

**THE STUDY ON THE IMPACT OF IMPROVED INFRASTRUCTURE
AND EFFICIENT CARGO OPERATIONS – COCHIN PORT**

**Project report submitted for partial fulfillment of the requirement for the
degree of
Master Of Business Administration
(PORT AND SHIPPING MANAGEMENT)**

SUBMITTED BY

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**INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)**

**SCHOOL OF MARITIME MANAGEMENT
KOCHI CAMPUS**

CERTIFICATE

**SCHOOL OF MARITIME MANAGEMENT
INDIAN MARITIME UNIVERSITY, KOCHI.**

This is to certify that the report titled "THE STUDY ON THE IMPACT OF IMPROVED INFRASTRUCTURE AND EFFICIENT CARGO OPERATIONS – COCHIN PORT" submitted to the School of Maritime Management, Indian Maritime University, Kochi Campus, in partial fulfillment for the award of the degree of Master of Business Administration in Port and Shipping Management, is a record of project work completed entirely by Ashik A S,

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DECLARATION

The project titled "THE STUDY ON THE IMPACT OF IMPROVED INFRASTRUCTURE AND EFFICIENT CARGO OPERATIONS - COCHIN PORT" has been carried out under the supervision of AMRITHA C S as part of the requirements for the award of the degree of Master of Business Administration in Port and Shipping Management to be submitted to the School of Maritime Management, Indian Maritime University, Kochi Campus.

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DATE:



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EXECUTIVE SUMMARY

The task of creating and implementing policies and programs, on ports and shipping has been given to the Ministry of Ports, Shipping, and Waterways. India's coastline measures 7516.6 kilometers. Over 68 percent of India's trade in terms of value and 95 percent of its volume is transported by sea. Six are on the eastern coast and six are on the western coast of India, which has 12 major ports. India also has 212 small ports that are managed and checked by the marine board of the respective state government. 90% of EXIM cargo by volume and 70% by value are handled through the nation's ports. To meet the expanding needs of international commerce, ports' capacity in terms of berths and cargo handling machinery has to be significantly increased.

This study tries to bring out the present situation of Cochin Port, one of India's major ports. The study also identifies the poor capability of Cochin Port to respond effectively to changes in business opportunities. This port contributed a lot towards the development of India and Kerala state and the state looking forward to the port trust for further development of the state. Through the detailed study of the various departments of Cochin Port, it was identified that the present situation is unfavorable for any organization, especially the industries which can contribute to the country's economic development. Several facts are affecting the key performance of the cochin port. Present-day firms are adopting various cost reduction strategies and the transport cost contributes to a major part of the overall cost of a product reduction of lead time is a crucial element in every supply chain.

The development of technology has made it possible to regulate ports and terminals in new and improved ways. The world has shifted towards automating all port operations and process flows, which has had a huge impact on how marine trade is done. Also, it had a major effect on the employment rate at ports.

The important infrastructures in the port sector are marine access, cargo infrastructure, land access infrastructure, port superstructure services, and port operators. A rapid increase in tariff volume over the years has opened different challenges to restructuring the major and minor ports in India and to handle large tariffs in less time, containerization is the need of the hour. The growth of containerization in India has been a slow and steady growth of containerization in India has been slow and steady and mostly dry goods based. The advancement of technology has introduced new and better methods of controlling ports and terminals. The global shift towards implementing automation in all the process flows and operations conducted on ports has led to significant changes in maritime trade.

We can observe from this study that there have been recent changes in ports, including an increase in private involvement, the creation of port-based SEZs, a focus on the drafts department, ports using green energy, and others. All of these ports have chosen a variety of methods, including acquisition, regional diversification, expansion, direct port delivery, etc., to order to accomplish their plans. The report also suggests that there are several prospects for ports, including the expansion of private partnerships and the provision of port support services and ship repairs in ports.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO COCHIN PORT



Cochin, the marine entryway to peninsular India, is the fastest-growing logistical hub and is developing into a significant hub for international transshipment. Cochin is pushing a significant liquid terminal, bulk terminal, and marine businesses in its port-based SEZs. Cochin is an all-weather natural port that is ideally placed adjacent to the main international sea routes.

Cochin Port, one of India's greatest ports, is a significant port on the marine route between the Indian Ocean, the Laccadive Sea, and the Arabian Sea. At the Lake of Kochi, on the islands of Willingdon Island and Vallarpadam, close to where the Fort Kochi River empties into the Laccadive Sea, is the location of the port. India's biggest container transshipment facility is the International Container Transshipment Terminal (ICTT), which is a component of the Cochin Port. Cochin Port Trust (CPT), an agency of the Indian government, is in charge of running the port. It has been 91 years since the modern port first opened for business in 1926. Between the peninsular headland Vypeen and Fort Kochi is the Cochin Gut,

which serves as the port's entrance. The port's boundaries include the complete system of backwaters as well as any connected streams and canals. The approach canal to the Cochin Gut is approximately 1000 meters long, meant to be 200 meters wide, and maintained at 13.8 meters deep (now dredging for 16 meters for ICTT). The waterway splits into the Mattancherry and Ernakulam channels at its stomach, heading to Willingdon Island to the west and east. Besides these channels, wharves, berths, jetties, and stream moorings have been set up as berthing facilities for ships.

1.2 SIGNIFICANCE OF THE STUDY

Trade growth is a major indicator of a nation's overall growth. A nation's commerce serves as a gauge of its economic health.

A nation may fulfill the demands of all of its areas through internal trade, which also promotes balanced regional growth. International trade also serves two purposes: it makes accessible goods that are not produced domestically and allows a nation's surplus goods to be spent. It causes a nation's economy to develop quickly.

Through internal commerce, a country may meet the needs of every region, which also encourages balanced regional growth. A country's excess products may be spent thanks to international commerce, which also serves the dual objectives of making foreign commodities accessible and enabling home production to continue. An economy will swiftly grow as a result. In addition to playing a vital role in the country's integration into the global economy, the transportation sector is crucial for establishing economic and regional balance. India has a lengthy history of trade internationally. Ports have a significant role in the economy of coastal regions. Infrastructure, supplies, and related services are required in greater quantities as there are more goods and people moved each year. They will have varying degrees of positive economic and societal effects. Ports are essential for bridging the

gap between maritime and land transportation, making them essential for supporting economic activity in the hinterland. Ports provide both an economic and a social function by creating jobs.

Seaborne transportation is the most economical and effective when compared to other forms of transportation. Industries require a safe and economical means of importing and exporting finished goods and raw materials. Most of the world's industries are located around the coast and close to significant ports. These sectors, in turn, have an effect on both direct and indirect recipients as well as employees' lives.

1.3 SCOPE OF THE STUDY

One of India's main ports, Cochin Port, is one of the subjects of this research, which aims to highlight its current status. The inability of Cochin Port to adapt to changes in business possibilities is another issue highlighted by the research. The state of Kerala looks forward to the port trust for the state's continued growth because this port made significant contributions to the development of India and Kerala. Following a thorough analysis of the many departments at Cochin Port, it became clear that the current environment is unfavorable for any business, particularly those in industries that might advance the national economy. The Cochin Port's primary performance is being impacted by several factors. Today's businesses are using a variety of cost-cutting measures, and as transportation expenses make up a significant portion of a product's overall cost, reducing lead times is essential to the success of any supply chain.

The present condition of Cochin Port may not be able to make a positive change in the working atmosphere, Effective utilization of natural resources, thereby contributing to the issue of unemployment in the country. Some necessary changes and implications have to be made. For the further development of the port, the employees of the Cochin port must come

forward and should offer their maximum effort, which they are not doing in the present situation. The work also aims to evaluate the effectiveness and future potential of the Cochin Port Roll-on/Roll-off service. Roll-on/roll-off (RORO or Ro-Ro) ships are built to transport wheeled cargo, such as trailers, trucks, semi-trailers, cars, and railroad cars, that can be driven on and off the ship using only its wheels or a platform vehicle. Ro-Ro ships have built-in ramps that make it easy for the cargo to be rolled onto and off the ship when it is in port. After a detailed overview of the Dry dock workshop of Cochin Port, it is identified that this department can contribute to the revenue of Cochin Port Trust. Presence of ICTT Vallarpadam, the Central Government is planning to waive the cabotage rule for ICTT Vallarpadam, the proposed Vihinjam Port is an open opportunity in front of the port trust. This offers a scope of ship repairing hub in Cochin Port Trust with business collaboration with Cochin Shipyard.

1.4 OBJECTIVE OF THE STUDY

- The primary objective of this research is to provide a detailed overview of the Cochin port
- To evaluate the need for the development of International Container Transshipment Terminal (ICTT),
- Effective use of ROLL-ON/ROLL-OFF Service as well as its impact on the economy and trade.

1.5 RESEARCH METHODOLOGY

Type of Research

The study design employed here is descriptive in nature. It refers to a comprehensive discussion of the study's characteristics.

1.6 DATA COLLECTION

Secondary data:

- The Ministry of Ports, Shipping, and Waterways' official website.
- Books, magazines, and newspapers.
- Various governmental publications from the federal, state, and local levels.
- Publications with a specific focus.
- Official government websites.

Information regarding the varied effects of the Cochin port economy and commerce was gathered using the secondary source mentioned above.

1.7 DATA PRESENTATION TOOLS

The research techniques employed are diagrams, charts, combination graphs, and tables.

1.8 STATISTICAL TOOLS FOR ANALYSIS

The statistical tool used for the research is;

- Cargo handling's compound annual growth rate (CAGR).
- Efficiency factor for the ports and the volume of goods moved.
- Regression study of freight handled, and passenger flow.

1.9 LIMITATIONS OF THE STUDY

- The project's short lifespan and the number of sources available for gathering data were relatively little.
- The research is restricted to the data that is currently available and was not given by higher officials.
- As certain data are unavailable for security reasons, the accuracy of the data is constrained.

CHAPTER 2

LITERATURE REVIEW

2.1 REVIEW OF LITERATURE

Anindita Mandal, Soma Roychowdhury and Jhumoor Biswas “Performance analysis of major ports in India: a quantitative approach”. With the fast expansion of the economy India's share of global trade is increasing. This increases the strain on these ports, which handle a significant amount of commerce, to function at their best. It includes a thorough examination of many performance indicators using a range of statistical approaches, as well as an assessment of each port's performance in various categories. This will allow the ports to assess their efficiency and identify the causes of their inadequacies. The work goes on to create an integrated composite performance index by assigning comparative weightage to various variables to measure the relative overall performance of various ports. It emphasizes the need for such estimations in determining the consistency of performance, both within and across ports, to plan and design ways to improve performance.

THE ECONOMIC TIMES “Kochi port to emerge as country's best bunkering service point” Cochin Port Trust (CPT) prepares to host the second international bunkering conference on May 15, it is all set to emerge as India’s favorite bunkering service point.

Encouraged by 20 percent growth in bunkering volumes year-on-year, the port has already offered 100 acres of SEZ near the port facility at Puthuvypeen to accommodate the future growth potential of the bunkering service. The proximity to the international sea route and

rates termed as the most competitive among South Asia ports are projected as the chief advantages of the bunkering services from Kochi port.

Matprop Technical Services (2009) examined the viability of transportation of containers from Wellington Island to Vallarpadam by Roll On - Roll Off vessels. They used secondary data as well as primary data for the study. They have compared the economic feasibility of the Ro-Ro with road transport. Results of the study revealed that it would be highly viable to transport containers using Ro-Ro as it is highly cost-efficient and time-saving.

K. Chandrasekhar Iyer, V.P.S Nihar Nanyam "Technical efficiency analysis of container terminals in India". Despite a large number of studies on port operations efficiency, the majority of them are from industrialized countries, with only a handful from developing countries like India. Because of their advantageous position and capacity to manage transshipment traffic, Indian container ports are extremely important. It is necessary to comprehend their performance on a micro-level, specifically at the terminal level rather than at the port level. The data is interpreted in terms of terminal location advantage, administrative control, and private control.

It allowed for the performance of various terminals to be ranked. Container terminals on India's west coast are determined to be more efficient than those on the east coast, and the efficiency of container terminals operating under big ports is on the decline when compared to that of lesser ports. In addition, not all container terminals have experienced equal productivity increases. The terminal at Tuticorin appeared as the most consistent in terms of relative efficiency and growth in total factor productivity among the seven high-performing container terminals found through the investigation. The size of the terminal, which offers economies of scale, is shown to be the most important element impacting its efficiency.

