I. Existing EXIM Logistic Infrastructure in the region

1. Vallarpadam International Container Transhipment Terminal

Vallarpadam ICTT is a container trans-shipment facility which is part of the Kochi Port. It is the first and the only one trans-shipment port in India and operates in a special economic zone. The terminal makes Kochi a key centre in the shipping world reducing India's dependence on foreign ports to handle transshipment.

The terminal was envisaged to be constructed in following three phases.

(i) In the **first phase** there will be 600 m Quay length and a draft of more than 15 m,

when the terminal may handle 1 million TEU containers annually by the end of 2012.

- (ii) In the second phase the capacity will be enhanced to 3 million TEU's by the end of 2014.
- (iii) In the third phase the terminal may handle even up to 5.5 million TEU's.



The first phase of the terminal was commissioned on 11th February 2011.

Strategically located on the main east-west global shipping lines and offering draft of about 16 m, Cochin is destined to develop as the premier gateway to southern India and also offered an alternative to Sri Lanka and Singapore for containers being transshipped for the Indian market.

Connectivity to Vallarpadam Port

For smooth evacuation of containers from the port, there is dedicated rail siding and road. In addition to above RO-RO facilities is developed at Bolghaty and Wellingdon island, which is being operated by Lots Shipping, where trucks drive off the Ro Ro vessel and moves to ICTT. This saves about 40 kms of road transport through Kochi city.

2. Inland Container depots/Container Freight Station

There are seven ICDs/ CFSs in and around Kochi which are functional and four more are under implementation. The list of ICDs/CFSs is provided hereunder:-

S.No	Name of ICD/CFS	Place	Year of Operation	Status
1	Sea Tech Services Ltd.	Kochi	1994	F
2	Asian Terminals	Willington Island	1995	F
3	Pace CFS Private Ltd.	Aroor	1997	F
4	Kerala State Warehousing Corporation	Kochi	1998	F
5	Kottayam Port & Container Terminal Service Pvt. Ltd.	Kottyam	2010	F
6	Container Corporation of India Ltd.	Kochi	2006	F
7	Falcon Infrastructures Ltd	Kalamassery	2007	F
8	Confrate Cargo Services Pvt.Ltd	Kochi		UI
9	Transglobal Inland Container Services Pvt.ltd.Kochi	Mathilakam		UI
10	Kerala State Industrial Enterprises Ltd.	Eloor		UI
11	Central Warehousing Corporation	Kannur		UI

F- Functional

UI- Under implementation

II. Present Modal Share

Currently the movement of cargo within the Kerala hinterland is by truck except in Champakara and Udyogamandalam canals, where certain bulk cargoes are transported by barges.

III. Terminal configuration and facilities

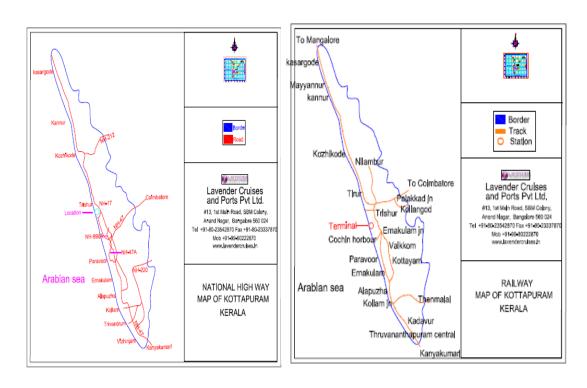
#	Name of the	Area (in	Facilities available at each terminals	
	Terminal	Hectare)		
1	Kottapuram	0.58	20 v DCC Lv	
2	Aluva	1.33	30 m RCC Jetty300 sqm covered warehouse	
3	Maradu	2.02	Open storage	
4	Vaikkom	0.51	18 MT mobile hydraulic crane3 MT capacity forklift	
5	Thanneermukkom	0.97	3 Phase Power Supply	
6	Thrikunapuzha	0.50	Drinking Water SupplyBalance open space may be used for	
7	Kayamkulam	1.63	container storage or for other value added	
8	Kollam	0.90	services for cargo and passenger facilitation	
9	Alleppey	2.26	Under construction. Likely to be completed	
			by December'2012.	

