activity head wise capital budget for 2016-17, GMB

shipping technologies and also to adhere to International Maritime Organisation (IMO) norms & guidelines which are applicable from time to time to enhance port operation & capacity.

GMB carries out the above activities through various Tugs, Dredgers and Pilot Launches that it owns and adheres to changing shipping technologies. GMB has planned to procure Tugs & Pilot Launches with state of art facilities for shipping & piloting purpose for safe berthing of the vessel.

GMB owns six dredgers which are used for channel maintenance for GMB ports and Private Jetties. In year 2016-17 GMB carried out a cumulative dredging of 16.39 lakh cubic metres of which 11.29 lakh cubic metres was capital dredging and 5.1 lakh cubic metres was for maintenance dredging. In case of capital dredging 0.47 lakh cubic metres was done for Jafarabad which was not for GMB ports but for the fisheries present there. In case of maintenance dredging 0.33 lakh cubic metres was done for GMDC for the maintenance of their channel to the power plant. In both the cases, dredging services were provided to these third parties with a purpose of generating additional revenue. Further dredging activities are planned to facilitate deeper draft vessels and direct berthing in order to reduce turnaround time and increase efficiency.

B. Port Side

GMB is responsible for construction of jetties and port complex. Type of projects which feature in regular construction and maintenance of port facilities are,

- ▶ Construction, augmentation and maintenance of jetties,
- ▶ Land acquisition for expansion
- ▶ Up-gradation of basic infrastructure like electricity, water supply, drainage etc.,
- ▶ Construction of port side buildings and offices
- ▶ Purchase of equipment like Forklifts, firefighting equipment
- ▶ Construction and maintenance of lock gates, etc.

Cargo handling machinery and equipment is employed by private operators contracted by GMB to Shipping Companies, who themselves install and maintain such machinery and equipment.

C. Hinterland Side

GMB also executes projects to improve last mile connectivity with ports. The nature of projects include construction and maintenance of roads leading from ports to main roads or highways

2.4.3 Potential and Challenges

Maritime nations such as China, South Korea, Japan, the United States of America, etc. have effectively used their coastline for port-led industrial development. Gujarat as a state is highly industrialized and based on the existing initiatives by the State and Central Government, future potential of industrial growth in the next five years is immense. Gujarat currently houses 106 industrial clusters in engineering, textiles, Gems & Jewellery etc. The state also houses two Special Investment Regions; Dholera Special Investment Region and Gujarat Petroleum, Chemical & Petro Chemical Special Investment Region at Dahej. The Sagarmala Project by Central Government also proposes creation of three theme based Coastal Economic Zones in the state which will be aligned to existing ports. For Gujarat to create a sustainable environment of port led industrialization in the next five years, GMB shall have to expedite the development of necessary port and logistic infrastructure

- ▶ Master plan for modernization of ports as well as development or retrofitting existing ports for product specific uses

- ▶ Network of storage and warehousing facilities in port regions
- ▶ Development of energy infrastructure to support the future requirements
- ▶ Multi-Modal last mile connectivity infrastructure; rail, road & barges
- ▶ Smart Port Logistics - Changing the way logistics evacuation is operated saving logistics costs nationwide for cargo handled and evacuated through seaports

Globally ancillary infrastructure have played a part in providing value added facilities as well as revenue improvement. Therefore developing such ancillary services and infrastructure would be equally important GMB

- ▶ Bunkering is an imperative ancillary industry and is at a nascent stage in Gujarat, thus encouraging bunkering facilities to come up along the region on existing ports is necessary
- ▶ The potential coastal movement of cargo for transshipment is fairly underutilized and therefore requires infrastructure as well as vessel
- ▶ Creation of port side infrastructure for promotion of tourism has helped in improvement of revenue sources
- ▶ Additional projects like the Ro-Pax project between Gogha and Dahej are required to be implemented
- ▶ Absence of other services like Ship Chandler services, Ship to Ship transfers, etc.

2.5 Safety & Security

Maritime Safety and Security is a key area for GMB because safe, secure navigational waters is vital in order to bolster the movement of goods and people amongst all stakeholders in ports Gujarat. GMB follows recommendation as per international and national compliance norms.

2.5.1 Initiatives for Maritime Safety and Security by GMB

A. Navigational Safety in Ports Committee (NSPC) Compliance

For navigational safety in ports, representative from GMB has been appointed to coordinate with Director General, Shipping Office directly to comply with the recommendations of the committee.

B. Implementation of ISPS Code on Gujarat Coast

GMB is developing an Integrated Security Management System (ISMS) which will handle security related sub-systems such as the Security Management, useful in Disaster Management & Environment Management considering the required of International Standards of Port Security (ISPS) Code and IB Guidelines related Information Technology. The system would help in proactive identification of disaster/emergencies & help in an automated response mechanism. The project is planned to be implemented in two phases, in phase-1 the locations to be included are Navlakhi Port, Okha Port, Porbandar Port, Jamnagar Port, Surat Port and Gandhinagar Head Office.

C. Vessel Traffic Management System

GMB has taken various initiatives to secure its coast, one of them is through the advance VTMS system, in Gulf of Kutch it is operational since 2008 whereas Gulf of Khambhat is operational since 2010, and GMB is planning to extend the cover to the remaining coastal area from Okha to Jafrabad.

D. Buoy based navigation guidance

GMB provides & maintains channel marker buoys at Magdalla, Veraval, Okha, Jamnagar and Navlakhi ports for safe piloting and navigation as per International Association of Lighthouse Authorities (IALA) guidelines. GMB has also planned to upgrade buoy infrastructure at Okha Port.

E. Coordination with DGS, Lighthouse, Navy, Coast Guard, Intelligence Agencies, Marine Police

Coordination with Director General of Shipping, Lighthouse, Navy, Coast Guard, Intelligence agencies on various issues related to coastal security on Gujarat coast is carried out. This includes various exercises such as Sagar Kavach, National Committee on Strengthening Maritime and Coastal Security against threat from sea. These activities are carried out under the chairmanship of Cabinet Secretary, Government of India.

F. Safety of Marine Crafts on Gujarat coast

Guidance is also provided by GMB on safety of marine crafts to the concerned Port Officers/Captive jetty holders/private jetty holders as well as private ports. Nautical Section issues guidelines for the safety of marine crafts on Gujarat Coast by installing Automatic Identification System (AIS), Global Positioning System (GPS), Navigational Charts, Navigational instruments like Echosounder, Radar, Navigational Light, Mast Light, Life Saving & Fire Fighting Equipment, etc.

G. Maritime Training Institute & Safety Related Training

Training & Welfare Complex (built in 2003) at Alang. In this Institute, different category of workers i.e. Gas Cutter, Crane Operator, Safety Supervisor etc. are trained during the year. During the year 2014-15, total of 14,527 workers were trained at the Training Complex and from 2003 to March-2013 a total of 97,260 workers have been trained.

Trainings provided in the Alang institute include an introduction to ship recycling, steel/metal cutting, locational hazards, hazards in ship recycling, safety in material handling, fire & explosion safety, first aid & emergency response, and basic awareness about environment and cleanliness. Each of these trainings last two days and are done through lectures, demonstrations and visual aids.

Table 2-11: GMB's expenditure in Safe & Secure Cargo Handling

Sr. No.	Nature of Projects	2015-16 (INR Cr.)	2016-17 (INR Cr.)	Budgetary Provision 2017-18 (INR Cr.)
1	Environment Friendly, Safe & Secured Cargo Handling	6.66	13.56	49.84

Source: GMB, Finance & Accounts Department

In financial year 2016-17 Gujarat Maritime Board had spent INR 14 crores¹⁵ over INR 7 crores spent in financial year 2015-16, on environment friendly, safe and secured cargo handling initiatives.

¹⁵ Activity head wise capital budget for 2016-17, GMB

2.5.2 Challenges in Safety and Security

As the cargo share handled by Gujarat increases, the state will see larger number and deeper vessels being called at the ports. Safety and sustainability go hand in hand; including initiatives for improving safety in vessel navigation and handling, there is a need to develop a larger macro plan for safe and sustainable port operations.

- ▶ For sustainable operations, the ambit of safety should entail all three aspects - Safety for vessels, coast line, environment and staff. Coastline and Environment will form part of environmental safety
- ▶ GMB already has existing mechanisms for in place for maintaining safety in the above mentioned areas individually, however a comprehensive plan is required to be developed keeping the future in mind
- ▶ Port led industrialization would potentially increase the carbon footprint in the port region. GMB should also focus on capturing the renewable energy potential (wind, tidal and solar)
- ▶ Increased traffic will raise the risk of disasters like oil spills, grounding, port accidents, fires, etc. There is a for an in-house disaster management plan which mandates operational guidelines along with procedures to respond to such disasters
- ▶ In addition to this, for coastal and environmental safety, dredging and land reclamation poses threat to coastal ecology degradation like loss of mangroves, coastal erosion, sea life, etc.
- ▶ Ship building and recycling industry is currently facing business challenges, but has immense potential of growth based on Central Government initiatives like Make in India. A constant check and revision mechanism to be put in place in order to incorporate mitigation measures for new challenges faced.

2.6 Innovation & Skill Development initiatives

Skill development is essential for development of maritime industry. Considering the current role and future requirements, Gujarat should develop itself as a state of excellence in maritime education with international collaborations.

2.6.1 Skill Development

Projects for skill development in maritime sector have been categorized in strategic projects by GMB. GMB's plan for skill development include setting up of a world class maritime university as well collaborating with existing educational institutes. GMB spent around INR 16 crore in improvement of Administrative Efficiency, which consisted of developing facilities provide proper working environment to GMB personnel.

The following parameters showcase the need for skill development in Maritime sector in Gujarat:

- ▶ Exponential growth in maritime sector
- ▶ Changing nature of maritime business in Gujarat
- ▶ Skilled workforce to support proposed maritime cluster in Gujarat
- ▶ Very Limited options for maritime education in Gujarat
- ▶ Home to biggest & largest ports of India
- ▶ Centre of excellence focused more on commercial aspect of port operations

Gujarat Maritime University

Gujarat is in process of developing should house a maritime university to enable & encourage maritime studies, training, research & extension work with emphasis on emerging capacities of studies like oceanography, maritime laws, maritime security, environmental studies and other related fields.

In order to attract best faculty and students, the University will be located in Gandhinagar/Ahmedabad area. Gujarat Maritime Board has already initiated process of land identification and has communicated requirements to various government authorities like AUDA, GUDA, Ahmedabad and Gandhinagar collectorate offices. Construction of University is expected to be completed by early 2019.

GMB Polytechnic at Rajula

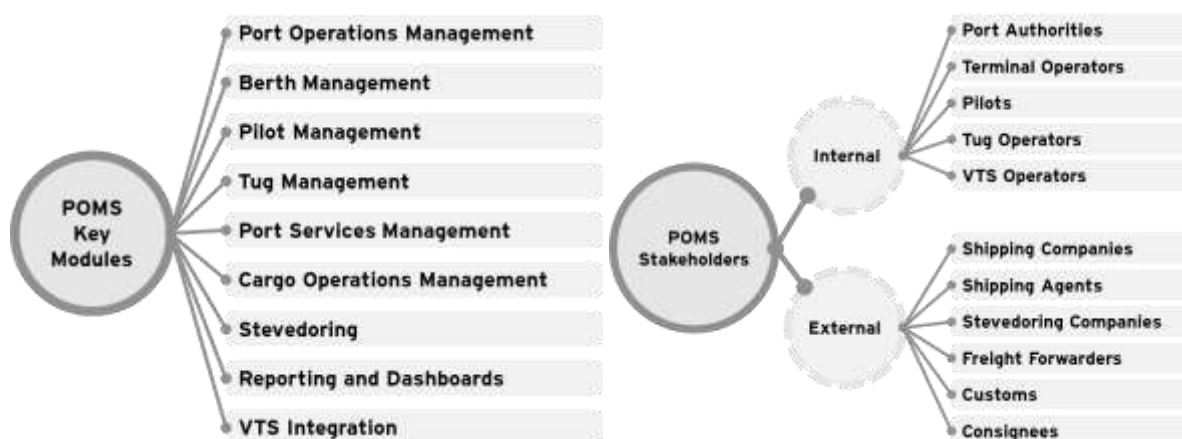
Gujarat Maritime Board established a unique polytechnic college of Gujarat located in west coast region of the Nation, where the coastal activities are making the nation proud in export of value added products in the different countries of the world. The activities on the port located in this region provides employment opportunities for the benefit of students society at large, and at the same time leads to change in the livelihood of the community of this area.

One of the main objectives of the polytechnic colleges is to provide the fundamental technical education to students who at present do not have technical Diploma or Degree level education from the Bhavnagar to Amreli district of coastal area of Gujarat state covering about 300 km. Additionally the college will also establish the advance laboratories in the field of Civil, Mechanical, Electrical and Computer Engineering to meet the requirement of the industries those are going to establish their organisation in this area in the near future covering the different sectors of Industries.

2.6.2 Innovation

Gujarat Maritime Board (GMB) has envisioned the integrated online solution for GMB's ports to increase administrative efficiency and to establish paperless regime. To move ahead with IPMS conceived for mission critical monitoring and management of GMB ports along coastline of Gujarat through single window with Management Information System/Dashboard. The maritime port solution for improved transparency, accuracy, and pioneering major information system benchmark was envisaged thereby appointing consultant for assuring the state-of-art ICT infrastructure for GMB operated ports. The major touch points like Port Community System (PCS), Vessel Traffic and Port Monitoring System (VTPMS), Integrated Customs EDI System (ICES) were determined as process-enablers for Integration with GMB's IPMS.

Figure 2-23: Port Automation Systems under development by GMB



Source: GMB

2.6.3 Challenges

Despite its traditional conservatism, the shipping industry has undergone a sea change over the past two decades. The key drivers of change have been Information Technology, Communications, Ship-shore connectivity and Satellite-navigation. Skill development - Skill development is a constant process and has to be improved based on the changing requirements of the maritime industry globally. GMB has the potential of creating an ecosystem with world class maritime human resource in Gujarat and has to respond to the following challenges

- ▶ Evolving requirement of skill sets, regulations, technology, and other competencies
- ▶ Global threats like terrorism and piracy
- ▶ Promotion of maritime industry as a potential area of education and employment among students
- ▶ Identify & close skills gaps, grow local skills, improve coordination within & between maritime/marine industry and education & training sector
- ▶ Improve collaboration, facilitate linkages and partnerships - industry, education and training, government

Innovation - Maritime education is closely aligned to research and development (R&D). Extensive R&D in all facets of maritime operations has helped Port based countries worldwide to create niche areas and act as benchmarks for others. For GMB to benefit from R&D, it has to become an integral part future plan. In addition to this innovation is also required in the GMB-Users interface, to facilitate permissions and clearances

- ▶ Through use of information technology, respond to global requirements of speed and efficiency in cargo handling and evacuation
- ▶ Network of in-house research and development centres across important nodes in Gujarat
- ▶ Improving technical ability of the port operators, for correct utilization of innovation along with generating ability to provide meaningful feedback
- ▶ Promoting and involving technological start-ups to help GMB in innovations
- ▶ Schemes to promote R&D

3

Proposed Policy

3. Proposed Policy

As previously discussed in sub section 1.1.1, the focussed initiatives of visionary port policy of 1995 resulted in Gujarat becoming the leading state in creation of port infrastructure as well as handling the major share of nation's maritime trade. Over time GMB has introduced several initiatives for maritime development in addition to the initiatives in the policy. Since the port policy is two decades old, there is an immediate need to formulate a policy which will include a fresh outlook towards the requirements and challenges faced by the maritime industry at a global, national as well as regional level. Sub section 1.1.3 also details about the need for revising the existing port policy which would usher the next maritime revolution in Gujarat.

The policy structure has been designed keeping in mind the global maritime trends, recent national level initiative, challenges faced by the industry and GMB, and potential of Gujarat. In order to understand the same, multiple interactions with stakeholders were conducted along with detailed research of the global and national maritime scenario.

Subsequently the challenges and potential were grouped into thematic areas. These thematic areas are areas of intervention for which policy options and strategies are being formulated for the new policy. A broad outline of the proposed is described in Figure 3-1.

3.1 Proposed Policy Framework

Through the proposed Port Policy, the strategic themes of two separate group of dependents are being aimed at - one, GMB as an organization, and two, the Industry on the whole. These themes have been derived from several focussed group discussions and one-to-one meetings with Industry stakeholders and Officials of GMB. Targeting needs of both the groups and considering the future prospects of the industry will help the policy to create a more holistic and synergetic environment for the entire ecosystem. Some of the components of these strategic themes have been kept common to achieve this synergy.

The following areas of challenges have been identified and grouped under separate themes for developing options and strategies for new policy

3.1.1 Themes identified for industry

1. *Enhancing the Capacities*

The previous chapters of this options report has discussed the need, expectations and challenges that are being considered in detail. One of the key aspect of developing a port policy is to target increased share of cargo handling. Therefore in order increase share, the state shall have to invest in port modernization initiatives.

- ▶ The challenges and expectations targeted through this theme are
- ▶ Increase port capacity to 50 percent of India's share
- ▶ Improve on India's cargo traffic share which is currently at 32%
- ▶ Polarization of traffic growth
- ▶ Improve cargo handling Efficiency and Utilization in the existing ports
 - Through synergies between ports
 - Hinterland Connectivity infrastructure
- ▶ Strategy for developing New Ports
- ▶ Strategy for Private/Captive Jetties as well as GMB ports/jetties

- ▶ Development of smart connectivity infrastructure

The macro area of intervention of this theme is how to create a balance between scale and spread of port infrastructure, subsequently increasing the capacities. Therefore **Theme 1** for industries has been named as **Scale vs. Spread**.

2. Port led industrialization

This has to be supplemented through attracting more industries to use the state's port facilities. Strategy must be formulated for taking benefit of the existing and future potential of industrialization and focus on port-led industrialization

- ▶ Strategy for alignment with Central Government initiatives such as - DMIC, Coastal Economic Zones proposed in Sagarmala
- ▶ State Government projects of SEZs and SIRs
- ▶ Strategy for Revival of Ship Building Industry
- ▶ State interventions to support Coastal Shipping
- ▶ Creation of a seamless IT enabled Hinterland Network

Macro area of intervention of these theme is towards increasing of ports as a node for industrial growth in the region as well as extended hinterland. Therefore **Theme 2** for industries has been named as **Make in Coastal Gujarat**.

3. Enhancing efficiency and ease of development and operations

GMB should review its future role in Maritime Ecosystem. With this perspective in mind the policy must address the challenge of functional efficiency looking at the existing roles as well as additional roles envisaged for the maritime board. The policy of 1995 provided thrust to private participation, however the investment climate has evolved considerably since then and therefore the policy should also formulate a strategy to infuse fresh private investment in creating infrastructure and services.

A challenge faced by the industry is the arduous nature of seeking approvals and clearances for setting up maritime infrastructure, it is therefore necessary to simplify and standardize processes for approvals and clearances.

A decisive way of increasing cargo handling by GMB ports/jetties is to enhance operational efficiency in cargo handling and evacuation and therefore incorporation of innovation in port operations is a necessity in order to match global standards.

The following challenges have been addressed through **Theme 3** which has been named as **Ease of Doing Business**

- ▶ Strategy for an efficient and transparent Governance Structure
- ▶ Review of function and roles of Maritime Board
- ▶ Strategy for Dredging
- ▶ Review and introduce ways to revitalize Private Participation
- ▶ Improving automation in port operations
- ▶ Ease of Doing Business through Single Window Clearance

4. Sustainability in Gujarat Ports

In last three decades, GMB has taken various measures to develop vast 1600 kms long coastline of Gujarat to its full potential. And consequently, today Gujarat's coastline is dotted with some big private ports and many small to medium ports (about 44 ports) handling around 10,000 ships

carrying about 346 MMTPA of hazardous as well as non-hazardous cargo on an annual basis. This business activity along the coast of Gujarat has given economic prosperity but with many environmental challenges. Gujarat ports can adopt the environmental sustainability by adopting two way approach.

- ▶ Minimizing the impact of port related operations.
- ▶ Fueling ports of Gujarat by capturing the potential of offshore wind energy.

Increased cargo handling and industrialization will result in the following challenges

- ▶ Strategy for minimizing impact on sensitive coastal ecology
- ▶ Encouraging development of renewable energy infrastructure
- ▶ Enhancement of Safety in areas of port operations, ship recycling, vessel navigation, etc.
- ▶ Incentivizing greener practices in port/ship building/recycling development and operations

GMB should formulate a combined strategy for safety and sustainability, and therefore **Theme 4** has been titled as **Safe and Sustainable ports**.

5. Ancillary Infrastructure and Services

Theme 4, titled as **Ancillary Infrastructure Development**. Globally ancillary infrastructure have played a part in providing value added facilities as well as revenue improvement. Strategies for the following potential developments will be addressed in this theme

- ▶ Bunkering is an imperative ancillary industry and is at a nascent stage in Gujarat, thus encouraging bunkering facilities to come up along the region on existing ports is necessary
- ▶ The potential coastal movement of cargo for transshipment is fairly underutilized and therefore requires infrastructure as well as vessel
- ▶ Creation of port side infrastructure for promotion of tourism has helped in improvement of revenue sources
- ▶ Additional projects like the Ro-Pax project between Gogha and Dahej are required to be implemented
- ▶ Absence of other services like Ship Chandler services, Ship to Ship transfers, etc.

3.1.2 Themes identified for Gujarat Maritime Board

1. Governance model for GMB

Theme 1 identified for Gujarat Maritime Board has common features to Theme 3: Ease of Doing Business developed for industries and has been titled as **Governance**. The theme addresses the following additional areas

- ▶ Governance structure options with additional roles for GMB
- ▶ Revival of GMB jetties

2. Infrastructure Development

In **Theme 2** titled **Infrastructure** the following challenges are addressed in for providing thrust to port led industrialization. GMB shall have to expedite the development of necessary port and logistic infrastructure

- ▶ Master plan for modernization of ports as well as development or retrofitting existing ports for product specific uses

- ▶ Network of storage and warehousing facilities in port regions
- ▶ Development of energy infrastructure to support the future requirements
- ▶ Multi-Modal last mile connectivity infrastructure; rail, road & barges
- ▶ Smart Port Logistics - Changing the way logistics evacuation is operated saving logistics costs nationwide for cargo handled and evacuated through seaports

3. Improving Productivity of GMB Jetties

In **Theme 3**, titled **Optimizing Port Productivity** an overall strategy towards steps required to revitalize competency of GMB Jetties has been addressed. The challenges that need to be overcome in order to bring GMB Jetties at par with the best are

- ▶ Infrastructural & Site constraints in optimum Capacity Utilization
- ▶ Operations Inefficiencies in Port Operations

4. Improve Revenue Generation for GMB

In order to augment infrastructure and services, GMB shall have to improve its revenue through exiting as well as potentially new areas of revenue generation. **Theme 4**, titled **Improving Revenue Sources**, addresses this very area of improvement where challenges in the following areas will be addressed

- ▶ Current sources of Revenue
- ▶ Other appropriate sources of Revenue
- ▶ Sources of financing

5. Strengthening the Pillars of Business Operations

Innovation has been fairly underutilized by GMB in improvement of governance, operations, safety, transportation and other areas of maritime ecosystem. **Theme 5**, titled **Innovation**, addresses the potential of utilization of innovation in creating a Business Positive environment in GMB

- ▶ Information Technology as a backbone in Governance and Operations
- ▶ R&D in Port Development and Operations
- ▶ Cluster development

Figure 3-1: Draft Model for Gujarat Port Policy Framework

Themes	Areas of Intervention	Policy Options/ Strategies
Scale vs Spread	<ul style="list-style-type: none"> Enhancing cargo handling capacity Captive Jetties to be promoted / Continued Hub & Spoke Model for cargo Role of GMB in Scaling up 	<ol style="list-style-type: none"> Enhancement of capacities through upgradation, building new assets Justifications/ suggestions/ options on Captive Jetties Rerouting the traffic for optimum utilization Hinterland Development in timely manner
Make in Coastal Gujarat	<ul style="list-style-type: none"> Supporting Costal Economic Zones Revival of Gujarat Ship Building Industry Promoting Coastal Shipping Building SMART logistic network 	<ol style="list-style-type: none"> Coordinated planning and management of Industrial Development Economic Incentives to trigger industrialisation Channelization of DMIC/ PCPIR/ Sagarmala projects/ funds Incentivize coastal shipping operators IT enabled logistic network for seamless hinterland connectivity
Ease of Doing Business	<ul style="list-style-type: none"> Reviewing existing Management Structure Re-vitalizing Private Participation Re-engineering Automation in Port Operations Faster Investment/ Approval/ Procurement Channel 	<ol style="list-style-type: none"> Models for Governance Project Structuring, incentives, concessions, etc. Implementation of electronic and EDI based systems Re-structure, simplify and standardize process for approvals
Safe & Sustainable Ports	<ul style="list-style-type: none"> Minimising the impact of port related operation in coastal Gujarat Development of offshore wind energy Parks Combined Strategy for Greener and Safer Ports 	<ol style="list-style-type: none"> Port wise Green port energy plans Offshore energy projects along Gujarat Coast Encourage sustainable ship recycling in Alang Sustainable land reclamation policy Implementation of Port Safety Code for Gujarat ports
Ancillary Infrastructure Development	<ul style="list-style-type: none"> Developing Ancillary infrastructure Skill Improvement Maritime Facilities and services 	<ol style="list-style-type: none"> Bunkering, Marine Tourism, Ship Chandelier Services, ship to ship transfers, etc Maritime University, Focus on maritime skill sets

3.2 Proposed Policy Structure

Based on identification and grouping of challenges and potential into different themes as described in sub point 3,1, Policy framework, the following areas of strategy interventions has been incorporated in proposed policy structure. The strategies proposed are practically achievable as they are supported by able case studies, performance measurable and at the same time ambitious to meet the aspiration of Gujarat Maritime Board. The overall structure of the policy is proposed to be as under.

1. Preamble
 - 1.1. Introduction and Performance of Port Policy 1995
 - 1.2. Growth of Industry - Global
 - 1.3. National Scenario
 - 1.4. Gujarat Scenario
 - 1.5. Need for revision of the Policy
2. Vision & Targets
 - 2.1. Vision Statement for the Policy
 - 2.2. Objectives of the Policy
 - 2.3. Targets - segment wise
3. Definitions
4. Policy Themes
 - 4.1. Scale vs Spread
 - 4.1.1. Enhancing Cargo Handling Capacity
 - 4.1.2. Strategy for Captive Jetties
 - 4.1.3. Hub and Spoke Model for Cargo Movement
 - 4.1.4. Role of GMB in Scaling up
 - 4.2. Make in coastal Gujarat
 - 4.2.1. Supporting Coastal Economic Zones
 - 4.2.2. Revival of Gujarat Shipbuilding Industry
 - 4.2.3. Promoting Coastal Shipping
 - 4.2.4. Building SMART Logistic Network
 - 4.3. Ease of Doing Business
 - 4.3.1. Change in Roles
 - 4.3.2. Changes in Operating / Business Models
 - 4.3.3. Automation in Port Operations
 - 4.3.4. Faster Approvals and Clearances
 - 4.4. Safe and Sustainable Ports
 - 4.4.1. Minimizing the impact of port related operations
 - 4.4.2. Fuelling ports of Gujarat by capturing the potential of offshore wind energy
 - 4.4.3. Combined strategy for greener and safer ports
 - 4.5. Ancillary Infrastructure Development
 - 4.5.1. Developing the Infrastructure
 - 4.5.2. Skill Improvement

- 4.5.3. Maritime Facilities and Services
- 5. Investor/Operator Facilitation and Incentives
- 6. Implementation Framework
 - 6.1. Governance
 - 6.1.1. Governance Role
 - 6.1.2. Corporatization/Privatization of GMB ports
 - 6.2. Infrastructure
 - 6.2.1. Port led industrialization
 - 6.2.2. Cluster and Community Development
 - 6.3. Optimizing Port Productivity
 - 6.3.1. Optimum capacity utilisation through Improvement in Infrastructure and overcoming Site constraints
 - 6.3.2. Improvement in Port Operations Inefficiencies
 - 6.4. Improving Revenue Sources
 - 6.4.1. Additional Sources of Revenue Generation
 - 6.4.2. Financing
 - 6.5. Innovation
 - 6.5.1. Harnessing Information Technology (IT) at GMB
 - 6.5.2. Human Resource in Port Management
 - 6.5.3. R&D and Port Development
 - 6.5.4. Development of Maritime Cluster

4

Policy Options

4. Policy Options

In order to formulate a new port policy, it was important to have a comprehensive picture of the potential, challenges and future expectations of the ports and shipping industry at a global, national and regional level. To create this comprehensive understanding, the analysis in Chapter 1 discussed the following

- ▶ Performance of the outgoing port policy of 1995; where it succeeded and the reasons of unfulfilled objectives
- ▶ The Global maritime scenarios which conclusively impact the growth in the region,
- ▶ Gauging the new opportunities and competition, by understanding the steps taken by GoI and initiatives by competitive states
- ▶ And, expectations of the industry form the new policy

The performance of GMB as an organisation in order to meet the objectives and targets set in the policy of 1995 has been discussed in detail in Chapter 2. The chapter also discusses the potential and challenges in the key areas of improvement. Further, with the help of consultations with the stakeholders and experts in the industry as well as research carried out by EY, thematic areas were identified. These thematic areas are areas of intervention for which policy options and strategies are being formulated for the new policy. The conceptualization of these themes have been discussed in Chapter 3.

The current chapter will review and provide strategy options in each of the five themes identified for 'The Industry'

1. Theme 1: Scale vs Spread
2. Theme 2: Make in Coastal Gujarat
3. Theme 3: Ease of Doing Business in Gujarat Ports
4. Theme 4: Safe and Sustainable Ports
5. Theme 5: Ancillary Infrastructure Development

Interventions required from GMB in the themes developed for 'Gujarat Maritime Board' are discussed in subsequent Chapter 5.

4.1 Scale vs Spread

Under port policy of 1995 and PPP framework (BOOT policy, Captive jetty and Private jetty model), Gujarat has witnessed significant investments in its port sector in last three decades. The importance of Gujarat's non-major ports in India's traffic performance could be gauged by the fact that its cargo movement increased from 3.18 million tons in 1982-83 to 346 million tons in 2016-17, making the State rank first in terms of cargo handling amongst all maritime states¹⁶.

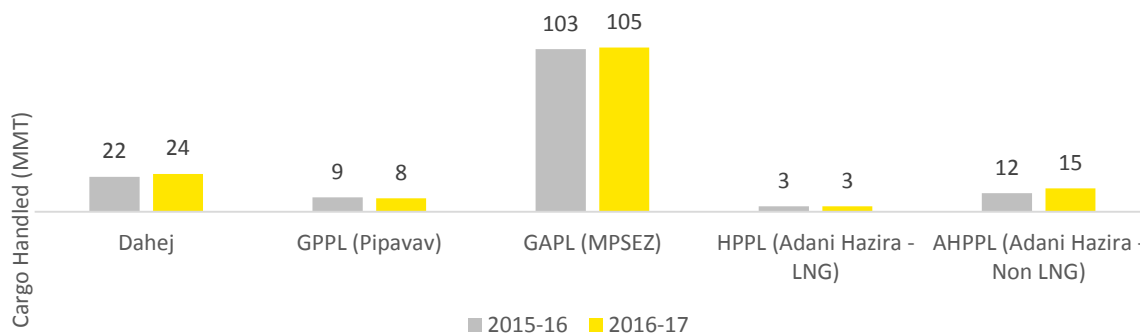
The process started in the 1980s and gathered momentum rapidly after the major economic reforms in the early 1990s. Gujarat has taken advantage of the constitutional framework to convert its non-major ports into some of the biggest ports in the country, which vastly improved the availability and efficiency of port infrastructure. However, there are certain aspects of this port privatization policy that needs to be relooked from the perspective of "equity" and "efficiency" for larger good of the industry.

¹⁶ GMB Traffic Data

Polarisation of Traffic Growth

Non-major ports of Gujarat handled a total cargo of 346 MMTPA in 2016-17 (which was 132 MMTPA in year 2006-07) constituting about 32% of total cargo handled by Indian ports and growing by CAGR of 11.3% during this tenure. However, most of the growth in traffic has been observed in few private ports and captive jetties, resulting in polarisation of traffic.

Figure 4-1: Traffic distribution of private ports in 2016-17

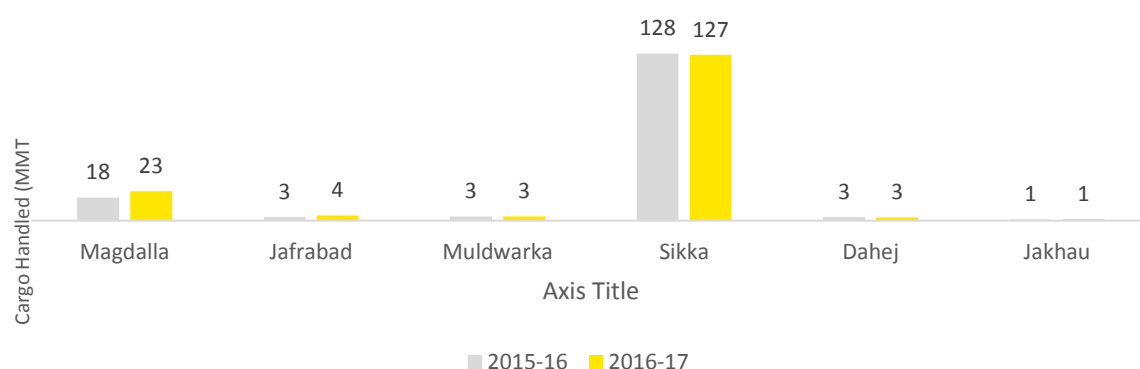


Source: GMB database

For example, Private ports witnessed highest growth in share from 42.6 MMTPA (30 percent of total traffic) in FY 2007-08 to 155 MMTPA (44.9 percent of traffic handled by GMB ports) in FY 2016-17. However, most (83 percent) of the share came from just two ports, namely Mundra and Hariza. These ports were able to materialise greater investments into port infrastructure over PPP operators.

Similarly, captive jetties witnessed decline in traffic share from 71 MMTPA (74.7 percent of total traffic) in FY 2004 to 160 MMTPA (46.2 percent of traffic handled by GMB Ports) in FY 2016. However, most (93%) of the share comes from just two captive jetties (out of total 33 captive jetties), namely Sikka and Magdalla. This is largely attributed to rapid growth in demand for POL from captive refineries, which was significantly higher than demand for other commodities by their respective captive industries

Figure 4-2: Traffic distribution of captive jetties in 2015-16

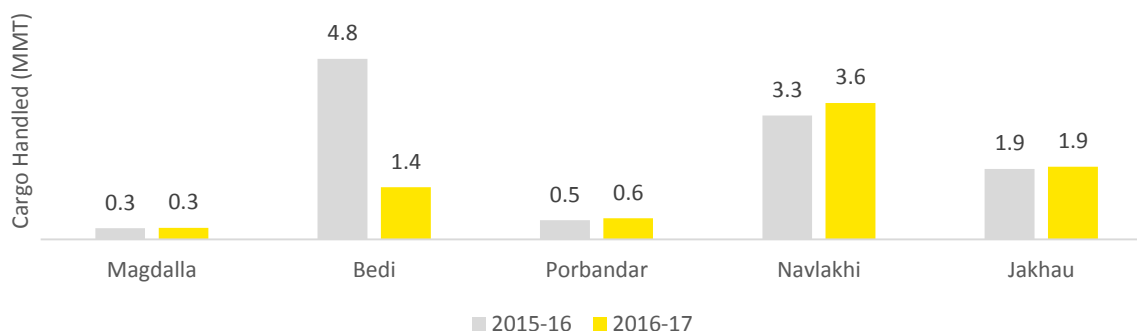


Source: GMB database

Currently there are 11 private jetties with GMB but around 75 percent of traffic is handled at Bedi and Navlakhi port. This is largely attributed to under-investment in infrastructure by private operators for reasons explained in following section. Private jetties have also witnessed decline in

traffic share from 9 MMTPA (9.5 percent of total traffic) in FY 2004 to 7.7 MMTPA (2.2 percent of total traffic handled by GMB ports) in FY 2016.

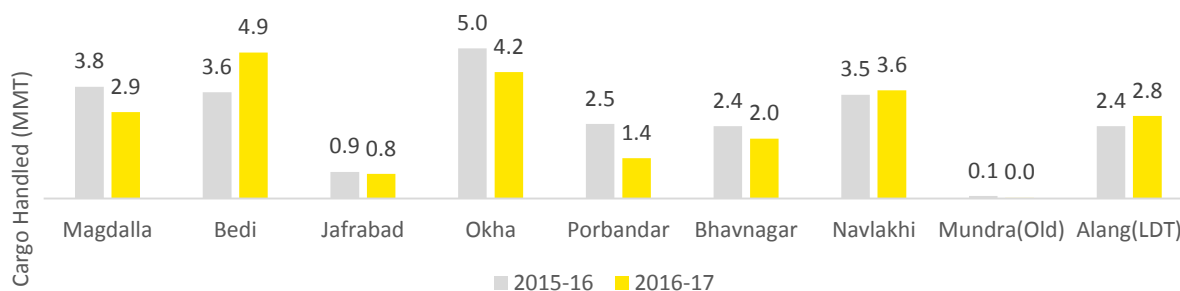
Figure 4-3: Traffic distribution of private jetties



Source: GMB database

Traffic share of GMB jetties have also declined from 7 MMTPA in FY 2004 to ~23 MMTPA (5.1 percent of total traffic handled by GMB Ports) in FY 2016. However, most of traffic now is handled at Okha, Navlakhi, Bedi, Magdalla, Bhavnagar, Porbandar, Alang and Jafrabad. Other GMB jetties/ports have registered negligible traffic growth in recent times.

Figure 4-4: Traffic distribution at GMB operated jetties (including Alang)



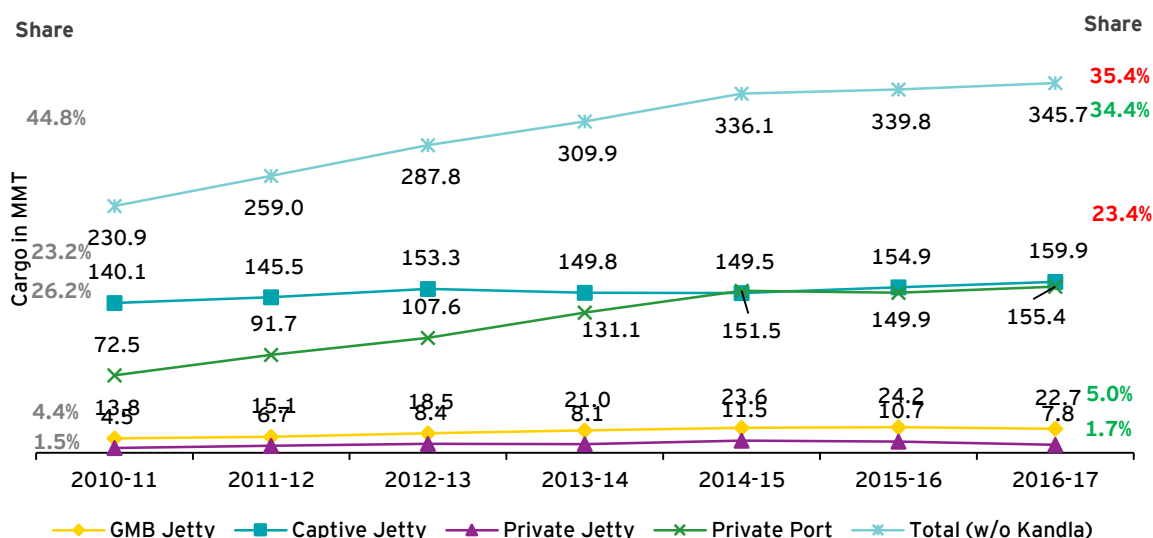
Source: GMB Database

4.1.1 Enhancing cargo handling capacities

Gujarat has been pioneer in encouraging public private partnership in the Port sector. Gujarat Maritime Board has experimented with multiple port privatization models to promote private player participation in Gujarat ports and aptly converted the non-major ports into one of the biggest revenue creator since 1995. However, with uncertain business environment and changes in logistics network of hinterlands, many of these assets are facing decline in cargo handling and consequently lower capacity addition. Therefore there is urgent need to relook at these models to ensure better utilization and investment in GMB assets.

As explained in earlier chapters, apart from (1) Greenfield private ports, privatisation happened in Gujrat maritime sector in form of (2) Private jetties and (3) Captive Jetties. As evident from figure below, both the formats (2 & 3) have registered decline in growth and in some case reduction in traffic share for various reasons.

Figure 4-5: Traffic Break up trends in various ports in Gujarat (figures in MMT)

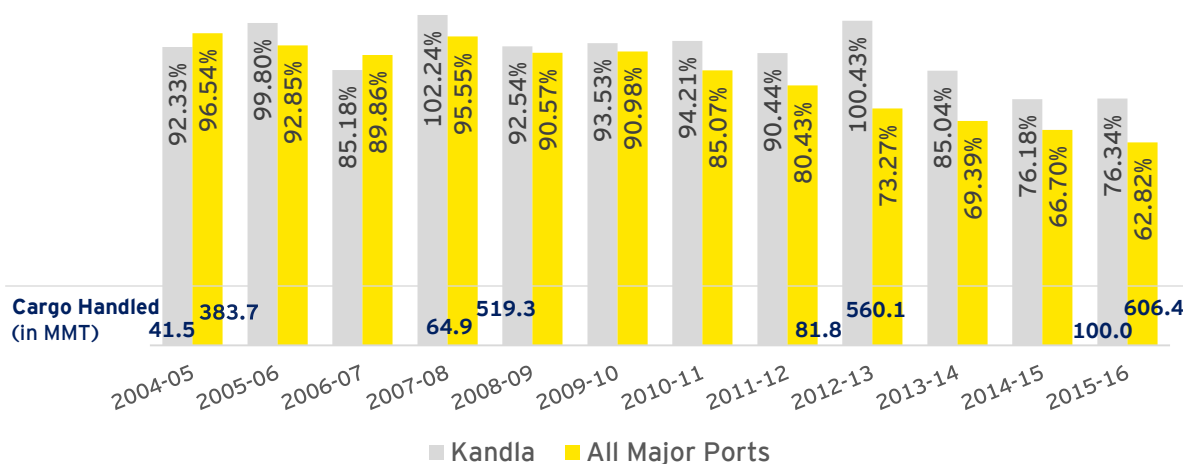


Source: GMB Traffic Branch and Indian Ports Association database

In financial year 2016-17 Gujarat ports together handled a total of 451 million metric tonnes (MMT) of cargo, of which GMB ports handled 346 MMT. Cargo handling grew with a rate of 8.3 percent (8.4 percent for GMB ports) since FY 2010-11. Captive Jetties has seen the lowest compounded cargo growth rate in the same period at 2.7 percent, whereas Private Jetties and Private Ports grew at 11.4 and 16.5 percent respectively. Approximately 52.4 percent of the cargo handled is liquid cargo and dry cargo handled is about 33.4 percent¹⁶.

Utilization across all Gujarat ports including Kandla have been high. Post 2008-09 a declining trend has been observed in growth rate of traffic in all major ports. Only Kandla Port has seen double digit growth (13.5 percent) during 2012-13 and indicated a highest utilization rate among all ports in the recent past. High utilisation has been observed till 2011-12 which led to congestion at Major Ports. In spite of increasing trade, the utilisation of major ports decreased and trade at non-major ports increased.

Figure 4-6: Capacity Utilization of Kandla Port and All Major Ports in India



Source: India Ports Association Database & Kandla Port Trust

Historical data indicate that Gujarat ports operate in higher utilization rates, more than 70 percent of their existing capacity, however no congestion is observed at majority of ports. This indicates the need for usage of the uniform method of calculating and updating the capacities and cargo handled on a regular basis (considering mechanization and efficiency improvement in cargo handling).

Cargo at various ports needs to be channelized for effective capacity utilizations

Table 4-1: Capacity vs Utilization in Ports/Jetties

Type of port	2015-16	
	Capacity (of total)	Utilization
GMB Jetties	5%	109%
Captive Jetties	47%	77%
Private Jetties	44%	83%
Private Ports	3%	80%
Total	-	81%

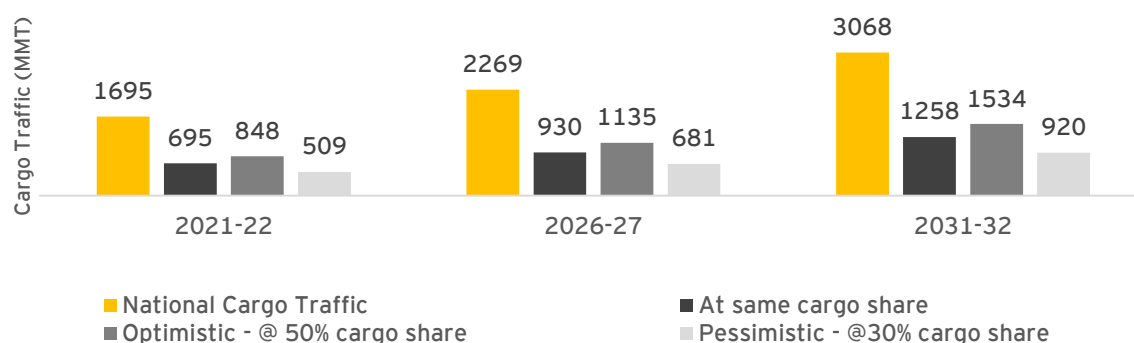
Source: GMB Traffic Department

Commonly congestion problems appear in ports with the average terminal utilization of a heavily used facility passes 70 percent. Port planners need to act well in advance of anticipated congestion. Congestion may lead to cargo owners, logistic service companies or shipping companies to relocate or completely reorganize transportation activities¹⁷. With the view of the same, the optimum utilization of the ports of Gujarat, after which capacity augmentation should be planned, can be frozen at 70 to 75 percent.

Future Potential of Gujarat Ports

Gujarat has the potential to attract considerable trade share of India. At current percentage cargo share, Gujarat ports have the potential of handling approximately 1,260 MMT cargo by year 2030.

Figure 4-7: Gujarat's Share of National Cargo Traffic



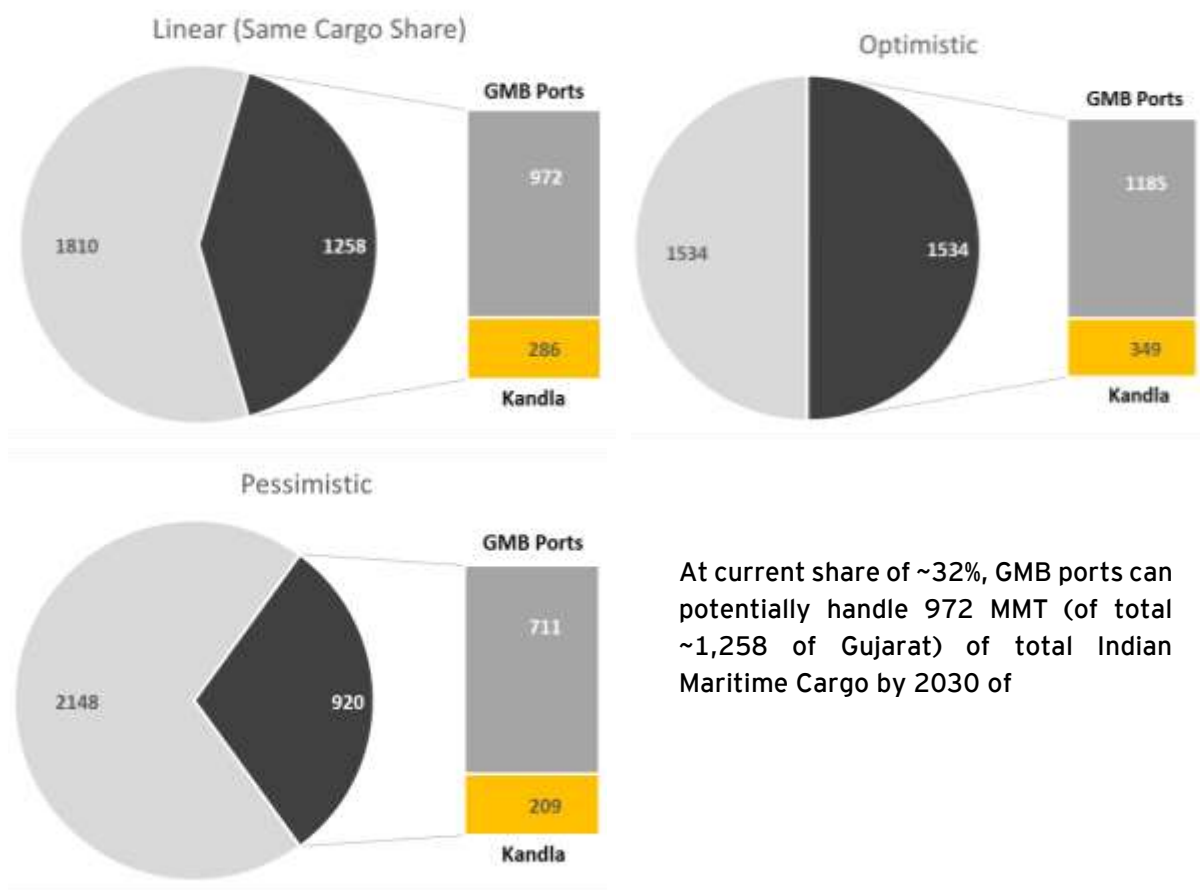
Source for Cargo and Capacity Projections: India Transport Report, National Transport Development Policy Committee, 2013

Gujarat Ports (including Kandla Port) handled 41 percent of national maritime cargo, at a utilization rate of 78 percent. Nationally, GMB Ports handled approximately 71 percent of cargo

¹⁷ ITF Round Tables Port Investment and Container Shipping Markets, International Transport Forum, OECD

handled by Non Major ports which is also around 32% of total cargo handled by all Indian ports. By 2031-32, National Cargo traffic would have grown to 3,068 MMT¹⁸ in which Gujarat’s envisioned share at the existing share rate will be approximately 1,258 MMT. In an optimistic case where the cargo share increases to 50 percent of the national share, the Gujarat’s share could be approximately 1534 MMT and 920 MMT at a pessimistic share of 30 percent.