MARITIME GATEWAY “Dredging At Cochin Port To Boost Transshipment” The Ministry of Ports, Shipping, and Waterways has agreed to fund Rs300 Cr under the Sagarmala initiative to dredge ICTT at Vallarpadam, to boost transshipment. The Ministry of Ports, Shipping, and Waterways (MoPSW) has agreed to fund Rs300 Cr under the Sagarmala initiative to dredge the International Container Transshipment Terminal (ICTT) at Vallarpadam operated by DP World in Cochin Port. The terminal channel is being dredged to deepen it from 14.5 meters to 16 meters, which is expected to take about a year. The move to deepen ICTT Vallarpadam is a consorted effort by both the Cochin Port Authority and the central government to attract more transshipment cargo to the Indian coast. About 3 million TEUs of Indian-origin cargo is transhipped through Colombo Port, entailing extra time and cost for the export/import community.

The New Indian Express (2011) The trial run of the Roll-on Roll-off (RO-RO) was done from the old boat jetty on Willingdon Island and Bolghatty Island on Wednesday with the double-ended ferry of the LOTS Shipping Company covering the distance in about 20 minutes. “The seven-year-old vessel, SAKRA Transporter from Singapore, has the advantage of having double-ends and doesn’t need to turn at the jetty. You can drive in from one end and get off at the other end. The driver has to just turn to the other side and drive out,” said chief executive Renjith. RO-RO ships are ferries designed to carry wheeled cargo such as automobiles, trucks, semi-trailer trucks, and trailers. The vessel can carry 11 trailers with containers of 40 feet at a time or 22 vehicles with containers of 20 feet. “We are waiting for the Port strike to end so that we can start the services,” said K P Joseph, general manager, of LOTS Shipping Ltd. The advantage of an RO-RO service is that the consignment which would need to cover 38 km on the road needs to travel only 2.5 km on the water by RO-RO taking the huge cargo to ICTT at Vallarpadam. The RO-RO service between Willingdon Island and Vallarpadam International Container Transshipment Terminal will facilitate the

transportation of the containers on barges. Now vehicles coming to the Cochin Port with containers through the existing roads to the port will be transported to the Vallarpadam Terminal on barges. According to Port officials, this facility will reduce transportation costs and time. It is expected that 10 percent of the movement of containers will be exclusive to and from South Kerala. This service will reduce traffic congestion and delay in the clearance of containers.

Cochin Port Trust Leasing Out Property A dry cargo handling, storage, and allied facilities; a cryogenic warehousing facility and hospitality facilities are among the businesses being expected by the Cochin Port Trust on the port property being leased out. A dry cargo handling, storage, and allied facilities; a cryogenic warehousing facility utilizing cold energy generated at the LNG terminal; and hospitality facilities are among the businesses being expected by the Cochin Port Trust on the port property being leased out on both long-term and short-term basis. The port will lease out 4.39 acres on Willingdon Island for dry cargo handling and storage. The facilities that need to be set up include terminals for handling bulk cement and bagging plants. The port trust will also lease out three acres on the Puthuvypeen special economic zone for setting up cryogenic warehousing for utilizing cold energy from the LNG terminal being operated by Petronet LNG Limited.

Four plots measuring 6.78 acres on Willingdon Island, which comprise a piece of land near the Harbour Terminus railway station where the now-demolished port quarters stood, suited for port-related commercial activities, hospitality industry, and warehousing are also being leased out. Another acre of land close to the Harbour Terminus, which earlier housed the Indian Maritime University campus, is also being leased out for port-related activities. Another 11.5 acres on the Vallarpadam island, north of the International Container Transshipment Terminal, is being leased out for warehousing, storage, processing, and value-addition.

CHAPTER 3

INDUSTRY PROFILE

3.1 PORTS

A port is a location having one or more harbors along the coast or shoreline where ships may dock and unload or load people or cargo. A port is a type of marine business facility that may include one or more wharfs where ships may dock to pick up and drop off passengers and goods. A port is essentially a location where goods are switched from one mode of transportation to another.

Locations for ports are chosen to maximize economic demand, proximity to land and navigable water, and wind and wave protection. There are harbors, both natural and man-made. Any breakwaters, sea walls, or jetties that are part of an artificial harbor must be maintained regularly by dredging, whether they were created on purpose or were the result of dredging. As opposed to this, a natural harbor has land characteristics on three sides.

Each country's economic engine is its port since that is where most trade takes place. Access to the global commercial center continues to depend on seaports. It is projected that throughout the upcoming decades, the amount of freight transported by water would significantly increase. The global economy is supported by ports, especially international seaports. Due to their skillful and shrewd development of goods, people, and data, they serve as important tools of trade policy in the domestic economy and speak to a crucial country-to-country interface. Historically and currently, ports serve as essential nodes in the global commerce network. Furthermore, they serve as hubs for social interaction across other cultures, where the influence of people, products, and data may be lifted or ordered. Domestic political agents, used to operating within lax rules of behavior, have also been

provided access to open doors for lease chasing and the revamping of client wants thanks to global exchange and venture streams.

The port industry, which is a part of the marine industry, has seen a significant transformation as global trade has advanced. Sensational decreases in transportation costs, which are a driving force behind global economic growth, have greatly aided global financial development. The port industry began to respond to the challenges of modifying larger vessels as shipping gained expertise with vessel construction and higher tonnage.

Understanding the components of or participants in the port community is crucial when evaluating the influence of policy on port organization and growth. An appreciation of the many participants within the port community will be aided by such a study. Ports are made up of a variety of subgroups that collectively make up the port community. Ports serve as crucial nodes in the ever-more complex and sophisticated logistical networks that power the transit of products throughout the world. More employment will be created as a result of improved port infrastructure, which will also ease traffic, cut down on pollution, and bring wealth. The trading process is driven by supply and demand and the regulatory environment. The trading process requires the backing of trends in governance, economics, and demography. In addition to providing an overview of ports as a worldwide enterprise, this chapter also provides some insights into the Indian port sector and maritime trade.

In an era of economic globalization, ports are swiftly moving from their traditional role as suppliers of full coordinating systems to conventional land/ocean interfaces. This suggests that due to unusual natural changes and trends in the transportation, port, and coordinating industries, ports have had to deal with several challenges. Ports all over the world have been working to improve their physical infrastructure, particularly container terminals and related facilities, and to expand their port hinterland by offering facilitated free trade zones to create

center ports and global coordination centers to adapt to the challenges and escalating issues. Businesses in this sector run ports and harbors and offer assistance with water transportation, such as cargo processing and ship navigation. The business is concentrated in areas with the highest level of trade since the demand for maritime support services is closely tied to the creation of goods. The countries with the most notable number of large vessel calls include China, the US, Japan, Singapore, and South Korea.

Infrastructure is created, run, and funded by the first subgroup. Typically, the State, whether it be local or federal, owns and develops this port foundation through a port authority or comparable entity. The term "infrastructure" is often used to refer to the physical features, such as quay walls, breakwaters, and dredging canals, that make up a functional port. Superstructure ownership and upkeep are handled by the second grouping. This often comprises machinery like cranes and civil engineering services like electricity supply and pavement. Depending on the type of cargo involved and the national legal landscape, there is a wide range of public and private entities in this category.

The private sector engages in the container market by owning or leasing a container port, primarily in the form of multinational shipping organizations. The superstructure is owned and maintained by the private sector in return. At certain ports, the superstructure in the form of multi-user container terminals is financed, run, and maintained by the port authority. Similar arrangements are made in other cargo types as well, albeit in bulk transactions private participants are more frequently cargo owners than ship owners. Service providers make up the vast majority of the port sector's subgroups. All ports provide the same cargo-handling services, including stevedoring, the use of cranes and other handling equipment, and the processing of goods through customs organizations. Players in this market may include the State, which serves as an operator, customs authority, and regulator in the areas of the economy, security, navigation, and the environment. International shipping

organizations, regional stevedoring businesses, cargo agencies, freight forwarders, and labor unions mostly connected to dock labor are other participants.

Interregional and international trade fuels demand. Effective operations and dependable service are essential for a business to be profitable. Big businesses have an edge in terms of capacity and global reach since some of them operate terminals in several nations. By targeting local markets or offering specialized services, small businesses can compete successfully.

When dwellers of the Indus Valley began engaging in marine trade with Mesopotamia in the third millennium BCE, Chaudhuri claims, Indian maritime history officially began (1985). Up to 120 ships were annually departing from Myos Hormos towards India by the time Augustus came into power. When commerce between India and the Greco-Roman civilization evolved, spices became the primary import from India to the Western world, according to Ball (2000). Rao (1992) and (1965) claim that although the dock at Lothal proved the Harappans' maritime prowess, it does not entirely satisfy all of Leshnik's dock criteria (1968).

Ports play a significant role in the transportation sector as a whole and are becoming more interconnected with the global economy. In essence, ports serve as a means of economic integration. The movement of people and products is one of the most significant services provided by the shipping industry. This sector also includes supplementary or fundamental infrastructure as well as several port services (such as pilotage, towing and tug assistance, emergency repairs, anchoring berth, and berthing services, and so on) (such as storage and warehousing, maritime cargo handling services, customs clearance services, etc.). Custom clearance services are mainly managed by government regulations, even if many nations have opened up some ancillary services, including storage and warehousing, to foreign

service providers. Many different types of operations take place inside the port area, including infrastructure services provided by port authorities, cargo handling services provided by private businesses in most ports, and additional services like mooring, towage, and so forth. Each of these duties has its traits and unique technologies.

India, which is ranked fifteenth in terms of deadweight tonnes and seventeenth in terms of gross registered tonnage (grt), has the largest merchant maritime fleet in the world, according to Mukherjee (2001). (dwt). According to estimates, ships carry almost 90% of the world's trade in goods and commodities. Although this ratio has been fairly constant over the past ten years, volumes have increased dramatically during the past twenty years.

Feenstra claims that the integration of global trade and the breakdown of production is to blame for the increase in international shipping volumes (1998). According to Berköz (1999), ports offer two key benefits. They play a crucial role in establishing connections between the hinterlands and distant locations. On the other hand, for a country to operate properly, it needs internal connectivity, such as connections to other ports, airports, and railways.

Second, sea transportation is the most economical way of travel in terms of fuel use and expenditure. Road transportation uses ten times more energy than marine transportation, but railway transit uses just half as much as other means of transportation. Marine transportation is undoubtedly more environmentally friendly than other forms of transportation owing to its lower energy usage, and the world has become more ecologically aware in recent decades. Lower levels of foreign investment, a lower savings ratio, fewer service exports, less access to knowledge and technology, and fewer jobs are all caused by higher transportation costs. Economic growth is predicted to decline by more than half a percentage point as

transportation costs double. Although this effect might seem inconsequential, it should be emphasized that slower growth causes per capita income to vary significantly over time.

Sánchez et al. (2002) found that there is a strong correlation between more efficient seaports and lower freight prices after adjusting for factors such as distance, cargo type, availability of liner services, and insurance costs. Port efficiency factors point to a group of elements that may be found at any port terminal as explanatory variables. The yearly average of the number of containers loaded per vessel, waiting periods, and other factors are all taken into consideration. The hourly loading rate of containers. 2% less is spent overall on marine transportation for every 25% increase in one efficiency factor, claim Sánchez et al. in their 2002 study. Port throughput has a positive effect on regional development, claims Ferrari (2011). Compared to other transit services, its impact is weak (elasticity less than 0.05). (i.e airports).

The employment impact is favorable and stronger in tertiary than in industrial activities. Kowalczyk (2012) asserts that current developments in cargo transportation on a worldwide scale are resulting in the use of big, quick container ships and a decline in the number of ports of call. Due to the decreased number of calls, it is possible to drastically cut down on both the overall cost of cargo handling in seaports and the amount of time required for port operations. Multinational corporations have vertically deconstructed their Fordist production systems into geographically dispersed and flexibly structured supply chain systems since the 1980s when the World Trade Organization (WTO) accords successfully decreased international trade barriers. According to Massey, the global trade system allowed companies to move their production and assembly activities to locations that were more affordable in emerging countries, leading to a new geographical division of labor (1984).

Tovar et al. claim that ports are a crucial link in the logistics chain and that the management of ports directly affects significant economic factors including export competitiveness and final import pricing, which in turn affects economic growth. 7th Working Paper (CCRP) A dry port offers handling and short-term storage services for bulk, general, and/or containerized goods that arrive or depart by any mode of transportation, including road, rail, inland waterways, and airports.

A dry port of international importance is a secure inland location used for temporary warehousing, inspection, and customs clearing of cargo traveling in international trade. In a statement on the value of dry ports in economic corridors, the transport section of UNESCAP noted that they provide a variety of functions, including:

- Assist in bringing economic development from the coastal areas to the hinterland (particularly for LLCs)
- Dry ports can grow to SEZs

One of the biggest challenges to aquatic habitats across the world is biological invasion, and the function of shipping as a transporter of alien species and pathogenic agents has been considered at conferences around the world and acknowledged by treaty clauses. Ballast water has been recognized as the main method for introducing dangerous and foreign species into the rivers of the coastal zone, with potential negative ecological, social, and economic effects.

