



**GOVERNMENT OF KERALA
KERALA STATE PLANNING BOARD**

**FOURTEENTH FIVE-YEAR PLAN
(2022-2027)**

**WORKING GROUP ON
PORT, LIGHT HOUSES AND SHIPPING**

REPORT

**INDUSTRY AND INFRASTRUCTURE DIVISION
MARCH 2022**

FOREWORD

Kerala is the only State in India to formulate and implement Five-Year Plans. The Government of Kerala believes that the planning process is important for promoting economic growth and ensuring social justice in the State. A significant feature of the process of formulation of Plans in the State is its participatory and inclusive nature.

In September 2021, the State Planning Board initiated a programme of consultation and discussion for the formulation of the 14th Five-Year Plan. The State Planning Board constituted 44 Working Groups, with more than 1200 members in order to gain expert opinion on a range of socio-economic issues pertinent to the plan. The members of the Working Groups represented a wide spectrum of society and includes scholars, administrators, social and political activists and other experts. Members of the Working Groups contributed their specialized knowledge in different sectors, best practices in the field, issues of concern, and future strategies required in these sectors. The Report of each Working Group reflects the collective views of the members of the Group and the content of each Report will contribute to the formulation of the 14th Five-Year Plan. The Report has been finalized after several rounds of discussions and consultations held between September and December 2021.

This document is the Report of the Working Group on “Port, Light Houses and Shipping”. The Co-Chairpersons of Working Group were Shri. L. Radhakrishnan IAS (Rtd) and Smt. Tinku Biswal IAS. Shri. V. Namasivayam, Member of the State Planning Board co-ordinated the activities of the Working Group. Shri. Joy N. R., Chief, Industry & Infrastructure Division was the Convenor of the Working Group and Shri. G.T. Shibu, Assistant Director was Co-Convenor. The terms of reference of Working Group and its members are in Appendix 1 of the Report.

Member Secretary

PREFACE

In Kerala, the process of Five-Year Plan is an exercise in people's participation. As part of the formulation of the 14th Five-Year Plan, Working Groups have been constituted in different sectors, sub-sectors and areas. The Kerala State Planning Board began an effort to conduct the widest possible consultations before formulating the Plan. Though the Reports of these working groups do not represent the official position of the Government of Kerala, but their content will help in the formulation of the Fourteenth Five-Year Plan document. This document is the report of the Working Group on Port, Light Houses and Shipping. The Chairpersons of the Working Group were Smt. Tinku Biswal IAS and Shri. L Radhakrishnan IAS (Retd.). Shri. V Namasivayam, Member, State Planning Board in charge of the sector coordinated the activities of the Working Group with the assistance of Chief of Division Shri. Er. Joy N. R.

Shri. L Radhakrishnan IAS (Retd)
Co-chairperson

Smt. Tinku Biswal IAS
Co-chairperson

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LIST OF ABBREVIATIONS

CNG	Compressed Natural Gas
CUSAT	Cochin University of Science & Technology
DTPC	District Tourism Promotion Council
DW Ports	Deep Water Ports
EDI	Electronic Data Interchange
EIA`	Environmental Impact Assessment
EXIM	Export – Import
GBS	Gross Budgetary Support
GRT	Gross Register Tonnage
UNCTAD	United Nations Conference on Trade and Development
MTPA	Million Tonnes Per Annum
HED	Harbour Engineering Department
HSW	Hydrographic Survey Wing
IEBR	Internal and Extra Budgetary Resources
ISPS	International Ship and Port facility Security Code
KMB	Kerala Maritime Board
KSMDCL	Kerala State Maritime Development Corporation Ltd.
SDC	Sagarmala Development Company
TEU	Twenty-foot Equivalent Unit
VTMS	Vessel Traffic Management System

EXECUTIVE SUMMARY

The Ports Sector plays a crucial role in the industrial and Commercial Logistics of the State. To promote industrial activity in the State, the Government of Kerala has identified the Port Sector as a major thrust area and encourages up gradation and setting up of new ports and related infrastructural facilities, doastal shipping and tourism initiatives along with hinterland and Coastal Community Development.

The Government of India's Vision of New India - 2030 of February 2019 highlights the "Blue Economy" as the sixth dimension of the ten core dimensions of India's growth. The objective is to enhance substantially by 2030 the current 4.1 percent of GDP share for the blue economy. Kerala with its coastline of 590 kms, needs to focus on its blue economy and profit from the special thrust being given to it by the Government of India. Therefore, it is needed to recommend: the development of 3 or 4 important State ports, logistics, infrastructure and shipping, enhancing port-related manufacturing (especially new and emerging industries, marine services like boat repairs/building/scrapping), trade, mining from the sea, coastal tourism, offshore energy projects (including wind) and Coastal Economic Zones envisaged as per the Sagarmala Programme to reduce logistics costs, seamless connectivity and movement time for EXIM and domestic cargo.

Currently, freight activities are mainly limited to three ports: Bepore, Kollam, and Azhikkal. The development of Ponnani in PPP mode is at a standstill. Apart from these, a larger port viz, Vizhinjam International Seaport is now under construction under PPP mode in Thiruvananthapuram and a third deep water international port, Malabar International Port at Azhikkal near Kannur, which has been designed and is ready for development. Integrated logistic parks should be planned in the North (Malabar), middle (Kochi) and Thiruvananthapuram region to ensure easy and hassle-free transshipment of cargo traffic.

The development of coastal communities is a critical objective of the Sagarmala Programme, including coastal and fishermen's community skill development. Coastal community development needs to be formulated for the larger and smaller ports in Kerala. To enable freight/ passenger transportation, the State must support the construction, procurement and transportation costs of public and private infrastructure. Only 3 or 4 ports, chosen based on their cargo potential and may be developed in conjunction with private investors' partnership. In order to accomplish this, a preliminary appraisal of the resources, notably unencumbered land and access to a port, is critical in order to attract private investors.

It may be prudent to update the Port Policy for Kerala, taking into consideration the economies of scale and the recent developments in the maritime sector, including the development of deep-water Ports at Vizhinjam and Azhikkal, undertaking only projects that are absolutely necessary.

CHAPTER 1 INTRODUCTION

1.1. General Overview

Sustainable port growth is critical from an economic and environmental standpoint, not only for the government as port management agency, but also for port authorities and terminal operators. It is critical to align particular ports' duties and activities with the Sustainable Growth Goals (SDGs), since ports directly affect international and domestic freight transit, as well as local and national economic and social development.

The unprecedented global health and economic crisis triggered by the COVID- 19 pandemic severely affected the outlook of the economy. The United Nations Conference on Trade and Development (UNCTAD) in its Statistics Manual 2019, reports the total value of global trade (exports) as \$19.5 trillion and as 793 million in TEUs mobilised in ports around the world. The decrease in maritime transport and trade was dramatic, with all economic indicators showing a downward trend. In the current persistent uncertainty, UNCTAD estimates that the volume of international maritime trade may have fallen by 4.1 percent in 2020. (Maritime Transport 2020).

The Indian shipping industry playing a crucial role in the transport sector - around 95% of India's trading by volume and 70 % by value is done through maritime transport (as per the Ministry of Ports, Shipping and Waterways). Therefore, shipping and ocean resources, ship design, construction and repair, ports and harbours, issues relating to maritime human resource development, finance, ancillaries and new technologies - all need to develop further. Shipping continues as the world's most efficient means of transportation. So, we must distinguish, reward, and promote quality in the shipping industry.

With significant growth in transportation and distribution of goods, industrialization in the allied industrial sectors and the demands of general growth, Kerala's public transportation system has resumed its pace. In this context, the Port Sector has added importance as a parallel transport system to meet the logistic demands. The increase in vehicles, passengers and freight carriers, causes severe congestion on roads and the maintenance needs of roadways to high standards. Excessive fuel usage, increased road access and automobiles pose a significant threat to social, economic and environmental well-being both for regular movements and emergency evacuation.

1.2. India (Ports in India)

As over 90% of India's commerce is through marine routes, there is a constant need to enhance the country's ports and trade-related infrastructure and promote manufacturing. India has 12 main ports and around 200 minor ports, which are managed by the Central and State Governments respectively. Estimates under the Sagarmala Programme put cargo volume at Indian ports at roughly 2500 MMTPA by 2025, up from the existing capacity of 1500 MMTPA.

All the 12 ports under the Government of India are called major ports and are operational. Of the ports under the States, called minor or non-major, only a third handle goods, while

the rest though notified are without significant cargo, used only by fishing vessels and small ferries. Some like Vizhinjam are strategically located on the world's shipping routes. To finance the costly port infrastructure improvement in India, PPP is often resorted to.

Figure 1: The major and the larger non-major seaports in India



1.2.1. Outlay for Gross Budgetary Support (GBS) and Internal and Extra Budgetary Resources (IEBR)

The Ministry's Gross Budgetary Support (GBS) budget estimate for FY 2020-2021 was Rs.1800.00 crore. However, this has been lowered to Rs. 1433.65 crore at the Revised Estimate (RE) stage. Actual spending as of 31.12.2020 was Rs.902.22 crore, compared to a RE allotment of 1423.65 crore. The following is a summary of the GBS and Internal & Extra Budgetary Resources (IEBR) spending for 2020-2021:

Table 1: Summary of GBS & IEBR 2020-21*(Rs in Crores)*

Sector	2020-2021 (BE)		2020-2021(RE)		2020 (Actual Exp)	
	GBS	IEBR	GBS	IEBR	GBS	IEBR
Port & Light House	601.10	2979.83	513.59	2584.26	315.29	1032.36
Shipping	144.70	735.00	134.70	445	95.53	242.77
IWAI	678.30	0.00	541.20	0.00	360.28	0.00
Others	375.90	0.00	244.16	0.00	131.12	0.00
Total	1800.00	3714.83	1433.65	3029.26	902.22	1275.13

Till December 2020 (Source: Annual Report 2020-21, MPSW)

The details of total GBS and IEBR outlay details for 2021-2022 are given below:

Table 2: Summary of GBS & IEBR 2021-22

Sector	2021-2022 (BE)	
	GBS	IEBR
Port & Light House	647.50	4337.12
Shipping	171.25	480.00
IWAI	623.60	0.00
Others	260.00	0.00
Total	1702.35	4817.12

Till December 2020 (Source: Annual Report 2020-21 MPSW)

1.2.2. Ports' Cargo Traffic

India's major and non-major ports had a total cargo throughput of roughly 1320 million tonnes in 2019-20. In comparison to the same time the previous year, traffic increased by 2.98%. From April to November 2020, the 12 major ports handled 414.20 million tonnes of cargo, with only Mormugao Port showing a rise of 17.6 % over the same period the previous year.