IV. Catchment Area and Cargo Potential

1. KOTTAPURAM TERMINAL

1.1 CATCHMENT AREA AND CONNECTIVITY OF THE TERMINAL

Kottapuram terminal may serve the areas of North Kerala like Thrissur, Calicut, Malappuram and Palakkad which seek access to the waterways. Thrissur and Calicut district get access to NW3 from this terminal. The road map and nearest railway head of the terminal is provided hereunder:-



1.2 PSU'S IN THE NORTH KERALA DISTRICT

Keltron Electro Ceramics Limited Malappuram Dist	Malabar Cement Ltd Palakkad dist.
Steel & Industires Forgings Ltd Thrissur	 Steel Complex Limited Kozhikode
Trichur Co-operative Spinning Mills Ltd Trichu	 The Metal Industries Limited Shoranur-679122
 Malappuram Co-operative Spinning Mills Ltd, Malappuram 	 Steel Industries Kerala Limited Thrissur
Sitaram Textiles Ltd., Thrissur	 The Cannannore Co-operative Spinning Mills Ltd., Kannur
Kerala Clays & Ceramics Products Ltd., Kannur	Keltron Crystals Ltd, Kannur
Kerala State handloom Development Coprporation Limited, Kannur	Keltron Component Complex Ltd., Kannur Kerala

1.3 INDUSTRIES IN CALICUT

Kozhikode district represents one of the industrially advanced areas of the state, with many small scale industries flourishing from early days some of the important large and medium scale industries are:-

- Textiles rayons,
- Grade pulp,
- Soap,
- Cosmetics,
- Oil,

- Wheat flour,
- Steel products,
- Tiles,
- Sea food processing,
- Allopathic medicines etc.

According to the latest statistics available, there are 16 large and medium units and 7709 (position as on 1993-94) SSI units. Of the 7709 SSI units, 843 are agro based, 204 building material –based and 2794 miscellaneous. The 16 large and medium scale industrial units in the district are:-

Grasim Industries Ltd; pulp Division Mavoor	Malabar Spinning & Weaving co, Ltd: Thiruvannur Nada.
 Common wealth weaving Factory. 	 Hindustan Leaver Ltd; Big bazaar Kozhikode.
Keltron T.V Units, Nandi Bazar Koyilandy.	The common wealth Trust (India) Ltd Puthiyara.
The common wealth Weaving factory Beach, Kozhikode.	The common wealth tile Factory, Feroke.
Southern Gas Ltd Cheruvannur.	The Kerala State coir corporation Beypore.
 Malabar Organic Ltd, Moodadi ,Koyilandy 	 Uniroyal Marine Exports Ltd Vengalam, (po)Kozhikode.
Baby Marine Exports Ltd ,west Hill.	Malabar Crump Rubber Factory Kuppayakode Kodencherry.
Poilakada Fisheries, West Hill Kozhikode.	Charupara Bricks & metals, thottumukkam, Kodiyathur, Kozhikode

The timber industry has great influence on the economy of this district. A feature of this industry is the concentration of units in and around Kallai. A large number of saw mill are located here. The finished timber goods are marketed locally.

As a corollary to the establishment of saw mills, furniture making has also sprung up in the district. There are 1031 registered forest based industrial units. All these units are concentrated at Kallai, Cheruvannur and Feroke area.

Another major industry is the tile industry. The first tile factory is in Puthjiyara, Kozhikode. The tile factories are mostly concentrated at Feroke-Cheruvannur area,

which is rich in quality clay deposits. The tiles from Kozhikode are famous all over the country and command an export market. There has also been diversification in this industry with the production of ceramic pottery & crockery, stone ware pipes and insulation materials.

Among other important industries mention are textiles, plywoods, splints and veneers, coir, printing and publishing, general engineering, automobiles and oil. The state Government is running an industrial estate with an area of 12.43 acres at west hill. The industrial estate started in 1962 and now has 52 units. The products manufactured are rubber based items, paints and varnishes, engineering goods, plastics, bakery, steel fabrication works, paper bags etc.

The district has ten mini industries estates, set up in ten panchayats, namely Peruvayal, Kunnamangalam, Kunnummal, Naduvannur, Chathamangalam, Payyoil, Balusseri, Unnikulam, Kadalundi and Perambra. There are 118 industrial cooperative societies in the districts.

1.4 Coir Industries in Calicut

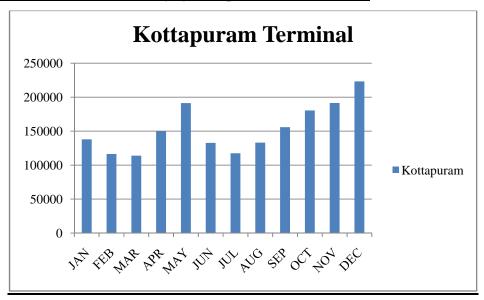
- A. Al Basheer, Haji P. I. Ahmed koya & Co, Hamsa Koya & Co,
- B. G & R Kerala heritage Products-Irinjalakuda, Thrissur

1.5 OTHER CARGO

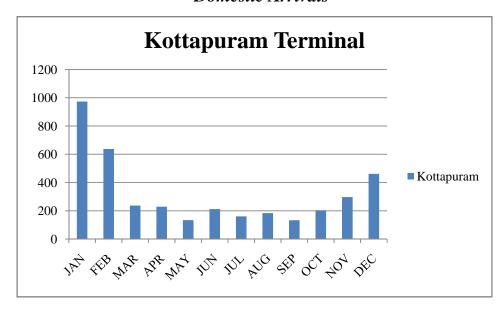
The dredged clay from Kochi port has been seen to be good for making bricks. The brick kilns are located in Thrissur area. Use of inland waterways to move the clay upto Kottapuram and further by truck is a good proposition. However, in current scenario, it is being moved through truck from Kochi or Eloor to Thrissur.