According to Oliveira (2008), governments must spend significant quantities of money to reduce the negative effects of alien species that are transported in ballast water into marine regions. This is a drawback of ports for the advancement of a nation. For container ports and terminals to stay competitive and accommodate anticipated growth, there are considerable challenges in enhancing productivity, decreasing spatial pressure and

congestion, and strengthening hinterland connections. Innovative port concepts, such as relocating the "port entrance" to an inland site and transferring various processes, like buffering, stripping, stuffing, and storage, serve to address port difficulties like congestion and a shortage of space.

3.2 HISTORY OF PORT

Sea ports were often developed whenever ancient civilizations participated in the marine trade. Ancient anchors have also been discovered, along with harbor buildings. Several of these historic locations are no longer in use as ports or survive only in ruins. Ports occasionally lose their use, even in more recent periods.

Early ports tended to be little more than straightforward harbors, but current ports are more often than not multimodal distribution centers with access to routes by sea, river, canal, road, rail, and air. To maximize access to a bustling hinterland, successful ports are situated.

A port will make it simple for ships to navigate and will protect them from the wind and waves. Ports are frequently located on estuaries where the water may be shallow and frequent dredging may be necessary. While they are less frequent, deep water ports like Milford Haven can accommodate larger ships with a deeper draught, including supertankers, post-Panamax vessels, and huge cargo ships. It is advantageous for other companies to be situated in or close to a port, such as regional distribution centers, warehouses and freight forwarders, canneries, and other processing facilities.

3.3 PORTS IN INDIA

Ports have a key role in the economy and the provision of services since they act as a hub for the interchange of two different forms of transportation: marine and land, including any kind of rail or road. The multimodal nature of ports is therefore their most significant characteristic. India's coastline and sea islands have a total of 7517 kilometers in ports, including 12 major ports and 212 recognized non-major ports.

Gujarat has distinguished itself as the top marine State among the States in terms of port traffic, accounting for 40.5% of all the cargo handled at Indian ports. It is also unworthy that 67% of the cargo handled by minor ports is bound toward Gujarat. Gujarat is followed in terms of total port traffic by Maharashtra, Andhra Pradesh, Odisha, and Tamil Nadu, with their respective percentages of 13.1%, 13.1%, 11.2%, and 9.5% in terms of total seaborne traffic in India.

Up until 1990, India's economy remained closed, but it progressively began to liberalize, privatize, and become worldwide. To increase export potential, successive administrations introduced policies that promoted international trade. India did achieve significant trade growth because of the creation of special economic zones (SEZ) and permitting of foreign equity involvement to support exports. These initiatives, however, fell short because they did not place enough focus on cost-effectiveness and infrastructure co-development. The co-development paradigm was successfully adopted in China. In the 1980s, the nation began its reforms, which prompted the development of industrial clusters in the coastal areas. Due to measures supporting the creation of advantageous circumstances for mass manufacturing, this attracted Investment. Foreign businesses established their facilities focused on export in China as a result of the full series of policies and development. China's economy saw considerable changes after it joined the World Trade Organization in 2001, which facilitated

a stronger integration with the global economy. Midway through 2000, both developed and developing countries saw a boom in consumer demand, giving China the chance to boost its export sector.

The Sagarmala project, which the Government of India (GoI) has authorized, aims to upgrade these ports. India's ports and shipping sector are essential to maintaining the nation's expansion of trade and commerce.

For port and harbor building and maintenance projects, the Indian government has permitted Foreign Direct Investment (FDI) of up to 100 percent through the automatic method. The National Maritime Development Plan (NMDP), a strategy to improve the marine industry with a budgeted investment of US\$11.8 billion, has also been launched by the government.

3.4 CLASSIFICATION OF PORTS IN INDIA

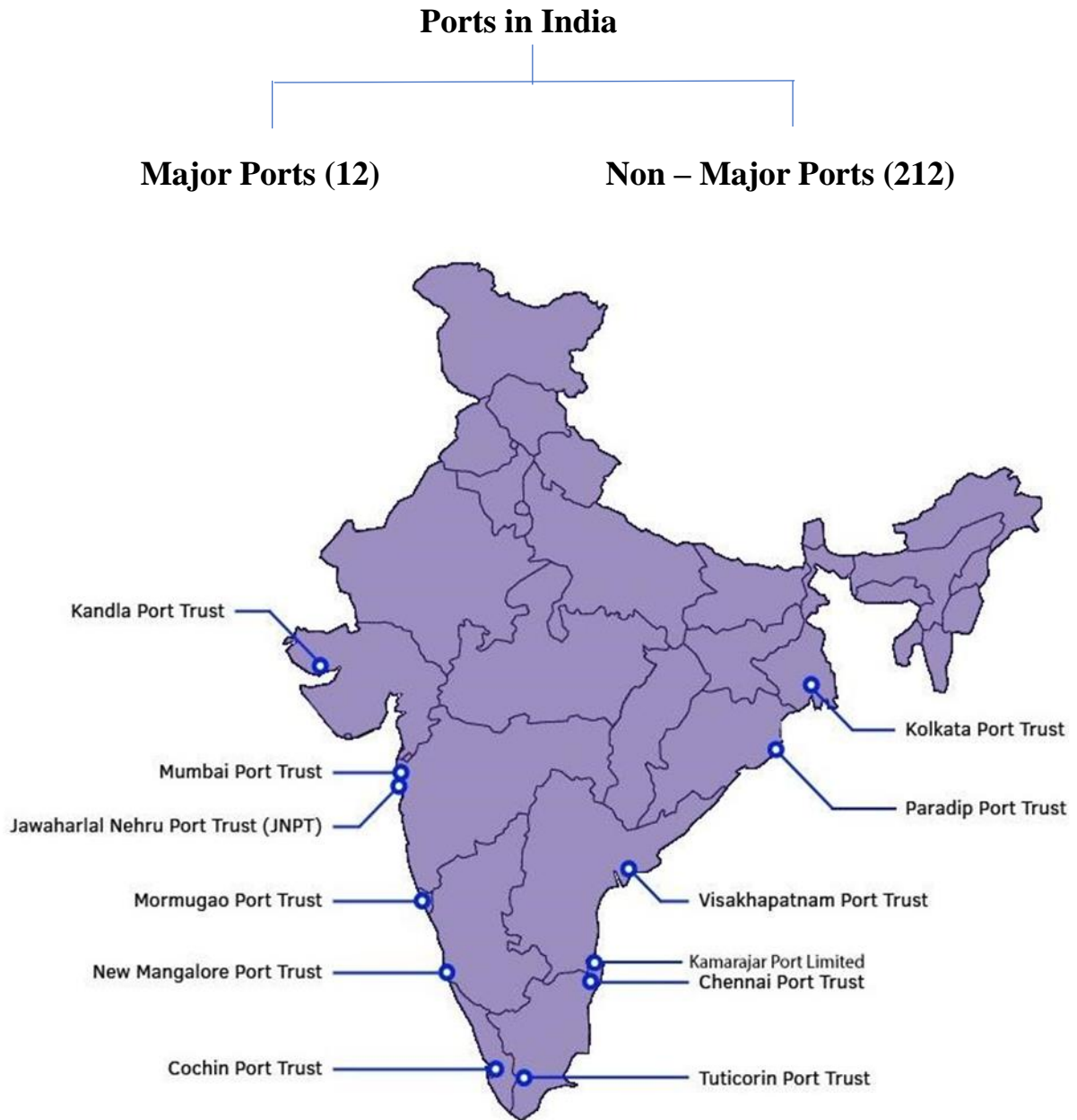


Diagram 3.1 Major Ports in India

3.5 FOCUS ON COCHIN PORT

The maritime gateway to peninsular India, Cochin is the fastest growing logistic center emerging into a major international transshipment terminal. An all-weather natural Port, and located strategically close to the busiest international sea routes Cochin is promoting a major liquid terminal, bulk terminal, and maritime industries in its port-based SEZs.

Cochin Port, one of India's greatest ports, is a significant port on the marine route between the Indian Ocean, the Laccadive Sea, and the Arabian Sea. At the Lake of Kochi, on the islands of Willingdon Island and Vallarpadam, close to where the Fort Kochi River empties into the Laccadive Sea, is the location of the port. India's biggest container transshipment facility is the International Container Transshipment Terminal (ICTT), which is a component of the Cochin Port. Cochin Port Trust (CPT), an agency of the Indian government, is in charge of running the port. It has been 91 years since the modern port first opened for business in 1926. Between the peninsular headland Vypeen and Fort Kochi, the Cochin Gut serves as the entrance to the Port of Cochin. The port's boundaries include the complete system of backwaters as well as any connected streams and canals. The approach canal to the Cochin Gut is approximately 1000 meters long, meant to be 200 meters wide, and maintained at 13.8 meters deep (now dredging for 16 meters for ICTT). The waterway splits into the Mattancherry and Ernakulam channels at its stomach, heading to Willingdon Island to the west and east. Besides these channels, wharves, berths, jetties, and stream moorings have been set up as berthing facilities for ships.

3.5.1 HISTORY OF COCHIN PORT

The Cochin port was naturally created as a result of the massive Periyar floods in 1341 AD, which engulfed the Muziris port (located close to modern-day Kodungallur), one of the most important ports in antiquity. Since then, Kochi has developed into one of the major ports with substantial trade links with Romans, Greeks, and Arabs who were all drawn to the state's ancient spice riches. Fort Kochi's harbor continued to draw European colonialists, including the Portuguese, Dutch, and lastly the British, who expanded their rule over the Kingdom of Cochin and the city. The historic harbor was close to Mattancherry (which continues as Mattancherry Wharf). The Port of Cochin was designated as a significant port by the Maritime Board of British India in 1932. Any ships with a maximum draught of 30 feet were allowed to enter the port. The Royal Navy took control of the port during World War 2 to house warships and military cruisers. On May 19, 1945, it was handed back to civil authorities. The port was taken over by the Indian government after Independence. Under the Large Port Trusts Act, the port's management was transferred to a Board of Trustees in 1964. The port was ranked as one of India's top 12 ports.

3.5.2 ADVANTAGES OF COCHIN PORT

- **LOCATION**

Cochin, a natural harbor that can be used in any condition, is ideally placed near the busiest international maritime routes.

(1) Gulf to Singapore and the Far East (Distance from Cochin Port -11 Nautical Miles)

(2) Far East to Singapore via Suez (Distance from Cochin Port -74 Nautical Miles)

The International East-West Freight Routes are most accessible from Cochin than from any other significant Indian city. Cochin has a unique benefit because of its geostrategic location.

- **MODERATE CLIMATE**

This port is located on the manmade island of Willingdon, which is hidden in the Backwaters. The backwaters provide ships with tranquil passageways all year long, including during the monsoon season. Since Cochin is outside of the cyclone zone, the danger of cyclones is minimal.

- **OPERATIONAL EFFICIENCY**

1. 24 Hour Pilotage
2. 24-hour Cargo Operations
3. Real-Time co-ordination of vessel movement through VTMS Single
 - a. Window Transaction
4. Moving towards Zero Pre-Berthing Detention Time.

- **SERVICE QUALITY**

1. The operational areas of the port are certified to ISO 9001:2015 standards.
2. The port maintains high-security arrangements and its security profile is ISPS compliant.
3. The port is maintaining a Tier 1 Oil spill disaster contingency plan. During the past three years, no oil spill has occurred in and around the port.