1.2.2.1. Commodity-wise Major Port Cargo Traffic

The cargo at India's 12 major ports climbed by 7.1% between April and March 2021-22, reaching 720.35 million tonnes, as against the 672.68 million tonnes in the same time period of the previous year. Between April 2020 and February 2021, the total volume of overseas cargo handled at major ports grew by 5.6%, from 470.09 million tonnes in April-February 2020-21 to 496.18 million tonnes in April-February 2021-22. The amount of coastal cargo handled at major ports climbed by 15.8 % from 132.70 million tonnes during April-February, 2020-21 to 153.64 million tonnes handled during April-February, 2021-22.

Table 3: Commodity wise Traffic Handled by Major Ports in India (2021 & 2022)

(In ' 000 Tonne)

Traffic Period	P.O.L. (Crude, Prod., LPG/LNG)	Other Liquids	Iron Ore Incl.	Fertilizer		Coal		Container		Other Misc. Cargo	Total
			Pellets	Fin.	Raw	Thermal & Steam	Coking & Others	Tonnage	TEUs		
Apr.-Mar. 2021	206761	28221	71007	10381	7571	78024	54147	143772	9613	72796	672680
Apr.-Mar., 20221	221987	30856	50936	7239	8626	97762	50227	166946	11222	85767	720346

source: indiastat

1.2.2.2 Cochin Port

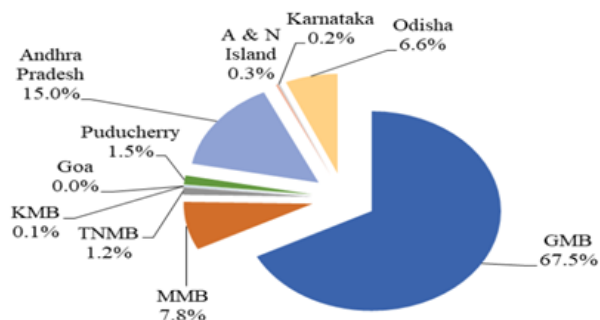
Cochin Port, Kerala's single major port, occupies 827 hectares and has a water frontage of 7.5 kms. The rise in traffic handled at Cochin port from April to February in 2021-22 is estimated as 12.5%. From April to February, 2021-22, Cochin port handled 4.8% of the total cargo handled by India's 12 major ports (vide Table-4 below).

Table 4: Year Wise Cargo Handled at Cochin Port

(In thousand tonnes)

	Financial Year (2020-21)		Financial Year (2021-22)	
	Cargo handled	% Share of total Major ports	Cargo handled	% Share of total Major ports
Overseas	20403.24	3.8	22714.03	4.1
Coastal	11100.18	7.5	11835.98	7
Total	31503.43	4.6	34550.01	4.8

Source: Transportation Research, Ministry of Ports, Shipping and waterways, Government of India portal

1.2.2.3. Non-major Port Cargo Traffic**Figure 2: State Maritime/Directorate – wise share of Cargo handled during April 2021 - 2022**

Cargo traffic at non-major ports climbed by 4.1 per cent between April and February of 2021-22, reaching 538.98 million tonnes, up from 517.87 million tonnes handled during the same period in the previous year. During the period April-February, 2021-22, the volume of international cargo handled at non-major ports climbed by 1.9 per cent to 459.12 million tonnes, up from 450.74 million tonnes during the same period in the previous year. Coastal cargo traffic handled at non-major ports climbed by 19.0 per cent between April and February of 2021-22, reaching 79.86 million tonnes, up from 67.13 million tonnes handled over the same period in the previous two years.

1.2.3. Efficiency and Capacity of Ports

Transaction costs are determined by port efficiency. The efficiency of major ports has increased, notably in terms of turnaround time. In 2011-12, the average turnaround time was 109.44 hours; in 2021-22, it was 52.80 hours. The expansion of major ports' infrastructure and capacity is a continuous process. Major ports' cargo handling capacity has grown from 965.36 MTPA (Million Tonnes Per Annum) on 31.03.2016 to 1560.61 MTPA on 31.03.2021. Similarly, non-major ports' cargo handling capacity has grown from 737.75 MTPA on 31.03.2016 to 987.98 MTPA on 31.03.2020. In India's ports, there is sufficient capacity to meet commercial demand.

1.3. The Kerala Scenario

Kerala's 590-kilometer-long coastline with 9 of 14 districts is served by one major port at Kochi under the Central Government and nineteen non-major ports under the State of Kerala including the upcoming deep water port, the Vizhinjam International Sea Port, now under construction and another new deep-water port, Azhikkal near Kannur (285 kms from Kochi and 135 kms from Mangalore). The latter, adjacent to the smaller existing riverine port at Azhikkal, is designed as an international cum coastal shipping seaport for developing the Malabar Region logistically and economically. Vizhinjam is 217 kms south and Azhikkal port is 285 kms north of Cochin Port, appropriate distances for vessel calls with economies of scale and subject to cargo aggregation possibilities.

Coastal shipping happens mainly through Azhikkal, Beypore and Kollam. The Calicut pier was used for rice import of about one lakh tonnes per year and the export of finished wooden products and marine sea foods. The Thalassery pier is for trading of rice, textiles, marine products, etc. The shore-based facilities like warehouses and godowns remain in the hinterland. The Vembanad Lake also helps trade in the hinterland. Tourists coming from different parts of the world reach the pier through boats and floating crafts. About one lakh tons rice is reported as handled annually through this pier.

Kollam port was extensively used in the past for import of cashew by the local industrialist where triple handling system was used. Vessels anchored in the outer sea and unloaded cargo into "urus" and later to barges with multiple swing arrangement to reach the shore. About 2 lakh tons of cashews is handled at an average in a year in the port especially the cashew nuts and export of finished goods. The decline in this pattern of shipment through pier and open barges was mainly due to the change in pattern of shipment in bulk carriers and containers. The growth of railway facilities in the State and the emergence of Cochin

Port and Tuticorin Port are also reasons for the decline in the pattern of shipment.

1.4 Present trend in Kerala Ports

Currently, freight activities are mainly limited to Azhikkal, Bepore and Kollam. The development of Ponnani in PPP mode is at a standstill. A large port viz, Vizhinjam International Seaport is now under construction under PPP mode and a third deep-water international port, Malabar International Port at Azhikkal near Kannur, has been designed and is ready for development. Logistic parks are planned in Kochi, Malabar and Trivandrum regions to serve the needs of the three ports. Presently at the major market sites the interchange facilities for transferring of freight materials are done in a time bound manner. Details of cargo handled by the major and non-major ports in Kerala are given in Table 5.

Table 5: Cargo Handling details of Major & Non - Major Ports in Kerala

(Million Tonnes)

Major/minor Ports	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 (P)
Major port (Cochin)	22.10	25.01	29.4	32.02	34.04	31.50
Non-major ports	0.14	0.14	0.14	0.22	0.16	0.11
Total	22.24	25.15	29.28	32.24	34.19	31.62

Source: Economic Review, Kerala State Planning Board

The total cargo traffic handled by the ports in Kerala in 2019-2020 was 34.19 Million Tonnes as against 32.24 Million Tonnes in 2018-2019. This shows a growth of 6 percent over the previous year. The major commodities of import comprise of crude oil, LNG, fertilizers and raw materials, food grains, iron & steel and machinery. Tea, cashew kernels, sea foods, coir products, spices, coffee and miscellaneous items are the major export commodities. A deep-water port is presently under construction at Vizhinjam through public private partnership which will be a deep-water international container transshipment terminal. This terminal would be able to cater to container vessels up to 18,000 TEUs capacity. The non-major ports in Kerala, have now a total capacity of 0.55 million tonnes and 37.10 per cent of its capacity was utilized in 2018-2019.

1.5 Institutions

1.5.1 Sagarmala Development Company Limited (SDCL)

The Sagarmala Programme is a flagship programme of Government of India to promote port led development in the country exploiting coastline and their strategic location in maritime routes. Sagarmala aims to modernize India's Ports so that port-led development can be augmented and coastlines can be developed to contribute to India's growth. The Sagarmala Development Company Limited (SDCL) under the Ministry of Ports, Shipping & Waterways, Government of India was established in 2016 with a Rs. 1,000 crore authorised share capital and a Rs. 250 crore subscribed share capital. SDCL gives equity to projects via Special Purpose Vehicles (SPVs) established by ports, States, and Central Ministries, as well as through a financing window. It takes only projects that cannot be financed through other means/modes. Sagarmala projects are undertaken by Ports, State

Governments / Maritime Boards and Central Ministries, mostly using private or PPPs. The State Sagarmala Committee, chaired by the Chief Minister / Minister for Ports, is responsible for coordinating and facilitating Sagarmala-related initiatives.

As part of the Sagarmala Programme, 574 projects (costing Rs.6.01 lakh crores) have been identified for implementation, during 2015-2035 in port modernisation, new port development, port connectivity enhancement, port-linked industrialisation and coastal community development. As of 30-9-2019, 121 projects (costing Rs.30,228 crores) have been completed and 201 projects (costing Rs.309, 048 crore) are under implementation. A multipurpose berth at Kollam Port at a total project cost of Rs. 20 crores was executed under the Sagarmala scheme. DPR for dredging at the Kollam and Beypore ports has been approved by the State Sagarmala Committee and is awaiting approval by the Sagarmala cell, Ministry of Ports, Government of India.

1.5.2 Maritime State Development Council (MSDC):

MSDC, established in May 1997, is the apex advisory body for the development of the maritime sector in the country and aims to ensure integrated development of Major and non-Major Ports in the country. It is under the Chairmanship of the then Hon'ble Minister (SFT), with the Ministers in-charge of ports from all Maritime States/UTs. The MSDC consults with State Governments on the future development of existing and new minor ports directly or through captive users and private participation. MSDC convenes at least once every six months.

1.5.3 Indian Port Rail & Ropeway Corporation Limited (IPRC):

To execute the last mile connectivity rail connectivity and internal rail projects of the major ports efficiently, a Special Purpose Vehicle (SPV) – The Indian Port Rail Corporation (IPRC) – was incorporated under the MPSW, Government of India. To ensure a significant decrease in cargo dwell time at ports and reduction in total logistics costs.

1.5.4 Kerala Maritime Board:

The Kerala Government adopted the Kerala Maritime Board Act 2017 in 2017 and established the Kerala Maritime Board by combining the Directorate of Ports, the Kerala State Maritime Development Corporation Limited, and the Kerala Maritime Society. The Kerala Maritime Board is constituted as per vide GO (Ms) no 1/2018 F&PD dated 2/2/2018 based on Kerala Maritime Board Act, 2017. Kerala Maritime Board is constituted for Development of non-major Ports in the State to promote coastal shipping. Kerala Maritime Board functions to enhance activities related to maritime trade in ports by arranging adequate facilities to make port operations scientific. The capital and maintenance dredging needed to maintain the required depth at the non-major ports is the major responsibility of KMB. The Kerala Maritime Board is also responsible for the search and rescue operations along Kerala coast at times of distress.

