Vizhinjam International Seaport Thiruvananthapuram

Development of Vizhinjam International Deepwater Multipurpose Seaport

Environmental Clearance F. No. 11-122/2011-IA.III dated 3rd January 2014

Half Yearly Compliance Report (HYCR) for the Period October 2023 to March 2024

Project Concessionaire

Adani Vizhinjam Port Private Ltd. (AVPPL)

Project Authority

Government of Kerala (GoK)

Implementing Agency on behalf of GoK

Vizhinjam International Seaport Limited (VISL)

(A GoK Undertaking)

May 2024

Vizhinjam International Seaport Limited
(A Government of Kerala Undertaking)

VISL/53/2021/GM1 (E)/142 24th May 2024

To
Additional Principal Chief Conservator of Forests (C),
Ministry of Environment Forest and Climate Change (MoEF&CC),
Regional Office (SZ), Kendriya Sadan,
4th Floor, E&F Wings, 17th Main Road,
Koramangala II Block, Bangalore-560034 (Karnataka)
rosz.bng-mefcc@nic.in; Ph: 080-25635901

Sub: Half Yearly Compliance Report (HYCR) of Environmental and CRZ Clearance (EC) for Vizhinjam International Multipurpose Deepwater Seaport for the period of **October 2023 to March 2024** – Reg.

Ref: 1) File No. 11-122/2011-IA.III dated 3rd January 2014
2) Letter No. 1285/A3/13/KCZMA/S&TD dated 24th August 2013
3) File No: EP/12.1/7/2013-14/Ker 829 dated 20th August 2019
4) F.No.11-122/2011-IA.III Proposal No. IA/KL/MIS/178082/2020 dated 29th December 2020

Dear Sir,

This has reference to the Environmental & CRZ Clearance (EC) issued on 3rd January 2014 (vide reference cited 1) by the Ministry of Environment, Forest & Climate Change (MoEF&CC) for the proposed Vizhinjam International Multipurpose Deepwater Seaport at Vizhinjam in Thiruvananthapuram District of Kerala State based on the recommendation of KCZMA (vide the reference cited 2). Subsequently, the validity of EC was extended by MoEF&CC dated 29th December 2020 (vide reference cited 4).

The Half Yearly Compliance Report (HYCR) of the conditions stipulated in the cited references for the period from **October 2023 to March 2024** is enclosed herewith for record and reference.

As per the MoEF&CC Letter (vide the reference cited 3), wherein submission of HYCRs by email/soft copy is declared acceptable, therefore the HYCR for the period **October 2023 to March 2024** is being submitted to the MoEF&CC, Regional Office (Bangalore), Zonal office of the CPCB (Bangalore), KSPCB & KCZMA via email.

Yours Sincerely
For Vizhinjam International Seaport Ltd. (VISL)

24/05/24

Chief Executive Officer

Encl: As Stated Above

Copy to: CEO, Adani Vizhinjam Port Private Ltd. (AVPPL)
01, Port Operation Building, Vizhinjam Seaport, Mulloor P.O, Vizhinjam, Thiruvananthapuram-695521, Kerala, India

Half Yearly Compliance Report (HYCR) on Conditions Stipulated in Environmental & CRZ Clearance (EC) F.No.11-122/2011-IA.III dated 03.01.2014 for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
11.	**Specific Conditions**	
(i)	"Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	**Complied** Adani Vizhinjam Port Pvt. Ltd. (AVPPL) had applied for and obtained Consent for Establishment (CTE) from Kerala State Pollution Control Board (KSPCB) vide Consent No. PCB/HO/TVM/ICE/08/2015 dated 15.09.2015 valid up to 31.07.2018. The CTE was renewed vide Consent No. PCB/HO/TVM/ICE-R/02/2018 dated 19.07.2018 valid up to 31.07.2023. The CTE was further renewed vide Consent No. KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 valid up to 31.07.2028. A copy of the renewed CTE was submitted to Ministry of Environment and Climate Change (MoEF&CC) with the Half Yearly Compliance Report (HYCR) for the period April 2023 to September 2023.
(ii)	Project Proponent shall carry out intensive monitoring with regulatory reporting six monthly on shoreline changes to the Regional Office, MoEF.	**Being Complied** Based on the Shoreline Monitoring Plan prepared by L&T Infra Engineers Ltd (L&T IEL) under the guidance of National Institute of Ocean Technology (NIOT), oceanographic and shoreline monitoring is being carried out by agency Shankar Surveys Pvt, Ltd. (SSPL) for a stretch of 40 km (20 km on both sides of the project site) and reports are being regularly submitted to Ministry of Environment and Forests & Climate Change (MoEF&CC) as a part of the HYCRs. Broadly the scope covers: • Wave Observations • Onshore Cross beach profiling • Offshore Cross beach profiling • Littoral Environmental Observations (LEO) • Beach Sampling • Multi-beam Echo Sounder (MBES) survey • River cross section surveys • Grab Sampling • Current & Tide Observations • Weather Observations • Marine Water Sampling

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S. No.	Conditions	Compliance Status as on 31.03.2024
		Shoreline Monitoring Report by SSPL for the period October 2023 to March 2024 is enclosed as **Annexure I**. L&T IEL had conducted data analysis based on available oceanographic and shoreline monitoring data provided by SSPL and carried out accompanying model study and the corresponding data analysis and modelling reports, which were vetted by NIOT, were submitted to MoEF&CC as a part HYCRs. Six modelling reports have been prepared by L&T IEL so far and submitted as detailed below: **Data Period** / **Modelling Report Submitted with HYCR for the Period** Feb 2015 to Feb 2017 — Apr 2017 to Sep 2017 Mar 2017 to Feb 2018 — Apr 2018 to Sep 2018 Mar 2018 to Feb 2019 — Apr 2019 to Sep 2019 Mar 2019 to Feb 2020 — Apr 2020 to Sep 2020 Mar 2020 to Feb 2021 — Apr 2021 to Sep 2021 Mar 2021 to Sep 2022 — Apr 2022 to Sep 2022 Oct 2022 to Sep 2023 — Apr 2023 to Sep 2023 Thereafter, AVPPL have engaged Assystem India Limited (Formerly known as L&T IEL) to carry out the data analysis and accompanying model study of the shoreline changes based on the oceanographic and shoreline monitoring data being collected for the period October 2023 to September 2024.
(iii)	The capital dredged material (7.6 Mm^3) shall be utilized for reclamation of berths.	**Complied** During the compliance period, 3.25 Mm^3 material has been dredged and a total 7.21 Mm^3 dredged material has been utilized for reclamation of 65.71 Ha area of land. With respect to dredging and reclamation, the requirements for reclamation of berths for Phase I development of the port have been completed.
(iv)	Additional fish landing centre shall be developed as part of the proposed Vizhinjam port for	**Being Complied** Based on the recommendation of the study carried out by Central Water and Power Research Station (CWPRS) the location originally proposed for the

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	upliftment of fisheries sector.	fishing harbour is not a suitable location with respect to tranquillity. Harbour Engineering Department (HED) has prepared a preliminary estimate for the extension of seaward breakwater of the existing fishing harbour at an angle of 45 degrees as proposed by CWPRS. Discussions between Fisheries Department and Ports Department, Government of Kerala (GoK) and consultation with the fishermen community are ongoing to finalise a suitable location for the fishing harbour. GoK would be soon finalising the plan of action to develop and make available the additional fish landing facilities for the benefit of the local fishermen. *(Source: VISL)*
(v)	The project shall be executed in such a manner that there is minimum disturbance to fishing activity.	**Being Complied** Following are being practiced ensuring minimum disturbance to fishing activity: • Work is planned in such a way that there is only minimal hindrance to the fishermen due to construction activities. • Signboards have been placed for demarcation of construction area and navigational buoys/marker buoys are placed in the marine area for fishing boats to maintain a safe distance from the areas of breakwater construction. • The number of buoys for monitoring in the project area has been optimized, considering the safety of the fishermen and ease of movement during construction. • For mutual understanding of the developmental activities with the local fishing community an exclusive CSR team has been assigned. • Using the technological advancements (such as WhatsApp), the dedicated CSR team of AVPPL are in constant touch with the fishermen/fishing community members to facilitate the flow of various project related information/updates. • AVPPL CSR team also provides regular updates to the committee which has been formed by the local church/other representatives adjoining to

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		the port area, who in turn pass on port project execution information to the fishermen. • Marine Water Quality is being monitored regularly and results are submitted as part of the compliance reports. Abnormal results were not observed during the compliance period (**Refer Annexure II**). • Central Marine Fisheries Research Institute (CMFRI) have conducted a study on estimation of marine fish landings data from the potential impact zones of Vizhinjam International Seaport for the period June 2021 to May 2022. The report (submitted as part of HYCR for the period April 2023 to September 2023) concluded that Fish landings survey recorded an increase of 3.35% compared to the total landings reported in 2011. Seasonal and zonal variations of fish catch analysis portrays the higher catches in the direct footprint zone, implying that no significant impacts due to the development of Vizhinjam on the availability of fish resources.
(vi)	Steps would be taken to safeguard the interests of the fisheries sector as detailed in the Resettlement Action Plan (RAP), Corporate Social Responsibility (CSR) and in the Integrated Fishing Community Management (IFCMP), namely a component of Rs.7.1 crores as part of the compensation package for the fisheries sector, as livelihood restoration measures for mussel collectors, shore seine fishermen and others. Rs.41.30 crores as part of CSR activities in the	**Being Complied** In consultation with the fishermen, enhanced livelihood compensation of Rs. 108.32 Crores was sanctioned by GoK and distributed by VISL to fishermen as livelihood compensation, instead of Rs. 8.55 crores, as suggested earlier in the EIA. Till 31.03.2024 an amount of Rs. 106.93 Crores have been disbursed for a total number of 2697 Livelihood Affected Persons (LAPs) whose verification was complete in all respects; this includes boat owners to whom kerosene is supplied free of cost during the breakwater construction period. Remaining few disbursals would be done as soon as possible. *(Source: VISL)* The status of the Social Welfare activities taken up in the fisheries sector is as follows: **Water Supply**: Kerala Water Authority (KWA) set up a 3.00 MLD water supply scheme for the project with the source of water being Vellayani Lake

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	fisheries sector under (i) water supply scheme (7.3crores) (ii) new fishing landing centre (16crores) (iii) adoption of existing fishing harbor (5crores) (iv) sea food park (4crores) (iii) skill development centre (4crores) (iv) environmental sanitation (3crores) and (v) solid waste management (2crores).	which was commissioned in April 2013 by VISL by expending an amount of Rs. 8.10 Crores. The net availability of treated water from this supply scheme is 2.49 MLD of potable water out of which 1.49 MLD of water shall be distributed to the local people as part of social welfare measures of VISL. The balance 1.0 MLD was to be used for port related activities. However, at present, the entire treated water from the scheme is being utilised by the community. For Operation & Maintenance (O&M) of the same, an amount of Rs. 5.38 crores have been spent up to 31.03.2021. From 04.04.2019 onwards, O&M of the scheme is being done by KWA. An additional amount of Rs. 1.74 Crores has been sanctioned and deposited by VISL to KWA to extend piped water connections for treated water supply facilities to the community at Kottapuram Village. More than 1000 free domestic water connections have been given to the project affected areas. KWA now have adequate coverage of water supply around the port and project affected areas. VISL is coordinating with local body representatives to identify water shortage areas and taking effort to resolve the same. *(Source: VISL)* **Fish Landing Centre**: Even though planning work for the fish landing centre (Rs. 16.00 crores) and the fishery breakwater (Rs. 131.12 crores) had been initiated as part of the funded work component of the Port concession agreement with AVPPL, based on report of physical model studies carried out by CWPRS at the proposed new fishing harbour, the landing centre needs to be relocated after construction of an extension of seaward breakwater of the old fishing harbour. GoK is finalising the way forward to build the additional fish landing centre for the benefit of the local fishermen. *(Source: VISL)* **Existing Fishing Harbour**: GoK has formed a higher-level committee to prepare a master plan for the old fishing harbour. Government Departments

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		concerned are coordinating to resolve the differences and to arrive at an acceptable plan in consultation with all stakeholders and accordingly a proposal for 25 crores for additional landing facilities at the southern side and a project for 45 crores with necessary facilities at the Northern Part has been formulated and submitted under PMMSY scheme and waiting for approval of GoI. *(Source: VISL)* **Seafood Park**: Procurement of land for seafood park (Rs. 26.00 crores) by VISL has been completed. Action for development of seafood park is being taken to commission the same along with the completion of the new fishing landing facilities planned. *(Source: VISL)* **Skill Development:** Additional Skill Acquisition Program (ASAP) is a GoK initiative aimed to impart required skills to local youth for improving their employability. ASAP proceeded with the construction of a Community Skill Park (CSP) in an area of 1.5 acres of land at Vizhinjam and the infrastructure is completed. It will operate on a PPP model wherein 25,000 sq. ft. building with facilities for students' hostel are constructed by GoK by ASAP with ADB assistance, whereas the operation of the centre with logistics and other high-end courses are being taken up by Adani Skill Development Centre (ASDC) as per an agreement with GoK/ASAP/VISL. The Civil construction work for Community Skill Park (CSP) is completed near the Port Premises in association with Additional Skill Acquisition Programme (ASAP). The land handed over by VISL to the ASAP for the proposed construction having 3 storied building as Ground Floor for office space, Seminar Hall Training Rooms, G-1 Floor for IT lab & Other Training room facilities including Library, Meeting room, Faculty room. It is planned to start high end Port related courses according to the anticipated vacancies arising in the port, in other

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		top organizations and ports in India and abroad. Livelihood related courses to locals are also advised to carryout facilitate the locals. ASAP is planning to handover the building ASAP. **Environmental Sanitation/Solid Waste Management:** Material Recovery Facility (MRF): As per the request received from Trivandrum Municipal Corporation it is decided to construct an MRF at harbor ward. Land for the same allotted by Harbour Engineering Department. The operation of the unit will be done by Trivandrum Municipal Corporation under the technical support of Suchithwa Mission and Clean Kerala Company. Socio-Economic Foundation (SEUF) is carrying out the construction works. A Haritha Karma Sena will be formed for the daily collection of waste after the commissioning of the proposed unit. This is carried out as shared activity between VISL, Thiruvananthapuram Corporation, Adani Foundation and AVPPL. Necessary funds have been transferred and civil construction work by SEUF are completed. MRF is mainly designed to effectively manage plastic waste generated in Vizhinjam. Waste materials generated at source level are collected at MRF and segregated to sort plastic wastes. Stones and glass materials are initially removed. Segregated plastic wastes are dust removed, transported via conveyor belt to the shredding unit. Plastic with size below 6 microns are crushed to powdered form. Plastics of size above 6 microns are shredded to cube form. These shredded plastics will be taken from MRF for further reuse. Nearly 1.00 ton of plastic is expected to reach MRF daily. Waste will be collected from the wards of Kottapuram, Vizhinjam, Mulloor, Harbour and Venganoor by Haritha Karmasena members hired by Corporation. The MRF centre is constructed in 3500 square feet area. The structure is supported on 22 RCC column

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		footings and super structure completed in solid block masonry. The roof of the building will be covered using corrugated G.I sheets. The area is divided into a spacious material receiving area, 6 numbers of waste segregation rooms, shredded plastic collection area, office room, MRF hall, workers changing room and toilet.  **MRF** Clean Kerala Company to procure the necessary equipment upon receiving instructions from the Thiruvananthapuram Corporation. An MoU has already been entered into to demystify the role of all the stakeholders. <u>Cleaning Campaign:</u> The cleaning campaign promoted by Adani Foundation is progressing commendably during the period. One of the livelihood groups, promoted under the CSR of AVPPL/Adani Foundation - Karshika Karmasena is coordinating the campaign. Four members who are actively participating in the cleaning campaign are from widow's category as part of the widow's engagement programme. The campaign included community cleaning, clearing of vegetation and plastic waste collection and the cleaning of public places coordinated by the Group. During the compliance period Karshika Karmasena has completed a total of 289 man-days work in and around port.