- **CONNECTIVITY**

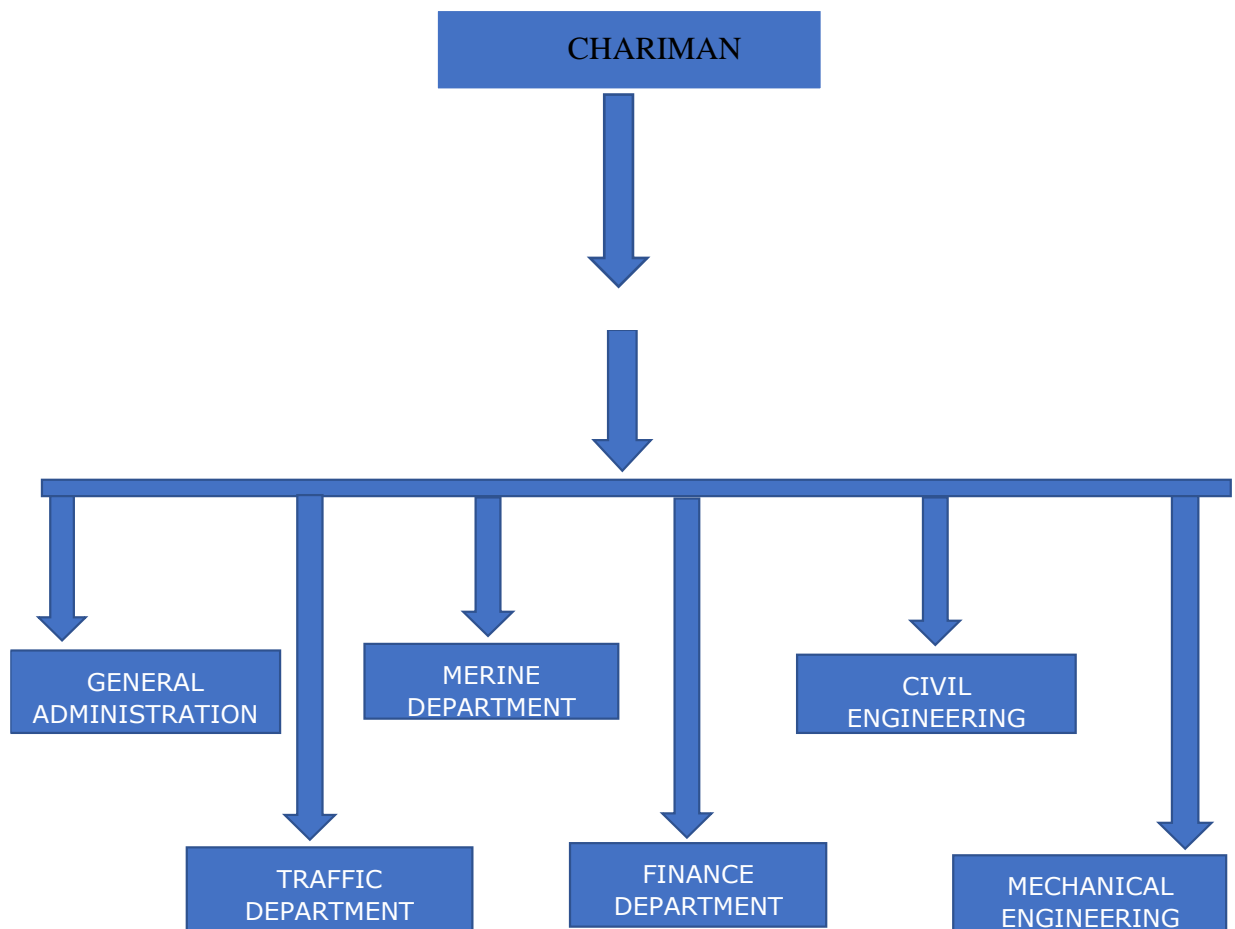
National Highways NH66 (Connects Panvel (a city south of Mumbai) to Cape Comorin (Kanyakumari), passing through the states of Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu), NH49 (Cochin-Madurai), and NH17 link Cochin Port to its region, which expands to the states of Kerala, South Tamil Nadu, and South Karnataka (Cochin-Mumbai). India's Central and Southern regions are seamlessly connected by the Indian Train Network. Connectivity to the South of Kerala is provided by the National Waterway NW3. The harbor is close to an international airport. The network of roadways, waterways, railroads, and airways has made it easy to reach the harbor.

- **DEVELOPMENT PATH**

1. Cochin Port is implementing ERP for enhancing efficiency
2. The port is enhancing capacity by modernizing and enlarging the Mattancherry Wharf
3. The port is upgrading its power infrastructure
4. The port is equipping its new multi-purpose berths with modern Bulk/Break Bulk Handling Cranes
5. The port is developing India's first Port Based Special Economic Zone.

3.5.3 ORGANIZATIONAL STRUCTURE

Governed by a board of directors chosen by the government, Cochin Port Authority is an independent entity under the control of the Indian government. The chairman serves as the board's top administrative officer and is in charge of the organization. Development and upkeep of the harbor and industrial region are the responsibility of the Port Authority. The Port Development, Asset Management, Environmental Management, and Infrastructure divisions are in charge of these duties. The Director of Maritime and Infrastructure Relations oversees each agency (COO). The chairman is assisted by the deputy chairman who in turn is assisted by department heads and officials of the following port departments:



VARIOUS DEPARTMENTS IN COCHIN PORT AUTHORITY

1. GENERAL ADMINISTRATION DEPARTMENT

The deputy secretary for administration, the deputy secretary for estate, the deputy secretary for foundation, the deputy director for planning and research, and the law officer work under the secretary in the general administration department. Officer in charge of industrial relations and chief vigilance. Officer in charge of public relations, assistant, and Hindustani. The organization's training operations are overseen by the training cell under this section.

2. TRAFFIC DEPARTMENT

The services provided by the traffic department are:

Allotment of berth:

Reservation of berths for freight, cruise, and passenger ships to organize the berthing and departure of all boats stopping at Cochin Port, a berthing meeting is held every working day under the chairmanship of the traffic manager and harbor master. Participants in this gathering are harbor users who handle ships. According to the regulations set forth by the government, berths are assigned according to precedence.

Cargo handling operations at wharves:

To help the stevedores handle general goods at the wharves, Cochin Port provides them with shore tools and port labor. While containers are managed by M/s IGTPL at the approved port, ICTT Vallarpadam, liquid bulk is handled at designated berths. The services provided must meet several criteria that are regularly evaluated.

- **Receipt, storage, and delivery of cargo from ports storage spaces:**

The Ernakulam Wharf and Mattanchery Wharf both have a variety of open and enclosed designated storage areas where cargo is kept. Following completion of the required Customs

and Port Formalities, import merchandise is transferred to the consignee or their agents. The CFS receives export cargoes for packing into containers, and Cochin Wharf receives cargoes for non-containerized shipments for storage. Outside the wharf area, there is also a sizable area of open and covered non-bonded storage room for storing goods.

- **Recommending the issue of passing to various areas.**

After receiving proper approval from the Traffic Department, Cochin Port CISE Pass Division issues yearly, monthly, weekly, and daily passes to port customers. At the Ernakulam Wharf pass area, where representatives from Traffic, Accounts, and CISF are on hand under one roof to give passes, a single window service is provided.

- **Reception of cruise vessels and passengers.**

- ❖ A dedicated cruise cell is operating under Ernakulam Wharf (Sagarika) and Samudrika wherein the following facilities are provided:
- ❖ Facilitating shore tour packages for tourists by local tour operators.
- ❖ Pre-paid counters for taxis and auto-rickshaws for the passengers availing local tours.
- ❖ Facilitating passenger embarkation/disembarkation procedures
- ❖ A modern cruise facilitation center is operated at BTP for immigration and customs clearance of passengers during turnaround operations of cruise ships.

- **Management of Port Operation System (POS) module vessel and cargo operations are handled in the POS module.**

Users of the port can register there since the Cochin Port completely complies with the Enterprise Resource Planning (ERP) System. The Cochin Port can handle real-time web requests for services from both Port Community Systems.

3. MARINE DEPARTMENT

- It primarily looks after the port's maritime reserve. the control of ships as they enter and leave the harbor. The duties of the marine department include hydrographic survey, dredging operations, fire services, registration of harbor vessels, and single station including the operation and upkeep of the tanker docks and electronic equipment like VHF, etc.
- Pollution control
- All harbor flotillas like tugs, launches: and dredgers are operated by the marine department.

4. FINANCE DEPARTMENTS

- To offer financial guidance on different port management issues.
- Custodian and bookkeeping of port money earnings and outlays.
- Gathering financial statement spending projections.

Pre-audit and payment verification as a control mechanism • Budgetary and financial management. payment of workers' wages, pensions, and other obligations.

- Tracking for work-related expenses.
- The issuance of invoices for the expense of services provided by the harbor and the collection of amounts owed.

5. MEDICAL DEPARTMENT

- The port trust's officials, employees, and families can access medical services through this agency.

- A self-contained infirmary operating at the port workshop, as well as six first aid receptacles scattered throughout the port trust's working areas.
- The harbor is equipped with a hospital that can accommodate patients with contemporary amenities and has 150 beds.
- Oversees and controls a nursing school.

6. CIVIL ENGINEERING DEPARTMENT

- Upkeep and improvement of the port's general management from a civil engineering perspective.
- The implementation of a new plan for offering port facilities to meet trade requirements after consulting with the other agency.
- Civil development projects and harbor building upkeep. sanitary water source and port region.
- The creation of fresh contract job estimates and the selection of a contractor.
- Improvement of the harbor region.
- Dredging to keep guiding passages clear.

7. MECHANICAL DEPARTMENT ENGINEERING

- It is in charge of all medical cargo purchases, supplies, upkeep, and administration.
- Handling the tools, purchasing, and maintaining the flotilla needed by the harbor
- Upkeep of machinery and drifting vessels energy procurement and delivery.

3.5.4 MISSION, VISION, AND GOALS

MISSION

The Cochin Port Authority's mission is to deliver dependable, affordable port services by combining cutting-edge infrastructure with high-quality, client-focused services. The Port must manage its resources and assets for the nation and the community's best economic benefit. The Port will make a strong commitment to safe practices and environmentally sound policies to become the primary engine for the region's economic growth. The Board of Trustees, the staff, and all other Port stakeholders must work together in an open, encouraging, collaborative, and cooperative environment. The Port Authority will follow the values of honesty, decency, professional excellence, community service, and respect for all people as it works to fulfill its mission.

VISION

The vision of the Cochin Port is to serve the country as

<input type="radio"/> A Public service provider
<input type="radio"/> An Economic development facilitator
<input type="radio"/> A Business enterprise
<input type="radio"/> An Environmental conservator

GOALS

- Strengthening our competitive position
- Maximising space and infrastructure utilization

3.5.5 FACILITIES AT COCHIN PORT

Between the peninsular promontory Vypeen and Fort Cochin is the Cochin Gut, which serves as the entryway to the Port of Cochin. The port's boundaries encompass the complete backwater system, including any connecting rivers and waterways. The approach canal to the Cochin Gut is about 1000 meters long, with a planned breadth of 200 meters and a kept dredged depth of 13.8 meters. Alongside these waterways, wharves, piers, jetties, and stream moorings have been constructed as berthing sites for ships.

BERTH INFORMATION:

Ernakulam and Mattancherry are the two divisions of the port's primary inward cargo route. The breadth of the Ernakulum Channel, which varies from 250 to 500 meters, is between 250 and 500 meters, and its draught varies between 12.5 meters up to the Oil Terminal and Q8/Q9 and 9.14 meters up to the wharves and the north and south tanker ports. The Cochin Wharf, which is 1024 meters long, has six parallel berths: five are for general goods and one is for fertilizer. In addition, the Ernakulum waterway has three oil ports. The Mattancherry canal is

4.08 km long, 180 to 250 m wide, and has a draught of 9.14 m, except for Boat Train Pier, where the draw is 10.0 m.

BERTH DETAILS

BERTH	LENGTH MAXIMUM OVERALL (m)	MAXIMUM DRAFT (m)	CARGO HANDLED
SPM	370	22.50	CRUDE
COT	250	12.5	CRUDE/POL
NTB	213	9.14	POL
STB	170	9.14	POL
ERNAKULAM WHARF(Q5-Q6)	250	10.00	DRY CARGO/CBFS
ERNAKULAM WHARF (Q7)	250	11.00	DRY CARGO
FACT(Q10)	207	10.70	FERTILIZERS/PHOSPHORIC ACID

SCB	170	9.17	LIQUID BULK
NCB	170	9.17	DRY/LIQUID BULK
BTP	190	10.00	DRY/LIQUID BULK
MATTANCHERRY (Q1)	180	9.14	DRY BULK
MATTANCHERRY (Q2-Q3)COSTAL BERTH	180	9.14	LIQUID BULK
ICTT VALLARPADAM(V 2-V3)	335	14.5	CONTAINERS
LNG PUTHU VYPIN	320	12.5	LNG

Table 3.1 Berth Details

CARGO STORAGE FACILITY

COVERED AREA (TRANSIT SHEDS AND OVERFLOW SHEDS)		
LOCATION	TOTAL SHEDS	AREA (Sq. m)
MATTANCHERRY WHARF	6	19160
ERNAKULAM WHARF	5	13200

CONTAINER FRIGHT	1	10000
GRAND TOTAL	12	42360

COVERED AREA (WAREHOUSES)		
LOCATION	TOTAL SHEDS	AREA (Sq. m)
MATTANCHERRY WHARF	4	11800
ERNAKULAM WHARF	1	2980
CEMENT GODOWN	1	1000
BTP	1	6000
GRAND TOTAL	7	21780

Table 3.2 Cargo Storage Facility

CHAPTER 4

ANALYSIS AND INTERPRETATION

4.1 FINDINGS OF THE STUDY

Comparing the overall traffic handled by the port during the year to the 340.38 lakh tonnes handled the year prior, there was a 7.45% decline or 315.03 lakh tonnes. In comparison to the prior year, a drop of 15.32% in liquid bulk and a rise of 10.69% in containerized goods were observed. The declaration that follows contains information about traffic management.