1.5.5 Kerala State Coastal Area Development Corporation Limited (KSCADC)

The State-owned Kerala State Coastal Area Development Corporation Limited (KSCADC) established in 2010, coordinates coastal development efforts, promoting socio-economic development of fishermen, coastal and fisheries infrastructure, technical assistance and

long-term management of resources. The Coastal Area Development Agency (CDA), created in 2004 co-ordinates financial resources for integrated coastal development.

1.5.6 Hydrographic Survey Wing:

The Hydrographic Survey Wing established in 1968 under the Kerala's Port Department meets the needs of hydrographic investigation for the development of non-major ports in Kerala. The Chief Hydrographer in charge of this Wing of the department is responsible to conduct hydrographic surveys, research and production of hydrographic survey charts for non-major port approaches and basins. These charts are used by vessels that make non-major port calls and for the plans of the Harbour Engineering Department. They also carry out survey for other government agencies like Irrigation, Inland Navigation, Fisheries, Tourism, Public Works Departments and research institutions, like Kerala Engineering Research Institute. They provide hydrographic data to the National Hydrographic Office in Dehradun.

1.5.7 Harbour Engineering Department:

Created in 1982 as a service department for Fisheries and Ports with specialized knowledge and expertise in Coastal Engineering, Harbour Engineering and Estuarine Hydro Dynamics, construction of coastal civil engineering structures and their maintenance. The only such State Department in India Government of India made it a consultant in the coastal engineering field for the nation. They have novel dredging techniques in estuaries and basins and conduct basic geo technical and hydraulic investigations to develop optimum site specific layouts and master plans for non-major ports.

1.5.8 Vizhinjam International Seaport Ltd

Vizhinjam International Transshipment Deepwater Multipurpose Seaport is an ambitious project taken up by Government of Kerala. It is designed primarily to cater for container transshipment besides multi-purpose and break bulk cargo. The port is being currently developed on Public Private Partnership model on a Design, Build, Finance, Operate and Transfer ("DBFOT") basis. The private partner, the Concessionaire M/s Adani Vizhinjam Port Private Limited has commenced the construction on 5th December 2015.

1.5.9 Malabar International Port and SEZ Ltd.

Malabar International Port & SEZ Limited is an unlisted private company incorporated on 06 March, 2018. It is classified as a State Government Company and is located in Thiruvananthapuram. Its authorized capital is Rs. 100.00 cr and paid-up capital is Rs 25 cr. Malabar International Port and SEZ Ltd envisions developing of global standards, maritime, logistical and industrial infrastructure in the North Malabar region, facilitating economic development and employment generation. It also aims to facilitate the planning, investment and growth of an international as well as coastal shipping seaport with inter-modal connectivity at Azhikkal, along with SEZs/ industrial parks that can funnel cargo to the port and entrepreneurial resources into potential sectors in the Malabar region with comparative advantage and high prospects for success. The following are the major objectives:

- (i) To complete in three years (2023-2026) the basic infrastructure like dredging,

- breakwaters and roads by the GoK as well as the land acquisition for the port itself, connectivity and the SEZs/parks - singly or with other developmental agencies.
- (ii) Parallely, to select where necessary, private partner(s)/ investors of international standard for the commercial development of the port, marina and related infrastructures under Public Private Partnership (PPP) mode or otherwise.

CHAPTER 2

REVIEW OF PERFORMANCE DURING 13th FIVE YEAR PLAN

2.1. Targets/Goals

The 13th Five Year Plan envisaged a multipronged strategy for the development of the sector to increase passenger and cargo traffic and promote tourism by developing ports, coastal shipping, hinterland, and coastal communities. Besides, the Plan proposed steps to increase employment and enhance the competitiveness of ports in the State nationally and globally, create integrated logistic parks and goods terminals in major cities/towns and non-major ports, improve last mile connectivity and industrial hubs with seamless movement of goods.

2.2. Sector-wise outlay and Expenditure (12th FYP & 13th FYP)

During the 13th Five Year Plan, budget allocation to VISL is brought under Major Infrastructure Development programme with a token outlay of `One lakh in port sector which is the reason for a sharp decline in the Budget Allocation.

Table 6: 12th Five Year Plan and 13th Five Year Plan Outlay and Expenditure (Sector- Wise)
(Rs. In crore)

Sector	12th Five- Year Plan		13th Five- Year Plan							
	2012-17		2017-18		2018-19		2019-20		2020-21	
	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure
Ports	476.58	258.27	138.09	38.4	126.39	63.48	110.06	38.47	80.12	58.92
VISL	223.72	523.68	0.01	175.0	0.01	100.7	0.01	23	0.01	68.97
Total	700.3	781.95	138.1	213.4	126.4	164.2	110.1	61.5	80.13	127.9

Source: Economic Review, Kerala State Planning Board

2.3. Physical and Financial Achievements

The following were the Achievements of the 13th FYP:

Completed Tasks:

- Automated cargo handling gears installed at Kollam, Beypore, and Azhikkal ports.
- Commissioned container handling crane at Azhikkal and Beypore ports and a 750 HP Tug at Azhikkal port.
- Commissioned multipurpose passenger cum cargo wharf at Kollam port.
- Started crew changing facilities at Vizhinjam and Beypore Port.
- Transit shed, electronic data interchange facility and electronic weigh bridge completed in Beypore port.
- Sand purification units made operational at Ponnani.

2.4. Port Operational Statistics

- The Government of Kerala has decided to develop five ports. These ports are Beypore, Ponnani, Alappuzha, Kollam and major projects of Azhikkal and Vizhinjam International Seaport. Presently cargo operations take place only in three ports, i.e. in Vizhinjam, Beypore and Azhikkal ports. Kollam port with adequate infrastructure needs to attract more business.
- The total cargo handled in 2020-21 in the State was 31.62 million tonnes as compared to 34.19 million tonnes handled in 2019- 20, reflecting decline in growth by 7.5 per cent. However, this may not be considered as a general trend as it was due to the prevailing COVID 19 restrictions.

2.5. Existing Port Infrastructure in Kerala

2.5.1 LARGER PORTS IN KERALA IN THE STATE SECTOR

1. Vizhinjam International Deep-water Multipurpose Seaport

The Vizhinjam International Deepwater Multipurpose Seaport under construction, popularly known as the Vizhinjam Port, is a port in Thiruvananthapuram, Kerala, India. It is currently under development on the Arabian Sea shore at Vizhinjam. The natural depth of 18 metres, closeness to the international shipping route and little littoral drift along the coast are the key advantages of Vizhinjam port. The Kerala Government established the Vizhinjam International Sea Port Limited (VISL) as a special purpose company. Vizhinjam is near to the to a major international shipping route between west/Persian gulf and far east container transshipment is the main traffic expected for this port. International ports Colombo Port, Singapore Port, and Dubai Port will coexist and compete with Vizhinjam Port.

Deep-Water port at Vizhinjam is mainly for catering to the container transshipment requirement of the region. A Concession Agreement (CA) was entered into between the GoK (Authority) and M/s Adani Vizhinjam Port Pvt Ltd (AVPPL- Concessionaire), on the 17th of August 2015 to develop the Vizhinjam International Deepwater Multipurpose Seaport on a Public-Private Partnership model on DBFOT basis with a concession period of 40 years including 4 years of construction period. The construction of the port commenced on the 5th of December 2015 and had been scheduled for completion on the 3rd December 2019 (Scheduled Completion Date). However, due to delay in the construction of the critical component of the project i.e., breakwater, the port project could not be completed and as of now the project is delayed. The progress of other project activities viz. container berth, dredging and reclamation, container yard development, installation of cranes and other equipment etc. are also affected as a result of the inordinate delay in the advancement of the construction of breakwater, which is required to offer protection even during the construction / installation of the port facilities.

The port is expected to have a breadth of 150 metres when completed. The reclamation of the sea would result in the creation of around 2.5 to 2.75 km² (600 to 700 acres) of new land. The port would be protected by two breakwaters of 1.5 km and 6 km in length, as

well as a harbour basin and wharfs. There would be around 30 berths, with the majority of them capable of accommodating mother ships.

Other development initiatives

- Vizhinjam port offers immense potential for other developmental activities. One such activity is the maritime cluster development where higher-than-average concentrations of value-added activities related to shipping and port industries can take place.
- Vizhinjam International Deep-water Multipurpose Seaport (VISL) has engaged the Centre for Environment, Planning and Technology (CEPT), Ahmedabad and an area of 265 sq.km has been delineated as influence zone of port, for commercial, industrial, logistics, residential, recreation etc. The Town Planning Department is in the process of implementing the plan.
- Government of Kerala (GoK) has signed a MoU with the Port of Rotterdam (PoR) in October 2019 for cooperation in the development of port & maritime sectors in Kerala. One of the projects that have been identified is the preparation of a policy document for development of ports and port led industries. The activity that PoR would undertake is to understand the current port network in the State of Kerala including its characteristics, volumes, handling capacities, etc. and recommend the ports which are likely to be able to accommodate the projected demand.
- The Environmental Clearance (EC) for the Vizhinjam port project has recommended promotion of renewable energy (RE) along with port development. Due to locational advantage of seaport at Vizhinjam, there is potential for production RE resources such as solar, wind, wave, biomass etc. and storage and logistics of green hydrogen, using the energy produced from these RE sources. Accordingly, a proposal to establish a Renewable Energy Park at Vizhinjam in association with ANERT, the State level nodal agency for RE, was submitted to Port Department, GoK. The proposed RE park and green hydrogen project at Vizhinjam would be a unique project, which could attract financial support from the National Hydrogen Mission announced by GoI. Port Department has accorded permission to VISL to go ahead with the project.

2. Malabar International Port and SEZ Ltd (MIPS Ltd)

An International Seaport at Azhikkal (300 kms from Kochi and 135 kms from Mangalore) is under planning and development. Malabar International Port & SEZ Limited (MIPS Ltd.) - (formerly Azhikkal Port Ltd.) is implementing this project and the Technical Consultants for the port are HOWE Engineering Projects (I) Pvt. Ltd. and for the SEZ/industrial parks, Tata Consulting Engineers Limited.

The port is to be linked to the Thiruvananthapuram – Mangalore rail and highway NH 66. The new Kannur International Airport is about 30 km from the port, giving potential for tourism related traffic too. The port would enable switching from other current modes of transport such as road/rail/air.

The company has recently been renamed as Malabar International Ports and SEZ Ltd. The objective of the scheme is the development of a greenfield international seaport to serve the Malabar region of Kerala, parts of Tamil Nadu and southern Karnataka including Coorg.