1.6 TOURISM ARRIVAL

The tourism arrivals in vicinity of Kottapuram IWAI terminal



Domestic Arrivals



Foreign Arrivals

2. ALUVA TERMINAL

2.1 CATCHMENT AREA

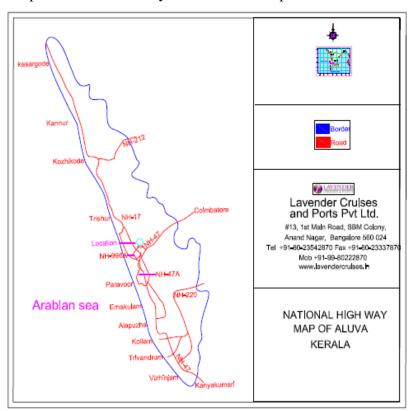
This is closer to the airport and located on Udyogamandalam canal which is an industrial area with FACT and many other chemical industries. In addition to above around 40,000 MT of foodgrains go from Wellingdon island FCI godown to Angamali every year.

2.2 PSU'S IN THE REGION:

• Forest Industries (Travancore) Limited, Aluva

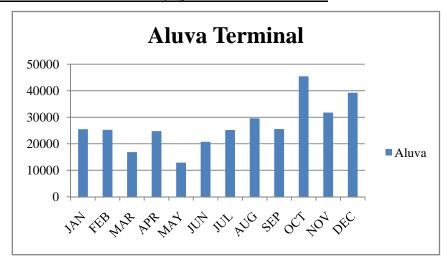
2.3 ROAD CONNECTIVITY TO THE TERMINAL

The map of road connectivity to the terminal is provided hereunder:-

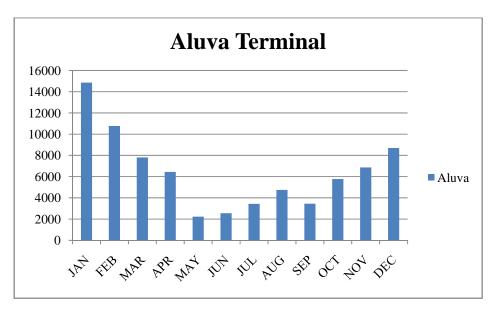


2.4 TOURISM ARRIVAL

The tourism arrivals in vicinity of Aluva IWAI terminal



Domestic Arrival

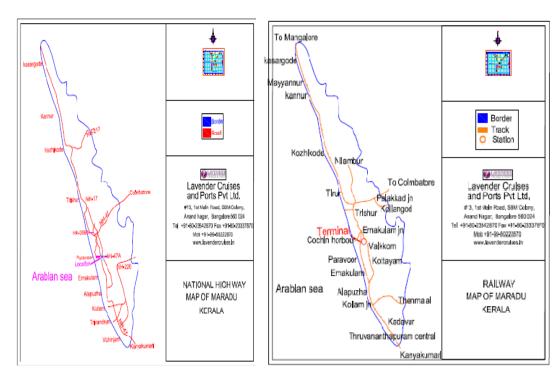


Foreign Arrival

3. MARADU TERMINAL

3.1 CATCHMENT AREA

BPCL and Kakanadu SEZ are located on navigable Champakara canal upstream of this terminal. The Aroor fish processing industry is connected by highway though not very convenient. The terminal is close to Ernakulam railway station and is very near to National waterway no. 47. The road map and nearest railway head from the terminal is depicted below in a map:-



3.2 Industries in Cochin

The major industries in the immediate catchment of this terminal are provided hereunder:-

Kerala Electrical & Allied Engg.	The Travancore-Cochin
Co. Ltd, Cochin	Chemicals Ltd,Cochin
Traco Cable Company Ltd	Transformers & Electrical
Cochin	Kerala Ltd., Cochin
Kerala State Bamboo Corporation	
Ltd., Ernakulam, Dist	

Cochin is home to many large and medium scale industries making it the commercial capital of Kerala.

A. Coir Industries in Cochin

Techno exports,	T S Abdur Rahman & Co,
 Suresh Sejpal & Co, 	 Regal exports-Ernakulam dist,
Pal Fibre & Palms trading co,	Indian Emporium
 Veejay exports, 	

B. Cochin Shipyard Limited

Cochin Shipyard is one of the leading ship building and ship repair yards in the country. It is in the top 10 public sector undertakings of the Indian government and a builder of the largest ships for both the merchant navy and the Indian Naval Services. Cochin Shipyard is involved in building/repairing tankers, bulk carriers, tugs, patrol vehicles, passenger vessels and docking pontoons.