(In Lakh Tonnes)

	2020-21		2019-20	
	Quantity	Percentage to total	Quantity	Percentage to total
A. Bulk Cargo				
I) Liquid Cargo	201.63	64.00	238.10	69.95
II) Dry Bulk				
1. Fertilisers & its raw materials	2.56	0.81	2.06	0.61
2. Ilmenite Sand	0.22	0.07	0.49	0.14
3. Coal	0	0.00	0	0.00
4. Cement	11.41	3.62	11.10	3.26
5. Salt	0.70	0.22	0.96	0.28
6. Others	1.44	0.46	0.19	0.06
TOTAL	16.33	5.18	14.80	4.35
B. Break Bulk Cargo	1.57	0.50	1.20	0.35
C. Containerised Cargo	95.50	30.31	86.28	25.35
GRAND TOTAL	315.03	100.00	340.38	100.00

Table 4.1 Overall Traffic Handled

Foreign freight traffic dropped by 11.06% to 204.03 lakh tonnes during the year from 229.39 lakh tonnes the year before. From 110.99 lakh tonnes to 111.00 lakh tonnes, coastal cargo volume rose by 0.01%.

Following are specifics about coastal and international commerce managed during the year as compared to the year before: **(In Lakh Tonnes)**

Traffic	Export		Import		Total	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
Coastal	38.34	39.24	72.66	71.75	111.00	110.99
Foreign	32.02	28.08	172.01	201.31	204.03	229.39
Total	70.36	67.32	244.67	273.06	315.03	340.38

4.1.1 IMPORTS

A decline of 10.39% was seen in the total amount of import traffic managed during the year, from 273.06 lakh tonnes the year before to 244.68 lakh tonnes. The table below contains a comparison of the year's shipments, broken down by product, to the year before.

Commodity	2020-21		2019-20	
	Quantity	Percentage to total	Quantity	Percentage to total
POL *	14663302	59.93	18104468	66.30
Fertilisers	0	0.00	22000	0.08
Fertilisers & Raw Materials	256222	1.06	184055	0.68
Coal	0	0.00	0	0.00
Containers	6590472	26.94	6204890	22.72
Other Cargo	2957589	12.09	2791100	10.22
TOTAL	24467585	100.00	27306513	100.00

*includes Crude & POL

Table 4.2 Import Traffic

(In Tonnes)

4.1.2 EXPORTS

The total amount of export traffic managed during the year increased by 4.52%, from 67.32 lakh tonnes in the (In Tonnes) previous year to 70.36 lakh tonnes. The table below compares the number of exports managed by each product during the year to the previous year.

Commodity	2020-21		2019-20	
	Quantity	Percentage to total	Quantity	Percentage to total
(i) POL *	3978921	56.55	4241234	63.00
(ii) Containers				
Tea	69972	0.99	71732	1.07
Cashew Kernals	23368	0.33	29863	0.44
Sea Foods	150640	2.14	146759	2.18
Coir Products	284065	4.04	118079	1.75
Rubber & Rubber Products	102988	1.46	82075	1.22
Spices	100429	1.43	75429	1.12
Coffee	34134	0.49	31750	0.47
Others	2193994	31.18	1867161	27.74
(iii) Other bulk	97329	1.38	67730	1.01
TOTAL	7035840	100	6731812	100

*includes Crude & POL

Table 4.3 Export Traffic

(In Tonnes)

4.1.3 CONTAINER TRAFFIC

The amount of container freight handled during the year rose by 10.16% to 79.02 lakh tonnes from 71.73 lakh tonnes the year before (excluding the tare weight of containers). During the year, exports in containers increased by 25.87%.

As can be seen from the accompanying declaration, container traffic increased by 5.30% during the year, from 16.97 lakh tonnes the year before to 21.36 lakh tonnes this year, and container imports increased by the same amount, from 54.76 lakh tonnes to 57.66 lakh tonnes.

Commodities	Quantity		Percentage to total	
	2020-21	2019-20	2020-21	2019-20
Export				
Cashew Kernels	23368	29863	0.30	0.42
Coir Products	284065	118079	3.60	1.65
Pepper	12029	7685	0.15	0.11
Sea Foods	150640	146759	1.91	2.05
Tea	69972	71732	0.89	1.00
Turmeric	8327	2166	0.11	0.03
Coffee	34134	31750	0.43	0.44
Chemicals	68501	70202	0.87	0.98
Miscellaneous	1484711	1218933	18.79	16.99
Total	2135747	1697169	27.03	23.66
Import				
Machinery	28311	23489	0.36	0.33
Tea	13809	6360	0.17	0.09
Chemicals	554770	391824	7.02	5.46
Miscellaneous	5168905	5054279	65.42	70.46
Total	5765795	5475952	72.97	76.34
Grand Total	7901542	7173121	100.00	100.00

Table 4.4 Container Traffic

(IN TONNES)

As can be seen from the accompanying table, the total number of containers handled increased to 689697 TEUs during the year from 620061 TEUs handled in the prior year, representing an increase of 11.23%.

4.1.4 TRAFFIC

Particulars	2020-21	2019-20
i) No. of sailings of fully containerised ships	563	606
ii) No. of laden containers handled		
(a) Exports		
(i) 20 Feet	59696	50195
(ii) 40/45 Feet	60843	49405
Total	120539	99600
(b) Imports		
(i) 20 Feet	182284	176965
(ii) 40/45 Feet	53320	48492
Total	235604	225457
(c) Grand Total		
(i) No. of laden containers		
Actual Number	356143	325057
TEUs	470306	422954
(ii) No. of empty containers		
Actual Number	182109	168795
TEUs	219391	197107
Total		
Actual Number	538252	493852
TEUs	689697	620061

Table 4.5 Container Traffic

4.1.5 ICD

The total number of containers shipped to and received from various ICDs rose from 1120 TEUs to 9770 TEUs over the course of the year. The table below provides a comparison of the number of TEUs sent to and received from ICDs over the course of the year.

Particulars	Grand Total ICD
	No. of Containers TEUs
Received	4930 (500)
Despatched	4840 (620)
TOTAL	9770 (1120)

Note : Figures in brackets relate to previous year.

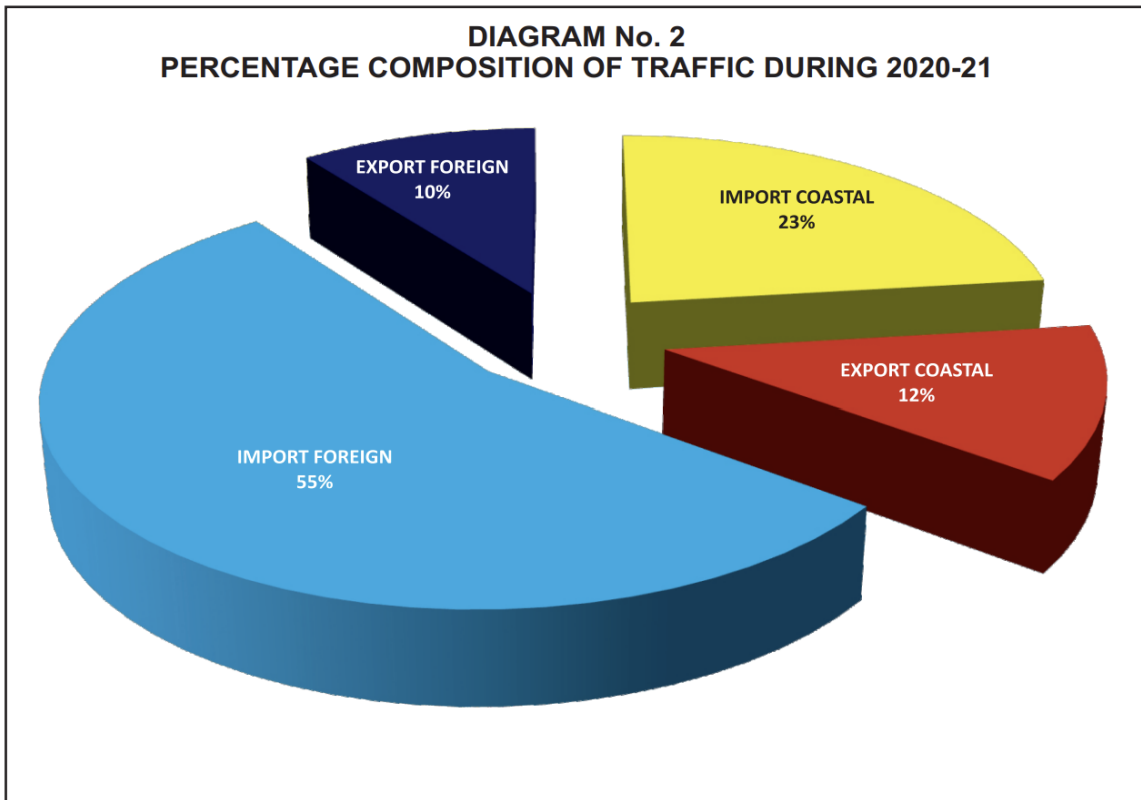
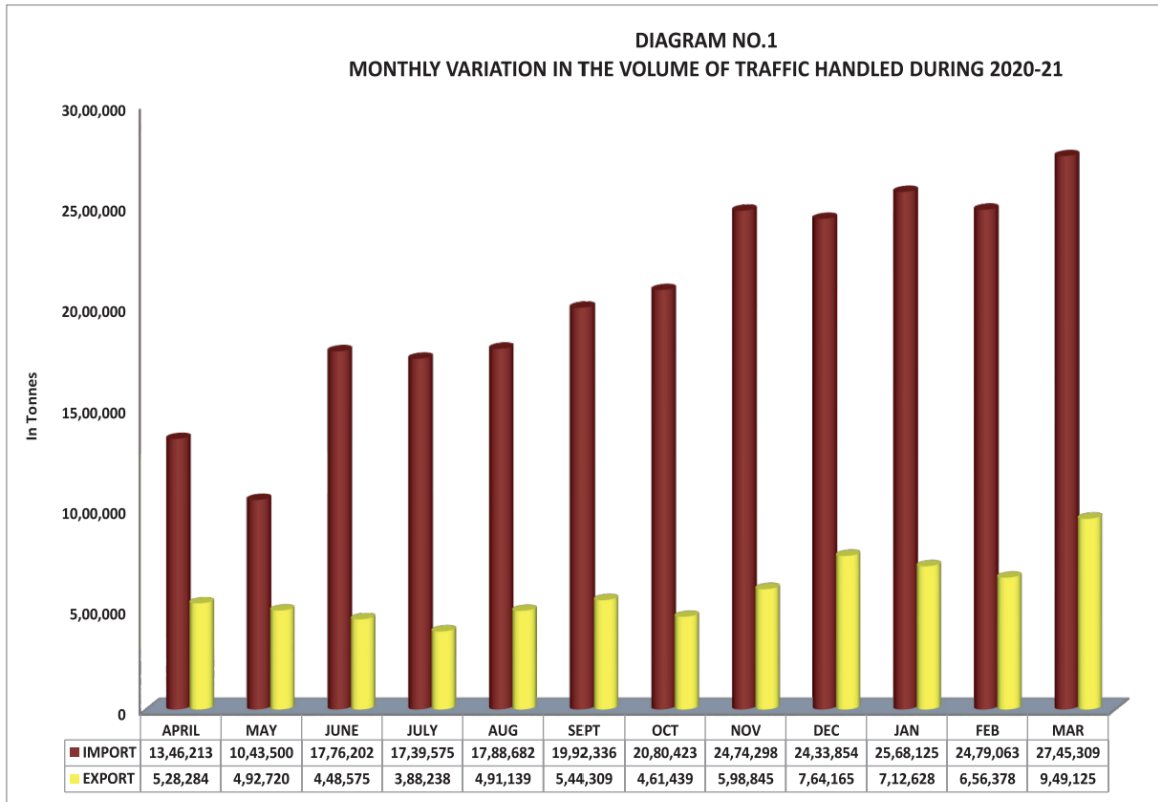
Table 4.6 ICD