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		 **Cleaning Campaign by Karshika Karmasena** Activities carried out by AVPPL/Adani Foundation as a part of CSR intervention for fishermen, fishing community and fisheries sector for the period of October 2023 to March 2024 is given in **Annexure III**.
(vii)	Rail connectivity shall be parallel to the harbour road on elevated structures at +4/5.00 m level without affecting the entry to the existing harbor.	**EC amendment application submitted to MoEF&CC** Konkan Railway Corporation Limited (KRCL) has been engaged for turnkey execution of the project. Out of the total rail route length of 10.7 km, about 9.0 km is planned to be passing through an underground tunnel to minimize the disturbance to the local population. Detailed Project Report (DPR) has been approved by Southern Railway and Railway Board. Geophysical and geomorphological studies, flood mapping studies, hydrogeological studies, Various subsidence studies such as Ground subsidence, blasting impacts, and rail movement subsidence have also been completed. EC amendments in this regard had been submitted to MoEF&CC on 17.08.2022 vide Proposal No. IA/KL/NCP/285459/2022 and File No. 11-122/2011-IA.III. The Expert Appraisal Committee (EAC) during their 308th, 322nd, 363rd meetings held on 15.09.2022,

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		21.03.2023, 25.04.2024 respectively appraised the proposal and necessary clearance are expected to be received shortly. *(Source: VISL)*
(viii)	Compensation packages in accordance with the Central/State Government norms shall be given to all the authorized-cum-affected (having valid clearances as applicable) resort owners.	**Being Complied** Resort owners evicted have been compensated adequately for land and few of the structures could not be compensated since they were in violation of CRZ notifications in force. Further as last stage acquisition land of 2.865 Ha is yet to be acquired by Land Acquisition (LA) process; for which notification has been published and the acquisition is in an advanced stage. *(Source: VISL)*
(ix)	The port shall ensure that all ships under operation follow the MARPOL convention regarding discharge or spillage of any toxic, hazardous or polluting material like ballast water, oily water or sludge, sewage, garbage etc. The emission of NOx & SOx shall remain within permissible limits.	**Will be Complied** Currently project is under construction. This shall be complied during operational phase. All vessels entering the port will comply with DGS Circular No 02 of 2023 for Annex VI of MARPOL. Vizhinjam Port is also registered under Swachh Sagar portal of DG shipping. KSPCB approved vendors for waste collection under Swatch Sagar Portal is also implemented. Summary of the Ambient Air Quality Monitoring (AAQM) during the compliance period October 2023 to March 2024 at 5 monitoring locations in and around the port site are provided below:

Parameter	Unit	Max	Avg.	Min	Perm. Limit
PM_{10}	$\mu g/m^3$	90.5	65.9	39.5	100
$PM_{2.5}$	$\mu g/m^3$	46.2	31.0	18.9	60
SO_2	$\mu g/m^3$	5.88	4.66	4.03	80
NO_2	$\mu g/m^3$	6.87	5.38	4.36	80
CO	mg/m^3	BDL	BDL	BDL	4
HC	ppm	BDL	BDL	BDL	--

(x)	CSR activities shall cover villages within 10 km radius of the project.	**Being Complied** All CSR activities are being activities are being carried out in villages within 10 km radius of the project. CSR activities are being taken up and carried out mainly in the fields of education,

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<table>
<tr><th>S. No.</th><th>Conditions</th><th>Compliance Status as on 31.03.2024</th></tr>
<tr><td></td><td></td><td>community health, sustainable livelihood development, community infrastructure development and general administration; after receiving formal demands from social controlled institutions, government-controlled institutions and recognized platforms. An amount of Rs. 204.19 Lakhs has been spent on CSR activities during the compliance period (October 2023 to March 2024) as shown below:

<table>
<tr><th>S. No.</th><th>Head</th><th>Amount (Rs. Lakhs)</th></tr>
<tr><td>1</td><td>Education</td><td>22.00</td></tr>
<tr><td>2</td><td>Community Health</td><td>39.00</td></tr>
<tr><td>3</td><td>Sustainable Livelihood Development</td><td>24.50</td></tr>
<tr><td>4</td><td>Community Infrastructure Development</td><td>100.69</td></tr>
<tr><td>5</td><td>General Administration</td><td>18.00</td></tr>
<tr><td colspan="2">Total</td><td>204.19</td></tr>
</table>

Details on CSR activities carried out by AVPPL during compliance period (October 2023 to March 2024) are enclosed as Annexure III.</td></tr>
<tr><td>(xi)</td><td>Oil Contingency Management Plan shall be put in place.</td><td>Will be Complied
After duly incorporating the comments of Indian Coast Guard (ICG), the final facility Level Oil Spill Disaster Contingency Plan (OSDCP) in line with the National Oil Spill-Disaster Contingency Plan (NOS-DCP) has been submitted to ICG for approval vide letter No. AVPPL/ICG/2020-21/1134 dated 22.05.2020.

After final review by PRT (West), ICG has made specific remarks on the compliance of OSDCP prepared in line with NOS-DCP guidelines; directing AVPPL to submit the OSDCP for approval only after pollution response equipment are in place before start of operation.

Tendering and procurement of pollution response equipment is under progress presently and the final OSDCP will be submitted to ICG for approval prior</td></tr>
</table>

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		to commissioning of the port; when the pollution response equipment is in place.
(xii)	All the recommendations /conditions stipulated by Kerala Coastal Zone Management Authority (KCZMA) shall be complied with.	**Being Complied** AVPPL are complying with all the recommendations/conditions of KCZMA. Copies of the HYCRs are also being sent to KCZMA. Compliance to the recommendations/conditions of KCZMA for the period October 2023 to March 2024 is enclosed as **Annexure IV**.
(xiii)	The responses/ commitments made during public hearing shall be complied with in letter and spirit.	**Being Complied** The project proponent is complying with the responses/commitments made during public hearing (as applicable). Status of the same is being submitted regularly with HYCRs to all the authorities concerned. The compliance status of the commitments made during Public Hearing & actions on the same during the compliance period October 2023 to March 2024 is enclosed as **Annexure V**.
(xiv)	All the recommendation of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	**Being Complied** Project is presently in construction stage. Recommendations of the Construction stage EMP are being implemented. Status of construction stage EMP in matrix format is enclosed as **Annexure VI**.
(xv)	The project proponent shall bring out a special tourism promotion package for the area in consultation with the State Government and implement the same along with the project.	**Being Complied** Implementation of the Tourism Management Plan is being discussed with tourism department for a way forward. *(Source: VISL)*
(xvi)	The project proponent shall place on its website	**Complied**

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	its response to the Public Hearing, and representations as presented to the EAC in the 128th meeting held on 23rd November 2013, for information of the general public.	All the relevant details pertaining to EIA, ToR, EAC meetings, Public Hearing, etc. related to the project have been placed on VISL website: https://vizhinjamport.in/.
(xvii)	There shall be no withdrawal of groundwater in Coastal Regulation Zone Area, for this project. In case any groundwater is proposed to be withdrawn from outside the CRZ area, specific prior permission from the concerned State/Central Groundwater Board shall be obtained in this regard.	**Noted** There will not be any withdrawal of groundwater in CRZ Area. In case of requirement of groundwater withdrawal outside CRZ area, specific prior permission will be obtained from State/Central Groundwater Board. At present, the water for construction purposes for the port is being sourced from the open market/private suppliers. On an average about 133 KLD water is being consumed for construction related activities, sprinkling, and drinking water during the compliance period (October 2023 to March 2024).
(xviii)	The Hazardous waste generated shall be properly collected and handled as per the provision of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008.	**Being Complied** The Hazardous Waste at site are being stored according to the Hazardous Waste Rules. During the compliance period (October 2023 to March 2024) 1.748 KL of used oil, 27 kg of oily cotton material, 9 nos. battery waste, 51 nos. oil contaminated filters and 38 nos. of discarded containers had been generated and being disposed to authorized (CPCB/KSPCB) handlers.
(xix)	No hazardous chemicals shall be stored in the Coastal Regulation Zone area.	**Noted for Compliance** No hazardous chemical is being stored in the CRZ area.
(xx)	The wastewater generated from the activity shall be collected, treated and reused properly.	**Noted for Compliance**
(xxi)	Sewage Treatment facility should be	**Being Complied**

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	provided in accordance with the CRZ Notification.	A Provision for installing Sewage Treatment Plant (STP) facility of adequate capacity in phased manner in accordance with the CRZ Notification is being implemented. The order to develop the STP with capacity of 50 KLD has been awarded to M/s. Starcon Infra Projects (I) Pvt. Ltd. The STP system material is dispatched and is expected to arrive at the Vizhinjam Port site in May 2024.
(xxii)	No solid waste will be disposed of in the Coastal Regulation Zone area. The solid waste shall be properly collected, segregated and disposed as per the provision of Solid Waste (Management and Handling) Rules, 2000.	**Noted for Compliance** No solid waste is being disposed in the CRZ area. Bio-degradable waste is being treated in an Organic Waste Converter (OWC) installed at site and the output is being used as manure in greenbelt development within the port project areas. The dry waste is being properly collected, segregated, and disposed of in line with the Solid Waste Management Rules 2016, as amended. The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**.
(xxiii)	Installation and operation of DG set if any shall comply with the guidelines of CPCB. Oil spills if any shall be properly collected and disposed as per the Rules. Project proponent shall install necessary oil spill mitigation measures.	**Being Complied** In the compliance period, 31 DG sets were on site of which 7 were on standby. These are compliant to CPCB guidelines. Concrete storage with dyke is constructed for separation and used for containment. If any oil spill occurs, it shall be properly collected and disposed as per the Rules.
(xxiv)	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	**Being Complied** Construction of the project is being carried out as per the approval obtained under CRZ Notification.
(xxv)	The approach channel shall be properly demarcated with lighted buoys for safe navigation	**Complied** AVPPL had given order for manufacturing, supply, and installation of Navigation Aids on 12.08.2023 and the same (12 Nos. of Navigation Buoys and

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	and adequate traffic control guidelines shall be framed.	Marine Lanterns) have been delivered to the Vizhinjam Port Site and installed at sea. Additionally, 6 Nos. of spare buoys are also available at site.  **Red Navigational Channel Buoy**  **Green Navigational Channel Buoy**

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		 **Spare Buoys** A layout of the approach channel demarcated with Buoys for safe navigation with navigational aid buoys was submitted as a part of HYCR for the period April 2023 to September 2023. A Vessel Traffic Management System (VTMS) will be implemented prior start of commercial operation. The berthing tariff and policy structure (BPTS) will be circulated to relevant trade forums which will have port information on traffic guidelines.
(xxvi)	The project proponent shall take up development of greenbelt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management Plan for such development.	**Will be Complied** Greenbelt: A natural greenbelt exists around the port boundary towards the landward side. A greenbelt development plan has been considered in the Master Plan and adequate budgetary provision has been kept for this purpose. Greenbelt of adequate width with suitable species as identified in the EIA is being developed in all possible areas in line with the establishment of the project. Pitting was completed for 1000 Nos. of pits along the RHS slope of the port area. The planting materials were ready. It is proposed to start planting from the first week of April 2024.

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		 **Greenbelt Developed near GIS Substation**  **Greenbelt Developed near GIS Substation** <u>Landscape Development:</u> Landscape development work has also been completed at several locations

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in the port areas. The landscaping at the port site is maintained by Vanitha Karsheeka Karma Sena, one of the livelihood groups formed as part of the CSR activities. This includes the daily watering, weed control and management.