C. Kochi Refineries Limited

Kochi Refineries Limited (formerly known as Cochin Refineries Limited) is a petroleum refining company with Bharat Petroleum Corporation Limited (BPCL) as the majority shareholder. In addition to producing petrol, the company also makes diesel, kerosene, liquefied petroleum gas (LPG), furnace oil, aviation turbine fuel, and bitumen.

D. Fertilizers and Chemicals Travancore Limited

Fertilizers and Chemicals Travancore Limited (FACT) is India's first large scale fertilizer plant. Set up in 1943 as a private enterprise, the Govenment of India is the major shareholder now. From its original business of manufacturing and distributing fertilizers, FACT has now diversified into engineering consultancy and equipment manufacturing as well. The detailed traffic which is currently moved through waterways is provided in next section.

E. Fishing

With a vast expanse of sea on one side and an all-weather port it goes

without saying that fishing and seafood export is one of the major industries in and around Cochin.

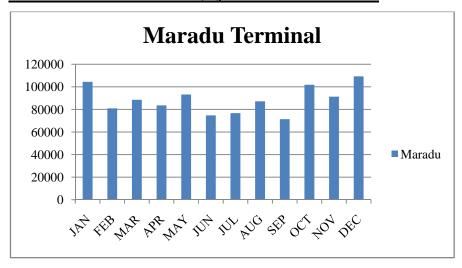
F. Other industries

Cochin is also home to many other large to small-scale industries including Indian

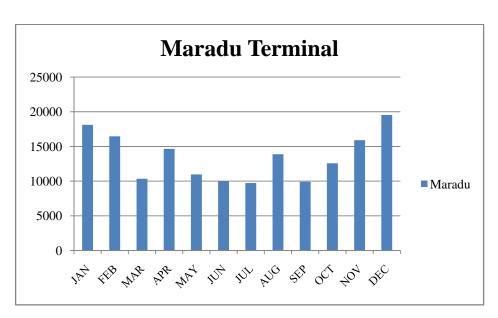
 Rare Earths, 	 Hindustan Machine Tools,
 Premier Tyres, 	 Ogale Glass Works,
Carborandum Universal,	Hindustan Insecticides,
• Forest Industries of Travancore,	Travancore Cochin Chemicals,
 Asoka Textiles, 	 Indian Aluminium Company,
Cominco Binani Zinc,	Periyar Chemicals,
Standard Potteries,	 Kerala Agro Machinery Corporation,
Modern Bakeries,	 Kerala Electricals and Allied Engineering Company (Mamala),
• Traco Cable Company (Irimpanam),	• Transformers and Electricals (Angamali),
• Travancore Rayons (Perumbavoor)	• Periyar Cables (Karukutty).

3.3 TOURISM ARRIVAL

The tourism arrivals in vicinity of Maradu IWAI terminal



Domestic Arrival



Foreign Arrival

3.4 FACT

FACT is a sector by itself since; it is the largest user of the inland waterways.

A. BENZENE

The movement of Benzene (density 0.8 MT/cbm) is 150 MT per day from Wellington Island to FACT Petrochemical Division. Facility to load barge exists at Wellington Island with HHA. Other suppliers are Ganesh Benzo, Konkan Tanks, Ruchi Soya who supply by tanker trucks. Facility to move by barge must be created at both ends.

B. AMMONIA

Currently 500 MT per day of Ammonia (density 0.58 MT/ cbm) moves between units of FACT by road. Ammonia moves from Petrochemical Division to Ambalamedu in Champakara, Periyar. Facility to unload and store is available.

C. PHOSPHORIC ACID

Currently it moves by barge and road. About 1/3 rd moves from Wellington Island to FACT Udyogamandalam barge via Vanapuzha canal.

About 2/3rd moves from Island to Cochin FACT Ambalamugal barge via Chitrapuzha canal.

D. FURNACE OIL

Furnace oil moves from BPCL jetty to FACT terminal. Furnace oil is also distributed from BPCL to other consumers in southern part of the state.

3.5 POTENTIAL FOR RO RO FERRY FROM MARADU TO

KOTTAPURAM

There is potential to develop Ro-RO facilities between Maradu and Kottapuram especially for movement of POL trucks between Ambalamugal (near Maradu Terminal) and Kottapuram to further proceed to north Kerala by road.

Truck movement is stopped by Kochi police within Kochi city limits between 8AM and 8PM on all days. This limits the window for truck movement to the 12 hours at night. Waterway offers an opportunity to ply Ro-Ro ferry between Maradu and Kottapuram to facilitate the movement between North to South Kerala.

4. VAIKKOM TERMINAL

4.1 CATCHMENT AREA

This terminal serves the eastern part of the Vembanad lake. However, Kottayam Port is also located conveniently towards the south and thus the hinterland would get divided between these two locations. The southern side of Ernakulam is closer to vaikom while maradu is closer to the central areas.



