“A STUDY ON

PERFORMANCE ANALYSIS OF COASTAL SHIPPING IN INDIA”

A dissertation submitted to the Indian Maritime University in partial fulfillment of the requirement for the award of the degree of Master of Business Administration in Port and shipping management

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DECLARATION

I hereby declare that the project report titled "**A STUDY ON PERORMANCE ANALYSIS OF COASTAL SHIPPING IN INDIA"**, submitted for the partial fulfillment of the requirement for the award of the Degree of Master of Business Administration of the School of Maritime Management, Indian Maritime University, Kochi campus is the bonafide work done by me. This submission represents my ideas in my own words and where ideas or words of others have been included. I also declare that I have adequately and accurately cited and referenced the original sources. I also declare that I have adhered to ethics of academic honesty and integrity and have not misrepresented or fabricated any data or idea or fact or source in my submission. This report neitherin full nor in part has ever been submitted for any award of any degree of either this university or any other university.

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CERTIFICATE

This is to certify that the report titled **"A STUDY ON PERORMANCE ANALYSIS OF COASTAL SHIPPING IN INDIA"** submitted to the School of Maritime Management, Indian Maritime University, Kochi Campus, by **SUHAIL KC** (**2005304027)** in partial fulfillment of the requirements for the award of d**e**gree of **Master of Business Administration in Port and Shipping Management** is a bonafide record of work done under my guidance.

Date : **SUHAIL KC**

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ABBREVIATIONS

BCE	Before the Common Era
BPO	Business Process Outsourcing
BRICS	Brazil, Russia, China and South Africa
CAC	Criteria Air Contaminants
DIPP	Department of Industry Policy and Promotion
DWT	Dead Weight Tonnage
EC	European Community
FDI	Foreign Direct Investment
FO	Fuel Oil
FY	Financial Year
GDP	Gross Domestic Product
GHG	Green House Gas
GSDP	Gross State Domestic Product
GRT	Gross Rate Tonnage
GT	Gross Tonnage
HSD	High Speed Diesel
LDO	Light Diesel Oil
LNG	Liquefied Natural Gas
MARAD	Maritime Administration
SSS	Short Sea Shipping

LIST OF TABLES, CHARTS AND FIGUERS

CONTENTS

CHAPTER-1

INTRODUCTION

The term coastal shipping refers trade transit of a vessel along the coast, from one port to another within the territorial limits of a single nation. It is also called as Short Sea Shipping (SSS). The historical terms coastal trade, coastal shipping, coasting trade and coastwise trade, which encompass the movement of cargo and passengers mainly by sea along a coast, without crossing an ocean. In Indian Context, we can define a Coastal vessel as a vessel of Indian registry with Indian Crew, engaged in carrying cargo or passengers through sea from one Indian port to another port in the Indian Premises or any other vessels having specified period of licence or permit to be a carrier in coastal trade issued by the Director General of Shipping.

Coastal shipping or Short sea shipping is the term utilized for portraying the movement of goods through with in a specific nation. It has various focal points such as it is financially savvy, environment inviting and more supported than other methods of Cargo transport in different nations. It is one of the most important means of transport for carrying goods from one part to another in a country. It is a cheaper and quicker mode of transport and is most suitable for carrying heavy, bulky and cheap traffic like coal, iron ore, etc. to distant places. But it can serve only limited areas. Coastal shipping offers several advantages over other modes of transportation in terms of cost and volume. However, it cannot operate in isolation and needs the support of road and rail services to transport cargo from factories and warehouses to ports and then deliver it to customers from destination ports.

The modern terms short-sea shipping sometimes, marine highway, and motorways of the sea, and the more historical terms coastal trade, coastal shipping, coasting trade, and coastwise trade, all encompass the movement of cargo and passengers mainly by sea along a coast, without crossing an ocean.

1.1 COASTAL SHIPPING - GLOBAL PERSPECTIVE

It is one of the most important means of transport for carrying goods from one part to another in a country. It is a cheaper and quicker mode of transport and is most suitable for carrying heavy, bulky and cheap traffic like coal, iron ore, etc. to distant places. But it can serve only limited areas. Water transport is the cheapest and the oldest mode of transport. It operates on a natural track and hence does not require huge capital investment in the construction and maintenance of its track except in case of canals. The cost of operation of water transport is also very less. It has the largest carrying capacity and is most suitable for carrying bulky goods over long distances. It has played a very significant role in bringing different parts of the world closer and is indispensable to foreign trade.

The United States maintained these terms from its colonial era, including for domestic slave trade that shipped slaves by water from the Upper South to major markets, especially New Orleans. The US and began regulating general coasting trade as early as 1793, with "An act for enrolling and licensing ships and vessels to be employed in the coasting trade and fisheries, and for regulating the same", which passed Congress on 18 February that year. Over the years, it has been codified as Title 46 of the United States Code, Chapter 551 (46 USC Ch. 551), "Coastwise Trade".

Some short-sea ship vessels are small enough to travel inland on inland waterways. Short-sea shipping includes the movements of wet and dry bulk cargoes, containers and passengers around the coast (say from Lisbon to Rotterdam or from New Orleans to Philadelphia). Typical ship sizes range from 1,000 DWT (tonnes deadweight – i.e., the amount of cargo they carry) to 15,000 DWT with drafts ranging from around 3 to 6 m (10 to 20 ft). Typical (and mostly bulk) cargoes include grain, fertilizers, steel, coal, salt, stone, scrap, minerals, and oil products (such as diesel oil, kerosene, and aviation fuel), containers, and passengers.

In Europe, short-sea shipping is at the forefront of the European Union's transportation policy. It currently accounts for roughly 40% of all freight moved in Europe. In the US, short-sea

shipping has yet to be used to the extent it is in Europe, but there is some development. The main advantages promoted for this type of shipping are alleviation of congestion, decrease of air pollution, and overall cost savings to the shipper and a government. Shipping goods by ship (one 4,000 DWT vessel is equivalent to between 100–200 trucks) is far more efficient and cost-effective than road transport (though the goods, if bound inland, have to be transferred and delivered by truck) and is much less prone to theft and damage.

Roughly 40% of all freight moved in Europe is classified as short-sea shipping, but the greater percentage of this cargo moves through Europe's heartland on rivers and not oceans. In the past decade, the term short-sea shipping has evolved in a broader sense to include point-to-point cargo movements on inland waterways as well as inland to ocean ports for shipment over oceans.

In the Netherlands the sector has seen rapid growth, aided by a tax-enabled investment scheme. The traditional region for building "coasters" is the province of Groningen, where most wharfs have side-laying ship slides. The major trend is to have bare hulls made with cheaper labor in Poland or Romania and to finish them in the Netherlands.

In Philippine law, short-sea shipping or coastwise trade is defined as the transport of either merchandise or passengers between two seaports in the Philippines Only vessels with coastwise license secured from and issued by the Maritime Industry Authority can legally engage in coastwise trade in the Philippines. Only vessels with certificate of Philippine registry are eligible for the license. The Philippine coastwise emblem must be hoisted at the main mast of engaged vessels when leaving or entering Philippine seaports.

Great Lakes Feeder Lines of Burlington, Ontario, Canada was the first company to operate a "fit for purpose", European-built short-sea shipping vessel, named Dutch Runner, on the St. Lawrence Seaway under Canadian flag. During the winter of 2008–2009, it operated a weekly, fixed service between Halifax and St. Pierre et Miquelon, carrying roll-on/roll-off, break bulk, containers, and refrigerated goods. Crew on the ship can load and unload it with the two 35-tonne cranes.

1.2 COASTAL SHIPPING - IN INDIA

India has a long coastline of 5,560 Kms., having access to the sea on three sides with 11 major and 168 minor/intermediate ports. Major ports are directly under the administrative control of Central Government while minor/intermediate ports are managed and administered by the respective maritime State Governments. It is a well-known fact that the shipping has always been regarded as an important transport sector of national activities in all maritime countries, and it is well suited for transportation of bulk cargoes at low cost. Coastal Shipping, as a complimentary mode of transport is not only an economic necessity but also a valuable asset in times of emergency.

India lies in geographical proximity to important shipping routes which gives a natural advantage to the country's shipping. Moreover, shipping is no longer an isolated mode of transport but firms a part of an intermodal transport chain linking other transport modes. National Shipping helps in making the country more self-reliant and provides the necessary strategy support in critical times. It also helps in extending the resource base of the country by enabling the harnessing of the wealth of the adjoining seawaters.

India has the one of fastest growing service sectors in the world with annual growth rate of above 9% since 2001. India has become a major exporter of IT services, BPO services. Despite having an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks freight transportation by waterways is highly under-utilized. Waterways currently contribute around 6% to India's transportation modal mix, which is significantly less than that in developed economies and some of the developing economies as well.

It is estimated that coastal shipping traffic of about 250 MMTPA can be achieved from current and planned capacities across coal, cement, iron and steel, food grains, fertilizers, POL by 2025. Additionally, about 125 MMTPA of cargo is expected to be moved via inland waterways by 2025.

Availability of dedicated infrastructure will go a long way in promoting coastal shipping as a mode of freight transportation. Hence, infrastructure at ports and supporting infrastructure using rail/road and waterways to facilitate coastal movement are being created. These include development of dedicated coastal berths, bunkering and storage at ports and creation of supporting hinterland transport infrastructure with last mile connectivity to realize the potential, Ministry of Shipping has been focusing on improving the coastal Shipping and Inland Waterways Transport which is an environment friendly mode of transport. Government of India has undertaken various initiatives to promote coastal shipping such as,

- Relaxation in licensing for foreign flag vessels to transport fertilizers, agricultural products and EXIM containers for trans-shipment in India on coastal routes under section 406 and 407 of the Merchant Shipping Act
- Licensing Relaxation for special vessel such as RO-RO, RO-pax, ODC etc. has been extended till 2020.
- Priority berthing policy for coastal vessels has been notified to reduce turnaround time for coastal vessels and improve their utilization
- A discount of minimum 40% is offered by major ports on vessel and cargo related charges to vessels carrying coastal cargo. For the case of Ro-Ro car carriers, this discount is extended to the tune of 80%.
- GST Reduced on Bunker Fuel from 18% to 5%
- Grant-in-aid assistance to develop berths and associated infrastructure including dredging, Break-water creation, mechanization under the coastal berth scheme has been extended till 2020 Pursuant to the above, India has witnessed a steady growth of 11.3% of cargo movement on coastal routes from 2015-16 to 2018-19.

1.3 ROLE OF PORTS IN COASTAL SHIPPING

Ports constitute an important economic activity in coastal areas. The higher the throughput of goods and passengers' year-on-year, the more infrastructure, provisions and associated services are required. These will bring varying degrees of benefit or disadvantage to the local and regional economy and to the environment. Ports are also important for the support of economic activities in the hinterland since they act as a crucial connection between sea and land transport.

As a supplier of jobs, ports do not only serve an economic but also a social function. However, since cargo nowadays is loaded and unloaded mechanically, the effects of changes in the amount of goods handled on local employment or the demand for port services is difficult to ascertain. Transport is one of the main sources of NOx and SOx and greenhouse gases giving rise to air pollution that can seriously damage ecosystems and public health. Many countries across the world promoting short sea shipping heavily over the past twenty years or so, largely because of the environmental advantages of conveying goods by sea rather than by air or road. In those sectors where it competes directly with other means of transport, shipping is by far the most energy efficient form of transport. The indicator helps to understand developments in the freight and passenger transport sectors in response to sectoral policies for sustainable transport and development. The indicator can also be related to trends observed in the impact of transport on the environment. The measurements of these indicator should help us to gain an insight into the vitality of ports and to compare them in terms of economic importance.

Ports produce a combination of public and private goods. Public goods include those that are inherently no divisible and no consumable, such as public safety, security, and a healthy environment on the one hand, and coastal protection works necessary to create port basins on the other hand. Private goods are both consumable and divisible and their use entails a minimum of economic externalities.

1.4 REVIEW OF LITERATURE

To further problem identification, the empirical and conceptual works related to coastal shipping have been collected. An attempt has been made to collect the related review of literature from the magazines, journals, websites and other reports. The following were the some of the review of literature on coastal shipping over last 10 years.

S. Anil Radhakrishnan (2020)[1]reported that the operational incentive for vessel operators has been enhanced by the government as part of promoting coastal shipping in the State. The operational incentive will be 50% of the road transportation cost per loaded containers of 20 feet and will be applicable to the ports of Kollam, Beypore and Azhikkal at the rates prevalent in Cochin port and Vallarpadam container terminal. The reference rates will be those decided by the respective Port authorities.

TE Raja Simhan (2019)[2] reported that the day is not too far off when cargo from Assam travels all the way down south and vice-versa via Inland Waterways Transport (ITW) and coastal shipping. In the last couple of years, the Centre has given tremendous impetus to both coastal shipping and IWT in an attempt to reduce logistics cost to less than 10 per cent of GDP on par with developed countries such as Germany from the present 13 per cent.

Dr. Vishwapati Trivedi (2017)[3] opined that Coastal shipping has attracted a fair share of attention of the government in the last 3-4 years. He also suggested that the basic premise was that laws relating to coastal shipping are a part of the Merchant Shipping Act, 1958, and so most conditions relating to pollution control, manning norms and other operating norms are generally benchmarked to the ocean-going ship levels. He concluded by saying that it may have a long

[1] S. Anil Radhakrishnan, "A shot in the arm for coastal shipping", The Hindu news papper,21-02-2020.Pp 08-10
[2]TE Raja Simhan, coastal shipping and transport via inland waterways made quite a ripple, thehindubusinessline.com 2019.
[3]Dr. Vishwapati Trivedi, "Indian Coastal Shipping - Policies, current updates & vision", EXIM India Newsletter Mumbai, 2017.

way to get to a perfect solution, but the efforts under the Sagarmala Project and the efforts of the authorities to streamline the regulatory regime have already created a positive sentiment towards this mode of transportation.

Captain Anand Chopra (2014)[4] opined on the importance and advantages of coastal shipping in India. He explained about costal shipping is lagging behind in our country the author explains to us about how coastal shipping is lagging behind in our country. In our country when we talk about domestic transportation we think about road or rail we don't think of our coastal shipping. He has made a classification on the share of cargo movement within India by various modes.

Siddharth Paradkar (2013)[5] focused on the advantages, challenges and the way forward for the coastal shipping sector in India. There are many inherent advantages of this mode of transportation. Coastal shipping or use of water as a mode of transportation is much safer, more economical and less polluting. He explained that the challenges are legislation and regulations, inadequate infrastructure at ports, high port charges, and awareness, consistency of service and cost and availability.

S.N. Srikanth (2013)[6] expressed that the modal shift to coastal waterways, hurdles to growth of coastal shipping and users concern to be addressed for coastal shipment to grow. He has highlighted the point that movement of freight by coastal ship and integration of coastal shipping into the transport network could supplement land-based transport modes and relieve the burden on them. He has explained his idea of multimodal transportation with an example of moving good from north to south of India. Chandigarh to Coimbatore normally it would be moved via road or rail. He

[4]Captain Anand Chopra, 16 April 2014: "INDIA: COASTAL SHIPPING – TIME TO CHANGE ", www.shippingtribune.com/india-coastal-shipping-time-change. P-p16.
[5]Siddharth Paradkar 2013 "coastal shipping the neglected mode of transportation" TATA Strategic Management Group. Pp 15-16
[6] S.N. Srikanth (National conference Mumbai) 2013. "Coastal Shipping an environmentally friendly alternative" confederation of Indian industry institute of logistics and Harbour associations. Pp 14-15

explained that Some important reasons for the poor utilization of coastal shipping are because of the high cost at major ports, more preference given to international vessels, shallow draft in the non-major ports, lack of connectivity and mainly lack of awareness among the people.