Landscape Development in the Turning Circle

Landscape Development near Substation Building

Compensatory Afforestation (CA): AVPPL, in collaboration with Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department, for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the obligation of compensatory afforestation required for the development of all the phases of Vizhinjam Port. Details of the same are provided below:

Phase	Location	Area (ha)	No. of Trees	Cost (Rs. Lakhs)
1	Sainik School, Kazhakootam	12.05	15,540	80.50
2	Kerala University Campus, Karyavattom	12.60	16,500	174.00

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		<table><tr><td>2</td><td>STP, Muttathara</td><td>5.00</td><td>8,000</td><td></td></tr><tr><td colspan="2">Total</td><td>29.65</td><td>40,040</td><td>254.50</td></tr></table>
(xxvii)	The fund earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	**Being Complied** An amount of 40 Crores has been kept solely for EMP implementation as per the commitment in the EIA; and this amount is not diverted for any other purpose. An amount of Rs. 1.03 Crores has been utilized towards EMP implementation measures during compliance period October 2023 to March 2024. Till date, an amount of Rs. 29.69 Crores has been spent on environmental protection measures. The EMP expenditure is enclosed as **Annexure VIII**.
(xxviii)	The project proponent shall set up an organizational mechanism/institutional structure for Environment, Health & Safety & CSR under the supervision of a General Manager as outlined in the EIA Report for effective implementation of the stipulated EHS safeguards & CSR activities.	**Complied** An officer of VISL has been designated as Head (EHS & CSR) for effective implementation of the stipulated EHS safeguards & CSR activities. AVPPL has also appointed competent and qualified professional for effective implementation of EHS safeguards & CSR activities. In addition to the above, independent environment, health and safety consultants have been appointed as per concession agreement signed between GoK and AVPPL. It is also ensured that contractors executing the work also deploy qualified and competent EHS personnel for effective implementation of EMP measures. Organizational Structure for Environment, Health, and Safety & CSR for construction phase is enclosed as **Annexure IX**.
(xxix)	Staff Colony should be located beyond CRZ area.	**Will be Complied** Port facility planning is done in such a way that staff colony will be located beyond CRZ area.
12.	**General Conditions**	
(i)	Construction of the proposed structures shall be undertaken meticulously conforming to the existing	**Complied** All the construction activities are being carried out as per existing Central/local rules. Necessary permissions under CRZ Notification 2011 & its amendments have been obtained. Further,

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	Central/local rules and regulations including Coastal Regulation Zone Notification, 2011 & its amendments. All the construction designs/drawings relating to the proposed construction activities must have approvals of the concerned Statutory Departments / Agencies.	necessary approvals from concerned Statutory Departments/Agencies have been obtained for the construction designs/drawings relating to construction activities as mentioned hereunder: • Consent to Establish (CTE) No. PCB/HO/TVM/ICE/08/2015 dated 15.09.2015 valid up to 31.07.2018 was renewed from Kerala State Pollution Control Board (KSPCB) vide Consent No. PCB/HO/TVM/ICE-R/02/2018, dated 19.07.2018 valid up to 31.07.2023 and further renewed vide Consent No. KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 valid up to 31.07.2028 (A Copy of the same was submitted along with HYCR for the period April 2023 to September 2023). All other port construction related aligned activities such as paver blocks, batching plants, etc. fall under this CTE taken for the port development. • Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 07.12.2015. • As per the exemption granted by GoK G.O. No. 310/2015/LSGD dated 01.10.2015, AVPPL is not required to obtain any further building permits/permission to construct port related building within the port premises. • Permissions with respect to store petroleum in tank/s in connection with pump outfit for fuelling motor conveyances has been obtained in Form XIV for the storage of 40.00 KL of Petroleum class B in tank/s in the port premises from Petroleum & Explosives Safety Organisation (PESO) as per the provisions of the Petroleum Act, 1934 and under the Petroleum Rules, 2002 vide License No.: P/SC/KL/14/3732(P499906) dated 05.10.2023 (Copy of the same is enclosed as **Annexure X**).
(ii)	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers	**Being Complied** On an average about 848 Nos. of employees, staff and construction workers were engaged in the port construction activities daily during the compliance period October 2023 to March 2024.

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	during the construction phase of the project to avoid any damage to the environment.	There are no labourers residing in the labour camps. It is ensured that construction workers who are staying outside in the contractor rented houses/apartments are provided with necessary infrastructure facilities.
(iii)	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	**Being Complied** Mitigation measures are being followed while undertaking digging activities. Surface and Groundwater quality is monitored monthly in line to Environment Monitoring Plan prescribed in EIA and analysis reports are enclosed as **Annexure II**. There are no significant changes observed in the water quality during the compliance period.
(iv)	Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following: (a) No excavation or dumping on private property is carried out without written consent of the owner. (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations. (c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and (d) Construction spoils including bituminous material and other hazardous materials must not be allowed	**Being Complied** Quarry material is being obtained from approved quarry sites only. • No excavation has been carried out in private property. • No excavation or dumping has been carried out in wetlands, forest area or other ecologically valuable or sensitive locations. • Kerala State Remote Sensing and Environment Centre (KSREC) have studied the impact due to construction of port approach road. Recommendations of KSREC are being implemented and suitable mitigation measures as suggested in the KSREC report are being adopted during construction. • No bituminous or hazardous material has been used. • Construction spoils are stored in such a way that they do not contaminate water courses and the dump sites for such materials are secured so that they shall not leach into the ground water. • Surface and Ground water quality is monitored monthly in line to Environment Monitoring Plan prescribed in EIA and analysis reports are enclosed as **Annexure II**.

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	to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.	
(v)	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	**Being Complied** The construction material was obtained from approved quarries only. As on date, AVPPL have obtained Environmental Clearance (EC) from the State Environmental Impact Assessment Authority (SEIAA) and Consent to Operate (CTO) from KSPCB for the following five granite building stone quarries: • Block No. 29, Re-Survey No. 120/10 in Manickal Village, Nedumangad Taluk, Thiruvananthapuram District, Kerala (Details submitted along with the HYCR for the period October 2019 to March 2020) • Survey No. 555/2, Nagaroor Village (Kadavilla), Chirayinkeezhu Taluk, Thiruvananthapuram District (Details submitted along with the HYCR for the period April 2019 to September 2019) • Block No. 47, Re-Survey Nos. 133/4, 133/16, & 139/6 in Aryanadu Village, Nedumangad Taluk, Thiruvananthapuram District, Kerala (Details submitted along with the HYCR for the period April 2022 to September 2022). • Block No. 30, Re-Survey No. 341/6 in Koodal Village, Konni Taluk, Pathanamthitta District, Kerala (Details submitted along with the HYCR for the period April 2022 to September 2022). • Block No. 37, Re-Survey Nos. 554/1, 554/5 & 554/6 in Nagaroor Village (Kadavilla), Chirayinkeezhu Taluk, Thiruvananthapuram District, Kerala (Details submitted along with the HYCR for the period April 2022 to September 2022).

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		In case of new quarries, necessary approvals will be obtained from the competent authority. Apart from these, the concessionaire is also sourcing rocks from the following private quarry owners in Kerala: • Vismaya Rocks Pvt. Ltd. Quarry at Kummil Village, Kottarakara Taluk, Kollam District, Kerala • Tasna Mines Quarry at Mancode Village, Kottarakara Taluk, Kollam District, Kerala • K. Lekshmanan Infrastructure Quarry at Chadayamangalam Village, Kottarakara Taluk, Kollam District, Kerala • Tasna Mines Quarry at Pallickal Village, Varkala Taluk, Thiruvananthapuram District, Kerala • Inchapapara Sand & Granite Quarry at Pathanamthitta Village, Koodal Taluk, Pathanamthitta District, Kerala AVPPL are also sourcing rocks from several private quarry operators in Tamil Nadu. It is ensured that all private quarry owners have necessary approvals and permits from competent authorities.
(vi)	The project authorities shall make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc. must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests	**Being Complied** • No solid waste is being disposed in the CRZ area. • Solid waste is handled as per the Solid Waste Management Rules, 2016 as amended. • No solid waste is being disposed in the CRZ area. • Bio-degradable waste is being treated in an OWC installed at site and output is being used as manure in greenbelt development. • The dry waste is being properly collected, segregated, and disposed in line to Solid Waste Management Rules 2016, as amended. • The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**. • A Provision for installing Sewage Treatment Plant (STP) facility of adequate capacity in

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	under the Environment (Protection) Act, 1986, whichever are more stringent.	phased manner in accordance with the CRZ Notification is being implemented. The order to develop the STP with a capacity of 50 KLD has been awarded to M/s. Starcon Infra Projects (I) Pvt. Ltd. The STP system material is dispatched and is expected to arrive at the Vizhinjam Port site in May 2024. • Environment Monitoring is being carried out as per Environment Monitoring Plan prescribed in EIA by NABL accredited agency Standards Environmental & Analytical Laboratories. • Ambient Noise is being monitored as per Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3 (1) and 4(1)) at 5 locations (Residential, commercial & Industrial) twice a month and it is observed that noise readings were within limits at all locations on all monitoring days during the monitoring months (from October 2023 to March 2024). • Half Yearly Environmental Monitoring Report for the period October 2023 to March 2024 is attached as **Annexure II**.
(vii)	The proponent shall obtain the requisite consents for discharge of effluents and emissions under the Water (Prevention and control of Pollution) Act, 1974 and the Air (Prevention and control of Pollution) Act, 1981 from the Kerala State Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.	**Will be Complied** CTO under the Water (Prevention and control of Pollution) Act, 1974 and the Air (Prevention and control of Pollution) Act, 1981 will be obtained from KSPCB before commissioning of the project and copy of the CTO will be sent to Ministry on receipt.
(viii)	Adequate precautions shall be taken during transportation of the construction material so that it does not affect	**Complied** Following precautionary measures are undertaken during transportation of the construction material as environment safeguard:

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	the environment adversely.	• Tarpaulin cover is being used during transportation of construction material. • All vehicles coming into the site are under a speed restriction of 20 km/hr. • Regular Water Sprinkling is done on the approach road by water tankers. • It is ensured that all vehicles entering the Port have a valid PUC certification. • The dumpers have speed governors ensuring adherence to speed limit.  **Speed and Saftey Sign Board**  **Speed Limit Sign Board**

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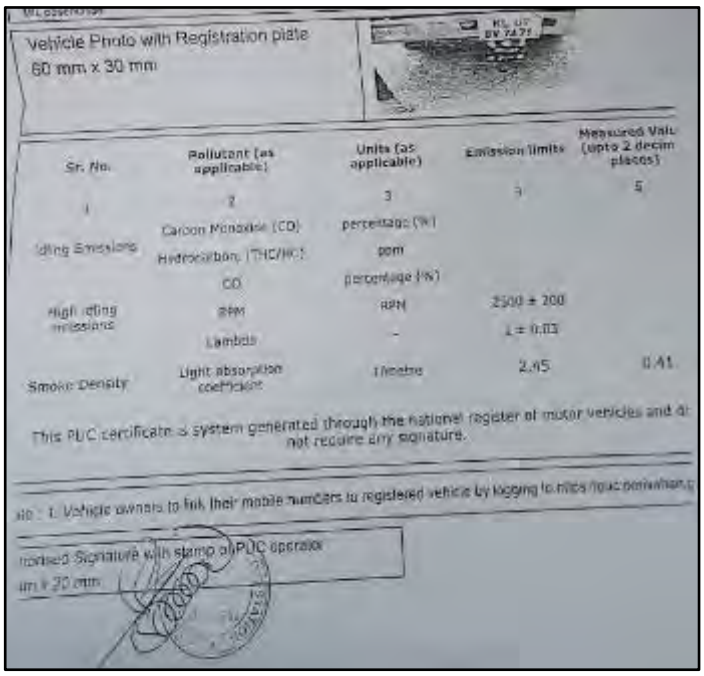
		 **Water Sprinkling in Progress**  **Tarpaulin Covered Truck**  Vehicle Photo with Registration plate 60 mm x 30 mm Sr. No. / Pollutant (as applicable) / Units (as applicable) / Emission limits / Measured Value (upto 2 decimal places) 1 / 2 / 3 / 4 / 5 Idling Emissions / Carbon Monoxide (CO) / percentage (%) Hydrocarbon (THC/HC) / ppm High idling emissions / CO / percentage (%) / 2500 ± 200 RPM / RPM / 1 ± 0.03 Lambda / - / 2.45 / 0.41 Smoke Density / Light absorption coefficient / 1/metre This PUC certificate is system generated through the national register of motor vehicles and do not require any signature. Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to https://puc.parivahan.g Contact Signature with stamp of PUC operator 60 mm x 30 mm **PUC Certificate**

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(ix)	Full support shall be extended to the officers of this Ministry/Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	**Noted** VISL had submitted prior EC application for the future phases (Master Plan Development) of Vizhinjam Port to MoEF&CC. In order to comply with the Terms of Reference obtained from MoEF&CC stating: "*Latest Certified EC Compliance report of the existing EC from the concerned/RO, Ministry shall submit*", VISL requested MoEF&CC Regional Office (SZ), Bangalore to issue a Certified Report of the Status of compliance of the prior EC granted to the Phase I of the project. In this regard, Dr. Murali Krishna, Additional Director/Scientist E, IRO office, Bangalore (Southern Zone), MoEF&CC, conducted a site visit of the Vizhinjam Port along with the Chief Environmental Engineer (CEE), KSPCB on 05.03.2024 for inspection of the project. The Certified Compliance Inspection Report is enclosed as **Annexure XI**.
(x)	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	**Noted for Compliance**
(xi)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied to the satisfaction of the Ministry.	**Noted**
(xii)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be	**Noted and Will be Complied** AVPPL is the concessionaire for implementing the project and operating it for the next 40 years, based on concession agreement signed between the GoK &, AVPPL on 17.08.2015. Vizhinjam International Seaport Limited (VISL) is the nodal

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	made to the Ministry of Environment & Forests.	agency for development of the port on behalf of GoK. As on date, there is no change in the project profile.
(xiii)	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	**Complied** Concession agreement with AVPPL was signed on 17.08.2015. The layout of the port has been approved by GoK by letter No.308799/E1/15/F&PD dated 30.10.2015 (Submitted along with the Compliance Report for the period October 2015 to March 2016). The preliminary construction activities commenced at site on 16.11.2015 followed by official inauguration on 05.12.2015. Financing agreement forming part of financial closure was submitted by the concessionaire on 13.05.2016.
(xiv)	Kerala State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.	**Noted** This condition does not pertain to project proponent. However, it is learnt that KSPCB had complied with the same.
13.	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.	**Noted for Compliance**
14.	All other statutory clearances such as the approvals for storage of	**Complied** All the construction activities are being carried out as per existing Central/local rules. Necessary

