EXECUTIVE SUMMARY

for

CAPACITY AUGMENTATION OF EXISTING OPERATIONAL MARINE LIQUID TERMINAL (MLT) FROM 3 MMTPA TO 6 MMTPA AT KAMARAJAR PORT LIMITED, CHENNAI

by

KAMARAJAR PORT LIMITED

at

VILLAGE : PUZHUTHIVAKKAM

TALUK: PONNERI

DISTRICT: TIRUVALLUR

STATE: TAMIL NADU

ToR File No: 10/15/2024-IA.III dated: 06.09.2024

Baseline data Collection period: March to May 2024

Project Schedule: 7(e) "Ports,Harbours,Breakwaters Dredging" falls under Category A as per EIA Notification 2006 and its amendment

EIA Consultant & Laboratory

M/s. HUBERT ENVIRO CARE SYSTEMS (P) LTD

NABET/EIA/24-27/ RA-0335 valid upto 31.03.2027

NABL Certificate No: TC-12310 dated: 25.09.2023, Valid till 24/09/2025

Submitted to

TamilNadu Pollution Control Board, Gummindipoondi

(August 2025)

Executive Summary

1. Project Description

The purpose of this report is to obtain Environmental Clearance (EC) & CRZ Clearance for "***Capacity Augmentation of existing operational Marine Liquid Terminal (MLT) from 3 MMTPA TO 6 MMTPA at Kamarajar Port Limited, Chennai, Tamil Nadu***". The Kamarajar Port Limited (KPL) has initially obtained Environmental Clearance (EC) for their projects on 19.5.2006 for their projects viz. construction and operation of Marine Liquid Terminal of capacity 3 MMTPA. Ennore Tank Terminals Pvt Ltd (ETTPL) designed, constructed and operating the said Terminal on a 30 Years BOT basis at KPL. Recently customers evinced interest to discharge multiple products from one or more vessels simultaneously to improve overall turn around the time of the vessels and also intended to increase the throughput volumes through ETTPL to cater to the increased market demand. In order to facilitate this, ETTPL is planning to augment its throughput capacity from 3 MMTPA to 6 MMTPA. The project falls under CRZ III, CRZ III(NDZ), CRZ-IV(A) and the tank farm area falls under Non- CRZ area and attract the provisions of CRZ Notification, 2011.

Initially M/s Ennore Port Limited obtained the EC vide letter no.10-28/2005-IA.III dated 19.5.2006 by the Ministry of Environment & Forests for Expansion Proposals-development of Terminals for marine liquids, coal, Iron and containers in second phase and associated capital dredging at Ennore Port. The ETTPL has obtained Consent to Operate vide 2208242865923 dated 22/08/2022 and is valid upto 31.3.2027.

The purpose of this EIA study is to study the baseline environmental conditions of the area, assess the environmental impact of various E & P operations and to suggest mitigation measures to address the same.

The main methods proposed to be followed in the capacity augmentation in enhancing the throughput capacity of the MLT from 3 MMTPA to 6 MMTPA based on the detailed feasibility study are furnished below:

- Sweating of existing assets and facilities to yield additional throughput .
- In-Line berthing of one Medium Range (MR) and one Lower Range (LR) vessels for simultaneous discharge improving the vessel turnaround time and in turn the throughput capacity.
- Simultaneous discharge of 2 POL products namely MS and HSD through 2 separate dock lines namely 24" and 16" thereby POL vessel discharge time is reduced by 40%. This is done through pipeline modification at jetty and at common manifold to connect the second pipeline to the outside terminals like BPCL, HPCL & RIL.
- Convincing the Customers to bring larger size vessels with increased parcel size of POL products. This will reduce the idle time such as vessel berthing/un-berthing time, sampling and ullaging time and pre discharge testing time etc., thus effectively reducing the number of vessels of POL, thereby improving the jetty efficiency and throughput capacity.
- Convincing the POL customers like IOCL, BPCL, and HPCL to club their parcels in single larger size vessels whereby the overall non-working time gets reduced improving the efficiency and throughput.
- Out of the additional throughput of 3 MMTPA proposed in this proposal, 80% will be going to the terminals outside the port boundary (through captive pipelines of IPPL, HPCL,RIL and BPCL).

S.No	Details	Remarks
1	Modification of Common Manifold to facilitate simultaneous discharge to BPCL	Hooking up lines to 2 x 24" lines of BPCL
2	Modification of 16" dock line to make it suitable for receipt of motor spirit from vessels	Modifications at jetty, common manifold and at exchange pit
3	Modification of 8" SS Dock Line for in line berthing of chemical vessel with POL vessels	Extension of 8" SS Dock line to south side of the jetty for in-line berthing of 2 vessels

S.NO	Product Group	Existing Throughput Capacity in	Proposed Throughput Capacity in	After Expansion Throughput Capacity in

		MMTPA	MMTPA	MMTPA
1	LPG (Refrigerated Propane and Butane)	1.20	0.4	1.60
2	Petroleum, Oil, and Lubricants.(POL)Products	1.45	1.75	3.20
3	Black Oil	0.20	0.70	0.90
4	Chemicals and Petro Chemicals	0.15	0.15	0.30
Total		**3.0**	**3.0**	**6.0**

Project Proponent: During 2014, the Ennore Port Ltd. was officially renamed as Kamarajar Port Ltd., originally conceived as a satellite port to the Chennai Port, primarily to handle thermal coal to meet the requirement of Tamil Nadu Electricity Board (TNEB) and evolved as all cargo Major Port. The port was set-up under the Companies Act, keeping it outside the scope of the Tariff Authority for Major Ports, the tariff regulator for 11 of the 12 ports owned by the Indian government.

It's located near Chennai, a major industrial and commercial hub, providing easy access to shipping routes. The port is equipped to handle bulk cargo, including coal, iron ore and cement, making it vital for industries in the region. It has excellent road and rail connectivity, facilitating efficient transportation of goods to and from the port. The port has a large capacity for handling cargo and ongoing expansion plans to accommodate increasing trade volumes.

Port awarded the development of Marine Liquid Terminal to Ennore Tank Terminals Pvt. Ltd. (ETTPL), a subsidiary of IMC Limited, the largest independent Bulk Liquid Storage Company in India on BOT basis. IMC is in the business of port-based bulk liquid storage and international trading for the last seven decades.