The port will offer efficient facilities for maritime industry with an impact to hinterland industrial development. The development of the outer harbour and feeder port will be undertaken by Malabar International Ports and SEZ Ltd, a Special Purpose Vehicle under the Government of Kerala formed as per the Companies Act 2013 with an authorized capital of Rs.100 crores. The Company will oversee the planning, designing, necessary statutory clearance, resource mobilization, development and subsequent operations of the port under an appropriate operational model and adopting internationally accepted practices in the sector. A new port is being planned to handle ships up to 12.6m draught (depth) in Phases 1 and 2 and 14.5m in Phase 3. Present estimated project cost: Rs.3698.00 crores (Rs.2263.00 cr+Rs.688.00 cr +Rs. 747.00 cr) in 3 phases. Estimate for connecting road to NH is Rs. 103.00 cr crores (Rs.48.00 cr + Rs.2.00 cr + Rs.53.00 cr) in 3 Phases. Rail connectivity is proposed only in the 3rd Phase.

2.5.2 SMALLER PORTS IN KERALA IN THE STATE SECTOR

Kerala Maritime Board (KMB) is an umbrella body which exercise managerial and administrative control over the following non-major/intermediate ports in the state. The capital and maintenance dredging needed to maintain the required depth at the non-major ports is the major responsibility of KMB. The maritime board is also responsible for the search and rescue operations along Kerala coast at times of distress.

i. Vizhinjam Cargo Harbour

Vizhinjam Cargo harbour lies very close to the international shipping channel and is the operational port in the capital city of Thiruvananthapuram. The proximity to the international transshipment terminal offers better business opportunities. Vizhinjam Port caters to the regular shipping services to Maldives and also serves the international cruise services calling at Vizhinjam. The scheme envisages conservation, maintenance & development of various maritime & terrestrial infrastructure and allied operational facilities required for port operations.

The total Cargo traffic in Vizhinjam Port is 81961.45 tonnes in 13th Five Year Plan period. The commodities handled are Vegetables, Fruits, building materials, spices, Machinery, Animal, Rock and packing. Vizhinjam port serves a weekly movement to Maldives and in this account on an average of 10000 tonnes per annum. The revenue from this port is Rs. 30.21crore during the 13th Five Year Plan period

The Port has two berths, leeward wharf and seaward wharf. Presently leeward wharf is utilizing for Coastal operations. International crew changing and other allied operations are being conducted in the seaward wharf. 700 number of crew changing activities are also done so far. Ship chandelling activities are also done accompanied to these operations. There are about 200 plus coastal vessels have handled in this port during the financial year 2021-22. The Port being implemented ISPS code.

ii. Valiyathura Port

Trivandrum port, also known as Valiyathura port, was one of the first ports in Kerala and is situated 15 kilometres north of the Kovalam/Vizhinjam port. It was one of the first ports in Kerala. Valiyathura is a word that meaning 'Big Port' in the native tongue. There is a

concrete pier that is 703 feet in length that has survived the ferocious sea. The historic pier in Valiyathura exists as a reminder of the town's illustrious history, and it is being preserved by the State Government. A minimum of 50 cargo ships may have been accommodated at one point, according to ancient texts, at Trivandrum's Valiyathura port. It was in the early 1980s when the Trivandrum pier was declared dormant. Coir goods accounted for a significant portion of all exports via this port. Now no port activities are in the port.

iii. Kollam port

Kollam Port is one of Kerala's ancient ports and the second biggest port in Kerala with a draught of 6.5 metres, wharf of 177 metres by 12 metres, accommodating boats up to 15,000 DWT with direct berthing. Increasing draught to 10 metres is on now at a cost of Rs.5.7 crores, allowing ships of 170 metres and higher to anchor. The breakwaters are 2100 metres and 500 metres. The wharf being lengthened to 200 metres.

Kollam Port's primary hinterland extends to Kollam district, Pathanamthitta, Idukki, Alappuzha, Thiruvananthapuram, Kanyakumari, Tirunelveli, Madurai and Teni districts in Tamil Nadu. Marble, tiles, sand, titanium ore, cashew, seafood, clay, timber logs, sillimanite, titanium dioxide, machinery, soda ash, building materials, newsprint, waste paper, cement, urea and muriate of potash for fertiliser, rubber, agricultural products, cement, general cargo etc. are handled. The total cargo was 7848.62 tonnes with revenue of Rs. 67.81crores in the 13th Five Year Plan Period. Exporting, importing, berthing, inner anchorage, outer anchorage, supplying of fresh water, supplying of bunker, leasing of godowns, leasing of land, KIV related matters, conducting surveys, issuing of various crew licences as per KIV & KHC etc. are done. An Investors Meet was conducted on 6th April 2022. A plan is proposed as the "Kollam Port City" project, with recreational and tourist amenities and facilities for fishing. The Maritime Institute at Neendakara is nearby.

iv. Neendakkara Port

Neendakara port, located in the estuary of Ashtamudi lake, earlier handling raw cashew and ilmenite imports and exports is being transformed into a campus for the Kerala Maritime Academy. Around 500 fishing boats are at the harbour every day, the largest in the area, and one of the busiest in the world. Fishing and the Maritime Training Institute are major activities here.

v. Kayamkulam Port

Now there are no port activities in this Port. Kayamkulam Pozhi as a perennial outflow by the construction of two breakwaters in the estuary is underway. Kayankulam has the potential to be developed as a river sea terminal for merging interior and coastal waterways.

vi. Alleppey Port

During the early years of the twentieth century, the goods of the hinterlands, including as coconuts, coir and its products, pepper, coffee, tea, teakwood, and other hill produce, were sent to other areas of the globe, including Europe and the United States. Operations were conducted via the 400 metres long pier, capable of handling small vessels/barges less than 500 tonnes. Until the turn of the twentieth century, this port was a hive of activity for both export and import enterprises alike. The current revenue of the port from is registration of

inland vessel registration, survey etc.

vii. Kottayam port

This Inland Container Depot (ICD) is part of National Waterway 9 and the state's first ICD to use inland waterways and India's first to make use of an inland canal with a customs designated area. The port combines multi-mode freight trade between Kochi Port and a broad hinterland that includes the districts of Kottayam, Pathanamthitta, and Idukki. The functioning of the port is based on the idea of multimodal transportation. Containers sealed by Customs are transported by barge to stack sites at Cochin Port. The port is located roughly 5 kilometres south of the town of Kottayam and 1.5 kilometres west of the Main Central Road.

The port has the ability to accommodate barges with a carrying capacity of 10 TEU. berthing facilities for barges of 50 x 12 metres are available on the jetty. It contains a 40,000 square foot warehouse for export, import, and hazardous materials, as well as computerised freight management. It is set on a plot of land that measures 10 acres. The port is equipped with a Reach Stacker as well as a customs clearing facility

From the year 2012 to till the date Kottayam Port handled around 18,618TEUS (20-foot Equivalent Unit). In addition 25,000 Sq.ft warehouse under construction and 24TEUS carrying capacity barge is on pipeline for transporting the containers through Inland waterways. An amount of RS 61,07,23,131 (Sixty one crores seven lakhs twenty three thousand one hundred and thirty one) has been realised as revenue for customs, and Rs 4,514,980,012(Four hundred and fifty one Crores Forty nine lakhs eighty thousand and twelve) till the date as foreign exchange.

viii. Kodungallur Port

Azhikkal in Trissur District and Munambam in Ernakulam District are the two districts that border the Kodungallur Port. The harbour basin is located inside the estuary, where the Periyar River empties into the Arabian Sea, and is accessible only by boat. Because of its proximity to the Inland Waterways Authority of India's (IWAI) Kottappuram Terminal, the location has the potential to be developed as a river sea terminal for integrating inland waterways as well as a fishery port for processing and exporting marine products, given the large annual fish catch potential in the area. The on-going activities in the port are port construction, manual dredging. The revenue of the port is from manual dredging

ix. Ponnani Port

Ponnani Port is planned to be developed under the Public-Private Partnership (PPP) system, and M/s Malabar Port Pvt. Ltd. has been chosen as the developer for Ponnani Port. The overall cost is anticipated to be Rs. 763.00 crores (Rs. 763 billion). But not much progress as an on date of the project.

x. Beypore Port

Beypore is an old port town in the Kozhikode region of Kerala, India, and is the home of the Beypore Festival. This Indian port is located on the south western coast of the country (latitude 11°10' 0" N and longitude 75° 47' 59" E), approximately halfway between the

two major ports of Cochin and New Mangalore. It is 193 kilometres north of Cochin, 391 kilometres north of Trivandrum, and 246 kilometres south of Mangalore. It is located near the mouth of the River Chaliyar, with its back to the Arabian Sea and its front to the Arabian Sea. Beypore was well-renowned for its expertise in the construction of enormous wooden boats known as “Uru.” Boats manufactured in this area were employed on the maritime routes that connected Europe with Arab nations. Urus have been used as trade boats by the Arabs since antiquity, and even now, urus are being built in Beypore and transported to Arab countries throughout the world.

There is a 300m wharf with suitable cargo handling equipment such as a Mobile Harbour Crane, Reach stacker and Stationary cranes as well as a 3200 sqm storage facility at Beypore port. Further details of existing infrastructure and Facilities of Operational Port at Beypore are given in **Table 7**.

Table 7: Details of Infrastructure/ Facilities of Operational Port at Beypore

Sl. No	Facilities	Remarks
1	No of Berth	2
2	Lifting Facilities	Liebherr Crane-1, Reach Stacker-2, Fixed Crane-3, Portable Crane-3, Forklift-2
3	Operational Area	22000 m2
4	CCTV	Available at Port Premises
5	VTMS System and Radar system	Available
6	Tug Boats	3
7	X-ray baggage scanner	Available

Source: Kerala Maritime Board

Compared to Cochin port, Beypore is the second-largest container and passenger port in the State in terms of yearly cargo and passenger throughput. It handles an average of 1.25 lakh tonnes of cargo and 10,000 people yearly, the majority of whom are bound for or coming from the Lakshadweep Islands.

Beypore Port is the 2nd largest operational port in Kerala. It has huge investment potential. Port has average turnaround of 2 days. At present proposal has given to government to increase depth of the shipping channel by 4 m. to cater bigger vessels and also submitted proposal to extend the length of wharf. The total Cargo traffic in Beypore port is 639322.3 tonnes during 13th Five Year Plan Period. The commodities handled are Machinery, POL, Tiles and Bricks, Animals etc. The average annual cargo volume handled at Beypore is approximately 1 lakh tonnes. Beypore has the largest facilities among the four operating ports in Kerala. The revenue from this port was Rs. 67.81crore during the 13th Five Year Plan period.

xi. Thalassery Port

Thalassery port, located on the coast of Kerala, is one of the oldest ports in the country and has a long and illustrious history. The British East India Company created the Thalassery

Port in the year 1708, and it has been in operation ever since. The average volume of commerce each year was more than 4 lakh tonnes. Pepper, coffee, and cardamom were the most popular exports, all of which were grown in the plantations of Wayanad in Kerala and Coorg in Karnataka. Thalassery is home to a historic pier as well as a Light House. The revenue of the port is from manual dredging.

xii. Kannur Port

Kannur Port is located in the vicinity of Kannur town. Until the middle of the twentieth century, this port served as a focal point for coastal commerce. Mopla Bay, where a fishing harbour is located, has a breakwater that protects the area. For the time being, the port is only utilised for fishing operations. Fishing activities are carried out in the port. The revenue of the port comes from the land license.

xiii. Azhikkal Riverine port

Azhikkal is a riverfront port in Kerala's Kannur district, situated at the confluence of the Valapattanam River and the Mattol River with the Lakshadweep Sea near the mouth of the Valapattanam River. At the moment, Azhikkal is a modest fishing port. Kannur town, which is about 10 kilometres from the port site and can function as a port town by providing the necessary urban infrastructure, is an excellent choice. The town of Kozhikode is about 80 kilometres south of the port of Azhikkal. The NH 17 is a significant highway that links Mumbai with Kerala through Panvel–Goa–Karnataka. In Kerala, it is a two-lane road that extends from north to south along the Malabar Coast, going through Kasargod and Kannur before reaching Trivandrum, where it serves as the principal hinterland for the Azhikkal port. It is located on the western coast of the state.