4.1.6 CFS FACILITY

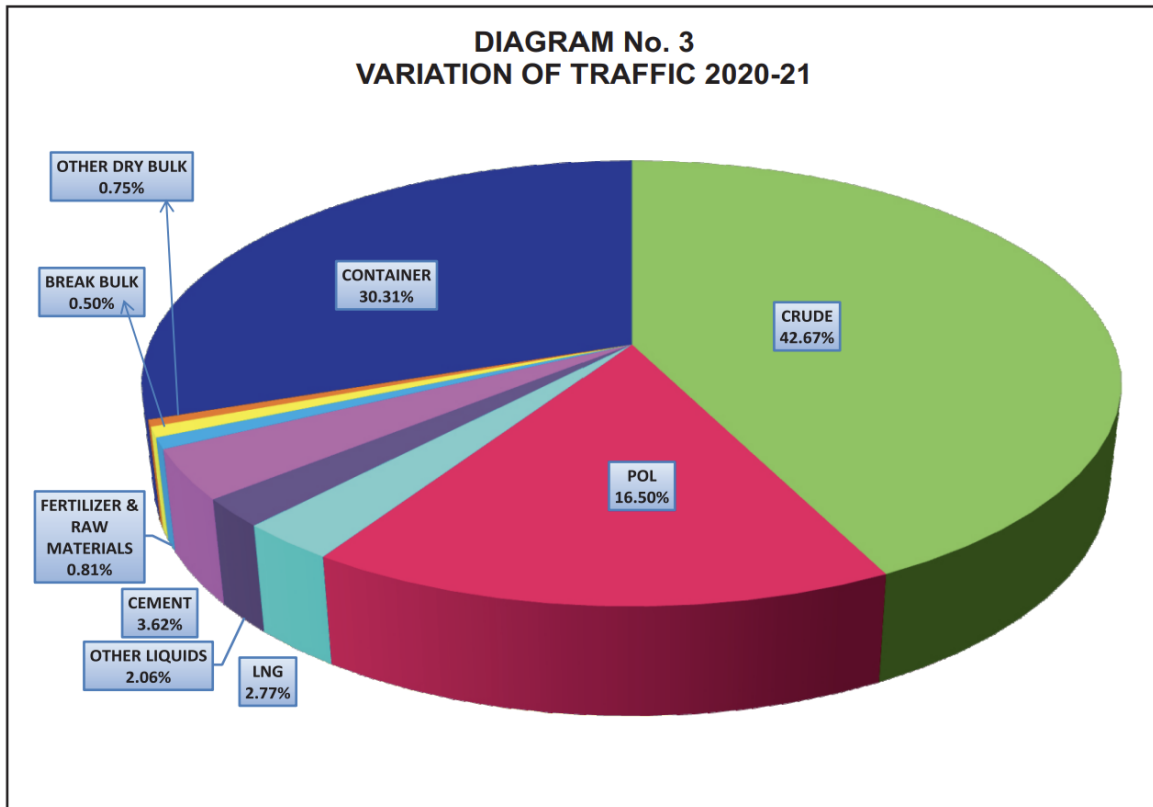
Facility	2020-21	2019-20
CFS Stuffing / De-stuffing (TEUs)	3919	4483
Baggage Shed De-stuffing (TEUs)	1929	1579

Table 4.7 CFS Activity

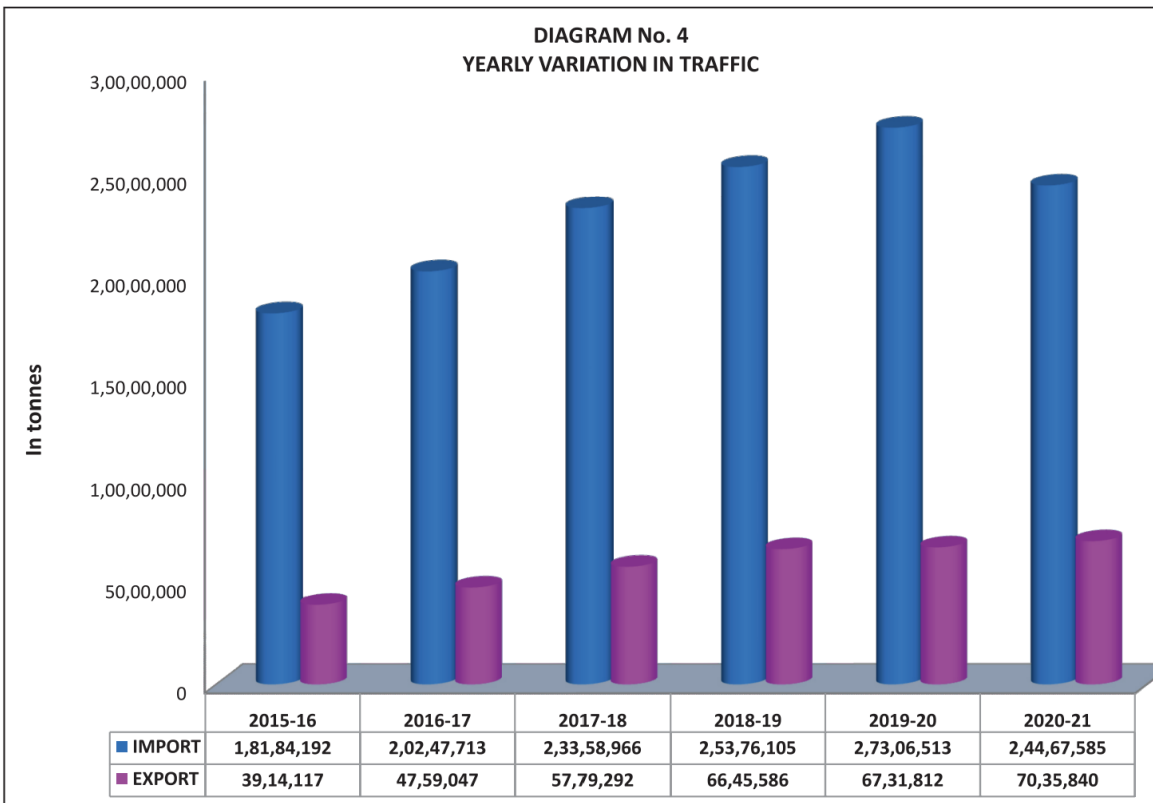
The number of cargo containers filled and unstuffed at Cochin Port CFS decreased by 12.58% from April to March 2020-21 compared to the same time in 2019-20.

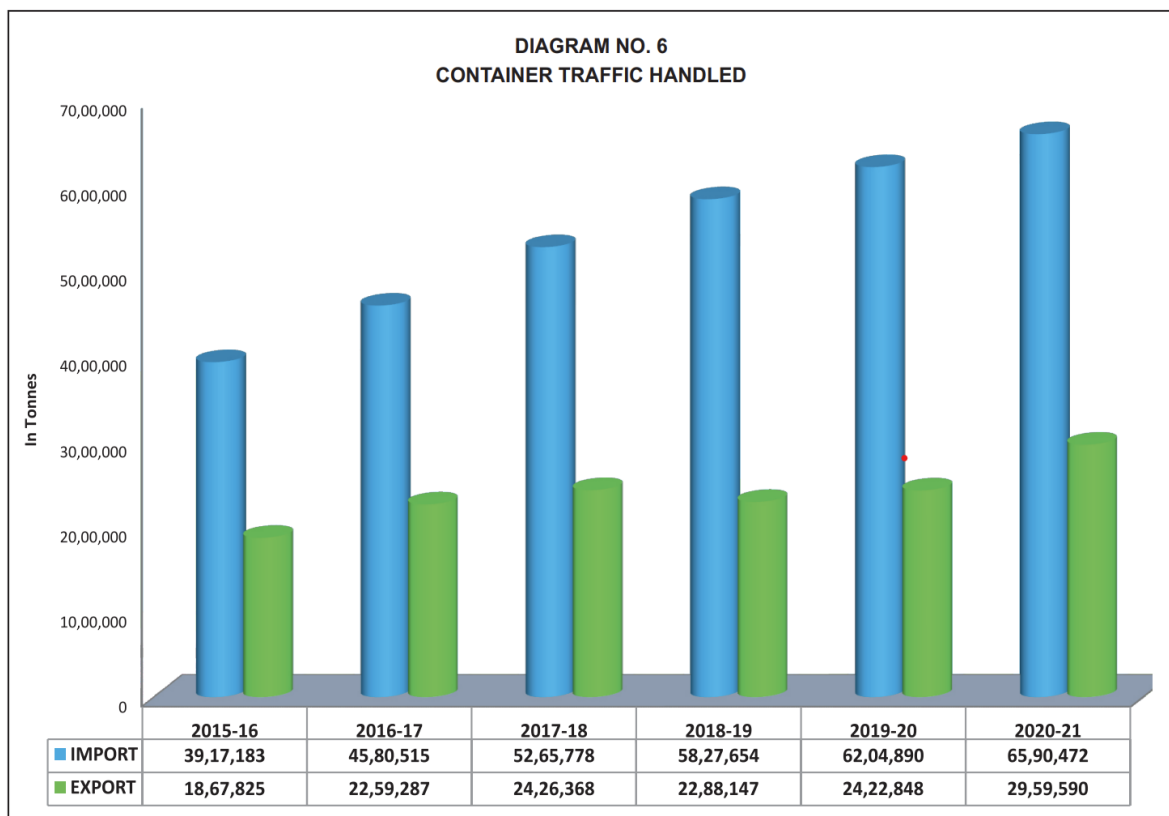
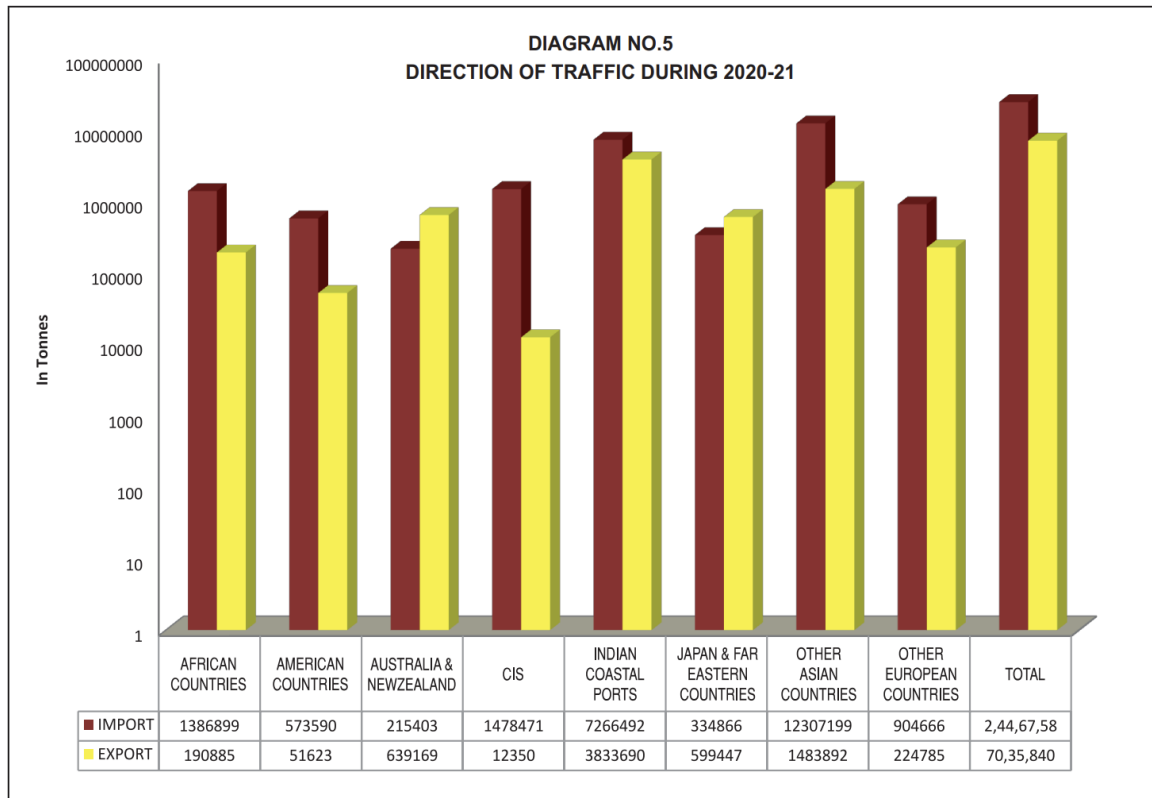


**DIAGRAM No. 3
VARIATION OF TRAFFIC 2020-21**



**DIAGRAM No. 4
YEARLY VARIATION IN TRAFFIC**





A category-wise analysis of ships that called at the Port during the year compared with the preceding year is given below:

Type of Vessles Entered	No. of Ships		GRT	
	2020-21	2019-20	2020-21	2019-20
Tankers	403	420	17947896	21337653
Colliers	0	0	0	0
Food grains	0	0	0	0
Fertilizer	0	1	0	34619
Dry Bulk	105	93	1527660	1412465
General Cargo	23	28	205215	248499
Containers	560	608	17413734	19811283
Cruise Vessels	0	44	0	2912855
Passengers & Others	395	406	2187418	1908077
Total	1486	1600	39281923	47665451

Table 4.8 Category-wise Analysis of Ships

4.1.7 BERTH OCCUPANCY

From 49% the year before, the average stateroom and Jettie utilization fell to 40% this year.