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	diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	permissions under CRZ Notification 2011 & its amendments have been obtained. Further, necessary approvals from concerned Statutory Departments / Agencies have been obtained for the construction designs/drawings relating to the proposed construction as mentioned hereunder: • Consent to Establish (CTE) No. PCB/HO/TVM/ICE/08/2015 dated 15.09.2015 valid up to 31.07.2018 was renewed from Kerala State Pollution Control Board (KSPCB) vide Consent No. PCB/HO/TVM/ICE-R/02/2018, dated 19.07.2018 valid up to 31.07.2023 and further renewed vide Consent No. KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 valid up to 31.07.2028 (A Copy of the same was submitted along with HYCR for the period April 2023 to September 2023). • Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 7.12.2015. • As per the exemption granted by GoK G.O. No. 310/2015/LSGD dated 01.10.2015, AVPPL is not required to obtain any further building permits/permission to construct port related building within the port premises. • Permissions with respect to store petroleum in tank/s in connection with pump outfit for fuelling motor conveyances has been obtained in Form XIV for the storage of 40.00 KL of Petroleum class B in tank/s in the port premises from Petroleum & Explosives Safety Organisation (PESO) as per the provisions of the Petroleum Act, 1934 and under the Petroleum Rules, 2002 vide License No.: P/SC/KL/14/3732(P499906) dated 05.10.2023 (Copy of the same is enclosed as **Annexure X**).
15.	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular	**Complied** Details regarding the advertisement that the project had been accorded EC and copies of the clearance letter that were published in local newspapers was intimated (along with copy of advertisement) to the regional office of MoEF&CC,

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	language informing that the project has been accorded Environment Clearance and copies of the clearance letters are available with the Kerala State Pollution Control Board and may also be seen on the website of the Ministry of Environment & Forest at http://www.envfor.nic.in. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.	vide letter No. VISL/EC/MoEF/2013 dated 20.01.2014 (Submitted along with the HYCR for the period October 2015 to March 2016). Copy of the EC is available on VISL website at https://vizhinjamport.in/environmental-clearance/. The same is also uploaded on Adani Ports and Special Economic Zone (APSEZ) website at https://www.adaniports.com/Downloads.
16.	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	**Noted** There are no eco-sensitive zones (ESZ), national parks and sanctuaries in the project area.
17.	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	**Noted** Three appeals challenging the EC granted to the project (two appeals filed at NGT, Southern Regional Bench, Chennai and one at NGT, Principal Bench, Delhi) and one original application (OA-filed at NGT, Principal Bench Delhi) indirectly challenging the CRZ Notification, 2011 were filed as per the NGT Act, 2010. The appeals filed at Chennai bench were later transferred to the Delhi bench. The Delhi Bench of NGT has upheld the EC granted to the project vide its judgment dated 02.09.2016.
18.	A copy of the clearance letter shall be sent by the	**Complied**

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	proponent to concerned Panchayat, ZilaParishad/Municipal Corporation, Urban Local Body and the Local NGO, if any from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	The EC was submitted to the concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the Local NGOs from whom representations were received vide letter No. VISL/EC/MoEF/2013 dated 29.01.2014. Copy of the EC is available on VISL website at https://vizhinjamport.in/environmental-clearance/. The same is also uploaded on APSEZ website at https://www.adaniports.com/Downloads
19.	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO_2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	**Being Complied** The copy of the latest HYCR for the period April 2023 to September 2023 including the results of six monthly monitoring data for the same period has been uploaded on VISL website https://vizhinjamport.in/compliance/ and also on APSEZ website https://www.adaniports.com/Downloads. The HYCR for the period April 2023 to September 2023 has been submitted to the MoEF&CC, Regional Office (Bangalore), Zonal office of the CPCB (Bangalore), KSPCB & KCZMA via email dated 28.11.2023 (a copy of the email is enclosed as **Annexure XII**). Environment Monitoring is being carried out as per Environment Monitoring Plan prescribed in EIA by NABL accredited agency Standards Environmental & Analytical Laboratories. Detailed Monitoring reports (Air, Water, Noise, Marine Water, and Sediment) for the Compliance Period October 2023 to March 2024 are enclosed as **Annexure II**. Additionally, summary of monthly Environment monitoring results is also uploaded on the APSEZ website: https://www.adaniports.com/Downloads.
20.	The project proponent shall also submit six monthly reports on the	**Being Complied** HYCRs on the status of compliance of the stipulated clearance conditions including results of

Half Yearly Compliance Report (HYCR) on Conditions Stipulated in Environmental & CRZ Clearance (EC) F.No.11-122/2011-IA.III dated 03.01.2014 for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
	status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	monitored data are regularly submitted to all the concerned agencies. As per the MoEF&CC Notification dated 26.11.2018, wherein submission of HYCRs by email/soft copy is declared acceptable, therefore the HYCR for the period April 2023 to September 2023 has been submitted to the MoEF&CC, Regional Office (Bangalore), Zonal office of the CPCB (Bangalore), KSPCB & KCZMA via email dated 28.11.2023 (a copy of the email is enclosed as **Annexure XII**). Additionally, as per the MoEF&CC Office Memorandum dated 14.06.2022, the HYCR for the period April 2023 to September 2023 has been submitted online through newly developed compliance module in the PARIVESH Portal.
21.	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned Kerala State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	**Will be Complied** The project is in construction phase. The same shall be complied post commissioning during operational phase.

Enclosures:

Annexure Number	Details of Annexure
Annexure I:	Shoreline Monitoring Report (October 2023 to March 2024)
Annexure II:	Environment Monitoring Report (October 2023 to March 2024)
Annexure III:	CSR Activities by AVPPL (October 2023 to March 2024)
Annexure IV:	Compliance to Conditions of KCZMA Recommendation
Annexure V:	Compliance of the Commitments made during Public Hearing
Annexure VI:	Status of Environment Management Plan
Annexure VII:	Solid Waste Management Report (October 2023 to March 2024)
Annexure VIII:	EMP Expenditure
Annexure IX:	Environment Health, Safety & CSR Organizational Structure
Annexure X:	PESO Licence for Storage of Petroleum
Annexure XI:	MoEF Certified Compliance Inspection Report
Annexure XI:	Email Submission of HYCR for the Period April 2023 to September 2023

Annexure I

Shoreline Monitoring Report

(October 2023 to March 2024)

SHANKAR SURVEYS

adani

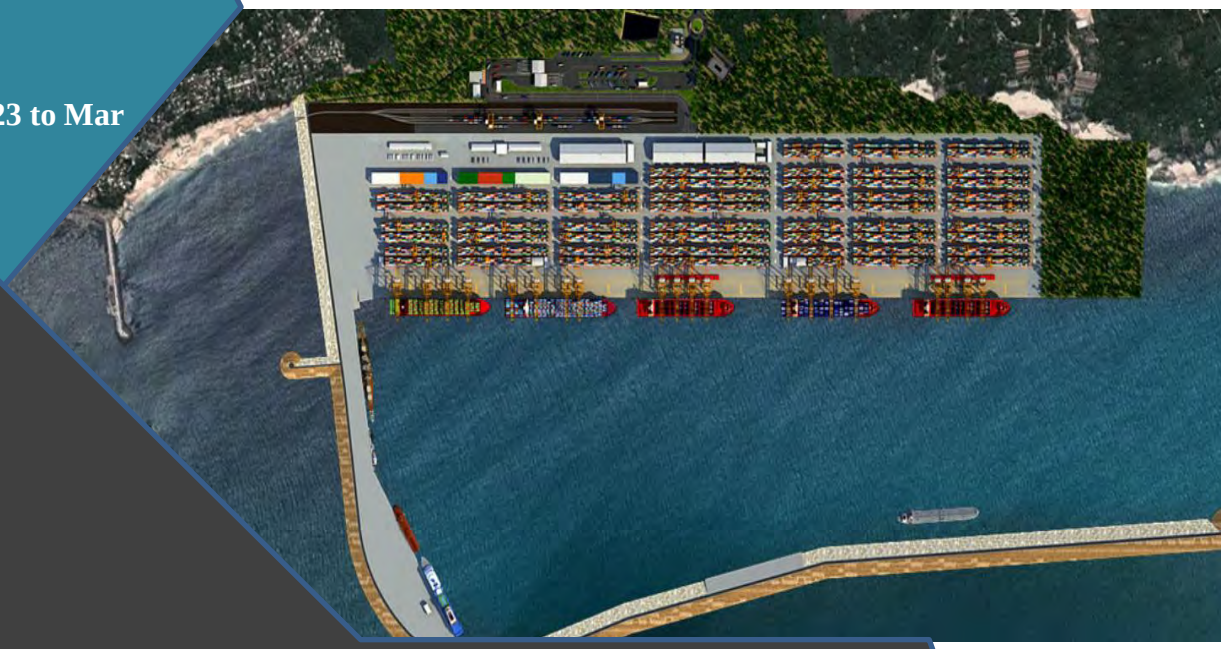
Adani Vizhinjam Port Pvt. Ltd.

OCEANOGRAPHIC AND BATHYMETRIC DATA COLLECTION FOR ASSESSMENT OF SHORELINE CHANGES

Shankar Surveys Pvt. Ltd.
115, Neco Chambers,
CBD Belapur,
Navi Mumbai – 400 614

28th May 2024

SSPL Ref #
SSPL/P034-23/ Oct 2023 to Mar 2024 Rev 1



HALF YEARLY REPORT

(OCTOBER 2023 – MARCH 2024)

"APPROVAL SHEET"

Prepared by:	*Signed*	*Date*
V Chathurala		*24/05/2024*

Checked by:	*Signed*	*Date*
A Madhavan		*26/05/2024*

Approved by:	*Signed*	*Date*
S Philip		*28/05/2024*

REVISION CONTROL

Date	Rev	Section / Page No.	Remarks	Comment By
16/05/2024	0		Submitted for approval	
28/05/2024	1	Sec 3.1, Pg 13	Sentence removed from last paragraph as suggested	NIOT
		Sec 3.1 Pg 14	Water depth added to the table of WRB coordinates	NIOT
		Sec 3.3, Pg 17	Replace 'contract' with 'scope of work' in first sentence a suggested	AVPPL
		Sec 5.2, Pg 24	Added 'by INCOIS' in last sentence as suggested	AVPPL
		Sec 6, Pg 35	Table corrected as suggested	NIOT
		Sec 6.2, Pg 41	Changed 'September 2023' to 'March 2024' for last rose plot	AVPPL & NIOT
		Sec 6.2, Pg 42	Mentioned 'only 7 days' for December 2023 and no Hmax data available for December 2023 and March 2024	NIOT
		Sec 6.3, Pg 45	Changed 'September 2023' to 'March 2024' for last rose plot	NIOT

Date	Rev	Section / Page No.	Remarks	Comment By
		Sec 6.4, Pg 49	Added two decimals for December 2023 data	AVPPL
		Sec 6.4, Pg 50	Provided reasons for data gaps in time series of wind data	AVPPL
		Sec 6.4, Pg 52	Changed 'April 2023 to September 2023' to 'October 2023 to March 2024' in first sentence.	AVPPL
		Sec 6.4, Pg 52	Corrected values of rainfall data	NIOT
		Sec 6.4, Pg 52	Changed 'April 2023 to September 2023' to 'October 2023 to March 2024' in last sentence.	AVPPL
		Sec 6.5, Pg 55	Mentioned location numbers where CSP could not be carried out due to the protests from locals. Changed 'five to ten minutes' to 'two minutes' as suggested	AVPPL & NIOT
		Sec 6.7, Pg 57	Added a table showing unavailability of CSP data	NIOT
		Sec 6.13, Pg 81	Added a colour-coded image of the bathymetry of entire 40 km stretch	NIOT
		Sec 9, Pg 82 & 83	Changed made in the conclusions as suggested	AVPPL

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ABBREVIATIONS

ADCP	Acoustic Doppler Current Profiler
APHA	American Public Health Association Guidelines
CES	Coastal Erosion Stone
AVPPL	Adani Vizhinjam Port Pvt. Ltd.
BDL	Below Detectable Level
C.M.	Central Meridian
CD	Chart Datum
cm	Centimetre
COG	Course over ground
dd mm.mmm	Degrees minutes. Decimal minutes
DGPS	Differential Global Positioning System
DTM	Digital Terrain Model
EC	Environmental & CRZ Clearance
EIL	Engineer In Charge
EEZ	Exclusive Economic Zone
GoI	Government of India
GoK	Government of Kerala
GPS	Global Positioning System
HSE	Health, Safety & Environment
HWM	High Water Mark
IHO	International Hydrographic Organization
INCOIS	Indian National Centre for Ocean Information Services
IS 1498	Indian Standard for Classification and Identification of Soils for General Engineering Purposes
IS 3025	Indian Standard or Methods of Sampling and Test for Water and Waste water Part 1 - Sampling
kHz	Kilohertz
Km	Kilometre
kPa	Kilo Pascal
LAT	Lowest Astronomical Tide
Lat	Latitude
LEO	Littoral environmental observation
Long	Longitude
m	Metre
MBES	Multibeam Echo Sounder
Mg/L	Milligram per litre
MoEF	Ministry of Environment & Forests

MoU	Memorandum of Understanding
MSL	Mean Sea Level
MV	Motor Vessel
NA	Not Applicable
NABL	National Accreditation Board for Testing and Calibration Laboratories
NHO	Naval Hydrographic Organization
NIOT	National Institute of Ocean Technology
nm	Nautical mile
NTU	Nephelometric Turbidity Units
PEP	Project Execution Plan
PVD	Progressive vector diagram
PPP	Public Private Partnership
ppt	Parts per Thousand
RTK	Real Time Kinematics
SSPL	Shankar Surveys Private Limited
SBES	Single Beam Echo Sounder
SoI	Survey of India
SOG	Speed over ground
SOW	Scope of Work
TEU	Twenty Foot Equivalent Unit
UNCLOS	United Nations Convention on the Law of the Sea
UTM	Universal Transverse Mercator projection
VISL	Vizhinjam International Seaport Ltd.
w.d.	Water depth
WGS84	World Geodetic System 1984
WMO	World Meteorological Organisation

DEFINITIONS

Project Owner	Vizhinjam International Seaport Ltd (VISL), Thiruvananthapuram
Project Concessionaire	Adani Vizhinjam Port Pvt. Ltd. (AVPPL), Thiruvananthapuram
Advisor to VISL	National Institute of Ocean Technology (NIOT), Chennai
Survey Contractor	Shankar Surveys Private Limited (SSPL), Navi Mumbai
Survey Requirement	Oceanographic & Bathymetric Survey for Shoreline Monitoring
Chart Datum	Chart datum is the level to which soundings on published charts are reduced, and above which tidal predictions and tidal levels are given in the Tide Table. All depths on charts are referred to this datum.
Rip Current	A relatively strong, narrow current flowing outward from the beach through the surf zone
LEO	Littoral Environmental Observations
Wave Peak period (Tp)	The peak period gives the characteristic frequency of the arriving wave energy. This gives the period at which the spectrum has its highest value.
Significant Wave Height (Hs)	Significant wave height is the average peak-to-peak amplitude of the largest one third of the waves in a given field.
Wave direction	The direction **from which** the waves are coming. A westerly wave implies that the waves are moving from west to east.
Wind Speed	The speed at which the air moves with respect to the surface of earth. The speed is denoted in m/s
Wind Direction	Wind direction is an indicator of the direction that the wind is **blowing from**. A northerly wind is coming from the north and blowing towards the south
Atmospheric pressure	It is defined as the force per unit area exerted against a surface by the weight of the air above that surface. Atmospheric pressure is expressed in millibars (mb)
Relative Humidity	Relative humidity is defined as the ratio of the water vapor density (mass per unit volume) to the saturation water vapor density, usually expressed in percent

1 EXECUTIVE SUMMARY

The **Vizhinjam International Deepwater Multipurpose Seaport** is an ambitious project taken up by the Government of Kerala, (GoK). It is designed primarily to cater to container trans-shipment besides multi-purpose and break-bulk cargo. The port is being currently developed in a Public-Private Partnership (PPP) component on a design, build, finance, operate and transfer ("DBFOT") basis. The private partner, the Concessionaire - **M/s Adani Vizhinjam Port Private Limited** (**AVPPL**) had commenced construction on 5th December 2015.