4.2 PSU'S IN THE DISTRICT

• The Travancore Cements Ltd, Kottayam

4.3 Coir Industries in Kottayam

• J X exporting Company Pvt Ltd, P.S John & Co,

4.4 RUBBER BASED PRODUCTS

The rubber based products are mainly exported from Kottayam. Kottayam has an ICD as described in earlier sections. The containers are sealed and transported to ICTT, Vallarpadam by road trucks. This is a prospective cargo to be moved through waterways through the feeder canals connecting national waterways. Import through Kochi Port is 7816 tons for the financial year 2009-2010

5. THANNEERMUKKOM AND ALAPPUZHA TERMINAL

5.1 CATCHMENT AREA

The catchment area of these terminals house many coir and coir product manufacturers.

5.2 PSU'S IN THE REGION:

- Kerala State Drugs & Pharmaceuticals Ltd, Alappuzha
- Autokast Limited, SN Puram ,Alappuzha

5.3 Major Cargo from the region

The economy of the district is predominantly based on agriculture and marine products. Though the district is industrially backward, some traditional industries based on coir and coir products, marine products, handlooms, different types of handicrafts, toddy tapping, etc. have been dominating the scene from the very early times. The district is known as the traditional home of coir industry in Kerala.

A. Coir

The easy availability of raw materials and existence of backwaters and canals suitable for the wetting of green husk and accessibility of transportation are the main factors for the development of this industry. Alappuzha is the major production centre of coir and coir products in the

State. There are about four thousand production units including a few big factories for coir in the district. There are at present 15 mechanized looms too. Attempts are being made for the revival and revitalization of the industry through co-operative societies. There are 41 cooperative societies in the coir sector. There is a central coir marketing society for the export of the produce of primary societies. Around 700 TEUs per month are moving out of this region for export.

The other important commodities manufactured in these areas are copra, coconut oil, glass, mats, marine food and matches.

Coir Companies in Alappuzha

Aspinwall & Co.	 Bismilla Coir Mart & Exports,
Bon Flora India,	 Brothers Coir Mills Pvt Ltd,
Chandra Coir mills Pvt Ltd	 Charankattu Coir manufacturing Co.
Coco Palm Products-Vazhichery,	 Cocomat International,
 Coir Floor Furnishing Company, 	• Coirflex,
Coirtex India,	• D.C.Mills,
Devaswamchira Coir Fabrics,	 East West Exports,
Eastern Products,	 Eastern Rug Mills,
Fashin Coir Mills,	• Fibre World,
• Floor Décor,	 Form Matting India Ltd,
Free India Coir Manufacturing Co	• G P Coir mart,
Gemini exports,	 General Supplies Industry,
Good Morning Coir Mills,	 Goodwill Coir manufacturing co.
Gopal Coir Factory,	 Gopalakrishna Coir Works,
Gover Horowitz Pvt. Ltd,	 Gunbow trading company,
Hidustan Coir,	 Home furnishings,
Hot mats,	 Imperial coir industries,
 imperial coir yarn trading co, 	 Indian Coir decorators,
 Indian Coir manufacturing co, 	 Indian coir yarn textiles,
Indo Foreign coir corporation,	 International trading corporation,
J R Export industries,	 Jayasree Coir mills,
Jos Coir mills,	 Jyothi coir mills pvt ltd,
 Kanti Floor Furnishers, 	 Keral coir mills,
Kerala Balers Ltd.,	 Kerala Coir Mills.,
Madhavan Inc.,	 Mankott Coir Industries,
Marketing Federation Ltd.	 Mathew & Sons,
Mathew C,	 Mathew Joseph & company.,
Mattings Co. Operative Society,	 Mayithara Trading Corporation,
N.C. John & sons Limited	 Naranji Coir Industrials,

National Coir Mills.,	Palm Fibre
Pooppally Coir Mills,	Pooppally Exports,
Pulikkal Coir Mills,	Quality Coir Products.
Radha Coir Mills,	 Rajan Brothers Coir Works,
Rathina Coir Works,	 Reveendra Coir Works,
 Rural Coir Industries, 	 S.B. Coir Company,
 Seven Seas Trading Company., 	 Sijo Enterprises,
South Indian Coir Mills,	Southern Coir Mills,
The Alleppey Company Ltd,	• The Kerala State Co. Op Coir,
The Kerala State Coir Corp.Ltd,	 The Koncherry Coir Factories,
The Mercantile Syndicate,	 The Padma Mourzouks Company,
• The Shertallai Coir Mats &,	• The Taj Coir Mills,
 The United Coir Factories, 	 Thomas Varghese & Company.,
TMK Overseas Ltd,	 Transoceanic Trading Corporation.,
• Travancore Balers.,	 Travancore Exports,
• Travancore Ltd. & Geo-Tech Ltd.,	 Travancore Mats & Mattings Co
Vaikath Brothers,	 Variamparambil Factories.,
Wallace Langford And Associates,	 Western India Fibre Company,
William Goodacre &	• Sons India Ltd,