The port has a 226-meter wharf with a 3-meter draught beside it, and it can accommodate coastal transportation by river-going boats. The port is also equipped with a Mobile harbour crane and a reach stacker to make container handling easier and more efficient. The further details of infrastructure/facilities of operational port at Azhikkal are given **Table 8**.

Table 8: Details of Infrastructure/ Facilities of Operational Port at Azhikkal

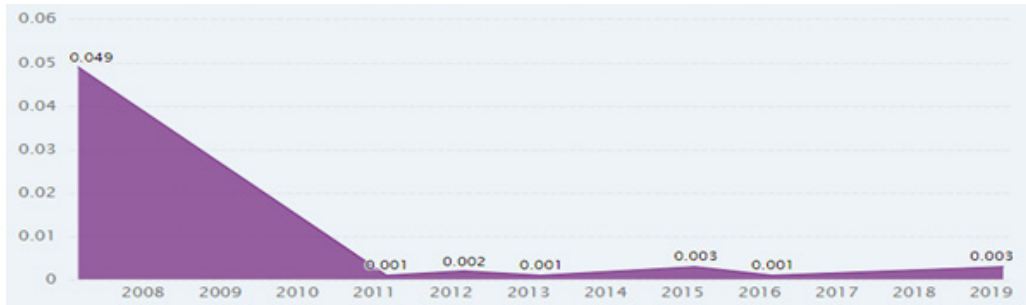
Sl. No	Facilities	Remarks
1	No of Berth	2 (New Wharf-226m length, 13m width), (old wharf 37m length)
2	Lifting Facilities	Liebherr LHM 180-1, Reach Stacker-1, Hydra 825-1
3	CCTV	Available at Port Premises
4	Warehouse	2 No's (90msq)
5	Tug facility	Available
6	Customs EDI Service	Available

Source: Kerala Maritime Board

In 2019, Azhikkal data was reported at 0.003 Ton MN. This remained unchanged from the previous year's figure of 0.001 Ton MN. From March 2007 through March 2019, Azhikkal data was updated once a year, with an average of 0.001 Ton MN. In 2007, the data reached

an all-time high of 0.049 Ton MN, while in 2011, 2013, and 2016, it hit a new low of 0.001 Ton MN

Figure 3: Cargo Traffic: Azhikkal



Source: Indian Port Association

The total Cargo traffic in Azhikkal port is 13908 tonnes during 13th Five Year Plan period. The commodities handled are building materials and miscellaneous. The revenue from this port is Rs. 8573.81crore during the 13th Five Year Plan period. Major portion of the revenue collected from dredged materials and port properties given for rent on government rate. The following are the major activities in the port.

1. Operation of port Container vessel Chowgale-8
2. Floating Bridges and Water Scooter as part of Tourism activities.

xiv. Neeleswaram Port

The Cheruvathoor-Neeleswaram port is located near the mouth of the Kavvai backwaters, in the state of Tamil Nadu. It is also located at the junction of three rivers: the Kariyamkode, the Kavvai, and the Neeleswaram rivers. During the eighteenth century and the early nineteenth century, this port served as a focal point for coastal trade. The closest towns are Neeleswaram and Chervathoor, both of which are located in the Kasaragod district. The harbour basin is a wide expanse of water with several islands in it. By means of the Sultan canal, it is linked to the inland waterway that runs from Kottappuram in Neeleswaram to Azhikkal in Kannur. At the moment, the port does not have a berthing facility. The Kavvai Backwaters link the port to the Ezhimala Naval Academy, which is located nearby. From Ramanthali to Kottappuram, the kavvai backwater stretches for around 35 kilometres. Fishing harbours and fishing land centres are operated in port. The revenue of the port is from manual dredging.

xv. Kasaragod Port

Kasaragod port was designated as a notified non-major port and functioned as a lighterage port after being designated as such. The last time any commerce passed through this port was in the mid-70s. There was a long-standing practice of doing commerce between Kasaragod and other ports, which has now died out completely. There was a lot of activity in the building of sailing vessels. Using Mangalore Port, wood essential for the building of sailing vessels is imported from Malaysia for use in the construction of these vessels. Located on the estuary of Chandragirippuzha, Kasaragod Port serves as a major port for the region.

Fishing related activities are done on the port. Fishing harbours and fishing land centres are in port. The revenue of the port is from manual dredging.

xvi. Manjeswaram port

Manjeswaram port, located in Kasaragod district's northern coastal reach, is a designated non-major port. At Manjeswaram, there is just a natural and shallow harbour. Because of the large amount of land available and its closeness to Mangalore, this port has a lot of potential to grow as an industrial centre. Fishing harbours and fishing land centres are in port. The revenue of the port is from manual dredging.

2.5.3. Existing Lighthouse infrastructure

- Thangaserry Lighthouse was built in 1902 and is located on the coast at Tangaserry in Kollam city of Kerala. It has a height of 135ft and it is one of the most visited lighthouses of Kerala. The lighthouse also has an elevator facility for tourists.
- Alappuzha Lighthouse was established in 1862 and is located on the coast at Alappuzha town of Kerala, which was one of the busiest ports and trade centers of Kerala. Alappuzha Lighthouse has a height of 92ft and is a popular tourist destination.
- The Vypin Lighthouse, located in Puthuvype, Kochi, Kerala, has been in operation since 1979. It is the tallest lighthouse in Kerala, standing at 151 ft. The lighthouse's light beam reaches a distance of 52 kilometres.
- The Kadalpur Point Lighthouse was built in 1907 and is located in Kadalpur, Kerala's Kozhikode District. It stands at a height of 112 feet on the Arabian Sea's coast. The lighthouse has black and white bands painted on it. The lighthouse is supposed to have been built in the aftermath of a shipwreck on the point's rugged cliffs, where the wreckage may still be seen.
- Vizhinjam Lighthouse started functioning in 1972 and is situated near Kovalam beach in Kerala. Vizhinjam was a busy port in eighteenth and nineteenth centuries. The Lighthouse has a height of 118ft

2.6 Appraisal of Interventions in the Sector

2.6.1 Appraisal of Union Gov. Schemes/Programmes/Policies

i) Sagarmala Programme

The Sagarmala programme intends to promote port-led development by taking advantage of the country's 7,500-kilometer coastline, 14,500-kilometer network of potentially navigable waterways, and strategic placement along vital international maritime trade routes. Five projects in Kerala have been identified as part of the Shipping Ministry's ambitious Sagarmala program's National Perspective Plan (NPP).

Port modernisation, new port development, port connection enhancement, and port-led industrial growth are among the initiatives in Kerala. However, initiatives in the State are not among the ten projects designated under the fourth pillar, coastal community development.

The port modernisation plan, which includes 40 projects and six new mega port locations, includes a Rs.10-crore edible oil terminal, a Rs.120-crore food grain import terminal, and a Rs.155-crore fertiliser bagging plant, all at the Cochin port. The sole items on the list of

65 projects and seven inland projects for port connectivity are the national highway bypass link to Azhikkal port and the widening of a 2-km stretch at a cost of Rs.61-crore.

In the labour-intensive sectors of electronics, textiles, leather products, furniture, and food processing, there are as many as nine energy clusters, five material clusters, and 13 discrete manufacturing clusters. The NPP compares the key features of the Vizhinjam port and the projected Colachel port in Tamil Nadu, despite the anticipated rail connectivity to the Vizhinjam international deep-water seaport not being included in the plans.

According to the NPP, the projects will attract investments worth more than Rs.4 lakh crore over the next ten years, as well as create 1 crore new jobs, including 40 lakh direct jobs.

ii) The Major Port Authorities Act 2021

The Major Port Authorities Act, 2021 has been enacted in supersession of the erstwhile Major Port Trusts Act, 1963 for providing more autonomy to each Port Authority with powers for fixing port tariff etc. The Act also provides for constituting an “Adjudicatory Board” by the Central Government for the adjudication of the disputes between the Port Authority and its stake holders like port users, concessionaires etc. and also to appraise/ review the stressed Public Private Partnership projects as referred by the Central Government or the Port Authority Board, and to suggest measures to revive such projects.

iii) The Indian Ports Bill, 2021

The Indian Ports Bill 2021 seeks to replace the more than a century old Indian Ports Act 1908. The new bill incorporates a number of international regulatory developments in the national legislation namely the “International Ship and Port Facility Security (ISPS) Code 2004, the International Convention for the prevention of pollution from ships (MARPOL) – (1983, 2005). The International Ballast Water Management (BWM) convention (2017) aims at preventing the spread of invasive aquatic species and potentially harmful pathogens in ships’ ballast water when it is released into port premises or adjacent environment.

- The bill mandates port authorities to provide adequate “reception facilities” to ships to dispose of their waste.
- It contains provisions for the safety and security of ports and for the prevention and containment of pollution at ports.
- These provisions will apply to all ports in India (major and non-major ports).
- The ports are required to prepare a “Security Plan” and a waste reception and handling plan.
- The Ports will also be subject to periodic audits by the Union government to ensure compliance.

2.6.2 On-going State Schemes

2.6.2.1 Coastal Shipping

The coastal shipping operations have started connecting Kollam, Beypore and Azhikkal ports and the project also envisages costal passenger movement. The provision of the scheme included incentive for the coastal shipping. The State Government has implemented the

incentive schemes in order to boost coastal shipping and minimise traffic congestion on roadways

2.6.2.2 Incentives

The operating incentive for Coastal Shipping in the State's small ports is at a rate of 10 per cent over the cost of road transportation, as per the NATPAC research report.