The following is a declaration that compares the proportion utilization of different adjacent wharf berths and jetties over the course of the year to the year before:

Berth Facility	Percentage of Occupancy		
	No. of berths	2020-21	2019-20
Q1 - Q7	7	27.93	39.59
Q8 - Q9	2	34.27	27.04
Q10 (FACT)	1	43.98	45.37
STB & NTB	2	22.55	23.08
COT	1	52.61	54.98
BTP	1	44.95	62.13
NCB & SCB*	2	21.21	24.91
Vallarpadam V2 - V3	2	67.97	64.39
LNG	1	5.41	6.24
UTL	1	100.00	100.00
Total - A	20	39.83	48.85
B. SPM	1	37.87	49.01
Grand Total (A+B)	21	39.74	48.85
* BERTH DECOMMISSIONED			

Table 4.9 Berth Occupancy

4.1.8 PORT OPERATION

In 2020–21, 42.67% of the cargo was managed at SPM, and the remaining 57.33% was handled at Wharf.

The statement below compares the amount of tonnage processed during the year to the year before.

Year	At Wharf			At SPM/ STS			Grand Total
	Import	Export	Total	Import	Export	Total	
2020-21	110.25	70.36	180.60	134.43	0.00	134.43	315.03
	34.99%	22.33%	57.33%	42.67%	0%	42.67%	100%
2019-20	109.62	67.32	176.94	163.44	0.00	163.44	340.38
	32.21%	19.78%	51.98%	48.02%	0%	48.02%	100%

Table 4.10 Port Operations

(In Lakh Tonnes)

Sl. No	Wharf	No. in Commission		Available		Utilized (in M ²)	
		2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
1	Mattancherry						
a)	Ware Houses	4	4	12075	11215	12075	11215
b)	Overflow Sheds	3	3	6393	6060	6393	6060
c)	Transit Sheds	3	3	13110	13110	13110	13110
	Total	10	10	31578	30385	31578	30385
2	Ernakulam						
a)	Ware Houses	1	1	2680	2680	2680	2680
b)	Overflow Sheds	1	1	1580	1580	1580	1580
c)	Transit Sheds	1	1	3831	3831	3831	3831
	Total	3	3	8091	8091	8091	8091
3	Container Freight Station						
	Ware Houses		1	10000	10000	10000	10000
	Grand Total		14	49669	48476	49669	48476

Table 4.11 Port Operations

4.2 RO-RO SERVICE

On 23-2-2011, the Ro-Ro service officially started running. The facility was built to enhance communication between Willingdon Island and the International Container Transshipment Station Vallarpadam (ICTT). A joint management committee (JMC) was created with the Inland Waterways Authority of India (IWAI) and the Cochin Port Company for this reason. A tender issued by JMC resulted in LOTS shipping, a Cochin-based shipping firm, winning the 10-year contract for transporting containers between Willingdon Island and Vallarpadam using RO-RO and LO-LO modes.

4.2.1 The present Scenario of Ro-Ro

Between the hours of 8 AM and 11 AM and 4 PM and 8 PM, the Ro-Ro service handles the most goods, and during these hours, its efficiency is at its peak. The reason for the same is found to be that the entry for trailers to the NH bypass between Kundannoor to Edappally is restricted during these periods.

The current Ro-Ro fares are as follows:

1. 40 ft trailers = 1050 Rupees
2. 20 ft trailers = 650 Rupees

Out of which the port fee (included) are:

1. 40 ft trailers = 75 Rupees
2. 20 ft trailers = 50 Rupees

Regular Ro-Ro operation hours are 8.30 am to 9 pm, Monday through Saturday, excluding Sundays and federal holidays. The Ro-Ro services are provided on average at a pace of 8 services per day (up and down), processing 150 TEU on a daily average (except during rough monsoon weather). When compared to the real anticipated movement of 750 TEU per day,

the service has only up to this point managed a maximum of 400 TEU per day. The current Ro-Ro vehicle can carry 20 trucks with a 20-foot capacity or 9 trailers with a 40-foot capacity at once. The Ro-Ro service needs a minimum draught of 2.5 meters and consumes 45–50 liters of diesel on average per service (up and down). The Ro-Ro typically takes 25 minutes to complete one journey (one direction). If the Ro-Ro has just departed, the waiting time for a trailer is 70 minutes until the subsequent journey, and an average waiting time of 35 minutes per trailer can be expected.

4.2.2 FINDINGS OF THE STUDY

Advantages of using Ro-Ro service

- Cost-efficient and speedier movement

The service facilitates the movement of containers between Willingdon Island and Vallarpadam, stopping hundreds of trucks from crowding Cochin roadways and reducing the transit distance from 38 kilometers to 2.5 kilometers when using the Ro-Ro service. As a result, this center significantly reduces total transportation costs and time.

- Reduction of operation and maintenance cost

The additional distance covered by the road-only method of transportation will result in a rise in running and maintenance costs. The combined method of road and water transport may be a solution to this problem because the ware and tare expenditure, as well as the cost of gasoline, can be decreased to a larger extent in the long run by using the combined mode of transportation.

- Reducing Traffic Congestion

Traffic development in Cochin, like any other city in India, is presently putting a strain on building capacity, resulting in delays and safety issues. Trailers transporting cargo from ICTT Vallarpadam to the south of Kerala may exacerbate the situation. The use of an RO-RO station would allow the NH 47 (from Kalamassery to Kundannor) to be completely devoid of container traffic.

- Pollution Reduction

The effect of pollution (air, noise, and vibration) caused by vehicle transit cannot be disregarded due to the country's tax enforcement of emission standards. Road and water combined modes use less energy per ton-mile of freight transported and release fewer toxins into the atmosphere than road mode alone. Increased traffic contributes to increased decibel levels and air quality pollution. When the pollution levels of all forms of transportation are compared, a combined Road/RO-RO operation is more ecologically friendly, however minor the benefit may be.

- Enables Eco-friendly transportation

The NW3-Vallarpadam ICTT connection was intended to enable economic and environmentally favorable transit for export and import from different areas of Kerala via inland waterway terminals. The introduction of the Roll on/Roll off the program was the first move toward this goal. The enormous potential of interior rivers has yet to be fully realized, which could lead to it being the most environmentally friendly and cost-effective method of freight transit.

- Safer mode of transport

The initiative helps to reduce traffic accidents and, to a large extent, lowers driver tension and fatigue. As a result, a secure means of transportation is provided.

Reason for the reduction in demand for Ro-Ro

1. Trailer drivers have an affinity to wait for the Ro-Ro ferry.
2. The service does not adhere to a proper timetable, making it impossible to guarantee the prompt delivery of goods, which makes vehicle drivers less inclined to use this method of transportation.
3. The Ro-Ro service has a very long wait period; if the Ro-Ro has just departed, a trailer will need to wait for the next service for more than an hour. For Ro-Ro, the typical wait time is 45 minutes.
4. According to the accounts, Ro-Ro frequently experiences service interruptions, which have an impact on the dependability of the consumers on Ro-Ro.
5. The current Ro-Ro price is not very appealing because it makes very little money compared to road-only transportation in terms of gasoline costs. From the perspective of a truck driver, only the fuel savings would tempt him to consider a different method of transportation.
6. The output at Vallarpadam Container Terminal was only about three lakh TEUs on average, far below the goal of one million TEUs (twenty-foot equivalent units) annually, despite expectations that it would increase many times by these years. As a result, the Ro-

Ro service has suffered because it cannot operate financially unless there is enough freight available.

4.3 INTERNATIONAL CONTAINER TRANSHIPMENT TERMINAL (ICTT)

The International Container Transshipment Terminal (ICTT), also known as "Vallarpadam Terminal" regionally, was inaugurated on February 11, 2011, by Dr. Manmohan Singh, the country's former prime minister. ICTT, which is located in the Special Economic Zone (SEZ) region, is the only transshipment harbor in India. To build, expand, and run the ICTT at Vallarpadam in Cochin, Dubai Port World (DPW) inked a contract with the Cochin Port Trust. This deal states that DPW will run ICTT for 30 years before handing over authority to the Cochin Port Trust.

The ICTT's commissioning has resulted in an increase in the shipping of goods through this terminal harbor, particularly coffee. India's foreign currency profits are considerably boosted by the export of coffee. Because of the fact that outsiders, especially Europeans, prefer coffee to tea, there is a strong demand for this product on the global market. Wharves are where freight exports and imports are processed. The Cochin Port Trust has two wharves: (i) Ernakulam Wharf and (ii) Mattanchery Wharf. At berthing sites in the vicinity of ICTT, import cargoes packed in containers are discharged from ships while export cargoes packed in containers are transferred onto the vessel. The cargoes stuffed in containers are stored and kept ready in Container Freight Stations (CFS), Public or Private Warehouses for loading to the ships on their arrival.

4.3.1 RESEARCH QUESTIONS

- What are the basic factors responsible for the less-than-expected performance of ICTT?
- What are the implications of the recent Governmental policies on ICTT's performance?
- What could be the remedial strategies to be adopted to ensure faster growth of ICTT?

4.3.2 THE IMPACT OF IMPORTANT GOVERNMENTAL DECISIONS ON ICTT

In order to facilitate simpler entry of international feeder boats at ICTT, the Government of India decided to relax the Mercantile Shipping Act of 1958 in September 2012. This leads to a **relaxation** of the **cabotage laws** that would otherwise apply. It was originally permitted for three years. The ICTT would not, however, permit ships flying the colors of China or Pakistan under this exemption. Before September 2012, India's coastline was only accessible to foreign ships after obtaining permission under the then-applicable cabotage rules. Containers arriving at ICTT would be able to be transported to other Indian ports thanks to the exemption given as described above by the Government of India. In reality, the Kerala government has been requesting this relaxation from the federal government since 2010, and it was finally given in September 2012. This policy choice has greatly aided in making operations at ICTT simpler, quicker, and more seamless.

A major step to boost the performance of ICTT, the Government of Kerala rolled out elaborate measures to sort out key issues at the Walayar check post, the entry point for containers by road to Kerala, from other states like Tamil Nadu. Accordingly, based on the decision taken by a high-level meeting by the Government authorities, containers would not

be subjected to further checking once they have been cleared under the "Green Channel" by the respective Excise authorities. As a result, self-sealed containers will be allowed to use the "Green Channel" at the Walayar check post, as in the case of containers sealed by the Customs / Central Excise officials. Demands to enable self-sealed containers to use the Green Channel facility were granted, giving the ICTT a significant lift. Additionally, it has been determined that the National Highway (NH) in Kerala that runs from Walayar to ICTT will be treated as a "Freight Corridor" with the aforementioned benefits.