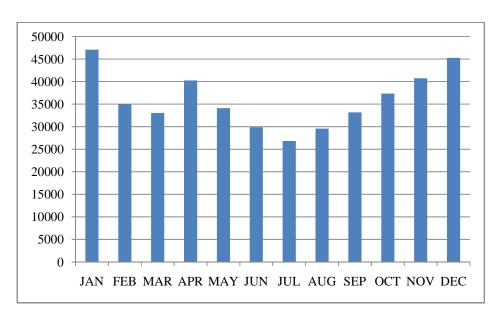
B. Fisheries

Alappuzha district occupies a very important position in the fisheries map of Kerala. Its western boundary is the Arabian sea having rich marine resources. More than 20 per cent of the total area of the district is waterlogged.

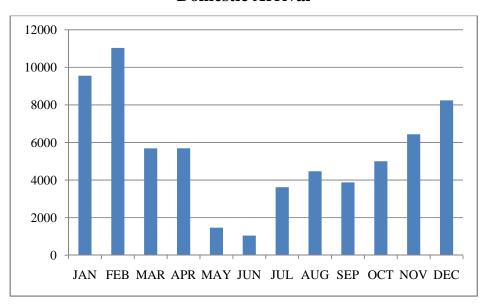
The total population of fishermen in the district is 136,300. The sea farming fisherman population is 87,027 and the inland fishermen population is 49,273. Of these not less than 40 per cent are active fishermen and of the remaining more than 60 per cent are either directly or indirectly engaged in fishing operation. The fishing season in the marine sector is from October to May and in the inland sector it is throughout the year.

5.4 TOURISM ARRIVAL

The toursm arrivals in vicinity of IWAI terminals



Domestic Arrival



Foreign Arrival

6. THRIKUNAPUZHA, KAYAMKULAM & KOLLAM TERMINAL

6.1 CATCHMENT AREA

These terminals serve the southern Kerala interest in connecting to inland waterways. The seafood industries in Quilon, the mineral extraction industries, the cashew processing industries of Quilon, right upto Trivandrum, all of these form the hinterland for these terminals.



6.2 PSU'S IN THE REGION

- Alleppey Co-operative Spinning Mills (Ltd), Kayamkulam
- Handicrafts Development Corporation of Kerala Ltd., Thiruvananthapuram
- Kerala Automobile Limited, Thiruvananthapuram,
- Kerala State Electronics Development Corporation Limited, Thiruvananthapuram
- Kerala State Palmyrah Products Development and workers' Welfare Corporation Limited.(KELPALM),Trivandrum
- Kerala State Textile Corporation Ltd, Thiruvananthapuram
- Kollam Co-operative Spinning Mills Ltd, Kollam
- The Kerala Ceramics Ltd, Kollam
- The Kerala Minerals and Metals Limited, Kollam
- The Kerala State handloom Weavers' Co-Operative Society Ltd.,
 Thiruvananthapuram
- Travancore Titanium Products Ltd, Thiruvananthapuram
- United Electrical Industires Ltd, Kollam

6.3 INDUSTRIES IN KOLLAM

A. CASHEW, COIR, CLAY, WOOD, HANDLOOM

Cashew processing and coir production are major industrial output of the district.

Handloom industry, clay and wood based industries also contribute to the industrial advancement of the region. Cashew processing is a major industrial activity in the district.

The Kerala State Cashew Development Corporation (KSCDC) is the largest processor of cashew nut in the world. At present, it has 34 factories. K.S.C.D.C. provides employment to more than 26,000 workers.

Cashew

One of the important trades in this area is import of raw cashew from African countries, processing and re export to various destinations. This cashew movement does not require refrigeration and the exportable finished product is broadly 25 to 30% of the import weight. The import of raw cashew is through Kochi port and then moved to Quilon. After processing, export is happening through Tuticorin and Kochi. The processing and re export is very seasonal and happens during May to July. As per market estimates around 10000 TEUs are imported during the month of May to July and around 5000 TEUs are imported during October to December.

The export of processed cashew for every month is 500 TEUs from Kollam to ICTT

B. Fisheries

One of the major fish processing centres is located in Kollam from where the products move to both domestic and international market. The export from this region is moved through Chennai, Tuticorin and Cochin port.

C. Other Industries

There are 17 large, and one medium scale industries in the district, of which, two are Central Government undertakings.