Salient Features of the project:

Features	Description
Name of the Project	Capacity augmentation of existing operational Marine Liquid Terminal (MLT) From 3 MMTPA To 6 MMTPA at Kamarajar Port

	Limited, Chennai, Tamil Nadu.
Inter State Boundary	Nil within 15km radius from the project boundary
Nearest Railway station	Attipattu Railway station, 5.51km, WSW

Nearest Highway

Highways	Distance (~km)	Direction
SH-107(Minjur–Kattur–Thirupalaivanam Road)/ SH-104(Chennai-Pulicat Rd)	6.58	WNW
NH-16 (Chennai-Kolkata)	18.81	WSW

Nearest Airport

Airport	Distance (~km)	Direction
Chennai International Airport	34.59	SSW

Nearest city

City	Distance (~km)	Direction
Chennai	5	WSW

Nearest Port

Ports	Distance (~km)	Direction
Kamarajar Port (Ennore Port)	Site is within the port	
Adani Kattupalli Port	0.45	N
Chennai Port Authority	20	SE

Reserved Forest/ Protected Forest/Notified Wildlife Sanctuary/ Ecologically sensitive areas

Environmental Sensitive Areas	Dist(km)	Direction
Mangroves near Kattupalli	0.75	NNW
Mangroves near Ennore Port	0.75	W
Mangroves near Kattupalli	1.91	NNW
Mangroves near Attippattu	3.72	SSW
Mangroves near Sanganimedu	4.05	NNW
Mangroves near Ennur	5.72	SSW
Mangroves near Kalanji	6.08	N
Mangrove Swamp near Kattur	8.69	NW
Mangroves near Tangal	11.20	N

Water Bodies

Waterbodies		
Description	**Distance(km)**	**Direction**
Bay of Bengal	Site within the Bay of Bengal	
Buckingham Canal	0.26	W
Korttalaiyar/Kosisttalaiyar River	0.3	W
Lake near Uranamedu	3.97	WNW
Ennur Creek	4.25	S

	Tiruvellavayal Lake	4.68	WNW
	Arani River/Araniya Nadi	10.5	NW
	Perumbedu Lake	12.34	NW
	Lake near Nayar	13.9	W
	Pulicat Lake	15	N
Monuments	**Environmental Sensitive Areas**	**Distance(km)**	**Direction**
	Dutch Cemetery	14.23	N
Nearest Tourist Places	Nil within 15km radius		
Defence Installations	Nil		
Seismic Zone	Zone- III (least active) according to Seismic Map of India		

Environmental Sensitive Areas

This section details with the environmentally sensitive areas present within the project site and surrounding environs. It included national parks, state forest, essential habitats etc. The environmental sensitive areas covering an aerial distance of 15 km from the project boundary is given in the Table below.

<table>
<tr><th>S.No</th><th>Information/ Checklist confirmation</th><th>Name/ Identity</th><th>Aerial distance (within 15km) proposed project location boundary</th></tr>
<tr><td>1</td><td>Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related Value</td><td>Yes</td><td>
<table>
<tr><th colspan="3">Monuments</th></tr>
<tr><th></th><th>Dist(km)</th><th>Directions.</th></tr>
<tr><td>Dutch Cemetery</td><td>14.23</td><td>N</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests</td><td>Yes</td><td>
<table>
<tr><th>Environmental Sensitivity</th><th>Dist (km)</th><th>Direction</th></tr>
<tr><td>Bay of Bengal</td><td colspan="2">Site is within Bay of Bengal</td></tr>
<tr><td>Buckingham Canal</td><td>0.26</td><td>W</td></tr>
<tr><td>Korttalaiyar/Kosisttalaiyar River</td><td>0.30</td><td>W</td></tr>
<tr><td>Ennur Creek</td><td>4.25</td><td>S</td></tr>
<tr><td>Arani River/Araniya Nadi</td><td>10.50</td><td>NW</td></tr>
<tr><td>Pulicat Lake</td><td>15</td><td>N</td></tr>
<tr><th colspan="3">Mangroves</th></tr>
<tr><td>Mangroves near</td><td>0.75</td><td>NNW</td></tr>
<tr><td>Mangroves near Ennur</td><td>0.75</td><td>W</td></tr>
<tr><td>Mangroves near</td><td>1.91</td><td>NNW</td></tr>
<tr><td>Mangroves near Attippattu</td><td>3.72</td><td>SW</td></tr>
<tr><td>Mangroves near Sanganimedu</td><td>4.05</td><td>NNW</td></tr>
<tr><td>Mangroves near Ennur</td><td>5.72</td><td>SSW</td></tr>
<tr><td>Mangroves near Kalanji</td><td>6.08</td><td>N</td></tr>
<tr><td>Mangrove Swamp near Kattur</td><td>8.69</td><td>NW</td></tr>
<tr><td>Mangroves near Tangal</td><td>11.20</td><td>N</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting,</td><td>Yes</td><td>
<table>
<tr><th colspan="3">Mangroves</th></tr>
<tr><td>Mangroves near Kattupalli</td><td>0.75km</td><td>NNW</td></tr>
<tr><td>Mangroves near Ennur Port</td><td>0.75km</td><td>W</td></tr>
<tr><td>Mangroves near Kattupalli</td><td>1.91km</td><td>NNW</td></tr>
<tr><td>Mangroves near Attippattu</td><td>3.72km</td><td>SW</td></tr>
<tr><td>Mangroves near Sanganimedu</td><td>4.05km</td><td>NNW</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>foraging, resting, over wintering, migration</td><td></td><td><table>
<tr><td>Mangroves near Ennur</td><td>5.72km</td><td>SSW</td></tr>
<tr><td>Mangroves near Kalanji</td><td>6.08km</td><td>N</td></tr>
<tr><td>Mangrove Swamp near Kattur</td><td>8.69km</td><td>NW</td></tr>
<tr><td>Mangroves near Tangal</td><td>11.20km</td><td>N</td></tr>
</table></td></tr>
<tr><td>4</td><td>Inland, coastal, marine or underground waters</td><td>Yes</td><td><table>
<tr><th>Water Bodies</th><th>Dist(km)</th><th>Direc</th></tr>
<tr><td>Bay of Bengal</td><td colspan="2">Site is within Bay of</td></tr>
<tr><td>Buckingham Canal</td><td>0.26</td><td>W</td></tr>
<tr><td>Korttalaiyar/Kosisttalaiyar</td><td>0.30</td><td>W</td></tr>
<tr><td>Ennur Creek</td><td>4.25</td><td>S</td></tr>
<tr><td>Arani River/AraniyaNadi</td><td>10.50</td><td>NW</td></tr>
<tr><td>Pulicat Lake</td><td>15</td><td>N</td></tr>
</table></td></tr>
<tr><td>5</td><td>State, National boundaries</td><td>No</td><td>The project site is not falling over the State, National boundaries.</td></tr>
<tr><td>6</td><td>Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas</td><td>Yes</td><td><table>
<tr><th>Description</th><th>Distance(km)</th><th>Direction</th></tr>
<tr><td>SH-107 (Minjur–Kattur–Thirupalai-vanam Road)/SH-104(Chennai-Pulicat Rd)</td><td>6.58</td><td>WNW</td></tr>
<tr><td>NH-16 (Chennai-Kolkata)</td><td>18.81</td><td>WSW</td></tr>
<tr><td>Nearest Railway Station-Attipattu</td><td>5.51</td><td>WSW</td></tr>
<tr><td>Chennai International Airport</td><td>34.59</td><td>SSW</td></tr>
</table></td></tr>
<tr><td>7</td><td>Defence installations</td><td>No</td><td>There are no Defence Installations within project vicinity</td></tr>
<tr><td>8</td><td>Densely populated or built-up area</td><td>Yes</td><td><table>
<tr><th colspan="3">Villages</th><th>Populations</th></tr>
<tr><td>Kattupalli</td><td>1.39</td><td>N</td><td>1,911</td></tr>
<tr><td>Sepakkam</td><td>3.19</td><td>W</td><td>200</td></tr>
<tr><td>Uranamedu</td><td>3.45</td><td>NW</td><td>700</td></tr>
<tr><td>Movuttambedu</td><td>3.58</td><td>W</td><td>400</td></tr>
<tr><td>Koranjur</td><td>4.06</td><td>W</td><td>200</td></tr>
</table></td></tr>
</table>