Figure 4-8: Gujarat Ports - Potential Cargo Growth Breakup



At current share of ~32%, GMB ports can potentially handle 972 MMT (of total ~1,258 of Gujarat) of total Indian Maritime Cargo by 2030 of

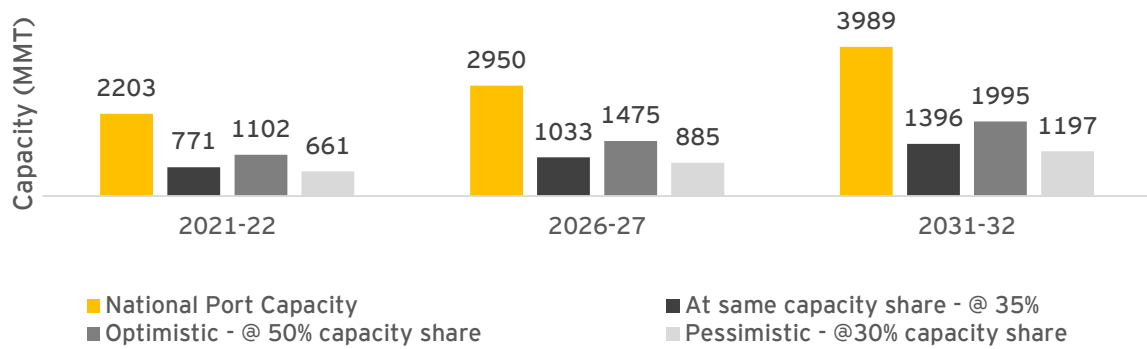
Source: EY Analysis

With respect to the potential cargo growth to be handled by the Gujarat Ports, capacity addition has to be planned through augmentation and modernization.

In order to handle the projected cargo growth of 3,068 MMT, cargo handling capacity at a national level will need to increase to 4,000 MT by year 2031-32. At the current capacity share rate of 35 percent, Gujarat will need to increase their port capacity to 1,396 MMT. At an optimistic rate, where the share is at 50 percent, Gujarat will need to increase capacity to 1,995 MMT and 1,197 MMT at a pessimistic rate of 30 percent of national share¹⁸.

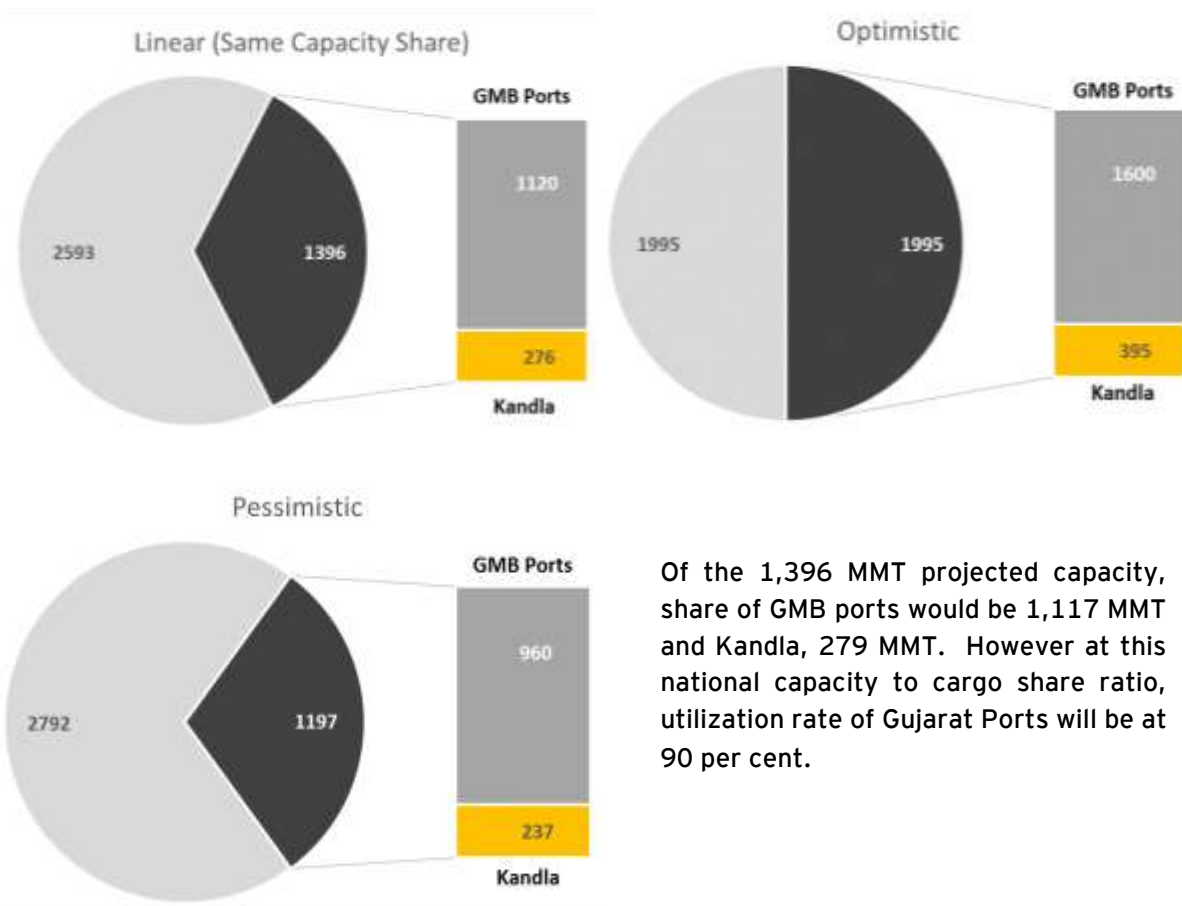
¹⁸ Source for Cargo and Capacity Projections: India Transport Report, National Transport Development Policy Committee, 2013

Figure 4-9: Gujarat's Share of National Port Capacity (potential)



Source for Cargo and Capacity Projections: India Transport Report, National Transport Development Policy Committee, 2013, EY Analysis

Figure 4-10: Gujarat Ports - Internal Capacity Potential Breakup



Of the 1,396 MMT projected capacity, share of GMB ports would be 1,117 MMT and Kandla, 279 MMT. However at this national capacity to cargo share ratio, utilization rate of Gujarat Ports will be at 90 per cent.

Source: EY Analysis

Most port modernization projects which are carried out across GMB ports are piece meal. The projects envisaged are reactive in nature to reasons like rising congestion, dilapidating condition of infrastructure, or need to handle a specific type of cargo. While modernization in itself is good for the ports, not having a clear future vision will result in inefficient use of such augmentation projects. Also each component of port infrastructure has to be given equal importance; focusing on port throughput through mechanization alone would be less effective.

Cargo handling facilities at GMB jetties should be augmented in a phased manner subject to the future plan for in terms of volume and type of cargo handling envisaged in the region. The most important quality that GMB ports have to deliver is adaptability to the changing needs of handling type of cargo and hence the facilities developed must be multipurpose.

Each type of port or group of ports should play a role in the overall master plan for the state port sector, in addition to conserving the competitive nature of the sector which help the final consumers.

Investment in port infrastructure and equipment is an expensive and risky venture and the dynamic and competitive nature of maritime transport business requires that the return over investment be carefully calculated. The return over investment for certain aspects of port assets such as entrance channel and breakwater could be difficult to determine but future profit could be equated to future traffic volumes. Future traffic volumes in a port could also be affected by macroeconomic variables and other factors in the national economic sector such as demographic changes

Enhancing cargo handling capacities would require development of overall assets; this will include enhancing existing facilities through

Upgrading / modernizing the assets

The port industry is an asset intensive industry. The ability of a port to handle imports and exports and give other services to ship and cargo depend on the asset base and availability of inputs for the port and this may add on to the national economy. Control on up-gradation port assets would depend on the ownership and operational structure of the ports. For example, for GMB jetties the fixed infrastructure like jetties is owned by GMB, whereas the machinery is owned and operated by the shipper. Therefore a regulating mechanism to manage all interfaces should be in place which will help in harmonized up-gradation of assets. Potential areas of improvement:

- ▶ Infrastructure Development and Monitoring
- ▶ Property Management
- ▶ Maintenance Management
- ▶ Utility Management
- ▶ Data Integration

Addition of mechanized handling equipment

As discussed above addition or augmentation of mechanization at ports should respond to the overall master plan to handle volume and type of cargo at the ports. While captive jetty equipment could be restricted to handle a particular type or set of cargo, GMB jetties will have to be versatile in handling changing needs in type of cargo.

Addition of support infrastructure (storage, connectivity)

Storage and connectivity infrastructure are two important legs of cargo evacuation and better throughput. As of now the cargo storage and evacuation planning is ad hoc, which means it gets the job done but is not efficient at all. Augmentation of storage infrastructure would include, creation of new open and covered storage facilities inside port complex as well as installing inspection and packaging equipment. The ports should also create specialized infrastructure to handle certain types of cargo; for example Cold Storages. This cargo must be swiftly moved further towards the hinterland and stored in facilities like ICDs, Tank Farms, Warehouses, etc. which should be developed with the help of private participation.

Planning and timely development of connectivity infrastructure, i.e. road, rail, and barges, will provide consumers with the options of multi modal transport and the most efficient way to move their cargo. Currently GMB is involved in developing last mile connectivity infrastructure to ports. This infrastructure should also be coherent with the cargo throughput envisaged from the ports.

And development of new ports

Development of new ports is always an expensive and risky proposition. A critical question asked by the industry is, should substantial amount of money be invested in creation of new ports or focus should be on development of existing ports? Therefore a judicious strategy has to be adopted by GMB in development of new ports. The common perspective across different states has shifted towards developing Brownfield ports, where potential of existing jetties and ports are analysed and then chosen to be developed through private participation.

Development of green field ports must be pushed where there is no available capacity or the future capacity of the existing infrastructure will not be able to handle the future projections of cargo handling. GMB could also choose to develop Green field ports where it needs to maximum design flexibility or where introducing automation and innovations will be throttled by natural limitations of draft and channel width. Gujarat was the first state to introduce private participation, however it currently only offers the option of BOOT as the implementation mechanism. Strategy options for introducing higher flexibility in implementation structure is discussed in section 4.3.2.

GMB should create a right mix of Greenfield and Brownfield port projects, depending on the cargo potential and analysis of risks involved.

4.1.2 Promoting Captive Jetties

GMB introduced the “captive jetty model” to encourage port-based industries, private companies have been granted permission to construct captive jetties to cater to their import-export requirement. As per this model, a port-based industry creates port facilities to import their industrial raw material and exports their finished products. Private sector participation in Gujarat ports started with captive jetties in 1990s and by early 2000s almost 75 % capacity (for FY 2004) was under captive - cargo category. This share gradually declined to 63% in FY 2010 and by FY 2016 traffic share of captive jetties has reduced to 46% only (refer to Figure above). This decline is largely attributed to restrictive cargo handling conditions under BOOT model for captive jetties. These jetties enjoy concession in port charges (a separate wharfage rate for captive jetty in SoPC) as they are allowed to handle only captive cargo of port based industries which develops and maintain them.

Currently there are 21 captive jetties under 6 different clusters. These are handling POL & Crude (in Sikka region and Bhogat), Iron ore (Magdalla) and Coal (at Salaya and Pipavav). Captive jetties (mostly in Gulf of Kutch) are handling cement and coal. However, many of them had made representation and request to GMB to allow them to handle cargo from other port based industries in vicinity. In some cases, decline in cargo is also being registered as captive industry using the port/ jetty have either gone out of business or have shelved expansion plans due of business reason. In both the cases, there is a need to relook at provisions of captive jetties as valuable waterfront is locked and nearby industries other than captive industry could not use this port facility. Further, other maritime states are now offering “option to handle commercial cargo” to

captive jetties and consequently, Gujarat also has to relook at its two decade old policy¹⁹ to remain competitive in this regard.

Similarly, Private jetties²⁰ have also seen decline in their share and are currently operating on 53% and 72% utilisation levels respectively. Port Policy 1995 envisaged that GMB should privatize its existing GMB port jetties, so as to strengthen and promote mechanization of existing GMB jetties²¹ This was planned as short term strategy, where existing port facilities have been offered to private companies (on 5 to 25 years lease) to develop through private investment.

However, not much success was achieved under this policy, even though handling commercial cargo was allowed, along with concessional wharfage (separate rate in SoPC) under this model. This model required “Minimum Cargo Guarantee” as bid variable but private jetty operators were not able to generate cargo volume as expected and consequently limited upgradation / investment happened on these jetties, which further limited the cargo handling. Presently, there are 11 operational private jetties at different locations in the state and there are various future proposals for further development

Table 4-2: Traffic and Capacity share as per operational model

Data for the year 2015-16	Traffic		Capacity (of total)		Utilization of Total Capacity of Ports in Gujarat	
	With Kandla	Without Kandla	With Kandla	Without Kandla	With Kandla	Without Kandla
GMB jetties	6%	7%	4%	5%	4%	53%
Captive Jetties	35%	46%	36%	45%	28%	60%
Private Jetties	2%	3%	2%	3%	2%	72%
Private Ports	34%	44%	34%	47%	27%	68%
Kandla	23%	-	24%	-	18%	-
Total (in MMPTA)	440	340	553	465	80%	73%

Source: GMB Traffic Data, IPA traffic report 2015-16

To keep a pace with the developmental trend in sea transportation, GMB is incessantly developing and revamping its ports to provide efficient services and improve efficiency of existing ports with private investment. There is a need to evaluate this model and bid criteria from the prospective perspective of financial viable viability and business case for each jetty. More detailed analysis and customised approach has to be adopted to carry out privatisation of these assets.

¹⁹ In 1993, the nomenclature “captive jetty” was formally introduced along with policy guidelines. And in 1999, the GOG finalized the terms and conditions for the captive jetties model.

²⁰ These are GMB jetties, where port operations are outsourced to private entity on long/short term lease

²¹ In some cases they are operated along with or by stevedoring agents / third party contracts

Captive jetties make the industry competitive

Some other states are proactively promoting development of captive jetties through liberal incentives in order to attract investments in developing water fronts.

Table 4-3: Policy Initiatives to promote Captive Jetties in different states

Gujarat	Maharashtra	Karnataka	Tamil Nadu	Odisha
<p>Permissions only in exceptional cases based on need for specialised facilities.</p> <p>Existing captive jetties to be utilized for specific commercial cargos with prior approval of GMB (till certain period)</p>	<p>Eligible mining industries and industries classified under secondary sectors, on a nomination basis</p> <p>Allowed to handle commercial cargo, up to 25% of total cargo - at 1.5 times the charges, if no desired port facility is available in notified distance</p>	<p>Private entrepreneurs/ industrial units will be permitted to construct captive jetties</p>	<p>Companies making substantial investment in coastal areas requiring port based facilities will be <u>allotted</u> sites for construction of ports/ jetties, for handling both captive & commercial cargo</p>	<p>Permission restricted, only in case of viable projects considering quantum of investment and need for specialised facilities</p>

Policy for Award of Waterfront and Associated Land to Port Dependent Industries in Major Ports 2016 by Government of India, permits handling of commercial cargo by a Captive Terminal. The objective of formulating the policy was to facilitate industry or industrial clusters which are heavily dependent on a Major Port for EXIM cargo.

Figure 4-11: Policy provision for encouraging quasi captive port facilities inside a Major Port

<ul style="list-style-type: none"> Applicable to - All Major Ports Period - Not exceeding 30 years 	<ul style="list-style-type: none"> Main Objective - grant of concession to Port Dependent Industries (PDI) for setting up dedicated facilities in Major Ports Latent Objective - Creation of new assets as well as utilization of currently unutilised existing assets such as vacant berths.
<p>Selection Criteria for Bidding</p> <ul style="list-style-type: none"> Feasibility Report <ul style="list-style-type: none"> Designed Capacity envisaged (should not be less than as worked out by the TAMP-2008 guidelines & Berthing Policy 2016) Waterfront Required Net Worth - PDIs should have a minimum Net Worth equivalent to 50% of the Estimated Project Cost Winning Bid - On the basis of the royalty rate to be shared with the concessioning authority by the bidders 	<p>Critical details on Captive Cargo</p> <ul style="list-style-type: none"> Captive Cargo - cargo handled by a Port Dependent Industry at a Facility for its own use Minimum Guaranteed Cargo (MGC) - <ul style="list-style-type: none"> minimum of 70% of the designed capacity including both captive cargo and other cargo. Pay royalty commensurate of the MGC irrespective of the actual volume handled by the berth Non Captive Cargo - allowed to handle up to 30% of designed capacity of the berth

Box 1: Scale vs. Spread - A Case of Norway and Turkey

With the idea of improving the governance at ports, there are two options to go forward and they are Scale or spread. Scaling is improving the existing port infrastructure and resources and spreading is creating more and more number of ports. For having better development of port one cannot ignore either as both the options are equally valuable and important. According to a survey carried out by National port authority of India, there are up to 40-50% of ports potential not utilized. Land resources, human resources and logistics are important pillars of port industry and have to be scaled up to optimize the potential

Ports of Norway: For Scale

Norway has 50 ports in total, of which majority of them are used for transport of goods in Norway that are owned by local and regional authorities or through public-private partnerships. The most common arrangement is that a publicly owned Port Authority owns the land and the infrastructure but allows international port operators, which are experts in running terminals, to deal with the handling of freight. Total number of ports in Norway have started declining due to increase in privatization and mergers amongst private partners.

Hierarchy amongst ports: These ports have specific hierarchy based on importance and operations. Out of 50 ports on Norway shore, 32 ports are defined as part of main road system and are given special status in Norwegian road planning. Of this 32 ports, 25 ports have designated road connect to hinterland for swift transport of goods, remaining seven will function as sea to sea ports.

Of this 32 ports, 5 ports are given special strategic importance for maritime transport. These ports are important intermodal hubs for national and international goods and passenger transport.



Port Governance: Ministry of fisheries and coastal affairs enjoys all the authoritative rights to make demand and set conditions in interest of national transport policy. A forum for the designated ports has been established to maintain contact between the ports and the state port authority and also to strengthen the dialogue amongst the ports. Norway's largest port Bergen Og Omland Havn, is a partnership between 11 local authorities and one regional authority.

Box 2: Scale vs. Spread - A Case of Turkey

Ports of Turkey: For Spread

Governance Options | Spread | Turkey Case Study

Second option in improving governance at ports is spread i.e., Increase the number of ports at the coast of Gujarat which in turn will get the revenue increased. For considering this option we shall understand the operation of country which have geographic similarity with Gujarat; Turkey.

Background: Turkey has more than 172 ports on its coasts which are been handled by different authorities. These ports are majorly divided based on the operations handled namely state owned companies, municipalities and private companies. Following are bifurcation based on the ownership and operations at ports:

Public Ports: All the major ports namely Haydarpasa, Ambarh, Izmic, Mersin, etc are handled by government bodies like Turkish state railways (TCCD) and Turkish Maritime Organization (TDI)

Municipality Ports: In terms of size, the ports handled by municipality are comparatively smaller. The cargos berthing at these ports are limited to small volume of coastal traffic. The service is limited to the local needs of provincial towns

Private Ports: Privately owned ports are mostly constructed and used for special purpose based on specific needs of the industrial plants. These ports are operated and regulated by private companies under the state laws and regulations.



Challenges: All the ports have been well defined and distributed amongst state, municipality and private players. Of these 172 ports, only 12 ports have direct railway connection and all these 12 ports are handled by TCCD and TDI. Road transport and connectivity in the internal part of turkey is either poorly handled or costly affair and thus this creates the major challenge to the port authorities.

Combating Challenge: Logistics and supply chain management problem at these ports handled by municipality and private authorities calls for the need for privatization. Various ports which were previously being handled by private or public parties are slowly getting united and merged to combat this challenge of logistics and supply chain management effectively.

Take away: Spread option can undoubtedly raise the revenue and employment at ports but also may have logistics and supply chain management challenges linked with it. Thus Logistics must be well developed before considering this option

Captive Jetties in Gujarat

The port policy of 1995 stated - 'To ensure that the new port projects are financially viable, permissions for captive jetties would be given only in exceptional cases, looking to the quantum of investment and the need for specialised facilities'. It subsequently states that 'This facility would be available for a reasonable period till new ports become operative. GMB will review the policy taking into account the progress made in the new ports'. The clear objective of making such a provision for captive jetties was to facilitate the industries with port facilities, till the time new ports, which were being envisaged, were developed.

However, after 20 years of the port policy came into force, the captive jetties are still in existence and are contributing to around 35 percent of Gujarat's cargo share. This can be viewed in two ways,

1. Captive Jetties have succeeded in attracting and handling a more than considerable share of cargo at Gujarat Ports. This would mean, their operational model have been more responsive to the requirements of the industries in their hinterland, and has been highly successful
2. Captive Jetties were supposed to be a make shift arrangement in order to manage the capacity gap till the time new and better ports were developed. However, over time the industries constructed and augmented their own jetties to handle captive cargo and they became the main stay in those locations. New multi-purpose ports which could have been developed to take care of the potential demand in this hinterland. Developing new ports in at this locations now as per old policy would mean, cannibalizing potential hinterland, and shutting down existing infrastructure, which the industry is not ready to do.

The support from the industry for continuance and permission for development of new captive jetties has been divided. The arguments for and against the support of Captive Jetties is discussed in the following table

Table 4-4: Arguments in favour and against continuance or development of Captive Jetties

Arguments in favour	Arguments against
Those who are in favour of Captive Jetties are among Stakeholders are of the view that if capacity exists, then they should be allowed to handle other cargo since a lot of investment had already made in creating the asset.	Those who are against promotion of captive jetties among Stakeholders are of the view that these captive jetties use the flexibility as a back door entry for use as multi-purpose port.
Since Government of India's policy as described in Figure 4-11 permits handling of commercial cargo by a Captive Terminal there exists a justification for utilization of spare capacities.	An option for right of refusal should be given to nearby ports before permission is given to handle commercial cargo. Share of commercial cargo results in hinterland cannibalization and subsequently impact revenue stream for private ports.
However they are also of the view that operation of one captive jetty should not impede the operation of another captive jetty.	An option discussed, was signing of a Tripartite Agreement between the port developer, industry and the GMB, wherein the priority/ facilitation to the industry cargo. At the end of agreement period, captive jetty must be converted to GMB jetty. For other states who are promoting captive jetties, it makes practical sense for them as their coastline is geographically linear

Arguments in favour	Arguments against
Captive Jetties should be allowed to handle captive cargo of the group companies as well.	-
Full freedom should be given for Private pilotage to operators of captive jetties.	-

Other factors to be considered

- ▶ Percentage of Commercial Cargo that a Captive Jetty can handle should depend on justification, capacity and rates on a case to case basis or open competition.
- ▶ Captive cargo charges are lesser compared to GMB Jetties, making them a direct competitor to growth of GMB jetties
- ▶ Captive ports are additionally facilitated as below
 - a. Set Off Rebate - Rebate to Captive Jetties during initial period recover capital cost
 - b. Captive Single Point Mooring - Concessional rate of wharfage for their captive consumption
- ▶ Need to strike balance between protecting the hinterland sharing with private ports and port led growth

Exclusivity clause for Private Ports

Development of captive jetties were discouraged by GMB in accordance to exclusivity clause, as mandated by Model Concession Agreement of 1999 for Private Port Operators. This limited development of port infrastructure within 150 kms of the private Port, as they enjoyed a “right of first refusal” for the period till to 2013 AD (for Petronet LNG it is 2015). The exclusivity clause does safeguard the interest of private sector ports, but in the process of protecting interest, the state is not promoting port led industries.

Outlook for Captive Jetties/Port by Gol

As previously discussed in Figure 4-11, Gol has facilitated use of existing jetty facilities inside Major Ports for captive purposes, instead of developing new captive jetty facilities, through Policy for Award of Waterfront and Associated Land to Port Dependent Industries in Major Ports 2016. Non captive cargo allowed to be handled at such facilities is up to 30 percent of designed capacity of the berth.

Strategy for Captive Jetties

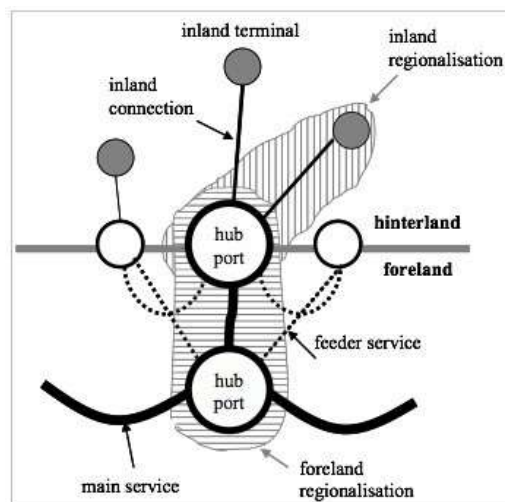
Captive Jetties may need to feature in the larger master plan of GMB. Since by nature captive jetties were developed for handling particular set of cargo for an industry or group of industries, and higher flexibility for handling commercial cargo will result in cannibalizing of hinterland potential as well as not regulated by a proper agreement structure. Therefore it is not fundamentally judicious to promote more captive jetties; they cannot replace multipurpose ports. However the captive jetties can be in the larger plan for Gujarat’s coastline, where they have a different role.

- ▶ Through hub and spoke model , captive jetties can act as feeder ports to larger hub ports can be larger part of the masterplan
- ▶ Promote coastal shipping through captive jetties
- ▶ Optimize logistics cost at captive jetty
- ▶ Other innovative options can be explored, like captive RO-RO facilities can be developed at these ports

Captive Jetties may be permitted in cases where it requires special facilities, for e.g. Salt. Exclusivity or first right of refusal for new port/jetty development for a fixed period of time or until traffic reaches a certain level.

4.1.3 Hub and Spoke Model for Cargo Movement

The hub-spoke distribution model or network is a system of connections arranged like a wire wheel in which all traffic moves along spokes connected to the hub at the centre. In maritime industry the hub and spoke model is used for transshipment of containers. Transshipment is a process of moving containers from one ship to another keeping a port as a temporary buffer storage area. So, the hub and spoke maritime network has a fixed centre point called HUB (transshipment) PORT, which connects short distance cargo ports called feeder ports by spokes namely feeder ships. The hub port generally will be geographically a central location, which has an easy access to the region.



The Shipping lines chose hub ports in strategic regions to achieve economy of scale and to optimise services. The choice depends on the line's overall logistics strategy and the seaport's geographical, economical, physical, political, environmental and inter-modal advantages.

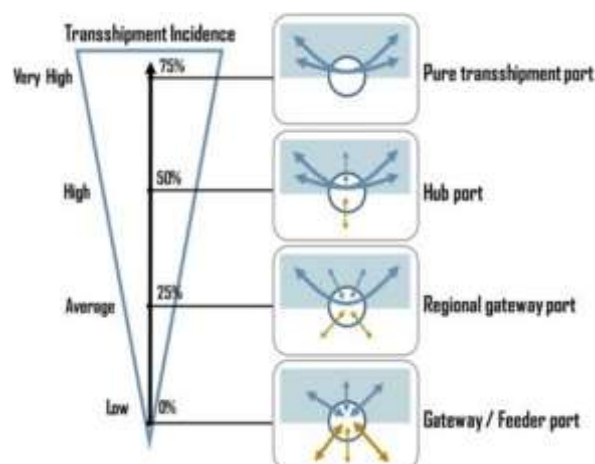
The hub is where the big container vessels come to and goods transferred out in smaller vessels, and that's the spoke. A hub port attracts ship calls of large deep-sea vessels with considerable unloading and loading volumes with high shares of transshipment. Container feeder port handles ship calls from smaller feeder vessels only, which are often not fit for the high seas, running between one hub and several feeder ports.

Functions of Hub and Spoke model of ports

- ▶ Provide specific facilities and equipment to accommodate the traffic they handle.
- ▶ Interchange of passengers and cargo
- ▶ Ship maintenance and servicing

Mechanism of selection:

- ▶ Location of the hub is one the factors to be considered while choosing the model.
- ▶ If the hub is too off-centre (geographically), the time and cost of distribution are adversely affected.
- ▶ If the hub is too far from an airport, harbour or rail service, it can weigh down on operational costs.
- ▶ Other factors include warehousing costs, state taxes, availability of alternative routes, and so on.



Box 3: Case Study for Hub and Spoke Model - European Ports

Large European hub ports with high transshipment volumes are Rotterdam, Hamburg, Antwerp, and Bremen/Bremerhaven in the North Range and Tanger and Valencia in the Mediterranean Sea. Regions of high feeder transport densities in Europe are the Baltic Sea and the Mediterranean Sea. Hub-and-spoke systems connect large hub ports and small feeder ports on the East-West trade lane from Asia to Europe or the North-South trade lane from Europe to North and South America.



Box 4: Case Study for Hub and Spoke Model - Sri Lanka

Colombo in Sri Lanka is a popular hub port for Indian Sub-Continent region given the geographical location advantage as it is sitting on the main East West sea route. The busy East-West shipping route passes just six to ten nautical miles south of the island. More than 60,000 ships ply this route annually, carrying two-thirds of the world's oil and half of all container shipments. Sri Lanka is also at the doorstep of a dynamic market - India. Sri Lanka is expected to attract an increasing share of trans-Indian Ocean trade as well.



Goods from India, Bangladesh and East Africa are now loaded in such mother ships at Colombo for their onward journey to the west. Around 700,000 TEU of the 2 million TEU of annual volumes generated from Bangladesh are delivered into Colombo. Mega carriers, which could not be completely filled at the onset of their journey at Chinese ports, pick up additional cargoes at Colombo. Container ships of over 12,000 TEU capacities are considered mega carriers and Colombo is now handling ships of even 16,500 TEU. The Port of Colombo, including all three terminals saw a combined growth of 14% in volumes handled in 2014. A competitive tariff of around \$43/lift for every load or discharge from a 20-foot container also makes it attractive for liner companies to use transshipment services in Colombo, though actual tariffs could be even lower depending on the agreements with various shipping companies

Key Learnings

- ▶ Location of the hub is one the factors to be considered while choosing the model.
 - If the hub is too off-centre (geographically), the time and cost of distribution are adversely affected.
 - If the hub is too far from an airport, harbour or rail service, it can weigh down on operational costs.
- ▶ Other factors include warehousing costs, state taxes, availability of alternative routes, and so on.
- ▶ Governmental support and master planning is the key to facilitating the setting up of an integrated network of feeder ports, inland port and intermodal corridor system.
- ▶ The decision process to site inland port (like in Europe) should be made with the help of marine planners, and the private sector to evaluate. Private sector involvement is therefore one safeguard in ensuring that decisions are made on a sound, commercial, and market oriented basis, with risks and rewards going hand in hand to the parties involved.
- ▶ For regional transshipment, Inland ports can be used as feeder ports to utilize existing infrastructure and resources efficiently. Developing an efficient feeder network will have a larger multiplier effect than setting up new transshipment ports.

Rerouting the traffic for optimum utilization

Requirements for handling are different for domestic and EXIM cargo. In order for optimum utilization, GMB jetties can be used to act as 'coastal transshipment ports' for rest of the country. Traffic can be distributed to ports across the hinterland. If a port is being saturated, active proposition can be made to the government or end users to move the traffic to the next best available port.

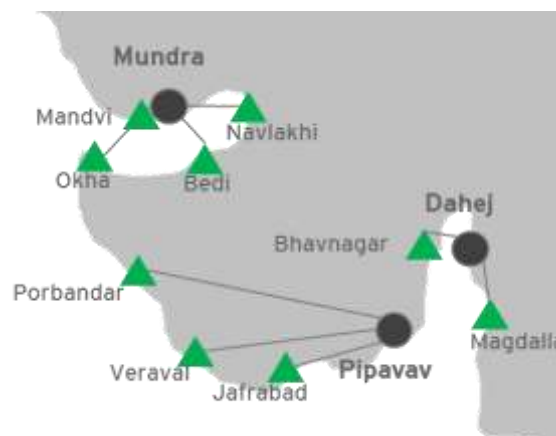
Table 4-5: Commodity wise potential coastal cargo for Gujarat under Sagarmala

Commodity	Potential Traffic (MMTPA)
POL	8-10
LNG	15
Thermal Coal	18.5
Steel	1.5
Cement	5 to 6
Fertilizer	0.72
Container	18 to 20 ('000 TEU)

The following steps could be taken to ensure success of implementation of a hub and spoke model

- ▶ Identify the ports that have potential for growth (not more than 2 per region)
- ▶ Analysis of nature and quantum of cargo to be handled
- ▶ Subsidized rates for coastal cargo handling at notified ports (to be detailed in SOPC)
- ▶ Other ports may handle coastal cargo but under normal rates
- ▶ Techno-commercial and functional requirement studies to be undertaken before notification

Figure 4-12: Hub and spoke model for Gujarat Ports



4.1.4 Role of GMB in scaling up

Gujarat Maritime Board plays a pivotal role in scaling up of operations in order to enhance cargo handling by the state. Improving connectivity infrastructure plays an all important role in pushing port led industrialization

- ▶ Development of connectivity infrastructure
- ▶ Development of logistics (storage/ warehousing) infrastructure
- ▶ Administrative / customs clearances

Logistics infrastructure plays a vital role in Cargo Handling capacity of a port. GMB may consider a bigger role in integrating supply and demand. Systematic process based on the market conditions for determining all the charges/fee that they collect from the port users. Some key steps that need to be taken are

- ▶ Traffic projections and year on year plan for improving upon the hinterland connectivity
- ▶ Traffic enhancement for the existing ports, supporting and incentivizing port led development/ port based industries
- ▶ Some of the pre clearances like environmental clearance for the port, etc. before the bidding process starts
- ▶ Detailed timelines for provision of infrastructure
- ▶ Formation of a team with Railways and other stakeholders for development of infrastructure
- ▶ Collation and updation of land bank to be utilized for infrastructure development
- ▶ Investment promotion in the hinterland development
- ▶ Last mile connectivity through road and rail - developed by the government

Box 5: Case Study: Port based industrial clusters, Rotterdam

Rotterdam's port (which concentrates on trade in oil and chemicals, containers, iron ore, coal, food and metals) and its industrial complex cover 12,600 hectares and stretch 40 kilometres from the city to the Maasvlakte along the Nieuwe Waterweg canal.

Type of Industries and support infrastructure: 45 chemical companies, five oil refineries, four palm oil refineries, five bio fuel producers, two biochemical factories and various power stations together form a strong industrial cluster in the port of Rotterdam. The port is also host thirty-two chemical manufacturers, twenty-six tank storage terminals and twelve industrial gas and steam power companies. The main part of the cluster is a complex pipe network of over 1500 kilometres.



In 2030, Rotterdam's industrial and energy complex will function as an integrated cluster with Antwerp, making it the largest, most modern and most sustainable petrochemical and energy complex in Europe. This complex competes on a global scale thanks to its major cluster advantages, integrated supply chains and energy efficiency.

The economic activities associated with ports fall into following groups:

- ▶ The first includes cargo and passenger handling and storage and distribution activities directly related to the port function, ship repair and a host of transport-related services located in port itself and in their city centres.
- ▶ A second group comprises a set of processing industries that transform imported material before their onward shipment taking advantage of the inter-modal, trans-shipment and break-bulk facilities of ports.
- ▶ A third group of industries located in port-industrial complexes are those whose inputs comprise bulk commodities imported through the port. Examples include oil refineries and related chemical industries, and iron and steel mills.

Governance Structure

The Port of Rotterdam Authority is manager, operator and developer of Rotterdam's port and industrial area. The Port of Rotterdam Authority is an autonomous company with two shareholders, the Municipality of Rotterdam (approximately 70%) and the Dutch state (approximately 30%), established to develop the port of Rotterdam. Its key revenue streams consist of rental income and port tariffs.

The Port of Rotterdam Authority doesn't handle or ship goods. It leases port sites to companies, primarily to storage and transshipment companies and to the chemical and petrochemical industries, including energy producers. The Port Authority imposes port tariffs on ships. It invests in public infrastructure, such as roads in the port area, in customer-specific infrastructure, such as quay walls and jetties and in the development of new port sites. The Port Authority are doing this by accommodating transport flows and the establishment of businesses and optimally exploiting the available land, whilst ensuring there is a fit with the surrounding area.

Port of Rotterdam signs a 'memorandum of understanding' (MoU) with the State Government of Cear  with the purpose to jointly study a potential cooperation. The MoU is consistent with the Port of Rotterdam Authority's foreign policy which is focused on creating opportunities in ports abroad that have perspective for growth. Port of Rotterdam has a successful joint venture with the Sultanate of Oman for the management and development of SOHAR Port & Freezone. Additionally PoR has two Joint Ventures for the development of Porto Central, Brazil and Kuala Tanjung, Indonesia. Further, it is active in multiple ports as an advisor. In 2016 the subsidiary companies in Oman, Brasil and Indonesia contributed more than 8.9 million euro's to the financial result of the Port of Rotterdam.

Box 6: Case Study: Extensive logistic solution for the hinterland, a case of Extended Gate Concept - Rotterdam

Background

An extended gate is an inland intermodal terminal directly connected to seaport terminal(s) with high capacity transport mean(s), where customers can leave or pick up their standardised units as if directly at a seaport, and where the seaport terminal can choose to control the flow of containers to and from the inland terminal.

The idea was introduced by the need to free capacity in the Rotterdam ports in 2004/05. By allowing the seaport to influence the container flow into the hinterland, the extended gate concept will contribute to the required modal shift to barge and rail transportation, logistic performance can be increased by consolidation of containers and by stimulating regional development around the extended gates. The additional service can improve business.

Extended Gate Concept - Rotterdam

In 2004 & 2005, an unpredicted surge of containers from China was shipped to Europe, resulting in the terminals becoming highly congested. An idea was conceived to ship entire blocks of cargo to decongest the gateway port. Europe Container Terminals (ECT), assisted by various master students from Hogeschool Rotterdam and Erasmus University, developed the concept of the Extended Gate to address the challenge.

The concept has been operational since 2007 on the link between the Europe Container Terminals (ECT) in the Port of Rotterdam and the inland terminal TCT Venlo. They have introduced the Dry Port as a driver for alternative transport network configurations. In Europe, the Port of Rotterdam, the Port of Antwerp, ports in the UK, ports in Germany and Spain have all developed the Extended Gate concept to some degree.

European Gateway Services (EGS) is a subsidiary company of Europe Container Terminals (ECT) in Rotterdam. The EGS provides extended gate services for customers of the ECT terminals. It comprises a tri-modal (barge, rail, and road) container transportation network between three Rotterdam sea terminals and extended gates in the Netherlands, Belgium and Germany (hinterland terminals in Duisburg, Nuremberg, Neuss, Dortmund, Moerdijk, Venlo and Willebroek). The network makes the transportation of containers more efficient and more sustainable, by bundling them in rail and barge transport (multi-modal transport) when possible. Also, with transportation over the EGS network, in some cases custom formalities can be postponed to the extended gates, allowing quicker delivery.



Key Features of Extended Gate Concept

- ▶ The delivery point is extended to the inland terminal, and possibly even to the final destination such as a distribution centre
- ▶ The gate is placed at the inland terminal. In this sense, gate refers to the entrance for truck delivery or pick-up of containers.
- ▶ Transportation occurs on a multimodal platform. The inland terminals can develop further when incorporating the modalities.
- ▶ Custom facilities are postponed to the extended gate where possible

4.2 Make in Coastal Gujarat

Port policy of 1995, envisaged that 50% of entire cargo for new ports to be provided by industries in vicinity of port locations. Under this policy impetus was given to port led development through creation of port facilities, industrialization and development of infrastructure facilities like roads and railways in the hinterland. This policy initiated private investment in existing non-major and intermediate ports, development of new port sites, and privatization of services, infrastructure development, coastal shipping and marine related ancillary industries. For realising this vision it becomes instrumental to develop industries near the port region. During consultative process following were identified as key components of integrated port led development approach covering Ship building, industrial development and hinterland connectivity infrastructure development.

4.2.1 Supporting Coastal Economic Zones

Maritime nations across the globe have adopted various strategies to promote port led growth in their country. Since last port policy, Gujarat has pioneered and implemented this concept across the state. Some of the strategies that can further help Gujarat in promoting port led development in state and developing world-class port regions have been discussed at length in the Discussion Paper.

- a) **Integrated and Participative Spatial Planning of Coastal Gujarat:** Port policy 1995 envisaged port development as an integrated approach covering industrial development, power generation and infrastructure development. Further, to co-ordinate this integrated approach and achieve a balanced regional development, Gujarat Maritime Board was to develop master plans for each of the new port locations. However, inter-agency planning and coordination as well as land acquisition for comprehensive and phased development of port hinterland and connectivity projects still has its challenges. For efficient and sustainable utilization of its waterfront, Gujarat should introduce Maritime Coastal Regional Plans (MCRPs) for its entire coastline and not just limited to port area²². GMB can take lead in this planning exercise and adopt a participative approach towards this coastal regional planning exercise, with a aim to reduce conflict between the interest of various agencies (GoG, GIDC, GIDB, Urban/ local government, local community etc.) and other stakeholders, as far as sustainable development of coastal regions of Gujarat is concerned.

These coastal regional plans will also bring predictability and transparency for investment along Gujarat coastline. Development of coastal master plan would also help in materialization of Sagarmala projects as well as aid in compliance²³ expected under Sagarmala program.

- b) **Delineation of economic region to promote specialized cargo handling operations and dedicated cluster of Industries in vicinity of Gujarat ports in form of tax breaks and incentives:** World class ports have dedicated free trade zones, where cargo operators enjoy tax free stay for limited time. Rotterdam port incentivizes (10% discount on gross seaport dues) ships that bunker LNG at port²⁴. Similarly Maritime and Port Authority of Singapore (MPA) offers various incentive schemes to encourage shipping companies to locate and grow their business in Singapore under Maritime Sector Incentive (MSI) scheme for companies engaged in international shipping operations, maritime (ship or container) leasing, and shipping support services²⁵. GMB should explore possibilities for delineation and development of economic regions/Industry clusters in

Incentives for Industrial Clusters in Coastal Area in Maharashtra

- ▶ Subsidy on land purchases on the basis of ready reckoner rates
- ▶ Subsidy on capital investment on plant & machinery for mega/ ultra-mega projects
- ▶ Power tariff subsidy for mega/ ultra-mega projects
- ▶ Interest subsidy for large-scale industries

²² Recommendation from Professor Raghuram during International Seminar on "Gujarat Port Policy review: Pre-VG 2017 event" organized by GMB on 1 dec 2016.

²³ Please refer to Institutional Framework for implementing Sagarmala for state level master plans by Sagarmala Coordination and Steering Committee (SCSC). PIB release March 2015 titled "Sagarmala: Concept and implementation towards Blue Revolution". link: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=117691>

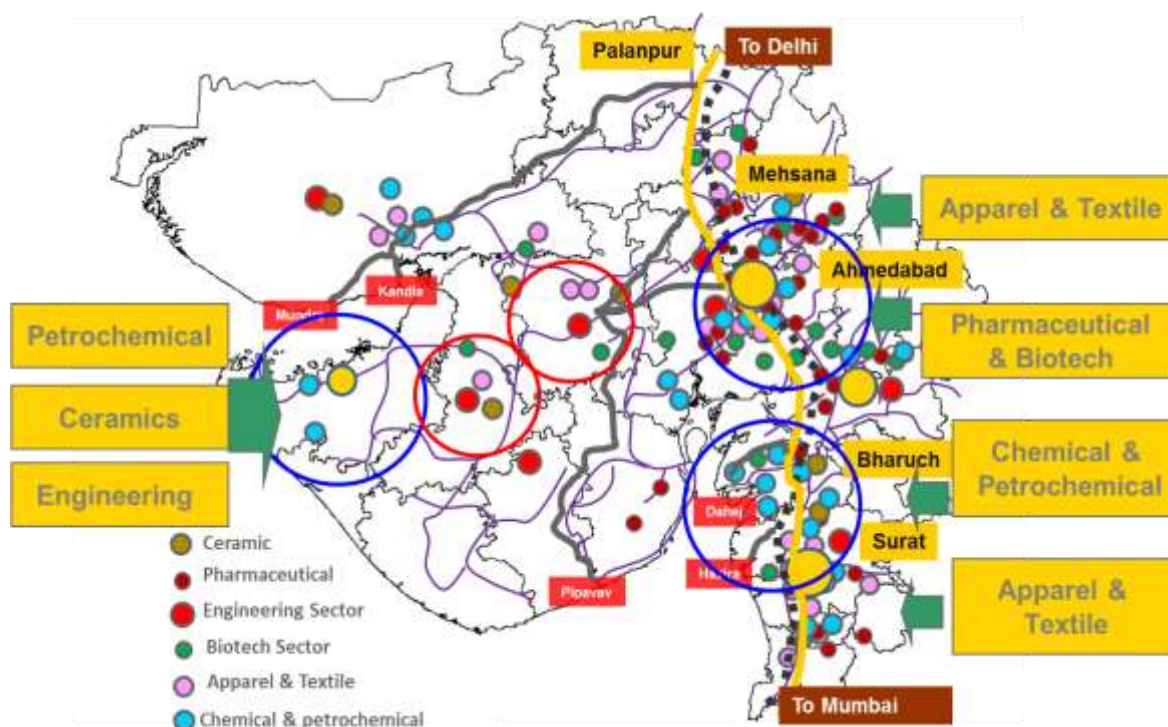
²⁴ Hart Energy: Downstream Business: Port of Rotterdam; Title" Port Of Rotterdam Offers Tax Break For LNG-Fueled Vessels"

²⁵ MPA document , titled "Factsheet On Tax Changes For Maritime Businesses"

vicinity of Gujarat ports. This approach can also be used to prompt growth in ports/ regions which are falling behind in overall economic growth of the state.

- c) **World class ports across the globe have adopted various market led strategies to optimise use of land available with port authorities.** Port of London, Port of Rotterdam and Singapore port are some of the leading examples in this regard. These ports have developed themselves as center of specialization by managing port assets to best commercial use. GMB should develop business plans for ports land under its jurisdiction, where detailed “best use” analysis should be carried out for port land. Government intervention in London to designate an enterprise zone in 1982, where businesses were exempt from property taxes and had other incentives, including simplified planning and capital allowances, should be explored by GMB to promote growth at its laggard ports / jetties / port lands.
- d) **Other Support for Coastal Economic Zones** Multiple agencies are involved in the spatial planning and development of the coastal economic zones through port led industrialization. Central government has initiatives like Sagarmala, DMIDC, Bharuch-Dahej PCPIR, and Smart port city of Kandla for this purpose. Various planning agencies like Ministry of Shipping GoI, Ministry of Railways, DMICDC, KPT, Sagarmala apex committee, SDC, pollution control board, customs, and various GoG departments are involved in these projects.

Figure 4-13 Initiatives and Support for Coastal Economic Zone



The state government initiative include Port based industrial areas like SIRs and SEZs along with port based connectivity projects. The major projects that are planned by GoG include Marine shipbuilding parks, maritime clusters, private ports, RO-PAX network, and port city at Mundra. Marine tourism sites and Offshore wind farms are also projects which are under exploration and development. Multiple agencies like GIDC, GIDB, GMB, and various GoG departments are involved in these projects.

Three Coastal Economic Zones (CEZ) are being developed in Gujarat. The first zone is for Kutch. It has a cement cluster and would also have a secondary light manufacturing industries included like furniture. The prominent ports for this CEZ include Kandla, Mundra and Sikka.

Figure 4-14 Gujarat Coastal Economic Zones



Source: Sagarmala National Perspective Plan

The second CEZ under development is at Saurashtra. It is again a cement cluster with secondary manufacturing of automobiles, marine cluster and Apparel Park. The prominent port for this CEZ would be Pipavav. The final CEZ proposed is in Southern Gujarat. It will be basically an agro-processing park and the prominent ports for this CEZ would be Hazira, Dahej and Magdalla.

Many hinterland connectivity projects are being developed in Gujarat for connecting the CEZ to Northern and central India. These constitute all modal forms of transportation as shown in the figures below.