4.3.3 MAJOR REGULATORY AND OTHER PROCEDURAL ISSUES AT ICTT THAT AFFECT ITS PERFORMANCE

ICTT – Major deterrents for the Exporters	Other Ports (Mangalore etc.) – Attractions
Higher THC (Terminal Handling Charges)	Reasonable/Much lower THC at Mangalore Port
A specified "Cut-off time" is in effect, and cargo must be inspected and customs procedures completed at least six hours before vehicle berthing.	In contrast to ICTT, there is no "Cut-off time" applied at Mangalore Port and other harbors. This makes visiting such locations more convenient.
After the cut-off period, Special Service Request (SSR) for a 20" container is assessed at ICTT for Rs. 2500 (plus Tax). At ICTT, procedural requirements are strictly adhered to.	There is no "Cut-off time" at Mangalore Port, so SSR is not necessary there or at similar locations. Even after the truck has berthed, the cargo can still be inspected. SSR is not required here.
The containers can consolidate at ICTT once the Shipping Bill File and Customs Examination are finished. Before the cargo can stack, it must be "Let Export," or have the Customs Supervisor give approval to export.	With regard to Mangalore and a few other locations, the container can stack instantly at the dock. Only when the containers are carried onto the vessels do you need a "Let Export" from the Customs Supervisor.
The majority of coffee producers are located in the southern Indian states of Karnataka and others. As a	Since the majority of coffee producers are headquartered in Karnataka, shipping costs would be

<p>result, shipping costs would be greater if they were exported via the ICTT in Kochi, Kerala, as opposed to the harbors of Mangalore or Tuticorin.</p>	<p>lower if they used neighboring ports instead of ICTT, Kochi in Kerala (e.g., Mangalore in Karnataka, Tuticorin in Tamil Nadu, etc.).</p>
<p>Recently, the number of ships arriving at ICTT, Kochi has been stable or not very encouraging, whereas the frequency at Mangalore harbor has considerably grown.</p>	<p>More exporters are choosing Mangalore port over their usual port, ICTT, due to the increased regularity of vessel arrivals at the port starting in the recent past.</p>
<p>The Check Post at Walayar, near Palakkad, has lengthy and onerous clearing processes, as well as newly increased higher sales tax and other fees. (Kerala – Tamilnadu border)</p>	<p>If importers choose Mangalore or other ports instead of Kerala's border (Walayar), they can escape paying higher sales taxes and other fees that are applied there.</p>
<p>Many importers avoid ICTT due to persistent labor issues (such as protests, etc.) and instead choose Mangalore or Tuticorin. These protests frequently last for extended periods due to the organizations' adamant stance.</p>	<p>In places like Mangalore and Tuticorin, labor issues are not as common as they are in the ICTT. The latter locations are favored over ICTT. In ports other than ICTT, Kochi, and Kerala, strikes and other comparable disruptions are very rare.</p>
<p>At ICTT, Kochi, the costs associated with clearing cargo, loading and unloading cargo, and other incidental costs are extremely expensive.</p>	<p>At other locations like Mangalore, Tuticorin, Chennai, etc., all of these costs are extremely affordable. Exporters are drawn to these ports as a result.</p>

Table 4.12 MAJOR REGULATORY AND OTHER PROCEDURAL ISSUES AT ICTT

4.3.4 ICTT – A SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis

- **Strengths of ICTT (S)**

1. ICTT has the unique status as the only transshipment terminal in the whole of India.
2. Support from the Governments, both central and state, for its development and growth.
3. With a portfolio of more than 65 marine ports spread across six countries as of 2015, ICTT has recently demonstrated that it is far ahead in terms of container handling efficiency by achieving an average move of 30 gross crane rate per hour.

- **Weaknesses of ICTT (W)**

1. Higher Terminal Handling Charges (THC) and other fees at ICTT: In comparison to other important Indian ports, Cochin's THC is currently quite high. Additionally, the headquarters of significant Steamer Brokers, Clearance and Forwarding (C & F) Agencies, etc. are located on Willingdone Island in Cochin. ICTT is located about 15 kilometers from Willingdon Island. As a result, these companies must leave Willingdone Island and move to the Vallarpadam region, where ICTT is situated.

Import (Size/Type)	Tuticorin Port	Chennai Port	Cochin Port	Mangalore Port	Marmagoa Port
20 D	Rs 4100	Rs 4410	Rs 7000	Rs 4470	Rs 5890
40 D	Rs 6150	Rs 6410	Rs 10250	Rs 6250	Rs 9320
40 HC	Rs 6150	Rs 6410	Rs 10250	Rs 6250	Rs 9320

Table 4.13 Terminal Handling Charges (THC) in Rupees at Major Ports - Import Containers

EXPORT (Size/Type)	Tuticorin Port	Chennai Port	Cochin Port	Mangalore Port	Marmagoa Port
20 D	Rs 4700	Rs 4410	Rs 7250	Rs 4470	Rs 5890
40 D	Rs 6050	Rs 6410	Rs 10250	Rs 6250	Rs 9320
40 HC	Rs 6050	Rs 6410	Rs 10250	Rs 6250	Rs 9320

Table 4.14 Terminal Handling Charges (THC) in Rupees at Major Ports – Export Containers

2. Though ICTT has attained a 14.5-meter Draft in 2015, the fact remains that its competitor has 17 meters Draft. This adversely affects its competitiveness vis-à-vis competitors.
3. The development of ICTT is still being hampered by several regulatory problems involving customs clearances, cabotage exemption, and expensive port-related fees.
4. Issues with the services offered by steamer agents, clearing and forwarding agents, etc. as well as procedural and other issues with customs processing.

• **Opportunities of ICTT (O)**

1. Global commerce would continue to grow, providing ICTT with an increasing number of possibilities.
2. Over the years, ICTT has received numerous benefits from governments, both at the federal and state levels, for the encouragement of exports, the modernization of ports, etc. Examples include the easing of cabotage regulations. Future implementation of these benefits is also possible.
3. • The increase in cargo transshipment is expected to be around 80,000 TEUs from Coimbatore (Tamil Nadu) alone as a result of the government's decision to permit the Walayar-Vallarpadam Freight Corridor, which enables quicker and easier

transportation of cargo through Walayar Check post with minimal formalities (Green Channel clearance). Other sources, such as Mangalore (Karnataka), etc., can be anticipated to experience similar growth.

- **Threats of ICTT (T)**

1. The commissioning of another transshipment terminal at Vizhinjam (popularly called Vizhinjam Port or Vizhinjam Terminal) is expected to be a big threat to ICTT. Kerala's Vizhinjam Port is situated in the state's southern region. Within a few years, it should be active and capable of handling all current ICTT work. As soon as Vizhinjam Terminal is open, ICTT's exclusive position as the only transshipment port will end.
2. The ICTT is increasingly in danger from rising rivalry from other foreign ports (like Columbo Port in Sri Lanka) and domestic ports like those at Mangalore, Tuticorin, etc.

CHAPTER 5

CONCLUSION

5.1 SUGGESTIONS

Cochin port is giving more emphasis on the promotion of tourism with active support and cooperation from the central as well as state governments.

Due to Kerala's relative absence of a manufacturing foundation compared to other states, the port industry is suffering. The harbor uses outdated cargo processing tools and machinery. The port must use cutting-edge technology and contemporary machinery to stay relevant in the industry. The harbor is made up of sizable land regions that are currently idle and underutilized but could be used further. The harbor prioritizes social obligations and forging good connections with the community in addition to its operations.

- ❖ Value-added services should be provided for attracting as well as maintaining new and prospective business partners.
- ❖ The large unutilized section of land can be developed into a transportation center, cutting-edge warehouses, and a parking lot for effective use.
- ❖ Rebuilding and maintaining outdated networks.
- ❖ Promoting small- and large-scale businesses and opportunities such as stores restaurants and other public facilities near the port areas.
- ❖ By extending SCB, the creation of a new bunkering site and port. The port needs to prioritize its marketing initiatives in order to attract more prospective consumers and the company.

Suggestions to improve the performance of Ro-Ro service

1. The Ro-Ro service is meant to facilitate economic and Eco-friendly transportation for the export and import from various parts of Kerala through the inland waterway terminals. Since the Ro-Ro service between W/Island and Vallarpadam is the first move towards achieving this goal, its success is essential to the success of the complete project. Governmental action is therefore required to back Ro-Ro's initial success.
2. The main barrier preventing trailer owners from using Ro-Ro is the waiting period for the next operation. Therefore, it is necessary to reduce the transit time (the length of time between services) or to introduce an extra Ro-Ro service, at least during busy hours, as well as to provide refreshment booths for the waiting trailer drivers to lessen their boredom.
3. Using cutting-edge technical vessels that can provide continuous service and are more economical and fuel-efficient. The Ro-Ro service currently requires a minimum of 5–6 trucks to run, which causes significant delays, but the service is not financially feasible without this minimum number of trailers. As a result, the recently introduced Ro-Ro must be able to run profitably with fewer containers on board.
4. Regular Ro-Ro users may be given a discount price, which helps to keep them as clients, and arrangements may be made with these regular users. For those users with whom arrangements have been made, credit facilities may be made accessible; this may encourage transport companies to use the facility.
5. Since the Ro-Ro service is still not properly marketed, prospective customers like transit companies from southern Kerala and Cochin Port Trust CFS may be found and

informed of the benefits of the facility. For using the facility, they might be given enticing gifts, and over time, the Ro-Ro facility might win their loyalty.

SUGGESTIONS FOR ENHANCED PERFORMANCE OF ICTT

Although ICTT's recent success has been encouraging, there is still room for further development, and it should be emphasized. Even though ICTT is India's only transshipment facility, many importers still favor Chennai, Mangalore, and Tuticorin as their preferred harbors. Despite many special advantages of the former, as has already been mentioned, ICTT performs poorly when compared to other harbors for a variety of reasons. Given the talks above, the following recommendations are made for improving ICTT's effectiveness from its current, uninspiring level.

1. Terminal Handling Charges (THC) are of vital significance for the exporters, as they have to spend considerable amounts in this regard. The importers would continue to ignore ICTT unless THC was reduced to equal those in other ports like Tuticorin, Mangalore, or Madras. Because Marijuana directly affects the importers' ability to operate profitably and efficiently.
2. Simplifying the procedural formalities: At ICTT, the procedures for clearing cargo are very drawn-out and onerous. These procedures include being examined by the customs authorities, receiving their approval, completing other formalities like the SSR, and obtaining the "Let Export" certificate, among others. To make the viability of ICTT similar in this respect, these procedures must be made simpler, at the very least to those already common in other ports like Mangalore, Tuticorin, etc.
3. Since ICTT has extremely expensive miscellaneous charges and other loading and unloading-related costs, these must be reduced and rationalized to be on pace with those in other ports.

4. The ICTT's industrial relations environment needs to be improved to make exports more successful. To create favorable working circumstances, it is necessary for all stakeholders—including port officials, labor groups, importers, etc.—to have a mutual agreement. The representatives of each of these parties may then need to engage in several sessions of conversation. All parties involved should be aware of the importance of fostering positive labor relations. Strikes and similar labor issues need to be reduced, if not completely eradicated.
5. More effective and frequent dredging of the port is to be ensured cost-effectively to attract more vessels, particularly the large mother ships to ICTT. At present, the frequency of arrival of vessels is very less at ICTT, including the large mother ships.

5.2 CONCLUSION

Cochin port, an all-weather port on India's west coast, is located in a vast expanse of backwaters created by the confluence of the area's two main water channels, Vembanad Lake in the south and Periyar River in the north. Five rivers from the south and two tributaries of the Periyar River from the north flow into the Arabian Sea through a sand dune named Gut. Vypeen and Fort Cochin, two peninsular lands, safeguard the port from incoming sea surges.

Cochin port is currently the fastest-growing logistics center, with the potential to become a significant foreign transshipment terminal. The port's main source of income is the processing of liquid goods as well as other cargoes such as bulk and break-bulk. The Sagarmala project envisions converting current ports into contemporary world-class ports and creating new world-class ports depending on demand. It also aims to combine ports with industrial areas, the countryside, and evacuation networks via road, train, inland, and coastal waters. Ports would be able to promote economic activity in coastal regions as a result of this. Furthermore, Sagarmala intends to promote coastal and inland shipping as a significant method of transit for product conveyance along coastal and riverine economic centers.

During my experience at the Cochin Port Authority, I learned about the port's importance in enabling and providing services for export and purchase. By focusing on the areas that need to be improved, the organization has a promising future as an excellent Indian harbor. The practical research provided me with a thorough understanding of various kinds of cargo, cargo flow, and how various types of cargo are managed. Based on my observations, I was able to present my results and recommendations for improving the port's competitive situation. Infrastructure must be built to satisfy worldwide standards and requirements. Existing resources should be used to their full potential. Increased port capability is only rational if it is supported by increased industrialization. The port's destiny is heavily influenced by central and state government support.

The forthcoming Free Trade Warehousing initiative at Willingdon Island opens the door to significant improvements in cargo movement through Ro-Ro shortly. The potential of improving ICTT Vallarpadam's performance shortly can boost overall cargo movement through the ICTT, which in turn adds to the movement of a larger amount of cargo towards and from the south of Kerala, offering a brighter future for Ro-Ro.

Despite several challenges that the ICTT is currently experiencing, especially those connected to labor issues, protests, and so on, as well as procedural delays in cargo processing, there are obvious signs of a revival. Government policies at the state and federal levels have provided additional fuel to the economy's development pace. Even with its limitations, the ICTT could provide comparatively improved services to exporters over time. Many worldwide standard terminal facilities have recently been installed at ICTT, allowing it to achieve a better degree of container handling effectiveness. In summary, the future of the ICTT appears to be very promising, especially if it implements the corrective tactics proposed above to surmount its limitations.

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