<table>
<tr>
<td>9</td>
<td>Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)</td>
<td>Yes</td>
<td>
<table>
<tr><th>Schools</th><th>Dist(km</th><th>Dire.</th></tr>
<tr><td>KattupalliGovt Primary School</td><td>1.53</td><td>N</td></tr>
<tr><td>OoranambeduGovt School</td><td>3.96</td><td>NW</td></tr>
<tr><td>Athipattu GHSS School</td><td>4.74</td><td>WSW</td></tr>
<tr><td>Kathivakkam GHSS School</td><td>5.33</td><td>SSW</td></tr>
<tr><td>NandiambakkamGovt School</td><td>6.23</td><td>W</td></tr>
<tr><td>Thiruvellavoyal Govt School</td><td>6.56</td><td>NW</td></tr>
<tr><td>Minjur Govt School</td><td>7.78</td><td>W</td></tr>
<tr><td>Ernavur Govt School</td><td>9.47</td><td>SSW</td></tr>
<tr><td>MMDA Layout Govt School</td><td>11.14</td><td>SSW</td></tr>
<tr><td>Manali New Town Govt High</td><td>11.52</td><td>SW</td></tr>
<tr><td>Gnayaru GHSS School</td><td>13.39</td><td>W</td></tr>
<tr><td>Pazhaverkadu JS Govt High</td><td>13.56</td><td>N</td></tr>
<tr><td>Ponneri Jaigopal Garodia Govt GHSS School</td><td>14.91</td><td>WNW</td></tr>
</table>
<table>
<tr><th>Colleges</th><th>Dist(km</th><th>Dire.</th></tr>
<tr><td>Shree Chandraprabhu Jain</td><td>8.19</td><td>W</td></tr>
<tr><td>Kumaran Polytechnic College</td><td>9.54</td><td>WNW</td></tr>
<tr><td>Thiruvottiyur Government Arts</td><td>13.03</td><td>SSW</td></tr>
<tr><td>V. Ramakrishna Polytechnic</td><td>13.43</td><td>SSW</td></tr>
<tr><td>Apollo Arts & Science College</td><td>13.89</td><td>WSW</td></tr>
<tr><td>CPCL Polytechnic College</td><td>14.39</td><td>SW</td></tr>
</table>
<table>
<tr><th>Hospitals</th><th>Dist(km</th><th>Dire.</th></tr>
<tr><td>Athipattu Government Primary</td><td>5.18</td><td>W</td></tr>
<tr><td>Ennore Urban Primary Health</td><td>6.37</td><td>SSW</td></tr>
<tr><td>Minjur Government Primary</td><td>8.09</td><td>W</td></tr>
<tr><td>Kattoor Government PHC</td><td>9.04</td><td>NW</td></tr>
<tr><td>Manali New Town Urban Primary</td><td>10.55</td><td>SW</td></tr>
<tr><td>Jothi Nagar Urban Primary Health</td><td>11.00</td><td>SSW</td></tr>
<tr><td>Tiruvottriyur Government Hospital</td><td>13.29</td><td>SSW</td></tr>
<tr><td>PulicatAnnai Health Care Centre</td><td>14.41</td><td>N</td></tr>
<tr><td>Budur Upgraded Government PHC</td><td>14.86</td><td>WSW</td></tr>
</table>
<table>
<tr><th>Religious</th><th>Dist(km)</th><th>Dire.</th></tr>
<tr><td>Kattupalli Majid Al Ahraf</td><td>1.52</td><td>N</td></tr>
<tr><td>BavaniMaariyamman Temple</td><td>4.38</td><td>WSW</td></tr>
<tr><td>Kattur St. Jude's Shrine</td><td>7.71</td><td>NW</td></tr>
<tr><td>Sivan Koil Minijur</td><td>8.08</td><td>W</td></tr>
<tr><td>Bharathiyar Nagar Masjid e</td><td>9.73</td><td>S</td></tr>
<tr><td>AyyaVaikundarDharmapathi</td><td>10.97</td><td>SW</td></tr>
<tr><td>ArulmiguThiyagarajaswamy</td><td>12.98</td><td>SSW</td></tr>
<tr><td>Sri Pushparatheswarar Temple</td><td>13.13</td><td>W</td></tr>
<tr><td>Sri JadarayaEswarar Temple</td><td>13.15</td><td>N</td></tr>
<tr><td>T.V. Puram Assembly of God</td><td>14.72</td><td>WNW</td></tr>
</table>
</td>
</tr>
<tr>
<td>10</td>
<td>Areas containing</td>
<td></td>
<td>Environmental Sensitive Area</td>
</tr>
</table>

<table>
<tr><td></td><td>important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)</td><td>Yes</td><td><table><tr><th></th><th>Dist(km)</th><th>Direc</th></tr><tr><td>Bay of Bengal</td><td colspan="2">Site is within</td></tr><tr><td>Buckingham Canal</td><td>0.26km</td><td>W</td></tr><tr><td>Korttalaiyar/Kosisttalaiyar River</td><td>0.30km</td><td>W</td></tr><tr><td>Ennur Creek</td><td>4.25km</td><td>S</td></tr><tr><td>Arani River/AraniyaNadi</td><td>10.50km</td><td>NW</td></tr><tr><td>Pulicat Lake</td><td>15km</td><td>N</td></tr></table></td></tr>
<tr><td>11</td><td>Areas already subjected to pollution or Environmental damage. (those where existing legal environmental standards are exceeded)</td><td>No</td><td>Nil</td></tr>
<tr><td>12.</td><td>Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)</td><td>Yes</td><td>The present project and the port fall under seismic zone category III (Seismic Zoning Map of India), which has least chances for occurring of earthquakes. The proposed project area is located in seismic zone category III (Seismic Zoning Map of India) as per IS 1893:2002. Adequate consideration for the seismic parameters as per Codes have been taken in the structural design of the Berth.</td></tr>
</table>

1.2 Proposed Facilities

Kamarajar Port is planning to augment the Capacity Augmentation of existing operational Marine Liquid Terminal (MLT) from 3 MMTPA TO 6 MMTPA at Kamarajar Port Limited operated by ETTPL at Tiruvallur District, Tamilnadu. The project falls under **CRZ III, CRZ III(NDZ), CRZ-IV(A)** and the tank farm area falls under Non- CRZ area attract provision of CRZ Notification, 2011.