Joseph Fonseca (2011)[7] has given an overview of the Indian shipping sector. He has made a comparison of situations happening in India, U.S, and European Union Countries. He has identified the key trends expected to drive coastal shipping in India. Containerization is expected to boost the volume. He has made suggestions such as decrease in procedural delay, customs procedure, and specialized terminals for coastal shipping to ensure quick turnaround time.

Asha Pillai and Jose Paul (2011)[8] explained about coastal shipping and cabotage policy. The article gives us the information on the TEU and number of vessels handled by various liners such as Maersk, MSC, CMA, COSCO, Hapag-Lloyd etc. They also explain the coastal shipping in India. They said that the role of containerization is expected to drive coastal shipping to a higher level. They analyze the major commodities by coastal shipping in India are break bulk cargo including POL, coal, and Liquid bulk cargo.

Joseph D.T (2010)[9] examined the salient features of costal shipping in India. This study analyzed the taxation policy in coastal shipping and the benefits to the carrier. In addition to this, the influence of Cabotage Law in costal shipping industry in India also analyzed. The results and discussion the study sate that the benefits of Indian flag vessels that it has an upper hand in the coastal shipping industry as the law prevents the foreign ships from conducting service between domestic ports. Finally, it concluded that there will be a tremendous potential for costal sector when comparing with road and rail transport.

[7]Joseph Fonseca April 20, 2011 "Growing opportunities in Indian coastal trade" Ernst and Young. Pp-14
[8] Asha Pillai and Jose Paul 2011; "Effects of Cabotage Policy on Coastal Shipping" AMET Journal of Management. Pp 13-14
[9] Joseph D.T. 2010. "Costal Shipping in India: The Need for Maritime Constituency." RITEZ Journal 2(1): 12 - 25. Pp-13

Charanya Krishnan (2008)[10] has started his article with an important notation "Whoever controls the Indian Ocean, dominates Asia'. he focused on both coastal and inland waterways and defined coastal shipping as an eco-friendly, gainful and energy proficient mode of transport. He has made an assessment on past performance infrastructure in India has always provided tremendous potential for coastal shipping to take off. In the past, the flow of bulk goods from west coast hinterlands to the east coast Hinterlands always followed the coastal route. He has also made a comparison of coastal shipping versus road and rail. This gives us the insight that this mode of transportation in all the areas of minimal cost, fuel efficiency. He has also made reference on tax in the maritime sector. The final analysis on the various cost aspects involved in this mode is very interesting. He has not made use of much of analytical data he has focused more on conceptual data.

S. Sundar and Pragya Jaswal (2007) [11]has made their research on hurdles to growth of coastal shipping and factors that have slowed down the growth of coastal shipping in India. They have highlighted the point that Coastal shipping, involves double-handling costs. Lack of policy measures to promote coastal shipping is another reason why it accounts for only 7% of domestic cargo movement. They provide many recommendations to improve coastal shipping based on cabotage policy, ship acquisition, Tax, Vessels. Etc.

[10]Ms. Charanya Krishnan, "Unlocking India's Coastal Shipping Business Potential", business-group-co-co50webs. com, 2008
[11]S. Sundar and Pragya Jaswal 2007 "Bottlenecks in the Growth of Coastal Shipping". PP 11-12, INRM Policy Brief No.14,2007

1.5 NEED FOR THE STUDY

India has a competitive advantage of a long coastline spread across 3 sides of the country which help for both the costal shipping as well as overseas shipping After independence, the industrialization in the country has speeded up and the industrial policies taken by Government of India have boosted industrial growth of the country. There is some industry which are located near by the costal line of India and few are well connected with the inland water ways. These industries will be benefitted if the row materials and finished products are moved through costal shipping. As we know among all the modes of transport, sea transport is the cheapest. So, for the internal trade, the coastal trading is also grown to a large extend. The potentials of the sector have not been put to optimal use. It is important to analyze the future demand of cargo under this sector and equip the sector to meet the future demand.

With a coastline of 5560 kms. and access to the sea on three sides with 11 major and 168 minor/intermediate ports in India, there remains a huge untapped potential for movement of cargo along the Indian coast without crossing an ocean. The primary advantages of coastal shipping are huge cost savings to the shipper and government, reduction of road traffic congestion and decrease in air pollution. Transportation of goods by coastal vessel is far more efficient and cost-effective than road transport and is much less prone to theft and damage. Coastal shipping is ideal for transportation of Containers, Project Cargoes, Over Dimensional Cargoes, RORO cargoes such as cars, trucks, semi-trailer trucks, trailers, and railroad cars, Dry Bulk Cargoes like grain, fertilizers, steel, coal, salt, stone, scrap and minerals and Liquid Bulk Cargoes like oil products (such as petrol, diesel oil, kerosene, aviation spirit).

The Indian Shipowners and Shippers may like to make immediate efforts for transportation of goods by inland water ways instead of by road, in view of the overall increase in vehicle on National High-ways which has led to high density of traffic, excessive fuel consumption due to poor

maintenance and tremendous increase in the accident rate as well as pollution. This is very important in view of the fact that the Government of India had introduced a new subsidy scheme for transportation of goods by inland waterways to reduce congestion and pollution on National Highways. In view of the above, I wish to make study on status on costal shipping in India which is having more potential growth in feature.

1.6 OBJECTIVES OF THE STUDY

- To give an overview of costal shipping in India.
- To identify the factors contributing and effecting costal shipping in India.
- To know the legal frame work of costal shipping in India.
- To find out cargo movement and future demand of costal shipping.
- To draw the conclusions and offer suggests in costal shipping in India.

1.7 METHODOLOGY OF STUDY

1.7.1 COLLECTION OF DATA

The required data for the project is collected from secondary sources. The sources include - Collecting Information from various books, manuals, annual reports, websites, Journal, magazines, Newspaper etc.

1.7.2 ANALYSIS OF DATA

The analysis was made on the basis of statistical tables taken from various reports for past 10 years. Further, the interpretation for the each of the tables is made by calculating annual average growth rate. For better presentation and understanding of data, graphical representation is made (pie chart, bar chart) by using MS Excel.

1.8 LIMITATIONS OF THE STUDY

- Time constrain was one of the major problems faced in study.
- This study is limited to the available secondary data.
- COVID times has become the constrain to collect the primary data.

1.9 PRESENTATION OF THE STUDY

The project report is chaptered and presented as follows:

- Chapter one deals with costal shipping, global and Indian scenario of costal shipping, role of ports in costal shipping, review of literature, need of the study, objectives, collection of data and limitations of study.
- Chapter two explain about the costal shipping in India at glance, advantages and disadvantages of costal shipping, challenges faced by costal shipping, costal states in India, Major commodities transported costal shipping India and Major ports in India.
- Chapter three shows the meaning of maritime law, cabotage law, cabotage policy in India and measures taken by government for costal shipping in India.
- Chapter Four is the Data Analysis and Interpretation
- Chapter Five is the Summary, Findings, Suggestions and Conclusions of the Project.

CHAPTER-2

COASTAL SHIPPING IN INDIA :: AN OVERVIEW

India has a long coastline, spanning 7516.6 kilometers, forming one of the biggest peninsulas in the world. It is serviced by 13 major ports (12 government and 1 corporate) and 187 notified minor and intermediate ports. These ports account for nearly 90% (by volume) of India's international trade. Yet, coastal shipping accounts for only 6 per cent of the country's total domestic freight (on a ton-km basis). The explosive economic growth as seen in India over the past decade has led to congested roads and over burned railway network. India has 4 million kms of roads, accounting for nearly 60% of the domestic traffic of which the National Highways', which are 1.7% of the network, carry as much as 40% of the road freight. The Indian Railway network, one of the largest in the world is overburdened and operating at over 100% utilization. Thus, the coastal shipping plays a key role in overcoming the barriers in road and railways in mode of transport and also reduces the cost by providing the transportation through coastal shipping.

Transport demand in India has grown at 8.5% in the past decade. About 65% of the freight is carried by road and about 35% by rail. Road transport imposes substantial costs on the economy from congestion, accidents, energy consumption, and environmental damage. Coastal shipping is environment-friendly and much safer. Fuel consumption for every ton-kilometer of freight carried is only 15% of that by road and 54% of that by rail. The emissions (except SO2) also are much lower than in rail or road transport. Coastal shipping is also more suited to handling bulky consignments. Coast-to-coast carriage of goods by coastal shipping costs 21% that by road and 42%that by rail.

Road transport has an edge over rail or water transport because most of the production and consumption centers are landlocked. Also, it provides door-to-door movement. Over the years, there has been substantial investment in its infrastructure. Coastal shipping, on the other hand, involves double-handling costs. Lack of policy measures to promote coastal shipping is another reason why it accounts for only 7%of domestic cargo movement. The average public sector investment in

shipping in the five-year plans was only 5% (almost entirely allocated to overseas shipping) as against 51% for railways and 32% for the road sector. Maritime states and the Government of India have invested scantily to develop minor ports to create earmarked facilities for coastal cargo. Other factors that have slowed down the growth of coastal shipping are:

- Cumbersome customs procedure
- Non availability of concessional finance to acquire coastal vessels
- High import duties on bunker oil and spares
- High manning scales which increase operational costs
- Stringent specifications relating to construction of vessels, leading to higher capital costs
- Incidence of corporate tax for coastal as against tonnage tax for oceangoing vessels and personal income tax which discourages quality officers from continuing on Indian coastal vessels.
- Lack of separate berthing facilities at major ports and inadequate cargo handling facilities at minor ports.

India, is the second largest country in Asia, with 13 major ports and close to 200 minor ports. The major ports in India are Calcutta, Haldia, Paradip, Visakhapatnam, Ennore, Chennai, Tuticorin, Cochin, New Mangalore port trust (NMPT), Mormugao, Jawaharlal Nehru Port Trust (JNTP), Mumbai, and Kandla. Approximately, 95 per cent of the country's trade by volume (70 per cent in terms of value) is moved by sea. Karnataka has a coastline of 300 km with one major port at New Mangalore and minor ports. Karwar port is located at the northern extremity of the state in Latitude 12º48' N and Longitude 74º7' E. The improvement can be done by Extension of the Existing Berth and land reclamation, Dredging, and Construction of Petrol, Oil and Lubrication (POL) loading Jetty. Finally, the development of minor ports supports the major ports which directly and indirectly helps to improve the economy of the developing countries like India.

2.1 ADVANTAGES AND DISADVANTAGES OF COASTAL SHIPPING

Advantages

- It operates on a natural track as sea provides a readymade 'road bed' for the ships to sail. Hence, it does not require huge amount of capital investment in the construction and maintenance of its track.
- Due to the smooth surface of sea, comparatively less tractive power is required for its operation which results in a lesser cost of operation. Thus, it is the cheapest mode of transport.
- It has the largest carrying capacity as compared to any other transport.
- The risk of damage in transit of the goods is also less as compared to other modes of transport. But the goods are exposed to the 'perils of sea'.
- It is the only suitable mode of transport for carrying heavy and bulky goods to distant places.
- It is an environment friendly and fuel-efficient alternative to road and rail transport.
- Can ship large volumes at low costs - a freight forwarder can consolidate consignments to reduce cost.

Disadvantages

- Speed of Coastal transport is very slow and therefore this mode of transport is unsuitable where time is an important factor.
- It can be used only in a Coastal area.
- It cannot be operated for transportation throughout the year as because sediments to the sea will reduce the draught.
- Coastal shipping is not suitable for small traders, as it takes normally a longer time to carry goods from one place to another through this form of transport.
- Shipping by sea can be slower than other transport modes and bad weather can add further delays
- Coastal shipping can be slower than trucking and the cargo can be delayed due to congestion at

the ports.

- Congestion can cause additional costs of storage / demurrage and Customs delays can also be exacerbated at ports due to more formal procedures or inadequate staffing.
- Coastal shipping will still require final mile delivery, whereas direct trucking can be door/ door and will be accompanied.
- Coastal shipping can run along a coast but also from one land mass to another (e.g. Antwerp to Gothenburg) where comparable transport would have to use ferries and long overland diversions.
- Coastal shipping is now being subjected to new regulations concerning low Sulphur bunker fuel (costing more than regular fuel) and ballast water management rules. These regulations do not apply to trucks and railways so they do not have the same or comparable competitive and cost pressures.

2.2 PROBLEMS/CHALLENGES FACED BY COASTAL SHIPPING IN INDIA

Absence of framework: It is one of the greatest challenges faced by Coastal Shipping industry. The administration has neglected to create infrastructure that is relied upon to make shipment simple and proficient. Infrastructure includes electricity, road network and area development which supplements the utilization of this shipping.

Absence of supporting government plans: Unlike different channels of transportation, the administration has not endeavored any benefit to advantage coastal shipping monetarily. Organizations utilizing Coastal shipments up to this point needed to confront unforgiving and unbiased duties like no exclusion from Income charge, traditions obligation on fortifications, landing expenses, and so on.

Moderate and lumbering procedure at Customs: The shipment procedure is to a very slow contrasted with other methods of transport which are much speedier. Organizations are unwilling

to squander valuable time in holding fast to these procedures. Different elements that have backed off the development of Coastal Shipping are: -

- Non-availability of concessional fund to procure Coastal vessels
- High import duties on bunker oil and spares
- High manning scale which increase operational costs.
- Stringent particulars identifying with development of vessels, driving to higher capital expenses
- Incidence of corporate tax for coastal as against tonnage charge for oceangoing vessels and individual wage charge which disheartens quality officers from proceeding on Indian beach front vessels
- Lack of partitioned berths at Major ports and deficient cargo handling facilities at minor ports.

2.3 ROLES OF MINOR PORTS IN COASTAL SHIPPING

Shipping plays an important role in the transport sector of India's economy. Approximately, 95 percent of the country's trade by volume (70percent in terms of value) is moved by sea. India, is the second largest country in Asia, has a coast line about 7500km and is studded with 13 major ports and close to 200 minor ports. The major ports in India are Calcutta, Haldia, Paradip, Visakhapatnam, Ennore, Chennai, Tuticorin, Cochin, New Mangalore Port Trust, Mormugao, Jawaharlal Nehru Port Trust, Mumbai, and Kandla. In 2007, 74% of cargo traffic handled by majorseaports and nearly 10-15% by intermediate ports. The major Ports handle more than 911.5 milliontons of cargo annually as per 2012. The Indian ports and shipping industry play a crucial role in sustaining growth in the country's trade and commerce. India currently ranks 16th among the maritime countries.