2.6.2.3 Development of Non-Major Ports

- Completed Transit Shed for Electronic Data Interchange Facility at Beypore Port.
- Ship crew changing at Vizhinjam Port started from January 15,2020 onwards.
- Multi-purpose passenger-cum-cargo wharf at Kollam Port costing Rs.20 crore (under Sagarmala scheme) completed with Rs.7.23 crore as Government of India share.
- Regular services connecting Lakshadweep with Beypore Port.
- Vizhinjam Port serves weekly vessel operations to Maldives.
- Automated cargo handling gears at Kollam, Beypore and Azhikkal Port completed
- Kollam and Azhikkal Ports are being developed on priority basis for coastal shipping operations.
- Kollam, Beypore and Azhikkal Ports are equipped with cargo/ container handling equipment.
- Customs EDI terminals are being established at Beypore and Azhikkal.
- A major milestone in the recent history of Kerala port sector is the establishment of crew changing facility at Beypore port. The first crew changing was on July 15, 2020 in favour of the cargo vessel MV Ever globe. So far this facility could be made available to 682 crew of 39 vessels and an amount of Rs.33.98 lakh could be earned revenue through the crew changing operations.

2.6.2.4 Maritime Education & Training

- More than 5,000 students have been trained at Neendakara Maritime Institute under the boat crew training programme. The institute runs waterborne training activities, pre-sea courses in both nautical and engineering streams and also take up basic safety courses which are mandatory for prospective mariners.

2.6.2.5 Port e-governance

The modern scenario demands e-governance in port administration and shipping operations. So, KMB's business has to be undertaken in accordance with government's e-governance policy. The scheme is intended to create web-based business platform for port activities. In future the web portal will act as a nod for bridging trade activities between different sectors in the state, other parts of the country and the world.

2.6.2.6 Hydrographic Survey Wing

The following are the activities completed during 13th Five Year Plan Period.

- Digitization of Kerala Coast completed.
- Cochin Port Trust outer channel Survey completed.
- KMRL Survey completed.
- One new Twin screw vessel constructed.

- One floating jetty constructed at Beypore Port.
- Kottappuram Assistant Marine Surveyor Office started.
- Vizhinjam Assistant Marine Surveyor office started.
- Purchased RTK Survey unit.
- e-governance started.
- 10.Rov with underwater camera purchased.

CHAPTER 3 CURRENT SITUATION, ISSUES AND CHALLENGES

3.1 Current Situation

3.1.1 Hinterland connectivity

Government of India has approved the development of NH66 as Economic Corridor with 6 lanes under Bharatmala Scheme and work has already commenced in the northern districts of Kasaragod, Kannur, and Kozhikode. This corridor is expected to be fully completed towards the end of the 14th Five Year Plan period. Further, the Bangalore-Cochin Industrial Corridor would also be ready by this time.

3.1.2 Enhancement of Dredging: Dredging at non-major ports have been historically low in comparison to required draft to match with advancements in size and shapes of the ships. In order to keep pace with accelerating growth in cargo and container traffic, ports would also increase their drafts to handle large vessels. Hence more emphasis given to dredging in the ports.

The hinterlands of non-major ports in Kerala are narrow which is yet to be defined and largely speculative due to lack of regular and reliable liner operations over the years. The existing hinterlands are being shared by the major ports of Mangalore, Cochin and Tuticorin which offer regular reliable and efficient liner services.

3.1.3 Cargo movement

i) The cargo base of a port comprises of liner-based cargo and captive cargo. Although the Cochin Port has captive cargo like crude oil, POL, Fertiliser raw materials, LNG, LPG and cement, the captive cargo potential for other ports in Kerala is limited because of the absence of heavy industries in the respective hinterland.

ii) The cargo potential for ports other than the Deep-Water Ports comprises of mainly food grains, consumer goods and construction materials. As these cargoes are handled in containers, effectively the traffic is container traffic. The origin/destination of these cargoes is ports in Gujarat and Andhra Pradesh. Direct operation of small vessels between Gujarat ports and Kerala ports would not be cost effective because of its comparatively high freight cost and its requirement to compete with large size vessel operating at the DW Ports. Development of facilities for handling the regular size vessels at small ports would not be cost effective considering the low cargo volume available. As such the traffic potential that can be further studied for the small ports is container transshipment, connecting DW Ports. Since the past attempts for establishing captive cement terminals at Kollam port and Munambam port had not materialized due to public protests, captive cargo like cement, POL, LPG etc. may not be considered for the smaller ports with limited port area which is adjacent to the inhabited areas. A proposal for setting up a cement terminal at existing Azhikkal Port through open tender did not materialize due to unknown reasons. The available surplus capacity together with concessional port charges for coastal cargo at Cochin Port development of the small ports adjacent to Cochin Port may not be cost effective.

3.1.4 Container Transshipment

- i) Analysis of the potential of container transshipment at the smaller non-major ports connecting with deep water (DW) ports has revealed the following:
 - a. Once the three DW Ports are operated the maximum distance from these ports to the cargo centres in Kerala State would be around about 150 kms.
 - b. With the establishment of Economic Corridor and Industrial Corridor, the road conditions would be substantially improved, and road transport could be preferred for short distance transport on considerations of time and inventory cost.
 - c. The transshipment from the DW Ports to other Kerala state ports may not be cost effective because of the following:
 - i. First and last mile transports are required which are costly links of the transport chain.
 - ii. Container traffic has the requirement of returning the empty containers to the shipping line's yard near the port in case there is no return cargo. In case empty containers are to be returned to the shipping line's yard, the preferred option would be direct delivery from the DW Ports to the destination by road to avoid multiple port handlings and storages at multiple locations.
 - iii. Multiple port handling and storages and handling at storages are required which are at substantial cost
 - iv. Cargo aggregation at port is required for ensuring minimum parcel to the vessel, means more waiting time for cargo.
 - v. Port investment in tiny ports is not likely to be cost effective since minimum facilities such as one berth, handling cranes, tugs, pilot launch and mooring launch are required for port operation even if the traffic is minimum. With low frequency of vessel calls and low volumes of cargo, there would be large scale idling of men and equipment which in turn would reduce the efficiency and cost effectiveness of operation.
 - vi. Larger non-major ports handling containers, often operated by private operators, have round the clock cargo operations, whereas, at present, the smaller non-major ports offer only day shift and the operation beyond the regular shift is on over time basis, adding cost to the cargo handling.
- ii) Because of the various requirements of container transshipment in tiny ports, as detailed above the transport chain break-even sea distance should be not less than about 300 km. This is also evident from the fact that container transshipment between Cochin Port and Azhikkal port is possible only with the support of financial incentive from the Government of Kerala.
- iii) From the above, the realistic position is that, after the establishment of two DW Ports, the cargo potential of other ports possibly except Beypore port would not be encouraging for creating additional facilities. Beypore port could continue to have cargo and passenger traffic bound for Lakshadweep islands which for all practical purposes is a captive cargo now.

3.2 Issues/ Challenges

Despite the conscious and collaborative efforts of the last five-year plan, the port sector is still lagging behind in many ways, as there are bottlenecks. The critical issues that impede

sector growth are summarized below and should be resolved through appropriate strategies to maximize the potential of the port sector in Kerala. At present, the capacity utilisation of even the best operating ports like Vizhinjam, Kollam, Beypore and Azhikkal is understood to be below 30 per cent.

3.2.1 Port related Infrastructure:

1. Inadequate draft and cargo handling equipment.
2. Insufficient berthing facility (draught of berths, length for proper berthing of the vessels).
3. Difficulty in land acquisition for infrastructure development due to severe opposition from the public and also delay in the process.
4. Inadequacy of boat / vessel repair units and parking space for vessels.
5. Inadequate hinterland connectivity through rail, road, highways, coastal shipping and inland waterways.
6. Warehouses/ logistic & allied infrastructure for attracting more business.

3.2.2 Fiscal Issues:

1. Inadequate private and public funding for infrastructure development and purchase of vessels.
2. Imposition of considerable duty on bunker oil.
3. An exemption of only 25 % from taxable value is being provided in respect of services rendered in relation to transport of coastal goods and transported through national water ways or inland water.

3.2.3 Operational Issues:

1. Seamless port operations and management low labour and equipment productivity levels due to the out dated equipment, poor training, low equipment handling levels by labour, uneconomic labour practices, idle time at berth etc.
2. Seasonal nature of non-major ports result in of 3-4 months operational break in monsoon seasons.
3. Lack of targeted business plans.
4. Labour issues and lack of skilled human resource to meet the requirement of the shipping sector.
5. High competition from road/rail transportation
6. Non-availability /limited return cargo.
7. Lack of end to end transportation services/last mile connectivity.
8. Non attractive incentives
9. Procedural delay in implementation of projects.
10. Lack of coordination from different departments in implementing the scheme

3.2.4 Port Led Industrialization

Port led industrialisation is a flagship scheme envisaged by Ministry of Ports, Shipping and Waterways, GoI for accelerating industrialisation along the port. The State could not reap much benefits from the scheme possibly due to the lack of integration of different state government departments such as Industries, Tourism etc.

3.3 Challenges in Development

The development of ports in the State is still in its infancy and therefore faces many important factors that can be solved by an enlightening and proactive approach through the development of ports as mass transportation systems. New port infrastructure is costly and the size of vessels is increasing year by year due to the economies of scale in sea transport. To overcome this situation and stabilize port freight / passenger transportation, more industrialisation of hinterland areas, expansion of commerce. The State must support all these along with the construction of appropriate maritime and hinterland infrastructure exploring PPP opportunities wherever appropriate.

The State has begun developing non-major ports for handling domestic and international cargo through Beypore, Azhikkal and Vizhinjam ports. To maintain stakeholder-friendly port operations, provide green channel clearance and infrastructure facilities involving stakeholders like customs, immigration, plant quarantine, sales tax and Maritime Board. Until, port activities reach operational break-even, the national treasury may have to bear the burden of operations cost, HR and allied expenditures.

CHAPTER 4

RECOMMENDATIONS AND ROAD MAP FOR 14th FIVE YEAR PLAN

4.1 Development Recommendations for State Ports

4.1.1 Formulation of a new port policy

- i) It is recommended to formulate a new Port Policy document for the planned development of the ports in Kerala with due regard to the latest developments in maritime sector including the development of deep-water ports at Vizhinjam and Azhikkal.
- ii) The new policy shall consider road developments in the State, upgrading and maximizing the utilization of existing facilities in these ports with required adaptations, modernization, administrative and operational reforms and undertaking only essential need-based infrastructure developments and diversification of activities.
- iii) The port policy may mandate development of only very few selected ports, instead of spreading scarce resources too thin or based on regional aspirations only, based on cargo potential possibly through private partnership. In order to achieve this, preliminary assessments of the resources particularly encumbrance free land and access to the port are highly essential to attract private players.
- iv) The other ports may be maintained mainly for fishing-related activities and/or tourism for which there is considerable potential.

4.1.2 Port Governance

KMB is the take lead role in dealing the port eco system identifying new business opportunities, up scaling port infrastructure, ease port preparations to achieve the business targets during 14th Five Year Plan period

4.1.3 Promotion of Public Private Partnership

Given the limitation of public resource, private investments will have to be emphasised and expanded. A Public-Private Partnership (PPP) regime has already been put into operation in road sector very successfully. While in Ports, Airports, Railways and Inland Waterways, there have been efforts in private investments in varying degrees, there is a need to step up an investment. There will be a special focus required for increased investment in the transport from public resources, as well for safety, modernisation and expansion. The pilot PPP Model of Vizhinjam Sea Port Development can be taken as grinding tool.