Planning augumentation and its throughput capacity

S. No	Details	Remarks
1	Modification of Common Manifold to facilitate simultaneous discharge to BPCL	Hooking up lines to 2 x 24" lines of BPCL
2	Modification of 16" dock line to make it suitable for receipt of motor spirit from vessels	Modifications at jetty, common manifold and at exchange pit
3	Modification of 8" SS Dock Line for in line berthing of chemical vessel with POL vessels	Extension of 8" SS Dock line to south side of the jetty for in-line berthing of 2 vessels

1.3 Need for the project

The demand for marine terminal facilities for petroleum products is expected to increase significantly due to:

- Increasing importance of coastal shipping in petroleum product movement
- Growing POL product traffic at ports in the southern region
- Overlapping product movement of petroleum products
- Demand serviced from refineries outside the region - Private sector players like RIL and Nayara Energy expect to rely substantially on coastal movements from their refineries in the western region to service their share of demand in the southern region.
- Retail marketing plans of private sector oil companies
- CPCL expansion and capacity constraints at Chennai Port

In view of the advantages, a wide range of vessels ranging from large product tankers to small chemical tankers are expected to call MLT.

1.4 Project cost

The total project cost is **Rs 1.64 crore**

The project cost estimated for Enhancement

S. No	Details	Qty	Amount (Rs, in Lakhs)	Remarks
1	Modification of Common Manifold to facilitate simultaneous discharge to BPCL	1	104.00	Hooking up lines to 2 x 24" lines of BPCL
2	Modification of 16" dock line to make it suitable for receipt of motor spirit from vessels	1	52.00	Modifications at jetty, common manifold and at exchange pit

3	Modification of 8" SS Dock Line for in line berthing of chemical vessel with POL vessels	1	8.00	Extension of 8" SS Dock line to south side of the jetty for in-line berthing of 2 vesssels
Total			**164.00**	

1.5 Power and Fuel Requirement

As the power requirements of the Terminal are met from TNEB by taking necessary assistance from KPL, no significant impacts are envisaged. A detail power and fuel requirement is given in the below table:

Power and Fuel Requirement of existing and proposed

Details	Existing	Proposed	After Expansion
Power Requirement	Terminal – 11KV(HT) MLT – 440 Volt (LT) **DG SET:** Terminal: 2 No of – 500 KVA and 1 No of – 250 KVA MLT: 1 No of – 180 KVA	No Additional Power is required Existing quantity will be sufficient	Terminal – 11KV(HT) MLT – 440 Volt (LT) **DG SET:** Terminal: 2 No of – 500 KVA and 1 No of – 250 KVA MLT: 1 No of – 180 KVA
Fuel	Diesel for DG set purpose. **Transportation of fuel**- 200 litres barrels received from local retailers by using load vehicle. **Hazardous material storage facility-** Not Applicable Maximum quantity stored below 900 litres in Diesel storage shed.	Nil Existing quantity will be sufficient	No change

1.6 Water Requirement

The existing ,proposed and After Expansion water requirement is given in the table

Water Requirement

S.No	Water	Qty (KLD)		
		Existing	Proposed	After Expansion
1	Fresh water Requirement	6.7	2.5	9.2
2	Recycled Water	1.6	4.2	5.8
Total Water Requirement		**8.3**	**6.7**	**15**

Total water Break up

Water Requirement	Existing water Requirement(KLD)		Proposed water Requirement(KLD)		After Expansion water Requirement (KLD)	
	Fresh water	Recycled water	Fresh water	Recycled water	Fresh water	Recycled water
Domestic	2.5	0	1	0	3.5	0
Washing	1.8	0	1.5	0	3.3	0
Gardening	2.4	1.6	0	4.2	2.4	5.8
Total	**6.7**	**1.6**	**2.5**	**4.2**	**9.2**	**5.8**

For Fire fighting, sea water is being used and the same will be continued after expansion.

Source of water: Out sourced through water tankers.

1.7 Manpower requirement

The existing and proposed manpower is given in the below table

Manpower of existing and proposed

Details	Existing		Proposed	After Expansion
Manpower	Permanent	65	10	75
	Temporary	13	15	28
Total		**78**	**25**	**103**

1.8 Hazardous waste Generation and Management

Hazardous waste materials are properly disposed as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Amendment Rules, 2016. Hazardous waste collection, storage & disposal to authorized recyclers.

Hazardous Waste Generation and Management of existing

Source	Name of the Hazardous waste and category	Qty	Storage and Handling	Method of disposal
Cleaning, emptying and maintenance of petroleum oil storage tanks including ships.	3.1-Cargo residue, washing water and sludge containing oil	0.4TT/ Annum	Stored in barrels	Generation, Collection, Storage, Disposal to M/s. Tamilnadu Waste Management Ltd, Gummidipoondi for incineration.

Handling of hazardous chemicals and wastes	33.2-Contaminated cotton rags or other cleaning materials	24 T/ Annum	Stored in Pig disposal yard	Generation, Collection, Storage, Disposal to M/s. Tamilnadu Waste Management Ltd, Gummidipoondi for incineration to vendor.
Engines/ Compressor used oil	5.1-Used or spent oil	0.3 T/ Annum	Stored in steel barrels.	Generation , Collection, Storage and sent to TNPCB authorized recyclers.
Handling of hazardous chemicals and wastes	33.1-Empty barrels/containers/liners contaminated with hazardous chemicals/wastes	21.6T/Annum	Empty barrels stored in hazardous waste storage rooms	Generation, Collection, Storage and sent to TNPCB authorized recyclers.