The new manufacturing and power projects and higher cargo traffic at ports, the sector is poised for significant development. During 2013-14, India's major ports handled 555.50MT of cargo as compared to 545.83 MT handled in 2012-13, and 387.9 MT handled by minor ports in 2012-2013, registering a growth of 1.8 percent. The State governments have realized the strong growth potential and the increasing need for robust port infrastructure, and have consequently provided sops and a favorable investment climate which are attracting investments from private players into the sector. Through its Maritime Agenda 2010-2020, the Ministry of Shipping has set a target capacity of over 3,130 MT by 2020, largely through private sector participation. More than 50 per cent of this capacity is expected to be created at non-major ports (minor ports). Visakhapatnam port looks forward to a bright year in 2014-15, as several development projects are on the verge of completion, and the port expects to handle not less than 65 MT of cargo during the year, according to Mr. GVL Satya Kumar, Deputy Chairman, and Visakhapatnam Port Trust. Hence, the major ports would not be able to take the higher rates of traffic growth if the necessary programs for capacity augmentation do not take place. The major ports' preoccupation with international trade will influence increase in coastal vessel operations.

The coastal trade will have to increasingly lean on minor ports for servicing their incremental needs. Hence, minor ports also play an important role in increasing the country trade and economy of the developing countries. The Inland waterway transport also has considerable untapped potential. It holds promise of its emergence in future as a credible mode of transport. For example, import order of coal from Indonesia, Australia and china for merchant power projects have been issued and since ports in Chennai, Ennore and Tuticorin cannot handle the huge consignment of coal, minor ports at Manapadu, Nagapattinam, Cuddalore, Marakkanam, Thirukadaiyur and Cheyyur have been sanctioned to ease the congestion in coal traffic. For the whole of last year (2013-14), the cumulative volume growth at the dozen plus one ports, which hasa market share of 57%, was a paltry 1.78% at 555.49 MT. These ports are located at Kolkata, Vizag,

Paradip, Chennai, Tuticorin, Ennore, Cochin, New Mangalore, Mumbai, Navi Mumbai, Mormugao and Kandla. Private ports (essentially those owned by the state governments but given to private firms for development and operation) account for the balance 43% share of India's sea-borne cargo with a volume of 420.24 MT. A look at the data compiled by the Indian Ports Association (IPA), a body representing the 13 ports and intermediate ports, gives an indication that India's in-bound and out-bound cargo shipped through these ports is improving, compared with the sluggishness seen in the last three-four years, chiefly fallout of the global meltdown of 2008. Driving this volume growth is India's voracious appetite for thermal coal that is used to fire power stations. Between April and September, thermal coal loadings at the 13 ports jumped 8.54% to 39.59 MT from 36.48 MT a year earlier. Last year, the 13 ports loaded a combined 71.60 MT of thermal coal, 22% more than the 58.65 MT handled in the previous year. Coal imports have been increasing sharply year-on year because of a severe shortage of coal in India despite significant coal reserves. The ports located at Paradip. Vizag, Ennore, Tuticorin, New Mangalore and Mormugao are ramping up their coal loading capacities to cater to the rising demand for imports.

Ports in India are classified into two categories namely Major Ports and Minor Ports. "Major Port" means any port, which the central government may by notification in the official Gazette declare, or may under any law for the time being in force have declared to be a major port. Ports other than Major Ports are classified as "Minor Ports". There are 13 Major Ports & 200 Minor/Intermediate Ports along the coast line of the country (figure 2.1 below).

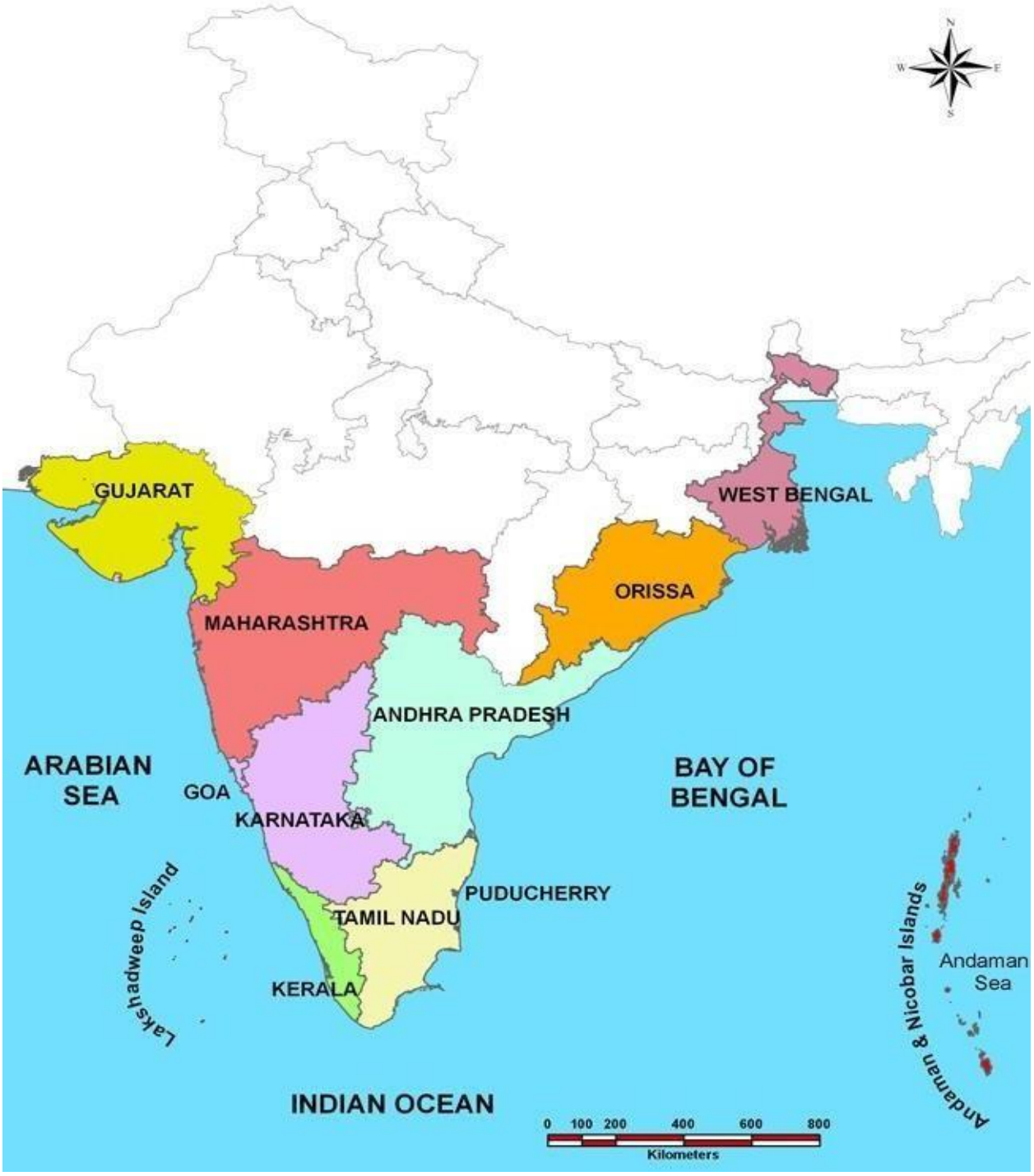
Fig 2.1: Major Ports and Minor ports in India (Source: www.mapsofind)

2.4 COASTAL STATES OF INDIA

Length of Coastline	7516.6 KM Mainland-5422.6 KM Island Territories-2094 KM
Total Land Area	3287263 KM^2
Maritime States & Union Territories	Nine Coastal States & 2 Union Territories 1.Gujarat 2.Maharastra 3.Goa 4.Karnataka 5.Kerala 6.Tamilnadu 7.Andhra Pradesh 8.Orissa 9.West Bengal Union Territories 1.Daman and Diu 2.Puducherry Island Territories 1. Andaman and Nicobar Islands 2. Lakshadweep
Total Number of Coastal Districts	69 Coastal Districts in Mainland India,3 in Andaman and 1 in Lakshadweep
Major Ports	12
State ways Number of Ports	1.Gujarat-40 2.Maharastra-53 3.Goa-5 4.Karnataka-10 5.Kerala-13 6.Tamilnadu-15 7.Andhra Pradesh-12 8.Orissa-2 9.West Bengal-1 Union Territories 1.Daman and Diu-2 2.Puducherry-1

Table 2.2 shows coastal states of India Source: -Indian ports association website (www.ipa.nic.in)

2.3 Map of Coastal States in India



(Source: www.mapsofind)

2.4.1 A BRIEF OF COASTAL STATES

Gujarat

Gujarat is a state in Western India, It has an area of 196,024 km^2 (75,685 SQ. MI.) with a coastline of 1,600 km (990 mi), most of which lies on the Kathiawar peninsula, and a population in excess of 60 million. Gujarat State has the longest sea coast of 1600 km in India. Kandla Port is one of the largest ports serving Western India. Other important ports in Gujarat are the Port of Navlakhi, Port of Magdalla, Port Pipavav, Bedi Port, Port of Porbandar, Port of Veraval and the privately owned Mundra Port. There are 19 coastal districts in Gujarat.

Gujarat has a revealed comparative advantage in the exporting activity over the other states. More than one-fifth of the exports of the country originate from Gujarat. Gujarat has the revealed comparative advantage in ground-nuts, oil meals, castor oil, poultry & dairy product, spices, sesame & Niger seeds, processed food & vegetables & fruits, cotton yarn & fabric, man- made textiles, handicrafts, and cotton raw including waste.

Maharashtra

Maharashtra occupies the western and central part of the country and has a long coastline stretching nearly 720 kilometers along the Arabian Sea. Maharashtra is one of the largest states in India. Maharashtra is India's leading industrial state contributing 13% of national industrial output. It had a long History in textiles and Mumbai was the original home of India's textile mills. Solapur, Ichalkaranji, Malegaon and Bhiwandi are some of the cities known for textile industry today.

Pharmaceuticals, petrochemicals, heavy chemicals, electronics, automobiles, engineering ng, food processing, and plastics are some of the major industries in the state. Maharashtra is renowned for the production of three-wheelers, jeeps, commercial vehicles and cars, synthetic fibers,cold rolled products and industrial alcohol. Small scale industries have also come up in a big way in the state. The state capital Mumbai and the Mumbai Metropolitan Region has historically been the most industrialized area in the state.

Karnataka

Karnataka is a state in south western region of India. The capital and largest city is Bangalore (Bengaluru). Karnataka is bordered by the Arabian Sea and the Laccadive Sea to the west,Goa to the north west, Maharashtra to the north, Telangana to the North east, Andhra Pradesh to theeast, Tamil Nadu to the south east, and Kerala to the south west. The state covers an area of 191,976square kilometers (74,122 sq. mi), or 5.83 per cent of the total geographical area of India. It is the seventh largest Indian state by area.

It has a coastline of 300 km. Karnataka has one major port named New Mangalore Port and twelve Minor Ports from Karwar in the North to Mangalore in the south, situated in the three Coastal Districts of Uttara Kannada, Udupi and Dakshina Kannada. The twelve minor ports of the State from the North to the South are Karwar, Belekeri, Tadri, Pavinakurve, Honnavar, Manki, Bhatkal, Kundapur, Hangarkatta, Malpe, Padubidri & Old Mangalore Port. Coffee, chemicals, food grains, cloths are the major export items of Karnataka.

Andhra Pradesh

Andhra Pradesh is situated on the south eastern coast of the country. The state is the eighth largest state in India covering an area of 160,205 km^2 (61,855 sq. mi). The state has a coastline of 974 km (605 mi), the second longest among all the states of India after Gujarat. It is bordered by Telangana in the north-west, Chhattisgarh in the north, Odisha in the north- east, Karnataka in the west, Tamil Nadu in the south and the water body of Bay of Bengal in the east. A small enclave of 30 km2 (12 sq. mi) of Yanam, a district of Puducherry, lies south of Kakinada in the Godavari delta to the northeast of the state. Andhra Pradesh has one of the country's largest port at Visakhapatnam in terms of (cargo handling). The other famous ports are Krishnapatnam Port (Nellore), Gangavaram Port and Kakinada Port. Gangavaram Port is a deep seaport which can accommodate ocean liners up to 200,000–250,000 DWT. There are 14 notified non-major ports at Bheemunipatnam, S. Yanam, Machilipatnam, Nizampatnam, Vadarevuet.

Goa

Goa is a state located in the South western region of India. Goa encompasses an area of 3,702 km^2 (1,429 SQ.MI.). It has a coastline of 101 km it is bounded by the state of Maharashtra to the north, and by Karnataka to the east and south, while the Arabian Sea forms its western coast. It is India's smallest state by area and the fourth smallest by population. Goa is visited by largenumbers of international and domestic tourists each year for its beaches, places of worship and worldheritage architecture. It has rich flora and fauna, owing to its location on the Western Ghats range, a biodiversity hotspot. The Mormugao harbor near the city of Vasco handles mineral ore, petroleum, coal, and international containers. Much of the shipments consist of minerals and ores from Goa's hinterland.

Tamil Nadu

Tamil Nadu covers an area of 130,058 km^2 (50,216 SQ.MI.), and is the eleventh largest state in India. Its capital and largest city is Chennai (formerly known as Madras). Tamil Nadu lies in the southernmost part of the Indian Peninsula and is bordered by the union territory of Puducherry and the South Indian states of Kerala, Karnataka, and Andhra Pradesh. It is bounded by the EasternGhats on the north, by the Nilgiri, the Anamalai Hills, and Kerala on the west, by the Bay of Bengalin the east, by the Gulf of Mannar and the Palk Strait on the southeast, and by the Indian Ocean on the south. It also shares a maritime border with the nation of Sri Lanka.

Tamil Nadu has three major seaports located at Chennai, Ennore and Tuticorin, as well as seven other minor ports including Cuddalore and Nagapattinam. Chennai Port is an artificial harbor situated on the Coromandel Coast and is the second principal port in the country for handling containers.

Kerala

Kerala is a state in South India on the Malabar coast. Spread over 38,863 km^2 (15,005 sq. mi), It is bordered by Karnataka to the north and northeast, Tamil Nadu to the east and south, and the Lakshadweep Sea to the west. Kerala is the thirteenth largest state by population and is divided into 14districts with the capital being Thiruvananthapuram. Malayalam is the most widely spoken and the official language of the state. The region has been a prominent spiceexporter since 3000 BCE. The production of pepper and natural rubber contributes significantly to the total national output. In the agriculture cultural sector, coconut, tea, coffee, cashew and spices are important.

The state's coastline extends for 595 kilometers Kerala is one of the prominent tourist destinations of India, with backwaters, beaches, Ayurvedic tourism and tropical greenery as its major attractions. Kerala has one major port, 17 minor ports and a few mini ports. The state has numerous backwaters, which are used for commercial inland navigation. Transport services are mainly provided by country craft and passenger vessels. There are 67 navigable rivers in the state while the total length of inland waterways is 1,687 kilometers.

Orissa

Orissa or Odisha is one of the 29 states of India, located in the eastern coast. It is surrounded by the states of West Bengal to the north-east, Jharkhand to the north, Chhattisgarh to the west and north-west, and Andhra Pradesh to the south and south- west. Odisha has 485 kilometers of coastline along the Bay of Bengal on its east the state has an area of 155,707 km2, which is 4.87% of total area of India, and a coastline of 450 km.