• Indian Rare Earths, Chavara

- Parvathi Mills Ltd., Kollam.
- Kerala Ceramics Ltd., Kundara,
- Travancore Plywood Industries, Punalur,
- Kerala Electrical and Allied Engineering Company, Kundara,
- Kerala Premo Pipe factory Chavara,
- Kerala Minerals and Metals Limited, Chavara,
- United Electrical Industries Kollam
- Kerala Agro-Fuit Products, Punalur

About 1963 SSI units have been registered in the district .Other major industries in private / cooperative sector are

- Aluminium Industries Ltd., Kundara,
- Thomas Stephen & Co., Kollam, Floorco Paravur,
- Cooperative Spinning Mill, Chathannur and
- Punalur Paper Mills, Punalur.

6.4 KMML AND IRE

A. KMML

KMML daily requirements of raw materials are HCL from Travancore Cochin Chemicals Ltd, Furnace oil from M/s BPCL, and Petroleum coke from reliance Jamnagar, Petroleum coke for KMML comes from Gujarat by truck from Tuticorin to KMML factory. Chlorine comes from Travancore chemicals, Kochi. KMML export of minerals is 100 containers per month

KMML requires 30,000 mt of furnace oil per annum.



B. IRE

The NW3 channel is right behind IRE plant boundary wall, separated only by a 10 foot road. IRE exports ILMENITE by ships. The cargo is transported by trucks to Quilon harbor and then by barge to vessel. Barge takes 1month to load ship of 25 000 MT capacities.

In view long loading times and demurrage, IRE now sends its cargo to Kochi by trucks and then to vessel for export. In recent past there are no exports due to reduced production and higher domestic demand.

IRE is supplying its products to CMRL and to TTB (Travancore Titanium and to (DCW) Dharangadhara Chemical works.

The raw material requirement is comes from Vellanath Thuruthu in Karungapally taluk about 15 Kms away.

HCl acid comes from Travancore chemical. It may be noted that Acid truck is not allowed in Alapuzha during day. Furnace oil is procured from BPCL.

IRE is supplying its finished products:

- 60,000 MT/ pa to CMRL.
- 70,000 MT/pa to TTB Titanium Travancore
- 40,000 MT/ pa to Dharangadhara Chemical works (DCW) (TN).

6.5 CARGO FROM THE REGION

A. Reefer Cargo

Seafood is moved in REEFER container from Kollam to Kochi port. Some reefer containers are being shipped out through Tuticorin and Chennai.

B. Fertilizer

Fertilizer moves from FACT to southern districts of Kerala for distribution by road. Part of this comes from Kochi division and remaining from Udyogmandal division. These terminals could be act as consolidation and distribution point for the fertilizers.

C. Project and ODC cargo

NTPC in its 1st stage development, one piece of gas turbine of 80 MT was shipped by barge. A similar requirement may arise when 2nd stage development happens, the schedule is uncertain now.

ODC cargo has come earlier for Rajiv Gandhi combined cycle power plant. ODC cargo is expected for the Rajiv Gandhi combined cycle power plant, though quantity is very small. Such cargo is invariably imports, comes through Kochi port and the cargo shall be discharged at the project site itself.

D. Coconut and Palm oil

As per feedback from President of the coconut development board Mr. Rajakrishnan, the coconut oil mills in Kerala are shutting down and coconut oil is imported from Tamil Nadu. Palm oil which is not allowed to be imported in Kochi is imported in Mangalore and Tuticorin and is transported by trucks into Kerala.

These two commodities may shift to waterways for movement and distribution purpose.

E. Other cargoes

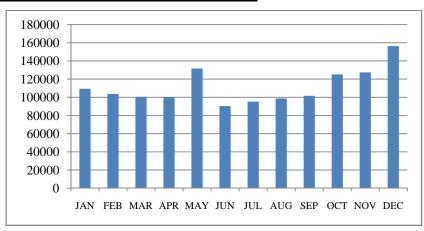
Glass products and newsprint from Trivandrum region. This is a potential market as the cargo comes from Trivandrum area to Kochi for sea transportation.

6.6 TOURISM ARRIVAL

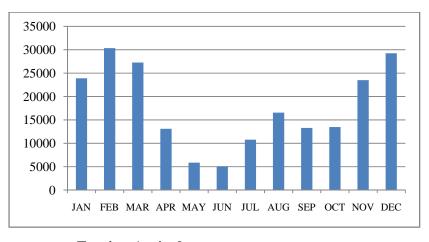
Most of the houseboats operate within the Vembanad lake and few canals adjacent to it. The circuit from Kochi to Vembanad and to Kayankulam is navigable though it has not been popularized.

There is a large potential for houseboats and cruiseboat operations in NW3, given its exquisite natural beauty. The terminals can be upgraded to encourage houseboats for a stopover.

The tourism arrivals in vicinity of IWAI terminals



Domestic Arrival



Foreign Arrival

V. Growth projection in NW3

The growth in NW3 shall be closely related to the growth of ICTT. The current transit hub for containers to India is in Colombo which adds to the transit time. Once Kochi has adequate draft and the large boxships start visiting Kochi, the transit hub will entirely shift to ICTT Kochi.