Hazardous Waste Generation and Management of existing

Source	**Name of the Hazardous waste and category**	**Quantity**	**Storage and Handling**	**Method of disposal**
Cleaning, emptying and maintenance of petroleum oil storage tanks including ships	3.1-Cargo residue, washing water and sludge containing oil	1MT/Annum	Stored in barrels	Will be disposed to M/s. Tamilnadu Waste management Ltd, Gummidipoondi for incineration

1.9 Solid waste generation and Management:

Type of Wastes	**Existing (kg/day)**	**Proposed (kg/day)**	**After Expansion (kg/day)**	**Treatment / Disposal Method**
Inorganic	14.04	4.5	18.54	Being disposed to authorized vendors and the same will be continued.
Organic	21.06	6.75	27.81	Used as a Manure for Greenbelt.
Total	**35.1**	**11.25**	**46.35**	**--**

1.10 Wastewater Generation

The existing sewage will be treated in the existing septic tank and the proposed sewage will be treated in the Proposed STP. The existing and proposed effluent will be treated in at Marine Liquid Terminal is given the table is as below.

Sewage and ETP of existing and proposed

Details	Existing	Proposed	After expansion	Disposal method
Sewage	2.5	0.8	3.3	**Existing :** **Sewage Disposal:** Septic Tanks and Sock Pit x 6 Nos. **Dimension** (Length -1.4 mts X width 0.9m, Depth – 2.2m) **After Expansion:** 6 KLD STP will be proposed and the treated sewage will be used for gardening
Effluent	1.6	0.9	2.5	Will be treated in existing **ETP**(Capacity – 20 KLD) and reuse for gardening.

1.11 Decommissioning

Restoration and Rehabilitation

- The site is devoid of any forest or trees and hence there will be no change in the land use pattern and no land acquisition or conversion is required.
- Further, the site is devoid of any human habitations hence evacuation of the project-affected persons is not involved in this project.
- Hence, no resettlement and rehabilitation issues are involved in the proposal.

2. Description of the Environment

The baseline environmental studies were carried out during March 2024 to May 2024.

2.1 Climatology:

The baseline measurements of metereological features during the study period are as below.

S. No	Parameter	Observation
1.	Temperature	Max Temperature : 41 °C Min Temperature : 24°C Avg Temperature : 31.15°C
2.	Average Relative Humidity	73.36%
3.	Average Wind Speed	3.61 m/s
4.	Predominant Wind Direction during study period	South East to North West

2.2 Air environment

The average baseline levels of PM10 is **51.07 µg/m³ to 71.29 µg/m³,** PM2.5 is **27.33 µg/m³ to 37.13 µg/m³**, SO2 is **8.69 µg/m³ to 16.20 µg/m³,** NO2 is **20.33µg/m³ to 29.13 µg/m³,** all the parameters are well within the National Ambient Air Quality at all monitoring locations during the study period **March – May 2024**.

2.3 Noise Environment

In Industrial area's, noise levels varied from 61.6 to 63.2 dB(A) during day time and 51.8 to 52.8 dB(A) during night time, which is within prescribed limit by CPCB (75 dB(A) Day time & 70 dB(A) Night time) at the proposed site & attippattu location.

In residential area's, noise levels varied from 46.1 dB(A) to 54.3 dB(A)) during day time and night time noise levels varied from 41.5 dB(A) to 43.7 dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels is within the prescribed limit by CPCB (55 dB(A) Day time & 45 dB(A) Night time).

2.4 Soil Environment

- The pH of the soil samples ranged from 7.12 to7.39.
- Conductivity of the soil samples ranged from 756 to 1208 µS/cm.

- Nitrogen content in the collected soil samples ranged from 69.2 mg/kg to 121.3 mg/kg.
- Phosphorous content ranged from 9.9 mg/kg to 17.3 mg/kg.
- Potassium content ranges from 37.1 mg/kg to 65 mg/kg.

2.5 Surface water quality

- pH in the collected surface water samples varies between 7.13 to 7.93 and pH in the collected marine water samples varies between 8.07 to 8.12.
- The Total Dissolved Solids (TDS) value of collected surface water sample ranges from 1584 mg/l to 8495 mg/l and TDS value of collected marine water sample ranges from 31337 mg/l to 32116 mg/l.
- The Total hardness value of the collected surface water sample ranges between 572 mg/l to 1965 mg/l and Total hardness value of the collected marine water sample ranges between 6016 mg/l to 6153 mg/l
- BOD value of the collected surface water sample ranges from upto 4 mg/l and BOD in the marine water sample is upto 9 mg/l.
- COD value of collected surface water varies from upto 32 mg/l and COD of collected marine water sample ranges from upto 52 mg/l. Higher values of COD at Kosisttalaiyar River d/s, Buckingham Canal d/s may indicate organic Pollution.
- The concentration of heavy metals like As, Cd, Cr, Pb, Mn, Hg, Ni and Se are within the limits of IS 2296:1992.

2.6Ground water quality

- The ground water results of the study area indicates that the pH value range varies between 7.12 and 7.91. It is observed that the pH range is within the permissible limit of IS 10500:2012.
- The Total Dissolved Solids range of the collected ground water sample is varied between 368 mg/l – 518 mg/l. All the samples are within the permissible limit of IS 10500: 2012.
- The acceptable limit of the chloride content is 250mg/l and permissible limit is 1000 mg/l. The chloride content in the collected ground water samples in the study area

ranges between 85.6 mg/l – 132.8 mg/l. It is observed that all the samples are within the permissible limit of IS 10500:2012.

- The acceptable limit of the sulphate content is 200mg/l and permissible limit is 400mg/l. the sulphate content in the collected ground water samples in the study area is varied between 34.05 mg/l – 57.2 mg/l. It is observed that all the samples are meeting the acceptable limit of the IS 10500: 2012.
- The Total hardness ranges is between 183 mg/l – 366 mg/l for ground water samples. It is observed that all the samples are within the permissible limit of the IS 10500: 2012.
- It is observed that all ground water sample collected within the study area are meeting the drinking water standards IS 10500:2012.

2.7 Marine water quality

- pH in the collected marinewater samples varies between 7.6 to 8.26.
- The Total Dissolved Solids (TDS) value of collected marine water sample ranges from 26400 mg/l to 33660 mg/l.
- The electrical conductivity value of the collected marine water sample ranges between 40620 mg/l to 51840 mg/l
- BOD value in the marine water sample is upto 12 mg/l.
- COD value of collected marine water sample ranges from24 upto 60 mg/l.
- The concentration of heavy metals like As, Cd, Cr, Pb, Mn, Hg, Ni and Se are within the limits of APHA 23rd Ed.