Pradip Port is one of the Major Ports of India located in Orissa serving the Eastern and Central parts of the country. Its hinterland extends to the States of Odisha, Jharkhand, Chhattisgarh, West Bengal, Madhya Pradesh, Bihar and other upcountry destinations. Odisha has seen substantial growth in the export sector, according to the Directorate General of Commercial Intelligence and

Statistics (DGCI&S). Apart from minerals, metallurgical products and software, which are the major export items from the state, State has huge potential in handloom, textiles, handicrafts and agriculture products

West Bengal

West Bengal is a state in eastern India and is the nation's fourth-most populous state. Spread over 34,267 sq. mi (88,750 km2). It has a coastal line of 158 km. It is bordered by the countries of Bangladesh, Nepal and Bhutan and the Indian states of Odisha, Jharkhand, Bihar, Sikkim and Assam. The state capital is Kolkata. Together with the neighboring nation of Bangladesh, it makes up the ethno-linguistic region of Bengal. The Port of Haldia is a major seaportand industrial city in West Bengal, India.

Located about 50 kilometers southwest of Kolkata (formerly Calcutta), the Port of Haldia lies near the mouth of one of the distributaries of the Ganges, the Hugli River. It is currently being developed as a trade port for bulk cargoes serving Kolkata. food grains, thermal coal, calcinated petroleum coke, jute and jute products, iron and steel, pig iron, tea, metal and metal products, machinery, mica, and other general cargoes.

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2.5 MAJOR COMMODITIES TRANSPORTED THROUGH COASTAL SHIPPING

he following commodities are mostly transporting through coastal shipping in India.

Crude Oil

Crude oil Originating ports are from Mumbai, Rawan and Cuddalore and the discharge ports are to Vizag, Cochin, Chennai and Kandla, Mangalore, Nagapattinam. In India 3500 barrels of crude oil is produced in a day but only half of it is transported through coastal shipping. As the domestic production of crude is likely to be around 32 million tonnes in the coming years as per the estimates of Ministry of Petroleum and Natural Gases. The only competing mode of transport with coastal shipping for crude movement is pipelines, which directly transport crude from oil fields to refineries. Crude oil and its products account for about 35 percent of energy supply as against nearly 50 percent by Coal. The country has less than one- percent share in the global production of crude oil, 1.1 percent in natural gas, 2.8 percent in crude oil consumption and one percent in natural gas. Crude from onshore oil fields is mainly transported through pipelines and in case of offshore oil fields, coastal route is also used. Road and rail are not playing any role in transporting the crude oil.

Petroleum Oil and Lubricants Products (POL PRODUCTS)

Petroleum and oil products are originating at major ports and at Sikka with sources being Jamnagar, New Mangalore, Mumbai, Cochin, Pradip, Vizag, Chennai and Haldia, where refineries are situated. The key destinations are Vizag, Kandla, Haldia and Mumbai. Petroleum products comprise petrol, diesel, ethane, LPG, aviation gasoline, motor gasoline, jet fuels, kerosene, heavy fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other products like coal tar etc. While usage of oil and gas as primary sources of energy is well below the world percentages in India, it is second primary energy source after coal.

Transportation of petroleum products from refinery location to distribution centers is carried out by individual modes like road, rail, sea and pipelines or in combination of two or more of these modes as per the ground situation. Bulk movement of petroleum products is done mainly through coastal mode, rail and pipelines. Since these are required to meet their specific needs, the oil companies supply them by sourcing the same from whichever refinery has a surplus at that moment which leads to lot of crisscross movement. It is seen that the share of the coastal mode is 17 %, Rail 37 %, Pipelines 23 % and Road 20 %. Now a days the pipelines are aligned either coast to inland (from coast-based refineries) or located inland where there plays a complementary role to coastal mode of shipping. In most cases their role is complementary to coastal mode.

Coal

Coal mining in India has a long history of commercial exploitation covering nearly 220 years starting in 1774. Coal India limited and its subsidiaries accounted for 494.23 million tonnes during 2017-18 as against a production of 462.41 million tonnes in 2016-15 showing a growth of 6.9%. In India top coal producing states are Orissa, Chhattisgarh, Jharkhand, West Bengal, Madhya Pradesh, Telangana and Maharashtra. Country's 83% of the existing coal reserves belong to the Non-coking category (Grades E, F, G) which is consumed mainly for Power, cement and fertilizer production.

As per the report ministry of coal in 2017–18, nearly 740 Million Metric Tonnes Per Annum (MMTPA) of coal moved through the country predominantly through rail. Only 23 MMTPA moved through coastal shipping even though this mode costs one-sixth that of rail cost (INR 0.2 per ton km vs. INR 1.2 to 1.4 per ton km). More than 90 % of the rail routes relevant to coal are running at over 100 % utilization. With the expected ramp-up in coal production by Coal India Limited, India may need to move 1,000 to 1,200 MMTPA coal across the country by 2025, creating tremendous pressure on the already congested railways. It is estimated that using the right infrastructure and institutional support, India can coastally move 155 to 160 MMTPA of coal, and save around INR 6,500 Crore per annum, by 2020. This will help to save 1 lakh rail-rake days that can be used for other

commodities. Since logistics contribute 30 to 35 percent of the cost of power generation, this initiative will also directly cut power costs by 50 paisa per unit for coastal power plants fed coal coastally.

Liquefied Natural Gas (LNG)

India is 6th largest LNG importer, importing 13.5 MMTPA. Ongoing development ofrequired infrastructure such as LNG regasification terminals and natural gas pipeline in the countryis further strengthening the development of LNG market in India.

LNG Terminals in India

- Pipavav LNG Terminal (APM Terminals)
- Mundra LNG Terminal (GSPC/Adani)
- Ennore LNG Terminal Ltd(IOCL/TIDCO)
- Mangalore LNG Terminal Ltd
- Pradip LNG Terminal(GAIL)
- Kochi LNG Terminal (Petro net)

Iron Ore

At present, over 99 per cent of India's iron ore is produced by just five states of Karnataka, Orissa, Chhattisgarh, Goa and Jharkhand. This fact speaks volumes of high concentration of iron ore reserves and their lopsided distribution in the country. Apart from the major producing states described above, iron ore in small quantities is produced in some other states also. They include Maharashtra: Chandrapur, Ratnagiri and Sindhudurg; Tamil Nadu: Salem, North Arcot Ambedkar, Tiruchirapalli, Coimbatore, Madurai, Nellai Kattabomman (Tirunelveli); Andhra Pradesh: Kumool, Guntur, Cuddapah, Ananthapur, Khammam, Nellore;Rajasthan: Jaipur, Udaipur, Alwar, Sikar, Bundi, Bhilwara; Uttar Pradesh; Mirzapur, Uttaranchal: Garhwal, Almora, Nainital; Himachal Pradesh: Kangra and Mandi; Haryana: Mahendragarh; West Bengal: Burdwan,

Birbhum, Darjeeling; Jammu and Kashmir: Udhampur and Jammu; Gujarat: Bhavnagar, Junagadh, Vadodara; and Kerala: Kozhikode. India is the fifth largest exporter of iron ore in the world. India Export about 50 to 60 per cent of our total iron ore production to countries like Japan, Korea, European countries and lately to Gulf countries. Japan is the biggest buyer of Indian iron ore accounting for about three- fourths of our total exports. Major ports handling iron ore export are Vishakhapatnam, Pradip, Marumage and Mangalore.

Cement

India is the second largest producer of cement in the world. India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. Ever since it was deregulated in 1982, the Indian cement industry has attracted huge investments, both from Indian as well as foreign investors India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major government initiatives such as development of 98 smart cities are expected to provide a major boost to the sector. Originating ports are Muldwarka, Porbunder, Jafarabad, Pipavav and discharge ports are Dharmtar, Ulwa Belapur, JNPT, Ratnagiri, Magdalla, New Mangalore and Cochin.

India's cement demand is expected to reach 550-600 Million Tons Per Annum (MTPA) by 2025. The housing sector is the biggest demand driver of cement, accounting for about 67 % of the total consumption in India. The other major consumers of cement include infrastructure at 13 %, commercial construction at 11 % and industrial construction at 9 %. To meet the rise in demand, cement companies are expected to add 56 million tons (MT) capacity over the next three years. The cement capacity in India may register a growth of 8 % by next year end to 395 MT from the current level of 366 MT. It may increase further to 421 MT by the end of 2019. The country's per capita consumption stands at around 190 kg.

At present across India coastal shipping is still the most preferred mode of cement transportation with rail being the second most opted mode. Coastal shipping vessels carry huge volumes of load and the transportation is much faster and economical compared to rail as well as road transport routes, which are comparatively congested. Not only coastal shipping will be a game changer for the cement industry, but will also take a major share in overall India´s logistics and supply chain space.

Iron and Steel

India's iron and steel industries are one of the important backbones in the wealth of the country. In 2017-2018, India was the third largest producer of raw steel and is the largest producer of sponge iron in the world. The industry produced 91.46 metric tons of total finished steel and 9.7 metric tons of pig iron. Most iron and steel in India are produced from iron ore. There are more than 50 iron and steel industries in India.

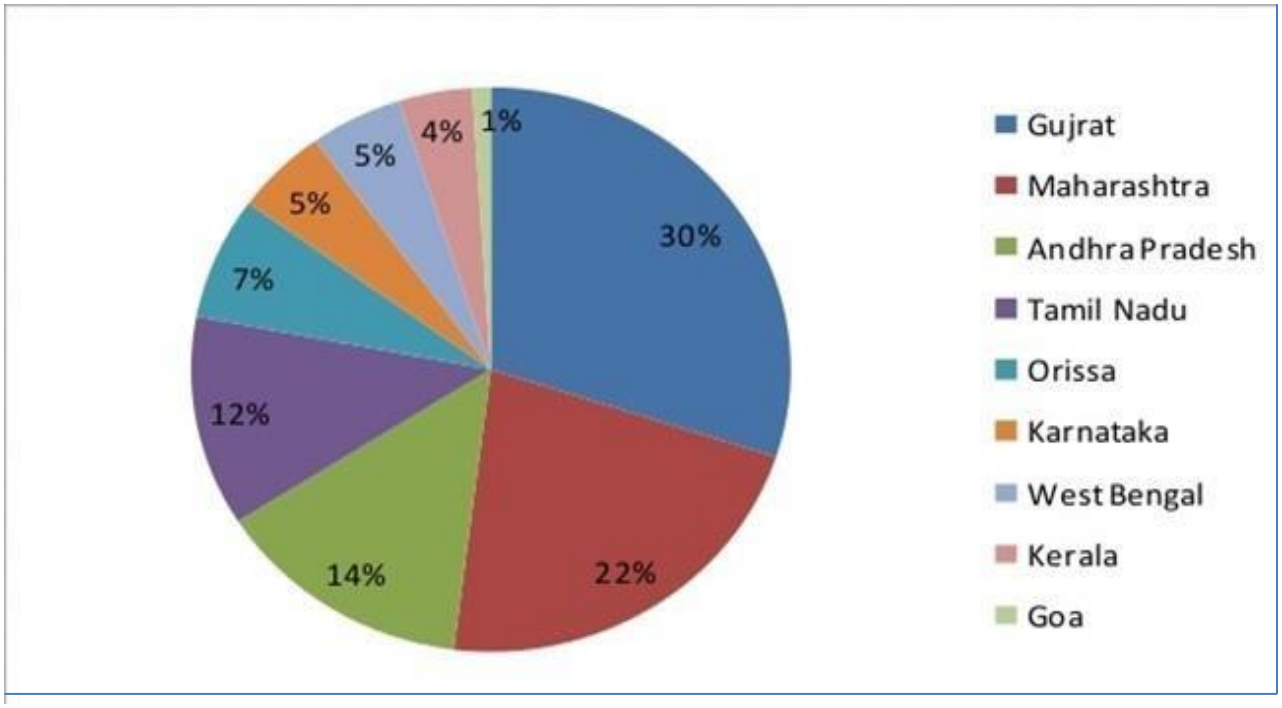

Fig 2.4 State wise coastal cargo break up (source: www.shipping ministry of India)

2.6 MAJOR PORTS IN INDIA

The nine coastal Indian states Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal are home to all major and minor ports of India. The long coastline of India forms one of the biggest pieces of land into a body of water, these twelve major Indian Ports are handling a large volume of cargo traffic and container traffic. There are total 13 major sea ports of India, out of 12 are government major port act and one, Ennore port of Chennai is the corporate one which comes under company's act. The major ports are actively participating the costal traffic. Despite having an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks freight transportation by waterways is highly under-utilized.

It is estimated that coastal shipping traffic of about 250 MMTPA can be achieved from current and planned capacities across coal, cement, iron and steel, food grains, fertilizers, POL by 2025. Additionally, about 125 MMTPA of cargo is expected to be moved via inland waterways by 2025. Availability of dedicated infrastructure will go a long way in promoting coastal shipping as a mode of freight transportation. Hence infrastructure at ports and supporting infrastructure using rail/road and waterways to facilitate coastal movement are being created. These include development of dedicated coastal berths, bunkering and storage at ports and creation of supporting hinterland transport infrastructure with last mile connectivity. The brief discussion on the major ports is made below,

1-Kandla Port - Gujarat

Gujarat host the major seaport of west coast, The Kandla Port is situated on the Gulf of Kutch near the Gandhi Dham city in Kutch District of Gujarat. The Port of Kandla is the first special economic zone in India as well as in Asia. Kandla Port is hub for major imports like petroleum, chemicals and iron also export grains, salt and textiles. Port of Kandla is one of the highest earning ports of India, another port in Gujarat is Mundra Port, India's largest private port.

2-Nhava Sheva - Maharashtra

Nhava Sheva now known as Jawaharlal Nehru Port is the largest container port in India, situated at the mainland of Konkan area across the Navi Mumbai Maharashtra. Jawaharlal Nehru Port is the king port of Arabian Sea at west coast and handle a large volume of international container traffic and domestic cargo traffic. The major exports are textiles, carpets, boneless meat and main imports are machinery, vegetable oils and chemicals.

3-Mumbai Port - Mumbai

The Mumbai Port is located in the mainland of west Mumbai on the West coast of India with natural deep-water harbor. Mumbai Port is the largest port in India and handles bulk cargo traffic with its four jetties for handling Liquid chemicals, Crude and petroleum products. International container traffic of Mumbai Port is directed to Nhava Sheva port the Mumbai port is selected for cruise tourism in India.

4-Marmagao Port - Goa

The main port of Goa, Marmagao port is a best natural harbour of India located in South Goa. Marmagao port is one of the leading iron ores exporter port in India and raw materials too. The port of Marmagao is one of the major attractions of Goa along with the beautiful city of Vasco da Gama and international airport Dabolim. The natural harbour of Goa is one of India's earliest modern ports.

5-New Mangalore port - Karnataka

Panambur Port known as the New Mangalore Port, is a seaport located near to Surathkal railway station in Dakshina Kannada district of Karnataka. New Mangalore Port is a deep-water all-weather port and the only major port of Karnataka and one of the largest ports in India. Port of Mangalore export major commodities like manganese, granite stones, coffee and cashew and main imports includes timber logs, LPG, petroleum products and cargo containers.

6-Cochin Port - Kerala

The Cochin port is one of the largest ports in India and the major port on the Arabian Sea and Indian Ocean sea route. The port of Cochin lies on two islands of Willingdon and Vallarpadam and the largest container transshipment facility in India. Kochi Port is equipped with maritime facilities Cochin Shipyard, Kochi Refineries and Kochi Marina. Kochi city is famous for its traditional spices and well known as the port city of Fort Kochi during the European colonials. It also gets its individual Kochi international airport, third international airport in the state of Kerala.