Figure 4-15: Future Rail, Road & pipeline projects

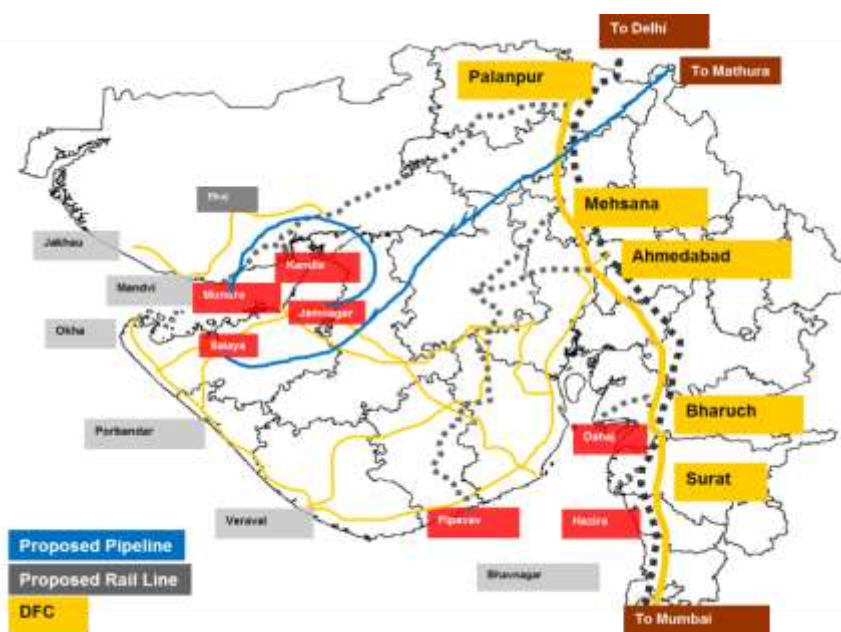


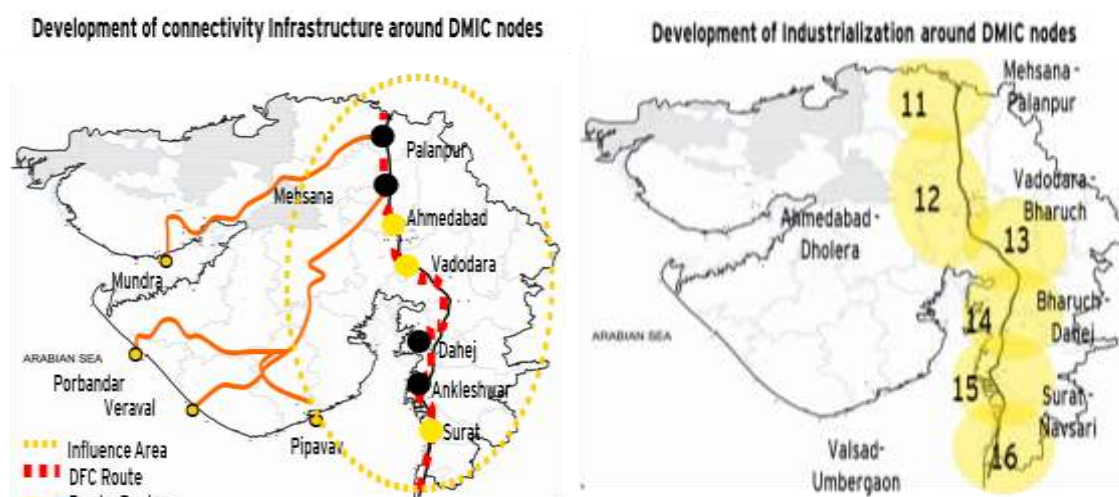
Table 4-6 Connectivity Projects

Projects (investment size)	Road	Rail	Coastal shipping	Pipeline
Under Sagarmala	5 projects (INR 37,215 Cr)	4 Projects (INR 6,300 Cr)	NA	2 Projects
Under DMIDC	12 Projects	7 Projects	NA	NA
Under PCPIR	8 Projects	3 Projects	NA	NA
Under Dholera SIR	1 Project	2 Projects	NA	NA

Source: (1) Sagarmala National Perspective 2025 plan, (2) Gujarat DMIDC, (3) Gujarat PCPIR and (4) Dholera SIR - GIDC. Detailed list of projects in Annexures.

DMIDC influences 62% of Gujarat state with 18 of the 26 districts of Gujarat being influenced by it. There are 6 nodes that are being proposed by DMIDC in Gujarat in which there will be 24 industrial nodes. Moreover, there is a comprehensive planning of 150 km on both sides of DFC that constitutes of 19 projects. The details of these projects is mentioned in the Annexure.

Figure 4-16 Industrialization and Connectivity through DMIDC (DMIC)



PCPIR has made an investment commitment of approximately INR 173772²⁶ crores for development related to CEZs in Gujarat. They are developing the Bharuch-Dahej region and have identified the investment region for the development of production facilities like petroleum, chemicals and petrochemicals. This project is spread over 453 square km and is a joint venture with ONGC Petro additions Limited. There are 11 projects planned for connectivity under PCPIR whose details are mentioned in the Annexure.

As mentioned earlier, the government of Gujarat and GMB are also contributing the development of CEZs in Gujarat. GoG and GMB have planned projects of their own. They have planned to develop a world class port city at Mundra and Kandla. The planned area for Mundra is 502 square km and at Kandla port is 28 square km. These cities will be Smart Industrial Port cities that would encapsulate the best practices in sustainable development and will create a benchmark for other port cities to follow within India. These cities will have a green and clean urban development

²⁶ Source: GIDC Database

supported with the latest Smart Technology. Moreover, in these cities environment friendly practices for new industries will be promoted. Thus, the smart city will be self-sustainable, with clean and green environment, disciplined development, responsive to people's needs, encouraging people to walk to work place, making the citizens experience the better quality of life and increasing the overall city's liveability index.

Other than port cities, there are plans for development of marine ship building parks in area of old Bhavnagar port, coastline in Bhavnagar district, Navlakhi and Jodiya and Mandvi. The MSPs are mentioned in detail in section 4.2.2. There are also 4 new private ports planned and a RO-RO network, Marine tourism sites and offshore wind farms. The details of marine tourism are given in section 4.5 and details of offshore wind farms are given in section 4.4.2.

The CEZ development will done based on the convergence of multiple authorities. It will be a three stage process. The first part of this process would be convergence of planning efforts. This includes the participative spatial planning of coastal Gujarat. These maritime coastal plans are a part of the Sagarmala program. After planning is done, market led strategies need to be developed that would help in optimizing the use of port land other port related functions.

The second step of the process would be convergence of incentives. Here delineation of the economic regions will be done. In this promotion of specialized cargo handling operations will be done and there will be dedicated cluster of industries developed which will provide the tax breaks and incentives. Further, there will be economic incentives that will help in triggering industrialization for backward coastal districts.

Final step of the process is the convergence of funds. Here the funds from the projects under DMIDC, PCPIR, and Sagarmala projects will be channelized to support the industrialization in coastal Gujarat. An inter-departmental Task force will be formed to ensure the convergence of efforts for coastal industrialization in Gujarat.

4.2.2 Revival of Ship Building Industry

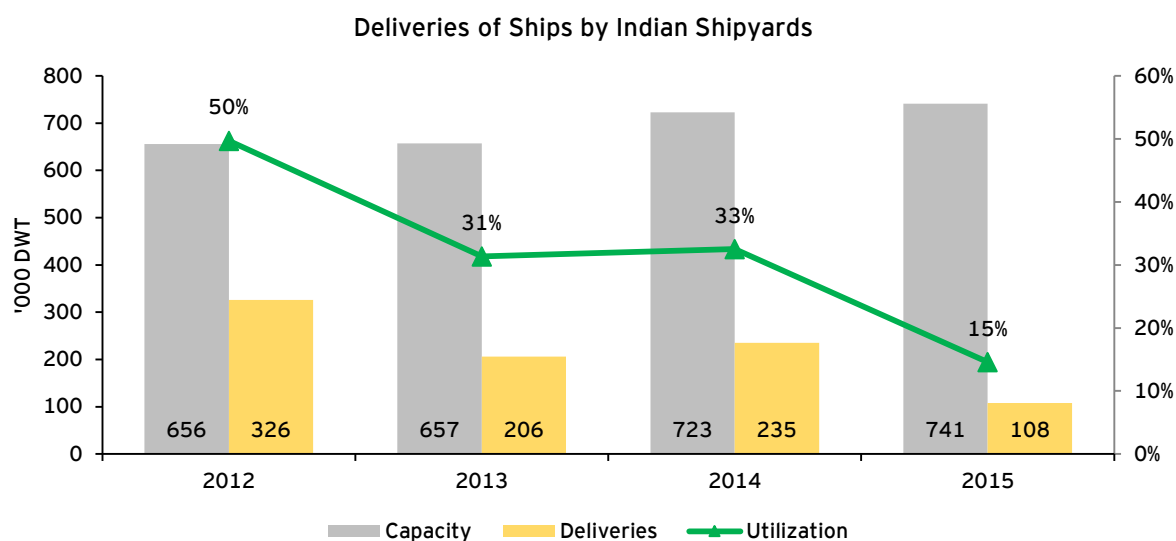
Historically, ship building has been the "Art/ innovation" of Gujaratis as well as one of the key industries of the state. However, this glory is long lost and recent attempts to revive this sector has seen very limited success. The shipbuilding sector is of strategic importance and will play an important role in the overall economic development of the country. Shipbuilding, Ship Repair and Ship Recycling are labor intensive industries and hence offer immense job creation potential. Additionally, growth in the Shipbuilding sector will help accelerate the growth of the ancillary industries such as steel, Light Engineering etc. and boost overall economic growth.

Shipbuilding as a cyclical industry

Shipbuilding is a cyclical industry and is currently on a downturn, with excess capacities globally. After the peak in deliveries in 2011, the industry's output is decreasing and reached 91.2 mn DWT in 2014. However, strong demand is expected in the long term, driven by shipping companies' move towards ultra-large vessels, demolition of the old vessel fleet and growth in global exports.

India has only 0.5% of the global shipbuilding market share. The capacity of Indian Shipyards is high while their utilization is very low. The utilization of Indian Shipyards has decreased from 50% in 2011 to just 15% in 2015 as shown in figure below.

Table 4-7: Utilisation of Indian Shipyard



Source: maritime India Summit 2016; Session Booklet, April 2016.

Slump in ship building activity in India due to withdrawal of Ship Building subsidy

The Indian Shipbuilding Industry, which had only about 0.1 % share of the world shipbuilding in 2002, expanded over tenfold to claim 1 % share by 2007/2008 riding on the global boom and supported by a 30% subsidy scheme. Slump in ship building activity in India due to withdrawal of Ship Building subsidy, clearly established that government support plays a big role in the performance of the shipbuilding industry that ended in August 2007 after a five-year run.

Existing status of shipyards in Gujarat

Gujarat handles about 89% share of the Indian shipbuilding order book (by DWT). Presently, Gujarat has nine shipbuilding yards in operation and eight under execution. 9 operational shipyards have capacity of ~1 million DWT

Sr. No.	Shipyard Company	Order boot (Qty)	Price (INR Cr)	2013-14 (Nos.)	2014-15 (Nos.)	2015-16 (Nos.)
1	ABG Shipyard Ltd., Magdalla	30	USD 675.9	6	4	1
2	ABG Shipyard Ltd., Jagdishwar	53	USD 1962.6	2	Nil	Nil
3	Modest Infrastructure Ltd., Bhavnagar	Nil	Nil	3	3	2
4	Reliance Defence and Engineering Ltd., Pipavav	17	4814	7	3	2
5	Shoft Shipyard Ltd.	2	90.10	4	1	2
6	Alcock Ashdown, Pipavav	6	183	Nil	Nil	Nil
7	Alcock, Ashdown, Bhavnagar					
8	L&T Ltd., Hazira	20	NA	4	13	4

Options of the Proposed Port Policy of Gujarat

Sr. No.	Shipyard Company	Order boot (Qty)	Price (INR Cr)	2013-14 (Nos.)	2014-15 (Nos.)	2015-16 (Nos.)
9	Wadia Boat Builders, Bilimora	48	2.64	97	133	136
Total		174		123	157	147

Source: GMB database 2017

Gujarat shipyards are competent at building smaller to medium size/specialty vessels. They could focus on building specialty and coastal vessels of lengths less than 80 m (e.g., offshore supply vessels, anchor handling tugs, etc.).

In addition to existing 9 shipyards in Gujarat, Government/GMB has accorded approval to 5 shipyard projects with investment of INR 5088 crores as shown below:

S No	Name of the Developer Company	Location	Investment (INR crores)
1	Jindal Shipyard Ltd.	MSP Dahej (Vengani)	500
2	AFCONS Infrastructure Ltd.	Mahuva	106
3	Modest Infrastructure Ltd.	Nava Ratanpar	335
4	Gujarat Integrated Maritime Board Co. Pvt. Ltd.	Nana Layja, Mandvi	4,091
5	Efforts India	Kaswa, Dahej	56
	Total		5,088

Source: GMB database 2017

Challenges with Ship Building policy of 2010

Government of Gujarat announced the Shipbuilding Policy in 2010, in order to encourage shipbuilding as well as allied industries. Some of the prime objectives of the policy include:

- ▶ Enhancing Gujarat's share in shipbuilding
- ▶ Attract private investments
- ▶ Enhance socio-economic and industrial growth
- ▶ Provide world-class ship repair
- ▶ Enhance employment
- ▶ Generate matching HRD support for shipbuilding

However, policy could not achieve its target of 3 million DWT (about 1 million DWT in 2015) by 2012 due to various reasons. Some of the key challenges with the policy are listed below:

- ▶ **Market Segment:** Policy intended development of large and medium size shipyards in clusters. Further, stand-alone proposal at isolated locations was discouraged. Also, for making ships smaller than 30,000 DWT, shipyards were given license of maximum of 15 years to use waterfront, thereby adversely affecting their financial viability.
- ▶ **Negligence of Ship repair industry:** Policy did not give much clarity on ship repair and was largely silent on ship repair front. However considering the cyclical nature of the shipbuilding industry, it is important to complement shipbuilding with ship-repair facilities.

- ▶ **Inefficient approach towards the policy of development of ship building clusters in state:** Gujarat Maritime Board has envisaged developing cluster based shipyards or **Marine Shipbuilding Park (MSP)** within a stretch of 5 to 8 km along the waterfronts of Gujarat coasts. The policy has identified five locations along the Gujarat Coast to develop as "Marine Shipbuilding Parks". Companies moving into these "serviced plots" were to receive following benefits:
- ▶ **Cheap and easy availability of land:** GMB was to acquire Government land and in turn allot plots to the company on lease basis for shipbuilding/repair purpose for the license period. However in Dahej MSP, GMB's role was limited to giving NoC after which applicant was to get land from GIDC on industrial land rate.
- ▶ **Infrastructure:** One of the major benefits offered under MSP scheme was development of basic infrastructure in the form of road, water supply, power, drainage, capital dredging, navigational aids, gas and power supply etc. for the MSP/cluster development. However, Infrastructure development at Dahej MSP was managed by GIDC, and most of the infrastructure support was missing for shipyards planning to move to cluster. Further, many other industrial plots were allocated along with ship building plots, such that overall coherence of the cluster was lost.
- ▶ **Fiscal Incentives:** Another miss for the shipyards in MSP, was that GMB will recommend notifying Marine Shipbuilding Park (MSP) as SEZ and consequently, related fiscal and other benefits extended by Government of India under its various schemes would also be extended to Shipbuilding Company.
- ▶ **Lock-in Period:** Shipyard company lead promoter could not dilute its stake below 26% till completion of 7 years from start of commercial operations.

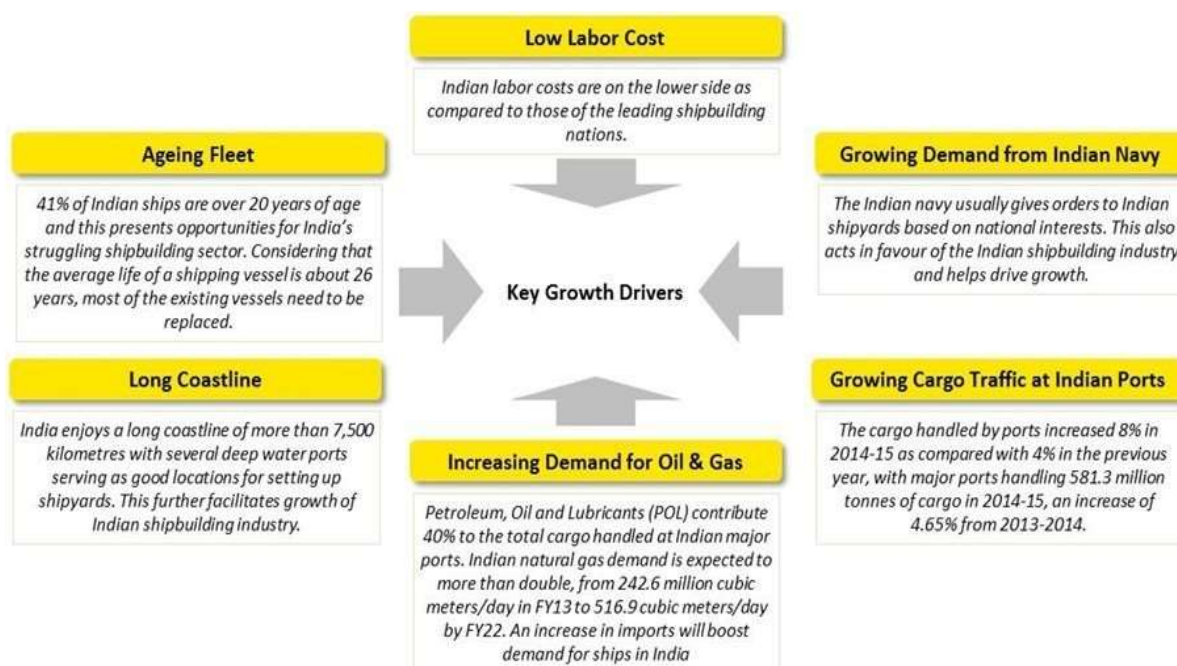
Incentive package for ship building industry in Gujarat

In last few years, lot of reforms and various initiatives have been undertaken by both central and Gujarat government to revive this sector.

Driving the demand for Ship Building

Global ship building demand is expected to go up to around 150 mn DWT by 2025 and around 300 by 2035. Out of this, India could target 3 to 4 mn DWT shipbuilding industry by 2025, through a combination of some smart choices and government support. If Gujarat were to maintain its 60% market share target for future, then Gujarat could target for 1.8 to 2.4 DWT shipbuilding industry size by 2025.

Figure 4-17: Factors driving the growth of the ship building and repair industry in India

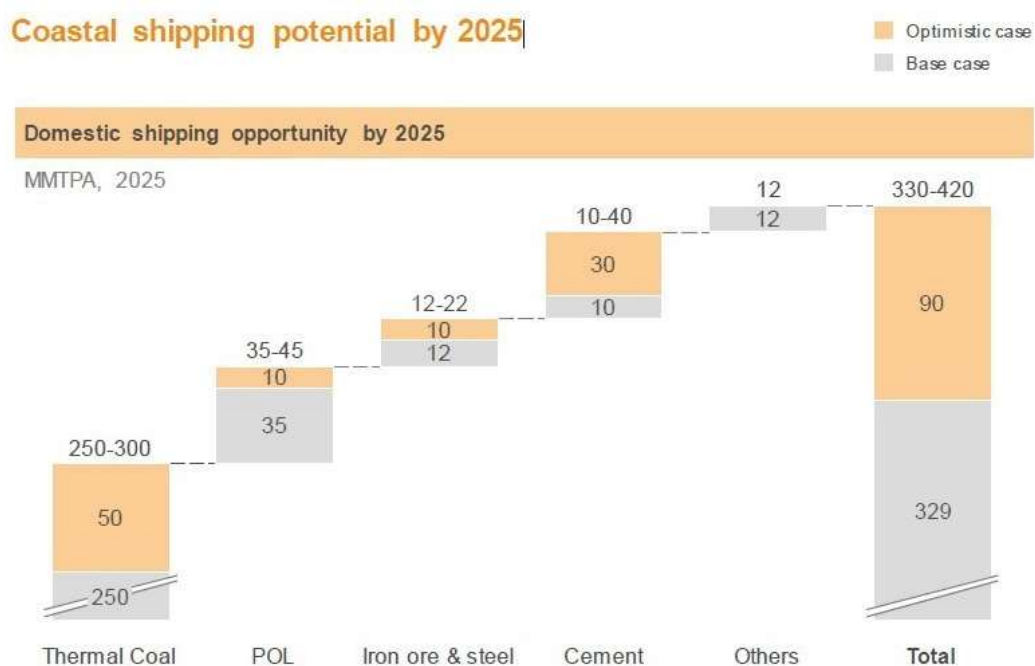


Source: "India Maritime 2012: Building a global maritime sector,"

Demand in Ship Building Industry is expected to grow at greater rate in coming years due to following key growth drivers:

1. **Make in India:** Most of the sectors of economy are now open for Foreign Direct Investment (FDI) and defence sector has received a big push. Consequently, Navy is expanding its fleet with US\$ 23 billion orders under execution and it is expected that US\$ 51 billion orders are in pipeline for next 5 years.
2. **Sagarmala:** This flagship port modernisation and logistics infrastructure development program is targeting investment of US\$ 61.5 billion or INR 4,00,000 crores in port development by 2025. Another US\$ 123 billion or INR 8,00,00 crores is expected in Port led Industrialization. Out of this significant ship building demand would come from
 - a. **Coastal shipping:** By 2025 share of coastal shipping is expected to increase from current 80 MMTPA to 329 MMTPA across various commodities. This would create demand for coastal vessels to handle total cargo volume up to 330 to 420 MMTPA by 2025.

Figure 4-18: Coastal Shipping Potential by 2025



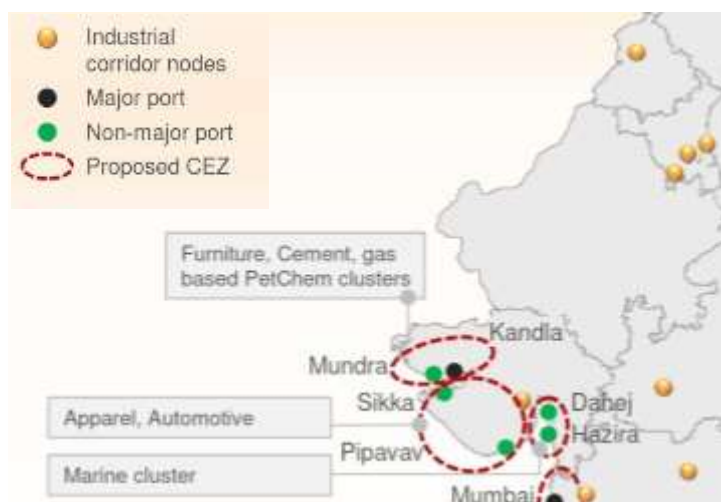
Source: "Sagarmala, National Perspective Plan", April 2016, Ministry of Shipping

- b. Inland water ways: By 2025 share of coastal shipping is expected to increase from current A MMTPA to 60-80 MMTPA across various National Waterways. This would create demand for Inland vessels with lower drafts
3. **Technical knowhow:** Government of India is also lobbying at the diplomatic level with the South Korean government to help Indian yards, both state-owned and private, sign technical collaboration pacts for building at least three liquefied natural gas tankers locally for use by state-owned GAIL (India) Ltd.
4. **Attracting Global Capital:** Globally, shipyards in developing countries like Vietnam and Indonesia are being developed by established players from China, Japan and Korea. GMB should actively seek investments from established overseas players to set up yards in Gujarat, leveraging lower wage costs and cost of land.

Sagarmala Ship Building cluster in Southern Gujarat.

National perspective plan under Gol's flagship program "sagarmala has identified a marine ship building cluster as part of Suryapur Coastal Economic Zone. Location for a shipbuilding cluster was justified due to the presence of a shipyard at Pipavav, Hazira and Dahej and shipbreaking yard at Alang. The cluster could leverage the existing ecosystem created by the already existing shipyard and ship-breaking yard and the proximate steel cluster at Hazira for supply of steel. Shipyards also require a silt-free, dredge-free site with a clear approach from the sea and a minimum draft of 10 m. Gujarat has multiple ports with deep drafts including Dahej and Hazira.

GMB could use this opportunity to converge its MSP development funds as well as channel Gol funds in development of a Marine Shipbuilding Park with world class infrastructure as self-sustainable Industrial Township. Also MSP should be re-launched as SEZ with direct financial benefits for export led units. Additional GMB single window system should “Anchor tenants” in getting customised packages under GIP 2015 as well as Ancillary units in getting support as MSME units, depending on their investment and scale of operations.



Along with traditional markets (Defence manufacturing, Bulk Cargo/Crude carriers, Coastal/passenger vessels, Dredgers, tugs etc.) for shipbuilding, proposed MSPs could explore certain key niche markets like luxury Yachts are growth markets, especially in middle east.

Incentive package for ship building industry in Gujarat

Ship building industry can avail various incentives from both central and state government while materialising their investment in Gujarat. Following are the key incentives/ exemptions / benefits which can be availed by investors. This should be presented as “one package” under proposed “Single Window System” of GMB.

Incentives through central government

Shipbuilding

- 1. Financial assistance policy for local shipbuilders:** The Government of India has introduced a INR 4000 crores (US \$ 600 Million) financial assistance policy for 10 years to encourage domestic shipbuilding. Financial assistance will be granted to Indian Shipyards equal to 20% of the lower of “Contract Price” or the “Fair Price” (as assessed by three international valuers) of each vessel built by them for a period of at least 10 years commencing 2015-16. This rate of 20% will be reduced by 3% every three years.
- 2. Exemption on Customs and Central Excise Duty:** The Government of India has given an exemption from Customs and Central Excise duties on inputs used in Shipbuilding.
- 3. Infrastructure status:** The Union Government has granted infrastructure status to the Shipbuilding industry. This will help Indian Shipyards avail flexible structuring of long term project loans, long term funding from infrastructure funds at lower rates of interest and for a longer tenure equivalent to the economic life of their assets. Further they will have access to relaxed ECB (External Commercial Borrowing) norms, issuance of infrastructure bonds for meeting working capital requirements as well as benefits under the Income Tax Act, 1961.
- 4. 100% FDI in Shipbuilding:** The Government of India permits 100% Foreign Direct Investment in shipbuilding. In the Maritime Agenda 2020 report, the government elaborates the intention to bring the country’s share in Shipbuilding to 5%, grab a 10% share in global Ship Repairs and create 2.5 million jobs by 2020.

- 5. Revision of domestic eligibility criteria:** The Government has revised the domestic eligibility criteria to ensure that all government departments or agencies procuring vessels for governmental purposes or for own purposes shall undertake bulk tendering for their vessel related requirements with deliveries starting from 2016-17 and will grant a Right of First Refusal (RoFR) for Indian Shipyards for such order till 2025. From 2025 onwards, only Indian-built vessels are to be procured by these agencies for governmental purposes or for own purpose. Similar benefits will be applicable for repair of their vessels.

Box 7: Case Study: Korea Shipbuilding industry history

Development of Shipbuilding in Korea

Background: The global shipbuilding industry was dominated by Europe until 1950. This was period when Japan entered the market and slowly started acquiring the market share. Which was later given tough competition by China and Korea. After 2000, various other Asian countries like Philippines, Vietnam, Brazil, and India have also joined the race.

Korea's business model: Korea is the only country in shipping industry which is product centric business model unlike other countries' business centric business model. Korea invest heavily in R&D and development of skilled workforce for better results. It has introduced highest number of technologically advanced civil and military vessels which is being adopted by various countries even today. It is linked with various universities for providing shipbuilding engineering and maintenance courses. Even in wake of financial crisis, Korea continued to invest in R&D which proved to be its trump card in shipbuilding industry.

Evolution of Shipbuilding in Korea

Market-entry: This was period from 1950-1960 when Korea was not introduced in shipping industry and market share was dominated by Japan and Europe. But it was strategically planning the entry by announcing various policies like 40% subsidy and 5% annual interest to attract new entrant in shipping industry. Companies like Korean shipbuilding industry, Daewoo shipbuilding and marine engineering and Hyundai heavy industries were the first ones to get into this race. Of which Daewoo and Hyundai are leading shipbuilding industries worldwide even today.

Expansion Phase: In the following decade, many new player started participating in the shipbuilding race. This was period when employment level experienced the high peak. In 1968, Korean announced direct subsidy of 30% which continued till 1986.

Waiver in taxation: The period from 1970-1990 showed various introduction and improvement in Taxation policies like Korea introduced the complete waiver from commodity taxes for shipbuilding industry, exemption from Merger and Acquisition tax, etc.

Market leadership: Post 1990, 58 companies opened their doors in shipping industry. The top 4 companies in shipping industry worldwide are from Korea. Korea acquired market share of 22% in followed by market leader Japan which had 39% market share.

Other key factors for Korea's success:

- ▶ The Korean ship building industry is now one of the top global players, leading by value and second only to China by volume
- ▶ Korea is only country to introduce the direct subsidies of 30% from 1968-1986
- ▶ Product variety: Korea produces large variety of ship types which includes large vessels such as container ships, very large crude oil tankers, and gas tankers along with anchor handling tug supply, platform supply vessels etc.
- ▶ Offshore manufacturing plant: Korea government to come up with policies which will ease the business and help players to build offshore plants.
- ▶ Low interest rate to new entrants or market players; 5-6% per annum.
- ▶ Korea receives on an average 35% of orders worldwide annually and has 30% manufacturing share.

Ship Repair

1. Service tax exemption has been granted by the Central Government in July, 2014 for repair of foreign going vessels by Indian shipyards to reduce operational costs of Ship Repair Units (SRUs).
2. Elimination of registration requirement of Ship Repair Units (SRUs) with Directorate General (Shipping) as part of efforts to improve ease of doing business.

Incentives through Gujarat government

Standalone large to medium scale shipyards can avail various incentives offered by Government of Gujarat based on investment size and scale of operations (direct employment etc.)

Table 4-8: Relevant benefits for ship building industries under Gujarat Industrial Policy 2015

S.no	Incentives	Quantum of fiscal/ non-fiscal benefit
1	Beneficiary Classification	1) Scale of Operations a) MSME - Less than INR 10 crores b) Large Project - Above INR 10 crores to INR 1000 crores c) Mega Project - Above INR 1000 crores to INR 4000 crores d) Ultra Mega Project - Above INR 4000 crores 2) Innovative Projects
2	Capital Investment Subsidy	1) Units Located outside Municipality Area: 15% of the Loan disbursed, up to INR 25 Lakhs 2) For Development of Land (MSME): 50% of total Cost 3) Mega/ Innovation Projects Decided on merit on a case to case basis
3	Employment Generation Subsidy	Payroll assistance @ INR 1200 per persons & @ INR 1500 per women employee for domicile employees as per EPF record. 0.7% with the ceiling of INR 1 Crore per annum for period of 5 years .VAT paid excluding additional Tax and reduction of TC @ 1/5 of the eligible limit in a particular year and for 5 years

S.no	Incentives	Quantum of fiscal/ non-fiscal benefit
4	Industrial Infrastructure	Under the scheme, assistance will be considered up-to 60% of project cost or INR 25 Crores per project whichever less. The Committee may sanction the assistance up to 80% of the project cost by considering the special circumstances within overall ceiling of INR 25 crores.
5	Customized Packages of Incentives	On Case by Case Bases for Mega/Ultra Mega and Innovative projects.
6	Assistance for Environment Management	For implementation of cleaner production technology in place of existing process such as substitution & optimization of raw material, reduction in water consumption or energy consumption or waste. 1. Up to 35% of cost of plant & machinery with ceiling of INR 35 lacs during the operative period of the scheme for MSME. 2. Up to 10% of cost of plant & machinery with ceiling of INR 35 lacs during the operative period of the Large projects.
7	Stamp Duty	1. Industrial Park Developer - Reimbursement @ 100% of stamp duty paid on purchase of land as approved by SLEC 2. Individual Unit - Reimbursement @ 50% of stamp duty paid on purchase of land
8	VAT Refunds	Labor Intensive Industry - 80% net VAT paid excluding Additional Tax & reduction of ITC
9	Electricity Duty Exemption	100% exemption on Electricity Duty for 5 years

Source: Various GRs issued by Industries department under Gujarat Industrial Policy 2015

Box 8: Case Study: Evolution of shipbuilding in China

Early era: First ship was constructed in 15th century A.D during which time it used to make massive ocean going junks. The progress in shipbuilding in later years declined due to colonization.

Pre Liberalization period: Until 1949 when PRC was developed, shipbuilding was not the flourishing industry and was developing in very stagnant scale.

Post liberalization and bureaucratic freedom: Even after establishment of PRC in 1949, until 1986 shipbuilding industry was not geared up in China. But in this period there was notable rise of shipbuilding in various countries like Japan and Korea.

Establishment of CSSC: In 1986, 6th ministry of machine building was eradicated and China state shipbuilding corporation came into existence. China adopted strategies similar to that which had propelled Japan to remarkable shipbuilding successes in the 1950s-60s and South Korea in the late 1970s-90s.

China incorporated both Japanese and Chinese shipbuilding strategies along with first corporatized business model in capitalized economy which compelled other defence industries to follow CSSC's footsteps.

Split and introduction of CSIC: CSSC handled major ports of China until 1999 when it got divided into two separate entities; CSSC which handled the shipbuilding operations of southern and eastern ports whereas western and northern ports were handled by CSIC. Currently, both serve as umbrella organizations for a wide range of shipyards, marine subcomponent manufacturing companies, research and design institutes, and a limited number of non-shipbuilding-related businesses

Other notable features of China shipbuilding Industry:

- ▶ China ranks second globally in ship building industry by value and first by volume ordered
- ▶ China was market leader in containership manufacturer in 2012 but lost its leadership in 2015 to South Korea
- ▶ CSSC reported \$ 47.28 Billion revenue whereas CSIC reported \$ 62.95 Billion having workforce of 45,000 and 150,000 each. CSIC is the only company in Chinese ship building industry listed in Forbes fortune 500 list
- ▶ China used to provide 17% direct subsidy to its ship manufacturing companies for domestic ocean-going vessels and 17% VAT refund for export vessels which is one of the major reason of its business expansion
- ▶ Interest rate for start-ups is as low as 2.7%
- ▶ Cost leadership plays vital role in its swift expansion with average salary paid by Chinese labours is \$ 750-\$900, much lower than their rival counterparts \$1400 in South Korea, \$1800 in Japan and \$2500 in western Europe
- ▶ Shift from military to commercial focus, CSSC's early commitment to international market, Healthy balance of domestic and export demand and Geography are other notable features

Providing competitive post-delivery financing options:

Gujarat shipyards need to incentivize buyers by providing competitive post-delivery financing for vessels built at Indian shipyards through banks. This is certainly not unusual in the international context. Banks such as the China Exim Bank and the Korea Exim Bank provide much-needed financing to international buyers and play a key role in attracting ship-owners to their shores.

Recently, Exim bank had started extending Buyer's credit to shipbuilders. This will help Indian shipbuilding companies bid for international contracts. Private shipyards are operating by taking a counterparty guarantee from Exim Bank. The guarantees are facilitated by the companies that place the order for the ships. These companies then source funds in the form of project finance from the bank for three to five years for shipbuilding. After that, they could be also be provided with 5 to 10 years of buyer's credit.

Owing to positive development in recent years, for ship building, Gujarat has received applications from 9 investors to establish their operations in Gujarat with total investment value of about INR 1,015 crores.

Table 4-9: Shipyards at preliminary stage

Sr. No.	Name of the Developer Company	Location	Investment (INR crores)
1	Paras Ship Breakers Ltd.	Old Port Bhavnagar	150
2	Sealand Shipping & Exports	Old Port Bhavnagar	15
3	Bombay Marine Engineering Works Pvt. Ltd.	Dahej	78
4	Mascot Shipyard Ltd.	Old Port Bhavnagar	27
5	Walchandnagar Ind. Ltd.	Dahej	320
6	Rishi Shipping	NA	5
7	Siddhi Vinayak Shipping Corporation Pvt. Ltd.	NA	100
8	Technip KT India Pvt. Ltd.	NA	250
9	Adani Shipyard Pvt. Ltd.	NA	70
Total			1015

Source: GMB

Options to Support Shipbuilding in Gujarat

In this section detailed exploration was done on the state of shipbuilding in Gujarat along with the existing challenges. Case studies of South Korea and China were developed to understand what those countries did to develop the shipbuilding in their countries. Moreover, the initiatives that are being provided by the government of India and government of Gujarat have also been explored in this section.

Compiling all this, we can say that GMB should focus on the existing fiscal and non-fiscal incentives that are already being given for the shipbuilding industry. Moreover, from the case studies of South Korea and China, it was evident that the major initial push came from the provision of the fiscal initiatives. GMB should follow their example and see what fiscal initiatives can be provided as done in the case studies.

Other than this, there are some other options GMB can explore for promoting shipbuilding in Gujarat. One of them would be giving an SEZ status to the shipbuilding parks. Based on the investment size of the shipbuilding yard, additional incentives can be given on case to case basis. GMB can also develop a single window system that would facilitate the investors in getting the fiscal incentives in an easier manner. Other soft initiatives can be in the form of R&D grants and fiscal support to ancillary industries to further increase greater level of indigenization.

Key modifications in Ship Building policy of Gujarat

Following modifications are proposed in Gujarat Shipbuilding Policy (GSP) 2010, which would be subsumed in New Gujarat Port Policy 2021:

- Clause No. 7.6 (4) I. (pg. no. 10) of GSP 2021:** Stand-alone proposals for setting up of Shipyard at an isolated location may encounter issues of infrastructure, connectivity, ancillary facilities, work force etc. From Government's viewpoint, there will be constraint of monitoring activities of such Shipyard including "National Security" aspects. Hence, prima-facie, proposals of Shipyard at isolated locations as per entrepreneurs' choice will be discouraged.

As the industry is in a very nascent stage, this clause hinders the development of shipyards. Therefore, it may be modified as: Stand-alone proposals for setting up of Shipyard at an isolated location may encounter issues of infrastructure, connectivity, ancillary facilities, work force etc. from Government's viewpoint, there will be constraint of monitoring activities of such Shipyard including "National Security" aspects.

2. **Clause No. 8 (pg. no. 11) of GSP 2021:** The role of Gujarat Maritime Board will be as developer, regulator and facilitator. GMB will undertake the following:

It can be substituted with following: The role of Gujarat Maritime Board will be as developer, regulator and facilitator. GMB will undertake the following within port limit of the GMB ports and MSPs only:

3. **Clause No. 21. (pg. no. 18) of GSP 2021:** The implementation shall be as per time schedule. If no activity is undertaken within two years from the date of signing agreement with GMB, GMB will cancel the permission and take the possession of the land.

It can be substituted with following: The implementation shall be as per time schedule. If no activity is undertaken within two years from the date of issuance of LOI or signing agreement with GMB, GMB will cancel the permission and take the possession of the land.

4. **ANNEXURE-B, 3) (iii) (pg. no. 21) of GSP 2021:** Past experience of construction of one vessels of at least 5000 DWT to be supported by providing details of the vessels build and certificate from the owner of the vessel.

As most of the sites in Gujarat are suitable for building small ships, and moreover, maximum proposals are for small shipyards and repair yards, this clause poses serious hindrance in achieving one of the major objectives of the Shipbuilding Policy 2010, for promotion of Ship repair facilities in Gujarat, and therefore, may be omitted from the Policy.

5. **There is a need to fix certain criteria for Ship Repair facilities:** Policy is silent on this aspect, as nothing is mentioned on how to process the proposals for repair only.
6. **Promotion of Private Investment in Development of MSPs:** To speed up the pace of development of MSPs there is a need to promote private investment in development of MSPs and enhancing their role for this purpose. Presently policy emphasized upon development of MSPs by GMB only.

4.2.3 Promotion of Coastal Shipping

The Gujarat Port Policy 1995 provided for following initiatives for promoting coastal shipping as it was expected that 25% of total cargo would be transported through coastal shipping:

- ▶ Gujarat ports to act as 'transshipment ports' for rest of the country.
- ▶ Ro-Ro service and hovercraft/ catamaran service, joining Saurashtra/ Kutch with South Gujarat.
- ▶ Terminal facilities will be created by GMB at its own cost, and service charge will be collected from operators.

In order to capitalize on the strategic location of Gulf of Khambhat, GMB planned a Ro-Ro ferry terminal at its coastline from Gogha to Dahej. Under its first phase of development, GMB will develop Ro-Ro Ferry Terminal and various other activities at the two terminals. GMB has decided

to develop the Ro-Ro ferry terminal at (Gogha and Dahej) the cost of approximately INR 171 crore (USD 32 million) in Phase-I and will extend up to Mumbai in Phase-II.

There is huge development along the Gujarat coast due to multi-fold expansion of the port sector. The existing ports are expanding and new ports are being developed including the shipyards in a cluster. This development requires fast turnaround of goods in most economical way.

Presently, travel from Kutch and Saurashtra region to the southern region takes longer time and wastage of resources (fuel, operating costs, etc.). One of the immediate solutions to find better linkages between ports along the coast is by having a Ro-Ro ferry service.

Table 4-10: Distances and time saved by Operation of the Ferry Service

Distance by Road			Distance by Ferry Service		
Location	Dist. (km)	Time (Hr.)	Dist. (nautical miles)	Time (Hr.)	Time saved (Hr.)
Ghogha to Mumbai	672	26	216	16	10
Ghogha to Dahej	380	10	21	1.6	8.4
Ghogha to Surat	497	8	41	3.2	4.8

Source: GMB

Ro-Ro ferry service will not only cater to vehicle but also carry substantial quantum of passengers as well as cargo. The ferry terminals will be constructed, operated and maintained by the Gujarat Maritime Board (GMB) and selected ferry operators will operate ferry services between the terminals. Both the terminals will be implemented simultaneously in order to commence the ferry service between these routes.

There is a need to design a backbone to facilitate efficient freight movement. Opportunities to connect various government departments to enable process standardization through an ICT backbone would need to be explored.

National Perspective plan under "Sagarmala" has envisaged a greater role for coastal shipping in India's future modal mix by 2025. It is estimated that about 50 -52 MMTPA cargo would shift towards coastal shipping in Gujarat across various commodities. In addition to this, significant cargo addition can also happen due to new "Hub Spoke" model proposed under revised port policy.

Table 4-11: Demand Scenario for Coastal Shipping in Gujarat

Commodity	Traffic (MMTPA)	Demand Scenario for Coastal Shipping
POL	8-10	De-regulation of diesel prices is expected to encourage export based refineries to sell significant proportions of their petroleum products in the domestic markets. An analysis of industry trends, plans and projections suggests a potential of increased coastal shipping of around 8-10 MMTPA of products from Gujarat, which could translate into savings of around INR 1,600-1,700 crore per annum for the economy.

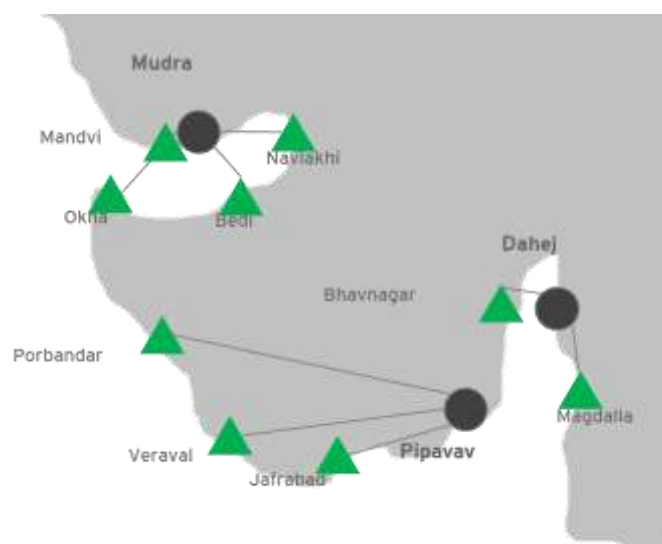
Commodity	Traffic (MMTPA)	Demand Scenario for Coastal Shipping
LNG	15	10 MMTPA to be coastally shifted from RIL Jmanagar to Mundra and thereafter by pipeline.
Thermal Coal	18.5	Shifting of 14 MMTPA coal from Chhattisgarh to Gujarat from rail to coastal Shipping.
Steel	1.5	Karnataka to Gujarat (0.6 MMTPA) and Odisha to Gujarat(0.45 MMTPA)
Cement	5 to 6	Cement could be shipped via coastal route from the Kutch region (Sewagram) in Gujarat if dredging was done for the 5 km channel approaching the Sanghi Jetty.
Fertiliser	0.72	Coastal Gujarat to Coastal Maharashtra
Container		Mundra, Pipavav, JNPT and Chennai to serve as main container port with all other ports feeding into these ports for transshipment.

Source: "Sagarmala, National Perspective Plan", April 2016, Ministry of Shipping

Some of the strategies that Gujarat maritime Board can adopt from other maritime states leading in coastal shipping are as follows,

In order to capitalize on the strategic location of Gulf of Khambhat, GMB is constructing on its own cost a Ro-Pax ferry terminal at Gogha and Dahej, while a Private Operator will operate and maintain ferry and terminal services. The project is envisaged to be completed by 2017. However, there is need to expand this network across other ports of Gujarat by creation of dedicated coastal shipping infrastructure.

Figure 4-19 Hub and Spoke Model for Coastal Movement



Further GMB need to identify ports that have potential for growth for coastal shipping. In these ports the coastal cargo should be handled at a subsidized rate. This has to be detailed out in the SOPC. Finally, other ports can handle the coastal cargo at a normal rate.

Further, there is need to support coastal shipping with conducive policy and business regulations. GMB can explore and match incentive structure offered by other leading competitive maritime states of India like Kerala and Maharashtra.

Figure 4-20: Proposed Site for Ro-Ro Ferry Terminal in Gujarat



Kerala's Scheme for Coastal Shipping:

- ▶ Direct subsidy of one rupee a tonne per km of cargo.
- ▶ Lower port charges for coastal vessels
- ▶ Soft loan will be provided to buy vessels at an interest rate of 2% for up to 40% of the cost of the vessel, and at a rate of 10% for up to 80% of the vehicle's cost.
- ▶ Budget provision of INR 300-crore fund to finance the incentive scheme

Maharashtra's scheme for Coastal Shipping

- ▶ Rebate in wharfage charges @20% for within Maharashtra and @15% for within India
- ▶ Applicability of wharfage charges only once for coastal cargo

In addition to financial incentives specified by Kerala for promoting coastal shipping, Maharashtra has suggested following initiatives:

- ▶ MMB will encourage greenfield port developers to establish green channel facilities
- ▶ MMB to allow development of multi-purpose jetties that will handle only non-EXIM cargo and passengers.
- ▶ MMB to take appropriate steps to lower manning scales for coastal ships.
- ▶ Coastal Shipping Promotion Fund to finance infrastructure development for coastal shipping and to provide soft loan for building or acquisition of low-draft vessels

On similar lines, Gujarat is giving the following incentives to promote coastal shipping,

- ▶ In. order to promote coastal shipping and transshipment, Gujarat is presently providing a concession to the extent of 20% (for outside Gujarat coastal traffic) to 25% (for Gujarat Coastal traffic) for ports of Dahej, Magdalla, Sikka, Alang etc
- ▶ It is proposed that a concession be given to the water front royalty in the PPP projects involving the coastal shipping. At present, concessions on wharfage charges are given for the GMB/captive jetties
- ▶ Dedicated Coastal Berths and Priority for berthing of Coastal Vessels

- ▶ Lowering of port dues Pilotage, Equipment charges, lease rental etc.
- ▶ Coastal Shipping Promotion Fund to finance infrastructure development and provide soft loan for building or acquisition of low-draft vessels

Options for Development of Coastal Shipping

There is potential of coastal shipping in Gujarat as evident from Table 4-11. Moreover, other states and Gujarat are also giving certain initiatives to promote coastal shipping. Other than what is already being done by GoG, GMB can focus on linking coastal shipping to the CEZs. The CEZs are being developed in Gujarat in three locations. Materials will be required in each of this CEZ. GMB can incentivize the cargo being shipped for the purpose of usage in this CEZ.

Moreover, there are also plans to develop shipbuilding in Gujarat. Raw materials for the ships can be shipped through coastal shipping. Incentives can be given for that purpose also. The excise on coastal shipping could be reduced which would make the cost implications of coastal shipping very competitive.

Coastal shipping can also be promoted through RO-RO facilities which was explained earlier. Initially develop RO-RO facilities for Gujarat and then expand it to other states. Moreover, GMB can also incentivize the fuel cost for vessels that are involved in coastal shipping. That would further reduce the cost through coastal shipping increasing the likelihood of transportation through coastal shipping.

At present the concessions on wharfage are given to the GMB and captive jetties. This concession can also be extended to the private jetties and ports. Moreover, this should be a one-time wharfage for transportation of cargo within Gujarat. For cargo coming from and going to states outside Gujarat, there could be normal wharfage. Considering the infrastructure part, GMB can convert its jetties specifically for the purpose of handling coastal cargo. Moreover, there is an option for bringing a mandate that all ports should have one dedicated jetty for the purpose of handling coastal cargo.

4.2.4 Building SMART Logistic network

Smart logistics is fundamental to the success to any world-class port region. For example, excellent hinterland connectivity of Rotterdam port can be attributed to Trans-European Transport Networks (TEN-T), which is planned as set of inter-connected road, rail, air and water transport networks and it also supported by “state of the art” ICT systems. Currently, India ranks 54th on the Logistics Performance Index (LPI) issued by the World Bank. There are potential options for policy-related actions that could help reduce the overall cost and time for export.

Box 9: Smart Port Logistics

Hamburg SMART Logistics

Hamburg plays a key role in global shipping operations. Smart PORT logistics is synonymous for smart traffic and trade flow solutions in the Port of Hamburg, taking account of both economic and ecological aspects. With smart PORT logistics it will be possible to monitor in real time transport orders and the utilisation rates of infrastructure with the aim to increase the lifespan of infrastructure facilities and to enable the more efficient and safer movement of goods.

NEED: Road capacity within the port was restricted and the options for modifying the roads to take more vehicles was limited which is why they had to adopt an efficient traffic management system in order to allow larger quantities of goods to be transhipped in the port area.

HOW THE SYSTEM WORKS: This system supplied the truck drivers with real-time traffic information from HPA's Port Road Management System and details of available parking space in the form of current, personalized messages about the traffic situation in and around the port area. The participating freight forwarding companies were also able to track their transport orders in real time.

Smart Port Logistics is based on a combination of the Telematics One solution from Deutsche Telekom, the SAP HANA Cloud platform from SAP and various concepts for Web-based service marketplaces. Telematics One is a central control portal for logistics services suppliers that consolidate freight information from various telematics systems in a single application, where it is then actionable. SAP HANA Cloud platform provides the mobile, cloud-based platform on which the IT-assisted logistics services and processes, such as Telematics One, reside.