2.8 Marine Biology

S.No	Parameter	Test Result				Protocol
		MW-1 Near GCB (surface)	MW-2 Near GCB (Bottom 1.5 m)	MW-3 Near MLT Berth (surface)	MW-4 Near MLT Berth (Bottom 1.5 m)	
1	**Phytoplankton*(64 um Mesh)**					
	Biomass	2.9	3.4	4.1	3.2	APHA 23rd Ed
	Diversity	2.1	2.4	3.1	2.0	
	Species	Farranula carinata , Peridinum elegans, Rhabdonema magnificum	Diploneissinithii, Naviculla sigma, Guinardia delicatula	Thalassionemanitzschioides, Ditylum brightwelli, Triceratium dublum	Coscinoddiscus radiates, Guinardia delicatula	
2	**Zooplanktons *(200 um Mesh)**					
	Biomass	0.036	0.053	0.018	0.038	APHA 23rd Ed
	Diversity	3.4	3.9	3.4	2.8	
	Species	Eucalanus calocalanuspova, Euchaeta marina , Meta calanusaurivilli	Farraula carinata , Eutintinnus tenue , Oithona nana	Calocalanuspova, Metacylisjor, Tortanus barbatus	Penilia avirostris, Eutintinnus tenue, Cresis acicula, Undinula vulgaris	
3	**Benthos**					
	Species	Oikopleura dioica , Ancilla ampla , Syllisferrugina, Cirratutu sdasylophius	Tapes belcheri , Magelonacincta	Agaronia nebulosa, Dodecaceriacapensis , Armandi a intermedia	Sinumneritoi derum, Pinna bicolour, Mactramera, Pulliellaarmata ,	APHA 23rd Ed

S.No	Parameter	Test Result				Protocol
		MW-5 Near Finger Jetty	MW-6 Near Finger Jetty (Bottom	MW-7 Outer South-North	MW-8 Outer South-North	

		(surface)	1.5 m)	Break water (surface)	Break water (Bottom 1.5 m)	
1	**Phytoplankton*(64 um Mesh)**					
	Biomass	2.3	2.4	7.6	5.3	APHA 23rd Ed
	Diversity	2.7	3.6	2.4	1.9	
	Species	Actiniscus pentasterias, Ceratim furca, Dino physisovum	Peridinium claudicans, Peridinium gracile, Fragilariopsis oceanic	Talassiosira pseudonana Bacteriastrum cosmosum, Skeletonema costatum	Bacteriastrum rhombus, Farranula carinata, Lauderiaan nulata	
2	**Zooplanktons *(200 um Mesh)**					
	Biomass	0.081	0.064	0.058	0.088	APHA 23rd Ed
	Diversity	2.5	1.8	2.7	3.2	
	Species	Paracandacia truncatta, Labidoceraacuta, Corycaeidae catus	Hyalocylix striata, Oncaeidae mediterranea, Aglaurahe mistoma	Eucalanus, Copilia quadrata, Dosinia trigona	Subeucalanuscrassus , A.Longicornis Farranula carinata	
3	**Benthos**					

	Species	Macomabirmanic, Standellani cobarica, Roetapeliculla, Jasmineira elegans,	Conus canonicus, Melinna cristate, Pugilina coachlidium,, Anadaragranosa, Prionos piocirrifera	Paphiasemirugata, isopods, Pitaralbastrum, Pugilina cochlidium	Cossura coast, Quadrivisioboneri, Circè scripta,, Anadara granosa, Laternula anatine	APHA 23rd Ed

S. No	**Parameter**	**Test Result**				**Protocol**
		MW-9 Near GCB (surface)	MW-10 Near GCB (Bottom 1.5 m)	MW-11 Outer South- South Break water (surface)	MW-12 Outer South –South Break water (Bottom 1.5 m)	
1	**Phytoplankton*(64 um Mesh)**					
	Biomass	3.9	4.8	3.1	4.8	APHA 23rd Ed
	Diversity	1.7	3.2	2.2	2.3	
	Species	Pyrocystis fusiformis Actiniscuscur cubita,,	Noctiluca miliaris, Bacteriastrum cosmosum, Amphora decussate	Thalassiosira subtilis, Triceratium dublum, Ornithocer cusheteroporus	Eucampia cornuta, Thalassiosira favus, Chaetoceros diversus, Skeletonema costatum	
2	**Zooplanktons *(200 um Mesh)**					
	Biomass	0.052	0.084	0.090	0.058	APHA 23rd Ed
	Diversity	1.90	2.1	1.8	1.90	
	Species	Globigerina bulloides Pseudosagitta	Periclimenes imperator, Oncaea conifer, Miraciaefferata,	Sagitta bedoti, Bathynomusdoederleinii, Acarti idaeeryhraea	Farranula carinata, Macrocypridinacastanea, Hyalocylix striata	

		maxima, Salpa fusiformis,				
3	**Benthos**					
	Species	apolymetisedentula, Gastropods dentalium, Pisionoerstedi, Macoma candida	Saccostrea cucullata, Crassostrea cuttackensis, Lumbrinerinae simplex	Strombus luhuanus, Cossurecoaste, Maldanids. Solen brevis, Potamilaehleri	Nassarius dorsatus, Portulatubularia, Siliqua radiate, Laevicardiuma pertom	APHA 23rd Ed

3. Anticipated Environmental Impacts and mitigation measures

3.1 Construction Phase:

There is no major costruction involved in this project and the scope of modifications of exisiting facilities are given in the table below.

Project and the scope of modifications of exisiting facilities

S.No.	Details	Remarks
1	Modification of Common Manifold to facilitate simultaneous discharge to BPCL	Hooking up lines to 2 x 24" lines of BPCL
2	Modification of 16" dock line to make it suitable for receipt of motor spirit from vessels	Modifications at jetty, common manifold and at exchange pit
3	Modification of 8" SS Dock Line for in line berthing of chemical vessel with POL vessels	Extension of 8" SS Dock line to south side of the jetty for in-line berthing of 2 vesssels

The impacts due to the above activities will be for a very short time and insignificant. Hence this report does not address the impacts due to the construction phase.

3.2 Operation Phase

The various impacts on the environmental attributes that are likely to arise due to the development and operation of Marine Liquid Terminal at Kamarajar Port are broadly presented. The major activities involved during construction and operation of the Terminal encompass the following:

Summary of Mitigation Measures and Impact

S.No	Impacts	Mitigation Measures
1	The major air pollution source is the DG set which emits flue gases containing Suspended Particulate Matters, Oxides of Sulphur and Nitrogen that may affect the ground level concentrations.	The DG set has been provided with stacks of adequate height so as to disperse the emanating flue gases containing Suspended Particulate Matters, Oxides of Sulphur and Nitrogen without affecting the ground level concentrations.
2	Combustion process such as diesel engines	Maintenance of diesel power generators to achieve efficient combustion, fuel efficiency and therefore reduce emissions.