Vizhinjam International Seaport Ltd (**VISL**) - a company fully owned by GoK is the implementing agency for the project, will be responsible for all obligations and responsibilities of GoK in respect of the Project and the Concession Agreement.

With its numerous natural advantages and potential, the port will contribute greatly to economic development and will be an asset in terms of infrastructure development in the country.

The project obtained Environmental & CRZ Clearance ("EC") from the Ministry of Environment & Forests (MoEF), Government of India (GoI) on 3rd January 2014, wherein it has been specified to carry out intense monitoring and regulatory reporting of the shoreline changes in the project area. Accordingly, VISL has entered into a memorandum of understanding (MoU) with the National Institute of Ocean Technology (NIOT), Chennai, under the Ministry of Earth Sciences (MoES), for a long-term shoreline monitoring programme including the seasonal bathymetry mapping.
(Source: https://www.vizhinjamport.in/home.html)

Shankar Surveys Private Limited, hereinafter referred to as SSPL, based in Navi Mumbai, has been awarded the contract to carry out Shoreline Monitoring – Oceanographic & Bathymetric Data Collection in the vicinity of the proposed site for the development of the Vizhinjam International Deepwater Multipurpose Seaport.

This report provides the results of the data collected for the half yearly period from October 2023 to March 2024.

All the co-ordinates in the report are referenced to WGS-84, UTM Projection, CM 75° East, Zone 43, Northern Hemisphere.

2 INTRODUCTION

The proposed project is being developed as a PPP project on a DBFOT basis in accordance with the terms and conditions set forth in the concession agreement signed between AVPPL and GoK/ VISL. The investment for land, external infrastructure (rail, water and power) and breakwater will be borne by the landlord (VISL/ GoK). The investments for other port infrastructure (dredging & reclamation, berths, terminals, superstructure & equipment) will be shared on PPP basis availing Viability Gap Funding (VGF). The PPP concessionaire, AVPPL has been given the right to operate the port for a specified concession period of 40 years. Traffic-linked stage-wise future development of the project with an ultimate berth length of 2000m is also envisaged.

The proposed site is endowed with a natural depth of 23 to 25m (which is by far the best compared to other ports in the world) as close as 2 km from the coast. This will enable berthing of mother vessels of 18000 TEU and higher. Since the port site is located at the southern tip of India, barely 10 nautical miles from the international sea route (Suez – Far East route & Far East – Middle East route), it has the potential to become the future trans-shipment hub of the country.
(Source: https://www.vizhinjamport.in/download/Feasibility-Report.pdf)

The study includes carrying out Met-Ocean observations (meteorological parameters and tide) at one location, bathymetric survey of up to 20m contour in two seasons, cross-shore profiling (CSP) from 10m CD (4 CSP lines carried out up to a depth of 20m during the months of January, May, August and October) to 100m inland from the high-water line along a stretch of 40 km, water & grab sampling, and littoral environmental observation. All these surveys and field data measurements are to be carried out for a period of 1 year commencing April 2023.

The Google Earth images, showing the Multibeam survey area, locations of the Automatic Tide Gauge (ATG), Wave Rider Buoy (WRB) and Automatic Weather Station (AWS) are given in Figure 2-1 and Figure 2-2.

Figure 2-1: Location of Multibeam survey area and WRB

Figure 2-2: Location of ATG and AWS

The CSP lines, which coincide with the Littoral Environment Observation (LEO), beach sampling and photographic documentation, are indicated in Figure 2-3. The cross-shore profiles are named as CSP-01 to CSP-81. CSP-01 corresponds to the southernmost profile which lies to the south of the existing Vizhinjam Harbour and gradually increases progressing towards north for the entire 40 Km stretch (20 Km on either side of the port) with a 500m interval between each CSP line, CSP-81 being the northernmost profile.

Figure 2-3: CSP, LEO and Photographic Documentation Locations

3 SCOPE OF WORK

The survey scope of work as per the Contract includes the following:

- To mobilize a suitable marine spread including a survey boat at site for carrying out the survey operations.
- To provide requisite personnel and equipment for undertaking of oceanographic measurements and study of the shoreline.
- Monthly cross-shore beach profiling perpendicular to the shoreline for a 40 Km stretch at intervals of 500m; using RTK or total station landward up to 100m from HTL or +2m of HTL and using shallow draft boats, sled or any other suitable techniques, seaward down to 10m CD (4 CSP Lines carried out up to a depth of 20m in the months of January, May, August and October).
- Monthly monitoring of littoral zone (at the CSP locations) to observe the littoral transport direction and alongshore current speed by means of appropriate drogue observations and visual observations.
- Monthly photographic documentation of geomorphological changes (at the cross-shore beach profiling locations in four directions).
- Seasonal beach sediment sampling and analysis (at the CSP locations).
- Bathymetry survey twice in a year, i.e., just after the monsoon season and just prior to the commencement of the next monsoon to generate 0.5m contours (with bathymetric survey lines spaced at 25m interval) in areas with depths to 20m CD using multibeam echo sounder.
- Seabed sediment sampling and analysis in 80 sq. Km with one sample per sq Km; once in a year.
- Collection and analysis of water samples at specified periods (seasonal) for total suspended solids (TSS) and turbidity from four specified locations.
- Tide measurements using an automatic tide gauge close to the survey area to observe the tidal variations around the clock at 6-minute intervals or as specified to cover one full year. The tide gauge shall be connected to the nearest Survey of India Benchmark.
- Collection of wind speed & direction, atmospheric pressure, humidity, temperature at 1 location specified by the Client/ EIC (Engineer-in-Charge) by establishing an automatic weather station (AWS).
- Processing and documentation of monthly wave data provided by INCOIS.
- Processing and documentation of seasonal current data provided by INCOIS.
- Shoreline monitoring survey using RTK in GPS mode is to be carried out along the entire 40 Km stretch every month (commenced from November 2021 onwards).

- Sled survey to be carried out for the nearshore areas along 7 CSP transects (CSP-2, CSP-33, CSP-34, CSP-68, CSP-69, CSP-73 and CSP-74) every month using pressure sensor. This survey shall be carried out till the minimum depth which can be navigated by the offshore CSP survey boat.
- Analysis and processing of the data and submission of periodic reports.

3.1 Location Coordinates

The location co-ordinates of the tide station are provided below:

Table 3-1: Tide station location coordinates

Tide Station Co-ordinates WGS-84 Spheroid, UTM Projection, CM 75 East, Zone 43, North			
Name	**Latitude**	**Longitude**	**Height above CD (m)**
Tide station	08° 22' 33.55"N	76° 59' 16.69"E	2.711

The Gill Metpack Automatic Weather Station (AWS) was installed on the terrace of the Port Control Office. The following table shows the coordinates of the AWS installation.

Table 3-2: Weather station location coordinates

Weather Station Co-ordinates WGS-84 Spheroid, UTM Projection, CM 75 East, Zone 43, North			
Name	**Latitude**	**Longitude**	**Height above CD (m)**
Weather Station	08° 22' 22.75"N	76° 59' 39.62"E	14.785

Note: The wind sensor was installed at a height of 14.235m above MSL (14.785m above CD). As suggested by NIOT, 7% of the speed was reduced to derive the wind speeds at 10m above MSL as per WMO standards.

① The Datawell DWR 4 Wave Rider Buoy (WRB) was deployed by INCOIS and AVPPL on 21st May 2023. On 5th October 2023, the buoy drifted. It was recovered and redeployed on 21st December 2023.

The location co-ordinates of the Wave rider buoy are provided below:

Table 3-3: Wave rider buoy location coordinates

WRB Co-ordinates WGS-84 Spheroid, UTM Projection, CM 75 East, Zone 43, North			
Name	**Latitude**	**Longitude**	**Water Depth (m)**
WRB	08° 19.656918' N	77° 1.078776' E	~25m

3.2 Beach and Water Sampling

A total of 81 beach samples were to be collected in one season, as part of the contract. The samples were to be analyzed for grain size distribution as per Wentworth classification.

A total of 81 beach samples are to be collected in three seasons, as part of the contract. In the post monsoon 2023 period, 59 samples could be collected out of 81. The samples which could not be collected due to lack of beach were BS-3, BS-11 to BS-14, BS-39, BS-40, BS-47, BS-49 to BS-52, BS-56, BS-59, BS-63, BS-64 and BS-65. Beach samples at CSP locations, CSP-23 to CSP-30 could not be collected due to the protests from local people residing at those locations.

Table 3-4: Beach Sampling Locations

BEACH SAMPLING LOCATIONS WGS-84, UTM Projection, CM 75° East, Zone 43, North		
Location	**Latitude**	**Longitude**
BS-1	8° 16.0265' N	77° 7.9532' E
BS-2	8° 16.1775' N	77° 7.7195' E
BS-3	8° 16.3348' N	77° 7.4987' E
BS-4	8° 16.4955' N	77° 7.2778' E
BS-5	8° 16.6565' N	77° 7.0579' E
BS-6	8° 16.8176' N	77° 6.8379' E
BS-7	8° 16.9782' N	77° 6.6187' E
BS-8	8° 17.1382' N	77° 6.3980' E
BS-9	8° 17.2984' N	77° 6.1765' E
BS-10	8° 17.4586' N	77° 5.9566' E
BS-11	8° 17.6207' N	77° 5.7379' E
BS-12	8° 17.7276' N	77° 5.5946' E
BS-13	8° 17.8899' N	77° 5.3756' E
BS-14	8° 18.0524' N	77° 5.1568' E

BEACH SAMPLING LOCATIONS WGS-84, UTM Projection, CM 75° East, Zone 43, North		
BS-15	8° 18.2151' N	77° 4.9388' E
BS-16	8° 18.3603' N	77° 4.7165' E
BS-17	8° 18.5517' N	77° 4.5120' E
BS-18	8° 18.7213' N	77° 4.3003' E
BS-19	8° 18.8852' N	77° 4.0829' E
BS-20	8° 19.0488' N	77° 3.8659' E
BS-21	8° 19.2152' N	77° 3.6499' E
BS-22	8° 19.3848' N	77° 3.4369' E
BS-23	8° 19.5582' N	77° 3.2282' E
BS-24	8° 19.7318' N	77° 3.0196' E
BS-25	8° 19.9075' N	77° 2.8098' E
BS-26	8° 20.0796' N	77° 2.5989' E
BS-27	8° 20.2492' N	77° 2.3841' E
BS-28	8° 20.4130' N	77° 2.1703' E
BS-29	8° 20.5731' N	77° 1.9581' E
BS-30	8° 20.7305' N	77° 1.7499' E
BS-31	8° 20.8951' N	77° 1.5274' E
BS-32	8° 21.0493' N	77° 1.2973' E
BS-33	8° 21.1815' N	77° 1.0911' E
BS-34	8° 21.3210' N	77° 0.8491' E
BS-35	8° 21.3974' N	77° 0.6359' E
BS-36	8° 21.6830' N	77° 0.4829' E
BS-37	8° 21.8799' N	77° 0.2980' E
BS-38	8° 22.1369' N	77° 0.1947' E
BS-39	8° 22.3420' N	76° 59.9895' E
BS-40	8° 22.5417' N	76° 59.7689' E
BS-41	8° 22.8201' N	76° 59.0753' E
BS-42	8° 23.0287' N	76° 58.7934' E
BS-43	8° 23.1727' N	76° 58.6741' E
BS-44	8° 23.3709' N	76° 58.5145' E
BS-45	8° 23.7061' N	76° 58.3743' E
BS-46	8° 23.8974' N	76° 58.3798' E
BS-47	8° 24.1304' N	76° 58.2814' E
BS-48	8° 24.4789' N	76° 58.1346' E

BEACH SAMPLING LOCATIONS		
WGS-84, UTM Projection, CM 75° East, Zone 43, North		
BS-49	8° 24.6320' N	76° 58.0289' E
BS-50	8° 24.8665' N	76° 57.8917' E
BS-51	8° 25.0976' N	76° 57.7474' E
BS-52	8° 25.3176' N	76° 57.5868' E
BS-53	8° 25.5653' N	76° 57.4562' E
BS-54	8° 25.7602' N	76° 57.2767' E
BS-55	8° 25.9643' N	76° 57.0963' E
BS-56	8° 26.1500' N	76° 56.9073' E
BS-57	8° 26.3461' N	76° 56.7308' E
BS-58	8° 26.5741' N	76° 56.5678' E
BS-59	8° 26.7782' N	76° 56.4051' E
BS-60	8° 26.9997' N	76° 56.2272' E
BS-61	8° 27.2030' N	76° 56.0492' E
BS-62	8° 27.4175' N	76° 55.8762' E
BS-63	8° 27.6142' N	76° 55.6937' E
BS-64	8° 27.8102' N	76° 55.5014' E
BS-65	8° 28.0132' N	76° 55.3255' E
BS-66	8° 28.2159' N	76° 55.1437' E
BS-67	8° 28.4224' N	76° 54.9642' E
BS-68	8° 28.6228' N	76° 54.7840' E
BS-69	8° 28.8276' N	76° 54.6048' E
BS-70	8° 29.0316' N	76° 54.4243' E
BS-71	8° 29.1104' N	76° 54.3586' E
BS-72	8° 29.3118' N	76° 54.1755' E
BS-73	8° 29.5150' N	76° 53.9964' E
BS-74	8° 29.7202' N	76° 53.8181' E
BS-75	8° 29.9258' N	76° 53.6393' E
BS-76	8° 30.1345' N	76° 53.4652' E
BS-77	8° 30.3450' N	76° 53.2940' E
BS-78	8° 30.5558' N	76° 53.1226' E
BS-79	8° 30.7701' N	76° 52.9558' E
BS-80	8° 30.9840' N	76° 52.7867' E
BS-81	8° 31.1988' N	76° 52.6188' E

The water samples (132 from four locations) were collected and analysed for TSS as per IS 3025, Part 17:1984 (reaffirmed 2012); Turbidity was analysed as per IS 3025, Part 10:1984 (reaffirmed 2012) technical specifications. The salinity was analysed as per American Public Health Association (APHA) guidelines.