BENEFITS:

- ▶ less traffic jams in and around the port area
- ▶ less waiting time at docks
- ▶ less time to respond to traffic disruptions
- ▶ no misunderstandings (compared to communication via CBS, which was used before)
- ▶ optimised trip planning
- ▶ freight forwarding companies save time and money

Gujarat port policy should aim towards development of comprehensive Information and Communication Technology (ICT) based multimodal transport networks, which can connect state's port regions with major transit hubs across India. Investments in ICT infrastructure to improve freight tracking and traceability would need to be considered. Some of the possible solutions identified for transit time and cost reduction in logistics are as follows:

- ▶ Integrating dynamic weighbridges, toll nakas and RTO check points. This would bring them on a common platform making tracking of the trucks from origin to destination a much streamlined process.
- ▶ RFID enabled seals on vehicles to enable 'zero' stoppage at RTO check posts. RFID tags will have the details of the truck along with the cargo it is carrying. So at RTO checkpoints, there is only the need to scan the RFID tag and all the information required will be directly fed into the system. This will reduce manual intervention and time.
- ▶ Integrated online sales tax platform fed through RFID seal detection on vehicles. As mentioned, RFID tag will have all the information regarding the truck and the cargo. This

will help in knowing where the truck is due to which we can plan when we can convert this cargo into revenue through sales.

- ▶ Moving 100% tolling counters to electronic tolling. Toll counters should also be made electronic. A toll counter will simply scan the RFID from the truck and send bill to the truck owner. The truck owner, through his mobile or his system, pays the toll charge and the barrier opens. This will reduce manual intervention and time for queue at toll counters.
- ▶ Control tower operations to debottleneck issues en-route. All the operations can be maintained centrally at a control tower. This tower will monitor the entire logistics chain and would address any issues that lead to a bottleneck on a particular route.
- ▶ Cashless transactions enabled through fuel cards/online sales tax systems/ electronic tolling, etc. As mentioned, all transactions would be cashless. The stakeholders would pay either through their mobiles or their systems.

GMB has also taken some steps in terms of development of SMART logistics. Their main focus currently is on the port side with plans to develop as SMART hinterland logistics network in the future. The primary initiatives that GMB is taking for development are as follows,

- ▶ **Integrated Port Management System:** GMB has envisaged implementation of an Integrated Port Management System (IPMS) that can act as a single solution to GMB's information needs emanating from within and outside.
- ▶ **Enterprise Resource Planning (ERP)** shall cater to various administrative and organisational procedures & processes.
- ▶ **Port Operation Management System (POMS)** shall cater to all the business transactions happening at various GMB Ports.
- ▶ **Integrated Security Management System (ISMS)** shall handle security related sub-systems such as the Security Management.
- ▶ **Integrated Network for Project IPMS (INPI):** It is envisaged that the INPI project will connect all port/districts offices with the GMB-HO at Gandhinagar.
- ▶ **Port Community System :** As a part of Electronic Commerce (EC)/Electronic Data Interchange (EDI) implementation, Centralized Web based - Port Community System (PCS) at all Major Ports was envisaged to reap the maximum benefits of EC/EDI and to move towards a paperless regime.

Thus, creating a smart ecosystem under single umbrella for all port operations, shipping and logistics related activities, should be taken up by GMB. These smart interventions would not only increase productivity at Gujarat ports, but will also boost customer satisfaction towards "Ease of Doing" business at Gujarat Ports.

4.3 Ease of Doing Business in Gujarat Ports

Since the inception of GMB in 1985, Indian and Gujarat's maritime sector has witnessed significant changes. Where last three decades have seen lots of capacity addition and technology change (on both port and shipping side), coming decades are going to be equally unique and challenging with changing global economic order and rapid domestic growth. With the changing circumstances and considering the future growth prospects, there is a need for GMB to rethink from following perspectives as far as Ease of Doing Business (EoDB) at Gujarat Ports is concerned:

1. Change in roles

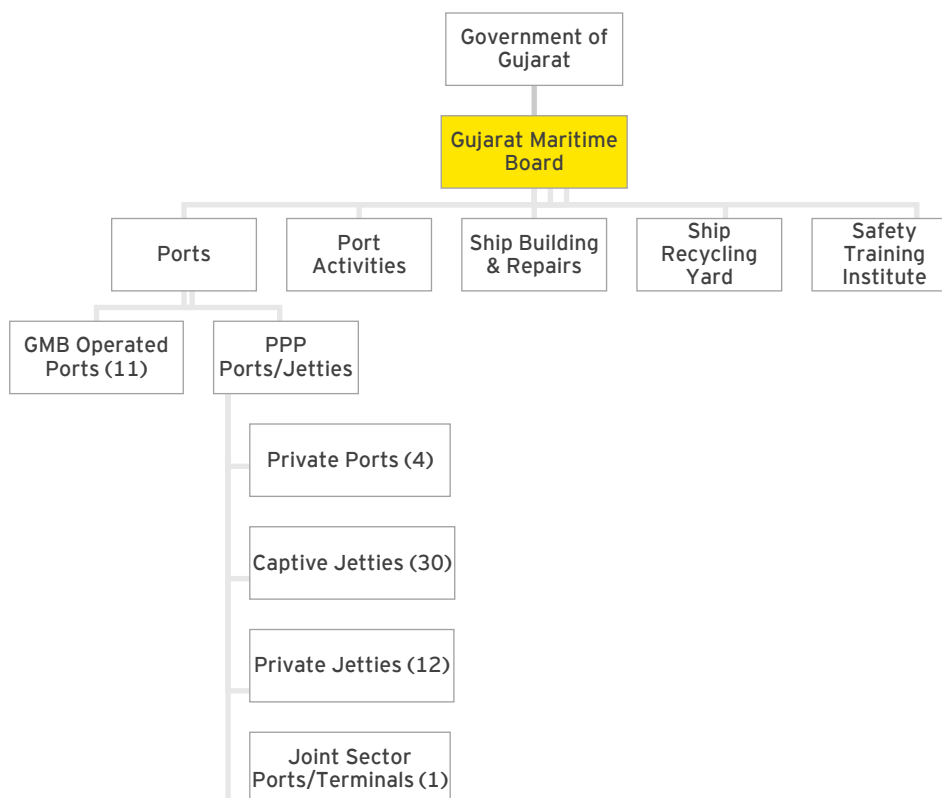
2. Changes in Operating / Business models
3. Changes in Business procedures/ Systems

4.3.1 Reviewing existing Management Structure

At present, GMB is performing a dual role i.e. it is owning and operating port assets as well as regulating the maritime sector. Few port authorities have adopted a dual mode of port development - 1) Regulatory Body regulates, 2) another body undertakes the development work. It is important from this perspective of GMB whether to rethink over the existing role played by GMB or adopt dual role model.

At the time of inception of GMB, port sector of Gujarat was in nascent stage and there were very few quality players in the port sector for operation. As a result, GMB was entrusted to develop the port sector. There are several initiatives which GMB has ventured in to develop the sector holistically, such as - GMB is managing around 11 ports and has its own dredgers for carrying out dredging operation. It also manages training institutes along with other regulatory role. GMB is overarching its role in maritime development.

Figure 4-21: GMB Port Sector Structure



As the sector matures, it is imperative that GMB reviews its future role and responsibilities and moves towards embracing the larger role by transitioning from port operations to that of a regulator. Similar trend is being witnessed globally, where the traditional ways of doing business at ports are being revamped to gain port efficiency, increased customer responsiveness and lower handling cost. It is widely accepted that private sector is more efficient in port operations as it eliminates traditional bureaucratic operating procedures and has more flexibility in port operations.

Reasons for pursuing reforms

- ▶ Improving efficiency in port operations
- ▶ Reducing costs and price through improving competition
- ▶ Improving service quality by introducing performance based management
- ▶ Improving foreign investment
- ▶ Reducing commercial risks for public sector
- ▶ Increasing private sector participation
- ▶ Reducing government intervention in operation

It is understood that majority of prominent authorities are involved in sketching out the future strategy for development and are acting as a facilitator. They focus more on building the support infrastructure and monitoring the sector performance. GMB may emulate the success story of Singapore, UAE, Australia or South Africa.

Box 10: Case Study for Port Governance Structure; Singapore

Transformational Reform from Port of Singapore to Maritime Port Authority

- ▶ Port of Singapore is one of the most successful government operated ports in the world. Since 1986, it is among top three busiest container ports in the world.
- ▶ In 1996 the Government of Singapore reformed the management structure of the port and converted it into corporatized entity - "*PSA Corporation*" and created separate body for Regulations called, "*Maritime and Port Authority of Singapore*"
- ▶ The structure of PSA Corporation was flexible enough to operate and invest in the region, especially in container terminals located along major shipping lines. Corporatization of part of the Port Authority's business meant increased financial autonomy and generated greater cash flows. PSA operates 60 berths and has a handling capacity of 40 MTEU. In 2016, the ports handled 30.59 MTEU of containers. Holds the distinction of best container terminal of Asia and is listed on the Stock Exchange of Singapore
- ▶ Since PSA Corporation was involved in port operation, the Government of Singapore has created a dedicated regulatory authority "*Maritime Port Authority*". The main tasks of the new Authority (MPA) are to promote the maritime sector, improvement and development of the port, to control vessel movements and ensure navigational safety, to license and regulate marine services and facilities including conventional cargo terminals, and to regulate the port industry's economic behavior.

Source: World Bank Port Reform Tool Kit

Globally, maritime authorities are focusing towards improvement of sector by improving the business environment through

- ▶ Improving and building brand image
- ▶ focusing on strategic partnering with developed maritime nations
- ▶ Improving ease of doing business
- ▶ Research & development / skill development
- ▶ Technology improvement and reducing carbon foot print

- ▶ Improving customer focus
- ▶ Facilitating in providing support infrastructure, project or investment clearance

GMB is performing few of the above mentioned roles, but the piece meal approach is not bringing the radical change in the sector. It requires more focus and meticulous strategy to bring in holistic sector development.

Port governance model is dependent on various socio-economic-political factors and hence, it is not suggested to adopt and replicate any successful governance model. However, basis the global case studies, it is clear that there are two separate entities i.e. one dedicated for port governance and another organization involved in port operation. Possible options available with GMB are -

Model - 1: GMB continues with the existing governance model where it continues to perform the dual role of Regulator and Operator. The model has successfully transformed the maritime ecosystem of Gujarat over the years and has helped the State become the leader in maritime trade. The model has been discussed in detail in Chapter 5, sub point 5.1.1.

Model - 2: GMB to take strategic role and transfer all operation related work to a subsidiary entity: In this model, GMB may create a subsidiary company and would transfer all the port assets to the company for port operation. The model has been discussed in detail in Chapter 5, sub point 5.1.1.

Model - 3: Separate maritime authority may be created and GMB would act as implementation agency: In this model, GMB would be the implementing agency and would operate the port assets under land lord operating model²⁷ or may outsource the operations to private operator. The model has been discussed in detail in Chapter 5, sub point 5.1.1.

Development of Dredging

Dredging plays a vital role in vessel handling and economies of scale for ports across Gujarat coastline. While capital is a onetime investment for development of ports and maintenance dredging is a regular cost intensive activity. One of the functions of GMB is to carry out dredging works for GMB and Captive Jetties. GMB owns six dredgers of different capacities to carry out dredging.

In the policy of 1995, GMB envisaged formation of Dredging Corporation of Gujarat, a Joint Venture company with a private entrepreneur, to cater to the requirement. Eventually GMB had planned to withdraw from dredging role in a phased manner. However this plan did not materialize. There can be two possible strategies through which GMB can manage dredging

1. Appointing Third Party Vendors
2. Establishment of a New Business Unit

The strategy has been discussed in detail in Chapter 5, sub point 5.1.1.

²⁷ Landlord model - An institutional structure whereby the port authority or other relevant public agency retains ownership of the land, as well as responsibility for maintaining approach channels and navigation aids; under this model, the port does not engage in any operational activities

Box 11: Regulating tariff through TAMP**Major Port Authorities Bill, 2016**

The Central Government recently approved the Major Port Authorities Bill, 2016, which will replace the Major Port Trusts Act of 1963. The Bill seeks to bring in greater efficiency and professionalism in the governance of ports through full autonomy in decision-making.

Through the Port Laws (Amendment) Act 1997 in the Major Port Trusts Act of 1963, Tariff Authority for Major Ports (TAMP) was created to provide for an independent Authority to regulate all tariffs in respect of Major Port Trusts and the private operators located therein, while other ports (called "Minor Ports" or "Non-Major Ports") controlled by State Government were not covered under tariff regulation by TAMP. Because of this relaxation, the private ports which were granted the concession by the State Governments enjoyed freedom to decide their own tariff and fix it as per the requirement of business and trade.

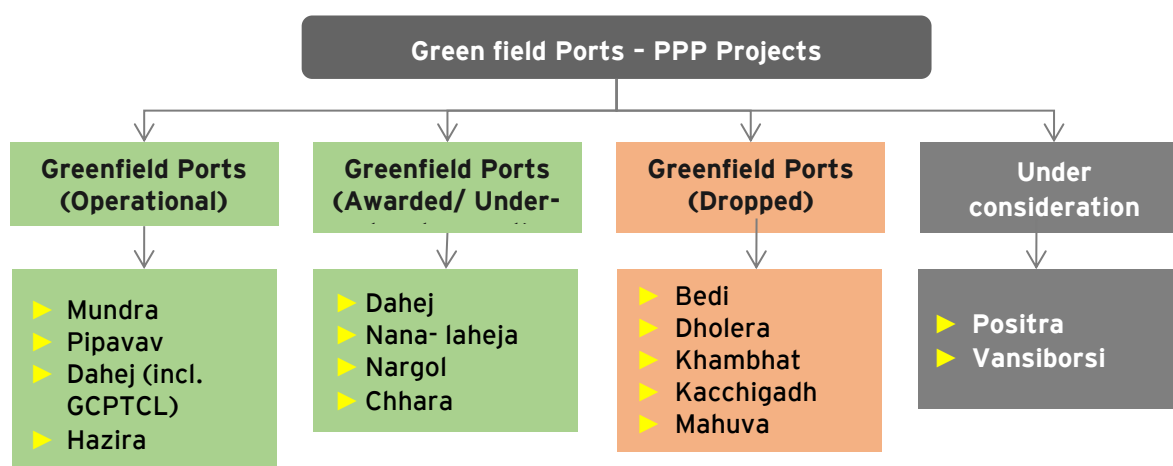
The Bill proposes an independent Review Board to be created to carry out the residual function of the erstwhile TAMP for Major Ports, to look into disputes between ports and PPP concessionaires, to review stressed PPP projects and suggest measures to review stressed PPP projects and suggest measures to revive such projects and to look into complaints regarding services rendered by the ports/private operators.

This new Bill is a welcome step for providing a level-playing field of tariff relaxation to Major Ports as well, considering the fact that the previous draft the Port Regulatory Authority Bill, 2011 intended to provide a level-playing field by regulating the tariff of even Non-major ports.

4.3.2 Re-vitalizing Private Participation**Challenges in development of direct berthing private ports**

Development of all-weather direct berthing ports was one of the key objectives of Port policy of 1995. GMB introduced the BOOT (Build Own Operate Transfer) Policy in 1997, a tool under which Greenfield Ports were envisaged to be developed on Gujarat coastline. Taking support of this policy capital intensive port projects are being developed by private sector players and would be transferred back to GMB after completion of 30 years period.

Figure 4-22: Greenfield Projects under BOOT policy



Some of the Greenfield ports are already developed and are doing significant cargo handling, while the others are yet to be developed or are still at the proposal stage. During the consultation process, following were identified as major reasons for partial materialisation of port infrastructure at these identified sites.

Table 4-12: Issues identified in PPP projects

Reasons for dropping/ delay in materializing of port development at identified site	Port Site affected
PPP procurement / MCA conditions / Procurement procedures.	1. Modhwa (incorporation status of the applicant has to be changed from partnership firm to company)
Access/ connectivity to the site	1. Chhara (Somnath-Kodinar new B.G. line)
Financial Constraints / Change in Business plan	1. Chhara (had to change consortium partner)
Environment consideration	1. Bedi (falls under Marine Sanctuary Park) 2. Kachhigadh (Corals were found on site)
Others	1. Dholera (Kalpsar Project) 2. Khambhat (Kalpsar Project) 3. Mithivirdi (proximity to the proposed nuclear power plant of NPCIL) 4. Vansi Borsi (ONGC pipe line)

Source: GMB

As evident from the table above, out of 5 sites dropped (or likely to get dropped), avoidable environmental limitation was the main reason in at least 3 cases, where unavoidable (unpredictable) external factors like GoG project (Kalpsar Dam, proximity to the proposed nuclear power plant of NPCIL etc.) were the reasons in only 2 cases. Based on these findings GMB should work on internal as well as avoidable (“predictable”) challenges to future port sites, before realizing them in the real world. This would call for greater efforts on the following:

- ▶ Detailed environmental site level analysis and accord of CRZ/ other environmental compliance before project bidding.
- ▶ Access/ connectivity to the site
- ▶ Time cost of delay in necessary approvals and clearance
- ▶ Land acquisition
- ▶ Revised guidelines for PPP procurement / MCA conditions / Procurement procedures.
- ▶ Financial Constraints / Change in Business plan

Opportunities for Private Participation

Shipping is a global industry and its prospects are closely tied to the level of economic activity in the world. However global shipping industry has seen a downward slide since 2008 because of global economic slowdown, a subject which has been discussed in Introduction chapter. It is expected that economies of developing countries will normalize soon and this will provide an opportunity for the region to attract more investment.

The Indian shipping Industry plays a crucial role in Indian economy as 90% of the Nation's trade by volume is done via sea. In the past few years Central Government has taken several proactive initiatives in order to plan and infuse new energy in Ports and Shipping sector.

- ▶ **Foreign Investment:** Government of India has liberalized their policies for FDI in port development, allowing 100 percent FDI under automatic rule. This initiative is expected to boost investments in port sector which INR 6,730.91²⁸ crore as of December 2016, accounting to 0.5 percent of total FDI inflows.
- ▶ The **National Transport Development Policy Committee** published in 2013 envisages that Indian maritime cargo trade will increase to 3,068 MMT by 2032 and to handle this the cumulative capacity has to be augmented to approximately 4,000 MMT, an increase of 186 percent.
- ▶ The **National Maritime Agenda** published in 2011, envisages India's share of global shipping industry to increase to 5 percent and sea farers to 9 percent.
- ▶ A comprehensive maritime **National Perspective Plan** was prepared for the **Sagarmala Programme**, which has envisaged 53 MT Bulk and 20,000 TEU Container cargo shipping by 2025 for Gujarat. The program has also proposed 14 Coastal Economic Zones (CEZs) of which 3 CEZ clusters have been proposed for Gujarat.
- ▶ **Smart Port Cities** have been proposed across India which will be allied to Major Ports with emphasis on ship-breaking and ship-building centres, allied port activities. Each Smart Port City is to be constructed at a cost of INR 3,000-4,000 Cr. each
- ▶ **Special Purpose Vehicle** was incorporated under the Companies Act. to provide efficient last mile rail connectivity to Major Ports, with equity from 11 Major Ports and Rail Vikas Nigam Ltd.
- ▶ **Cabotage Relaxed for Special Vessels** such as Roll-On Roll-Off (Ro-Ro), Hybrid Roll-On Roll-Off (Hybrid Ro-Ro), Roll-On Roll-Off cum Passenger (Ro-Pax), Pure Car Carriers, Pure Car and Truck Carriers, LNG vessels and Over-Dimensional cargo or Project Cargo Carriers for a period of five years
- ▶ The Ministry of Shipping, along with the Directorate General of Lighthouses and Lightships (DGLL) has drawn up an ambitious programme to develop **78 lighthouses in the country** as centres of tourism in the first phase under Public Private Partnership (PPP)
- ▶ The Government after coming to power in 2014 has been proactively trying to revise and replace decades old Acts and Bills which have become redundant in the current context and have eventually been throttling the growth in industrial sectors; Merchant Shipping Act, Inland Vessels Act, Indian Port Act, etc. are being revised
- ▶ Other initiatives like Make in India, have been launched to promote industrial growth across the Nation.

Implementation Challenges and variable strategies in implementation

In order to tap in to the inherent advantages and additional opportunities created by Government of India, GMB can review and restructure traditional ways of public-private project structuring for more customized options

A. Project Structuring Models

Greenfield ports have been developed with the help of private participation in Gujarat, however the structure available is restricted to the BOOT (Build Own Operate Transfer). As a result, GMB

²⁸ Statement on sector-wise FDI equity inflows from April 2000 to December 2016, Department of Investments and Public Policy

has faced challenges in providing more flexibility in implementing projects which need customised solutions. However 100 percent flexibility in any project structuring is not viable. Additional options of project structuring and flexibility is needed in order to build new as well as retrofit and augment existing assets.

Some project structuring models which can be adopted for projects which are relevant to Gujarat are as under

Table 4-13: Possible project structuring models

PPP Model	Type of project	O&M	Investment	Ultimate Ownership	Duration (years)
Rehabilitate, Operate & Transfer (ROT)	Existing Jetties/Ports like Bedi or Okha where existing infrastructure requires augmentation - can be either part leased/operated and then transferred	Private	Private	Public	15-25
Rehabilitate, Lease/Rent & Transfer (RLRT)		Private	Private	Public	15-25
Build, Rehabilitate, Operate & Transfer (BROT)		Private	Private	Public	15-25
Build, Operate, Transfer (BOT)	Common mode of PPP Development in Ports (e.g. Dahej, Mundra, etc.)	Private	Private	Semi private	20-30
Build, Own, Operate, Transfer (BOOT)		Private	Private	Semi private	30+
Build, Lease, Transfer (BLT)	Private Jetty in a land lord port (Navlakhi)	Private	Private	Private	10-15

B. Incentives

Traditionally incentives are centred to provide thrust to focus areas identified in a policy. While earlier policies provides only for models of private sector participation in port development, along with providing support infrastructure, new policies of Maharashtra and Andhra Pradesh provide for financial incentives for supporting ports and port related industries:

Maharashtra Maritime Policy, 2016 targets four main areas for incentivized push

1. Greenfield Ports

100% Exemptions

- ▶ Royalty charges on minor minerals
- ▶ NA Assessment charges
- ▶ Electricity duty

2. Coastal Shipping

Rebate in wharfage charges

- ▶ @20% within Maharashtra
- ▶ @15% within India

- ▶ Stamp duty for first transactions
 - ▶ Wharfage charges only once for coastal cargo
- Others
- ▶ Industrial power tariff to PPP ports
 - ▶ Exemption from VAT
 - ▶ Exemption from payment of port dues to MMB

3. Shipyard

100% Exemptions

- ▶ Electricity duty
- ▶ Stamp duty for first transactions

4. Industrial Clusters

Subsidies for Capital Investment

- ▶ Land Purchases, Plant & Machinery

Andhra Pradesh

- ▶ Board to extend all PPP port projects fiscal and non-fiscal benefits as per existing concession agreement and state support agreement.
- ▶ for upcoming port projects: (a) Exemption of Sales Tax/ VAT/ GST/ Entry Tax, up to Commercial Operation Date (b) Exemption of stamp duty, registration fees on first transfer of land (c) Exemption from payment of seignorage fees (cess on minor minerals and labour) for project construction activities till COD (d) recommendations to Central Government for any permissible tax or duty concessions.

Kerala - Scheme for Coastal Shipping:

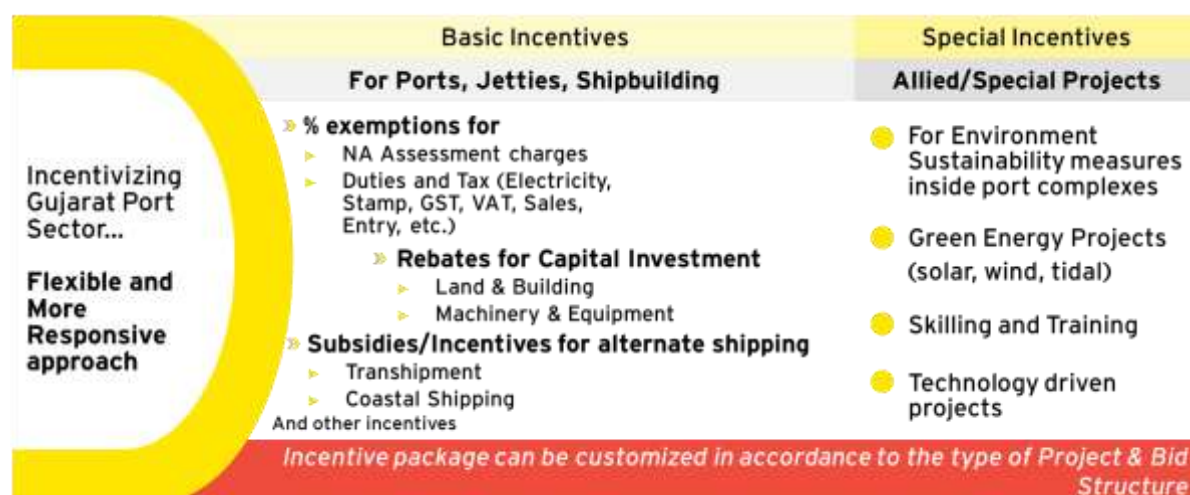
- ▶ Direct subsidy of one rupee a tonne per km of cargo.
- ▶ Lower port charges for coastal vessels
- ▶ Soft loan will be provided to buy vessels at an interest rate of 2% for up to 40% of the cost of the vessel, and at a rate of 10% for up to 80% of the vehicle's cost.
- ▶ Budget provision of INR 300-crore fund to finance the incentive scheme

Box 12: Example of Marco Polo Program to promote Coastal Shipping

International Example - Marco Polo Program employed by EU to promote Coastal Shipping. The program was formulated and launched in Europe to promote modal shift from Roads onto Rail and short sea shipping routes. The terms of subsidy are

- ▶ Minimum threshold of 60 million t/km
- ▶ Subsidy - Fixed @ €2 per 500 t/km
- ▶ Duration of Grant - 2 years to a maximum of 3 years
- ▶ Ceiling of Grant - 35% for all categories

The above given case studies are illustrations of how incentives are packaged based on thrust areas or on this report's case, Thematic Areas, by competitive states as well as globally. GMB can create further customization other than the blanket incentives, additional incentives can also be interknitted in a Bid Structure depending on nature of project (location, risk involved, etc.)



C. Concession Period

Flexibility in concession period provides the private investor with an option to plan for greater investments in longer run while owning and operating a port facility. However a well-defined exit clause is also equally important if the project fails in its concession lifetime. Concession period in GMB's BOOT policy is fixed at 30 years. Recent policies launched by others states seem to have different approaches towards concession period; fixed & extendable

Maharashtra: 35 years	Andhra Pradesh: 30+10+10 years	Karnataka: 30 years, with option for extension	Odisha: 25-30 years
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The under development port policy not only focusses on port infrastructure development but also ancillary or support projects which help in port led industrialization. Therefore the focus on strategy adopted for the new port policy should include projects other than Greenfield ports as well. Addressing the requirements of other projects through the new port policy will set Gujarat apart from other states.

- ▶ Extension of base concession period for Greenfield/Brownfield Port Projects by 10-20 years. Internationally Concession Periods vary from 25-30 years with some countries providing flexibility for extension (World Bank)
- ▶ Differential concession period can be incorporated in to Bid Documents depending on
 - Size of Port, Type of Port/Jetty, Ancillary Projects.
- ▶ Concession Period for Innovative or Ancillary Projects, allied Infrastructure Projects
- ▶ Incremental extension of **10 years** for Port Projects; **AND 5 years** for Other Projects
- ▶ Incorporation of 'Exit Clause' with min/ years of operation; assets transferred to Licensor post exit

In addition to a longer base concession period, the bidders should be offered an option of extension.

D. Exclusivity Clause

The exclusivity clause does safeguard the interest of private sector ports, but in the process of protecting interest, the state is not promoting port led industries. So there is a need to strike balance between protecting private port's interest as well as port led growth. However, the concept of first right of refusal which is used in Petronet LNG Concession Agreement is one of the options available for GMB to protect the interest of private ports. This aspect of concession

agreement will be clarified through participatory or through individual stakeholder consultation process.

The existing policy adopted by GMB as per Model Concession Agreement of 1999 states that the Licensor shall offer a right of first refusal to the Licensee for the development of new captive jetties for a radius of 150 kilometres up to year 2013.

In the recently published Maritime Policy by Maharashtra Maritime Board in 2016, a 'Port Exclusivity Zone' has been proposed to enhance the viability of the awarded Greenfield port project. Key features of the zone are

- ▶ Restriction on development of any other port, MMB/ Captive jetty with similar cargo handling facility in the radius of prescribed distance
- ▶ Period 10 years from date of signing CA, provided port has made significant process
- ▶ **Critical Parameter** - The zone stands cancelled if the project does not commence commercial operations within 5 years from the date of signing of the concession agreement

Option for new port policy - The challenge of safeguarding interests of existing ports can be mitigated by creating exclusivity or first right of refusal for new port/jetty development for a fixed period of time or until traffic reaches a certain level.

E. Termination Compensation

Termination & termination compensation forms the commercial backbone to the PPP risk allocation. The existing policy for compensation by GMB as per Model Concession Agreement of 1999 is divided into two categories; for Immovable Contracted Assets and Essential Movable Contracted Assets and Moveable Assets.

Immovable Contracted Assets and Essential Movable Contracted Assets - In case of Normal Transfer, a compensation equivalent to the Depreciated Historical Cost ("DHC") of the Contracted Assets is charged. In cases where the licensor defaults and there is a change in law, the licensee may require the licensor to purchase assets for a consideration equivalent to the DRV at a variable percentage based on the number of years left. However if the licensee defaults, Licensor shall purchase the for a consideration equivalent to a percentage of the Depreciated Historical Cost ("DHC").

Moveable Assets - For all three cases of as described above the policy for compensation for moveable assets is common. The licensee shall take away the Assets at its own cost

- ▶ Within a period of 12 months from the Scheduled Date of Normal Transfer
- ▶ Within a period of 21 months from the date of appointment of the Appraising Team

In contrast, all assets are to be transferred to Government free of cost at the end of license period in proper working condition in all cases the compensation clause as per Karnataka Infrastructure Policy, 2007.

Since the existing compensation policy responds to all types of terminations or transfers, there is no substantial reason to change the strategy towards it.

F. Other Non-Fiscal Interventions

In the previous few points flexibility options in structuring options as well as fiscal incentives has been discussed. Additional indirect benefits can be devised and integrated as a part of project lifecycle in order to make private investment more attractive in the state. Some established

parameters for success of a project for success for any PPP project in a competitive environment are - availability of land, viability of the project, faster and easier clearances, speed at which the project is implemented on ground, transparency in calculation of fees or dues. Some possible strategic interventions can be

- ▶ Undertaking feasibility/viability/concept/environmental impact assessment studies for projects as a precursor to bidding stage.
- ▶ Availability of Land bank with clear land ownership will help private bidder in time taken for land acquisition.
- ▶ Assistance in critical clearances, for e.g. Environmental Clearance. Many stakeholders in the industry suggested, that getting environmental clearance for green field projects should be easier via Government-to-Government route. Additionally, the clearance can be sought from the MoEF before bidding stage.
- ▶ Clarity in policy and clearances required to be taken during implementation of project and introducing a Single Window Clearance framework to avail clearances from GMB. (discussed in detail in sub section 4.3.4)
- ▶ Similarly, easier processes in seeking various permissions from GMB in operational stage.

Assistance in these parameters can be decisive in attracting private investment as well as foreign investment in port and port related projects.

4.3.3 Re-engineering Automation in Port Operations

Automated ports can operate around the clock, handling cargoes according to strict schedules. It gives ports a competitive advantage in a world where ports have become increasingly competitive. Leadership in ports have been underlined by the constant research & development and innovation introduced by the authorities in order to improve efficiency and quality of services. Compared to the level of automation deployed in ports which are leading globally, automation is fairly at a nascent stage on an average in Indian ports. The next generation of ports in India will have to witness considerable introduction automation and advanced port technologies to match global competition. The ports which lead the way in automation will lead the way on a national level.

Major initiatives already underway at GMB

In line with the anticipated expansion of port facilities and growth of port traffic, GMB has identified the key challenges in the near future, one of which is the use of information technology to improve organizational efficiency, enhance stakeholder satisfaction and lower organizational costs.

Integrated Port Management System: GMB has envisaged implementation of an Integrated Port Management System (IPMS) that can act as a single solution to GMB's information needs emanating from within and outside. With implementation, it is targeted that IPMS would alleviate the performance standards of GMB's services and shall lay a strong foothold for providing impetus to long term strategic growth of the Gujarat Maritime Board and the ports being regulated by it.

Integrated Port Management System, shortly named as IPMS is basically divided into three major modules which are grouped together to serve a combination of functions for GMB. The three modules are termed as ERP, POMS and iSMS which are briefed as below:

- i. **Enterprise Resource Planning (ERP)** shall cater to various administrative and organisational procedures & processes, such as HR Management, Financial Management, and Works Management & Administration Management. It shall be a web-based system

- with centralized architecture. The ERP system shall be available to all the GMB offices, including the port & other remote offices. Detailed study of ERP is completed and approval of IT Committee, GoG has been taken.
- ii. **Port Operation Management System (POMS)** shall cater to all the business transactions happening at various GMB Ports. The IPMS is expected to handle the entire revenue generation activities of GMB. The modules of IPMS shall include Ports Operation Management, e-Business Management, EDI etc. Detailed study was carried out and approval of IT Committee of GoG was taken. Bidding procedure is undertaken for POMS.
 - iii. **Integrated Security Management System (iSMS)** shall handle security related sub-systems such as the Security Management (e.g. Video Surveillance, Access Control, and Information Security), Disaster Management & Environment Management considering the requirement of International Ship and Port Facility Security (ISPS) Code. Detailed study of iSMS is completed and draft project report of iSMS is also prepared. Approval of GMB Board and IT Committee of GoG is under progress.
 - iv. **Integrated Network for Project IPMS (INPI):** It is envisaged that the INPI project will connect all port/districts offices with the GMB-HO at Gandhinagar. This will be done through setting up of layered network architecture. A Local Area Network (LAN) consisting of an Ethernet network will be set up within the port offices whereas the primary WAN connectivity of the port offices with the GMB HO will be through GSWAN. Further, the network security in terms of firewalls & intrusion prevention system is envisaged to be included in the scope. Approval of IT Committee of GoG is taken. Bidding procedure is undertaken for INPI.
 - v. **Port Community System :** As a part of Electronic Commerce (EC)/Electronic Data Interchange (EDI) implementation, Centralized Web based - Port Community System (PCS) at all Major Ports was envisaged to reap the maximum benefits of EC/EDI and to move towards a paperless regime. At the instance of Ministry of Shipping (MoS), Indian Port Association (IPA) being a nodal agency for all Indian Major Ports, has taken the initiative to establish a centralized/ uniform PCS covering all its major ports for the benefit of all the members of the Indian port community. PCS Implementation process has been initiated.

Simplification and Automation of GMB/ Port operations

The existing processes and procedures of GMB functioning in terms of Approval/ procurement process needs to be redefined. In order to bring in online system for the approvals, existing processes need to be re-engineered and simplified. As part of automation, Kolkata Port had implemented several reforms for enhancing ease of doing business. They are:

- ▶ Import General Manifest (IGMs)
 - Kolkata Dock System - through Port Community System (PCS) and get integrated into Port Operations Management System (POMS)
 - Haldia Dock Complex- are being received electronically through PCS
- ▶ Web-based issue of Permits
- ▶ Issue of Bills for various services related to Vessel, Berth, Container and Cargo through e-mail
- ▶ Website updated to provide information of Services, Circulars, Tariffs, Forms, etc. all in one place)
- ▶ RFID based Vehicle Tracking and Management System has been initiated
- ▶ e-Procurement has already been implemented
- ▶ Common structured business delivery framework in line with Custom is in the pipeline

In order to improve India's ranking in the World Bank's Ease of Doing Business, in the "Trading across the Borders" parameters, the Ministry of Shipping, Government of India has introduced a 9 point agenda for all the major ports in India (please refer to the box item for details). These initiatives have been implemented by almost all the major ports across India. GMB should focus on implementation of these reforms for all the ports under its purview.

Reforms in Major Ports to promote "Ease of doing Business" by Ministry of Shipping

The Ministry of Shipping in the past year has taken up several initiatives to promote trade and improve India's ranking in the "Trading Across Borders" indicator of World Bank's Doing Business Report. Following steps have been taken by the Ministry to facilitate ease of doing business:

1. From manual to electronic interface: Form 11&13 in manual form have been eliminated at all three terminals at JNPT and replaced by web based e-form-13, which is now done electronically. Apart from JNPT, other Major Ports are also using electronic forms.

2. Accommodation for laboratories of regulatory agencies within port premises: The Ministry has issued instructions to all Major Ports to facilitate and provide land area for setting up of laboratories for animal/ plant quarantine, for textile and the Food Safety and Standards Authority of India (FSSAI).

3. Implementation of Direct Port Delivery Scheme: - The Ministry has directed all Major Ports to extend the Direct Port Delivery facility to all Accredited Client Programme (ACP) clients and to provide additional land area for parking of DPD containers. JNPT has issued a TRADE NOTICE on 09.02.2016 extending DPD facility to all ACP clients. The earlier conditions for providing DPD have been waived. In March, 2016, 1401 TEUs were handled through DPD which is highest in the last one year in a month.

4. Reduction in Fee and Charges for non-peak hours in all Ports: In order to decongest Major Port, the Ministry has taken up the issue of reduction of fee and charges with Tariff Authority for Major Ports to issue direction to all Major Ports/ BOT Operators operating there at, to fix separate lower charges for cargo and vessels related services and also give a special discount for the services rendered to exporter and importers after regular hours. Accordingly, Tariff Authority for Major Ports (TAMP) vide its Order No. TAMP/14/2016-Misc has issued direction to all Major Ports/ BOT Operators to prescribe lower charges for cargo/ vessels related services and also give a special discount for the services rendered after regular hours.

5. Installation of container scanners at Major Ports: Earlier, the work of installation of container scanners was being dealt by CBEC. As decided, in the meeting chaired by Revenue Secretary at JNPT on 24.10.2015 and followed by the decision taken in CoS meeting held on 23.12.2015, the Ministry has initiated the process for procurement of container scanners. Indian Port Association has been asked to undertake the process of procurement of the scanners based on the specifications received from CBEC. IPA has already initiated the process and the work order for the procurement shall be issued by November, 2016.

6. Automation of Issuance of Delivery Orders: All the Shipping Lines (31) at JNPT are compliant with E-Delivery capability and implemented issuance of E-Delivery Orders. Other Major Ports were also directed to implement of issuance of E-delivery Orders. MoPT & NMPT have informed that all the financial transactions pertaining to vessel and cargo related activities are through e-payment and system has been introduced for accepting e-delivery order from Shipping Agents.

7. Implementation of RFID Scheme for gate automation: All the Major Ports are in process of implementing RFID Gate Automation System. The tendering process to procure RFID is in progress and all the ports are expected to complete this process by the end of this year. Four Major Ports namely KoPT, ChPT, CoPT and PPT have completed tender and work order has been issued for supply and installation of the RFID system.

8. Integration of Major Ports filing system with Customs software: Major Ports are using advance information of import cargo online by way of accessing IGM message through (PCS) integration with Customs software ICEGATE. This process has cut down dwell time significantly. At JNPT, an advance single interface to integrate IGM, out of charge and entry inwards with Import Advance list (IAL) will be operational by the end of May, 2016.

9. Measures to remove congestion at ports on war footing: To remove bottlenecks in rail/ road connectivity (like widening of roads, development of parking areas) for faster evacuation of cargo, all Major Ports have been directed to take necessary corrective measures. JNPT has taken the following measures in this regard:

(i) **Development of Parking Areas:** JNPT has undertaken development of Centralized Parking Plaza covering 45 hectares area which can accommodate about 2000 Tractor/ Trailers (TTs). Phase-I of the project has been completed and area is developed as pay & park facility for trucks. Two dedicated parking plots measuring 6.3 hectares & 5 hectares have been allotted to two other private terminal operators namely APMT & NSICT, respectively. Both the terminal operators have started operation of parking facility. Further, 3 hectares of area near Y junction has been developed to enable parking of undocumented factory stuffed containers of JNPCT.

(ii) **Widening of Roads:** The Y junction is widened on BPCL side about 3000 Sq. Mtrs. for smooth traffic movement at junction. This year the concretization of this junction has also been taken up which will start after monsoon. Roads from Y junction to JNP CFS, CFS junction to SH-54 and Karal junction to CFS junction have been widened.

(iii) **Inter-Terminal movement of trailers:** - Inter Terminal transfer of TTs between JNPCT & GTI and between JNPCT & NSICT has already started.

Globally automation is used in collecting & sharing information, logistics, surveillance, etc. For example,

Box 13: Global example of automation in port operations

Marine Knowledge 2020 which was developed as a part of the initiatives under Integrated Maritime Policy of EU is a platform to improve access to information about the sea. It brings together marine data from different sources with the aim of helping industry, public authorities and researchers. This ultimately helps effective use of data to develop new products and services. As a result, an environment of integrated maritime surveillance has emerged to give authorities a better picture of what is happening at sea.

In addition to current Electronic & EDI based automation systems, there is potential for GMB to take lead in developing a comprehensive hinterland connectivity system with assistance of research institutions & other entities. Existing level of automation across Indian ports, presents a big opportunity for Gujarat to gain an advantage and become the Leader in R&D in shipping and

ports sector in India. A strategy for innovation and research and development in port operations is described in theme on 'Innovation' in the next chapter; refer point 5.5.

4.3.4 Faster Investment/Approval/Procurement channel

Various departments/ divisions of GMB, the Ports Department, and other departments of Government of Gujarat (in addition to the Central Government), issue various approvals / clearances for setting up of the port or any other activity related to port. In order to provide ease in approvals and clearances granted through GMB, the approvals have been divided into following four categories:

- i. Setting up a port/ jetty on the coastline
- ii. Starting a new operation in the existing port
- iii. Approvals & Clearances for vessels
- iv. Other approvals & clearances

Within the above mentioned categories, the approvals/ clearances may be divided further into three categories. They are approvals/ clearances given by

- a) Other Agencies and Department of Government of India
- b) Other Departments of Government of Gujarat
- c) Gujarat Maritime Board & Ports Department

GMB would facilitate getting the clearances from other agencies the details of which are mentioned in the subsequent sections. However, this section predominantly details about the approvals/ clearances provided by GMB.

List of Approvals/ procedures

GMB while revamping/ upgrading their websites should have a page that lists out all the approvals / clearances to be taken by a port developer/ port operator/ customs agent/ vessel owner/ etc. The links to the concerned departments/ government agencies are also need to be provided. In addition, GMB also needs to identify the nodal agencies and the nodal officers as well. This would help the industry/ trade to find all the relevant information at one place. In addition, GMB should also provide the department wise list of approvals and clearances provided by GMB.

Setting up a new port/ shipyard/ port related infrastructure or service requires multiple licenses or approvals from multiple departments. As a result, there are multiple touch points for an investor in order to get the clearances for the business proposal. Not only is the information on approvals scattered across multiple websites basis various acts, rules, policies, but the investor is required to initiate a series of interactions with multiple government agencies and visit government offices to apply for approvals. This results in considerable amount of time being spent awaiting approvals for the proposal. Therefore, there is a need for information on approval processes to be easily available in the public domain and Single Window system for getting clearances.

The following areas have been identified which commonly stifle inhibit faster approvals in the departments

- ▶ Scattered Information on required approvals
- ▶ Fix timelines to furnish approvals
- ▶ Assistance from Nodal officers approval procedure

- ▶ Approvals/clearances provided are not available online

Re-structure, Simplify and Standardize process for approvals

Some critical areas which can be targeted to create a transparent, time-bound, accountable and responsive environment for clearances are

- ▶ Simplify applications and provide assistance to applicants
- ▶ Standardize application processes and internal documentation
- ▶ Increase transparency
- ▶ Time bound program for faster evacuation of applications
- ▶ IT backbone to capture entire lifecycle of an application
- ▶ Apex review mechanism at head office

Institutionalization of Single window system of incentive/ approvals

Implementation of a One Stop Shop portal that provides an inclusive online approval mechanism across all departments of GMB with "single sign on" facility would be a positive step towards that. The online single window shall have the following features:

- ▶ Business Application Form (BAF) for obtaining any clearance, authorization, approval, license, registration or No Objection Certificate (NOCs), as the case may be, by the investor
- ▶ Applicants will be able to pay their fees and dues online
- ▶ Applicants will also be able to track the stage of their applications online
- ▶ Fixed timelines for processing applications
- ▶ Dashboard for GMB officials for processing applications
- ▶ A Grievance portal
- ▶ Hinterland Map (potential & existing investment)
- ▶ Single information touch point for multiple departments
- ▶ Agglomeration of policies, rules, acts, forms, etc. on one single online space

Development of single window system

As mentioned above, for all the approvals/ clearances GMB should develop a single window - one stop solution for all the stakeholders who use any of the services in the ports in Gujarat. This includes separate modules for approvals, custom clearances, elimination of manual forms, etc.

While developing the TradeNet, Singapore focused on data interchange systems for trade declarations and permits. The modules were developed by forming various committees for shipping, government coordination, etc. before the implementation of TradeNet. It, along with the help of the committees reduced more than 20 forms to a single online form. The average cost per transaction came out to be less than \$3 and by the end of 1st year, TradeNet handled about 45% of the documentation from sea and air shipments in Singapore.

Coordination with Customs

GMB, in consultation with the Customs, can facilitate for making provision of linkages for export declarations and submit the same electronically and hard copies to customs and making payment of administrative customs fee before declaration, weighing and scanning in a designated area. This area in the ports can be made accessible to the customs whenever required. Through this, the shippers would know the designated areas for specific services in the port premises.

Combined Command and Control Centre

Innovative IT modules which are developed by GMB for areas which have been discussed across all themes, should be combined and interlinked for better governance and regulation. In the coming five years, GMB can combine all such solutions developed, under an IT Command and Control Centre. This centre can further execute development, maintenance and operations of modules for Port Automation systems, Smart Inland Networks, Clearances/Approval systems of GMB and an Intranet.

Box 14: TradeNet, Singapore

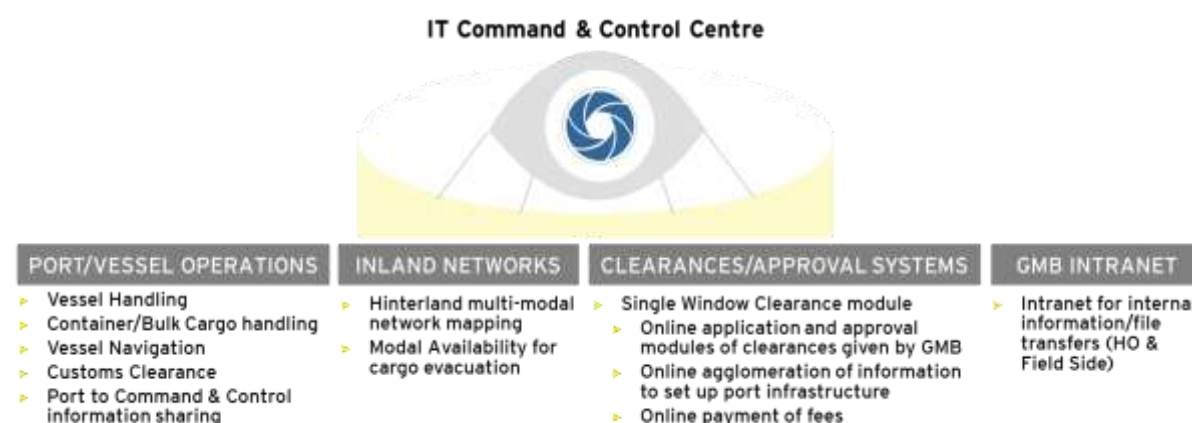
Singapore's single window for trade – which began operating in 1989– began as an electronic data interchange system that allows computer-to-computer exchange of structured trade messages between the government and members of Singapore's trading community.

After experiencing a recession in the 1980s, Singapore's government established a high-level committee to review the weaknesses of the economy and develop strategies to improve economic competitiveness. One of the committee's recommendations was to increase the use of information technology in trade.

The government had previously established a 2-day standard for normal processing of trade documents. But traders wanted quicker turnaround for just-in-time inventory management and deemed that waiting 2 days for normal processing (which could extend to 4 days for permit approvals) was too long. So the government embarked on a large-scale effort to streamline the regulatory processes involved in approving trade permits. Committees of senior government officials and business leaders were created to ensure sufficient backing for using technology to reengineer and improve trade regulations and processes.

Extract from "Implementing trade single windows in Singapore, Colombia and Azerbaijan" downloaded from <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB14->

Figure 4-23: Model IT Command and Control Centre for GMB



IT can become the Common Backbone which will help enabling all departments of Gujarat Maritime Board. This concept has been described in further detail Chapter 5, sub point 5.5 on 'Innovation'.

4.4 Safe & Sustainable Ports

In last three decades, GMB has taken various measures to develop vast 1600 kms long coastline of Gujarat to its full potential. And consequently, today Gujarat's coastline is dotted with some big private ports and many small to medium ports (about 44 ports) handling around 10,000 ships carrying about 340 MMTPA of Hazardous as well as non-Hazardous cargo on annual basis.

This business activity along the coast of Gujarat has given economic prosperity but with many environmental challenges. Gujarat ports can adopt the environmental sustainability by adopting three way approach.

1. Minimizing the impact of port related operations.
2. Fuelling ports of Gujarat by capturing the potential of offshore wind energy.
3. Combined strategy for greener and safer ports.