7-Ennore port – Tamil Nadu

Kamarajar Port Limited, formerly Ennore Port, 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 per cent in the Kamarajar Port Limited and the remaining 32 per cent is held by the Chennai Port Trust.

8-Tuticorin Port - Tamil Nadu

Tuticorin Port is an artificial deep-sea harbour and one of the 12 major ports of India. It is also the second largest port in Tamil Nadu first is Chennai Port and one of the largest container terminals in India. The artificial port of Tuticorin is an all-weather port and who receive a large volume of international traffic. Port of Tuticorin are a used to be best port for maritime trade and pearl fishery on the Bay of Bengal.

9-Chennai Port- Tamil Nadu

Madras Port is the one of the oldest ports of India and the second largest port in the country. Chennai Port also the largest port in the Bay of Bengal and a hub port for cars, big containers and cargo traffic in the east coast of India. Port of the Coromandel Coast handles a variety of cargo containers, automobiles, coal, fertilizers and petroleum products. Chennai Port terminals have lighthouses around, Intra port connectivity, Pipelines and railway terminus.

10- Paradip Port - Orissa

The artificial, deep-water port of east coast of India is located in the Jagatsinghpur district of Orissa state. Port of Pradip is the major port in the east coast shore and situated at the confluenceof great river Mahanadi and the Bay of Bengal. Pradip Port has its own railway system, cold handling plant and a national highway connects the port with rest of Indian road networks.

11- Haldia Port - West Bengal

Haldia port or Calcutta Port is a major seaport situated near the Hooghly River in the state of West Bengal. Port of Haldia is one of the major trades Centre for Calcutta and receive bulk cargoes of Chemicals, Petrochemicals and oils. Port of Kolkata is also a base of Indian Coast Guard.

12- Visakhapatnam Port - Andhra Pradesh

The port city Visakhapatnam is located on the southeast coast of India in the state of Andhra Pradesh. Visakhapatnam or Vizag has one of the India's largest seaport and the oldest shipyard of country. The Visakhapatnam harbour is the only Natural harbour in the Bay of Bengal shore. Kakinada Port is second port city in Andhra and Krishnapatnam Port is a privately built deep water port in Andhra Pradesh.

CHAPTER-3

LEGAL ASPECTS OF COSTAL SHIPPING

3.1 MEANING OF MARITIME LAW:

Maritime law, also known as admiralty law, is a body of laws, conventions, and treaties that govern private maritime business and other nautical matters, such as shipping or offenses occurring on open water. International rules, governing the use of the oceans and seas, are known as the Law of the Sea.

3.2 JURISDICTION AND SETTLEMENT OF MARITIME CLAIMS ACT,2017

A vessel shall not be deemed to be a vessel for the purposes of this clause, when it is broken up to such an extent that it cannot be put into use for navigation, as certified by a surveyor. vessel" includes any ship, boat, sailing vessel or other description of vessel used or constructed for use in navigation by water, whether it is propelled or not, and includes a barge, lighter or other floating vessel, a hovercraft, an off-shore industry mobile unit, a vessel that has sunk or is stranded or abandoned and the remains of such a vessel.

Ship Arrest

Ship arrest is a process by in which a ship is prevented from trading or moving until the matter in question is decided. It is an exclusive jurisdiction that is granted to an admiralty court to detain a vessel to secure a maritime claim.

Article 2 of the International Convention Relating to the Arrest of Sea-Going Ships, 1952 defines the term arrest as the following: "(2) "Arrest" means the detention of a ship by judicial process to secure a maritime claim, but does not include the seizure of a ship in execution or satisfaction of a judgment."

Permissible Claims

The High Courts' as discussed earlier, has the jurisdiction to entertain claims as provided under Article 1 of the Arrest Convention, 1952 and Article 1 of the Geneva Arrest Convention,

1999. Therefore, before the enactment of the Admiralty (Jurisdiction and Settlement of Maritime Claims) Act, 2017, the claims were as provided under the conventions. However, now the Law relating to Maritime claim is provided under section 4 of the Admiralty (Jurisdiction and Settlement of Maritime Claims) Act, 2017.

Section 4 of the Act reads as the following:

"The High Court may exercise jurisdiction to hear and determine any question on a maritime claim, against any vessel, arising out of any

- a dispute regarding the possession or ownership of a vessel or the ownership of any share therein
- dispute between the co-owners of a vessel as to the employment or earnings of the vessel
- mortgage or a charge of the same nature on a vessel;
- loss or damage caused by the operation of a vessel
- loss of life or personal injury occurring whether on land or on water, in direct connection with the operation of a vessel
- loss or damage to or in connection with any goods
- agreement relating to the carriage of goods or passengers on board a vessel, whether contained in a charter party or otherwise
- salvage services, including, if applicable, special compensation relating to salvage services in respect of a vessel which by itself or its cargo threatens damage to the environment
- pilotage
- goods, materials, perishable or non-perishable provisions, bunker fuel, equipment (including containers), supplied or services rendered to the vessel for its operation, management, preservation or maintenance including any fee payable or leviable;
- construction, reconstruction, repair, converting or equipping of the vessel;

dues in connection with any port, harbor, canal, dock or light tolls, other tolls, waterway or any charges of similar kind chargeable under any law for the time being in force

- claim by a master or member of the crew of a vessel or their heirs and dependents for wages or any sum due out of wages or adjudged to be due which may be recoverable as wages or cost of repatriation or social insurance contribution payable on their behalf or any amount an employer is under an obligation to pay to a person as an employee, whether the obligation arose out of a contract of employment or by operation of a law (including operation of a law of any country) for the time being in force, and includes any claim arising under a manning and crew agreement relating to a vessel, notwithstanding anything contained in the provisions of sections 150 and 151 of the Merchant Shipping Act, 1958 (44 of 1958)
- disbursements incurred on behalf of the vessel or particular average or general average
- dispute arising out of a contract for the sale of the vessel
- insurance premium (including mutual insurance calls) in respect of the vessel, payable by or on behalf of the vessel owners or demise charterers
- commission, brokerage or agency fees payable in respect of the vessel by or on behalf of the vessel owner or demise charterer
- damage or threat of damage caused by the vessel to the environment, coastline or relate interests; measures taken to prevent, minimize, or remove such damage; compensation for such damage; costs of reasonable measures for the restoration of the environment actually undertaken or to be undertaken; loss incurred or likely to be incurred by third parties in connection with such damage; or any other damage, costs, or loss of a similar nature to those identified in this clause
- costs or expenses relating to raising, removal, recovery, destruction or the rendering harmless of a vessel which is sunk, wrecked, stranded or abandoned, including anything that is or has

been on board such vessel, and costs or expenses relating to the preservation of an abandoned vessel and maintenance of its crew; and maritime lien.

3.3 CABOTAGE LAW

Cabotage refers to shipping along coastal routes between foreign sea ports, and also to the restriction on the operation of vessels between sea ports within a particular country. It is the transport of goods or passengers between two places in the same country by a transport operator from another country. It originally applied to shipping along coastal routes, port to port, but now applies to aviation, railways, and road transport as well-coated laws apply to merchant ships in most countries that have a coastline so as to protect the domestic shipping industry from foreign competition, preserve domestically owned shipping infrastructure for national security purposes, and ensure safety in congested territorial waters.

3.3.1 CABOTAGE POLICY IN INDIA

The Indian Cabotage rules are contained in Sections 406 and 407 under Part XIV of the Merchant Shipping Act 1958 (the Act). In summary, pursuant to these Sections only Indian flagged vessels or vessels chartered by an Indian citizen or company, operating under a license granted by the Director General of Shipping (Director General), can carry cargo from one Indian port to another Indian port. Foreign flagged vessels are permitted to carry cargo only if Indian flagged vessels are not available. Three distinct types of license may be granted by the Director General:

- A general license
- A license for the whole or any part of the coasting trade of India; or
- A license for a specified period or voyage

When granting a license, the Director General has the power to prescribe a specified period of validity and license conditions. It is important to note that these Sections do not provide for an absolute Cabotage regime since the discretionary powers granted therein are limited to of the provision of licenses by the Director General to Indian vessels with the caveat that the carriage of

cargo by foreign vessels is permissible in certain circumstances where an Indian flagged vessel is not available.

Industry bodies such as the Indian National Ship owner's Association (INSA) have suggested that the absence of a regime that supports absolute Cabotage in India is a major reason for low investment in coastal shipping. Consequently, INSA has opposed any relaxation of current Cabotage law by arguing that this move would potentially undermine the position of the domestic shipping industry in coastal trading. However, recent economic reforms have triggered a high rate of economic growth in India in which has, in turn, significantly increased demand for the transportation of goods.

The demand is mostly serviced by rail and/or road transport systems with shipping transport servicing merely 8 - 9% of total current demand. In coastal shipping, the passage of goods in both directions is not equal. This leads to imbalance; the cargo movement pattern is dependent on the production and availability of goods, demand and the distance separating production centers from the points of destination of those goods. As the cargo carrying capacity of ships is several times greater than that rail and road transport, coastal shipping offers the benefit of relatively lower transport, operation and logistics costs. However, given the shortage of coastal shipping services by Indian companies, there is mounting pressure to allow foreign-registered ships to carry cargo on coastal routes, for example from Indian textile entrepreneurs who argue that the current Cabotage restrictions hamper the transportation of raw materials by sea, thus pushing up textile transportation costs.

There is also mounting support for a more relaxed approach to Cabotage to facilitate greater transshipment through Indian ports. Currently, over 27.4% of India's export/import cargo is transshipped at foreign ports. Shipping lines from Colombo are free to feeder in and/or out the containers to any Indian ports without any hindrance. This has made Colombo the preferred hub port in the region and even means that Indian ports are losing out to ports like Dubai and Singapore when it comes to transshipment. The suggested need for a more relaxed approach to Cabotage

regulation in order to facilitate greater transshipment through Indian ports was summarized by the Director General of Shipping himself who recently made a recommendation in the draft Coastal Shipping Policy that "a nuanced approach towards trans-shipment cargo would require opening it up to foreign flags in order to boost containerization and the requisite infrastructure and practices".

A change in India's highly restrictive cabotage laws appears likely and this could have significant ramifications for ports and particularly container terminal operating companies across the country. The majority of containerized cargo currently handled in India has been transshipped abroad first. A change in the cabotage law would give Indian ports anopportunity to become large transshipment hubs, especially deep-water ports in the south, which are closest to the main East-West shipping lanes.

Potentially, once the fourth terminal at Jawaharlal Nehru Port (JNPT) is built, sufficient capacity might also be in place for the Mumbai port to handle some transshipment cargo. Over 60% of India's inbound and outbound containerized cargo is moved through the Mumbai area. And operators such as APM Terminals and DP World, which are active in the country, have immense experience in the transshipment sector. Today India's containerized cargo is usually transshipped in: Singapore and the Malaysian ports of Port Tanjung Pelepas and Port Klang for importers and exporters using the Indian east coast; Middle East ports such as Jebel Ali, Khor Fakkan and Salalah for Indian west coast origins/destinations; and in Colombo (Sri Lanka) for both west coast and Bay of Bengal ports.

Presently, coastal shipping services, including feeder operations, are restricted to Indian-flagged vessels. The only exceptions are licenses that can be issued by the country's Directorate General of Shipping (DGoS) to foreign owners, but these are generally limited to specific periods of time. Usually licenses are only granted if suitable Indian-flagged tonnage is not available. Similarly, restrictive regimes apply in the United States, through the Jones Act, and in Indonesia and China. Respectively, these laws have also come in for heavy criticism in terms of stifling

efficiency, restricting investment, limiting innovation and pushing up the costs for importers and exporters.

3.4 MEASURES TAKEN BY GOVERNMENT FOR PROMOTING COASTAL SHIPPING

With a perspective to advance coastal shipping, the Ministry of Shipping has taken a set of arrangement activities. One such activity is to have a Green Channel clearance for freight in major Ports as coastal load does not require customs procedure and just data should be documented with the customs. All the Major Ports are required to identify suitable infrastructure so that Green Channel clearance for coastal cargo can be made operational within the next 12 months. Green Channel clearance has already become operational in 8 Major Ports Presently because of lack of exclusive berth, storage area and gates for coastal cargo in the ports, there is considerable delay in clearance of these cargoes.

The Ministry has given a policy directive to all the major ports to have exclusive berths with associated storage space and separate gates for coastal cargo. Another plan for setting up of coastal compartments at Major Ports has been affirmed. The Cabinet has likewise given endorsement to make a special purchase vehicle (SPV) to concentrate on giving diverse clearing framework in Major Ports and their availability.

A New Central Sector Scheme has been formulated to provide financial support by Way of grant to:

1. Major Ports/ Non-Major Ports for Construction/ up-gradation of exclusive coastal berths for coastal cargo, berths/Jetties for passenger ferries, construction of platforms/ jetties for hovercrafts/ seaplanes in port.
2. State Governments concerned for construction of berths/jetties in National Waterways.

State assistance under the proposed revised scheme would be given up to 50% of the total cost of the project subject to a maximum of Rs. 25 crores for projects related to construction/ up gradation of coastal berths for coastal cargo and passengers and a maximum of Rs. 10 crores for

construction of platforms for hovercrafts and jetties for seaplanes. The balance cost will have to be borne by respective ports/ concerned State Govt. from their internal/own resources.

Sagarmala Project

The project has been launched with an objective of modernizing the ports along India's Coastline and achieving rapid expansion of port capacity and development in land and coastal navigation. The initiative aims at supporting port led development through appropriate policy and institutional interventions, port infrastructure enhancement including modernization and setting up of new ports and efficient evacuation to and from hinterland. The work under the project will be done in close coordination with Maritime States/ UT governments.

3.5 RECOMMENDATIONS TO DEVELOP COASTAL SHIPPING IN INDIA.

Ship Acquisition

With the winding up of the Shipping Development Fund Committee and Shipping Credit and Investment Corporation of India Ltd (SCICI, which has now merged with ICICI), companies have to rely on traditional bank funding. These banks are not equipped to deal with the financing of ships; this also involves high interest rates and short maturity. There is, therefore, a case for developing specialized wings in development financial institutions to fund coastal shipping.

Cost of Vessels

Coastal vessels are constructed to specifications of oceangoing vessels even though they are not subject to the same stress and turbulence. This needlessly increases their capital costs. There is a need to suitably amend the Merchant Shipping Act or enact separate legislation for coastal shipping to provide different specifications and lower manning scales.

Taxation

Personal Income Tax: Indian seafarers employed on foreign vessels or Indian vessels which play outside Indian territorial waters for more than 183 days in a year are entitled to non-resident status and pay no taxes. This does not apply to officers and seafarers on coastal ships.

Ports

Coastal shipping, like international shipping, requires efficient bulk cargo handling and speedy berthing facilities. Coastal shipping in addition requires concessional port tariff. Major ports give second preference to coastal vessels in handling since oceangoing vessels generate more income. Major ports also lack identified berths for coastal shipping. Port tariff is determined by the Port Trust concerned with the approval of Tariff Authority for Major Ports (TAMP). At the instance of government, coastal vessels now enjoy a 40% concession in vessel related tariffs and cargo handling charges (except for thermal coal, crude oil, and petroleum/oil/lubricants (POL)) as compared to oceangoing vessels. There is a need to fix the tariff at low levels instead of relating it to the tariff of oceangoing vessels, which are periodically revised and thus create an element of uncertainty.