The water samples were collected in the month of December 2023 for the post monsoon 2023 period.

The location co-ordinates of water sampling locations are provided below:

Table 3-5: Water Sampling Locations

WATER SAMPLING LOCATIONS WGS-84, UTM Projection, CM 75° East, Zone 43, North			
Location	**Water Depth (m)**	**Latitude**	**Longitude**
L1 (Mulloor)	21.1	08° 21.923' N	76° 58.860' E
L2 (Proposed Dredge dumping)	23.2	08° 21.705' N	76° 59.565' E
L3 (Pachalloor)	27.4	08° 24.143' N	76° 56.268' E
L4 (Poovar)	23.0	08° 17.597' N	77° 04.058' E

3.3 Seabed Grab Sampling

① As part of the scope of work, 80 grab samples are to be collected from the survey area, from a 1 Km x 1 Km area covering 80 sq. Km. once in a year. The samples have been analysed for grain size from a NABL approved laboratory.

The location coordinates of beach samples are provided in the table below.

Table 3-6: Seabed grab sampling locations

GRAB SAMPLING LOCATIONS WGS-84, UTM Projection, CM 75° East, Zone 43, North		
Location	**Easting**	**Northing**
GS-01-01	734071.045	914222.445
GS-01-02	733461.665	913429.567
GS-02-01	733278.167	914831.826
GS-02-02	732668.787	914038.948
GS-03-01	732485.290	915441.206
GS-03-02	731875.909	914648.328

GRAB SAMPLING LOCATIONS		
WGS-84, UTM Projection, CM 75° East, Zone 43, North		
GS-04-01	731692.412	916050.587
GS-04-02	731083.031	915257.709
GS-05-01	730899.534	916659.967
GS-05-02	730299.277	915860.077
GS-06-01	730108.355	917252.674
GS-06-02	729508.036	916452.703
GS-07-01	729290.883	917848.939
GS-07-02	728680.681	917054.993
GS-08-01	728493.994	918453.101
GS-08-02	727883.769	917659.124
GS-09-01	727706.648	919069.679
GS-09-02	727128.369	918251.504
GS-10-01	726912.515	919677.426
GS-10-02	726303.073	918884.469
GS-11-01	726127.895	920297.552
GS-11-02	725518.168	919504.223
GS-12-01	725357.149	920935.729
GS-12-02	724747.366	920142.327
GS-13-01	724580.923	921566.775
GS-13-02	724008.185	920743.887
GS-14-01	723778.377	922180.998
GS-14-02	723177.347	921381.564
GS-15-01	722980.588	922766.567
GS-15-02	722370.734	921973.073
GS-16-01	722152.725	923330.428
GS-16-02	721539.284	922532.266
GS-17-01	721312.947	923878.786
GS-17-02	720656.451	923024.604
GS-18-01	720580.926	924567.348
GS-18-02	719898.407	923679.308
GS-19-01	719942.911	925378.224
GS-19-02	719349.669	924606.344
GS-20-01	719194.206	926045.079
GS-20-02	718570.376	925233.400
GS-21-01	718274.212	926489.066

GRAB SAMPLING LOCATIONS		
WGS-84, UTM Projection, CM 75° East, Zone 43, North		
GS-21-02	717651.412	925678.728
GS-22-01	717499.545	927122.106
GS-22-02	716879.322	926315.156
GS-23-01	716980.751	928088.139
GS-23-02	716254.351	927143.004
GS-24-01	716482.523	929080.894
GS-24-02	715801.588	928194.915
GS-25-01	716042.519	930149.406
GS-25-02	715315.207	929203.084
GS-26-01	715470.571	931046.243
GS-26-02	714821.993	930202.365
GS-27-01	714854.197	931861.423
GS-27-02	714209.468	931046.405
GS-28-01	714176.846	932644.972
GS-28-02	713555.601	931836.657
GS-29-01	713519.303	933430.440
GS-29-02	712895.295	932618.530
GS-30-01	712871.320	934228.346
GS-30-02	712244.643	933412.963
GS-31-01	712204.017	935001.114
GS-31-02	711585.287	934196.072
GS-32-01	711523.280	935756.403
GS-32-02	710904.066	934950.731
GS-33-01	710838.402	936506.306
GS-33-02	710218.746	935700.058
GS-34-01	710161.990	937267.222
GS-34-02	709537.645	936465.141
GS-35-01	709487.177	938040.487
GS-35-02	708868.618	937225.399
GS-36-01	708828.757	938814.547
GS-36-02	708204.133	938001.834
GS-37-01	708173.034	939602.382
GS-37-02	707548.410	938789.670
GS-38-01	707517.311	940390.218
GS-38-02	706892.687	939577.505

GRAB SAMPLING LOCATIONS		
WGS-84, UTM Projection, CM 75° East, Zone 43, North		
GS-39-01	706861.588	941178.054
GS-39-02	706221.414	940345.110
GS-40-01	706205.865	941965.889
GS-40-02	705581.241	941153.177

4 SURVEY CONTROL

4.1 Geodesy

The survey operations were conducted in the WGS 84 Spheroid, Universal Transverse Mercator Projection based on the geodetic parameters presented below. All co-ordinates quoted within this document are with reference to it.

Table 4-1: Geodetic Parameters

GEODETIC PARAMETERS	
Satellite Datum	
Spheroid	WGS-84
Datum	WGS 84
Semi-Major Axis	6378137.000 m
Semi Minor Axis	6356752.314 m
Inverse Flattening	298.2572
Projection Parameters	
Grid Projection	Universal Transverse Mercator
Latitude of Origin of Projection	0° (Equator)
Longitude of Origin of Projection	75° E, Zone 43
Hemisphere	North
False Easting (metres)	500000
False Northing (metres)	0
Scale Factor on CM	0.9996
Units	Metres

4.2 Survey Vessels

The following vessels were utilized for the survey operation:

Figure 4-1: Multibeam Survey Boat “Bismi”

4.3 Personnel

The following survey personnel from SSPL/AVPPL were assigned to the project in the capacities listed in the table below during the period.

Table 4-2: Personnel

Shankar Surveys Pvt. Ltd.		
Name	**Designation**	**Period**
Rajinder Singh Sandhu	Project Manager (Navi Mumbai office)	Duration of Project
Vasil Chathurala	Oceanographer (Navi Mumbai office)	Duration of Project
Vishnu K.	Survey Engineer	1st October 2023 to 31st March 2024
Abhiram J	Land / Hydrographic Surveyor	
Ajeesh A.S.	Assistant Surveyor	
Amal Deva	Assistant Engineer	
Sanjeevanee Khaire	Data Processor (Navi Mumbai office)	Duration of Project
Adani Vizhinjam Port Pvt. Ltd.		
Name	**Designation**	**Period**
Hebin C	Manager - Environment	Duration of Project
Jesse Fullonton	Assistant Manager - Environment	Duration of Project

5 SURVEY EQUIPMENT DETAILS

5.1 Automatic Tide Gauge

The Valeport Tidemaster Automatic Tide Gauge (ATG) was installed at the Coast Guard jetty, inside the fishing harbour for measuring the tides. The tide gauge is a pressure-sensor based instrument, measuring the water level due to change in pressure on the surface of sensor. The sensor was installed in such a way that the zero of sensor is always in water, irrespective of the phases of tide. This was levelled to the local benchmark, situated on top of the jetty. The tide station was programmed to measure the tide at 6-minute intervals throughout the duration of the project.

A photograph of the tide gauge location is shown below.

Figure 5-1: Automatic Tide Gauge

5.2 Wave Rider Buoy (WRB)

The Datawell DWR4 Wave Rider Buoy was deployed by INCOIS and AVPPL. The WRB was programmed to measure all the wave parameters at half-hourly intervals. The data is collected by INCOIS and sent to SSPL after quality check.

The system has an accuracy of 1 cm + 0.5% of vertical motion; resolution of 1mm and range of ± 20 m at the sampling rate of 5.12 Hz. The directional accuracy and resolution are 0.1° within the range of 0° to 360°.

Figure 5-2: WRB deployed at site

5.3 Automatic Weather Station (AWS)

An EMCON Automatic Weather Station (AWS) was installed on top of the Port Control Office building. The system measures wind speed/direction, atmospheric pressure, temperature, relative humidity and rainfall.

The system consists of the following:

- Cup anemometer
- Relative humidity & temperature sensor
- Pressure sensor
- Rainfall Gauge
- Datalogger

The data is logged in a datalogger installed at the receiving station at intervals of 10 minutes. The data is also transmitted from the data logger to a cloud-based server for further processing and QC checks.

Some images of the automatic weather station are provided below:

Figure 5-3: AWS on top of Port Control Office building

5.4 Real Time Kinematic (RTK) Survey

An RTK system was mobilized at site to carry out cross-shore profiling on the landward side. The system used was a Geomax Zenith 35 Pro RTK system with base station and rover. A photograph of the system is provided below:

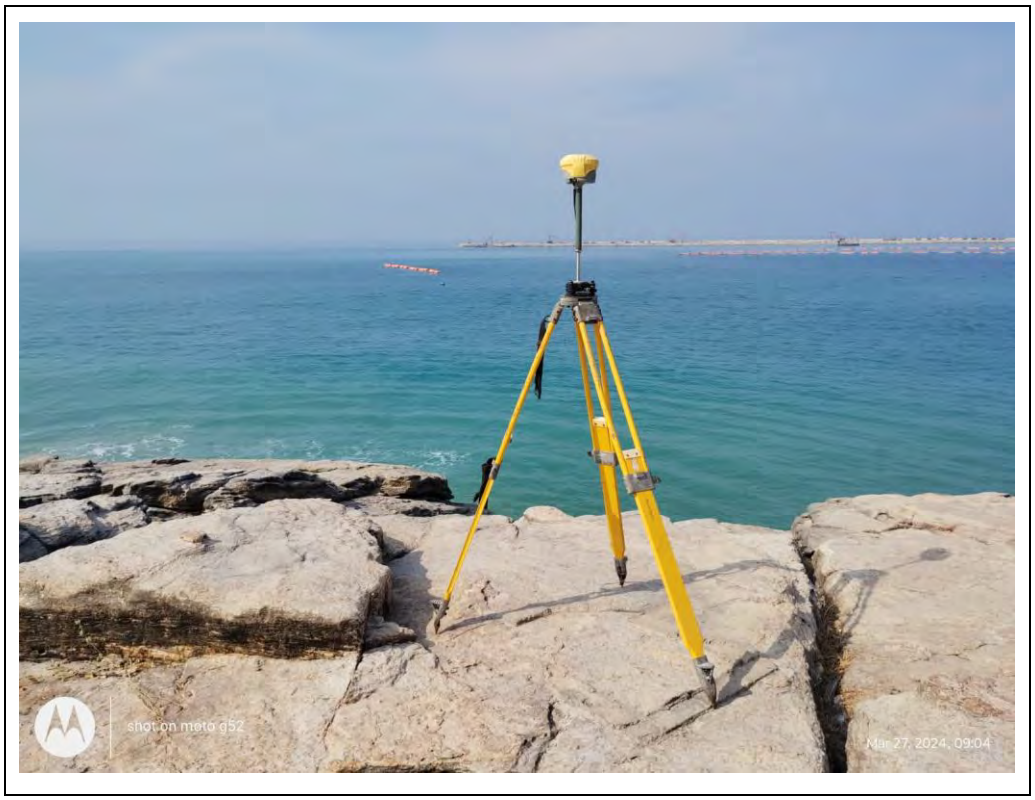


Figure 5-4: RTK System (base station)

5.5 DGPS Positioning System

Vessel positioning was carried out by the Trimble SPS 461 dual antenna DGPS system which also provided vessel heading. Vessel track and offset positions were recorded digitally in the navigation software. The positioning system was interfaced to the navigation software as well as the digital data acquisition system. DGPS positioning accuracy of the moving vessel was better than ±1m.

The computed position of the vessel from the DGPS receiver was interfaced to the navigation computer system. Hypack navigation and data acquisition software was used to provide track guidance information to the survey crew and also output the position of the vessel to assist the helmsman in maintaining the selected track guidance line. The VDU displays the selected survey line, the position of the vessel in relation to that line and numerical data to assist the helmsman such as the along-line and off-line distances, vessel speed and course made good, gyro heading, distance and bearing to

end of line and water depth. The position of each fix, together with other information such as fix numbers, depths, PDOP and along-line distances were logged to the hard drive.