4.4.1 Minimizing impact on Coastal Ecology

Following are some of the key areas of interventions, where efforts should be made to minimising the impact of port related operation in coastal ecology of Gujarat:

Handling Dry Bulk Cargo

Ports are increasingly concerned about environmental issues and the running costs associated with dust emissions for handling dry bulk cargo. Pollution control legislations are playing an ever-increasing role in the handling of these cargo at ports and most effected in this regard are GMB jetties, which are most operated either by stevedore agents or private contracts. Although GMB is currently experimenting with various technological solution likes Wind shields, Dust-suppression systems (optional at Navlakhi) and foggers but still these efforts are piece meal in nature.

For example, in 2014, National Green Tribunal (NGT) directed GMB to 'strictly' comply with recommendations of the Civil Engineering Department of MS University which was called upon by the NGT to prepare action plan for improvement in the coal handling system at Navlakhi Port. The Tribunal also directed GPCB to assess damages caused due to improper/illegal handling of the coal at the Navlakhi Port and recover it from GMB for payment to the concerned victims by forfeiture of the security furnished to it as per the principle of 'Polluters pay'. Consequently, GMB took many

corrective measures to adopt more modern and cleaner technology for handling of coal. However, there is need for more comprehensive planning and implementation to mechanize GMB and Private Jetties to handle loose bulk cargo in an efficient and environmentally safe manner.

Currently, GMB has obtained Consolidated Consent & Authorization (CC&A) for all GMB ports from Gujarat Pollution Control Board. Environmental Monitoring is also carried out at GMB ports at regular intervals along with regular monitoring of Ambient Air Quality in order to keep check on air quality in the ports. However, it also needs to have a port wise planning for upgradation/retrofitting as well as palletisation of bulk cargo so that it will help achieve the revival of business activity at GMB ports/jetties.

Dredging, a necessary evil

Dredging is an important activity for efficient port operation and environmentally most damaging as well. With the port sector in Gujarat growing, there shall be huge demand for dredging in future. Digging up sea channels around Indian ports to cater to international trade and to enable bigger vessels to sail in is attracting major overseas players in the sector. For example, many existing private ports in Gujarat are expanding to handle ships with drafts 15-20 mts and new ports are being developed across the Gujarat coastline. In parallel, there are large number of non-major and intermediate lighterage ports in Gujarat like Navlakhi, Veraval, Bedi and others that are dependent upon barges for loading and unloading of cargo. Future outlook of the industry in Gujarat will be much dependent on infrastructure development, which will increase the demand of dredging activity in the state.

The annual maintenance dredging requirement of about 10 ports of GMB is estimated to be 15 to 17 lakh cum per annum. This is inclusive of GMB commercial ports as well as fisheries harbor etc. In 11th five year plan, it was planned to dredge 69.70 million cum out of which 8.75 million cum was for GMB ports while 60.95 million cum was for private ports (Pipavav, GAPL, Mundra-Adani, Reliance-Sikka etc.) which will further keep on changing depending on various parameters that result in to siltation. Demand for dredging at Bhavnagar, Veraval, Porbandar and Mangrol Port has been consistently increasing due to the increasing vessel size.

As envisaged in port policy 1995, Dredging along with other services like lighterage, piloting, tug towing and other essential utility services were to be privatized. However with limited success to privatisation of GMB jetties, dredging services could not be completely outsourced. Consequently, GMB has a fleet of under-utilized dredging equipment, which is necessary to keep its low draft jetties operational. Currently, the dredging industry in Gujarat is highly concentrated with few major players dominating the sector like United Shippers, Arvind V Joshi & Co, B D Vithalani Shipping Services, H K Dave, Halar Maritime, Shantilal & Company etc. with around 150 vessels, in the range of around 200-1000 DWT, operating in this sector.

With growing demand for both, capital as well as maintenance dredging and land reclamation, it is felt that proper monitoring and regulatory framework be developed to control dredging activity in a more environmentally and financially sustainable manner for Gujarat ports.

Ship Recycling

Due to high tidal range, long beach with gentle slope and firm ground facilitating beaching of ships just at the threshold of the plot, Alang- Sosiya Ship Recycling Yard has been able to establish itself as one of the largest ship recycling yard in the world, which In the year 2011-12, highest 415 ships and 3.85 MLDT handled.

Although Ship Recycling Process itself is an environmental friendly industrial activity, which is not only generating re-rollable steel²⁹ but also helping society by providing direct and in direct employment. However, following are some of the key environmental concerns:

1. The waste generated in the ship breaking process (both hazardous and non-hazardous categories) should be tracked and monitored very closely. These quantities should be known to the Port authorities and State Pollution Control Board (SPCB), along with proper dissemination of all type of related waste. However, many plot owner shy away from these formalities and lot of waste gets mixed in local ecology.
2. Since Alang also handles crude/ oil/chemical tankers/carriers, it is mandatory to have 'gas free' certificates obtained by operators before commencement of activities. However, sometimes it is observed that these pre-conditions remained unmonitored during the activity period. Third party independent audit should be conducted for sensitive recycling processes.

Land Reclamation

It has been almost two decades since the inception of private ports development in Gujarat and most of these ports are now going for port expansions by reclaiming land from sea. Further demand for land reclamation is coming from green-field port development, expansion of existing port facility and storage near their newly developed deeper berths or ship building yards, or any other such facilities, which require the seashore facilities and back up land. Additionally in many places, adequate land for backup is not available or the available land is uneven and requires to be filled up for levelling up for the port facility. On the other side, the port facilities are developed through dredging the deep shore from the sea, hence, the dredged material may be used beneficially to reclaim land, and it's more economical utilization of the material than dumping the same. For example, following requests have been received by GMB for land reclamation for port / shipyard purposes.

1. Port Projects
 - a. Adani Port & SEZ Ltd (Mundra): 423 Ha. reclaimed land for Coal terminal, Wandh and 597 Ha. reclaimed land for Mundra Phase II - South Port
 - b. Essar (Magdalla port) : Reclaimed 195 Ha land using the dredged material
 - c. Nargol port: port development on reclaimed land
 - d. Hazira port: Regularization of 92 Ha. reclaimed land to HPPL
2. Shipyard Projects:
 - a. M/s. Gujarat Integrated Maritime Complex Pvt. Ltd. (GIMCO) has requested for 106 Ha. land to be reclaimed at Nana Layja
 - b. M/s. Afcons Infrastructure Ltd. has requested for 25 Ha. land to be reclaimed at Mahuva port

As per section 25 of GMB act, GMB has power to grant permission to reclaiming, excavating and raising any part of the foreshore of the port or port approaches which may be necessary for the execution of the works. Consequently, GMB developed draft Guidelines to Reclaim Land in the Coastal Area of Gujarat. Following were identified as main objectives of this policy.

1. To create additional land for the port or port related project
2. To level the uneven land parcel

²⁹ Serves the Nation by producing about 4.5 million tons per annum of re-rollable steel without exploiting natural resources

3. To achieve higher draft by dredging, resulting in reclamation, and thereby dumping the dredged material on the seashore, and not high sea.
4. Availability of immediate back up area

Based on the understanding given during the interaction with GMB officials, following is the current situation on status of reclaimed land:

Table 4-14 Current Status of Reclaimed Land

	GMB Jetty	Private Jetty	Captive Jetty	Private Port	Shipyard
Dredging and Reclamation by	GMB	Respective Company	Respective Company	Respective Company	Respective Company
Ultimate Ownership of Project Land	GMB	GMB	Respective Company	GMB/ Respective Company	GMB
Ultimate Ownership of reclaimed land	GMB	GMB	Respective Company	GMB	GMB
Regularization Cost	GMB	GMB	Respective Company	GMB	GMB
Lease Rent	NA	No	No	Token	Yes

Further, as per the Model Concession Agreement for Ports, the clauses related to Reclaimed land states that:

- ▶ Ownership of all land reclaimed by the Licensee on the waterfront within the Port Limits shall vest with the Licensor.
- ▶ No lease rentals shall be payable for occupation and use of such land by the Licensee.
- ▶ Such reclaimed land (the cost of reclamation of which shall be duly certified by a chartered accountant, public accountant or valuer) shall revert to the Licensor on termination of the Lease Agreement and in accordance with the provisions of this Agreement.
- ▶ Reclaimed land shall also revert to the Licensor along with, and as part of the Leased Premises, and shall be compensated for at the amortised cost of original certified cost of reclamation as at the date of valuation by the Appraising Team.

Further, as per the Government Resolution dated January 5, 2005, the reclaimed land shall not form a part of contracted assets; hence, no compensation shall be payable at the end of concession period or the transfer, as the case may be.

As per Shipbuilding Policy 2010, the clauses related to Reclaimed Land are as under:

- a) Reclamation for providing essential shore marine structures like dry docks, slipway, outfitting jetties, etc. that would be inevitable as per marine conditions as well as for development of the Shipyard will be permitted subject to obtaining prior Environment/CRZ approval/clearance for such reclamation as applicable from the competent authority by the Shipyard company.
- b) Shipyard Company shall have to obtain prior permission of GMB and CRZ/ Environment clearances as applicable for the structures planned in the inter-tidal zone and/or in the reclaimed area. The shipyard company shall pay to GMB lease rental on reclaimed land.

- c) For using dredged stuff or any bed material for land reclamation, the company shall pay scooping charges as per prevailing SoPC.

Considering the fact that the existing and future development is concentrated on the coastal line of Gujarat and land being a scarce resource around the coastal line, most of the companies are proposing to develop/ expand the port and port based facility on reclaimed land by using the dredged material. There is an urgent need to establish regulatory framework for easy and transparent decision making on this front. It is proposed to regularize the reclaimed land through Revenue Department which will be allotted to GMB on token rate and the same shall be in turn leased to private companies (private ports, captive jetties, private jetties & Shipyards) on token land lease rent. However, these guidelines should also ensure that this reclamation process should not have adverse impact of local ecology of the coastal regions.

4.4.2 Development of offshore wind energy Parks

Globally, the offshore wind power industry is maturing and increasingly coastal countries are utilising this new, indigenous and carbon neutral source of energy. India, with a vast coastline of over 7,600 km is beginning to explore offshore wind energy as a 'strategic energy source' to enable long term energy security. About 16% (7362 MW) of country's estimated wind power potential in India, lies in Gujarat³⁰. Out of this, majority of wind power is expected to come in coastal regions.

Some studies have attempted to identify potential areas for development of offshore wind and its feasibility for installation. General conclusions of these studies has been that the best offshore wind power densities within Gujarat, were located along the Saurashtra coast, in the Gulf of Khambhat and in the Gulf of Kutch.^{31 32 33}

Assessment of offshore wind resources

Out of 11 Greenfield port sites identified by the GMB, 4 are operational and facilitate direct berthing in all weather conditions. Distance from an offshore wind development site to the nearest suitable port (with adequate storage, cranes, water depth and channel widths to accommodate all required construction vessels) is a crucial factor in determining a project's economic feasibility due to the high leasing cost of specialist vessels. Equally, export cabling costs are proportionate to the installation's distance from shore. Further, there are regions in the Gulf of Khambhat, Gulf of Kutch and Saurashtra coastal zones with identified wind speeds in the range of 6-12 m/s at 50-120 m hub heights.³⁴

Based on the assessment, eight preliminary potential zones have been identified for the development of commercial scale offshore wind farms, with mean wind speeds in the range of 6.8 to 7.0 m/s (at 120 m AGL) and water depths in the range of -15 to -43 mLAT.

³⁰ Report titled "Overview of Renewable Energy Potential of India", GENI , 2006, link: <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/Renewable-Energy-Potential-for-India.pdf>

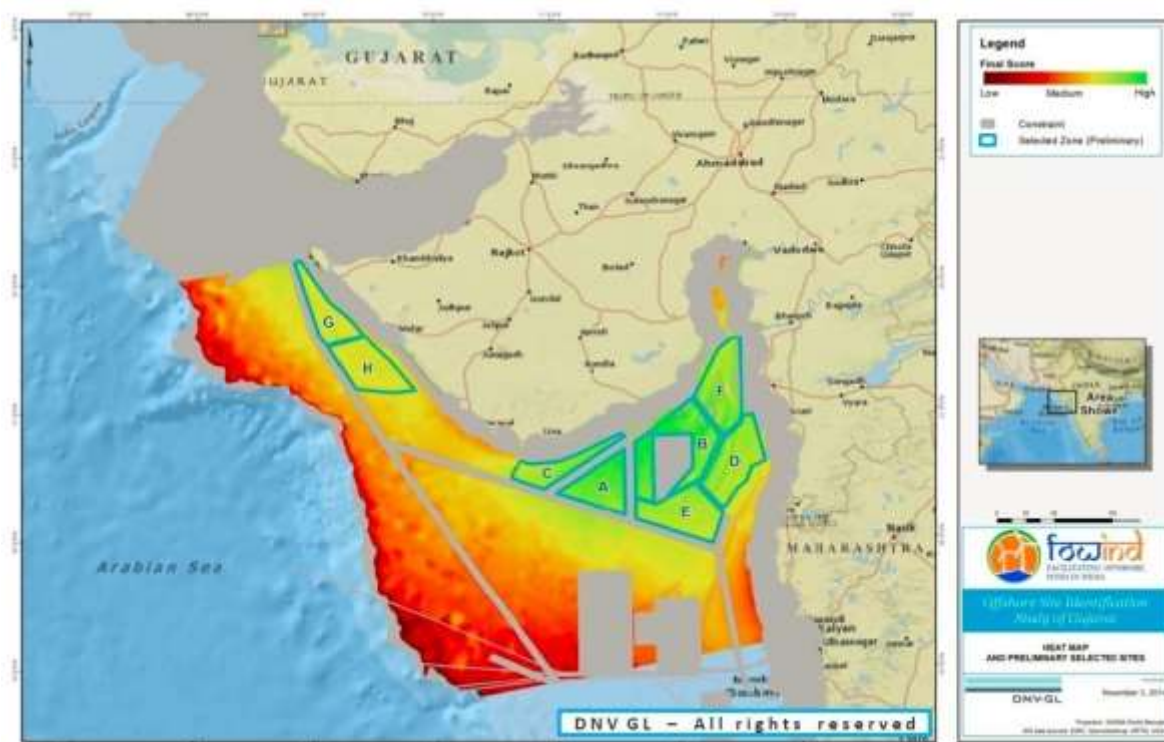
³¹ UNEP-NREL, "Offshore Wind Map (2005)". <http://en.openei.org/datasets/taxonomy/term/471?page=1>.

³²NREL, "Prepared a global offshore wind map that included India's EEZ," 2012. <http://irena.masdar.ac.ae>

³³ Sander-Partner "Global Wind Map" 2011. <http://irena.masdar.ac.ae> .

³⁴ NREL, "Annual Wind Power Density at 50 m," 2011. <http://en.openei.org/wiki/File:QuikSCAT>

Figure 4-24: Potential Offshore sites in Gujarat



Source: Report titled "Pre-feasibility study for offshore wind farm development in Gujarat, FOWIND, May 2015

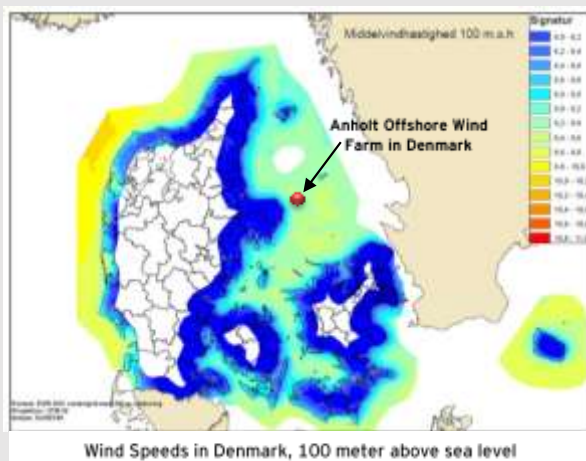
The eight potential zones highlighted in above map are considered most suitable for offshore wind energy development, and were identified by ranking their compliance with a set of defined technical and environmental parameters by recent study conducted by FOWIND. Under this study key hard constraints, considered immovable for offshore wind farm development were as follows; offshore wind resource, the Indian Exclusive Economic Zone (EEZ), feasible water depths, proximity with construction ports and distance to transmission grids. Further constraints were also considered within the analysis, such as; the proximity to pipelines, proximity to oil & gas platforms, proximity to shipping lanes, visual impact, seismic risk and cyclone risk.

Box 15: Wind farm development in Anholt, Denmark

Background

Anholt Offshore Wind Farm (AOWF) is a Danish offshore wind power wind farm constructed in 88 square km area in the Kattegat, between Djursland and Anholt Island with a capacity of 400 megawatts (MW). It is the third largest offshore wind farm in the world (along with BARD Offshore 1) and the largest in Denmark. A cable from the wind farm to Anholt replaces most of the diesel-powered electricity on the island.

The project was conceived in February 2008, as part of the Danish government's Energy Policy Agreement with a goal of reaching 25% renewable energy replacing diesel based electricity generation by 2025. DONG Energy received the license to build it in 2010. The wind farm costs an estimated 10 billion Danish Kroner (DKK) (€1.35 bn, US\$1.65 bn).



Technology

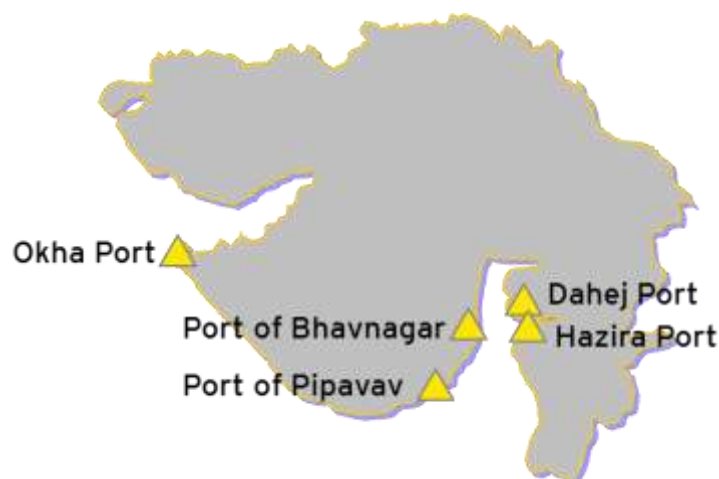
DONG contracted Siemens Wind Power to supply 111 wind turbines (3.6 MW) for the project, placed in 14 metres (46 ft) water depth. Usually turbines are placed in a grid pattern of lines and rows, but the turbines of AOWF are placed in an unusual pattern governed by two principles; set up most of them along the edges and in undisturbed airflow from the main direction, which is West-southwest. This would increase production by 1.5%, a lifetime value of more than 100m DKK.

Key Learnings

- ▶ Carry out a thorough screening and planning before designating areas for offshore wind turbines. Take wind conditions, sea depths, grid connection options, seabed conditions, marine life etc. into consideration when screening for suitable sites for offshore wind farms.
- ▶ Consult all relevant authorities with interests at sea, in order to avoid future conflicting interests. This will create ownership of the process and commitment to the sites chosen.
- ▶ Consult with evidence from effect studies on environmental impacts already assessed and accessible in the public domain before requiring expensive and time consuming analysis as part of the EIA requirements.
- ▶ Consider to set up a general framework for environmental impact assessments (EIAs).

Based on findings of study conducted by FOWIND (May 2015), it is proposed that for an offshore wind farm with a capacity of 150 MW, connection via an offshore substation to a 220 kV node would likely be most suitable; whilst a higher capacity plant (504 MW) would require connection to a 400 kV system node. The study also mentions the potential locations where the windfarms can be developed at Gujarat. The potential locations include Okha, Bhavnagar, Pipavav, Dahej and Hazira.

Figure 4-25 Potential locations for offshore wind farm development



Source: FOWIND Study May 2015

These locations have been selected because they have the following key advantages,

- ▶ Presence of operations and maintenance ports that would help in construction and development of offshore wind farms.
- ▶ The ports at these locations meet the criteria for running an operational offshore wind farm.
- ▶ There are high currents in the Gulf of Khambhat region that help in reducing the transit time for the wind farm vessels.
- ▶ The locations meet the operations and maintenance strategy requirements that are set by the FOWIND study.

Thus, capturing the potential of renewal energy along Gujarat is also important component for the success of “Port Green Energy Plans”, where ports can be mandated to use certain portion of total energy consumption from renewal source only.

4.4.3 Combined Strategy for Greener and Safer Ports

Sustainability in Port Operations

While ports and port activities drive economic growth of Gujarat, it is important for GMB and other stakeholders to actively work to minimize pollution levels and environmental damage. Implementation of sustainable practises / strategies in port operations could prevent business and communities in ports vicinity from ill effects of air quality, water quality and habitat degradation.

Most of the world class ports have sustainable development framework/ strategies/ projects for development of environmentally friendly port and marine operations. For example, various green initiative taken up by Singapore port (MPA) are good examples of how a port can reduce the environmental impact of shipping and related activities to promote clean and green shipping. As suggested in earlier sections, Singapore designed a comprehensive initiative comprising of 3 programs - the Green Ship Program, Green Port Program and Green Technology Program. Similarly, Hamburg Port Authority (HPA) has initiated a “smartPORT Energy” initiative with an objective to make the Hamburg Port a ‘flagship port’ for renewable energies. The Port is harnessing wind energy by operating wind power plants onsite and has also installed solar thermal collectors and photovoltaics on the roof tops to generate solar power.

Similarly, GMB should also initiate its efforts in incorporating sustainability in port operations by

1. Development of Green Port Plans (GPP) for all ports, with clear targets to curb pollution and greater usage of renewable energy.
2. Capture offshore potential of wind energy to power its port operations in phased manner.
3. Encouraging sustainable practices in ship recycling on Gujarat coast.

Above efforts will not only help Gujarat ports become more “cleaner & greener” but would also help Gujarat in complying with UN Sustainable Development Goals 2030, which both central and state government have ratified.

Development of port wise Green Port Plans (GPP)

Just as sound business plan is important for financial viability of business operations at port, effective environment management plan is equally important for long term sustainability of the project. GMB should aim also develop detailed guidelines to encourage port operators to develop green port plan (after Third party independent audit as EIA guidelines, an eight-step environmental audit) , with either voluntary or mandatory clear targets to curb pollution and greater usage of renewable energy. Guidelines should also ensure compliance with various IMO international conventions like SOLAS, MARPOL, Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 etc. and relevant national laws, CRZ and environment protection act 1986, Hazardous Wastes (Management and Handling) Rules, 1989, The Water (Prevention and Control of Pollution) Act, 1974, Environmental Impact Assessment Guidelines for Ports and Harbours (EIAGP&H) issued by MOEF etc.

Ministry of Shipping initiates Project Green Port for Major ports of India

‘Project Green Ports’ will have two verticals - one is ‘Green Ports Initiatives’ related to environmental issues and second is ‘Swachh Bharat Abhiyaan’.

The Green Port Initiatives include twelve initiatives which will be implemented under strict time bound fashion in order to achieve the targets. Some of these initiatives are preparation and monitoring plan, acquiring equipment required for monitoring environmental pollution, acquiring dust suppression system, setting up of sewage/waste water treatment plants/ garbage disposal plant, setting up projects for energy generation from renewable energy sources, completion of shortfalls of Oil Spill Response (OSR) facilities (Tier-1), prohibition of disposal of almost all kind of garbage at sea, improving the quality of harbour wastes etc. Under Swachh Bharat Abhiyaan, the Ministry has identified 20 activities with certain time-line to promote cleanliness at the port premises. Some of the activities include cleaning the wharf, cleaning and repairing of sheds, cleaning and repairing of port roads, painting road signs, zebra crossing, pavement edges, modernizing and cleanliness of all the toilet complexes in the operational area, placement of dustbins at regular intervals, beautification and cleaning of parks, boards indicating cleanliness messages, cleaning and repairing of all drainages and storm water systems and tree plantation.

Source: PIB Press Release, 19-January-2016, titled Ministry of Shipping initiates Project Green Port; Link: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=134595> :

Guidelines should encourage (either through fiscal/ non fiscal measures) port operators, port users and community to become more innovative and to adopt a more sustainable business

approach in their day to day operations. Efforts should be made to develop environment management plans towards air/ water/ waste management at GMB ports as well as adopt green technologies to promote sustainability at Gujarat ports. Some of the guiding components of the green port plans³⁵ could be as follows:

Component 1: Development of Green Port Plan

GMB should develop guidelines for the development of green ports. This should be done to ensure compliance with the environment related laws, reduce pollution due to port operations and incentivize greater use of renewal energy sources. The guidelines that GMB need to develop should be in the lines of:

Reduction in pollution in port related activities

1. **Incentivize ships to use cleaner fuels:** Ports are not able to regulate what type of fuels ships can use, but they can incentivize them for using cleaner burning fuels or more efficient engines. Such incentives can include reduced harbour usage fees.
2. **Improve water quality:** Minimizing the amount of impervious surface at port facilities by using porous asphalt and concrete, as well as green roofs, can reduce storm water runoff levels and thereby improve local water habitats. Reducing the amount of dredging needed can help lower turbidity and minimize the risk of water pollution.
3. **Upgrade/retrofit cargo equipment:** Equipment such as cranes, trucks and forklifts typically run on diesel fuel which can contribute to decreased air quality. By upgrading to newer equipment or retrofitting existing equipment to run on cleaner burning fuel, ports can significantly improve air quality by lowering emissions. APSEZ is improving energy efficiency in this regard by switching from 16 diesel operated Rubber Tyre Gantry Cranes to electricity for operating the cranes.
4. Parallely, efforts should be made to explore options to convert bulk cargo handling into Palletised/ Containerised cargo handling. This would also help in shifting traffic load to feeder ports and promote coastal shipping.
5. **Provide shore-side power:** When ships are at berth, their auxiliary engines – which continually run to provide power – produce significant amounts of emissions and pollution. By allowing these ships to plug in to electrical sources at the port rather than idle their engines, ports can dramatically reduce these emissions and improve air quality at the port. An additional option is providing a source of renewable energy or natural gas to power ships, which can lower the amount of emissions released. For example, LNG Hybrid barge is the world's first environmentally friendly hybrid liquefied natural gas (LNG) barge which is based at the Hamburg port. This will result in reductions of nitrogen oxide and carbon dioxide emissions of up to 80% and 30%, respectively.

Greater use of Greener Energy sources

Gradually, in phased manner GMB has to plan for reducing its dependence on conventionally generated energy and shift towards other renewal energy sources such as on-shore /off-shore windfarms, solar plants, tidal etc. in a commercially viable manner. Various ports globally as well as in India are targeting to cut their carbon footprint by shifting towards more renewable energy usage.

³⁵ Sustainable Ports: Strategies for Port Development and Operations A Guide for County Leaders

Table 4-15: Renewable energy targets

Port	Target for CO2 emissions reduction/ % of renewable energy usage	
Port of Rotterdam	CO2 emissions to virtually Zero by 2050 (Highlights Annual Report 2016).	
Major ports of India	91.50MW solar energy systems installed at the 12 locations. And 45MW of wind energy capacity at two additional major ports, located in Kandla, Gujarat and V. O. Chidambaranar, Tamil Nadu.	
Prospective targets for GMB		
	By 2020	By 2025
Existing GMB Ports	5% energy requirement	15% energy requirement
New GMB Ports	10% energy requirement	20% energy requirement

Mangrove Plantation & greening the coastal area

1. More resources should be channelized by port operations and GMB in Mangrove plantation and other conservation measures to protect coastal ecology. GMB is currently carrying mangrove plantation along the coastal area with help of Gujarat Ecology Commission and Forest Department. Mangroves benefit the coastal community in multi-fold manner:
 - a. Controls salinity ingress
 - b. Shore protection against erosion
 - c. Harbours fisheries and act as spawning and breeding grounds.

Independent third party environment and energy audits of GMB ports

2. Regular and timely monitoring of various aspects of port environmental plans is not only important but also necessary for global compliance of GMB ports as far as international conventions are concerned. Looping renowned independent third party auditors can ensure both transparency and consistency in environment management of GMB Ports.

Sustainable land reclamation policy

To facilitate the applications for reclaiming land for port/ port related activities along the coast of Gujarat, GMB has prepared a draft the guidelines, aimed to provide clarity and improved administrative decision making on this subject. Following were the key recommendations

On procedure for applying for land reclamation: It was suggested that there should be a three-stage process for approval of GMB for Land Reclamation projects.

- ▶ In the first stage, project proponent will apply to GMB for the NOC to apply for the CRZ Clearance/ GPCB's NOC or any other necessary approval/permission from relevant department. GMB will convey its decision of granting NOC to the applicant with standard conditions, subject to customization for each application and conformity with coastal economic development plan/ port master plan.
- ▶ In the second stage, project proponent applies for permission for getting the CRZ Clearance/GPCB's NOC, or any other necessary approval/permission from relevant department.
- ▶ After getting all necessary and applicable permissions and NoCs, project proponent will apply for the final permission for Dredging and Reclamation. After due evaluation, GMB will convey the final permission for the Dredging and Reclamation.

All applicable formats/ relevant documents are discussed in draft guidelines for granting NOC/Permission for reclaiming land for port/ port related activities along the coast of Gujarat

On charges for land reclamation: It was suggested that since land to private ports are allotted on competitive basis to the prospective developers based on cargo charges they would pay to GMB. If any other charge is associated to the private ports, it may invariably affect the cargo rates, which in turn may have a huge impact on cargo income and decrease drastically. Hence, it may not be suitable or required to charge the Private Ports for the reclaimed land.

For captive industries, Government will allot the land to GMB on price calculated by subtracting the Jantri rate of the land from the reclamation cost of the land. GMB, in turn, shall allot the land to the user on lease, charging the 10% of the price paid by the GMB to Government. The same process may be followed in case of Shipyards too. For Private Ports, Government will allot the land on token rate to GMB and GMB will in-turn allot it to the Private Port Developer for the agreement period on token rate.

Table 4-16: Options for types of development

S No	Type of Development	Scenario	Land Value	Lease Rent for Developer
1.	Captive Jetty	Cost of Reclamation < Jantri Cost	Jantri Cost - Cost of Reclamation	10% of the Land Value for first 10 years and then (after completion of 10 years) at the rate of 10% of the prevailing Jantri rate for rest of the agreement period with 10% escalation every 3 years for both periods.
2.	Captive Jetty	Cost of Reclamation > or = Jantri Cost	Token	10% of the prevailing Jantri rate with 10% escalation every 3 years (not to be collected till the cumulative sum of this rent and prevailing Jantri rate equals or overtakes the Cost of Reclamation) after that it will be collected for the rest of the agreement period.
3.	Private Port and Shipyards	Cost of Reclamation < Jantri Cost	Token	Token
4.	Private Port and Shipyards	Cost of Reclamation > or = Jantri Cost	Token	Token

Source: Draft Guideline for granting NOC/Permission for reclaiming land for port/ port related activities along the coast of Gujarat

Considering the expansion plans of private port and consequent implication of delay, GMB should urgently finalise these draft guidelines as part of port policy revision.

Reduction in port waste generation / energy requirements

1. **Reduction of waste/ energy:** GMB can incentivize and support port-based companies to reduce their energy requirements.
 - a. Installation of LED bulbs and solar panelled roofs
 - b. Install energy management systems for reducing carbon emissions
 - c. Combined heat and power (CHP) or co-generation plants

d. Refurbishment of commercial buildings in port areas

Ministry of Shipping (MoS) has undertaken an initiative to implement utility-scale Solar Photovoltaic Power Plant projects at various major ports across the country. A MoU has been signed in this regard between Solar Energy Corporation of India (SECI) and the Indian Ports Association (IPA), on behalf of the individual port trusts, to implement the solar energy projects. As part of this activity, installation of grid connected solar power plants in the following ports is underway. In addition, installation of rooftop solar power projects at various ports has also been undertaken and the related processes been started.

Component 2: Offshore energy projects along Gujarat Coast

As suggested in previous chapter, Gujarat has untapped potential to capture offshore wind energy in commercially viable manner. Further renewable energy projects have been facilitated by the Indian Government's commitment towards increasing the share of renewable energy in the grid by up to 15 % by 2020 under its National Action Plan on Climate Change. Several incentives such as feed-in tariffs, generation based incentives (GBIs), accelerated depreciation (AD) and tradable renewable energy certificates (RECs) in addition to Renewable Purchase Obligations (RPO) are available to renewable energy projects like offshore wind farms. However, for capital intensive projects such as offshore wind, it is probable that the government will also have to play a major role in ensuring access to finance by providing appropriate incentives.³⁶

New technology combined with additional technical challenges for offshore wind typically means it is more expensive to produce a unit of energy offshore than it is onshore. But the typically stronger, more consistent wind at sea means that there often exist real opportunities to narrow the gap in the creation of a viable offshore wind sector. Currently it must be noted that the estimated offshore mean wind speeds are only marginally greater than those known to be found onshore in Gujarat. However given the high level of uncertainty associated with the available data and in particular the offshore wind resource there may exist significant room for improvement in future studies. Therefore, GMB should support following activities to support the feasibility and development of offshore wind in Gujarat:

- ▶ On-site wind measurement - offshore LIDAR wind measurement
- ▶ Full Feasibility Study - Pilot Project Site Selection, Preliminary Engineering, cost modelling and socio-environmental investigations
- ▶ Extreme wind speed studies considering typhoon risk
- ▶ Gathering further constraint data, metocean data and ground related data (Geophysical and Geotechnical)
- ▶ Logistics and Infrastructure Study - to include port selection, storage logistics, transportation requirements, vessel selection, supply chain analysis (throughout the project life-time; development, procurement, detailed design, fabrication, transportation, installation, commissioning, operation and decommissioning)
- ▶ Grid Connection and Transmission Study
- ▶ Preliminary Environmental and Social Impact Study (ESIA)
- ▶ Stakeholder Engagement Workshops
- ▶ Development of a supportive National and Local Policy environment and guidelines to promote development in Gujarat - scoping and review of India's existing policy framework

³⁶ IDFC, in *India Infrastructure Report 2010*

for offshore wind will be undertaken in the context of India's electricity act 2003 which considers wind power and electricity.

Component 3: Encouraging sustainable ship recycling on Gujarat coast

Alang is one of the largest ship recycling yard in world and environment management is one of the key priorities for GMB at the Alang yard. Over the years, significant improvements have been made to ensure that the ship breaking takes place in conditions that are not harmful to the surrounding environment as well as the labour. Before January 2006, ship recyclers were sending their wastes to TSDF, operated by Naroda Enviro Protection Ltd, Ahmedabad. The hazardous waste quantity handled was about 3,873 tonnes. After TSDF's construction with the help of JICA (US\$ 76.5 m loan), it is expected that most of this hazardous waste would be managed locally.

To comply with International conventions on ship breaking Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 etc along with compliance with Hazardous Wastes (Management and Handling) Rules, 1989 and other relevant national laws. GMB is also in process of upgrading existing environmental infrastructure at Alang by way of modernizing its all environmental services. Key components of this plan are

- ▶ Upgrading 70 yards. This will provide impervious floors to the shipbuilding facilities. These impervious floors will help prevent the pollutants from entering the sub-soil.
- ▶ Improvement of existing Environmental Facility. These improvements will be in ETP, incinerator and oil recovery systems. These improvements will help in better management of environmental practices.
- ▶ Introduction of Mobile Decontamination Units. Pollution Response Equipment will be provided to the shipbuilders. As a result, the chances of pollution gathering a particular place will be reduced.
- ▶ Introduction of Large Mobile Cranes and Beach Cleaning Wheel Loaders. Large mobile cranes will lead to efficient shipbuilding practices. With beach cleaning wheel loaders, the wastage that comes out of shipbuilding will be washed regularly maintaining efficient operations.
- ▶ Introduction of Tank Cleaning Barge. A tank cleaning barge would clean the tanks on a regular basis due to which the water required for shipbuilding would not get polluted thus keeping the environment around the shipbuilding facility clean.
- ▶ Improvement of Workers' colony and Construction of Community Hall and School. This is basically a CSR activity and will help motivate the employees of the shipbuilding industry.
- ▶ Introduction of Multipurpose Vessel. This multipurpose vessel will help in safer and sustainable dredging along with other purposes. It will also be eco-friendly thus sustaining the environment around the facility.

By implementing the above plan, Alang would be able to get more vessels from OECD and western world as a result of which Alang would contribute to 51% of total global ship recycling volume from current share of 30%. This could translate into generation of additional revenue to the tune of US\$ 100 million over 20 years project cycle from case business services.

Component 4: Implementation of Port safety code

Safety should be one of the core business functions at GMB ports. GMB should develop a port safety code to create a culture of safety and integrate a risk free environment. The safety code that has to be developed should cover all the safety precautions. The code should that all the stakeholders are meeting the minimum safety requirements as suggested in labour and other

relevant laws. This code should also focus on generally improving the occupational health and safety performance of the stakeholders.

GMB has already a detailed disaster management plan prepared that is readily available on its website. However, this plan also needs to be monitored on a regular basis. Regular monitoring mechanism needs to be developed and implemented. Moreover emergency vehicles and equipment should be kept up to date and maintained on a regular basis in case of emergency response during disaster.

There is a national oil spill contingency plan developed for India. Awareness and training towards this oil spill contingency plan needs to be done for Gujarat ports. Moreover a response centre could be developed on a public private partnership mode for GMB ports. Also, there should be compliance with various IMO international conventions like OILPOL, ISPS code, International Safety Management (ISM) Code and DG Shipping Circulars on ISPS and Maritime Security. Compliance should also be done on National and Gujarat Maritime and labour laws along with ILO code of practice.

4.5 Ancillary Infrastructure Development

Globally, there are multiple players in the maritime services sector. However, in India all such players have not come up due to lack of focus on the softer aspects of the maritime sector. The government has remained focused only on the development of ports and logistics infrastructure and on promotion of the Indian fleet size. However, to develop the complete eco-system of the industry and to take the Indian shipping industry to the international standards, it is important to also understand the need of the maritime services sector and facilitate them in an appropriate way, so that they can also thrive and be a part of the holistic development of the sector.

As far as maritime trade (32 % of national trade), Ship Building (89% of Market share) and Ship Recycling are concerned, Gujarat is a clear leader on these sub-sectors of maritime sector. However, Gujarat is lagging behind in maritime services sub-sector. If Gujarat expects to continue its strong performance in the cargo handling over the next several years, then state needs to develop a complete eco-system of maritime services in coming years.

GMB intent is to develop “soft” maritime infrastructure and services in Gujarat like Shipping agents, Ship owners, Shipping agencies, Ship Manning and Chandlers, Shipping finance & insurance, classification and Registers of Ships etc. Currently, most of these services are located near Mumbai. Whatever limited maritime services India offers, are scattered around different locations. Hence, a “Cluster Approach” is needed in development of a competitive maritime service base in India. Clustering of maritime services like industries, captive units, ship/ boat building and repair yards, fisheries, logistics infrastructure and many other players like ship lines, custom house agents, transporters, freight forwarders, freight agents, etc. helps them in achieving complementarities across businesses; better incentives and performance improvement. This idea is very well adopted by many developed nations like UK (London), Netherlands (Rotterdam), China (Hong Kong, Shanghai), Japan (Tokyo, Osaka) and USA (New York). These maritime clusters are not only highly productive but also cradle for innovation.

The concept of maritime commerce/service cluster is more in line with the traditional cluster concept which is popular in other maritime regions like Colombo, Dubai, Rotterdam, London, Singapore, Hong Kong, Hamburg etc. Mostly, these clusters are characterized by the presence of soft maritime infrastructure. These clusters are basically a concentration of maritime related services provided by shipping agents, ship owners, ship manning and chandlers, shipping finance & insurance, classification and registers of ships, maritime education institutes etc.

This section discusses about developing the Infrastructure (Bunkering, Barge Movement, Marine Tourism, Ship Chandler Services, Ship to Ship Transfer and Other Ancillary and Value Added Services), Skill Improvement and Maritime Facilities and Services.

4.5.1 Developing the Infrastructure

The port infrastructure consists of a combination of physical assets and cargo handling facilities coupled with navigational aids, vessel traffic management, and berthing of incoming vessels. The port infrastructure basically enables the port management to deliver a wide range of services and act as an interface between sea and surface modes of transport. The level of infrastructure build up and the type of services that different ports provide vary widely depending on the volume and type of cargo traffic handled. The port infrastructure facilities available determine the operational capability of the port. GMB has the option to explore development of ancillary infrastructure in order to generate revenue and increase customer satisfaction. The options for infrastructure development for various ancillary services is mentioned in the current section.

Bunkering

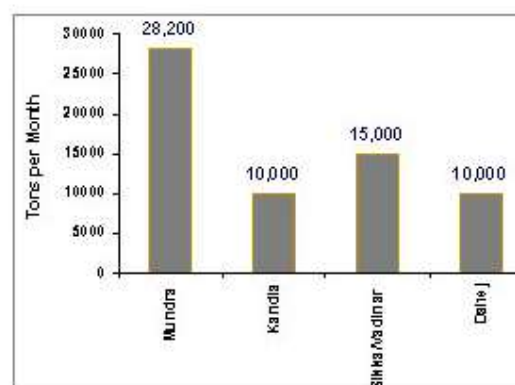
Bunkering industry, the imperative ancillary industry, is among the key drivers of overall growth of the maritime industry. The bunkering process implies the transfer of marine fuel or lubricating oil from the refinery to the ship. Presently, marine fuels account for about 20% of total fuel oil demand in the world and Singapore, Fujairah, and Rotterdam Ports are the most preferred bunkering destinations world over.

Figure 4-26: Bunkering location and catered volume in Gujarat

Bunker Volume Catered in Gujarat Coast



Bunkering Location – Gujarat



Source: GMB study report on "Establishment of Bunker Terminal at Gujarat port"

Indian bunkering industry is still in very nascent stage with Mundra port (Gujarat), Mumbai Port and Chennai Port picking up the market. Indian ports are witnessing an annual bunker take off of 1-2 million tons (GMB and other private ports of Gujarat have approximately 50% market share). Indian bunker fuel market is expected to increase 10 fold by 2011-12, as marine traffic is poised to surge on the back of new infrastructure projects as well as growth in oil refining activity. As Indian ports increase cargo handling capacities, the scope for India emerging as a transshipment hub improves. This is expected to have a favourable impact on the traffic.

Figure 4-27: Potential Location for bunkering in Gujarat



Gujarat has geostrategic locational advantage in being a prominent Indian Ocean port situated close to the busiest maritime highway connecting Europe and East Asia to the Far East and Australia (Refer Figure 1-6: Global Maritime Scenario | Shipping routes). 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 predominates in bunker volume. Bunkering is predominantly carried out at four ports of Gujarat i.e. Mundra, Kandla, Dahej and Sikka. Similar kind of facility across other GMB ports has not been developed because of following challenges -

- ▶ The duty paid bunker cost at Indian ports are high and as a result, vessel prefers to take bunker from Singapore / Colombo or Fujairah
- ▶ Absence of dedicated infrastructure for bunkering. Apart from Mundra, in other ports of Gujarat, bunkering is done through conventional method of supply by truck.
- ▶ High port charges at GMB ports

Government is considering for providing tax exemption for supply of bunkering. The bunkering business in the state might gain momentum once this provision is implemented. Also based on the current scenario, it is preferred that Gujarat has two bunkering terminals, one at Gulf of Kutch and another at Khambhat. These two terminal can also be developed through private sector participation. Along with this bunkering terminal, other ancillary facilities can also be plugged in like waste oil reception facility, garbage collection, ship chandler etc.

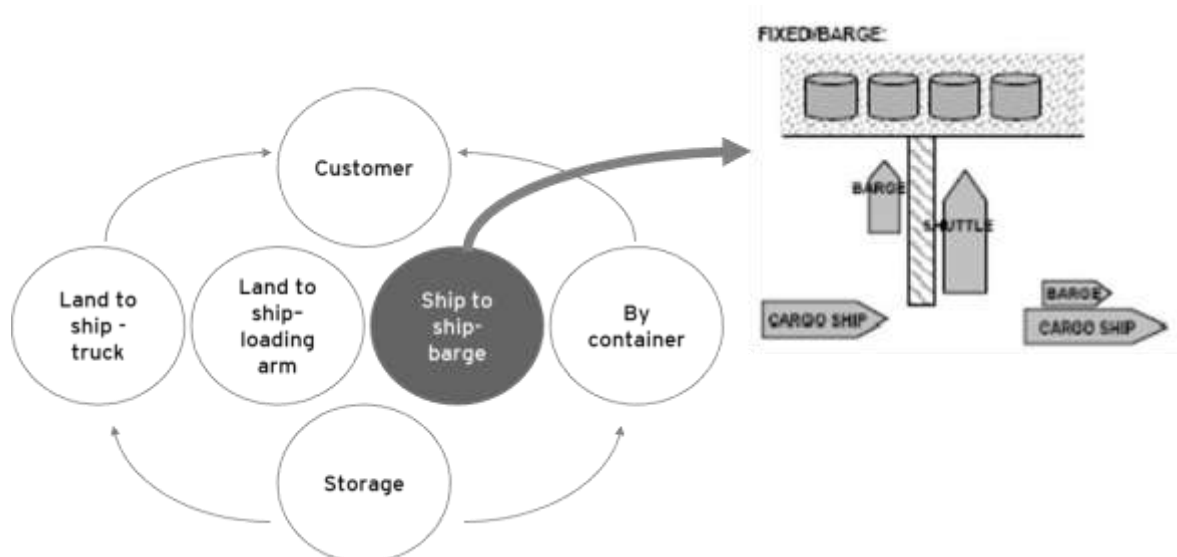
The total vessels visiting Gujarat coast in the year 2014-15 were 9268. Out of these, 5268 vessels were foreign vessels. In the last 3-4 years, the average share of the Gulf of Khambhat is 35% of the total vessels. Currently foreign going vessels are using Fujairah terminal for bunkering before arriving to Indian ports, and these vessels use Indian bunker, only when it is required. As per traffic projections, it is presumed that about 7,500 foreign ships would be visiting the Gujarat coast by the end of year 2019-20. 37 The vessels require enroute-bunkering facilities. The potential location identified for setting up the bunkering terminal in the state are Okha, Jafrabad and Porbandar. It is assumed that for the proposed project, foreign ships would be the primary market.

³⁷ Government of Gujarat, *Setting up a Bunker Terminal at Piram Island in Gujarat, Vibrant Gujarat 2017*

The share of vessel traffic in Gulf of Kutch is dominated by foreign vessels and therefore Okha port in Gulf of Kutch seems to be an ideal location. In the later stages, the operation can be carried out in Gulf of Khambhat at Piram Island which is currently being developed.

In order to keep the bunker price abreast it is very much necessary to provide a tax SOP so that the prices can be made competitive. Reduction or exemption of VAT for bonded bunker shall help arrive at a competitive price to serve the present need and to capture a good share of the market. Hence to develop bunker demand the proposed project would be allowed a Duty-free status. Tax implications have a significant impact on the bunker sales in India. While an exemption or rebate on VAT may improve the price competitiveness, customs duty would continue to apply.

Figure 4-28: Barge Bunkering



There are four ways of performing the bunkering process. It can be done land to ship through trucks, land to ship through loading arms, through containers or from ship to ship through barge. Barge bunkering is one of the facilities that GMB can explore at Piram Island and Okha port. To determine an appropriate bunkering location, GMB administrative ports were evaluated and Piram Island has been found to be a suitable location as ample land is available for establishing tank farm so land acquisition will not be the issue. Also, being a no man's island this particular location do holds a good potential for bunkering and allied services. This island is well surrounded by 15.0 m depth channels.

Barge bunkering would be beneficial in the long run with its key benefits including:

- ▶ Does not interfere cargo/passenger handling operations - It is done in the sea, so the vessel is not required to be berthed for bunkering operation. It can be done at anchorage allowing the port to handle vessels that are bringing in cargo. Even if it is berthed, then barges would be providing the fuel from one side of the vessel keeping the cargo handling equipment free for vessel operation rather than use it for bunkering.
- ▶ Reduces ship TAT at a port - Vessels that would have required to wait at anchorage because of the bunkering operation of another vessel would not have to do so with barge bunkering. They can berth their vessels as soon as they arrive, provided another cargo handling vessel is not present at berth. This reduces the ship TAT at port.
- ▶ Larger delivery capacity - A barge would have larger capacity than a truck, a loading arm or a container. As a result, larger amounts of oil can be delivered to the vessel in one time.

- ▶ Operational flexibility - As it occurs in the sea, it offers higher operational flexibility than a land to vessel bunkering facility.
- ▶ No vessel diversion - The barge bunkering happens in the sea. As a result, there is no need to divert the vessel to a port.

Barge Movement - Barges can be used for functions other than bunkering. They can also be used to move the cargo between low draft jetties. Currently there are five kinds of barges existing for movement of cargo:

Dry Bulk Cargo Barges - These barges are made to carry dry bulk cargo like food grains, sand and other construction materials. These type of barges carry this cargo from one area to another, sometimes it involves more than one barge to complete the single operation.

Liquid Cargo Barges - These are barges which are specifically designed to carry liquid cargo, such as chemicals and fuels. These barges are designed as per specified criteria keeping in mind the safety parameters. These barges are considered safer and spill proof than rail or road networks.

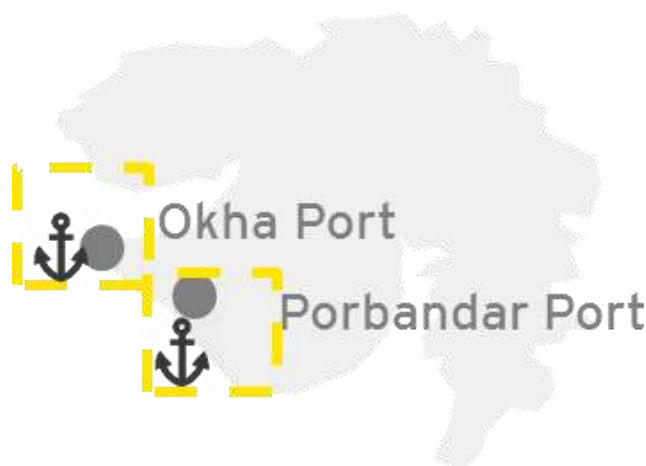
Car-float Barges - These barges are not used as frequently. It is fitted with rails so that rail coaches can be easily transported through them. It is mostly use to transport old coaches or new coaches in need of maintenance across various water bodies.