The ICTT projects a growth to 1.4 million TEUs by 2014. 35% of this cargo is estimated to be transshipment which shall not leave the ICTT except by another ship.

The remaining 65% of this capacity is the estimate of exim cargo, that needs to be transported from ICTT to hinterland and vice versa. This is approximately 1 million TEUs or 80000 TEUS a month.

To service the exim trade of this 80,000 TEU per month, or 2700 TEUs per day, enough connectivity is required for container movement from ICTT to hinterland and vice versa. In the long run, the percentage of transshipment cargo destined for other parts of the country and neighboring countries may grow to a larger share than cargo destined for Kerala and nearby hinterland where cargo is evaluated by road from ICTT.

This scale of cargo movement requires appropriate inventory of containers to provide seamless transit for the cargo. The empty container storage will be very expensive in locations where cargo is being handled. Hence the ideal strategy will be to reduce dwell time in such areas and move the empty containers to new storage areas which are easily accessible to ICTT and have lesser storage costs. The IWAI terminals at Maradu and Vaikom are ready candidates for this storage. There is no lockgate between ICTT and these terminals, and these terminals are located on the wider stretches of the west coast canal so even movement through large size barge is possible.

The consumption of diesel can be reasonably expected to increase at roughly the same pace as the growth of GDP, though corrected for emerging fuel efficient technologies and alternate viable renewable energy sources. The transportation requirements of this fuel will represent another growth segment for the IWAI.

The transportation of chemicals and flammables will only get more stringent with passage of time. This can result in the entire carriage of chemicals and petroleum, shifting to the waterways wherever waterways exist.

IRE was exporting ILMENITE through Quilon port, roughly 12000 to 15000 mt per vessel. The export of KMML is by containers, roughly 300 containers per annum.

Since this is an export market, once efficiency of the logistics chain has been set in place, the export performance of Indian firms can be expected to grow as per market demands.

Cruise potential: The growth in Kettuvellam in Vembanad lake started in 1995 and it is now almost saturated at about 700 boats. If given a new profile of river cruises in a new geography of NW3 between Alleppey or Chertala and Kollam, or another circuit between Kodungallur via Kochi back to Kodungallur, there is no reason why a similar growth curve cannot be accomplished, and much faster, given the states established clientele for houseboats, the advances in communication, and the ever growing domestic tourist crowd.

Other cargoes:

About 3200 MT of fertilizer moves from FACT to other southern states by road. Part of this comes from Kochi division i.e 2000 mt pd and about 1200 mt pd moves from Udyogamandalam division. Some of the fertilizer from FACT moving towards Quilon can be routed through waterways.

The fisheries factories export from Neendhakara is estimated at 45 containers per month as per a fish processing factory owner.

Bunker fuel transport

The bunker trade in Kochi is roughly 40,000 MT per annum. This can see an exponential growth very soon, if the states policies bear fruit. The VAT on bunker fuel has been reduced from 12.5% to 0.5%. This combined with pro active policies of BPCL will make Kochi a very competitive port in bunkering on par with Fujairah or Singapore. Singapore supplies 40 million MT per annum of bunkers and Fujairah supplies 13 million MT of bunkers. In the next five years the bunker supplies in Kochi can easily touch 1 million MT, the current fuel oil output of BPCL.

The average stem size may be in the region of 1000 MT and hence this kind of volumes will see a lot of shipping activity in Kochi waters and Vypeen which is the upcoming bunkering terminal. Considering vessels receiving bunkers also prefer to receive lubricating oils and provisions, there is a likelihood of such suppliers setting up

warehouses along the coastline abutting NW3 and increasing the traffic here. There likelihood of setting up customs bonded warehouse at Maradu that can cater to mult suppliers to shipping which receives its supplies offshore.	
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IV. Suggested Barge Size

The suggested barge size is with respect to the channel dimensions on the stretch on which it will operate:

(1) Udyogmandal Canal

Udyogmandal canal offers the maximum clearance of

Air Draft : 7.0 m Least Available Depth (LAD) : 2.0 m

There is no restriction on beam and length for normal shaped vessel of above parameters.

(2) Champakkara Canal

The vessel has to meet the LAD restrictions of 2.0 m, available horizontal clearance of 14.50 m and air draft of 4.2 m.

(3) West Coast Canal

(a) Kottapuram-Takazhi Jetty (near Alappuzha)

The vessel has to meet the LAD restrictions of 2.0 m, available horizontal clearance of 12 m and air draft of 4.20 m

(b) Takazhi Jetty-Kollam

Minimum Horizontal Clearance : 9 m

Minimum Vertical Clearance : 4.6 m (at Kovilthottam foot bridge)

Length of Lock gate : 39 m

The vessel is to be designed as per above parameters with LAD restriction of 2.0 m (Dredging work is currently under progress and expected to be completed by March 2013).

The suggested barge size based on the above navigational parameters is $38m \times 8.5m \times 1.8$ m