Custom-designed Vessels

It is also necessary to customize roll-on-roll-off (Ro-Ro) vessels, silo vessels, etc. to facilitate the movement of trucks over long distances and cargo like cement and food grains. Konkan Railways has demonstrated that Ro-Ro wagons can effectively reduce movement by road. Specific origin and destinations (O-D) need to be identified for the transportation of passengers through coastal vessels.

Enabling Legislation

The Merchant Shipping Act, 1958, deals both with oceangoing vessels and coastal ships and sets equal standards and norms for both. The Pinto Committee recommended enactment of legislation to deal exclusively with coastal shipping. A follow-up committee was constituted in 1998. Government should now move forward on the matter.

3.6 THE COASTING – VESSELS ACT, 1838

The following rules shall be in force with respect to vessels belonging to any of Her Majesty's subjects and employed on the coasts of or in trading coastwise, as also with respect to fishing-vessels and harbour craft belonging to any of the same Her Majesty's subjects. Rules as to costing and other vessels belonging to Queen's subjects.

Every such vessel employed as aforesaid, fishing- vessel and harbour craft shall be or branded with the name of the place to such she belongs and also with a number assigned for the same by the officer authorized to make such registry as is hereinafter mentioned; Marking of branding vessels with name of place and number. And the owner or owners of such vessel employed as aforesaid, fishing- vessel and harbour-craft shall cause such name and number to be painted in black paint upon a white ground on each quarter of such vessel employed aforesaid, fishing- vessel and harbour-craft, in English figure and letters, each figure and letter being six inches in length. Owner to paint name and number.

The words and figures "And it is hereby enacted, that from the said first day of November, 1838" and the words "And it is hereby enacted that" were repealed by the Repealing Act, 1874 (16 of 1874).The words "Province" and "said Province" were substituted for the original words by the Indian Independence (Adaptation of Central Acts and Ordinances) Order, 1948.The words "And it is hereby enacted, that "were repeated by the Repealing Act, 1874 (16 of 1874).This word was substituted for the original word by the Indian Independence (Adaptation of Central Acts and Ordinances) Order, 1948.The words " Central Government" were substituted for the words "Government of Bombay" by the Adaptation of Indian Laws Order in Council. Government to act at such places respectively, in the execution of this Act; and whenever any change shall take place in the burthen of such vessel employed as aforesaid, fishing-vessel or harbor-craft, or in the name or names of the owner of owners thereof, such registry shall be made again: Fresh registration. Provided, however that it shall not be lawful to give any name to such vessel employed as aforesaid, fishing-vessel or harbor-craft, other than that by which she was first registered.

3.7 THE MERCHANT SHIPPING ACT, 1958 ACT NO. 44 OF 19581

An Act to foster the development and ensure the efficient maintenance of an Indian mercantile marine in a manner best suited to serve the national interests and for that purpose to establish a National Shipping Board to provide for the [registration, certification, safety and security] of Indian ships and generally to amend and consolidate the law relating to merchant shipping.BE it enacted by Parliament in the Ninth Year of the Republic of India as follows

India has been a seafaring nation for centuries. She has built up a glorious maritime history and tradition much before the rise of European maritime powers. The Indian ships used to sail across many seas and carried on prosperous trade with Asian and Middle East countries. Since the advent of British Rule, the development of indigenous shipping industry was discouraged because of preferential treatment given to British shipping. The restrictive British navigational laws not only hindered the growth and development of Indian shipping but gradually made it disappeared from High Seas.

The Indian Merchant Shipping Law as it existed in 19th century has never been on sound footing. The British law was applicable to Indian ships trading in international sea voyages as these ships were required to be registered under U.K. Merchant Shipping Act and therefore, technically they were British Ships although registered in India. The Indian Merchant Shipping Law was nebulous and sketchy. Between the years 1938 to 1947, the following legislation on merchant shipping were held the field (a) The Bombay Coasting Vessels Act, 1938 (b) The Indian Registration of Ships Act, 1841 (as amended in 1950); and (c) The Indian Merchant Shipping Act, 1923. The first of the three enactments referred to above dealt with regulations of seagoing vessels. The 1841 act embodied in it provisions relating to registration of sailing vessels. Both these enactments had, however, been so modelled as to apply only to small coasters and sailing vessels. The third Act, namely, the Indian Merchant Shipping Act, 1923 was fairly comprehensive. Indian Merchant Shipping Law consolidating the provisions of the earlier two acts was supplemented by passing of the Seamen (Litigation) Act, 1946 and Control of Indian Shipping Act, 1947. This Act

had, however, only consolidated the laws on merchant shipping and it did not revise the law and therefore, was found wanting in many respects. The provisions of the International Conventions with respect to Load Lines, 1930 and SOLAS, 1948, both of which were ratified by India were later on incorporated through Indian Merchant Shipping Amendment Acts of 1933 and 1953.

Immediately after the independence to suit the requirements of a maritime country like India, the Merchant Shipping Act, 1958 was passed by the Indian Parliament. This Act had made good the main deficiency in the earlier laws that they did not provide for registration of what may be termed as Indian Ships. Certain enabling provisions were also incorporated in the Act to acceleratethe pace of development of shipping in the post-independence period. This Act is divided into 24 parts, each part dealing with specific aspects of merchant shipping like registration of ships , sailingvessels and fishing vessels, National Shipping Board, manning of ships, engagement, discharge andrepatriation of seamen and apprentices, safety of passenger and cargo ships, control of Indian shipsand ships engaged in the coasting trade, collisions, prevention and control of pollution of the sea byoil from ships, limitation of shipowners' liability, civil liability for oil pollution damage etc.

CHAPTER-4

DATA ANAYSIS AND INTERPRETATION

4.1 GROWTH OF COASTAL VESSELS IN INDIA FOR TEN YEARS

Year	No. of Vessels	Annual Growth (%)
2009	662	---
2010	700	5.74%
2011	750	7.14%
2012	804	7.20%
2013	835	3.86%
2014	850	1.79%
2015	873	2.70%
2016	890	1.94%
2017	903	1.46%
2018	956	5.87%

Source: - Indian infrastructure statistics volume 2018

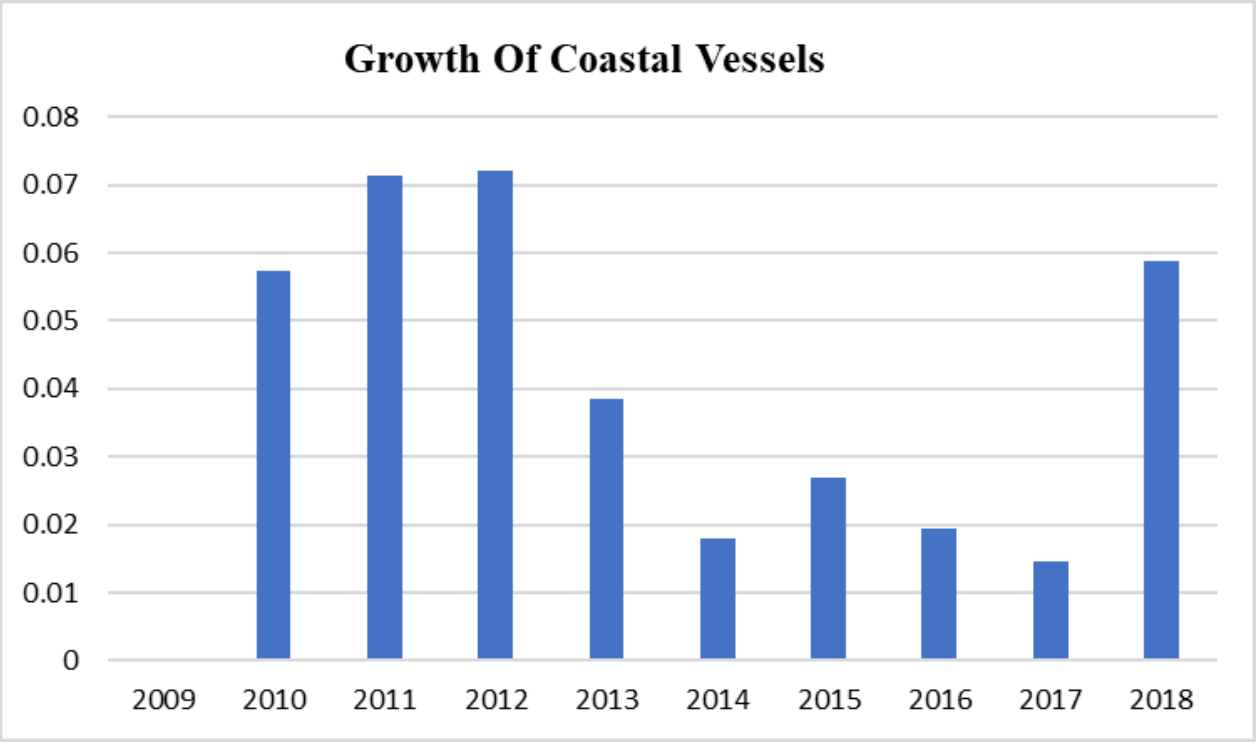

Figure 4.1 shows the Growth of coastal vessels in India during 2009 - 2018.

The table 4.1 shows that Growth of coastal vessels in India during 2009 - 2018. Through this we can easily analyze the 10 years growth of coastal vessels. During 2010 we can see a growth of 5.74% and in 2011 the growth percentage of coastal vessels is increased by 7.14% compare to previous year. Throughout 2012 the growth percentage increased by 7.2% and in 2013 the growth percentage decreased by 3.86% compare to preceding year. In the year 2014 the percentage of coastal vessels is decreased by 1.79% and in 2015 the growth percentage is increased by 2.70% associate to previous year. All through in 2016 the growth percentage of coastal vessels is decreased by 1.94% and in 2017 the growth percentage is de creased by 1.46 % relate to previous year. During 2018 the percentage of coastal vessels is increased by 5.87% compare to prior year. More growth can identify in 2012 the growth 7.2% followed by of coastal vessels and after 2012 the growth is reducing; the least growth can see in 2017. Though we can see an incremental growth in the number of vessels throughout from 2009 to 2018the annual growth rate have certain fluctuation during the period.

4.2 GROWTH OF COASTAL FLEET-BY TYPE OF VESSELS FOR FIVE YEARS.

GRT-Gross Rate Tonnage (000)

DWT-Dead Weight Tonnage (000)

Year	Item	Dry Cargo Liner	Dry cargo bulk liner	Oil Tanker	Passenger cum Cargo	Offshore supply	Specialized for offshore services	Total
2014	No of Vessel	549	37	20	99	100	41	846
	GRT	520	258	97	143	110	90	1218
	DWT	512	379	121	34	108	54	1208
2015	No of Vessel	567	41	22	101	99	43	873
	GRT	600	264	291	143	114	90	1502
	DWT	634	385	483	34	112	53	1701
2016	No of Vessel	586	37	22	96	100	57	898
	GRT	626	240	292	144	118	98	1518
	DWT	651	346	484	34	117	57	1689
2017	No of Vessel	609	37	24	97	98	63	928
	GRT	604	212	294	144	116	99	1469
	DWT	609	306	486	34	115	57	1607
2018	No of Vessel	621	39	24	97	94	69	944
	GRT	621	216	294	133	115	100	1479
	DWT	636	311	486	29	113	58	1633

Source: Indian Shipping Statistics 2018 Ministry of Shipping

The table 4.2 shows Different Types of Coastal Fleet and Growth in India from 2014 to 2018. Through this data we can analyze the 5 years growth of different types of coastal fleet. Main types of Coastal Vessels that mentioned the table are; Dry Cargo Liner, Dry Cargo Bulk Liner, Oil Tanker, Passenger Cum Cargo Carrier, Off Shore Supply and Specialized for Offshore Services.

During 2014, 549 Dry Cargo Linear fleet are arrived and in 2015 the number of Dry Cargo Linear fleet increased by 567. Throughout 2016, 586 Dry Cargo Linear fleet are arrived and in 2017 the no. of Dry Cargo Linear fleet increased by 609. During 2018, Dry Cargo Linear fleet increased by 621. The growth of Dry Cargo Linear fleet is increasing from 2014-2018. We can see more Dry Cargo Linear fleets are arrived at 2018 and During 2017 GRT of Dry Cargo Linear fleets shows a slight decrease compare to other years and DWT of Dry Cargo Linear fleets is showing an increasing capacity trend from 2014-2018.

Whereas in the year 2014, 37 Dry Cargo Bulk Linear are arrived and in 2015 the number of Dry Cargo Linear fleet increased by 41. During 2016 and 2017; 37 Dry Cargo Linear are arrived. During 2018, Dry Cargo Linear fleet increased by 39. From 2016-2018 we can see a small decrease in GRT and DWT of Dry Cargo Bulk Linear fleet; rest of the years the GRT and DWT capacity is increasing compare to previous year.

In the year 2014; 20 Oil Tanker are arrived and in 2015 and 2016, 22 Oil Tanker are arrived and During 2017 and 2018; the number of Oil Tanker increased by 24. The number of Oil Tanker shows a small decrease in 2016 rest of the years the number of Oil Tanker arrived shows an increasing trend. More Oil Tanker came at 2018. Even though the number of vessels arrived is less compare to other fleets but its GRT and DWT of Oil Tanker shows a great increase in every year. The number of fleets arrived is less but it carrying capacity not low.

Throughout 2014, 99 Passenger cum Cargo fleet are arrived and in 2015 the number of Passenger cum Cargo fleet increased by 101. During 2016, Passenger cum Cargo fleet decreased by96 and in 2017 and 2018 the number of Passenger cum Cargo fleet increased by 97. During 2018 GRT & DWT of Passenger cum Cargo fleet shows a small decrease and the rest of the years GRT & DWT of Passenger cum Cargo fleet shows an increasing trend in their capacity.

Whereas 2014, 100 Offshore Supply are arrived and in 2015 the no. of Offshore Supply fleet decreased by 99. During 2016, 100 Offshore Supply fleet are arrived and in 2017 the number of Offshore Supply fleet decreased by 98. During 2018, Offshore Supply fleet decreased by 94. The number of Offshore Supply fleet is showing a decrease trend from 2014-2018. The DWT shows a decrease in capacity from 2017-2018. During 2014 and 2017 shows a GRT decrease in the capacity.

During 2014; 41 Offshore Services fleet are arrived and in 2015, it is increased to 43 Specialized for Offshore Services fleet. During 2016, the number of Specialized for Offshore Services fleet increased by 57and in 2017 the number of Specialized for Offshore Services fleet increased by 63. During 2018, Specialized for Offshore Services fleet increased by 69. The number of Specialized for Offshore Services fleet is showing an increasing trend from 2014-2018. The GWT and DWT of Specialized for Offshore Services fleet is also showing an increasing trend.