Power Barges - These barges are essentially power plants that are installed on a deck of the barge. They were developed during WWII in order to provide power generation on a temporary basis. While still used today, they can have single or multiple turbines, engines, boilers. They can be gas, coal or nuclear powered.

Deck and Construction Barges - These barges are built specifically to transport large machinery like material handlers and other construction equipment. They are also often used to work on construction projects in congested areas that are located directly on bodies of water.

GMB can use these barges to move their cargo from one location to another. Other than these GMB can also look into the concept of container barges. A containerized barge is a kind of vessel which is primarily utilized for the purpose of loading cargo and transporting it from one location to another. In contrast to a cargo ship, containerized barges are not independent carriers or vessels. In order to be moved from one location to another it has to be towed by another navel carrier or vessel. In common practice barges are mostly used in inland transportation mediums like river, lakes or canals. In recent times there uses have also increased in sea borne transportation.

Figure 4-29 Proposed Locations for Container Barge Movement



For using all these cargo barges, anchoring points need to be developed at the source and destination. Anchorage points are temporary ports where the ships can lower their anchor and pause their movement. In Gujarat, Okha and Porbandar are the two ports where we can develop cargo movement through containers.

Port of Okha is a fair weather port well connected by broad gauge railway system. It is connected by road to both Jamnagar/Porbandar by state highway and then by National Highway -8E which is 30 km away at Dwarka. Anchorage point is 2.4 km off shore and Vessel upto 7.5 m draught can be berth. Facilities like Private barges and fuel oil is available at Okha port.

Porbandar port is having berthing capacity up to 50,000 DWT and has multiple-lane road connectivity with national highway 8B (6 kms. away) and state highway no. 6. The nearest railway station is Porbandar which is 5 kms from the port. Anchorage is located at about 2 km offshore, south-West of break water, with good holding ground and a depth of 9.5 meters. Approach to the anchorage of break water is 1.1 Nautical miles. Anchorage operations remain closed during monsoon period due to heavy swell and winds. Other facilities include cranes, dry dock and godown.

Marine Tourism

Marine Tourism is an option for infrastructure development of GMB. There are many options for developing marine tourism for Gujarat coast. Identifying tourist areas becomes the primary action point for the government of Gujarat. One of the options it can explore is the development of cruise terminals.

Cruise ships are mainly large passenger ship that undertake roundtrips at various routes, makes stops at various tourist destinations but boards the passengers only at the ports where the trip begins and ends.

Cruise Tourism refers to the luxury voyages on these ships, over the due course of time these voyages have become affordable and hence represents a good tourist development opportunities.

Gujarat has India's longest coastline with diverse habitants. As per the records with Government of India, the coast line of Gujarat is 1600 km. Coastline runs from Valsad to Kutch. Currently there are 20 identified potential beaches in Gujarat. Some of the key beaches with attractive tourist destinations are Ahmedpur-Mandvi, Dandi, Dwarka, Ghogha, Mandvi, Nargol, Porbandar, Somnath, Veraval etc.

Box 16: International Marine Tourism themes

Development of Hong Kong Marine Tourism:

Hong Kong is situated on the southeast coast of China. The total area of Hong Kong is about 1100 sq Km and it accommodates over 260 Islands adding up to more than 800 km of coastline with its territorial waters extending over 1827 sq Km. The following initiatives makes the port most visited and highly liked port amongst all port of Asia and also one of the top ranked port in the world.

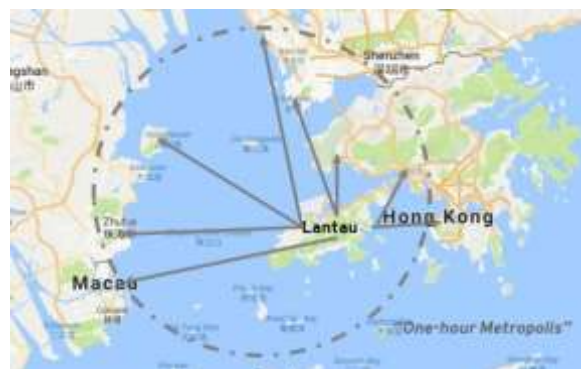
Eco-Tourism through Marine Life Theme Park - The government had developed four marine parks and one marine reserve, covering areas ranging from 20 to over 1200 ha. for marine ecotourism activities. The marine parks are located in various areas of the territory with different geological structures.

Hong Kong Cruise - Hong Kong cruise is most loved one due to its larger than life experience that it provides.

Other important spot which attracts the tourist worldwide are Observational wheel and deck, Maritime museum, a symphony of lights and star ferry.

Marine tourism cluster development at Lantau - Lantau as the centre and hub, in Pearl River Delta, covers all places with one-hour travel time. Surveys reveal that Tourism clusters are welcomed by stakeholders as well as tourists. An ideal model for a tourism and hospitality cluster on lines of Lantau should achieve the following development goals:

- ▶ Contribute positively to economies;
- ▶ Provide new employment opportunities and encourage a diversified workforce;
- ▶ Improve quality in visitor experience;
- ▶ Develop sustainable tourism.



A potential circuit for cruise in Gujarat has already been identified. It follows the route of Okha - Dwarka - Porbandar - Veraval. Each of these places has a tourist spot where the visitors can disembark and visit them. The tourist spots for Dwarka include Dwarka temple, Iskon temple, Gombi Ghat and Okha lighthouse. The tourist spots for Porbandar include Porbandar beach, Huzoor

palace, Kamla Nehru Park and Kirti Mandir. The tourist spots for Veraval include Somnath temple, Ahmedpur Mandvi beach, Junagadh gate and Triveni Sangam.

Other than cruise terminals, GMB can also look into developing floating restaurants, marinas, marine based theme parks, and water sports at the waterfront. Other options for tourism would be lighthouses and port visits.

Box 17: Mumbai Marina - Marine Tourism

Mumbai Marina:

Mumbai Port Trust envisages developing the cruise terminal at Mumbai Port by freeing up around 150 hectares of its land. The MbPT to open up 1,000 acres of the 1,800 acres (covering 28 km along the Eastern coastline from Colaba to Dadar) for development of public amenities such as green spaces, walkways and a waterfront, among other things. The port trust provides 40% discount in charges to cruise ships and has done away the berthing charge.

- ▶ Different waterside facilities like swimming pool and water sports are being developed as a part of proposed facilities
- ▶ The marina for yachts and cruise ship berthing
- ▶ Boardwalk - gangway, connecting the boardwalk to the floating structure which gives the classic view to the beaches.
- ▶ Amenities for yachtsmen
- ▶ Bunkering facility for ships and cruise.



Ship Chandler Services

A ship chandler is a retail dealer exclusively dealing with a shipping vessel for providing essential commodities to a ship and its crew, known as ship's stores. The ship chandlery business was central to the existence and the social and political dynamics of ports and their waterfront areas. Chandlers deal more in goods typical for fuel-powered commercial ships, such as oil tankers, container ships, and bulk carriers. They supply the crew's food, ship's maintenance supplies, cleaning compounds, rope, etc.

GMB can explore the option of providing chandler services to the vessels that are berthing at their ports. The key advantages of going for this service would include:

- ▶ The job of a ship chandler is unique as it caters specifically to only one line of business therefore allowing a complete exclusivity to both parties - the seller as well as the client.
- ▶ By approaching a ship chandler directly, a ship's crew can avoid the middlemen in a business transaction and thus save money.
- ▶ Their distinguishing feature is high level of service in a short time. Commercial ships discharge and turn around quickly, reducing delay in transit process. Delay is a cost factor and the services of a dependable ship chandler are urgent.

- ▶ A ship chandler is a Single person/agency who exclusively deals in supplying for a shipping vessel its required commodities like a grocer supplies food grains to households,

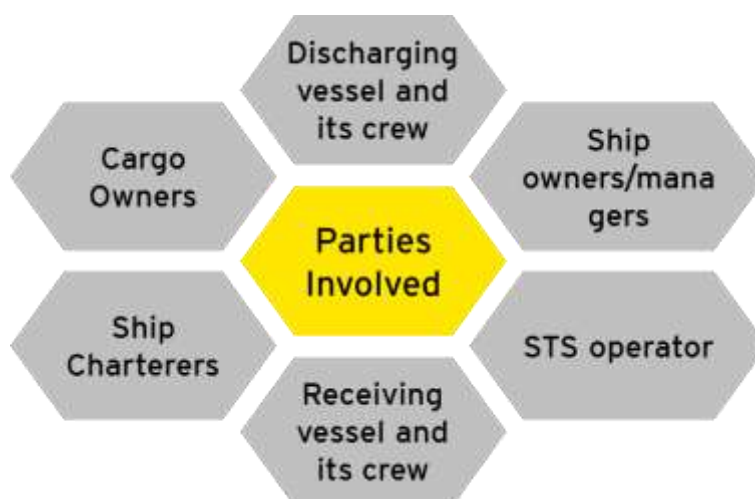
GMB can do it in two ways. First option is that GMB can provide the chandler facilities on their own. They would set up an office at their ports and have a tie up with the local vendors for commodities. This tie up would be for a bulk requirement. Then they would provide the ship chandler services. Second option is have a tie up with a person/agency that provides ship chandler services. Regularly provide information of the upcoming vessels to the ship chandler so that he can provide his services whenever the vessel berths. The Mauritius Port Authority has a tie up with Amosa Ship Chandler Ltd for this purpose.

Ship to Ship Transfer

Other than barge movement, anchorage ports can also be used for ship to ship transfers. A Ship to Ship transfer (STS) is shifting of cargo between two merchant vessels in close proximity to each other. The STS operation can be executed either while ship is stationary or underway. This operation requires high level of coordination, highly precision equipment's and permissions from authorities. In general practice, masters of both the ships are responsible for the entire operation.

There are various parties involved in the STS transfer operation. These parties are mentioned in the figure below.

Figure 4-30: STS Transfer Involved Parties



The STS transfer is a six step procedure with its steps including pre-planning approach, approach preparation, final approach, cargo transfer, unberthing and reporting. The project mainly requires a ship to ship transferring arrangement at an anchorage ports. Anchorage ports are usually temporary in nature and may change depending upon weather conditions or as suitable for STS transfer operation. It will be beneficial for shipping lines to anchor their ships near SEZ so that they can avail the benefits of availing logistical support from the same ports. It is usually observed that the interconnected transport facilities are fully developed at special economic zones (SEZ). There are two potential anchorage ports in Gujarat where we can develop the option of STS transfer. These are the ports of Bedi and Magdalla.

Figure 4-31: Port based SEZs on Gujarat's shoreline



Bedi Port is connected by 4 lane road with state highway at a distance of 12 kms. It is also well connected with the Jamnagar railway station having wide gauge railway line at a distance of 7 kms. The anchorage is 6 nautical miles (NM) away from Bedi port, about 4 NM from New Bedi port and 2.5 NM from New Rozi Pier site. Facilities at shore are Transit Sheds/Godowns and Mobile crane unit.

Magdalla Port is connected by 4 lane road with state highway at a distance of 2 kms. The nearest railway is Surat (major industrial city of Gujarat) and is 16 kms away. The Deep Water Anchorage is 15 nautical miles southwest from Magdalla Port. Facilities at shore are Transit Sheds/Godowns and other Facilities like Crawler crane and Navigation Systems-Radar System, A.I.S, Weather Station.

Other Ancillary and Value Added Services

Other than infrastructure for the services that we discussed, there are some other ancillary and value added services that GMB can explore. These services include:

- ▶ Logistics Services - Provide consultancy for the supply chain management of the customer. GMB can deliver complete and customized solutions to logistics requirements that includes strategic advisory, technology support to track shipments all the way from doorstep to the consignee's, wide presence across India and an extensive network in all major trading countries through business ties with leading logistic companies.
- ▶ Agency and Clearance Services - The services provided by the forwarding and clearing agents of freight forwarding, documentation and vessel declaration can also be provided by GMB to the customer. They can do it themselves or have a tie up with a third party to provide services like documentation, custom broking and inland clearance, all kinds of custom clearance paper work.
- ▶ Pilotage Services - GMB can offer licensed pilots to the ports for the purpose of berthing/unberthing of vessels.
- ▶ Information and Technology - GMB should explore opportunity for automation and mechanisation for its ports through Improving efficiency at yards, berths and port gates by deploying IT solutions and modern equipment, Create specialised high capacity berths supported by state-of-the-art equipment and skilled and trained manpower, Customs

procedures at ports to be more efficient by facilitating online submission of documents and forms, obtaining more container scanning equipment, etc. Details are given in 4.2.4 Building SMART Logistic network.

- ▶ Warehouse - The port uses its warehouse to store commodities that required a closed space for storage e.g. agro products. This warehouse can also be rented to third party players to store their goods for a period of time. Facilities for normal storage or cold storage can be developed and external cargo can be kept in the warehouse. Moreover, this warehouse, if lying idle, can also be converted into a temporary business space where value addition activities can be performed on finished goods.
- ▶ RO-RO Ferry - GMB can provide Roll On-Roll Off ferry service and hovercraft/catamaran services between its jetties linking the various terminals located along Saurashtra and Kutch coast with south Gujarat, The GMB is to run a RO-RO ferry service between Gogha and Dahej. The impact will be reducing the distance between the two points to 30km (by sea) from the present 350km (by road).
- ▶ Emergency Response System - Develop an emergency response system and use it for disaster management.
- ▶ Community Centre for Ship crew - The community around the port is one of the major factors that leads to the growth of that port. A port should look at the holistic picture while developing the region around it. A port should invest some percent of its revenue earned for the welfare and the development of the community. The cultural inoculation is necessary in the community and it is the responsibility of the port to do so. Other countries have also taken this step of developing the community around port. There is a Mariner's club in Hong Kong and Singapore. There are also Mariner's club in India in the cities of Mumbai and Kolkata. There are various ways that a port can achieve this. These ways are listed as follows.
 1. **Mariner's club:** A club where the seafarers and ship representatives can rest and enjoy few extra-curricular activities when they are ashore
 2. **Maritime Medical centers:** Centers where maritime representatives would get medical attention
 3. **Social Networking Platforms:** Develop social networking platforms where the mariners would interact with each other on a regular basis
 4. **Cultural and Social Events:** Organize events to engage the people of the community
 5. **Other facilities like:** Libraries, Conference/meeting rooms, areas for praying, service apartments, and dormitories

4.5.2 Skill Improvement

Gujarat has the longest coastline of all states in India and handles more than 40% of the total national cargo. However, its contribution of the total maritime sector jobs in India is merely 16%. There are only 3 DG shipping approved institutes in the state namely - Marine Training Academy, Udavda; U.V. Patel College of Engineering, Kharva and Indian Maritime University (IMU), Kandla with a total intake capacity of these institutes only 286. Also, none of the 3 institutes offer programs focused on commercial aspects of the maritime sector.

There is huge gap of qualified manpower in commercial sectors as only 8% of programs offered by Indian Maritime educational institutes cater to commercial disciplines, which contribute almost approx. 49% to the overall maritime sector jobs globally and approx. 40% to the maritime sector jobs in India.

Maritime Industry is critical contributor to India's Economy as it is expected to increase its contribution to GDP from currently 1.5% - 2% to ~4 % by 2025. Maritime Industry also has a large employment generation potential. Government intends to generate additional employment for 2.5 million persons (0.5 million direct and 2.0 million indirect) by 2020 in maritime related areas³⁸.

The development of proposed maritime cluster in Gujarat would bring maritime services business to the state. This would lead to generation of large number of employment opportunities.

If Gujarat ports have to graduate to next level in its maritime story, it is must that GMB supports development of these support services in Gujarat.

Develop and support centre of maritime academic and technical excellence in Gujarat

It is estimated that there would be a shortage of about 0.10 to 0.28 million qualified manpower in the Indian maritime industry over next decade. Approx. 60% - 99% of the demand supply gap in the maritime sectors would exist in 'Operational Support Services' and 'Business Services Sector'. Currently very few programs are focused on commercial aspects of the maritime industry. Approximately 8% of intake capacity in Degree/Diploma programs and 2% of intake capacity in Certification programs are focused on commercial sectors/subsectors. This results in huge demand supply gap of qualified manpower in commercial sectors as globally the jobs in commercial disciplines accounts for about 49% of the overall maritime sector jobs.

On one hand, where maritime sector is expected to have large employment generation potential with Government intending to generate additional employment for 2.5 million persons (0.5 million direct and 2.0 million indirect) by 2020 in maritime related areas, Gujarat's contribution of the total maritime sector jobs in India is merely 16% as suggested in previous chapter.

Without significant addition to training capacity, Gujarat's maritime sector is bound to face significant shortage of skilled manpower to run its ports/shipyards.

Further, having a dedicated center of maritime academic and technical excellence, is important for sustainable growth of competitive ship Building industry. The proposed university should aims to offer industry aligned courses in maritime economics, port management, maritime finance, maritime law and logistics planning. A two phase launch plan, with each phase of 6 years, has been proposed for the University. In Phase 1, School of Maritime Management, School of Maritime Law, Policy and Administration, Center of Continuing Education and Center of Executive Education will be launched. During Phase 1, University would offer programs focused on commercial aspects of the maritime industry such as logistics, law, maritime management, shipping trade and finance, etc. Programs for working professionals are also proposed to be launched in Phase 1.

The programs that the University would offer in Phase I are:

- ▶ School of Maritime Management
 1. MBA in Maritime Management with specializations in: Ports & Shipping, Transportation & Logistics, Shipping Trade & Finance, Maritime Human Resource Management, Marine Tourism
 2. BBA in Maritime Management
 3. Ph. D
 4. PGPM in Maritime Management
- ▶ School of Maritime Law, Policy & Administration

³⁸ *National Perspective Plan, April 2016*

1. LLM in Maritime Law
 2. LLM in International Trade Law
 3. M.Sc. in Maritime Administration
 4. M. Sc. in Maritime Policy
 5. M.Sc. in Marine Insurance
 6. Ph. D
 7. PGPX in Maritime Law
- ▶ Center of Continuing Education
1. PG Diploma in Logistics
 2. PG Diploma in Maritime Law
 3. PG Diploma in Marine Insurance
 4. PG Diploma in Chartering & Ship-broking
- ▶ Center of Executive Education
1. Management Development Programmes (MDP) and Executive Development Programmes (EDP) for working professionals in areas such as Maritime Law, Logistics Management, Marine Insurance, Chartering, Ship-broking, Port Operations, Shipping Management etc.

In Phase 2, School of Marine Technology, School of Liberal Arts and Social Sciences, Center of Faculty development will be launched. The University would offer programs on technical disciplines such as marine engineering and nautical science and it would also diversify into liberal arts and social sciences.

University would also undertake undertaking cutting-edge research in the maritime sector in collaboration with the industry and other leading global maritime education institutes.

With a view to converge entire maritime economy related education, it was felt necessary to establish a maritime university in Gujarat. The concept of Maritime University revolves around creating centre of specialised maritime expertise as well as “cradle of Innovation” and consequently creating suitable infrastructure to support its operation. It is envisaged that the proposed Gujarat Maritime University, during the initial years would offer programs on commercial areas such maritime management, maritime law, maritime policy etc. Over a period of time, it can also offer programs focused on technical areas.

The University is proposed to be set up as a State Private University under Gujarat State Private University Act, 2009 in Gandhinagar or Ahmedabad. A total of 100 acres of land is recommended for setting up the University. Government of Gujarat has given in-principle approval for the project, and a high-level committee headed by the Chief Secretary has also been formed to monitor the University development. Govt. of Gujarat has recently decided to grant initial funding for the project. GPIDCL given the mandate of developing this project. In Phase 1, estimated funding requirement would be INR 275 Crore whereas for Phase 2, estimated funding requirement would be INR 587 Crore³⁹.

4.5.3 Maritime Facilities and Services

The major facility that GMB can provide is the development of a maritime cluster.

³⁹ Data source: Gujarat Ports Infrastructure & Development Company Limited

Cluster Development

Maritime cluster is an agglomeration of firms, institutions, business and other industry players in the maritime sector that are geographically located close to each other and have a synergy between their activities. Gujarat has seen a substantial influx of shipping and marine related projects in order to create a geographic concentration of interconnected companies, specialised suppliers, service providers, firms in related industries and associated institutions that not only competes but also co - operates for clients' needs & boost the Defence Offsets development in Gujarat by developing Naval equipment and naval ship manufacturing in the maritime clusters. A probable Maritime Cluster could include:

- ▶ Shipping lines: Container lines, tramp shipping companies based out of the State
- ▶ Shipping agents: Including freight forwarders
- ▶ Shipbrokers, ship operators, trading houses: With chartering and shipping requirements and ship commercial managers, chemical traders, importers
- ▶ Ship Breaking Companies
- ▶ Banks with exposure to shipping lines; commodity trades, financial advisors, consultants
- ▶ Surveyors, Stevedores
- ▶ Port companies, marine infrastructure providers
- ▶ Maritime Law firms
- ▶ Port Consulting firms
- ▶ Marine Outsourcing agencies (commercial and technical)

The estimated project cost for Phase one is INR 159.3cr and INR 373.1cr under remaining four phases. Government of Gujarat has granted in-principle approval for the project, and a high-level committee has also been formed to monitor the development of the maritime cluster. Govt. of Gujarat has recently decided to grant initial funding for the project. GPIDCL has already initiated a study to deduce the feasibility of establishing maritime clusters in Gujarat. A cluster for maritime commercial services is proposed to be set up in **GIFT City, Gandhinagar**.

Figure 4-32: Strategy for proposed cluster in GIFT city, Gandhinagar

Stage	Potential Players/ Catchment Areas	Proposed Incentives
1	<ul style="list-style-type: none"> ▶ Gujarat based port operators ▶ Local Gujarat based Industry ▶ Select charterers & brokers from India (Mostly Mumbai and Delhi) ▶ Select Indian law firms ▶ Select Indian banks 	<ul style="list-style-type: none"> ▶ Local state level incentives, ▶ Facilities like DG shipping permits ▶ Overseas remittances ▶ Seminars, promotional events, legal services
2	<ul style="list-style-type: none"> ▶ Major ship owners, charterers and operators from India ▶ Select Overseas operators (Mostly outsourcing activities and regional offices). ▶ Ship Liners ▶ Indian manning firms ▶ Technical services firms including ship management 	<ul style="list-style-type: none"> ▶ Tax incentives / rationalization including exemption for operators in 3rd party trades ▶ Aggressive marketing globally and establishing reputation credentials of the cluster. ▶ Industry organizations like BIMCO others.
3	<ul style="list-style-type: none"> ▶ Overseas Operators focusing on India / Regional markets ▶ Select global law firms and financial institutes ▶ Global legal and technical firms ▶ Select global ship-owners 	<ul style="list-style-type: none"> ▶ Continuously evolving tax structure to keep attracting global players. ▶ Ease of doing business and immigration facilities at the cluster ▶ High quality of life and standard of living ▶ Continued venues for professional development
4	Cluster fully developed as a global maritime hub with presence of global ship owners and operators, large skilled manpower pool and global influence.	<ul style="list-style-type: none"> ▶ Consolidate and maintain the status of the cluster

It is expected that the catchments area of the cluster will be dynamic and changing in scope and reach as the cluster expands. As per the analysis of the study of inorganic cluster of Dubai and the semi organic clusters of Singapore and Switzerland, the growth of the maritime cluster and their catchment areas change from time to time, depending on the economic situation, incentives from competing clusters and developments within the cluster. On the basis of the growth pattern of Dubai cluster, it can be estimated that the Gujarat cluster will grow in four distinct stages.

There are various options which can be evaluated for structuring this project. This can range from traditional model with GPIDCL investing, developing and handling the operations of the project on its own, to developing the project through Joint Venture model or through PPP model wherein entire responsibility of investing, developing and handling the operations of the project would be assumed by the private party. Key stakeholders for the proposed development shall be a) Government authority i.e. GPIDCL, b) Private developer and c) Maritime cluster members

Based on the study of various clusters / industrial estate/park and IT Park projects in recent years, it is advised that following options shall be explored for this project.

- ▶ Joint Development with GIFT/ private developer
- ▶ Landlord model
- ▶ PPP or concession

The cluster can also be of immense help in formation of capital for maritime sector, along with providing better visibility to the opportunities in related maritime sectors in the state. The returns and opportunity that Gujarat ports offer may attract a larger number of investors should GMB actively market the opportunity globally and maintain a high profile in global maritime events to attract capital.

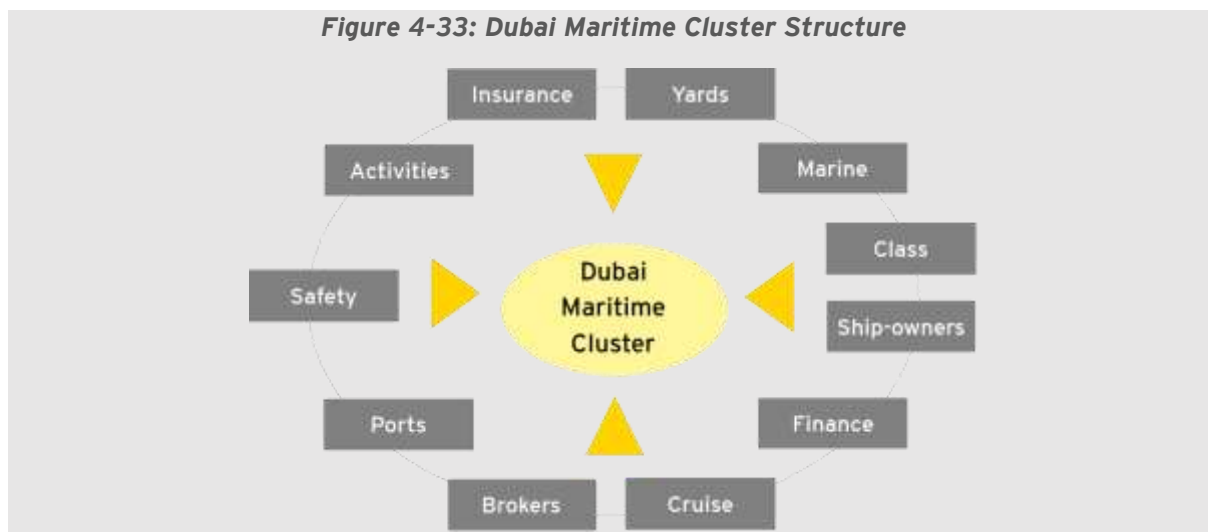
Firms locate in a cluster because a cluster environment holds advantages such as the proximity to customers and suppliers, existence of positive externalities from investments by cluster actors, which facilitates the development and sharing of specialized labour pools, knowledge, and information. These aspects of a cluster enhance dynamics such as cooperative rivalry, innovation pressures, and the establishment of trust relations between cluster actors. In doing so, they seek to locate themselves close to the 'core', shipping companies, whose presence enhances local demand, interaction, and provides a basis for cluster dynamics. Thus, it is important to ensure that these core companies can operate on a level playing field with their international competitors, so that they are not driven to re-locate abroad due to cost and tax disadvantages in the cluster.

Thus port-specific clusters also need to be developed. The port-specific maritime cluster can utilise the existing shipyards to promote ancillary support and services with retail and leisure components while the existing fish landing centres could be made commercially viable. The cluster will house shipping related business activities like shipping agents, chartering agents, freight forwarders, maritime lawyers, ship financing agencies and other services near the ports.

Box 18: Case Study - Dubai Maritime Cluster

Dubai has developed a maritime cluster with a vision of becoming the global maritime centre. This maritime structure has the aim to help support the efforts that are being directed in realizing the objectives of Dubai's Maritime Sector Strategy (MSS). A Dubai Maritime Cluster Office has been formed for this purpose. This function of this new office will be to oversee, implement, and promote MSS, making this a pivotal office for development of Dubai's maritime scenario.

Figure 4-33: Dubai Maritime Cluster Structure



The key strategic objectives of this maritime cluster include.

- ▶ Maritime cluster - economic contributor
- ▶ Development of comprehensive and integrated transport strategy
- ▶ Support logistic and trade sector vision
- ▶ Maritime sector aligned with Dubai's vision of excellence
- ▶ Sustainable maritime practices
- ▶ Safety and security in maritime sector
- ▶ Support Dubai as tourist destination
- ▶ Improve productivity as per international benchmarks
- ▶ Opportunities for Emirates
- ▶ Enhance maritime education
- ▶ Enhance capital privatization and participation
- ▶ Capitalize on technology

Many initiatives and programs have been undertaken under the umbrella of this maritime cluster. Dubai has developed a process to link air, land and sea maritime sectors. Maritime regulations have been researched, adapted, and developed for safety initiatives, environment initiatives, security initiatives and operational effectiveness initiatives. Maritime syllabus has been incorporated in schools and institutes.

There have been many such initiatives that have been taken under Dubai Maritime cluster. All these initiatives have contributed to the GDP of Dubai's economy. This maritime cluster accounts for 4.6% of the total GDP of Dubai. It has been responsible for generating jobs for over 75000 individuals forming a 3.3% share of the total Dubai employment generation.

5

Implementation support by GMB

5. Implementation support by GMB

The earlier chapter detailed out the options that are needed to be adopted in the port policy. It basically gave GMB and options to be included or modified in the existing port policy so that the new policy is up to the current world, Indian and Gujarat maritime scenario. However, GMB should also be prepared in order to implement the options mentioned in the earlier chapter. There are five parameters that GMB needs to focus upon in order to implement the policy options. These parameters include,

- ▶ Governance Structure
- ▶ Support for Infrastructure Development
- ▶ Optimizing Port Productivity
- ▶ Improving Revenue Sources
- ▶ Innovation

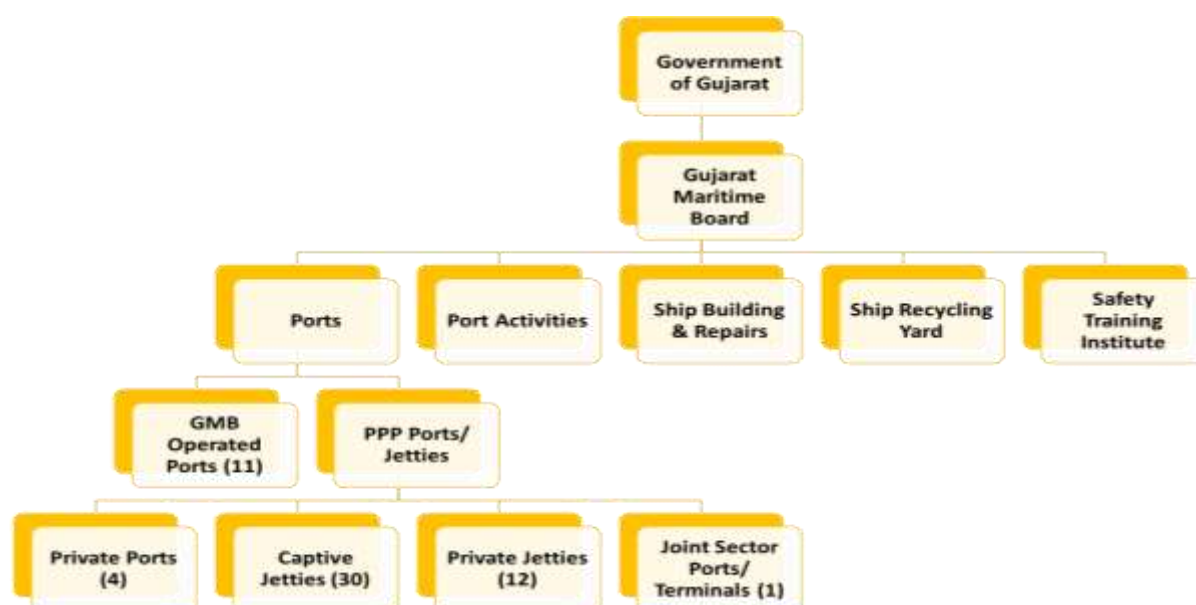
The detailing of each of these parameters is done in the current chapter.

5.1 Governance structure

At present, GMB is performing a dual role i.e. it is owning and operating port assets as well as regulating the maritime sector. Few port authorities have adopted a dual mode of port development - 1) Regulatory Body regulates, 2) another body undertakes the development work. It is important from this perspective of GMB whether to rethink over the existing role played by GMB or adopt dual role model.

At the time of inception of GMB, port sector of Gujarat was in nascent stage and there were very few quality players in the port sector for operation. As a result, GMB was entrusted to develop the port sector. There are several initiatives which GMB has ventured in to develop the sector holistically, such as - GMB is managing around 11 ports and has its own dredgers for carrying out dredging operation. It also manages training institutes along with other regulatory role. GMB is overarching its role in maritime development.

Figure 5-1: GMB Port Sector Structure



As the sector matures, it is imperative that GMB reviews its future role and responsibilities and moves towards embracing the larger role by transitioning from port operations to that of a regulator. Similar trend is being witnessed globally, where the traditional ways of doing business at ports are being revamped to gain port efficiency, increased customer responsiveness and lower handling cost. It is widely accepted that private sector is more efficient in port operations as it eliminates traditional bureaucratic operating procedures and has more flexibility in port operations.

It is understood that majority of prominent authorities are involved in sketching out the future strategy for development and are acting as a facilitator. They focus more on building the support infrastructure and monitoring the sector performance. GMB may emulate the success story of Singapore, UAE, Australia or South Africa.

Globally, maritime authorities are focusing towards improvement of sector by improving the business environment through

Reasons for pursuing reforms

- ▶ Improving efficiency in port operations
- ▶ Reducing costs and price through improving competition
- ▶ Improving service quality by introducing performance based management
- ▶ Improving foreign investment
- ▶ Reducing commercial risks for public sector
- ▶ Increasing private sector participation
- ▶ Reducing government intervention in operation

- ▶ Improving and building brand image
- ▶ focusing on strategic partnering with developed maritime nations
- ▶ Improving ease of doing business
- ▶ Research & development / skill development
- ▶ Technology improvement and reducing carbon foot print
- ▶ Improving customer focus
- ▶ Facilitating in providing support infrastructure, project or investment clearance

GMB is performing few of the above mentioned roles, but the piece meal approach is not bringing the radical change in the sector. It requires more focus and meticulous strategy to bring in holistic sector development.

5.1.1 Options for Governance role

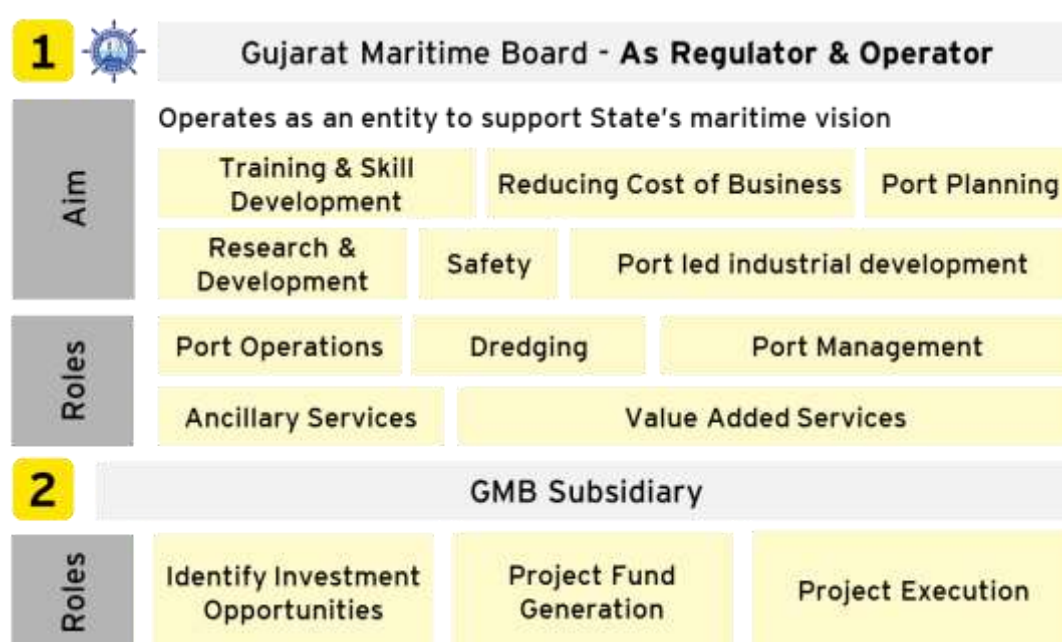
Port governance model is dependent on various socio-economic-political factors and hence, it is not suggested to adopt and replicate any successful governance model. However, basis the global case studies, it is clear that there are two separate entities i.e. one dedicated for port governance and another organization involved in port operation. Possible options available with GMB are-

- i. Model 1 - following the current model of operation - wherein GMB would act as Regulator, Administrator and Operator
- ii. Model 2 - Segregation of Regulation and Operation - wherein GMB would look after the Regulations and Administration of GMB on the whole and a Subsidiary of GMB (GPIDCL) would look at the operations of all the GMB Jetties
- iii. Model 3 - Creation of independent Maritime Authority - wherein Gujarat Maritime Authority would regulate all the aspects of the Marine industry in the state and GMB would focus on Administration and Operations for the ports.

The case studies for each of the models and corresponding justifications for each of the models is mentioned below-

Model-1: The existing governance model has been a pillar for growth for GMB over the past three decades. Mainly due to the existing model of operation and administration, the traffic of Gujarat has grown to as such an extent that it handled about 31.7% of the national traffic in FY 2015-16. This model provides high flexibility and autonomy to the port operators especially in the case of tariff determination. Competition is highly encouraged and the interests of the customers are protected well in this model. The existing model follows the model adopted by Israel Port Authority.

Figure 5-2: Structure of Governance for GMB - Option 1



In the existing model, there exists a subsidiary, Gujarat Port Infrastructure and Development Company Limited (G.P.I.D.C.L). The key functions of this subsidiary include:

- ▶ Identify opportunities for investment
- ▶ Generate fund for the projects to be developed
- ▶ Project execution and monitoring

Box 19: Case Study: Israel Governance Model

Case Study: Israel Governance Model

Founded in 1961, the Israeli port industry has undergone massive reform over the last six years. In 2005, the State decided to break up the Israel Ports Authority, a body that managed, developed and operated all three of Israel's major commercial ports in Haifa, Ashdod and Eilat. In its place, the State created four government owned companies: the Israel Ports Company, Haifa Port Company, Ashdod Port Company and Eilat Port Company.

The Israel port authority is responsible for regulations of all the three ports that come under Israel port authority. Following is the regulation related work that board carry out. It serves as an apex member of three subsidiaries which handle operations of each ports that is the private companies mentioned above.

It operates under the land lord model that is explained in the note in the model-3 section. The Israel Port Authority primarily looks after the following:

- ▶ Provision of port infrastructure
- ▶ Port development, management and maintenance
- ▶ Analyzing bottlenecks for international trade and providing solutions

It is responsible for development of three commercial sea ports and also the necessary infrastructure that allows ports to operate efficiently. This three ports are responsible for Israel's international trade. It is responsible for development of related technology which includes national maritime community information system.

Model-2: GMB to take strategic role and transfer all operation related work to a subsidiary entity: In this model, GMB may create a subsidiary company or continue with GPIDCL and transfer all the port assets to the company for port operation. GMB may have considerable stake in the subsidiary (or it may be fully owned subsidiary as in case of GPIDCL). The role of the entity would be to improve the cargo traffic and provide complete handling operation at the GMB Jetties. Depending upon the flexibility, the subsidiary may invest / operate / develop port assets across India and if needed can raise funds from market. The role would be much similar to State Government Enterprising firm. This model resembles to South African operating model. The conceptual framework is as illustrated below.

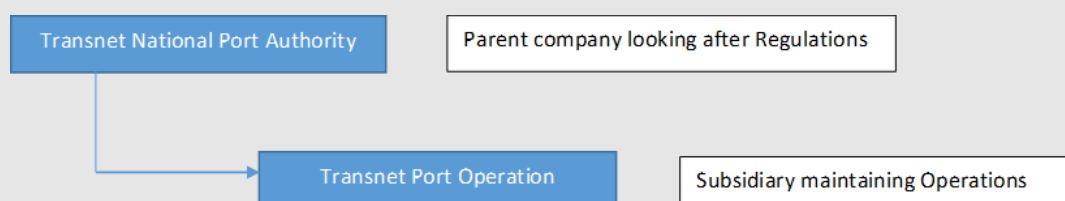
Figure 5-3: Structure of Governance for GMB - Option 2



As far as GMB's role is concerned, it would act as a sector regulator and would be a think tank organization for maritime development of the state. GMB may ensure or facilitate in improving ease of doing business and all regulatory clearances.

Box 20: Case study: South African Governance Model

As explained earlier, the regulatory and operational role have been segregated in this model and are being handled by independent players of the same parent company. This parent company in case of South Africa is Transnet SOC Limited with Transnet National Port Authority looking after the regulation and Transnet Port Terminals looking after the operation of the South African Ports.



Regulation: Transnet National Port Authority

The national ports authority is responsible for the safe, effective and efficient economic functioning of the national port system, which it manages in a landlord capacity. The national ports authority provides port infrastructure and marine services at the eight commercial seaports in South Africa. It operates within a legislative and regulatory environment created by the National Ports Act 2005 (Act No. 12 of 2005). In line with the provisions of the National Ports Act, the core functions of the national ports authority are as follows:

- ▶ To plan, provide, maintain and improve port infrastructure;
- ▶ To provide or arrange marine-related services.
- ▶ To ensure the provision of port services, including the management of port activities and the port regulatory function at all south African ports; and
- ▶ To provide aids to navigation and assistance to the manoeuvring of vessels within port limits and along the coast.

The National Ports Act creates a dual role for the National Ports Authority whereby it is responsible for the port regulatory function at the ports - i.e. controlling the provision of port services through licensing or entering into agreements with port operators to ensure that efficient port services are provided. The National Ports Act also establishes the Ports Regulator of South Africa who is charged with the responsibility of:

- ▶ exercising economic regulation of the ports system in line with government's strategic objectives;
- ▶ promoting equity of access to the south African commercial seaports and to the facilities and services provided by these ports;
- ▶ monitoring the activities of Transnet National Ports Authority to ensure that it performs its functions in accordance with this Act;
- ▶ Hear complaints and appeals under the National Ports Act.

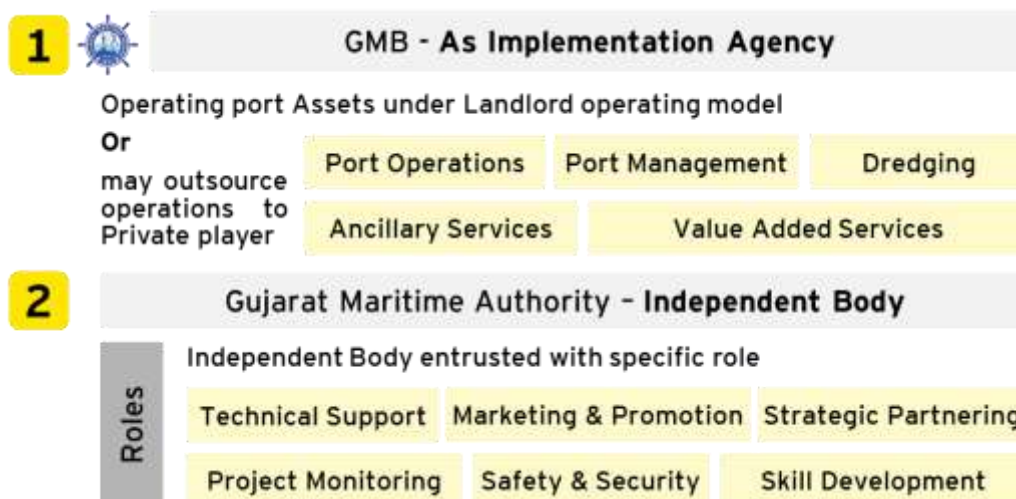
Operations: Transnet Port Terminals (TPT) is one of five operating divisions of Transnet SOC Limited, South Africa's state-owned freight transport and handling company. Transnet is responsible for commercial handling services of sea-route freight across imports, exports and transshipments in containers, bulk, break-bulk and automotive. TPT operates terminals in seven South African commercial ports namely Richards Bay, Durban, East London, Port Elizabeth, Ngqura, Cape Town and Saldanha. Operations cover import and export operations across the following cargo sectors: Containers, Mineral Bulk and the Agricultural Bulk and Ro-Ro (roll on/roll off). The operational model divides the country into three geographical regions namely Eastern Cape, Western Cape and KwaZulu Natal.

Transnet serve customers across a broad spectrum of the economy, including shipping lines, the container industry, the general shipping industry, vehicle manufacturers, agriculture, steel and the mining industry, freight forwarders, cargo agents and are guided by legal entities such as customs.

Model-3: Separate maritime authority may be created and GMB would act as implementation agency: In this model, GMB would be the implementing agency and would operate the port assets under land lord operating model⁴⁰ or may outsource the operations to private operator. Apart from this a new entity will be created which would act as a dedicated regulatory authority. Its role and functions would be to promote the maritime sector of Gujarat, advising on port development strategy and port facilities planning, project monitoring etc. The role would be much similar to State Electricity Regulatory Commission (SERC).

⁴⁰ Landlord model - An institutional structure whereby the port authority or other relevant public agency retains ownership of the land, as well as responsibility for maintaining approach channels and navigation aids; under this model, the port does not engage in any operational activities

Figure 5-4: Structure of Governance for GMB - Option 3

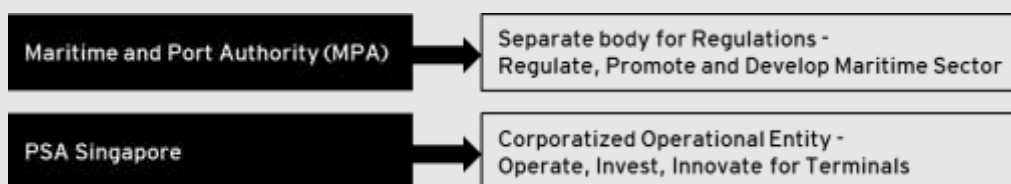


This model is more in line with the Singapore model of port governance. The Maritime port authority of Singapore is entrusted with developing and nurturing the maritime sector. From implementation perspective this model can be implemented easily, but requires lot of deliberation with internal and external stakeholders. Moreover, during the stakeholder workshop that was conducted, a proposal has been sent to the government of Gujarat for adopting this model. This proposal is still under process and response is awaited from the government of Gujarat.

Box 21: Case study for Model 3

Singapore Governance model

The regulation and operation have also been segregated in this model. The difference lies that the independent bodies, looking after the regulation and operation are not related to each other. Singapore follows this model of Governance.



Regulations: Maritime and Port Authority, Singapore

Maritime and Port Authority, Singapore is the driving force behind Singapore's port and maritime development, taking on the roles of Port Authority, Port Regulator, Port Planner, IMC Champion, and National Maritime Representative. MPA partners the industry and other agencies to enhance safety, security and environmental protection in our port waters, facilitate port operations and growth, expand the cluster of maritime ancillary services, and promote maritime R&D and manpower development.

The port of Singapore comprises a number of facilities and terminals that handle a wide range of cargo transported in different forms, including containers as well as conventional and bulk cargo. The Maritime and Port Authority of Singapore (MPA) is responsible for the overall development and growth of the port of Singapore, which includes terminal operators, such as PSA Corporation and Jurong Port Pte Ltd.

Operations: PSA Singapore

PSA Singapore is the flagship terminal of PSA international having projects spanning across Asia, Europe and the Americas. In Singapore, PSA operates a total of 60 berths with a handling capacity of 40 million TEUs yearly at its container terminals in Tanjong Pagar, Keppel, Brani and Pasir Panjang.

In 2016, PSA Singapore handled 30.59 million TEUs of containers. PSA is:

- ▶ World's Busiest Transshipment Hub - accounting for almost one-seventh of the world's total container transshipment throughput and more than 4% of global container throughput.
- ▶ One of the World's Largest Refrigerated Container (Reefer) Ports - more than 9,000 reefer points; handled almost 1.8 million TEUs of reefers in 2016.
- ▶ Excellent Connectivity - connected to 600 ports, with daily savings to every major port in the world

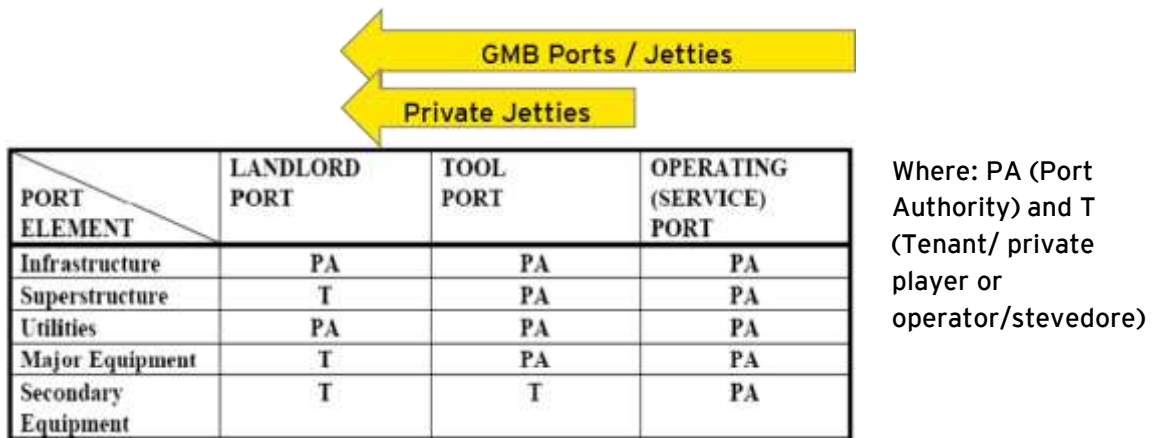
5.1.2 Corporatization/Privatization of GMB ports

Port Industry is an asset intensive industry. The cost of the port assets is considerably high. There are primarily two kinds of assets GMB ports or any ports would have. The first are civil assets which would include godowns, wharfs, jetties, buildings, and navigational equipment. Then there would be mechanical assets like dredgers, barges, launches, tugs, and cranes. These are the fixed assets. Other than these assets, GMB also has capital assets under Government of Gujarat, some other miscellaneous assets, and land, which form a part of their total assets. The gross total of all the assets of GMB adds up to over INR 1000 crore.