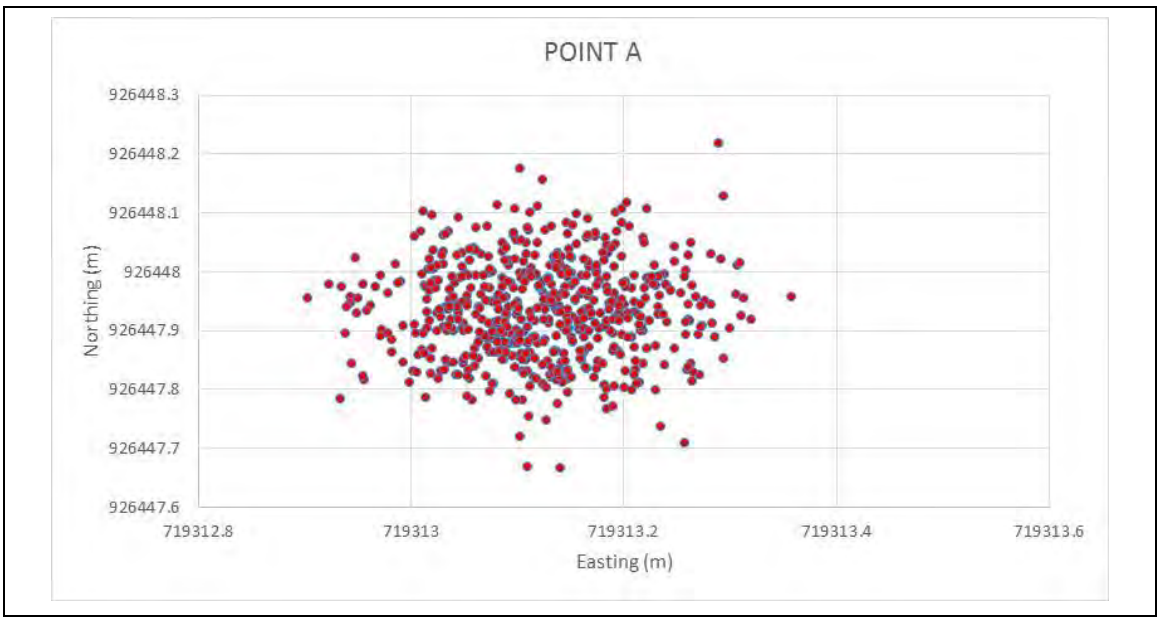
5.5.1 DGPS Consistency Check

In order to determine the integrity and reliability of the positioning system, the system was checked for its consistency during mobilization.

After installing the Trimble DGPS positioning system on board the vessel, two points were marked on the jetty. The DGPS antenna was set up on the jetty at these two points, designated as Point A and Point B.

Time was synchronized between Trimble, Hypack and the observer's watch, for which local time (GMT+5:30) was used. The Trimble SPS 461 DGPS antenna positions were logged in the Hypack navigation software. The logged data was processed to derive the final positions of both the points.

The difference between the calculated distance and measured distance was found to be within the permissible accuracy. The scatter plot of the DGPS calibration is shown in the figure below.



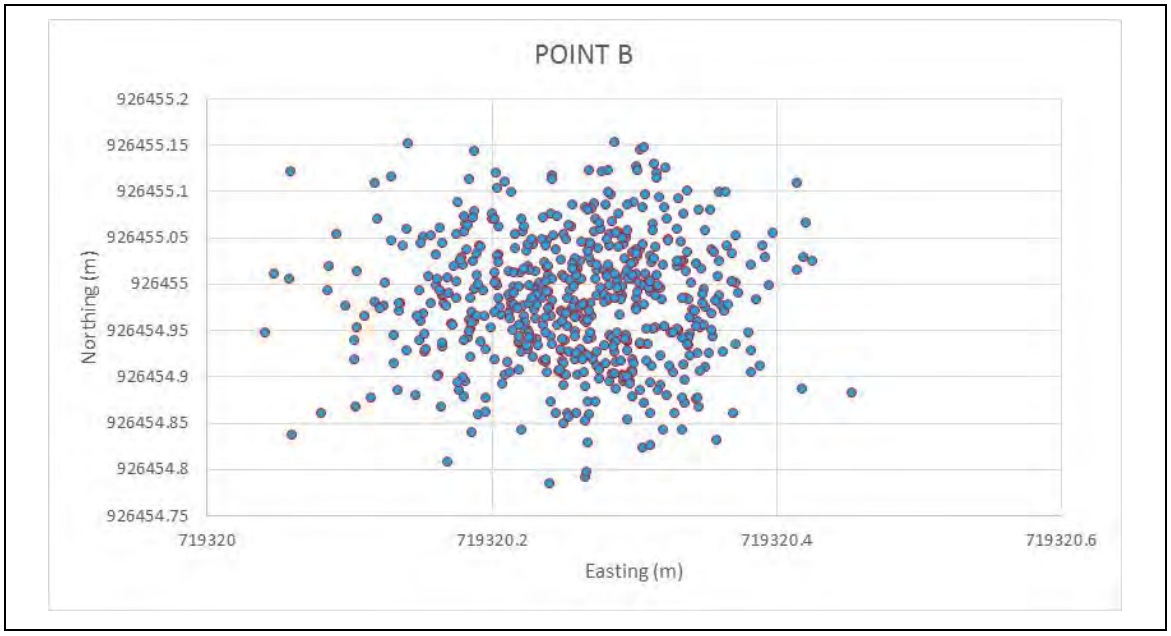


Figure 5-5: Scatter plot of DGPS calibration onboard Multibeam Survey Boat "Bismi"

Table 5-1: DGPS Calibration results

AVERAGE POSITIONS		
POINT	**EASTING**	**NORTHING**
A	719313.11	926447.93
B	719320.27	926454.95
Distance between points		**10.02m**
Measured Distance		**10.00m**
Difference		**0.02m**

5.5.2 Gyrocompass Calibration

The calculated heading of the vessel was compared with the recorded gyrocompass heading to derive a calculated-observed (C-O) value. A final C-O of -0.09° was obtained, which was entered into the navigation software before commencing the survey. The Gyrocompass verification table is placed below.

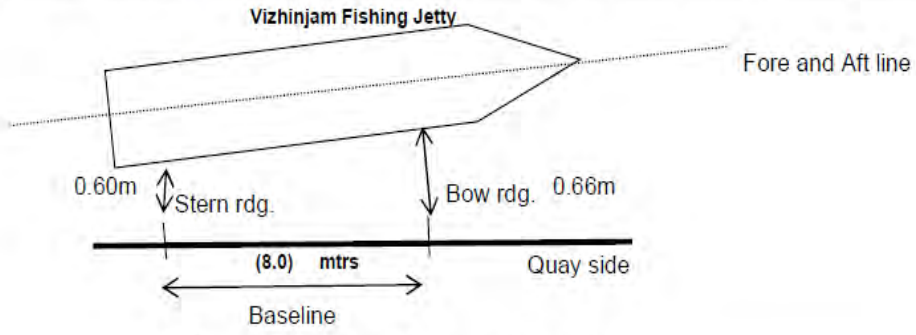
GYRO CALIBRATION

(Quay/Tape off set Method)

Job	**AVPPL Shoreline Monitoring**	**Job No**	**P034-23**
Client	**AVPPL**	**Vessel**	**BISMI**
Location	**Vizhinjam Fishing Jetty**	**Date**	**11-Mar-24**
Gyro S/N	**20872**		

Quay heading(T)	**Baseline length(m)**	**Gyro Name : TRIMBLE GA 830**	**Quayside on:**
45.56	**8.00**	**S/No. 12172**	**Starboard**

Observations				**Calculations**			
Time	Gyro (true)	Bow	Stern	Calc. angle	Calculated Heading	True Quay Hdg	C-O
10:00:00	45.9	0.6	0.9	2.15	43.75	45.56	1.81
10:00:10	45.5	0.8	0.8	0.00	45.50	45.56	0.06
10:00:20	45.3	0.8	0.6	-1.43	46.73	45.56	0.72
10:00:30	45.7	0.3	0.3	0.00	45.70	45.56	-0.14
10:00:40	45.5	0.8	0.7	-0.72	46.22	45.56	-0.66
10:00:50	45.6	0.5	0.3	-1.43	47.03	45.56	-0.66
10:01:00	45.4	0.8	0.6	-1.43	46.83	45.56	-1.27
	45.56	**0.66**	**0.60**	**-0.41**	**45.97**	**45.56**	**-0.02**



Note: Drawing not on scale only for representaion purpose

Signed			
Designation	**Name**	**Signature**	**Date**
Surveyor	**Ajeesh A S**		**11-Mar-24**
Party Chief	**VISHNU K**		**11-Mar-24**

Figure 5-6: Gyrocompass Calibration on board multibeam survey boat “Bismi”

5.6 Multibeam Echo Sounder System

An R2Sonic 2020 multibeam echo sounder, operating at a frequency of 220 kHz, is used to delineate the topography of the seabed. The measured sound velocity and observed tide are fed into the system during data processing.

5.6.1 Multibeam Swath Calibration

The calibration (or patch test) of the R2Sonic MBES was used to fix the time and angle offsets between the various positioning systems and the transducer head. This was done after mobilization.

The system offsets were entered in the acquisition software prior to surveying and raw data acquisition. Some of these were easily measured and entered and others were corrected through the calibration procedure.

Offsets:

The directly measured system offsets are:

- Transducer sensor offsets measured as the distance from the COG to the transducer point (X= 0.000m, Y= 0.00m, Z = 0.800m from water line for “Bismi”).
- Antenna offsets measured as the distance from the COG to the antenna (X= 0.000m, Y= -0.965m and Z = -2.960m from transducer).
- Heave offset measured as the vertical distance from the centre of the transducer to the water surface (X= -0.400m Y= 0.160m, Z= -1.500m for “Bismi”).
- Time offset (latency) introduced by DGPS computer/ navigation computers or during the serial data transfers.

A DMS-05 MRU provided compensation for vessel heave, roll, pitch and yaw. The sound velocity profiles and tide readings were used to get an accurate calibration form the patch test.

The recommended order of calibration is:

- Calibrate for Latency
- Calibrate for Roll
- Calibrate for Pitch
- Calibrate for Yaw

This is called the LRPY sequence. The figure below shows the sensor offsets for the survey vessel “Bismi” in Hypack software.

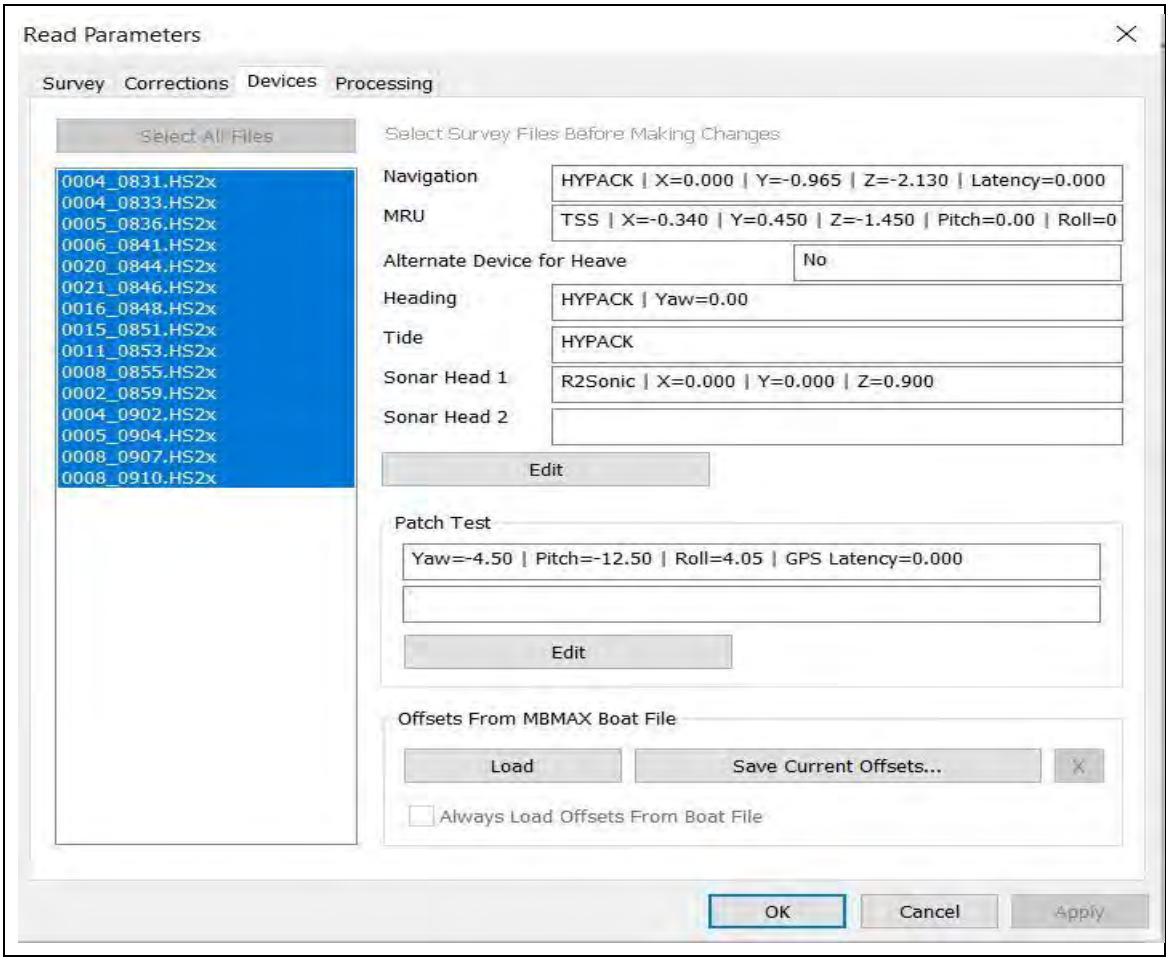


Figure 5-7: Multibeam sensor offsets of MBES survey boat “Bismi”

Roll Calibration:

- Three survey lines, were run in opposite directions at 4 knots over flat topography approximately 600m long with 100% overlap before the start of the survey.
- The sound velocity profile was carried out before running the calibration lines.
- Observed ATG tide of Coast guard jetty at Vizhinjam was applied with respect to Chart Datum correction to the calibration files.