4.3 SELECTED STATE WISE NUMBER OF COASTAL TRADE COMPANIES REGISTERED IN INDIA (AS ON 04-03-2018)

States/UTs	No. of Companies
Andaman and Nicobar Islands	17
Andhra Pradesh	38
Assam	1
Bihar	1
Chandigarh	2
Delhi	87
Goa	32
Gujarat	43
Haryana	2
Karnataka	20
Kerala	21
Madhya Pradesh	5
Maharashtra	405
Odisha	10
Puducherry	3
Punjab	5
Rajasthan	11
Tamil Nadu	94
Telangana	42
Uttar Pradesh	2
West Bengal	90
India	**931**

Source: -Indian shipping Statistics 2018, Ministry of Shipping

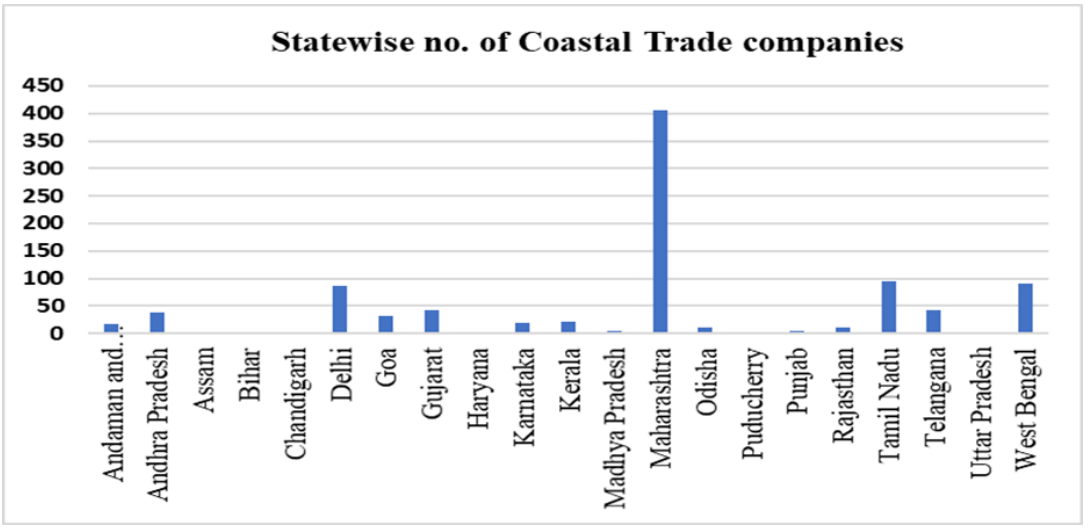

Fig 4.3

The table 4.3 shows the number of coastal Trade companies in different states of India. As on March 2018 there is 931 coastal trade companies are there in India. According to the above data, Maharashtra is showing 405 companies; that is the highest number of Coastal Trade companies compare to other states in India. In list Tamil Nadu comes as second by 94 companies and the third is West Bengal by 90 Costal Trade companies. Fourth is Delhi by 87 companies and in the list, Gujarat is arisen in Fifth position by 43 and the Sixth position of 42 Costal Trade companies handled by Telangana. Seventh is Andhra Pradesh by 87 companies and the Eighth is Goa by 43 and the nineth position is handling Kerala by 42 Costal Trade companies. Tenth is Karnataka by 87 companies and the Eleventh is Andaman and Nicobar Islands by 43 and the Twelfth is Rajasthan by 42 Costal Trade companies. Thirteenth position is handling Odisha by 10 companies and the fourteenth position is by Madhya Pradesh and Punjab by 5 Costal Trade companies and the fifteenth is Puducherry by 3 Costal Trade companies. The sixteenth position by Chandigarh, Haryana, Uttar Pradesh by 2 Costal Trade companies. The seventeenth position in no. of coastal Trade companies by Assam and Bihar through 1 coastal Trade company. Assam and Bihar are showing lowest no. of Coastal Trade companies compare to other state.

4.4 DELIVERIES OF PETROLEUM PRODUCTS TO COASTAL BUNKERS (IN 000 TONS)

ITEMS	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
OIL	783.6	345.6	141.7	168.6	155.9
H.S. D	404.2	336.4	200.5	181.1	196.2
L.D. O	4.7	2.4	2.6	2.4	2.9
Total	1192.5	684.4	344.8	352.1	355

Shows the Deliveries of Petroleum Products to Coastal Bunkers During 2013 - 2018.

Note: H.S.D: High Speed Diesel, L.S.D: Light Diesel Oil

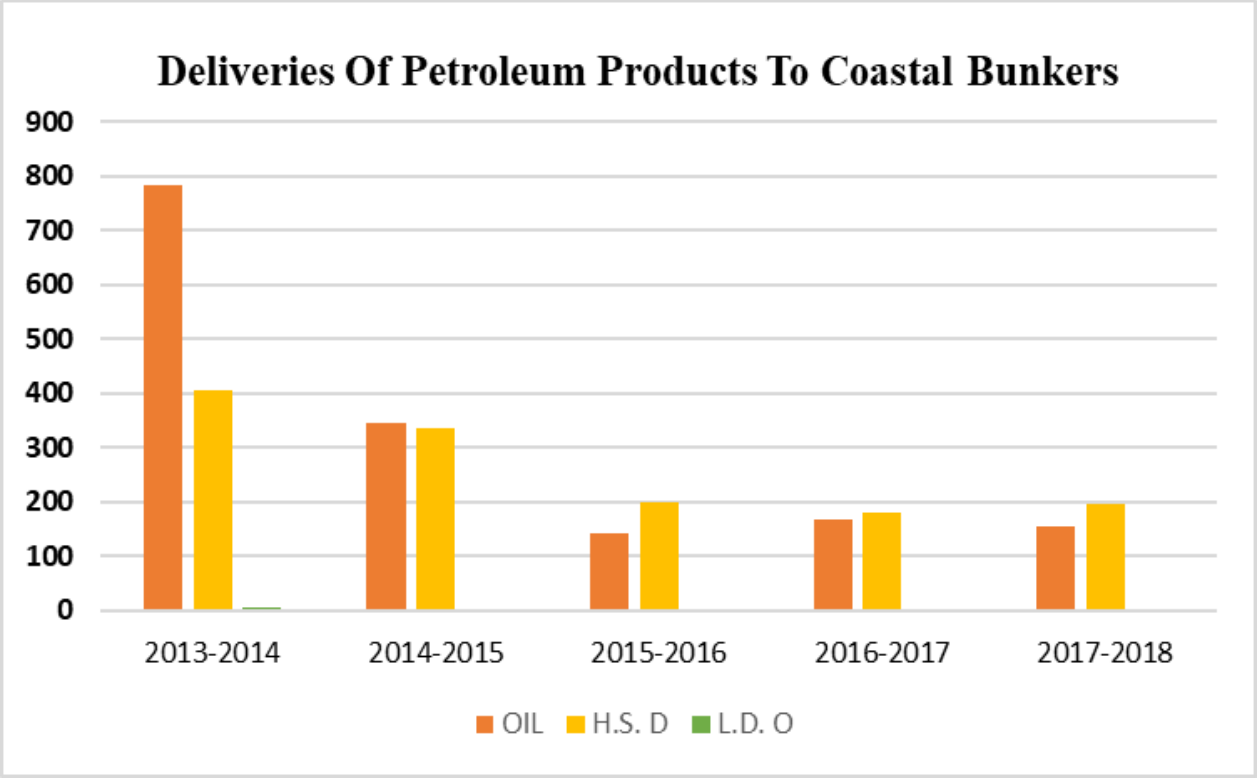

Figure 4.4 shows the Deliveries of Petroleum Products to Coastal Bunkers During 2013 - 2018.

The table 4.4 shows the deliveries of petroleum products to coastal bunkers; from 2013-2018. From the above data we can clearly understand the 5 years Deliveries of Petroleum Products to the Coastal Bunkers. The items are Oil, High speed Diesel and Light Diesel Oil. This data is in million tons.

In financial year 2013-2014 Oil delivered to the coastal bunkers is 783.6 million tons. Whereas in the year 2014-2015oil delivered only 345.6 million tons, when linking the financial year 2015-2016 the oil delivered to the costal bunkers is 141.7 million tons Oil delivered to the coastal bunkers. In financial year 2016-2017 oil delivered to the bunkers is 168.6 million tons and in the year 2017-2018is 155.9 million tons .it is observed that more Oil delivered during the period of 2013-2014 and less delivered in the period in compression to other years at 2015-2016 compare to other years.

While in the the financial year 2013-2014; 402.2 million tons the of High-Speed Diesel delivered to the coastal bunkers. When associating the financial year 2014-2015 oil delivered 336.4 million tons the of High-Speed Diesel delivered to the coastal bunkers. When linking the financial year 2015-2016; 200.5 million tons the of High-Speed Diesel delivered to the coastal bunkers. When relating the financial year 2016-2017; 181.1million tons the of High-Speed Diesel delivered to the coastal bunkers. When equating the financial year 2017-2018; 196.2 million tons the of High-Speed Diesel delivered to the coastal bunkers. More High-Speed Diesel delivered at 2013-2014 and less delivered at 2016-2017 compare to other years.

When comparing the financial year 2013-2014; 4.7 million tons the of Light Diesel Oil delivered to the coastal bunkers. When associating the financial year 2014-2015; 2.4 million tons the of Light Diesel Oil delivered to the coastal bunkers. When linking the financial year 2015-2016; 2.6 million tons the of Light Diesel Oil delivered to the coastal bunkers. When relating the financial year 2016-2017; 2.4 million tons the of Light Diesel Oil delivered to the coastal bunkers. When equating the financial year 2017-2018; 2.9 million tons the of Light Diesel Oil delivered to the coastal bunkers. Greater Light Diesel Oil delivered at 2013-2014 and less delivered at 2016-2017

compare to other years.

When equating the financial year 2013-2014; 1192.5 million tons the of Total Petroleum Products delivered to the coastal bunkers. When associating the financial year 2014-2015; 684 million tons the of Total Petroleum Products delivered to the coastal bunkers. When linking the financial year 2015-2016; 344.8 million tons the of Total Petroleum Products delivered to the coastal bunkers. When relating the financial year 2016-2017; 352.1 million tons the of Total Petroleum Products delivered to the coastal bunkers. When equating the financial year 2017-2018; 355 million tons the of Total Petroleum Products delivered to the coastal bunkers. More Petroleum products delivered at 2013-2014 and less delivered at 2015-2016 compare to other years.

4.5 COASTAL CARGO TRAFFIC HANDLED IN COASTAL STATES (IN 000 TONS)

States/Ports	2012-2013	2013-2014	2014-2015
Gujarat	23256	25928 (11.49%)	42896 (65.44%)
Maharashtra	29198	29997 (2.73%)	29425 (1.90%)
Andhra Pradesh	22949	23699 (3.27%)	23827 (0.5%)
Goa	1042	1031 (1.05%)	1548 (0.14%)
Karnataka	6291	6177 (1.81%)	7285 (17.93%)
Tamil Nadu	20275	20533 (1.27%)	20865 (1.61%)
Kerala	5244	4514 (13.92%)	5650 (25.17%)
Orissa	12541	12749 (1.66%)	12296 (3.55%)
West Bengal	6417	7033 (8.76%)	7089 (0.79%)

Source: Indian infrastructure statistics volume 2016

The table 4.5 shows the coastal cargo handled through the major ports in coastal states of India. From the above 3 years data we clearly understand the Cargo traffic at Coastal States. In Gujarat during the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Gujarat is 11.49%. After associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 65.44%. Gujarat is having more cargo traffic associate to other states.

The total cargo handled in the state of Maharashtra during the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 2.73%. After associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Maharashtra is decreased by 1.90%.

In the state of Andhra Pradesh during financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 3.27%. Associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 0.5%.

In Goa during the financial year 2012-13 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Goa is increased by 1.06%. Associating the financial year 2013-14 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Goa is increased by 50.14%.

In the state of Karnataka throughout the financial year 2012-13 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 1.81%. Associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 17.93%. Karnataka cargo handling traffic is also increased we can see a good difference compare to the past years.

In Tamil Nadu during the the financial year 2012-13 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 1.27%. After associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 1.61%.

In the state of Kerala during the financial year 2012-13 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 13.92%. Associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Kerala is increased by 25.17%. Kerala is also showing some growth compare to its past years.

In Orissa during the financial year 2012-13 to the financial year 2013-14 the percentage growth of coastal cargo traffic handled by Orissa is increased by 1.66%. Associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Orissa is increased by 3.55%.

Comparing the financial year 2012-13 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by West Bengal is increased by 8.76%. Associating the financial year 2013-2014 to the financial year 2013-2014 the percentage growth is increased by 0.79%.

4.6 STATE WISE COASTAL TRAFFIC HANDLED AT NON-MAJOR PORTS

(IN MILLION TONNES)

YEAR	Gujarat	Maharashtra	Goa	Karnataka	Kerala	Tamil Nadu	Andhra Pradesh	Orissa	Other States#	TOTAL
2003-04	89.35 --	10.33 --	8.44 --	1.17 --	0.05 --	0.69 --	10.02 --	0	0.79 --	120.84 --
2004-05	97.13 (8.70%)	12.12 (17.32%)	8.46 (0.2%)	3.21 (174.35%)	0.08 (60%)	0.85 (23.19%)	15.07 (50.39%)	0	0.91 (15.18%)	137.83 --
2005-06	103.2 (6.24%)	11.11 (8.33%)	11.86 (40.19%)	2.44 (23.76%)	0.08 (0%)	0.71 (16.47%)	15.09 (0.13%)	0	1.04 (14.28%)	145.53 (5.60%)
2006-07	132.44 (28.33%)	11.56 (4.05%)	14.31 (20.66%)	6.56 (168.85%)	0.18 (125%)	0.81 (14.08%)	18.61 (23.32%)	0.05 --	1.6 (53.84%)	186.12 (27.89%)
2007-08	147.6 (11.44%)	11.611 (0.44%)	12.825 (10.37%)	8.899 (35.66%)	0.105 (41.67%)	0.887 (9.50%)	19.291 (3.66%)	0.095 (47.36%)	2.17 (35.62%)	203.483 (9.32%)
2008-09	152.814 (3.53%)	10.416 (10.29%)	11.901 (7.20%)	4.968 (44.17%)	0.12 (14.28%)	0.898 (1.24%)	29.735 (54.13%)	0.295 (67.79%)	2.056 (5.25%)	213.2 (4.77%)
2009-10	205.54 (34.50%)	12.511 (20.11%)	13.897 (16.77%)	8.545 (72%)	0.115 (4.17%)	1.174 (30.73%)	43.624 (46.71%)	0.421 (42.71%)	2.968 (44.36%)	288.8 (35.45%)
2010-11	230.907 (12.34%)	14.875 (18.89%)	14.581 (4.92%)	3.095 (63.78%)	0.124 (7.82%)	1.611 (37.22%)	43.269 (0.81%)	0.32 (23.99%)	6.066 (104.38%)	314.848 (9.01%)
2011-12	259.03 (12.18%)	19.948 (34.10%)	14.47 (0.76%)	0.59 (80.93%)	0.118 (4.838%)	1.21 (24.89%)	45.63 (5.4%)	5.07 (1484.4 %)	7.115 (17.29%)	353.181 (12.17%)
2012-13	287.817 (11.11%)	24.198 (21.30%)	3.441 (76.21%)	0.61 (3.39%)	0.082 (30.50%)	0.933 (22.89%)	51.999 (13.96%)	11.076 (29.79%)	7.975 (12.08%)	388.131 (9.89%)
2013-14	309.946 (7.69%)	24.774 (2.38%)	0.284 (91.74%)	0.503 (17.54)	0.107 (30.48%)	0.866 (7.18%)	58.938 (13.34%)	14.376 (29.79%)	7.43 (6.83%)	417.224 (7.49%)
2014-15	336.093 (8.43%)	27.295 (10.17%)	0.599 (52.58%)	0.651 (29.42)	0.155 (44.86%)	0.825 (4.73%)	83.418 (41.53%)	15.452 (7.48%)	6.114 (17.71%)	470.602 (12.79%)
2015-16	339.779 (1.09%)	28.849 (5.69%)	0.43 (28.21%)	0.835 (28.26%)	0.144 (7.09%)	0.856 (3.75%)	72.732 (12.81%)	14.99 (2.99%)	7.297 (19.34%)	465.912 (0.99%)
2016-17	345.739 (1.75%	34.894 (20.95%)	0.119 (72.32%)	0.691 (17.24%)	0.141 (2.08%)	1.17 (36.68%)	69.611 (4.29%)	22.46 (49.83%)	10.388 (42.35%)	485.213 (4.14%)
2017-18	370.769 (7.23%)	37.368 (7.09%)	0.072 (39.49%)	0.68 (1.61%)	0.139 (1.41%)	1.103 (5.72%)	86.291 (23.96%)	22.597 (0.60%)	9.54 (8.16%)	528.559 (8.93%)
2018-19	399.197 (7.67%)	45.786 (22.52%)	0.015 (79.17%)	1.044 (53.52%)	0.199 (99.801 %)	0.963 (12.69%)	103.333 (19.74%)	22.186 (1.81%)	9.865 (3.40%)	582.588 (10.22%)

(#) Other States include Puducherry, Andman & Nicobar and Lakshdweep

Table 4.6, Source: (Directorate general of shipping)

The table 4.6 shows the State wise coastal traffic handled at non- major ports in India from 2003-2019. Through this table 16 years of data we can clearly understand coastal traffic handled at non major port state wise in India. The traffic handled by non- major ports of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and other states (Puducherry, Andaman& Nicobar and Lakshadweep) are mentioned in the table.