4.1.4 Advance Logistics Solutions

The State's transport system needs to be optimized by means of advanced logistics solutions with accelerated development of Coastal Shipping / Inland Waterways etc. and enhanced connections between deep-sea shipping and hinterland areas through an optimal multimodal network resulting in efficient co-modality and sustainable utilisation of resources

4.1.5 Larger Ports

i) Vizhinjam International Deepwater Multipurpose Seaport

The development of Vizhinjam Deep Water International Container Transhipment Terminal is planned in three phases, Construction activity of the phase 1 costing Rs. 6770.00 crores commenced on 5th December 2015, which includes breakwater of 3100m, 800m container

berth and another 500-metre fishing berth. The phase II (2024 - 2027) includes additional berth of 400m and the phase III (2034-2037) includes additional berth of 800m with capacity augmentation of 1.5 million and 2.2 million TEU per annum respectively and Phase I is expected to be completed in 2023.

ii) Malabar International Port and SEZ Ltd, at Azhikkal

The Kerala Government is developing an international cum coastal shipping seaport at Azhikkal (300 kms from Kochi and 135 kms from Mangalore), adjacent to the existing riverine port at Azhikkal to develop the Malabar Region logistically and economically, by improved connectivity, infrastructure and developed land for port based/ other industries using both Sagarmala and private capital. Malabar International Port & SEZ Limited (MIPS Ltd.) - (formerly Azhikkal Port Ltd.) is implementing this project and the Technical Consultants for the port are HOWE Engineering Projects (I) Pvt. Ltd. and for the SEZ/ industrial parks, Tata Consulting Engineers Limited.

The DPR of the port is at the final stage of preparation. The Government of Kerala needs to take a policy decision on the type of private investment to be invited for this port – whether it should be based on the VGF and PPP model of the Government of India or the State's own example of Cochin International Airport, where there is more widely held private ownership, with the State taking a lead in its construction and management. Current rough estimates are that for the 1st Phase, an investment of around Rs. 3,000 crores would be required (whereas as per the Techno Economic Feasibility Report approved by the Government 3 years ago, Rs. 2263 crores was estimated).

The facilities planned as Phase 1 to be completed in the 14th Plan period include a multi-purpose/container berth for Panamax size vessels with a berth length of 500 m, a ship turning circle of 500 m, inner approach channel 1350 m long, 155 m wide and 14.1m deep, outer approach channel 5290 m long, 155 m wide and 15.4 deep and north breakwater 2152 m long as an extension of the existing breakwater and southern breakwater 1407 m long.

4.1.6 Smaller Ports

i) Kollam Port

Capital dredging is proposed to increase the draught to 12 meters to attract bigger vessels. Floating dry docks at appropriate locations for use in the Kollam port's region near the seaward breakwater can be explored. The construction of the 187m long Cargo berth and the 101m long Passenger berth in the Kollam Port is necessary in order to improve the usage of the port's available capacity. Another option is to build a wharf in front of the current freight wharf. It is possible to set up a fish processing facility in the neighbourhood of Kollam Port if the fish is imported via the port. The establishment of a private container freight station in the immediate neighbourhood of the port also needs encouragement.

ii) Alappuzha Port

It is proposed for the development of floating jetty, marina and passenger terminals linking major on-going breakwater heritage and other tourism projects in Alappuzha Port. It is proposed to rehabilitate the existing warehouses, make use of the signal station, leverage the sea bridge for tourist purposes.

iii) Beypore Port

Construction of a new go-down, dangerous cargo (including petroleum products) terminal and port complex are necessary infrastructure requirement for the port development. In order to provide a smooth passage of the ships to the port, the depth of the Beypore port needs to be increased to 8m and the length of the new wharf by 150m towards west, (an extension towards silk compound section).

In the case of cargo and passenger traffic bound for Lakshadweep, at Beypore port, it is now like a captive business/cargo, since the Government of India provides concessions for the cargo and passenger traffic between the mainland and the Islands. In fact, berth facilities have been developed and operated at Cochin and Mangalore ports by Lakshadweep Administration with funding from GoI. In this regard, possible operational improvements may be considered to attract more business to Beypore.

The connectivity to Beypore port can be increased by improvising the road and rail connections. Road connectivity can be provided by constructing a four-lane road connecting Beypore port and the National Highway. Construction of railway from Beypore port to Farooq/Kozhikode would improve connectivity.

4.1.7 RO-RO Service Between Azhikkal – Beypore – Cochin – Kollam

The present infrastructure at ports such as Azhikkal, Beypore, and Kollam can support Ro-Ro ships equipped with side ramps or quarter side ramps, according to the Port Authority of Kerala. Ro-Ro ships, on the other hand, that are used for short-sea commerce are typically smaller in size and equipped with front and stern ramps to facilitate manoeuvring. Infrastructure changes in Minor Ports are necessary in order to accommodate Ro-Ro boats with front and stern ramps, which are currently prohibited.

4.1.8 Cruise services from Kovalam to Kanyakumari

The creation of sustainable port infrastructure and tourism facilities for a sea cruise project, have been conceived in order to exploit the untapped potential of the world-renowned tourist attractions of Kovalam and Kanyakumari. This needs to be operationalized during 14th Five Year Plan.

4.1.9 Cargo Movement between Kerala and Other States

It is proposed to examine the possibility of cargo movement by coastal shipping between ports of Kerala and sources in Maharashtra & Gujarat depending upon cargo availability. It is mainly aimed to transport commodities like tiles, sanitary items, steel, cement, steel wires, wheat, and textiles from the States of Gujarat, and Maharashtra to Kerala. The identified onward commodities are cashew, rare earth materials, clay products, rubber and rubber products, coir products from Kerala to various destination ports on the west and east coasts. A business plan needs to be developed based on detailed studies on in bound and out bound cargo.

4.2 Coastal Community Development:

The development of coastal communities is a critical objective of the Sagarmala Programme. The Ministry of Ports, Shipping, and Waterways is pursuing a variety of initiatives/projects in this direction, including coastal community skill development and fishermen community

development. Under Sagarmala, a budget of Rs. 100 crores was earmarked for coastal community development initiatives. Coastal community development has to be planned for all the minor ports and the major port in Kerala.

4.3 Skill development:

The Ministry of Ports, Shipping, and Waterways (MPSW) sponsors skill development for the port and maritime sectors under the Sagarmala-DDU-GKY Convergence initiative. In Kerala, training centres have been established. Additionally, MPSW has memoranda of understanding with the Ministry of Skill Development and Entrepreneurship and the Ministry of Rural Development for skill development activities. Such skill development facilities needs to be created for the ports in Kerala.

The maritime sector development covers the shipping, ships (building, repair, re-cycling), development of port facilities (construction, dredging, maintenance, cargo handling equipment, storage facilities), port operation (cargo handling and vessel handling) and manpower development. The agencies designated to conceive and implement the manpower development schemes may be mandated for development of multi-skill manpower for optimizing the manpower requirement and making the ventures cost effective. The manpower development may be planned and fulfilled in a specified period matching with the plan for other developments to fetch desired benefits.

While considering the development of marine personnel, due consideration may be given for the effective utilization of the two Training Institutes constructed at Neendakara and Munambam/Kodungallur for producing qualified deck and engine side marine personnel as well as skill development for building/repair/operations of river-sea/inland/fishing vessels and other areas of maritime studies and research with suitable collaboration with renowned institutes. It is understood that the Government of Kerala has already reached out to the Port of Rotterdam and the Port of Busan for collaboration.

4.4 Development of Training Institutes

There is need for simple manning scales and adequate training facilities, with government/ other funding. An appropriate policy should be formulated for it in the new port policy recommended and necessary training given at appropriate intervals. The Kerala Maritime Institute may oversee maritime education and training and research. The existing institutional infrastructure is to be developed as a centre of excellence with global standards to meet all the research and consulting needs of the industry. The two campuses in Neendakara and other at Kodungallor may be developed with appropriate facilities. At Munambam harbour a building/repair/re-cycling cluster for river-sea/inland/fishing vessels using the available land / water frontage integrating with the Training Institute for courses related to it is proposed.

The Training Institute is to produce qualified deck and engine side marine personnel, as well as skill development for the construction, repair and operation of river-sea/inland/fishing vessels, and other areas of maritime studies and research with appropriate collaboration with renowned institutes. The Government of Kerala has reached out to the Ports of Rotterdam and Busan for possible partnership.

4.5 Promotion of Tourism

In the scenario of the availability of 6 lane NH 66 and well-established railway passenger transport system along the coast, the potential for sea mode regular passenger traffic on commercial basis has become less bright because of its seasonal nature (operational in non-monsoon period only), slow speed, limited stops, limited trips, low passenger comfort etc, though possibility of short distance luxury ferry services connecting tourism centres like Kovalam- Kanyakumari may be examined.

4.6 Operational reforms

- i) In order to make the port system user friendly and transparent, comprehensive port charges need to be levied with respect to vessel size (GRT) and size of empty/loaded containers. This shall be kept in view while considering the reforms.
- ii) Digitization and the use of information technology must be a priority in port administration activities.
- iii) Because of the inter linkage of the of the ports, shipping and inland navigation including the operation of river-sea vessels for coastal shipping it may be desirable to bring the activities related to ports, shipping, and inland navigation under one department for coordinated action as is done in the Government of India (Ministry of Ports, Shipping and Waterways) and the State Maritime Boards like Gujarat, Maharashtra etc.

4.8 Port Related Infrastructure Development

The critical issues that impede growth of the port sector are inadequate port related infrastructure; berth facilities, cargo handling equipment, etc. The WG suggests the following recommendations.

1. Government of India's NH66, 6 laning as an Economic north south corridor along with Bengaluru- Cochin industrial corridor and Lakshadweep business potentials, operational and infra improvements to be done in currently active ports to attract more captive as well as other business. To drive the concept, capital dredging, port marine & hinterland infra along with allied facilities needs to be established based on business and infrastructure master planning.
2. Although effective utilization of existing infrastructure at ports the potential for the following will be examined.
3. Establishing a Floating dry dock-based ship repair facility at Kollam port, utilizing the existing berths, workshop, covered sheds etc.
4. Establishing a vessel building/repair/re-cycling cluster for river-sea/inland/fishing vessels at Munambam harbour for effective utilization of the available land and water frontage.

4.9 Other Development Recommendations:

The additional developments / issues that may be taken into consideration are:

- Technology transfer and increased employment opportunities.
- Encouragement of the development of port facilities with the investment from the user agency, with assured minimum cargo volume and revenue/profit sharing.
- The hinterlands of non-major ports in Kerala are to be defined and developed logistics-wise.