S.No	Impacts	Mitigation Measures
3	Air borne particulates from soil disturbance during expansion and from vehicle traffic such as trucks and trailers	• Adequate sprinkling of water on soil surface will be carried out. • Vehicle, equipment and machinery used for men and material transfers.
4	Impact due to presence of VOC in the atmosphere	• On-line VOC monitoring system has been installed and the same is connected to care air center of TNPCB for real time monitoring of VOC data.
5	Noise pollution due to operation of machineries & equipment; Vehicular traffic; Operation of DG sets and machineries	• Well maintained equipment and vehicles will be used; • All DG sets would be provided with acoustic enclosures; and • Appropriate PPEs (e.g. ear plugs) will be used for by workers while working near high noise generating equipment.
6	Land use change may lead to impact on income and livelihood	• Degraded land will be selected on long term lease and reinstate the land after project activity.

4. Environmental Monitoring Program

Regular monitoring of important and crucial environmental parameters is of immense importance to assess the status of environment during operational phase. With the knowledge of baseline conditions, the monitoring program can serve as an indicator for any deterioration in environmental conditions due to operational phase and suitable mitigatory steps could be taken in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficiency of control measures can only be determined by monitoring. The following routine monitoring program will be implemented under the post project monitoring.

Environmental Monitoring Program during Operation phase

S. No	Area of Monitoring	Number of Sampling Stations	Frequency of Sampling	Parameters to be Analyzed
1.	Ambient Air Quality	3 Stations (one in up wind and one in downwind and one at site)	Once in a month 24 hourly period	All the 12 parameters as per NAAQ Standards
2.	Noise	2 (one within site and one outside site)	Once in 3 months for 24 hours	Ambient Equivalent Continuous Sound Pressure Levels (Leq) at day and Night time.
3	VOC	4 on the corners of the tank farm area	Once in 6 months	Presence of VOC in the ambient air is analysed on real time basis.
3.a.	Water	Two number of surface and ground water samples near the site	Once in 6 months	All the parameters as per IS 10500:2012 and IS 2296:1992
4	Sea water	One at nearest sea point	Once in 6 months	All the parameters as per IS: 3025 and APHA 23rd Ed methods
5.	Vehicular Emissions	At site approach	Periodic monitoring of vehicles	Air emission and noise, PCU
6.	Solid waste	Municipal Solid and waste storage area	Twice in a month	Quantity
7.	Soil	Three locations (two within and one outside project site)	Once in 6 months	Physico chemical properties, Nutrients, Heavy metals
8.	Terrestrial and marine Ecology	Within 10km, around the project	Once in three years	Symptoms of injuries on plants

S. No	Area of Monitoring	Number of Sampling Stations	Frequency of Sampling	Parameters to be Analyzed
9.	Effluent	Existing ETP	Once in 6 months	All the parameters as per CPCB Norms

5. Additional Studies

5.1 Risk Assessment

Risk assessment report has been attached as **Annexure 14**

5.2 ERDMP

A detailed report is attached as **Annexure 9.**

5.3 Oil Spill Contingency Plan

- As per National Oil Spill Disaster Contingency Plan (NOSDCP), Kamarajar Port Limited comes under Risk Category B for maintaining Tier I Oil Spill Response equipment.

- Kamarajar Port Limited is maintaining Tier I facilities of OSR equipment as per NOSDCP and the Marine Liquid Terminal (Operated by M/s ETTPL on BOT basis) in KPL is also maintaining additional OSR equipment as per NOSDCP guidelines.

- The Regional Director General of Coast Guard, Chennai has vetted and approved the KPL's Oil Spill Contingency Plan (OSCP).

- KPL follows safe procedures to prevent the occurrence of oil spill incidents, in case unfortunately any oil spill occurs KPL will contain the oil spills with the available Tier I OSR facilities and will take assistance from Coast Guard & nearby Ports for effective OSR operations and to prevent for further spreading of oil spill.

- Kamarajar Port Oil Spill Response Team (OSRT) undertakes responses to all Tier 1 oil spills at Kamarajar Port limits. The OSRT consists of two main:

- Oil Spill Crisis Management Team (OSCMT) headed by GM (Marine) responsible for overall Management of OSRT.

- Site Spill Control Team consisting of Marine Response Team, Logistic Team, Shoreline Clean Up Team and Waste Material Coordinator is coordinated by SM (HSE).

The above team will act from the Port Administrative Building & the Site Spill control team will function for the Port Signal Station. They shall make regular reports to the external agencies given in the table below to apprise them of the progress of containment and response.

KPL's OSR team are trained in operation and maintenance of OSR equipment internally & with external agencies. Also officers monitoring marine operations & OSR are trained in IMO level 1, 2 & 3 trainings by external agencies. In order to enhance the response time & effectiveness of OSR operations, regular drills are being carried out in KPL during day and night hours.

6. Project Benefits

Improvements in the physical infrastructure

- Greater flexibility in terms of handling multiple products simultaneously
- Handling berthing of two smaller tankers simultaneously.
- The jetty can handle higher level of traffic with minimal waiting time for Tankers
- Customers can import/export in larger parcels and benefit from lower ocean freight
- Kamarajar Port is located very close to Manali Industrial Belt and the CPCL and hence can cater to the raw material & finished goods movement of the industries located in this area.

Improvements in the social infrastructure

- Chennai Port does not have storage facility for handling LPG. Also, there is no storage infrastructure for Class A/B products, which is forcing importers in the hinterland of Chennai to route their import through other ports such as Cochin and Mangalore. Ennore would therefore be an automatic choice for importers and exporters.
- Kamarajar Port is located on the international shipping route. Kamarajar Port is a major port of call for Products, chemicals and vegetable oil tankers. Hence, Ennore is an ideal port of call for ships from the west and from Singapore, Malaysia, Korea and other far-east countries.
- In the long run, the Port would benefit from higher traffic and hence higher revenues

Employment potential - skilled, Semi- skilled, Un-skilled

The project has a potential to generate employment for unskilled, semi-skilled and skilled manpower

Other Tangible Benefits

- Both, State Government and Government of India would be benefited.
- Government will earn huge revenue by way of various taxes and levies and transportation through sea route.

7. Environmental Management Plan

7.1 EMP for operation phase

Air Quality

Following measures will be adopted to mitigate the impacts of pollutants on the ambient air quality:

No increase in the existing concentrations of air pollutants is expected as the project does not involve any production activity but only Enhancement of the Capacity of the MLT through Augmentation of Existing Facilities.

- Concentrations of pollutants in ambient air is expected to remain within the stipulated standards.

APC measures provided are summarized

Details	Capacity	APC	Stack Height(m)
DG Sets (Power kVA)	180 x 1 No.s 250 x 1 No.s 500 x 2 No.s	Nil	6 m AGL

Following measures can be adopted to mitigate the impacts of pollutants on the ambient air quality:

Vehicular speed will be limited to 20km/hr on areas of unconsolidated or unsealed soil associated with the immediate site work.