In the state of Gujarat during the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Gujarat is 8.70%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 6.24%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 28.33%. After associating the financial year 2006-2007 to the financial year2007-2008 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 11.44%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 3.53%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 34.50%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 12.34%. After associating the financial year 2010-2011 to the financial year2011-2012 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 12.18%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth coastal of cargo traffic handled by Gujarat is increased by 11.11%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 7.69%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 8.43%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 1.09%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth

of coastal cargo traffic handled by Gujarat is increased by 1.75%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 7.23%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Gujarat is increased by 7.67%. In Gujarat year by year coastal cargo traffic is increasing. During 2009-2010 that period we can see more growth in Gujarat. In case of Gujarat more percentage growth we can see in 2011-2012 and Lessgrowth at 2016-2017.

In the state of Maharashtra throughout the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Maharashtra is 17.32%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Maharashtra is decreased by 8.33%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 4.05%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 0.44%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Maharashtra is decreased by 10.29%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 20.11%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 18.89%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 34.10%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 21.30%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 2.38%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by

10.17%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 5.69%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 20.95%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 7.09%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Maharashtra is increased by 22.52%. We can see more percentage growth at2018-2019 and less growth at 2005-2006.

In the state of Goa during the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Goa is 0.2%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Goa is increased by 40.19%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Goa is increased by 20.66%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Goa is decreased by 10.37%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Goa is decreased by 7.20%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Goa is increased by 16.77%. Whencomparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Goa is increased by 4.92%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Goa isdecreased by 0.76%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Goa is decreased by 76.21%. Afterassociating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Goa is decreased by 91.74%. When comparing the financial year 2013-

2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Goa is

increased by 52.58%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Goa is decreased by 28.21%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Goa is decreased by 73.32%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Goa is decreased by 39.49%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Goa is decreased by 79.17%. The percentage growth of Goa is showing a decreasing trend. 2013-2014 we can see a less growth and more growth can see at 2005-2006.

In the state of Karnataka during the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Karnataka is 174.35%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 23.76%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 168.85%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 35.66%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 44.17%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handledby Karnataka is increased by 72%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 63.78%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 80.93%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 3.39%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Karnataka is

decreased by 17.54%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 29.42%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 28.26%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 17.24%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Karnataka is decreased by 1.61%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Karnataka is increased by 53.52%. We can see more growth percentage during 2004-2005 and less growth at 2006-2007.

In the state of Kerala throughout the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Kerala is 60%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Kerala is increased by 0%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Kerala is increased by 125%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Kerala is increased by 41.67%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 14.28%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Kerala is increased by 4.17%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Kerala is increased by 7.82%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 4.38%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 30.50%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth

of coastal cargo traffic handled by Kerala is increased by 30.48%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Kerala is increased by 44.86%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 7.09%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 2.08%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 1.41%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Kerala is decreased by 99.80%. More growth percentage we can see in 2004-2005 and less growth percentage 2018-2019.

In the state of Tamil Nadu during the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Tamil Nadu is 23.19%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 16.47%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 14.08%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 9.50%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 1.24%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handledby Tamil Nadu is increased by 30.73%. When comparing the financial year 2009-2010 to the financialyear 2010-2011 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 37.22%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 24.89%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Tamil Nadu is decreased by 22.89%. After associating the financial year 2012-2013 to the

financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Tamil Nadu is decreased by 7.18%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Tamil Nadu is decreased by 4.73%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 3.75%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 36.68%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Tamil Nadu is increased by 5.72%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Tamil Nadu is decreased by 12.69%. More percentage growth we can see in 2010-2011 and less in 2012-2013.

In the state of Andhra Pradesh during the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is 50.39%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 0.13%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 23.32%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 3.66%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 54.13%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 46.71%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is decreased by 0.81%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 5.4%. When comparing the financial year 2011-2012 to the financial year 2012-2013

the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 13.96%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 13.34%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 14.53%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is decreased by 12.81%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is decreased by 4.29%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 23.96%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Andhra Pradesh is increased by 19.74%. More percentage growth we can see 2004-2005 and less percentage growth in2015-2016.

In the state of Orissa during the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Orissa is 47.36%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Orissa is increased by 67.79%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Orissa is decreased by 42.71%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Orissa is decreased by 23.99%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Orissa is increased by 1484.4%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Orissa is increased by 29.79%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Orissa is increased by 29.79%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by

Orissa is increased by 7.48%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Orissa is increased by 2.99%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Orissa is increased by 49.83%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Orissa is increased by 0.60%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Orissa is decreased by 1.81%. More growth in 2011-2012 and less in 2010-2011.

When comparing the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Other States is 15.18%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Other States is increased by 14.28%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Other States is increased by 53.84%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Other States is increased by 35.62%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Other States is decreased by 5.25%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Other States is increased by 44.36%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Other States is increased by 104.38%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Other States is increased by 17.29%. When comparing the financial year 2011-2012 to the financial year 2012-2013 the percentage growth of coastal cargo traffic handled by Other States is increased by 12.08%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Other States is decreased by 6.83%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage

growth of coastal cargo traffic handled by Other States is decreased by 17.71%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Other States is increased by 19.34%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Other States is increased by 42.35%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Other States is decreased by 8.16%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Other States is increased by 3.40%.

All together total traffic of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and other states are following. When comparing the financial year 2003-2004 to the financial year 2004-2005 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is 14.05%. After associating the financial year 2004-2005 to the financial year 2005-2006 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 5.60%. When comparing the financial year 2005-2006 to the financial year 2006-2007 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 27.89%. After associating the financial year 2006-2007 to the financial year 2007-2008 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 9.32%. When comparing the financial year 2007-2008 to the financial year 2008-2009 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 4.77%. After associating the financial year 2008-2009 to the financial year 2009-2010 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 35.45%. When comparing the financial year 2009-2010 to the financial year 2010-2011 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 9.01%. After associating the financial year 2010-2011 to the financial year 2011-2012 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 12.17%. When comparing the financial year 2011-2012 to the financial year 2012-2013

the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 9.89%. After associating the financial year 2012-2013 to the financial year 2013-2014 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 7.49%. When comparing the financial year 2013-2014 to the financial year 2014-2015 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is decreased by 12.79%. After associating the financial year 2014-2015 to the financial year 2015-2016 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 0.99%. When comparing the financial year 2015-2016 to the financial year 2016-2017 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 4.14%. After associating the financial year 2016-2017 to the financial year 2017-2018 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 8.93%. When comparing the financial year 2017-2018 to the financial year 2018-2019 the percentage growth of coastal cargo traffic handled by Total of all non-major port state wise is increased by 10.22%. More percentage growth in 2007-2010 and the percentage growth in 2016-2017.

CHAPTER-5

SUMMARY& SUGGESTIONS

5.1 SUMMARY

This report contains the information about performance analysis of coastal shipping in India. The Report Undertaken has aimed at understanding the term Coastal shipping and to find its out present and future scenario in Indian Context. This Report contains information about the problems of coastal shipping in India. As well as the Impacts, Recommendations, Measures taken by authorities are explained. The analysis and interpretations of provided data is presented in the form of tables.

The data analysis gives the information of coastal shipping growth in India compared to past years. The analysis shows that there will be 3.1% annual growth per year. The Indian Ports and shipping industry play a crucial role in sustaining growth of the country's trade and commerce. And so, the Indian government extends their important role in supporting the port sectors. As reported by the Ministry of Shipping, relatively 95 per cent of India's trading by volume and 70 per cent by value is achieved through maritime transport. The Government of India aims to modernize these ports and has approved a project called Sagarmala. The Indian Government has also permitted FDIs of up to 100 percent under the automatic route for port and harbour construction and maintenance projects.

My Recommendation is that to promote coastal shipping the customs should avoid the cumbersome procedures and should reduce the tariff rate in major ports. There should be a dedicated berth for coastal ships in every Indian Ports. Relaxation of cabotage Law provide greater freedom to foreign ship-owners at the same time relaxation could threaten domestic tonnage and it would open the door for foreign vessels to carry coastal cargos.

5.2 FINDINGS

On completion of this study, the following findings were analyzed and established.

- The percentage growth of vessels in India for last 10 years from (2009-2018) is showing an increasing trend. The more growth percentage we can see in 2012 and least in 2017.
- The growth of coastal fleet -by type of vessels from 5years from (2014-2018). The types of fleets that analyzed are Dry Cargo Liner, Dry Cargo Bulk Liner, Oil Tanker, Passenger Cum Cargo Carrier, Off Shore Supply and Specialized for Offshore Services. More no. of fleets arrived for Dry Cargo Liner fleet and Off Shore Supply and least fleet are arrived for Oil Tanker, Dry cargo bulk linear and specialized for offshore services for these types of fleets the no. of vessels arrived is less but their capacity GRT and DWT is not less.
- There are total 931 coastal trade companies are registered in India. Maharashtra is having more coastal trade companies and least companies by Assam and Bihar.
- During 2013-2014 the petroleum products are delivered to the coastal bunk and least delivered at 2015-2016. From 2013-2015 the delivery of petroleum products is showing a decreasing trend. From 2016-2018 is showing an increasing trend.
- The coastal cargo traffic handled by major ports from 2012-2015. The more traffic handled by Gujarat and least by Goa among the total cargo handled by various states during the 2012-15 the state of Gujarat handled highest percentage of cargo i.e., 65.44%gujarat and least handled by goa 0.15 %.
- During the period 2003-2019 Among the state wise costal traffic handled at the non-major ports it is identified that there is a gradual growth.
- Regardless of the fact that India has a large coastline, it fails to utilize the coastal shipping for the movement of cargo.
- Government has failed to take necessary actions to enhance, develop and escalate the use of inland waterways or coastal shipping for movement of cargo within the country.

- Indian shipping companies are, however, unlikely to have sufficient vessels to meet the country's growing coastal shipping demands which would require the domestic industry to somehow dramatically increasing its volume of container ships.
- All the ports in India are not facilitated with the infrastructures for improving and increasing the coastal shipping.
- India has stringent Cabotage policies and laws, which lead to the reduced use of coastal mode of transportation.
- In coastal shipping, the customs clearance and procedure are cumbersome and difficult to follow and time consuming.
- It is observed that, compared to roadways and railways, coastal shipping is much slow which most of the business people do not choose.

5.3 SUGGESTIONS

From the overall study I came to know about status of coastal shipping in India and the problems faced by the Industry. The problems or issues can be rectified and improve, which can aim to achieve goals in its long run. Following are some of the suggestions offer based on my study.

- The Government should take the necessary action to increase the availability of number of coastal ships in future as the cargo handled through the costal shipping year after year
- As the coastal cargo growth is increasing, the ports are needed to strengthen their cargo handling infrastructure and increase the draft in the ports. If there is a There should be dedicated berth for coastal vessels in every Indian Ports it will reduce the congestion.
- Maritime states should take proposals for making a conductive tax regime for encouraging investment in port development and associated infrastructure and there should be suitable policy changes to improve the coastal shipping services in India.
- Government should give tax concession on goods and coastal vessels to promote exporters and liners to put more focus on this sector.
- By relaxing the cobortage policy the forign vessels can also can move the costal cargo.Cabotage laws can any time be reintroduced when there is sustained growth in coastal cargo.
- In order to utilize costal shipping to the maximum effect the hinder lard connectivity in terms of all modes of transport should be develop.
- The government has already taken measures for development of inland water ways, industrial corridors etc. for better port connectivity. This project should be focused more and completed in time.
- Relaxation should be given to the costal trade and also the clearance procedure should be liberalized.

5.4 CONCLUSION

Coastal Shipping has several inherent advantages over modes of transport such as road and rail. It is fuel efficient, environment friendly, can ease traffic congestion but in the case of India development of coastal shipping is hampered by lot of barriers such as lack of Infrastructure, high tariffs in major ports, customs procedures, high manning scales...etc. Throughout the year costal shipping is but now the government is taking active participation in development of required infrastructure ,hinterland connectivity and training ,rules,regulations,policy to boost the costal shipping in India it is also focusing on the development of inland waterways in India which can boost the costal shipping.in future we can see costal shipping in India can grow much more faster phase contributing to the Indian economy.

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GLOSSARY

*__DWT:__ Deadweight tonnage is a measure of how much weight a ship can carry, it is the sum of the weights of cargo, fuel, fresh water, ballast water, provisions, passengers and crew.

__FDI:__ A Foreign Direct Investment is an investment in the form of a controlling ownership in a business in one country by an entity based in another company

*__GRT__: Gross Registered Tonnage is the volume of space within the hull and enclosed space above the deck of a merchant ship which are available for cargo, stores, fuel, passengers and crew.

__GDP:__ Gross Domestic Product is a broad measurement of a nation's overall economic activity. GDP is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

__Inland Water Transport:__ Inland waterways is a network in the form of rivers, canals, backwaters and creeks that can be used for transportation in place of or in addition to road and rails.

__Liners:__ Cargo and/or passenger carrying shipping line operating a scheduled service between fixed points on a trade route.

__Tramps:__ A ship engaged in the tramp trade is one which does not have a fixed schedule or published ports of call.

__Coastal Trade:__ The transporting of goods or passengers by a ship registered in one country that takes place solely from port to port of another country and usually governed by that country's national law.

__Trade Balance:__ It is the difference between the monetary value of a nation's exports and imports over a certain time period.