- Where needed 24x7 working of ports may be considered for full utilization of the port facilities and minimizing the vessel time at ports.
- Container transshipment to smaller ports from DW ports.

For port-based cargo movement, the requirements to be balance are adequate cargo volume for assuring cost effective parcel size to the vessels for cargo aggregation, as well as scheduled ship calls at frequent intervals for avoiding too much waiting of cargo and optimizing the inventory costs.

4.10 Blue Economy

The Government of India's Vision of New India - 2030 enunciated in February 2019 also highlighted the Blue Economy as one of the ten core dimensions of growth. The Blue Economy was mentioned as the sixth dimension of this Vision. The objective is to enhance substantially the 4.1 per cent of GDP share for the blue economy by 2030. The State of Kerala with its coastline of almost 600 kms, needs to refocus on the Blue Economy, and profit from the thrust being given to it by the Government of India.

Therefore the development of a few important ports, logistics, infrastructure and shipping; enhancing manufacturing (especially new and emerging industries, marine services like boat repairs/building/scrapping), trade, mining from the sea, coastal tourism, offshore energy projects (including wind) and Coastal Economic Zones as per the Sagarmala Programme to reduce logistics cost and time for the movement of EXIM and domestic cargo are recommended.

A following recommendations relating to strategic, institutional, and sectoral factors, as well as industry engagement, are derived from the various analyses and based on comprehensive discussions.

4.10. Strategy

The Blue Economy strategy of India has three critical ingredients:

- Economic growth that is balanced by long-term development;
- Public-Private Partnership (PPP) that includes federal and state governments, as well as business and industry and civil society;
- A multidisciplinary approach that includes all key stakeholders.
- Strengthen Maritime Board to ease the Port Business and to ensure efficient regulation and facilitation of cargo movement.
- Expedite completion of Vizhinjam and Azhikkal Ports.
- Focus on bringing in more coastal shipping activities in already active minor ports.
- Expedite the completion of various projects under Sagarmala, especially those aimed at improving port connectivity, setting up coastal economic zones and establishing new ports.
- Gradual adoption of international standards for increasing the efficiency and ensure compatibility.
- Non-major ports in Kerala to act as coastal gateways.
- Minor/Non major ports need to be fully equipped with adequate draft, proposer con-

nectivity, modern material handling equipment, storage facilities and security system.

4.10.2 Institutional

- In order to achieve the desired plan, the government may require a full-fledged Mechanism on Blue Economy in the medium term.
- Create a new Blue Economy Policy Unit for external discussion and cooperation projects, with the Ministry of External Affairs as a possible location.
- To give robust policy prescriptions, a national Blue Economy accounting system should be built to get a holistic understanding and value of all industries.

4.10.3 Sectoral

- Conduct in-depth research on the Blue Economy's sub-sectors, such as the marine leisure industry, the role of Industry 4.0 technologies, smart river management, marine biotechnology, offshore renewable energy, and fisheries-related industries.
- Work with IITs and other institutions to promote innovation in the Blue Economy.
- Investigate and popularise the concept of Green and Blue Bonds.
- Encourage research in marine biotechnology, particularly marine metabolites
- Launch pilot projects to introduce and promote ecosystem-based marine spatial planning, which could eventually be expanded to larger ocean areas
- Take proactive measures to reduce marine litter, which also provides business opportunities.

4.11 Green Ports

The government should take up green port initiatives to improve the environmental performance of major ports. Green port enterprises include the acquisition of environmental pollution monitoring equipment, the acquisition of dust suppression systems, the installation of wastewater / wastewater treatment plants, the installation of waste disposal systems for ports and vessels, and the development and installation of coastal landfills. Plans to generate energy from renewable energy sources provide ships with shore power, create oil spill response (Tier-1) capabilities at all ports, take steps to improve port water quality, and incorporate sustainable practices in terminal design and development, operation, increasing green cover in the port area etc.

Various ports handle chemicals and hazardous materials in accordance with the guidelines of the Petroleum and Explosives Safety Organization (PESO) and the International Maritime Dangerous Goods (IMDG) codes.

4.12 Port led industrial Development

Port Led Industrialization has been one of the key development areas under various plans and programs including the Sagarmala Programme. It is to modernise the ports and to integrate them with special economic zones (SEZs) and also the development of Coastal Economic Zones (CEZs), Coastal Economic Units (CEUs). It also aims at the development of port-proximate industrial capacities near the coast, Port-Linked Industrial & Maritime Clusters and Smart Industrial Port Cities port-based smart cities, industrial parks, warehouses, logistics parks and Transport corridors.

An integrated and comprehensive plan for port-led industrialisation has been developed, which combines the growth potential of port-linked industries with the competitive location for each industry. These locations have also been mapped to the relevant major and non-major ports in the region which can most optimally facilitate the movement of cargo from the industrial locations. Reduction in overall logistics cost has been the overarching rationale for shortlisting industries and locations for port-led industrialisation.

Focus on developing and implementing port led industrial development projects in upcoming Vizhinjam and Azhikkal major ports and other operational ports. This land should be allotted as per the policy guidelines for land management through major ports. Simplify the procedures for allotment of land from time to time.

4.13 Development Policies

Hinterland development to be given priority as the hinterland-port connectivity remains crucial for the growth of ports. Operational efficiency of ports is a critical component which needs to be taken into account while preparing plan for the port sector. Natural advantage in terms of depth at certain ports like Vizhinjam to be properly utilized to reap maximum benefit. Area specific development of ports to be considered. Alleppey port may be suitable not for cargo but for the promotion of tourism industry. There is a need to use PPP model for the comprehensive development of maritime infrastructure in the State.

In order to make the port system more user-friendly and transparent, comprehensive port costs will be assessed based on the gross register tonnage (GRT) of the vessel and the size of empty and loaded containers, respectively. This will be taken into consideration when the changes are considered.

Only a few ports, chosen based on their cargo potential and may be developed in conjunction with private investors partnership. In order to accomplish this, a preliminary appraisal of the resources, notably unencumbered land and access to a port, is critical in order to attract private investors.

As a result of the foregoing, it may be prudent to develop a Port Policy document for the planned development of the ports in Kerala, taking into consideration the most recent developments in the maritime sector, including the development of Deepwater Ports at Vizhinjam and Azhikkal, as well as road developments in the State, with an emphasis on maximising the utilisation of existing facilities with necessary adaptations, modernization, and administrative & operational reforms, and only undertaking projects that are absolutely necessary.

Reducing Pollution: As ports generate carbon dioxide and a variety of other pollutants as a result of cargo handling equipment, associated facilities, and berthing boats, implementing and disseminating environmentally friendly rules in ports has become a top priority.

CHAPTER 5 CONCLUSION

Despite the efforts of the last five-year plan, the port sector still has many issues and bottlenecks. Investment on ports being massive, investment on multiple ports simultaneously would be unaffordable for the state. Since our ports are now not very attractive for private investments, we must make them competitive and attractive for trade and industry. Focus is needed on the development of Kollam, Azhikkal, Vizhinjam and Beypore ports, rather than spreading resources too thin on other non-active ports of the State: i.e., focusing on fewer viable ports rather than spreading the State's resources too thin on too many ports close together with limited hinterlands, (especially considering that the State has a relatively narrow stretch between the sea and the Western Ghats).

The renaming of the Working Group as 'Ports & Blue Economy' is recommended in the backdrop of the announcement of Blue Economy policy by the Government of India. As the "blue economy" is adopted as one of the ten core dimensions for national growth, Kerala as a coastal State may do so too.

The critical issues that impede growth of the port sector include inadequate port related infrastructure (berth facilities, cargo handling equipment, etc.), fiscal issues, and operational issues. There must be a Cost Benefit Analysis, prior to proceeding with the development plans of any port. The economies of scale and PPP resources need to be taken into account for ports and their infrastructure investments. The current last mile and first mile issues, delays and costs need to be addressed if cargo is to be attracted away from roads. Kerala Maritime Board in Kerala is limited merely to the Port Department, though in other States it is an umbrella body of various departments for maritime, water transport activities etc.

Hinterland development is crucial to justify public investment in ports. Port-linked industrial, maritime clusters and smart industrial port cities and industrial corridors may be focused upon for generating employment coined along with economic development. Inter-sectoral projects and schemes to be planned in coordination with departments and promotional agencies in Industry, Tourism, Power, Roads, Fisheries etc.

APPENDIX-1

PROCEEDINGS OF THE MEMBER SECRETARY, STATE PLANNING BOARD

(Present: Shri. Teeka Ram Meena IAS)

Sub: - Formulation of Fourteenth Five Year Plan (2022-27) – Constitution of Working Group on Port, Lighthouses, and Coastal Shipping- reg.

Read: 1. Note No. 297/2021/PCD/SPB dated: 27/08/2021

2. Guidelines on Working Groups.

ORDER No.951/2021/I&I/SPB/ (RO3) Dated: 13/9/2021

As part of the formulation of Fourteenth Five Year Plan, it has been decided to constitute various Working Group under the priority sectors. Accordingly, the Working Group on **Port, Lighthouses and Coastal Shipping** is here by constituted with the following members. The Working Group shall also take into consideration the guidelines read 2nd above in fulfilling the tasks outlined in the ToR for the Group.

Co-Chairpersons

1. Shri. Tinku Biswal IAS, Secretary to Govt, Port Department, Govt. Secretariat, secy.port@kerala.gov.in, 9447713061
2. Shri. L. Radhakrishnan IAS, Principal Secretary (Rtd.) Govt. of Kerala & Former Chairman, JNPT, Mumbai, , email: radlux@rediffmail.com, Mob:9497714010.

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1. Shri. H.Dineshan IAS, Director, Kerala Maritime Board ceo.kmb2020@gmail.com, 9446049241.
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Co-Convener

Co-Convenor

Shri G.T Shibu, Assistant Director, Transport Sector, Industry and Infrastructure Division,
State Planning Board, email:gtshibura@gmail.com, Mob:9446024936.

Terms of Reference

1. To suggest a set of innovative programmes and projects that can be undertaken during the 14th Plan period in the port, Light Houses and Coastal Shipping sector.

Terms of Reference (General)

1. The non-official members (and invitees) of the Working Group will be entitled to travelling allowances as per existing government norms. The Class I Officers of GoI will be entitled to travelling allowances as per rules if reimbursement is not allowed from Departments.
2. The expenditure towards TA, DA and Honorarium will be met from the following Head of Account of the State Planning Board “3451-00-101-93”- Preparation of Plans and Conduct of Surveys and Studies.

Sd/-

Member Secretary

To

Shri V Namasivayam, Member

Copy to

PS to VC

PA to MS

CA to Member (Shri V Namasivayam)

Sr. A.O, SPB

The Accountant General, Kerala

Finance Officer, SPB

Publication Officer, SPB

Sub Treasury, Vellayambalam

Accounts Section

File/Stock File

Forwarded By Order

Sd\-

Chief, Industry & Infrastructure Division