Odour control

- No odour / dust will be released while handling materials including sewage and waste.
- Leak detection equipments are installed wherever necessary.

Noise environment

- In addition to the existing machineries, DG and Vehicle/Equipment movement is the primary source of Noise pollution.
- Operation involves transfer of product producing negligible noise or vibration.
- The major source of noise pollution is DG set, compressors andair pumps. Maximum Care will be taken to reduce the noise generation during operation.
- The DG set room, compressors and pump room will be isolated from the outside environment and proper acoustic arrangements will be made to control the noise generated.
- Use of well-maintained machinery and vehicles could considerably help in this matter.
- To prevent the hearing damage to the workers, they will be provided with ear plugs and muffs and job rotation will also be practiced.
- All efforts will be made to maintain the noise level within the proposed premises around 50 dB (A) in day time & 40 dB (A) during night time.

Water and wastewater Management

During operation phase, water requirement of proposed project will be mainly for domestic use, greenbelt, etc. The required water quantity is met from water treatment plant. Hence, no significant impacts are envisaged on the water supply in the region.The treated wastewater will be reused in the green belt areas to reduce the water requirements. Total water Requirement is 15 KLD during Operation phase after expansion to 6 MMTPA.

- Sewage generated is 3.3 KLD during operation phase.
- The domestic waste water generated during operation phase will be routed to the proposed STP. Effluent generated will be treated through existing ETP.

Rainwater Harvesting

The Port has Rainwater Harvesting System in its Administrative Building & CISF Barracks consists of Open well. The details of the same are furnished herewith as below:

- Submerged RCC ring of diameter 3'- 0" into a pit of 3 m depth.
- Filter chamber of size 0.6 x 0.6 x 0.9 m in brickwork CM 1:5.
- River sand to a depth of 0.15 m • Pebbles to a depth of 0.15 m
- Nylon mesh between river sand and Pebble stone.
- PVC pipes of 110 mm dia connecting terrace, well and filter chamber have been laid.

Solid and Hazardous Waste Management

In India, the average waste generated per capita per day is considered as 425 g (dry weight). This waste will not be allowed to dump into nearby surface water body or stream. The collection, transportation and disposal of the solid waste generated during the operation phase of the proposed project will be done as per the Municipal Solid Wastes (Management & Handling) Rules, 2000 (MSW Rules). These generated solid wastes will be first segregated as plastic, glass, paper and other waste separately and disposed off as per MSW Rule, 2000. The organic waste generated during operation phase will be sent to panchayat bins.

The hazardous waste generated from the process is Used or spent oil only. Hazardous waste materials will be properly disposed as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 1989 and subsequent amendment in 2016.

Land environment

Following measures are proposed to mitigate negative impact during operational phase of the project on the land environment.

- Air emissions will be effectively controlled and therefore deposition of air pollutants in and around the premises and surrounding area is not envisaged.
- Solid waste generated will be stored in adequate bins and disposed through Authorized Vendors.
- Sewge will be disposed through Proposed STP.

- Hazardous materials will be prohibited to be drained or dumped in the premises. Accidental spills shall be cleaned, reported and monitored.
- Thus, no impact on land is envisaged due to discharge of gaseous emission, solid waste or liquid effluent from the proposed project.

Ecology

There is no potential source of impact on terrestrial biology during the operational phase.

Socio Economic Environment

Actual requirements of manpower/employment opportunities will be provided. This project is mainly to products through pipeline. Thus indirect beneficial impacts are anticipated.

CORPORATE SOCIAL RESPONSIBILITY (CSR)

Kamarajar Port consistently strive to meet the expectations of the society by supporting initiatives for improving infrastructure/quality of life of society/ community without compromising on ecological issues on sustainable basis consistent with the CSR provisions of the Companies Act, 2013; Schedule VII of the Companies Act, 2013.

- The CSR activities of the port during last five FYs are follows.

Financial Year	Amount spent in Crores.(Rs.)
2019-20	8.11
2020-21	8.27
2021-22	5.57
2022-23	9.85
2023-24 (Budgeted)	9.06

- Besides the expenditure incurred by KPL, the terminal operator M/s. Ennore Tank Terminals Pvt. Ltd., is also planned the certain infrastructure creation activities under CSR as below.

- The Terminal operator has planned the following infrastructure creation activities for the FYs 2024-25 & 2025-26.

S.No	CSR activity	Amount in Lakhs
1	Providing Bench and Table furniture to Government High School	8
2	Providing sanitation facilities to nearby Government schools	8
Total		**16**

Corporate Environmental Responsibility (CER)

Kamarajar Port has incurred an amount of Rs.1.68 Crores under Corporate Environmental Responsibility for development drinking water supply and sanitation facilities in the vicinity of the Port. Besides KPL, the terminal operator ETTPL also incurs the funds under CER and CSR activities.

Environmental Management Expenditure

Port and its BOT Operators are continuously incurring the expenditure for the better environmental management with regard to Solid Waste management, Consent Management, Environmental Monitoring, Horticulture Development, O&M of STPs and ETPs. The expenditure incurred during the last five years is as below.

S. No	Year	Planned Expenditure	Actual Expenditure in Rs.
1	2021-22	1,10,00,00	1,07,33,263
2	2022-23	1,40,00,000	1,56,12,772
3	2023-24	1,40,00,000	1,37,75,462
4	2024-25	1,50,00,000	Planned.

Besides the above expenditure, the terminal operator ETTPL has planned the below expenditure for execution of environmental management plan of the terminal. The budget will give overall proposed investment on the environmental safeguards for successful monitoring and implementation of control measures. The EMP budget has been prepared considering the following phases of the project. The detailed cost break-up for each well is given in below Table.

Cost for Environmental Protection Measures

S. No	Component	Capital cost Rs.(lakh) (2024-25)	Recurring cost Rs.(lakhs) per Annum (2024-25)
1	Hazardous waste Management	0	15
2	Greenbelt Development	20.84	2.5
3	Environmental monitoring	0	2.5
4	STP of 6 KLD	15	1.5
5	ETP of 20 KLD with UF and UV	0	4
6	**Total**	**35.84**	**25.5**

Planned Expenditure by the Terminal Operator for upgradation of OSR, Fire fighting facilities & green belt

Besides the EMP, CSR and CER expenditure, the terminal operator M/s.ETTPL has planned the following expenditure during the FY 2024-25 for upgradation of OSR, Fire fighting facilities & enhancement of green belt as below.

S.No	Activity	Cost in Lakhs (Rs.)		
		2023-24	2024-25	2025-26
1	Upgradation of- OSR facilities	4.9	5.9	6.4
2	Development of green belt	12.6	17.61	16.8
3	Terminal Fire Fighting System Upgradation	195	500	700
Total		**212.50**	**523.51**	**723.20**
		1459.21		