The key benefit of corporatization/privatization is that there is enhance commercial performance through higher clarity in business decisions and increased autonomy given to the managers. As discussed earlier in section 4.1, the GMB ports are not properly utilized in terms of their assets. Moreover there is an issue with the renewal of their land lease agreements. From this it becomes important to optimize the assets in terms of utilization and this becomes a key factor to be considered. The asset optimization can be done through the corporatization/privatization of the GMB ports in a phased manner for better results.

Due consideration needs to be given to the corporatization/privatization process of the GMB ports. The primary thing that is needed to be done is to shift the current GMB ports from an operating model to a land lord model. Figure 5-5 indicates the shift pattern from Operating Port to a Landlord Port model.

Figure 5-5: Shift to Landlord model



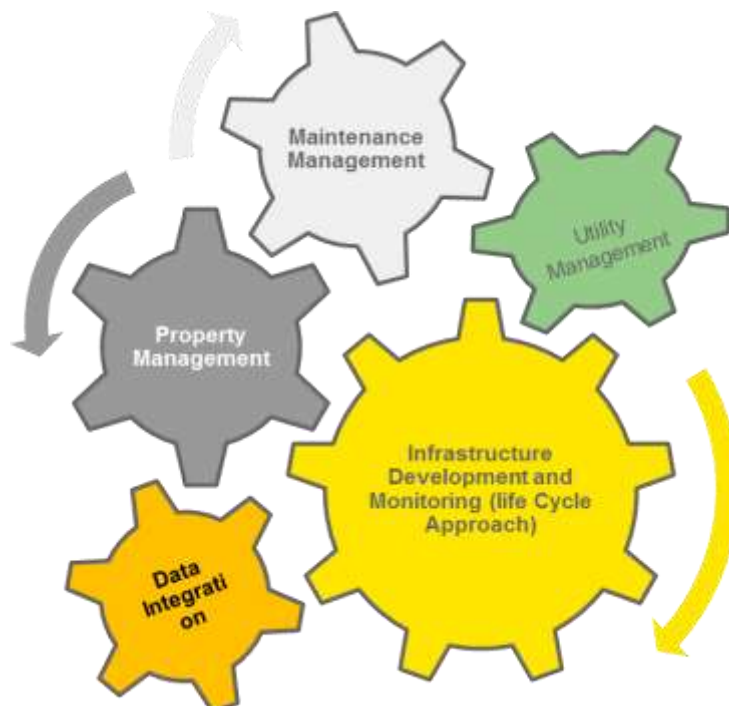
Source: World Bank "Port Reforms Toolkit" 2009

There are two approaches that can be followed for the corporatization/privatization of ports in a phased manner detailed out in the World Bank's "Port Reforms Toolkit" released in 2009, they are

1. Establish an independent unit for asset management

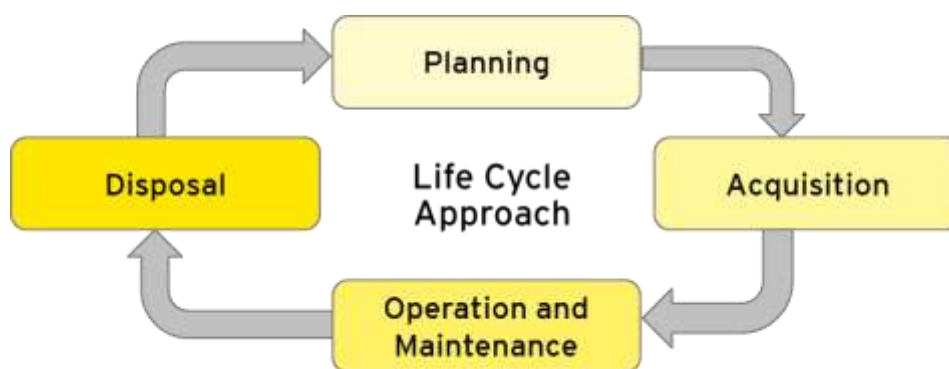
The world is facing the challenge of an increased global trade leading to a port congestion problem. Also where port industry is flourishing and many ancillary industries are dependent on it, the need of an hour is to enhance port productivity and maximize the use of port infrastructure. The new forms of ownership and financing port investment necessitates reliable port asset valuation. The scarcity of resources pertinent to investment in port infrastructure development is also a major concern. Investors and business leaders cannot afford to invest in one infrastructure and its revamp every year. As per the government's Ease of Doing Business and Sagarmala initiative the industry needs more effective port infrastructure, superstructure and equipment having good condition monitoring and maintenance.

Figure 5 - 1 Port Asset Management - areas of intervention



The above figure show the key areas of intervention that need to be focused upon for an effective asset management. Maintenance management, utility management and property management basically talk about the management of the existing fixed assets of a port. Data integration talks about getting all the data related to the assets at one location so that it can be analyzed and used for future development and maintenance. Infrastructure development and monitoring follows a life cycle approach for the infrastructure a port possesses. It is a four stage cyclical approach as shown in the figure.

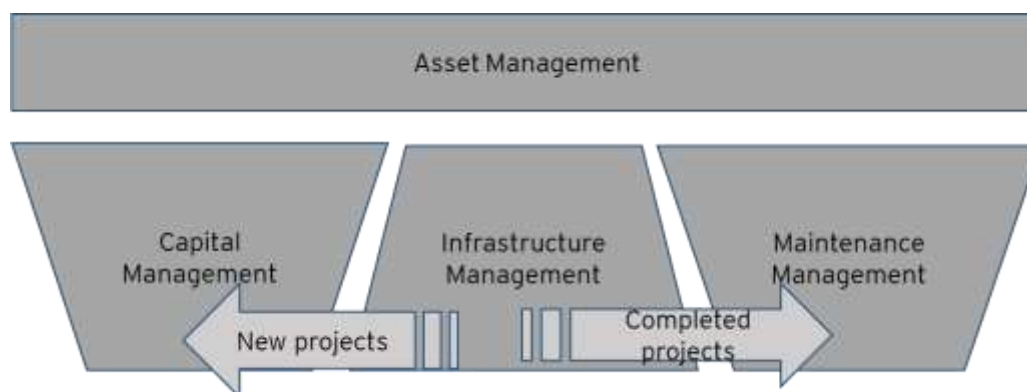
Figure 5-6 Life Cycle Approach



The first stage is the planning phase. Here the strategic planning of the infrastructure to be developed is done. Next is the acquisition phase where the necessary land for developing the infrastructure is obtained. Operation and Maintenance phase is the next phase with the infrastructure being used for its purpose. Finally the disposal phase includes either destroying the infrastructure developed or selling it off to a third party.

In order to effectively manage the assets, the concept of Asset Management needs to be developed on three major pillars: Capital management, Infrastructure management and Maintenance management (Figure 5-7). When a new project is under inception phase the infrastructure development looks is mainly dependent on capital infusion and hence the infrastructure along with capital management pillars are active. Over the years after the asset built is operational, maintenance is the important concern and hence the two respective pillars are active.

Figure 5-7 Conceptual framework for Asset Management



Box 22: Case study for Asset Management

Port of Melbourne

Asset Management is best handled at Melbourne port. One of the best operated and infrastructure developed port. The Port of Melbourne Corporation (PoMC) owns and manages a diverse range of infrastructure assets with a current total replacement value of approximately AU\$1.8 billion. PoMC has been actively building on its asset management processes by implementing an asset management Policy and Strategy. Few important deliverables of this strategy are

- ▶ Develop asset renewal forecasts
- ▶ Develop life cycle planning processes so as to understand and predict total cost of ownership
- ▶ Understand asset risk exposure and its influence on maintenance and renewal forecasting
- ▶ Develop optimized renewals decision-making processes so as to reliably determine optimal treatments and associated timings.
- ▶ Embed asset management as a core business discipline within the business.

The port of Melbourne is Australia's premier container port and handles about 2.3 million TEU annually which represents approximately 36% of the nation's container trade. The port of Melbourne is in the top 50 ports globally. Approximately 3,600 ships visit the port of Melbourne every year including about 50 cruise ships that berth at the heritage listed Station Pier. All of this activity represents an approximate value of trade through the port of US\$60 billion.

PoMC's Corporate Plan requires the development of fit-for-purpose services and facilities which are secure, reliable, technologically efficient, innovative, and safe and meet customers' needs. To ensure this is achieved, PoMC's Corporate Plan incorporates the following business objectives:

- ▶ Application of prudent life cycle management.
- ▶ Development of long term plans for port development, access and support services.
- ▶ Facilitation of appropriate capacity of services, facilities and infrastructure within the port.

The inclusion of these objectives in PoMC's Corporate Plan indicates that there is a clear recognition and commitment at the highest level that PoMC will retain best practice asset management capability and continually recognizes the importance of its physical infrastructure in supporting service delivery.

The Board adopted Asset Management Policy places several obligations on PoMC to implement best practice asset management protocols within the business. Board also expects PoMC must manages its infrastructure in a sustainable manner and achieve a commercially sustainable return on its investment so that it can deliver its obligations to stakeholders and customers into the future.

The Policy articulates the following activities as fundamentals to maintaining basic asset management:

- ▶ Maintain a computerized asset management system that incorporates a comprehensive register of all of PoMC's infrastructure assets.
- ▶ Maintain appropriate interfaces between the asset management system and all other relevant corporate systems that support asset management, for example, Property, financial, document management systems and the Geographical Information System (GIS).
- ▶ Maintain a robust asset condition rating methodology framework and apply this to all relevant PoMC assets.
- ▶ Maintain a structured asset inspection regime to facilitate the timely reporting of defects and the development of maintenance plans.
- ▶ Maintain a costing and valuation history for assets and develop an appropriate unit cost structure.
- ▶ Ensure infrastructure assets are maintained in a fit-for-purpose state.
- ▶ Establish and manage scheduled and unplanned maintenance and associated budgets so that assets are maintained in a condition suitable for their intended use.
- ▶ Establish appropriate performance or prescriptive based inspection and maintenance contracts with suitably qualified providers.
- ▶ Ensure all relevant assets comply with appropriate Acts, Regulations, Standards and Guidelines.
- ▶ Develop and maintain standard operational policies and procedures for PoMC assets where relevant.
- ▶ Maintain appropriate backup systems for mission-critical assets

One of the key drivers for progressing to a new strategic asset management regime was that PoMC recognized that an increasing portfolio of ageing and expensive assets over time leads to an increase in business risk exposure. The need to identify and strategically manage future asset renewals by providing a robust methodology for directing funds to assets that deliver the greatest return on investment was considered paramount.

It was further recognized that improved customer satisfaction levels and company profits are a direct result of sound asset management practices, and that the implementation of strategic asset management facilitates the identification of potential cost saving opportunities and improved control over maintenance budgets. The main area of attention to achieve the step improvement was the development of technical information systems.

However it was recognized that of equal importance was the implementation of appropriate business processes and the provision of appropriate skills training for people who will ultimately be called upon to interpret system outputs and make judgment decisions based on best practice standards, commercial imperatives and sound asset management experience.

2. Establish a formal intra-organization task force

This approach basically describes forming a task force that would be vital in corporatization/privatization of the GMB ports. This task force would be made up of different departments who would give their inputs and help in the implementation of the corporatization process. This task force will be implementing the methodology which is explained at a later stage in this section.

Box 23: Case study for Corporatization of ports

Ennore Port

Ennore Port, officially renamed Kamarajar Port Limited, is located on the Coromandel Coast about 24 km north of Chennai Port, Chennai, it is the 12th major port of India, and the first port in India which is a public company. The Kamarajar Port Limited is the only corporatized major port and is registered as a company. The Centre holds a stake of about 68 percent in the Kamarajar Port Limited and the remaining 32 percent is held by the Chennai Port Trust.

At present, all major ports except Ennore are run by the Port Trusts under the Major Port Trusts Act, 1963. Ennore, which opened in 2001, is run as a company under India's Companies Act. Thus Ennore port is the only port running as corporatized port. The process of corporatization means that there is a change in legal structure. It is different from privatization or disinvestment. There is no change in ownership. It remains with government prior or after the corporatization. Under the Major Port Trusts Act of 1963, the ports trusts are managed by the Boards of Trustees. There is not much difference after their corporatization. However, corporatization is seen as a major step towards facilitating liberalization and subsequent privatization of Ports. Corporatized ports have operational liberty, yet administrative control is still with government. Following are the expected outcomes and they are:

- ▶ Functional Autonomy
- ▶ Increased productivity and efficiency
- ▶ Quicker and timely decision making
- ▶ Accountability of management

The important factor that can be noted here is such ports are exempted from restriction of Tariff Authority for Major Ports (TAMP) as they does not feature under major port trust act.

Even as a corporate Port, a port is subject to all the regulations and procedural restrictions as a government entity. Once becoming the government owned corporate, these ports would be required to compete in the market with private enterprise in every aspect of their commercial activities. Thus, corporatization by itself cannot be a game changer for ports development.

KPL as a landlord port would create and retain the basic infrastructure and carry out its regulatory function. Development, operations & management of cargo terminals to handle dry/liquid bulk cargo and would be concessional to private sector participants on BOT basics. Private operators would be required to construct the berth, install topside facilities and storage facilities at their cost and operate the facility.

KPL would provide scope to private participation in following areas like:

- ▶ Marine Services
- ▶ Bunkering Services
- ▶ Periodic Surveys
- ▶ Maintenance dredging
- ▶ Maintenance structure

The methodology to follow in both the approaches is as follows.

- ▶ **Corporatization of different GMB jetties:** Corporatization is the process of transforming state assets, government agencies, or municipal organizations into corporations. As a first step, GMB should corporatize its jetties. They can do it by restructuring their jetties into joint stock, publicly listed companies in order to introduce corporate and business management techniques into their administration.
- ▶ **Prepare business revival/transformation plan:** After corporatization of the jetties, there is a need to revive the jetties. For that purpose a detailed business plan is required as to how the GMB jetties could be transformed. This plan would identify the existing gaps and solutions to address those gaps, timelines and the persons responsible for implementing the final solutions.
- ▶ **Initiate project by getting requisite approval:** Once a business revival/transformation plan is prepared, it is needed to be implemented. However, such a large scale plan needs to be approved first. Approval should be obtained from the Government of Gujarat.
- ▶ **Privatize to get funding for development:** Finally funding would be required to implement the business plan that has been prepared. This funding can be obtained through privatization. GMB can either use a third party for development or sell some company's shares via the stock market.

Ensuring the right approach and the methodology are the key factors of successfully corporatizing/privatizing the GMB ports and would lead to benefits in the long run. Corporatization/privatization of ports leads to increased competition by making the GMB ports competitive with the private players. GMB ports would be quickly able to adapt to the market conditions. They will have better infrastructure and new technology implemented. Moreover, they would have more resources for capital investment.

5.2 Support for Infrastructure Development

Major international gateway and corridor infrastructures such as ports, airports and key rail routes are crucially important to the exports and imports of all the products and resources of modern-day economies. These infrastructures will become even more important in the future. Following a brief recovery in economic growth rates at world level, global activity has slowed again and the near-term economic outlook is for quite weak growth. However, over the longer term to 2030, modest but sustained growth is expected in developed countries, and significantly higher growth in the major developing countries. International passenger and trade demand are likely to see strong long-term growth as well.⁴¹

As a result, rapidly increasing volumes can be expected, particularly along major trade and transport corridors between the largest regions, i.e. Asia (China, India), Europe and North America. Aviation and maritime services will carry most of the long distance traffic, with ground handling likely to remain heavily concentrated at the major international gateway airports and ports.

Strategic Transport Infrastructure Needs to 2030 looks in particular at whether gateway ports, hubs, and their inland transport connections are up to the demanding tasks ahead. Much of this infrastructure will require improved capacity to handle volumes two or three times the current

⁴¹Source: Strategic Transport Infrastructure needs to 2030, Year 2012, OECD Report

levels, not to mention the largest passenger aircraft and container vessels in use by 2030. The ports of Gujarat will also be needed to be up to mark in case of infrastructure for this purpose.

5.2.1 Port Led Industrialization

Competitiveness of the port is highly dependent on the supporting regions. Ports like Rotterdam, Singapore, Fujian, Houston and Dubai owe their success largely to vibrant economic clusters in vicinity. Many port cities around the globe are working examples of a symbiotic relationship between port and its surrounding region. Gujarat was the first state in India to attempt this synchronization of Industrial development with port development through its Port Policy in 1995.

First port policy of Gujarat stated regional development around the ports as one of the major aims of port development in Gujarat. It was envisaged that port based industrial estates would be established in 4 to 5 new Port areas to facilitate import of raw-materials and export of finished goods to make industries located in Gujarat globally competitive. These port based industrial estates would emerge as 'Islands of Competence'. Gujarat Industrial Development Corporation was entrusted to plan such estates in the vicinity of the port locations with all necessary infrastructure facilities. It was estimated that more than 50% of the total future investments coming to Gujarat in the industrial sector are likely to be located nearer to the port locations.

Gujarat Port Policy 1995: Clause: Strategy, page 4, para 1:

"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."

Table 5-1: Major Coastal Industrial Regions around Gujarat Ports

Anchor Port (FY 2014-15)	Industrial Region (Area in Hectares)	Specialized Commodity
Mundra Port (105)	Adani Mundra SEZ (6,472.8 Ha)	Multi Product SEZ
Sikka Port (124)	Reliance Jamnagar SEZ (4,494 Ha)	Petro-Chemical Hub
Hazira /Dahej (7.1+ 27)	Dahej SEZ (1,682 Ha)	Part of Dahej (PCPIR)
Kandla Port (92.49)	Kandla SEZ (280 Ha + 120 Ha Expansion)	Multi Product SEZ

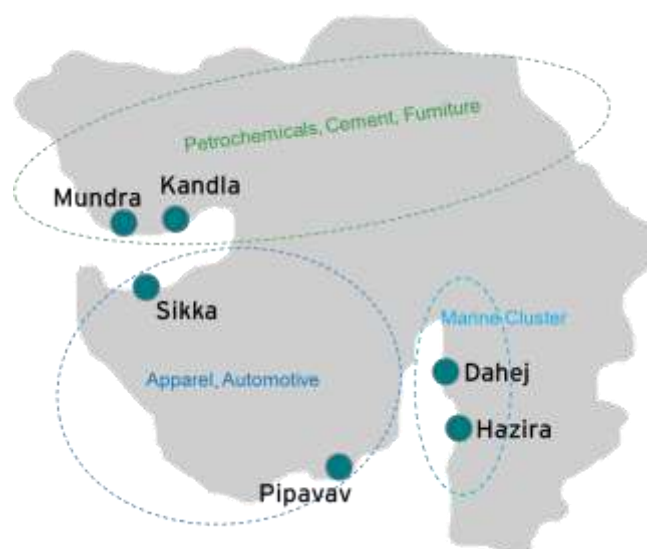
Source: (1) "Major Ports of India; a profile 2014-15", Indian Port Association; (2) Gujarat Industrial development corporation

To supplement this development potential, there are interventions which are planned by Government of India and Gujarat. Some of them are discussed below-

- ▶ **Delhi Mumbai Industrial Corridor:** Government of India has announced establishing Dedicated Freight Corridor between Delhi and Mumbai, covering an overall length of 1483km. About 62% of area of the state is covered within the influence area of DMIC. The alignment of the proposed DFC passes through Palanpur, Mahesana, Ahmedabad, Vadodara, Bharuch and Valsad in Gujarat. Based on the strengths of specific regions across the state, five development nodes are identified in the influence area of DMIC.

- ▶ **Petroleum, Chemicals & Petro-Chemical Investment Region:** Bharuch-Dahej PCPIR is a specifically delineated investment region for the establishment of production facilities for petroleum, chemicals and petrochemicals. It spreads over 453 sq. km in Bharuch District. The mother or anchor unit is recently commissioned by ONGC Petro additions Ltd (OPaL), a JV company promoted by ONGC.
- ▶ **Coastal Economic Zones under Sagarmala:** This program aims towards port-based or port-proximate industrial and manufacturing clusters. Gujarat is an active participant in the Sagarmala programme and three Coastal Economic Zones (CEZs), one in Kutch with focus on petrochemicals, cement & furniture; second in Saurashtra region with focus on apparel and automotive sector; and the third in South Gujarat with focus on marine industries are being planned for development under Sagarmala. **CEZ will boost port-led industrialization and development in Gujarat as it seeks to link ports, infrastructure and industries.**

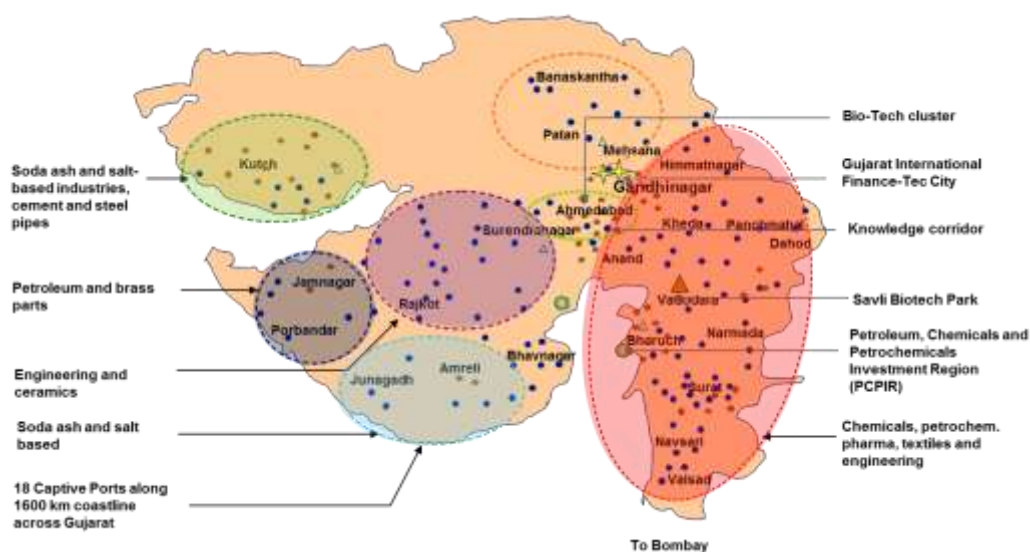
Figure 5-8: Coastal Economic Zones under Sagarmala



Source: National Perspective Plan (NPP) for Sagarmala, Ministry of Shipping

- ▶ **Development of World Class Port city at Mundra & Kandla:** There are two port cities planned in Gujarat, one in Mundra and another in Kandla which would be a Smart Industrial port city. The port city at Mundra is planned for the area of 502 Sq.km whereas the kandla port city is planned for 28 Sq. km.
- ▶ **Development of SIRs/ SEZs/Industrial estates along the coast:** Gujarat Port Policy 1995, 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. For this, GIDC was entrusted to plan such estates in the vicinity of the port locations with all necessary infrastructure facilities. Since then, GIDC, GIDB, IC and GMB have developed many port based industrial areas in and around the ports of Gujarat. The detailed list of SEZ along Gujarat coast is listed in annexure.

Figure 5-9: Industrial Clusters in Gujarat



Other than these planned initiatives, GMB should also focus on development of port and allied industrial complexes/ clusters. It implies to clustering of industries near a port. This would benefit both the companies and the port operators.

- ▶ Logistics between companies are safe and low-cost because a complete supply chain is concentrated in one location
- ▶ Companies can share terminals, utilities and hinterland connections (e.g. pipelines, rail)
- ▶ The waste of one company is often a necessary input for another: e.g. some companies produce excess heat (steam), others need it

Along with industries, GMB should also focus on creating a network of storage / warehousing facilities (logistics infrastructure). Any port or industry would require storage of their cargo through ICDs, tank farms or warehouses. GMB should identify and earmark locations across port areas to create a logistic infrastructure. They can either build new facilities or bring on board the network of existing facilities. There are three ways that GMB can do this.

- ▶ GMB owns land & invites Private companies to Develop and Operate infra on PPP for single or multiple locations
- ▶ GMB owns land & constructs infrastructure & leases to Private Operators for fixed period of time
- ▶ Network of Private Storage facilities - Soft onboarding; relay of location & information of facility online

All this will lead to a faster evacuation of cargo from GMB ports/jetties. It will increase the cargo handling capacity of GMB ports/jetties and add value to the importers/exporters.

GMB can also look into the concept of allied transportation. The purpose of the allied transportation is to provide a single mode or multi-modal option for shippers for optimum transport for cargo. For that purpose, GMB can collate with the different transport providers as follows.

- ▶ **Rail:** Collate and communicate rake availability information on an electronic platform. Develop Rail Heads at identified ports in a phased manner. Identify projects that require

Last Mile connectivity and upgradation of lines. Facilitation for project implementation with Railways and State Government.

- ▶ **Road:** Form contract with private operator to house facilities inside the port complex or storage network. Identify port to hinterland road augmentation projects. Identify projects to bridge the missing links. Provide connectivity with other National Highways or Corridors. Develop co-ordination with NHAI, PWD, R&B and other responsible departments/agencies.
- ▶ **Barge:** Form contract with private operators who own and operate barges. Provide berthing facilities at GMB ports for barges that cater to Coastal Shipping. Identify and allocate routes for barge movement. Maintain channels for coastal movement of barges.

The various steps for port led industrialisation are mentioned in section 4.1 Scale vs Spread, section 4.2 Make in Coastal Gujarat and section 4.5 Ancillary Infrastructure Development. GMB should look into development of Infrastructure for port based industries with a focus on

- ▶ **Dedicated ports for Warehousing and logistics:** Principal commodities handled at GMB jetties would need specialised cargo handling equipment. The potential of specialised cargo handling for Bulk cargo handling across GMB jetties should be explored and GMB jetties can be developed into dedicated terminals. Potential GMB jetties identified are
 - For Cool Port (Perishable refrigerated and frozen cargo like fruits, vegetables, flowers, fishes, FMCG etc.) - Veraval, Okha
 - For Agro Port (Wheat, Maize, Soyabeans, Barley, Sugar, other food grains etc.) - Bedi
 - For Coal Port (Coal and dirty Cargo etc.) - Navlakhi
- ▶ **Port led ancillaries and allied activities:** Value Added/Ancillary Services can be provided to enhance stakeholder experience. Ancillary services like Emergency Response System, Bunkering Facilities, Information of Warehousing network, Freshwater facilities, Community Centre and Other Basic facilities should be part of Port Facility Planning.
- ▶ **Smart Hinterland Information System for Port connectivity infrastructure:** Most of Hinterland side operations are provided by third party entities. GMB should do regular evaluation and augmentation of Port Connectivity Infrastructure (Road, Rail & Coastal) and look at the option of developing a smart hinterland information management system. It will basically be a decision management system through which the shippers can decide the efficient movement of their cargo. This system is basically the tie up of port services and logistics on a common electronic platform which results into higher and faster movement of cargo with high efficiency.
 - Unloading & Port Storage - Provision to pre-reserve loading/unloading manpower/equipment, Availability of storage in port complex, Automatic Gates for faster evacuation.
 - Connectivity to Inland Storage - Information on Daily Train & Barge connections, Option for Cargo moved through singular or multiple modes, Moved immediately to a storage facility of choice for quick evacuation
 - Inland Storage - Type and Space - in Network of Inland Terminals functioning as extended gates, Customs clearance facilities
 - Online Tracking - Online Tracking of Cargo for cargo if shipped through on-board shippers.

5.2.2 Cluster and Community Development

Provision of maritime facilities and services

The ecosystem for a maritime cluster

With coastal communities dependent on the marine environment for a range of ecological, economic and social services, the pressure on marine environments and their resources poses a stark challenge to the sustainability of coastal communities. In order for marine governance to be effective in delivering sustainability, an integrated approach to managing these vital resources must be adopted. Maritime industries like ship building and ship repair must be viewed as an integral component of developing effective and integrated marine governance. By developing a common strategy and encouraging collaborative relationships, the diverse range of factors influencing the coastal communities, social, economic, cultural and environmental, can be considered.

Cluster Development Strategy

The Maritime cluster is explained in detail in the section 4.5.3 Maritime Facilities and Services. The development of a maritime cluster can be divided into four categories by the changing of port and maritime services:

- ▶ **Cargo loading and discharging:** Maritime activities within maritime cluster focus on shipping and port cargo loading and discharging mainly, Cargo storage and distribution, transportation facilities, navigational service-Quay, waterfront area and distribution channel. Position of port in maritime cluster is Conservative and as a changing point of transport mode.
- ▶ **Value-added processing and logistics:** Logistics in value added processing for cargo through initially consolidating and distributing products, nearby industrial processing, combination, grouping, packing and commercial marketing. Position of port in maritime cluster is Expansionist with Transport, industrial and commercial centre.
- ▶ **Regional/global supply chain hub:** Concentration and distribution of factors and production and information, relating to economic, financial, technological, communicational and international trade aspects. Position of port in maritime cluster is Efficiency oriented with integrated transport centre and logistic platform for international trade.
- ▶ **International maritime services:** Variety of maritime services provided like shipping services, Maritime Governance and regulation, industry associations, intermediate services, support services. Position of port in maritime cluster is Maritime service oriented with varied positions in different maritime clusters. The international maritime centre (IMC), commonly regarded as the most matured stage of maritime cluster, show relationship between port development and maritime cluster development.

Community Development around the port

This is explained in detail in 4.5.1 'Developing the Infrastructure'. The community around the port is one of the major factors that leads to the growth of that port. Engage and promote strategic partnerships and investments, to create sustainable communities and cultivate economic development.

- ▶ **Skill Development Training for local fisherman community around Port:** Ports can take up Skill development training under CSR initiatives for the local fishermen community to make them skilled in various trades and make them employable.
- ▶ **Community engagement initiatives:** Local event sponsorship, Investment in the upgrade of local facilities, Representation on consultative committees and groups, Hosting of visiting cruise ships, Construction of an interpretive walk at the Port entrance, Hosting school education sessions, Clean-up drives, tree planting, etc.
- ▶ **Mangrove research:** Undertake mangrove research work to classify mangrove habitats in the Port harbour and the potential for their rehabilitation. Mangrove propagation trials should be undertaken and artificial mangrove habitats to be created away from industrial zones to increase mangrove footprint.
- ▶ **The Species Protection Programme:** Similar to the Species Protection Programme (SPP) of Antwerp port, a programme to provide for the creation of a network of ecological infrastructure for protected animal and plant species within the port area to ensure the sustainable conservation of port-specific species can be developed.

5.3 Optimising Port Productivity

Port performance is key to value creation and customer retention. Good port performance entails managing operations and port productivity, back office productivity, high assets utilization and efficient workforce. The port productivity definition varies between various terminals. However, it can be improved greatly with the help of certain tools and initiatives.

5.3.1 Improving Infrastructural & Site constraints

As discussed in detail in previous sections 2.2.1 on Performance on GMB Ports and Jetties, there is a clear indication of mismatch in the capacity of ports and its utilization percentages. For example, Magadalla group of GMB jetties show 500 percent of utilization where capacity is 0.58 MMT whereas traffic handled in 29.03 MMT in FY 2016-17. However other than top 5 ports of Magdalla, Bedi, Okha, Bhavnagar, and Navlakhi rest of the jetties are fairly dysfunctional where traffic handled is almost nil. This leads to a theoretical over capacity and leading to increase in the overall capacities of the jetties in the future. Moreover, all of these jetties have a capacity utilization issue due to some constraints. The jetty wise constraint that the GMB jetties face is mentioned in the table below.

Table 5-2: GMB Jetties Constraints

Sr. No.	Port	Draft (mts)	Cargo Handling equipment	Constraints.	Utilization # Initial capacity need to be reassessed
1	Bedi	6	<ul style="list-style-type: none"> ▶ All weather berthing port ▶ Cranes of various capacities Bulk handling system 	Due to tidal restrictions only 2-3 hours of working, hence largely operates on lighterage	187% #

Options of the Proposed Port Policy of Gujarat

Sr. No.	Port	Draft (mts)	Cargo Handling equipment	Constraints.	Utilization # Initial capacity need to be reassessed
2	Bhavnagar	6-7	<ul style="list-style-type: none"> ▶ All weather berthing port ▶ Mobile and electronic cranes with various capacities available 	Pilotage is compulsory and 48 hours advance notice for berthing Lock gate operations	133% #
3	Mandvi	3	Seasonal Ports	Closed in Monsoon	-
4	Mundra	2	Seasonal Ports	Closed in Monsoon	-
5	Magdalla	2	<ul style="list-style-type: none"> ▶ Lighterage port ▶ Mechanical loading system through conveyor bulk for cement/clinker 	Approach channel is 16,000 meter in length and 150 meter in width.	647% #
6	Navalakh	9	<ul style="list-style-type: none"> ▶ Lighterage port ▶ 3 mobile steam cranes ▶ Conveyor belt system to handle loose cargo 	Pilot guide is necessary for more than 9 mts draft. advance intimation of 24 hours is necessary	82%
7	Okha	7.5	<ul style="list-style-type: none"> ▶ All weather direct berthing port 	Pilotage is compulsory at the port	102% #
8	Porbandar	9.5	<ul style="list-style-type: none"> ▶ Diesel and steam cranes are available ▶ Direct berthing facility up to 50,000 DWT 	Available draft is only 7.5m	54%
9	Veraval		<ul style="list-style-type: none"> ▶ Fair weather lighterage port 	Approach channel at the port is 2088 m in length and 36 m in width. Port is mainly engaged for fishing activities	0%

Source: GMB database

From the table we can see that draft is one of the major constraints that all the jetties face. Other constraints are also mentioned in the table. In order to resolve this issue, there is a need reassess the capacity levels of the GMB jetties. For over utilized jetties, capacities need to be recalculated. For under-utilized jetties, we know the reason for the underutilization. As a result, for these jetties options need to be figured as to how well we can optimize the assets of these jetties. This falls under Asset management which we have explored in section 5.1.2.

The second issue that has been discussed previously in Section 2.3.2 is, utilization of the capital expenditure. The limited utilization of capital budgets, for example only 24 percent of planned budget was utilized in Gulf of Khambhat (South) which consists of Okha-Bedi-Navlakhi ports, is impacting the utilization levels of the GMB jetties. Therefore the reasons for partial utilization of GMB capital budget for have to be identified.

Key Interventions required

Shipping through deeper draft vessels will help in reducing costs and increasing revenue for GMB jetties. However due to the issues of draft and lock gate infrastructure identified above GMB will continue to face utilization issues.

- ▶ To address this issue, GMB should first conduct a **comprehensive survey** of existing jetties where channel, port and connectivity infrastructure is mapped.
- ▶ **Calculation of required channel draft** and other infrastructure necessary for vessel pilotage should be scientifically **related to overall capacity requirement** envisaged for all captive jetties together, rather than targeting each jetty individually.
- ▶ The **up-gradation projects should then be classified by type and size** so that they can be prioritized and spread over the next five years.
- ▶ These projects should form a plan of the **comprehensive master plan for GMB jetties** in the next 5 years.
- ▶ In addition to this, since **partial utilization of capital budget** has also been identified as a reason for improving the infrastructure, budget required for infrastructure improvement should also be part of the comprehensive master plan.
- ▶ Calculation of capital budget based on this master plan will result in a **more rational and relatively complete implementation and utilization** of the budget.

5.3.2 Improving Operation Efficiencies

Pre and Post Berthing Delays

It has been observed that there have been some delays in port operations at GMB jetties which can be attributed to the performance of the GMB jetties that do not match up to the required levels. These delays lead to lesser number of vessels calling GMB jetties for berthing. Key reasons for delays can be classified into three categories.

Pre berthing delays are mainly a consequence of; time taken for pre-berthing formalities, fewer availability of Pilots and Lighterage vessels.

The **Turnaround time** at GMB Jetties for vessels is high because of limitations in channel with and draft available discussed in 5.3.1. Also berth preference plays a role, where vessels choose berths as per type and volume of cargo and subsequently more vessels line up for one berth increasing the turn-around time.

Storage and Evacuation is the third important and affecting factor for the operational inefficiencies at GMB jetties. Storage and evacuation plans are crude and improvised; most of the cargo which is unloaded from vessels is stocked at makeshift areas before they are evacuated through road or rail, due to unavailability of storage infrastructure. Inspection and packaging are an important component of pre storage activity. This helps in maintaining the quality of the cargo. Along with logistic infrastructure availability, last mile connectivity is equally important for the cargo to be evacuated in time. Though GMB has provided last time connectivity at the jetties, provision should be made for multi modal evacuation of cargo along with augmentation of the existing infrastructure.

Procedural and Operational Delays. It has been observed from the statistics for lease renewal applications with GMB that procedural and operational delays are leading to lower lease renewals in some GMB ports. 97 percent of the total land area under lease has been renewed, however this does not give the complete picture. In Bedi, Mandvi, Jafrabad, Alang, Magdalla and Navlakhi group of ports the percentage of lease renewal is very low; Bedi has only 22 percent of the lease renewed. The main reason why delay has been observed in clearing the lease applications are because the applications 'pending with the department'. This pendency is because of procedural complications and number of steps required to execute the lease.

Key Interventions required

- ▶ In order to reduce **pre-berthing delays**, there is a need to develop a single web-based on-line application for real-time management of port operations at yard, berth, gate, vessel, warehouse, cargo and container terminals.
- ▶ Therefore mapping of cargo become necessary while preparing port infrastructure up-gradation plan. Requirement of type of machinery at these jetties need to be identified. Since the cargo evacuation operations are contracted to private operators, there could be need to regulate the type and standard of machinery and equipment at ports. Deployment of required labour and infrastructure also affects the **turnaround time** at GMB jetties. No Guidelines / Performance benchmarks for Shipping / Clearing Agent or Stevedoring Agent to ensure berth productivity and environmental compliance.
- ▶ Bundling **storage and evacuation** facilities with port infrastructure will help improve the services provided at GMB jetties. Storage facilities that are built should be versatile in nature in order to adapt to the changing need in cargo being handled at the jetties. However some specialized storage facilities should be planned, to handle high value merchandise. In addition to this, GMB should install a simulation software for storage and evacuation planning, establish a framework for asset monitoring and optimization, and develop SMART hinterland connectivity network
- ▶ Thus, there is a need for a regulatory framework for berthing and stevedoring operations that needs to be backed by supporting IT infrastructure. Moreover, these procedural and operational delays also lead to lower lease rentals in some of GMB ports.
- ▶ Procedural and operational delays are resulting in lower lease rentals. Based on the observations, one way of improving the performance in this area is to **re-engineer and standardize the renewal process**. This will result in rationalizing the number of steps required as well as clarity and transparency in providing clearances. In addition to this, the duration of the lease extension should also be increased.

5.4 Improving Revenue Sources

There is a distinction in the ability of large and small ports to generate revenue. Generally, major ports earn significant amounts of revenue through traffic, and much of it is in foreign exchange. Therefore these ports have the potential to generate sufficient funds to finance their own operation and maintenance, and in the long term to repay capital costs.

The situation is quite different for smaller ports with low trade flows. Sometimes, it becomes a necessity to develop a port to cater to the basic requirements of a particular community. Moreover, a small scale captive jetty could have also been developed to cater to a particular industry that has come up and has not major port connectivity. However, it becomes costly to maintain existing infrastructure and provide equipment to small ports in order to handle general cargo, containers, and passengers. Thus, these ports struggle to recover their costs. In order to maximize their revenues, smaller ports must become highly efficient and cost-competitive. Every effort should be made to raise the revenue to cover operation and maintenance costs and additional sources of revenue should be explored rather than choosing the option of government subsidiary.

5.4.1 Sources of Revenue Generation

GMB earns its current revenue through port traffic, port dues, wharfage, marine services and other income sources. However, this is not the only way that it can generate revenue. There are other options that GMB can explore that can be used as sources of income for them. Some of the options would be asset monetization, coastal shipping, marine tourism and corporatization/privatization of GMB jetties. Coastal shipping and corporatization/privatization of GMB jetties have already been covered in the earlier topics. As a result, we will be discussing the options of revenue generation through asset monetization and marine tourism in this section.

Asset monetization

As mentioned earlier, the port industry is an asset intensive industry. These assets can be utilized by the ports to generate revenue. The assets that can be used to generate extra revenue can be primarily be divided into land, infrastructure and equipment.

Land

Land is one of the major assets that a port can own. There are many ways that this land can be used for revenue generation. Some of the options include.

- ▶ Land lease premium/sale
- ▶ Building development for government officials
- ▶ Building development for port users
- ▶ Development of tourism on port land
- ▶ Open storage renting
- ▶ Temporary construction for operations

If we consider the various ports in India and around the world, then we can find many examples of how they use their land for revenue generation. Mumbai port is developing maritime tourism on port land. Moreover, it leases land commercially and has had a revenue prediction of INR 1000 cr in the current financial year. The port of Kolkata has put a proposal for leasing 3400 acres of land for maximum 30 years with a prediction of earning yearly revenue of INR 470 cr from it. The Kandla port trust gives its 30 acres of nearby land for rent as open area storage for incoming cargos. The Hong Kong port authority has developed its port land as a tourist spot. Moreover, it uses 170 hectares of land for port back-up uses.

Infrastructure

Infrastructure constitutes of all the buildings that fall under the port premises. A majority of this infrastructure is used by the ports for its day to day operations. However, the port can use some of its infrastructure to generate additional revenue.

The first thing a port can consider is the usage of its warehouse. The port uses its warehouse to store commodities that required a closed space for storage e.g. agro products. This warehouse can also be rented to third party players to store their goods for a period of time. Facilities for normal storage or cold storage can be developed and external cargo can be kept in the warehouse. Moreover, this warehouse, if lying idle, can also be converted into a temporary business space where value addition activities can be performed on finished goods.

The office buildings inside the port can also be used to generate additional revenue. The office space can be given on rent to either the government officials like port officers or the port users like surveyors. Other than that, a specific building can be constructed for these representatives inside the port premises and rented to them to earn additional income.

Equipment

The final asset that a port can consider for monetization are its equipment. A port would possess cranes, dumpers, loaders, excavators, stacker-reclaimer, conveyor belt, tugs, dredgers, barges and other equipment for running its daily operations. The port can rent or lease some of these equipment to other private players. Some of the options include.

- ▶ Renting of tugs
- ▶ Providing dredging services
- ▶ Renting of barges

The Kerala government has explored this option of monetization through equipment. The port authority is going to keep equipment like mobile cranes, forklifts and container stackers and are going to rent them to their ports as per the requirement.

Marine Tourism

Marine tourism development is another option by which additional revenue can be generated. There are many options for developing marine tourism for Gujarat coast. Identifying tourist areas becomes the primary action point for the government of Gujarat. One of the options it can explore is the development of cruise terminals.

Cruise ships are mainly large passenger ships that undertakes roundtrips at various routes, makes stops at various tourist destinations but boards the passengers only at the ports where the trip begins and ends.

Cruise Tourism refers to the luxury voyages on these ships, over the due course of time these voyages have become affordable and hence represents a good tourist development opportunities. Apart from generating revenues directly from passenger trips it also promotes related industries like handicraft, catering services and concierge services etc.

- ▶ A cruise ship is a floating resort with luxury facilities like casino, sauna, Jacuzzi, sports facilities, theatre, movies, cafe, live concerts etc.
- ▶ Potential source of income in foreign currency.

- ▶ Current worldwide cruise capacity is 486,385 passengers and number of cruise ships are 298 as of 2015.

Gujarat has India's longest coastline with diverse habitants. As per the records with Government of India, the coast line of Gujarat is 1600 km. Coastline runs from Valsad to Kutch. Currently there are 20 identified potential beaches in Gujarat. Some of the key beaches with attractive tourist destinations are Ahmedpur-Mandvi, Dandi, Dwarka, Ghogha, Mandvi, Nargol, Porbandar, Somnath, Veraval etc.

A potential circuit for cruise in Gujarat has already been identified. It follows the route of Okha - Dwarka - Porbandar - Veraval. Each of these places has a tourist spot where the visitors can disembark and visit them. The tourist spots for Dwarka include Dwarka temple, Iskcon temple, Gomti Ghat and Okha lighthouse. The tourist spots for Porbandar include Porbandar beach, Huzoor palace, Kamla Nehru Park and Kirti Mandir. The tourist spots for Veraval include Somnath temple, Ahmedpur Mandvi beach, Junagadh gate and Triveni Sangam.

Other than cruise terminals, GMB can also look into developing floating restaurants, marinas, marine based theme parks, and water sports at the waterfront. Other options for tourism would be lighthouses and port visits. Revenue can be generated in all these through port dues, berth hire charges, wharfage, other charges, and visit fee.

5.4.2 Financing Options

Any project requires certain capital, certain funds that would be used in its development and execution. For these funds, GMB has to look for financing. GMB generated an income of INR 715 crore in the financial year 2015-16. This income is divided into various income heads as we saw in section 2.3. GMB has the option of setting aside certain percentage of its income or funds from a particular income head. Moreover, we looked at additional sources of revenue in the previous section.

Combining these two sources, GMB can generate a fund. This fund can be used to explore the financing options for future projects of GMB. There are two options of financing that GMB can look into. One is debt while the other is public offering.

The option of debt means either taking loans from the bank or any other financial institutions. These loans are made available over a period of years. The allocation of the funds is done initially. One of the examples that can be taken in this case is the Italian Ports. In the year, 1999, they had requirement of funds for the new port projects that were coming up. So a total of 2415 billion liras was made available to different Italian ports. This was done by taking loans through banks and the allocation of funds was spread over a period of 15 years.

The second of financing is the public offering. It means that the shares that a company owns is offered to the public at a certain amount. Funds for the future projects can be generated in this way. The people who buy these shares become stakeholders of the company and the company pays them dividend on a regular basis. For example we can consider the Thessaloniki Port Authority in Greece. They had total 10080000 shares with them. They offered 25% of their shares to the common public through Initial Public Offering (IPO). The shares were offered at a rate of 6.74 to 7.4 €. Of these shares, 2400000 were offered through the public offering while 120000 were offered through private placement to the personnel and the members of board of directors of Thessaloniki Port Authority.

5.5 Innovation

In the ports sector the investment level is a huge challenge. And in that challenge, innovation ecosystems may play a crucial role. After all, innovations are required for increasing productivity, new business development and start-ups. Various megatrends increase the relevance of innovations: the transition towards sustainability transport, the transition of energy sources, increased safety requirements, and the larger availability of data all create opportunity spaces; innovation is required to fill these. Different elements make up an innovation ecosystem, including an entrepreneurial culture, the availability of venture capital, education institutions, incubators and regulation that encourages innovation.

This section gives a brief about Harnessing IT at Gujarat Maritime Board, Human Resource in Port Management, R&D and Port Development and Role of Cluster Development.

5.5.1 Harnessing IT at Gujarat Maritime Board

GMB already has an IT department whose basic function is the upkeep of the existing IT infrastructure. This department is also involved with the adoption and installation of port automation software that are currently under development. However, the IT department here has a huge underutilized potential and can be explored further in the following ways.

- ▶ **Strategic support for Business Decisions:** IT can provide GMB with the right tools that would enable the organization with an ability to make business positive decisions.
- ▶ **Sustained Economic Development:** IT can develop and implement systems that can improve the existing productivity.
- ▶ **Efficiency and Transparency:** It has the ability of creating an environment of greater trust towards an organization.

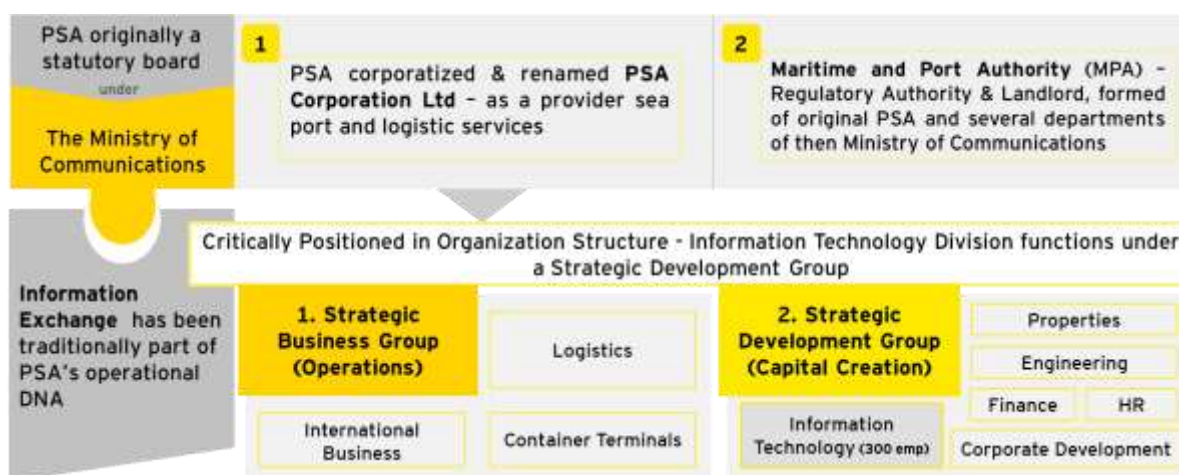
There are four key driving factors which can be considered to meet the challenges and the demands of a fast moving maritime growth.

- ▶ **Having a business driven IT development:** IT underpins interactions within a business, as well between the business and the outside world through R&D, relationship management, quality assurance and marketing, amongst other business areas, and looking to technology to improve their operation. The business vision is not only about making a profit but involves winning and retaining customers, staff retention, working with suppliers, and managing cash-flow while also having a detailed picture of operational factors such as the carbon footprint of the business.
- ▶ **Aligning business and IT plans:** The business and IT plans can be aligned by understanding the Business and value chains, Standardizing on Technology to save time and money, deploy technology that people understand and that provides demonstrable benefits and point out a path forward. By involving users and obtaining their inputs during the development of the operational plans, the IT group can ensure that the plans are consistent with business needs and objectives. Besides providing a task list of what is to be done over a defined period, the operational plans also serve as budgetary plans. The plans can be evaluated based on factors such as the impact on services to customers, expected costs and benefits, and consistency with business objectives and strategies.
- ▶ **Maintaining a flexible and extensible IT infrastructure:** The flexibility and extensibility of the IT infrastructure is enhanced through standardisation of hardware and software,

integration of systems to facilitate data access and sharing, adoption of structured development methodologies to facilitate rapid application development, support for open systems and the development of an overall master plan for systems development. Further, emphasis should also be placed on interoperability and scalability in the development of any new systems.

- ▶ **Encouraging IT innovation and creativity:** Enhance the efficiency and effectiveness of IT operations through benchmarking and adopting best practices in areas in which other firms excel in the shipping industry. In order to ensure continued innovation and creativity encourage staff and customers to participate in Joint Quality Circles (QC) for solving operational problems through improvement suggestions.

All these driving factors can be realized and we can draw parallels from the Singapore port industry as to how they have interknitted the IT in their daily routine operations.



Singapore gained an early mover advantage in use of IT. Singapore initially port of Singapore has now divided into two major bodies, Port of Singapore which under looks the operations of Singapore port and Singapore maritime board which handles the regulatory function. Singapore is widely acclaimed port, all across the world, because of its extensive optimization of the potential to a large extent. This is all because of its expansion of IT enabled services and infrastructure.

Singapore IT infrastructure has several for ports has several points to be noted which led the port glorified. IT in business works as enabler, facilitator, and service provider. These three roles define the role of IT in business. At Singapore IT has been IT enabler where business is driven by development of IT. The framework and learnings and future implementation in GMB is mentioned below.

A. Business Driven IT Development

i. Computer Technology

Box 24: Singapore's initiatives in integration of IT in port operations (all following Singapore examples are linked)

Singapore has adopted latest computer technology in port planning and operations. "Flow through gate" is a fully automated system that identifies container trucks and gives instruction within 25 seconds. It handles an average traffic flow of 700 trucks per peak hour, and 9,000 trucks per day.

Some of the systems developed in helping Port of Singapore Authority (PSA) to gain a favorable standing with its port users and against its competitors, include Computer Integrated Terminal Operations System (CITOS), BOXNET, PORTNET and FastConnect. With these systems, port users can look forward to faster handling speed and shorter ship turnaround times.

CITOS is used at the container terminals to plan and direct all container handling operations in real-time. Using expert systems, CITOS plans the use of berth, yard, equipment, and manpower required. From the central Yard Control Computer, work instructions are transmitted to all the machine operators using a real-time wireless data transmission system.

BOXNET is an electronic data interchange (EDI) with hauliers to enable them to streamline their operations and to improve their fleet utilization with easier tracking and allocation of jobs. Through BOXNET, hauliers receive the electronic delivery order directly into their system for processing and scheduling of delivery of containers from the port. At the same time, they can upload the shipping note for export containers from their system instead of re-keying into PORTNET. BOXNET also allows users to receive information regarding the arrival and exit of their trucks through PSA container gates.

PORTNET is an Electronic Data Interchange (EDI) system that provides port users with 24-hours a day electronic information and communication link with PSA through which port users have convenient access to information and can submit their work orders or process their bay-plans electronically. This basically eliminates the need to manually re-key and transcribe data, thereby preventing errors. Through PORTNET, users can also interact electronically with TRADENET, the government EDI system that facilitates rapid custom clearance, thereby providing one stop service to port users.

The system **FastConnect** aims to reduce the time-gap for approvable connections for transshipment of containers. The system accelerates the connection of containers as it enables shipping lines to select the earliest connecting carrier, and reduces the time taken for processing of transshipment containers. With FastConnect, the intra-terminal connections between the unberthing of a first carrier and berthing of a second carrier have been dramatically reduced from 8 to 2 hours. For inter-terminal connections, the time has been reduced to 10 from 12 hours. As transshipment is a very important business for the Singapore Port, FastConnect is a move towards the ideal of just-in-time connections.

GMB future prospect:

GMB should invest heavily in port IT infrastructure and adhere to latest technology to increase the port efficiency. Development of some internal portals will be appreciable. Explore the option of outsourcing the IT services to big giants to develop such models for GMB.

ii. Co-ordinated development

Singapore: Development of IT services and portals is done with combined effort of internal and external users. The recommendations and feedback system is highly operationalized and maximum result is being fetched out of it. Singapore highly uses the FastConnect system developed with inputs from shipping lines involved in transshipment containers. Co-ordinated development is considered as sustainable development which is aligned to internal and external requirements of the users.

GMB future prospects:

GMB should implement this mechanism of continuous and timely feedback. Involve internal and external stakeholders for system development. A user friendly portal accessible to all the users for better alignment of internal and external requirements.

iii. Strategic coupling

Singapore: This is very unique format where a particular pillar of operations team work together with IT team for a specific period for the development and enhancement of IT services and in turn port operations. The model is different from acclimatization where the IT officers are deployed with the operations team. Here a new team is formed having employees of the IT team, and different pillar of operations to develop the operations of Port.

GMB future prospect:

Strategic coupling will enhance the IT development in each operating fields. GMB should implement such Alliances.

iv. Acclimatization

Singapore: Acclimatization is a process where in IT staff is employed in a particular operations team to gain knowhow about the project. The period is usually for 3 months and it helps IT team to develop the IT infra based on their learning. This is different from strategic coupling, as there is no mixture of officers from different department working on diversified projects. But officers from IT team closely working with one single team and understand the operations.

GMB future prospects:

Such acclimatization can be done at least annually or bi-annually to understand the current changes and implement future development of business.

B. Aligning Business and IT plans

Business development and IT development should always go hand in hand. But when IT is working as enabler rather than facilitator or service provider, it has its own development plan. In such cases business is some time driven by IT development s seen in previous section or IT has to be aligned based on business demand. In both the cases alignment of both the parties is crucial

aspect. Singapore model of IT infrastructure has strategically done this alignment in a way that shows its business development acumen.

Singapore: Development of IT in the analytics world and with the help of introduction of various data analytics tools that gives comprehensive data analysis and develops future business models, helps Singapore port to develop in this domain. Here IT with the help of consultation with the relevant business units, designs the rolling operational plan with help of analytical and data modelling tools. This helps to have a lucrative business development path.

GMB future prospect:

It is very evident from empirical evidences of Singapore IT-Business development model that GB should implement something in similar lines. Designing a comprehensive decision making tool which helps in drawing annual business plans and analysis of past projects. Such establishments will help GMB to grow leaps and bounds.

C. Flexible and extensible IT infrastructure

Singapore: Singapore business plan is very adaptive as it has been developing keeping four aspects aligned and they are Standardization, Adoption, Integration and support.

- ▶ Standardization of hardware and software helps the IT development aligned across verticals. This helps the simultaneous development of all the operations unit and have holistic approach of development.
- ▶ Integration of systems helps the data sharing across the teams fast and easy.
- ▶ Adoption of structured development technologies. It is important to adopt any new technology or methodology other ports implementing. This helps to grow quick.
- ▶ Support for open systems and the development of an overall master plan for systems development

GMB future prospect:

A flexible and extensible model which can implement this four aspects must be in place. The need of an hour for GMB is to implement adoption strategy for IT infrastructure and then focus on remaining three. A feedback mechanism from the employees employed on field to have standard hardware and software developed. Periodic training for better improvement by IT and non IT staff.

D. Encouraging IT and Creativity

Singapore: Singapore model is well developed because of its continuous innovation, creativity and evolution. It constantly emphasize on up gradation of systems for better efficiency and effectiveness. A full time team dedicated to ratify the new trends and come out with creative and innovative idea works under IT department. Successful model like GAS (Gate Automated System) and FAST (Freight Auto service terminal) were born out of necessity.

There is high scope with GMB to flourish in this section. It is very important to establish such dedicated teams to work for innovation and creativity. Respond and incorporate changing global needs and replicate the best practices that are in place worldwide.

Moreover, GMB has already decided on major initiatives in IT that it is going to develop in the near future. These initiatives would include.

- ▶ **Integrated Port Management System:** GMB has envisaged implementation of an Integrated Port Management System (IPMS) that can act as a single solution to GMB's information needs emanating from within and outside.
- ▶ **Enterprise Resource Planning (ERP)** shall cater to various administrative and organisational procedures & processes.
- ▶ **Port Operation Management System (POMS)** shall cater to all the business transactions happening at various GMB Ports.
- ▶ **Integrated Security Management System (iSMS)** shall handle security related sub-systems such as the Security Management.
- ▶ **Integrated Network for Project IPMS (INPI):** It is envisaged that the INPI project will connect all port/districts offices with the GMB-HO at Gandhinagar.
- ▶ **Port Community System :** As a part of Electronic Commerce (EC)/Electronic Data Interchange (EDI) implementation, Centralized Web based - Port Community System (PCS) at all Major Ports was envisaged to reap the maximum benefits of EC/EDI and to move towards a paperless regime.

Detailed description of this initiatives is discussed in the section 4.3 Ease of Doing Business in Gujarat Ports, further sub section 4.3.3 Re-engineering Automation in Port Operations.

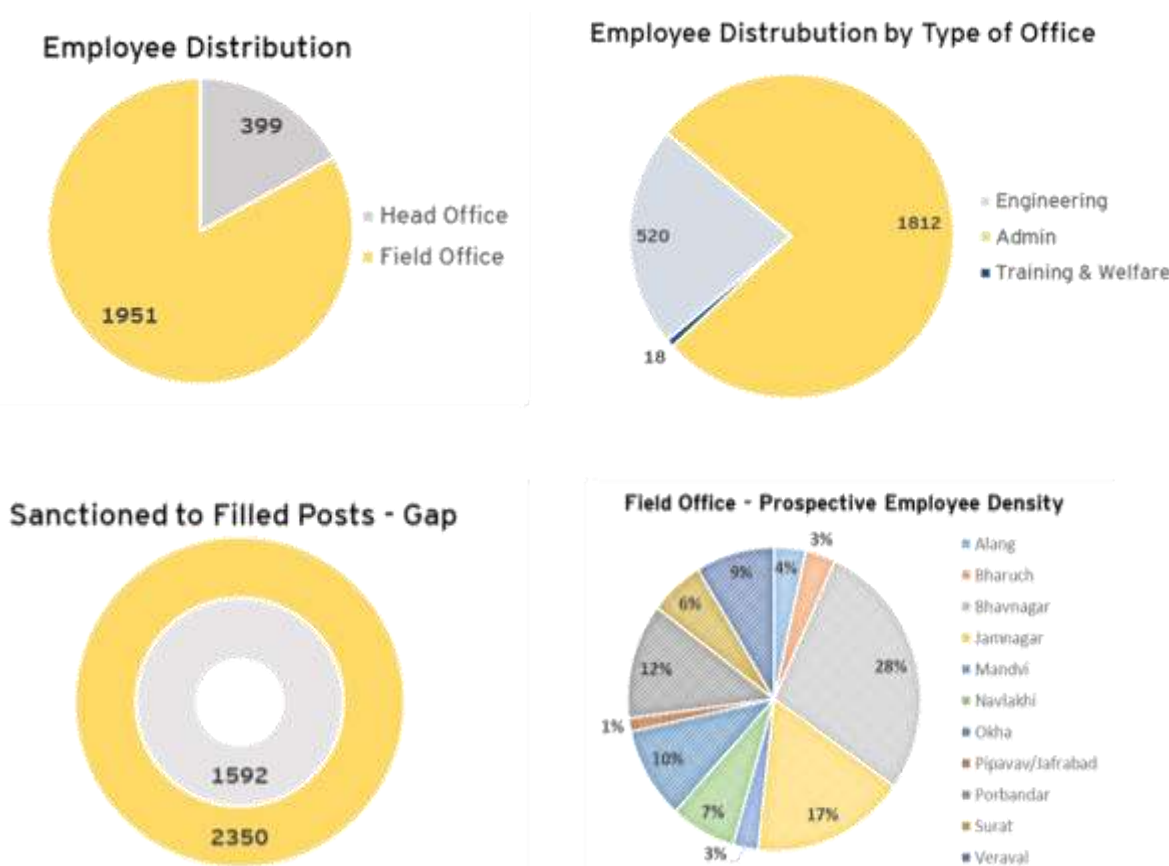
5.5.2 Human Resource in Port Management

Most important tool available to the port managers is the port staff. However, the staff is the hardest instrument to be mastered and used. This is because in case of people management, difficulties arise due to tradition and historical conditions, which can sometimes be incompatible with the principles of modern management. Personnel qualifications needed to assume the necessary responsibilities are more complex for staff. Thus human resource development becomes important for any port manager.

Port performance is dependent on the success of individuals and groups achieving relevant goals. If we wish to put it in mathematical terms then we can say that the performance of a port is a function of ability, effort and opportunity. A human resource plan can motivate the work force through its development. A good human resource plan would create and maintain a harmonious working climate.

Currently GMB employs over 1500 technical and administrative employees across Gujarat. GMB has the posts for 2350 employees currently. Of these, around 16.9% posts are at the head office. Moreover, considering the type of employees, only 22.1 per of them are engineering posts. 77.1% of the posts belong to the administrative category. Only 0.8% of the posts are involved in the training and welfare department. Moreover all the posts are not filled. There is a gap of 32.2% in the total posts GMB has.

Figure 5-10: GMB Human Resource Distribution



Source: GMB Administrative Report 2013-14

From this we can clearly say that there is a need to define a training or capacity building plan for the existing employees. Moreover, a hiring plan is also required to bridge the gap in the posts. Increasing the employee productivity is also another key area to be focused upon.

Port Productivity increase is a blend of three subsystems i.e. Management Skills, Technology and Human Resources. Focus on any one alone can have adverse effect on productivity. Investing in Human Resource is as important as investing in technology as organisational performance is dependent on the success of individuals and groups in achieving relevant goals. GMB should prepare a Human Resource Plan for motivation and development of the work force and creation and maintenance of harmonious working climate with focus on

- ▶ **Integrate** - Focus on aligning Human Resource Development with planned Technological Advances
- ▶ **Guide** - Regular meetings and discussion forums by department heads to communicate directions
- ▶ **Involve** - Participatory approach towards formulation of new strategies, identification of opportunities

There are many initiatives that GMB can do to develop its human resource. There should be a focus on aligning the human resource development with the planned technological advances. Regular meetings need to be conducted and discussion forums are needed to be established by department heads. This should be done with a purpose of communicating directions to the respective employees of GMB. Involvement of the GMB employees also needs to be increased. Have a

participatory approach towards formulation of new strategies or for identification of opportunities. All this will focus on improving the productivity of the employees.

Box 25: Singapore's initiatives in HR development

Port of Singapore Authority (PSA) Singapore

- ▶ PSA Singapore has created more opportunities for employees to be heard through improved participation and involvement.
- ▶ They are giving financial benefits to the employees leading to improved motivation and efforts.
- ▶ They take inputs from non-manager employees to improve the productivity on the port side.
- ▶ They have a standardized procedure for port operations that simplifies the routine or complex tasks.
- ▶ Moreover they also have a PSA Star program that has the objective of helping in the personal development of the employee and keeping pace with the global technological change.

Ports should be seen as "Socio-technical" systems because, in practice, operations in port terminals are carried out by a partnership between human beings and technology. GMB can think on similar lines and adopt a concept of "Working Smarter" in the port terminal. They should create a Standard Operating Procedure (SOP) for port operations and regulatory processes. This would help in eliminating the redundant tasks that an employee performs. Develop a strong sense of teamwork through team building exercises. Give the employees more say in problem solving and have a rewards system for high performance. This, one can say is a corporatized approach to the human resource development.

Regular training to the staff is important in the following aspects.

- ▶ Achieve improvement in the work performance
- ▶ Operate upgraded equipment when port has invested in new technology
- ▶ Introduce new work procedures or online automation systems
- ▶ Redesign the work place

For training purposes, GMB should have training as a part of their annual budgetary plan and have a provision for it in their annual budget plan. An annual training calendar should be shared with all the employees of GMB. Moreover specific job related training needs to be provided at the management level and also at the operational or technical level to increase the competency of the employees. Before training or development programmes are organized efforts are to be made through individuals and organizational appraisals to identify the training needs. After the training and development programmes, an evaluation should be carried out to ascertain the effectiveness of the programme in line with the need, which had been identified.

Roadmap of Maritime Human Resources Development

Preparation of Substance of Regulation as a Foundation of Human Resource Development (HRD)

- ▶ Workshop or Focussed Group Discussion (FGD) regarding HRD with stakeholders;

- ▶ Discussion regarding Regulation of Institution System and Dissemination of Roadmap HRD Ports;
- ▶ Focus Group Discussion regarding HRD in vocational education;
- ▶ Start Establishing Maritime Education as needed;
- ▶ Recruitment of HR Instructors/ Lecturers and plan for improving their competence;
- ▶ Dissemination of Mapping Results of HR to stakeholders.

Preparation of Institution for producing Human Resources in Maritime

- ▶ Evaluation and Improvement of education packages of Maritime Ports, which is still non-existent;
- ▶ Establish HRD through vocational education;
- ▶ Establishing Maritime Education as needed;
- ▶ Recruitment of HR to develop competence.

5.5.3 R&D and Port Development

Gujarat does not lay much emphasis on research and development for the port sector. Research and development at GMB is handled on a need to hour basis. They do not have a continued focus on research and development. The current direction of GMB in case of research and development includes.

- ▶ IT automation systems
- ▶ Study of appropriate technologies in ship recycling, ship building, etc. in order to incorporate them at the level of tendering
- ▶ Study of adoption of newer concepts like RO-RO and last mile connectivity

The Maritime University that is coming up in Gujarat will help bridge the gap in maritime research and education. Current Indian Scenario presents an opportunity for Gujarat to gain an advantage and become a leader in research and development in shipping and port sector. GMB should look at how global players approach research and development.

Box 26: Singapore's initiatives in R&D in ports

The maritime R&D landscape in Singapore has grown steadily over the last decade, to the current R&D eco-system where the Institutes of Higher Learning and industry players, are undertaking R&D projects.

Areas of R&D: Environmental sustainability, info-communications technologies, safety, automation applicable for shipping and port, and materials, and closely interacting with each other in R&D, education and other areas.

Funds: The S\$150 million Maritime Innovation & Technology (MINT) Fund was established by the Maritime & Port Authority of Singapore in 2003, to develop Singapore as a Centre of Excellence for Maritime R&D and Technology, and to enhance Singapore's position as Premier Global Hub Port and an International Maritime Centre.

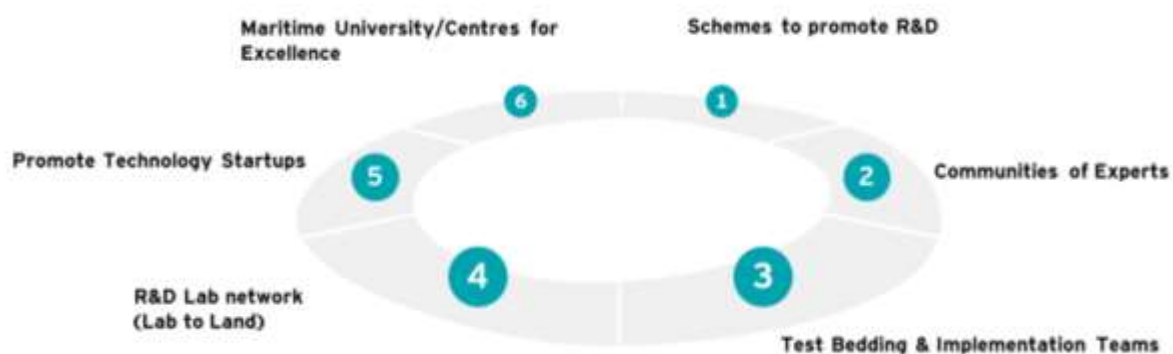
Important Players: Within the industry, the Classification Societies, the shipyards, the terminal operators and maritime companies play a key and active role in driving applied research and technology development.

Globally research and development and innovation based policies have proved to be relatively effective policies. The global players have relied on these policies to help them battle the challenges that are posed by competition, constant technological change, inland logistics, and impact on environment. Research oriented policies tend to attract research institutes and foster local research on port sector. The policy tools are mainly focused on.

- ▶ Improving port performance
- ▶ Attracting innovative port related firms
- ▶ Supporting innovation logistic systems

GMB can create an edge by adding value to the services provided through research and development and thus increases its share amongst the states. For that GMB needs to first develop an ecosystem through which it can create a research and development culture. The tools for developing this ecosystem can be considered as follows.

Figure 5-11: Key initiatives required to promote R&D in Gujarat port sector



- ▶ **Schemes to promote R&D:** There are some schemes that can be adapted to promote research and development in the ports of Gujarat. Subsidies can be given to private ports and operators so that they focus on investing in research and development. Create a corpus to fund the research and development that is available to Universities, researchers, local and foreign companies.
- ▶ **Communities of Experts:** In due time, hone/curate a group of highly knowledgeable individuals, who can guide the development of the sector. Use these groups of individuals to provide consultancy to other states.
- ▶ **Test bedding and implementation teams:** It is important to implement all the innovative ideas at ground level. If they are not conducted at ground level, then the feasibility of that idea cannot be realized. Create cross platform dedicated teams that assist the research team in testing and implementation.
- ▶ **R&D Lab Network:** There should be a head office and a port office for research and development purpose. There should be proper co-ordination and communication between these two offices. Moreover collaboration can be done with local Universities for developing a better network.
- ▶ **Promote Technology Startups:** Involve and promote startups that help in bringing innovation and technological breakthrough through research and development.
- ▶ **Maritime Universities/Centers of Excellence:** Tertiary institutions internationally are emerging from a narrow role as learning institutions, to a broader role serving as technology generators, and generators of new companies. In the US it is often community

colleges - the equivalent of polytechnics - that are filling local vacuums by providing the training and social hubs of local cluster. They are offering specialised training for SMEs, building alumni networks, providing technology transfer, and also acting as the neutral catalyst in bringing the diverse stakeholders in a local cluster together to establish areas of collaborative engagement. A detailed description is provided in section 4.5 Ancillary Infrastructure Development, further sub section 4.5.2 Skill Improvement.

5.5.4 Role of Cluster Development

Earlier we understood what a maritime cluster is and what good strategies that can be included to develop a maritime cluster. Now we will explore the good practices one must follow to have a developed cluster and become a Marine Cluster Organization (MCO). Basically we will talk about what are the primary benefits we can extract from the MCO, what approach should be considered and what initiatives can be taken to extract that benefit.

The main benefits that could be extracted through a MCO would be.

- ▶ **Promotion of maritime cluster:** While promoting the maritime cluster, a project based approach is ideally suitable. The major initiatives in this approach would be.
 1. **Promotion campaigns through websites, videos and presentations:** The websites can bring new business to a region by including a manufacturers' and service providers' database of products, capabilities and contacts, a supplier data base (including business service providers), and be a clearinghouse for business opportunities, personnel and job postings and new technologies. The site could also carry, or link to, information on government cluster policy and support interventions.
 2. **Distribution of reports on economic importance of the cluster:** Employment, business start-up data, growth rates and market projections data aggregated and published for clusters that the state or private sector have identified would help clusters and agencies plan and design programmes.
 3. **Organization of promotion events:** Provide support for trade missions, visits to international exhibitions and, particularly, focused study tours to relevant and appropriate locations.

- ▶ **Focus in maritime cluster organization on education, training and the labor market:** When focus is on education, training and labour, a project based and organization structural approach is viable. The major initiatives that can be taken in this approach would be.
 1. **Programs in cooperation with Universities and professors:** Developing on-the-job training for port operations, for seafarers to leverage on the incentives for them to reach the top of their professions.
 2. **Organizing recruitment campaign and recruitment fairs:** Organise outreach events and publicity campaigns to offer maritime-related education and career guidance and help to link the industry with schools for internship and job opportunities.
 3. **Development of platforms to exchange best practices:** Setting up a portal for maritime careers to allow the public to access maritime career opportunities and training-related information. Identify jobs in other sub-sectors (ship owning, ship management, and ship agency) that offer crossover opportunities. A sectoral

manpower plan for Transport (Sea) should be developed by looking at best practices to address the manpower challenges in the maritime industry.

- ▶ **Focus in maritime cluster on R&D and Innovation activities:** For R&D and innovation in maritime cluster, a project based approach along with structural approach would be required. However, this approach is a high budgeted approach requiring the support of government programs. The major initiatives that can be taking in this approach would be.
 1. **Government projects**
 2. **Structural cooperation with R&D Institutes and Universities:** Institutions that teach in a cluster context produce workers who are more productive, informed about labour markets and better connected to employers.
 3. **Development of platforms to exchange best practices:** The most effective networks are based on some sort of existing relationships among entrepreneurs, such as incubators, economic development programmes, common sources of capital, associations, etc. Innovative companies can benefit greatly from networks forming, for example, around common problems or specific technologies.

5.6 Way forward

Gujarat has been a part of India's glorious maritime history past since many millenniums. The state has always played a catalytic role in the growth of country's economy. Since the introduction of port policy of 1995, cargo traded through modern ports in Gujarat have grown at a compounded rate of 19 percent, till last financial year 2016-17. Gujarat ports contribute around a substantial 32 percent of total cargo traffic handled by India, excluding the major port at Kandla. The success of Gujarat's maritime industry success can be attributed to combined initiatives introduced through, Port Policy 1995, BOOT Policy 1997, and Ship Building Policy by Gujarat Maritime Board.

Through the new port policy, along with realising the future cargo handling potential of Gujarat Ports, which stands at approximately 1,000 million metric tonnes for year 2032 (refer section 4.1), there is an opportunity for Gujarat to consolidate its position as not only the leader in cargo handling but set a precedent in port-led industrialization.

In order to understand the strategic interventions required to achieve this objective, EY has discussed and debated the need, expectations and challenges with the stakeholders of industry as well as GMB officials. Detailed national as well as sectorial research of the maritime industry, with the objective of identifying areas in which GMB should focus on, was also carried out by EY.

In this 'Policy Options' report, EY has carefully studied and analysed the performance of the 1995 Port Policy as well as GMB as an organization to establish the as-is scenario. Based on the comprehensive understand of the industry and potential of Gujarat, EY has identified 'Focus' or 'Thematic' areas. A total of 10 themes have been identified and discussed, where the first five themes discussed are with the perspective of requirements of the Maritime Industry and subsequent five discuss the implementation support required from GMB as an organization.

Themes for Industry

Theme 1: Scale v/s Spread	Theme 2: Make in Coastal Gujarat
<ul style="list-style-type: none"> ▶ Enhancing cargo handling capacity ▶ Captive Jetties to be promoted / Continued ▶ Hub & Spoke Model for cargo ▶ Role of GMB in Scaling up 	<ul style="list-style-type: none"> ▶ Supporting Coastal Economic Zones ▶ Revival of Gujarat Ship Building industry ▶ Promoting Coastal Shipping ▶ Building SMART logistic network
Theme 3: Ease of Doing Business	Theme 4: Safe & Sustainable Ports
<ul style="list-style-type: none"> ▶ Reviewing existing Management Structure ▶ Re-vitalizing Private Participation ▶ Re-engineering Automation in Port Operations ▶ Faster Investment/ Approval/ Procurement channel 	<ul style="list-style-type: none"> ▶ Minimizing impact on Coastal Ecology ▶ Development of offshore wind energy Parks ▶ Combined Strategy for Greener and Safer Ports
	Theme 5: Ancillary Infrastructure Development
	<ul style="list-style-type: none"> ▶ Developing the Infrastructure ▶ Skill Improvement ▶ Maritime Facilities and Services

Themes for GMB

Theme 1: Governance	Theme 2: Infrastructure
<ul style="list-style-type: none"> ▶ Options for Governance role ▶ Corporatization/Privatization of GMB ports 	<ul style="list-style-type: none"> ▶ Port Led Industrialization ▶ Cluster and Community Development
Theme 3: Optimizing Port Productivity	Theme 4: Improving Revenue Sources
<ul style="list-style-type: none"> ▶ Infrastructural & Site constraints in optimum Capacity Utilisation ▶ Operations Inefficiencies in Port Operations 	<ul style="list-style-type: none"> ▶ Review of existing Financial Status ▶ Other Sources of Revenue Generation ▶ Financing Options
Theme 5: Innovation	
<ul style="list-style-type: none"> ▶ Harnessing IT at Gujarat Maritime Board ▶ Human Resource in Port Management ▶ R&D and Port Development ▶ Role of Cluster Development 	

For each theme, EY has analysed the challenges and potential and presented a course of action as strategy recommendations for the future.

Way Forward

Subsequently these Themes will be presented and discussed with the Industrial Stakeholders and GMB officials at a Stakeholder Workshop in the end of April 2017. Feedback received from the stakeholders will be documented and submitted in form of a Proceeding Report to GMB.

Thereafter, a Draft Policy Document will be formulated on the themes discussed in the Policy Options Report which will incorporate the feedback and recommendations received (from industry and GMB) during the Stakeholder Workshop. The Draft Policy document will also consist of the incentive schemes required to provide thrust to the focus areas of the industry. The document will then be circulated amongst the stakeholders through electronic mail and letters and their feedback will be documented.

A second Stakeholder Workshop will be held to discuss the draft policy. The feedback received in the second Stakeholder Workshop will be documented and incorporated in the Draft Policy Document. The Port Policy document will be finalized as per the inputs from GMB and subsequently submitted.



Annexure

Annexure

Annexure 1: Captive Jetties along the Gujarat Coast

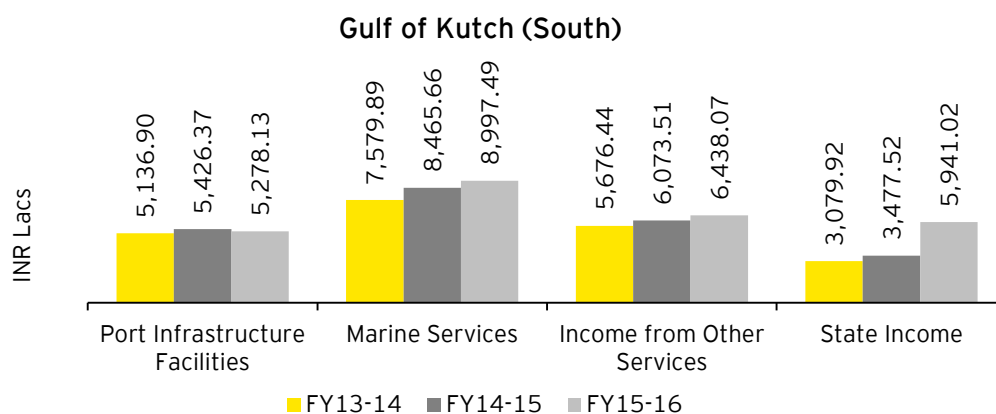
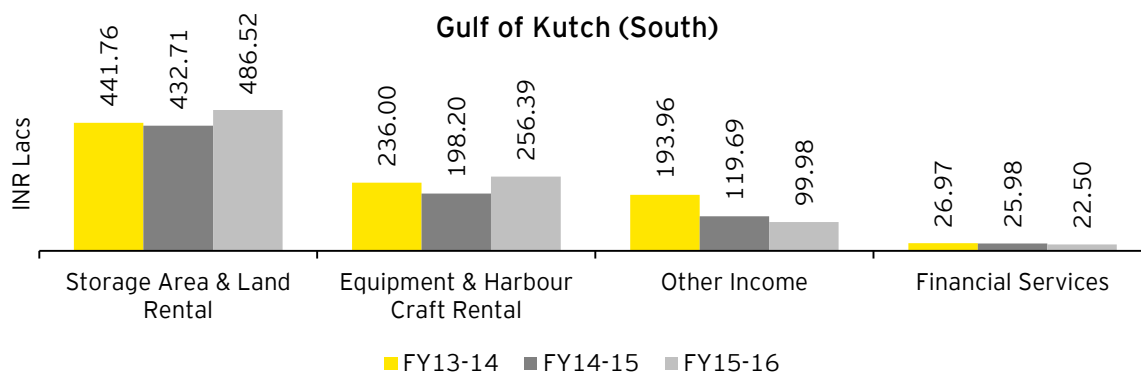
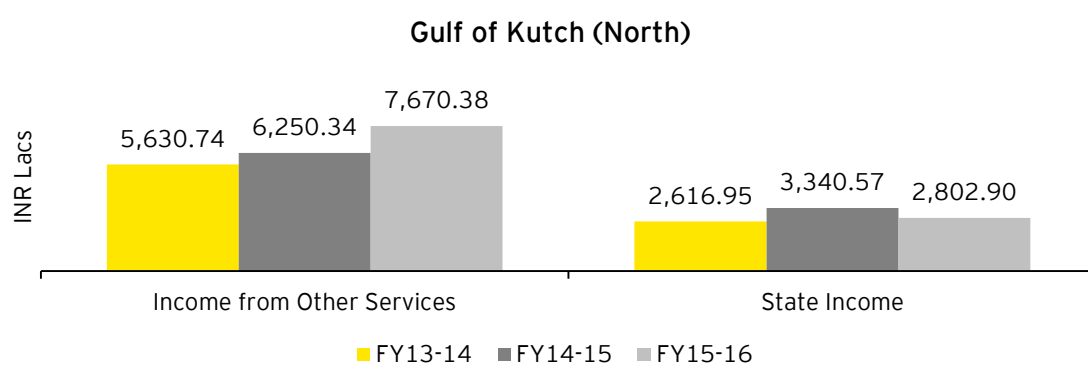
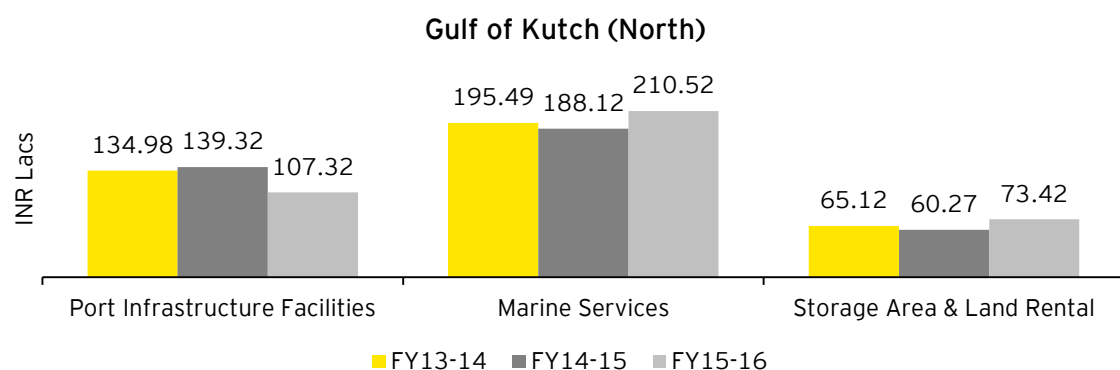
S No	Name of the company	Location	Nature of Jetty
1	Shree Digvijay Cement Company Ltd	Sikka	Cement
2	Gujarat State Fertilizer Corporation	Sikka	Ammonia
3	M/s Reliance Industries Ltd.	Hazira	Ethylene jetty
4	M/s Gujarat Ambuja Cement Co. Ltd	Hazira	Cement jetty
5	M/s Larsen & Toubro Ltd	Hazira	Cement jetty
6	Gujarat Ambuja Cement Co. Ltd (old jetty)	Muldwarka	Cement
7	M/s Essar Steel Ltd	Hazira	Sponge Iron
8	M/s Reliance Industries Ltd.	Hazira	SPM
9	M/s Reliance Industries Ltd.	Hazira	EDC - RORO
10	M/s IPCL (Now RIL)	Dahej	Liquid jetty
11	M/s Ultra Tech Cement Ltd.	Kovaya	Cement jetty
12	GACL (new jetty)	Muldwarka	Cement
13	M/s Reliance Ports & Terminal Ltd.	Sikka	RO-RO
14	M/s Reliance Industries Ltd.	Hazira	Gas jetty
15	M/s Dahej Harbour Infrastructure Ltd.	Dahej	General Cargo
16	M/s RPTL - 4 Tanker berth	Sikka	Liquid Cargo
17	M/s Reliance Ports & Terminal Ltd. (SBMs)	Sikka	SPM - 2 nos.
18	M/s Essar LPG jetty	Hazira	LPG
19	M/s Sanghi Industries Ltd.	Jakhau	Cement / Clinker
20	RPTL - SPM No. 5	Sikka	SPM
21	RPTL - SPM No. 4	Sikka	SPM
22	RPTL - SPM No. 3	Sikka	SPM
23	M/s Essar Steel Ltd (1st Extension)	Hazira	Sponge Iron
24	BORL - SPM	Sikka	Crude oil
25	M/s EBTL (2nd Expansion)	Hazira	Sponge Iron
26	RPTL - Fifth Berth at Product Jetty	Sikka	Liquid Cargo
27	Cairn Energy India Pvt. Ltd	Bhogat	Crude Oil
28	J.P. Associates Ltd.	Khara creek	Cement/coal
29	ABG Cement Ltd.	Khara creek	Cement/coal

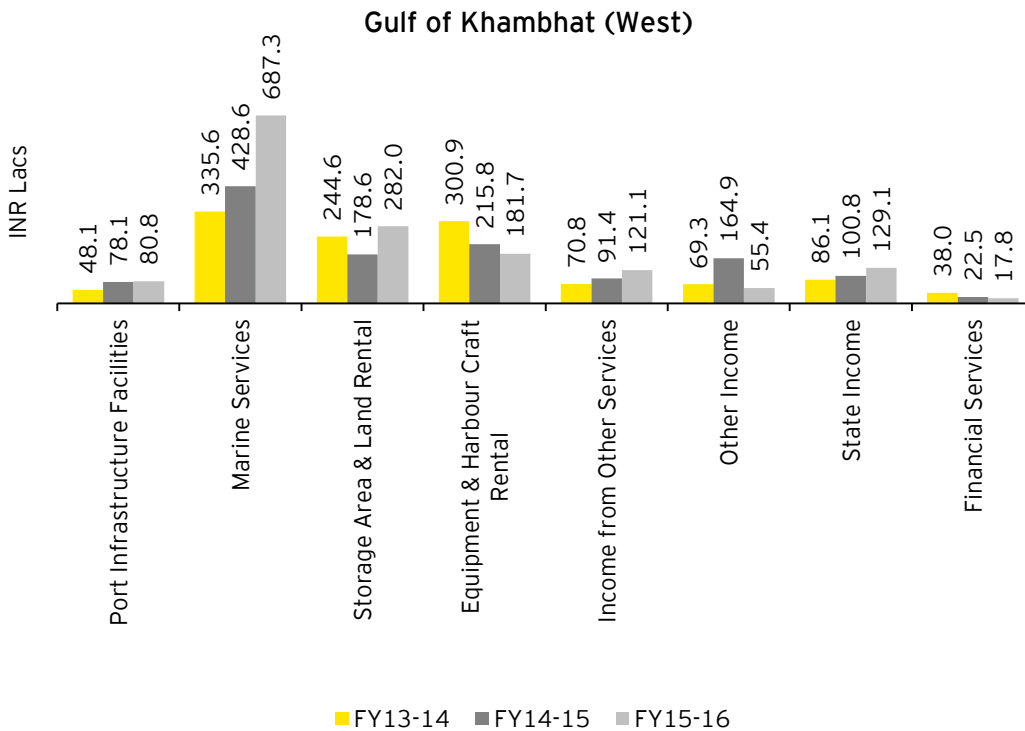
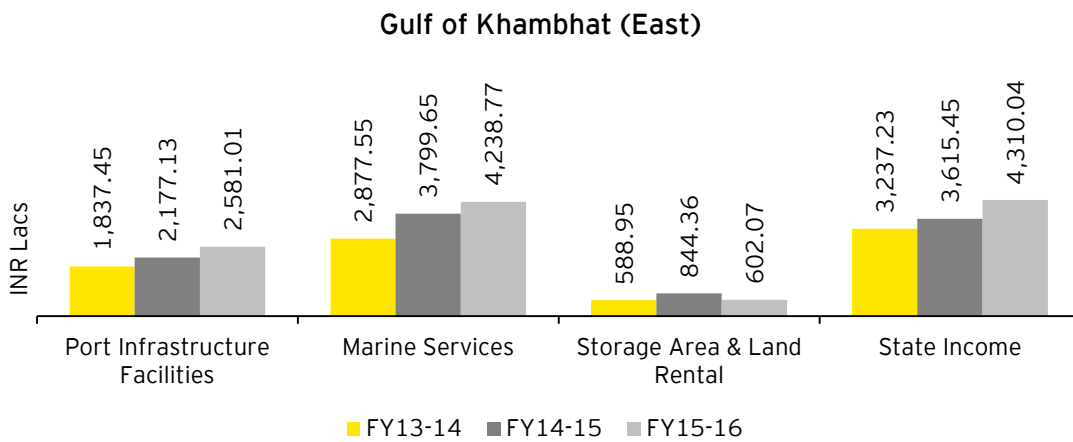
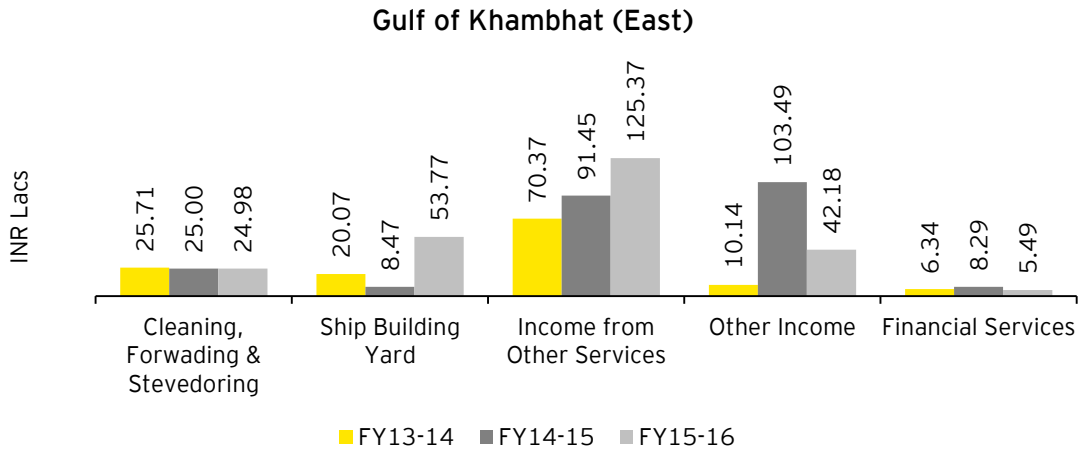
Annexure 2: GMB Departments and their Roles

Department	Role
Engineering	Prime Responsibility is in execution of Civil engineering projects at GMB. They also do project monitoring and implementation of special projects (Like Ro-Pax Ferry Project etc.)
Human Resources	They are responsible for dealing with all administrative matters like staff matters, establishment including Recruitment, training, confidential reports, etc.
Finance and Accounts	Primarily responsible for dealing with all financial matters of the Organization. They are also entrusted with the responsibility of budget preparation, fund disbursement, trust management, etc.
Nautical	Nautical Branch deals with matters related to Disaster management, pollution control and navigational issues. It also works towards implementation of IV Act, IMO regulations etc at various ports of the State.
Mechanical	Primarily responsible for execution of mechanical projects, including procurement & disposal. They also conduct regular maintenance of mechanical & electrical equipment/ assets of GMB.
Dredging	Responsible for carrying out dredging work within GMB ports. They also conduct regular maintenance and manning of dredgers and dredging equipments of GMB.
IT	Responsible for computer and system related matters at GMB. They also take care of procurement of computers, installation of software (IPMS, Tata Ex etc.) at GMB ports.
Business Development Cell	<p>Traffic</p> <p>Primarily responsible for compiling traffic data and fixing SOPC. Traffic Branch also provides permissions for lease of GMB plots, godowns, etc.</p> <p>Public Relations</p> <p>Public Relations Cell deals with all public relations and marketing efforts such as road shows, press, media content, etc. They also supervise execution of various investors/ stakeholders' events, exhibitions, conferences or seminars undertaken by GMB.</p>

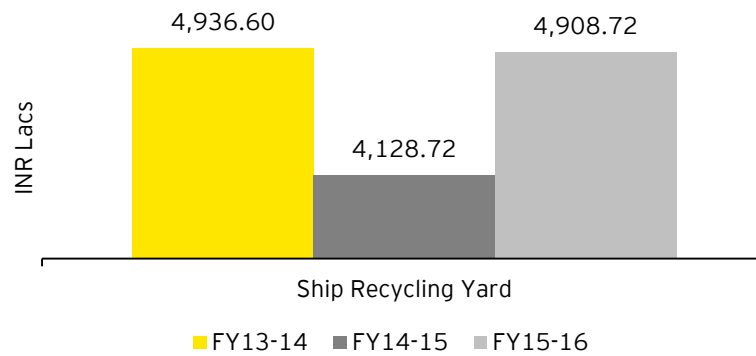
Department	Role
Projects	Primarily responsible for dealing with all project monitoring system for all civil and mechanical projects. Apart from that Projects Branch also constitute Strategic Cell, which works towards many Strategic projects and related initiatives.
Privatization	Privatization Cell deals with matters related to development of Greenfield ports / private jetties / captive jetties / shipyards on PPP basis such as conducting feasibility study, bidding, DPR approval, Concession Agreement approval etc.
Environment	Environment Branch is responsible for all environment related matters for ports such as carrying out studies, liaison with MoEF/ GPCB and ensuring compliance with environment laws at GMB.
Alang	Responsible for execution of Ship Breaking Rules and Regulations for facilitating ship recycling activities at Ship Recycling Yards at Alang and Sachana.

Annexure 3: Region wise Income Head wise Distribution

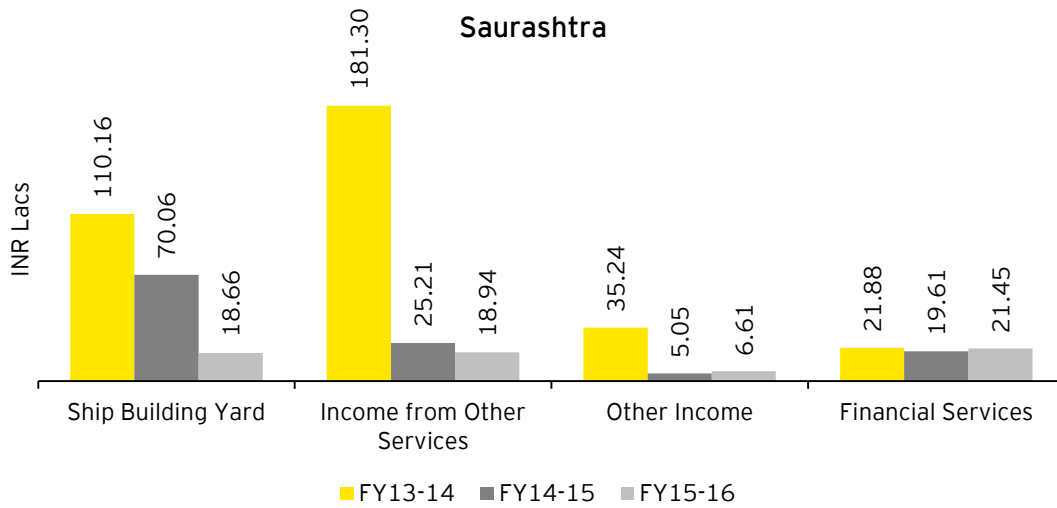




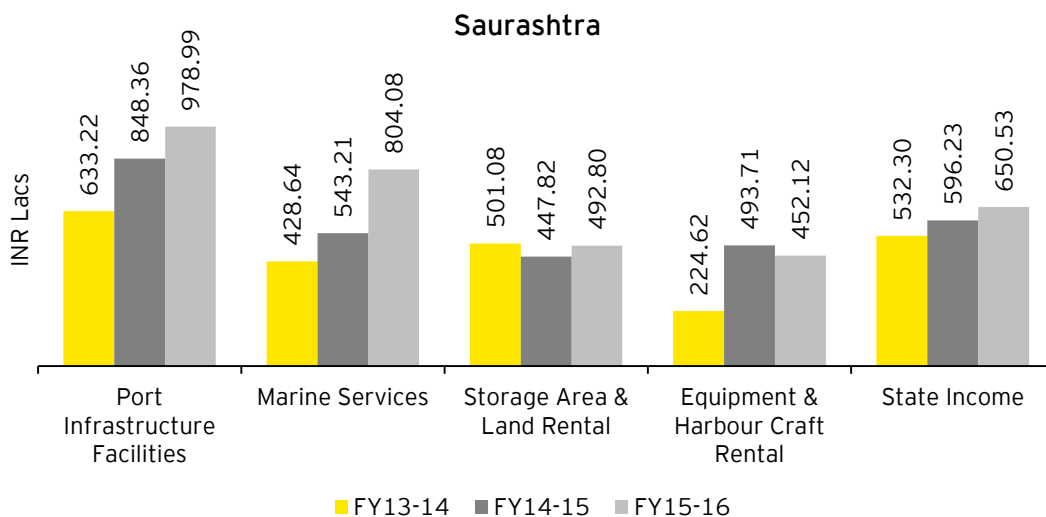
Gulf of Khambhat (West)



Saurashtra



Saurashtra



Annexure 4: Region wise Revenue Expenditure Head wise Distribution