Pitch Bias and Navigation Delay Calibration:

- Unlike the roll offset, these offsets will not cause false depth values, but will assign the measured depth values to wrong positions. Both calibrations are dependent on each other and have to be separated by calculating the offsets in a fixed order.
- Three lines were run in opposite directions for pitch and two lines were run in the same direction at different speeds, over a distinct object or a steep slope perpendicular to the contours.

Yaw Calibration:

Three lines were run in opposite directions for yaw correction on either side of a conspicuous object. This is often the same object that is used calculate the residual pitch bias and navigation time delay.

- The lines length was approximately 600m since the seabed feature exhibited a good slope in the area.
- The lines were run at normal survey speed, approximately 4 knots, to obtain a "suitably high resolution".

The Table below shows the calibration values which were obtained and used for data processing.

Table 5-2: MBES Calibration results

Parameter	Value	Comments
Latency	0.00s	Trimble SPS 461 positioning system
Roll	4.05°	DMS accuracy 0.05° in roll
Pitch	-12.50º	DMS accuracy 0.05° in pitch
Yaw	-4.50º	Accuracy better than 0.2°

The figure below provides the comparison grid (with and without calibration) to show the calibration results.

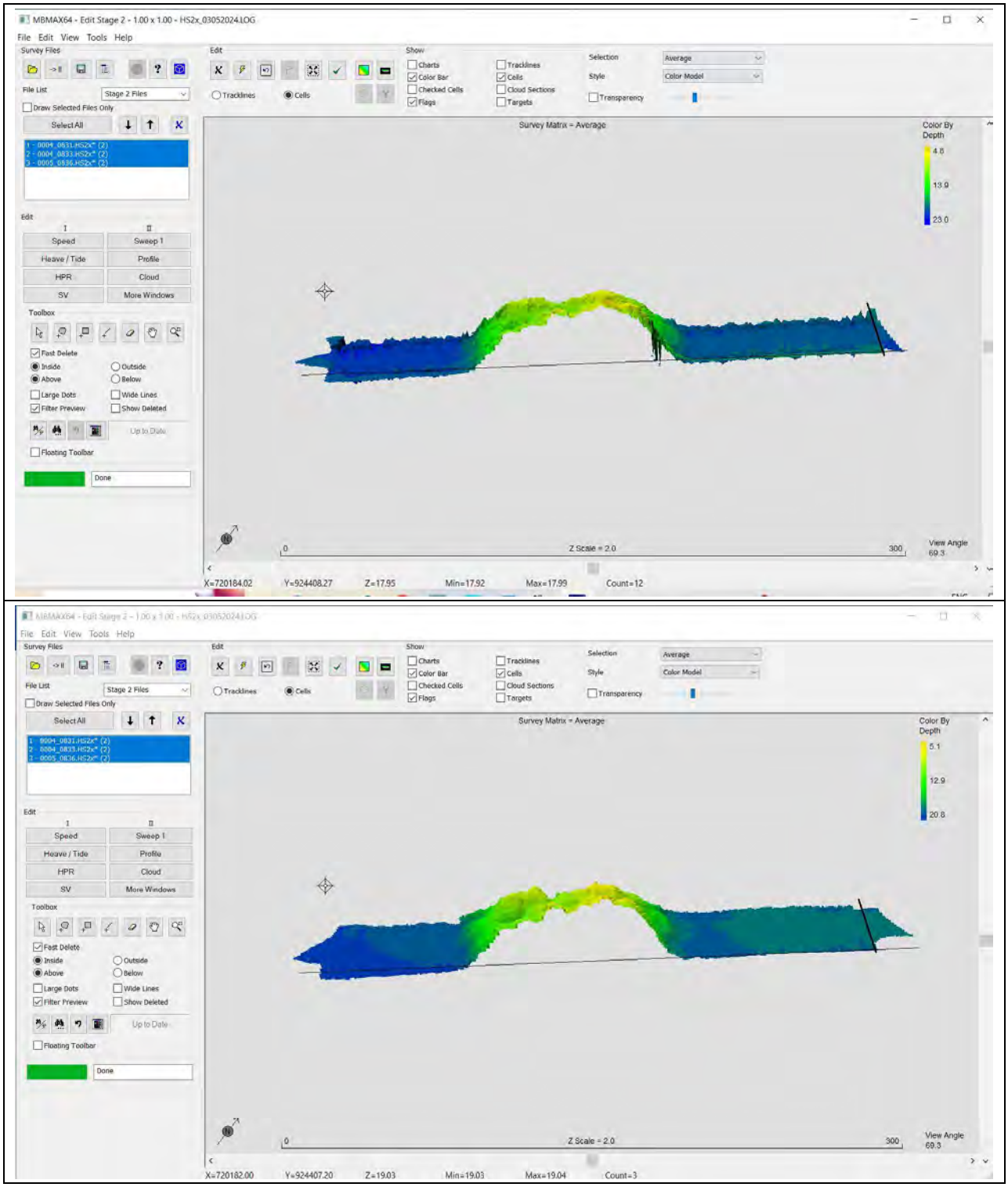


Figure 5-8: Calibration results with cross profiles (Above: without calibration, below: with calibration)

6 SURVEY RESULTS

The following table illustrates the data collection parameters along with duration and frequency of measurement.

Table 6-1: Summary table of data collection parameters

Parameter	Duration of Measurement	Frequency of Measurement
Tide	1st Oct 2023 - 31st Mar 2024	6 minutes
Wave height and direction	1st Oct 2023 - 31st Mar 2024	10 minutes
Wind speed and direction	1st Oct 2023 - 31st Mar 2024	10 minutes
Temperature	1st Oct 2023 - 31st Mar 2024	10 minutes
Atmospheric Pressure	1st Oct 2023 - 31st Mar 2024	10 minutes
Relative Humidity	1st Oct 2023 - 31st Mar 2024	10 minutes
	Locations Surveyed	**Remarks**
Littoral Environment Observations	Oct 2023: 70 out of 81 Nov 2023: 70 out of 81 Dec 2023: 73 out of 81 Jan 2024: 73 out of 81 Feb 2024: 73 out of 81 Mar 2024: 68 out of 81	CSP-23 to CSP-30 could not be approached due to protests from locals
Photographic Documentation	Oct 2023: 70 out of 81 Nov 2023: 70 out of 81 Dec 2023: 73 out of 81 Jan 2024: 73 out of 81 Feb 2024: 73 out of 81 Mar 2024: 68 out of 81	
Cross Shore Profiles	Oct 2023: 69 out of 81 (on) Oct 2023: 81 out of 81 (off) Nov 2023: 70 out of 81 (on) Nov 2023: 81 out of 81 (off) Dec 2023: 73 out of 81 (on) Dec 2023: 81 out of 81 (off) Jan 2024: 73 out of 81 (on) Jan 2024: 81 out of 81 (off) Feb 2024: 73 out of 81(on) Feb 2024: 52 out of 81 (off) Mar 2024: 69 out of 81 (on) Mar 2024: 56 out of 81 (off)	CSP-23 to CSP-30 could not be approached due to protests from locals. Offshore profiles could not be attempted due to rough weather
Near Shore Survey	4 out of 42	Could not be attempted due to instrument damage and rough weather
Shoreline monitoring Survey	88%	Certain areas could not be approached due to local protests

Collection of beach samples	57 out of 81	Some samples could not be collected due to local protests and lack of beach
Collection of water samples	132 out of 132	-
Seabed Grab samples	80 out of 80	-
Bathymetry	Post Monsoon 2023	

6.1 Tidal Measurements

The tides were observed near the Coast Guard jetty. The tide is referenced to the chart datum. The 'zero' of the sensor has been lowered to 5.06m below the jetty top corresponding to a correction factor of 2.349m. An image of the jetty top value marked on the wharf to which the tide gauge has been levelled is provided below.

Figure 6-1: Location of TBM

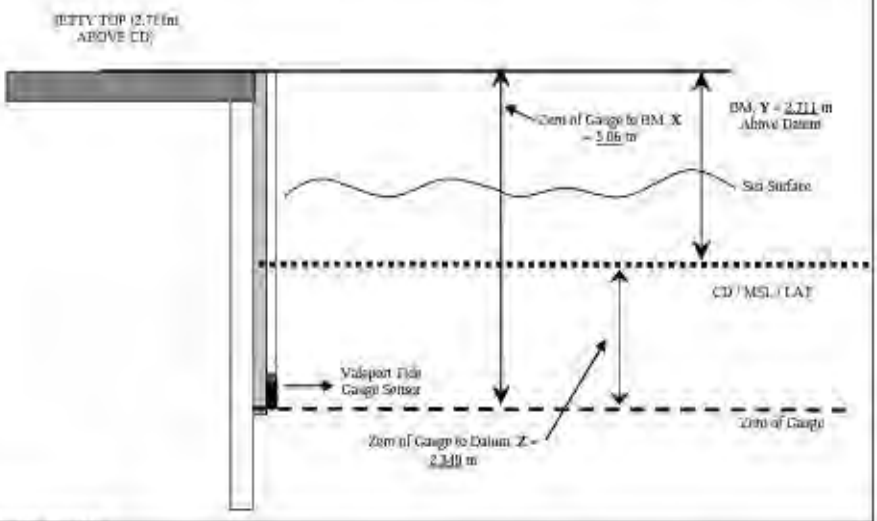
The offset calculation of the Tidemaster tide gauge based on the 'jetty top' value is given in the figure below:

TIDE GAUGE INSTALLATION

Job Number	P034-23	**Project**	Shoreline Monitoring at Vizhinjam
Client	Adani Vizhinjam Port Pvt. Ltd.		
Location	Vizhinjam	**Installation Date**	09/09/2023
Tide Gauge Sr. No.	84143	**Party Chief**	Vishnu K.

Tide Gauge setup refers to:	✓	**CD**		**MSL**	**LAT**

Diagram



Bench Mark details:

Value of Bench Mark	**2.711**	**Meters above the Chart Datum**
Levelled By	**Vishnu K.**	
Date	**28/06/2022**	

Checked the level from zero of the gauge to BM on: 09/09/2023

Calculations:

X, Length from Bench Mark to Zero of Tide Gauge	**5.06 m**
Y, Level of Bench Mark above Datum	**2.711 m**
Z, Tide Correction factor, Z=X - Y	**2.349 m**
Tide height in m above Datum = Raw Tide reading - Z	

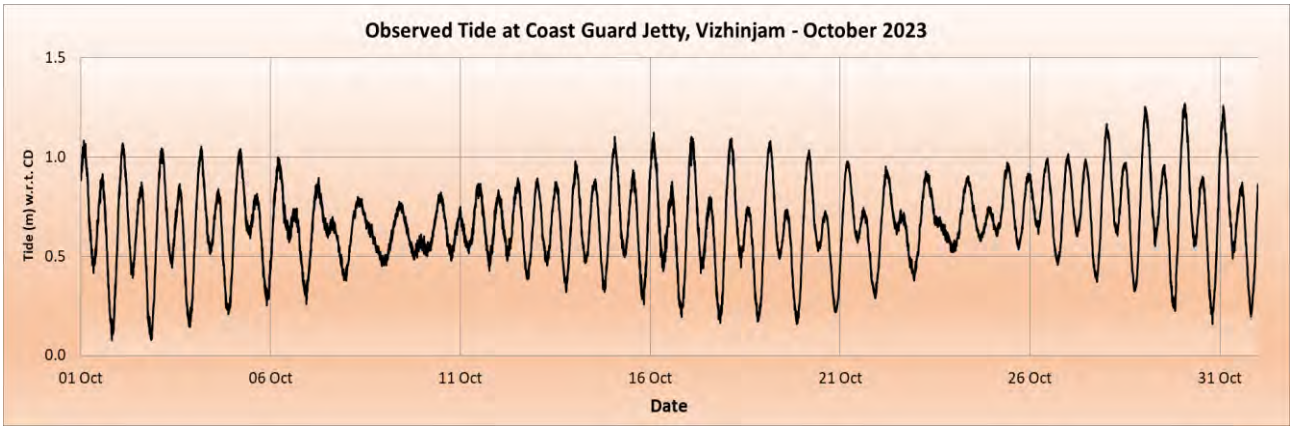
Signature:

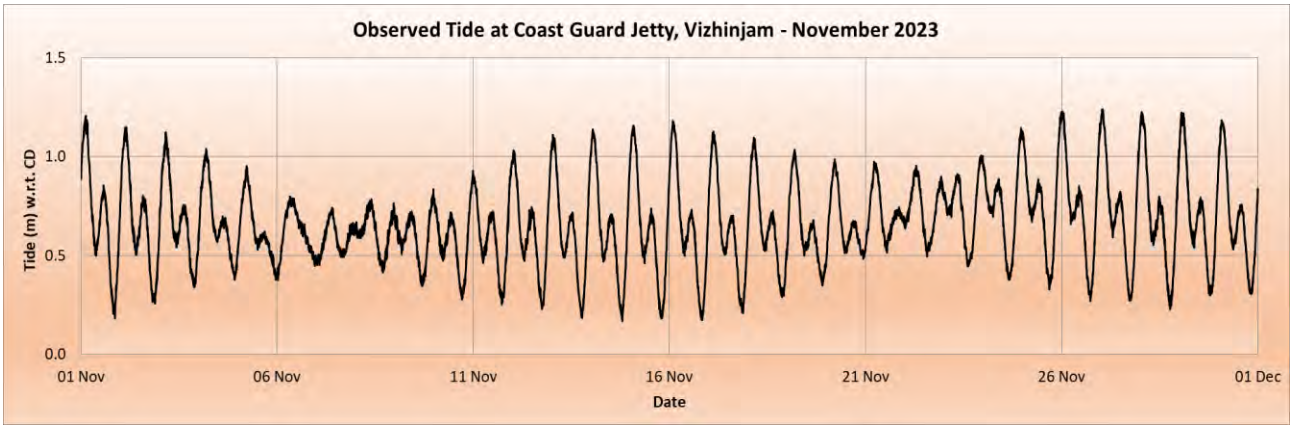
Party Chief	**Vishnu K.**
Surveyor / Engineer	**Vishnu Haridas**

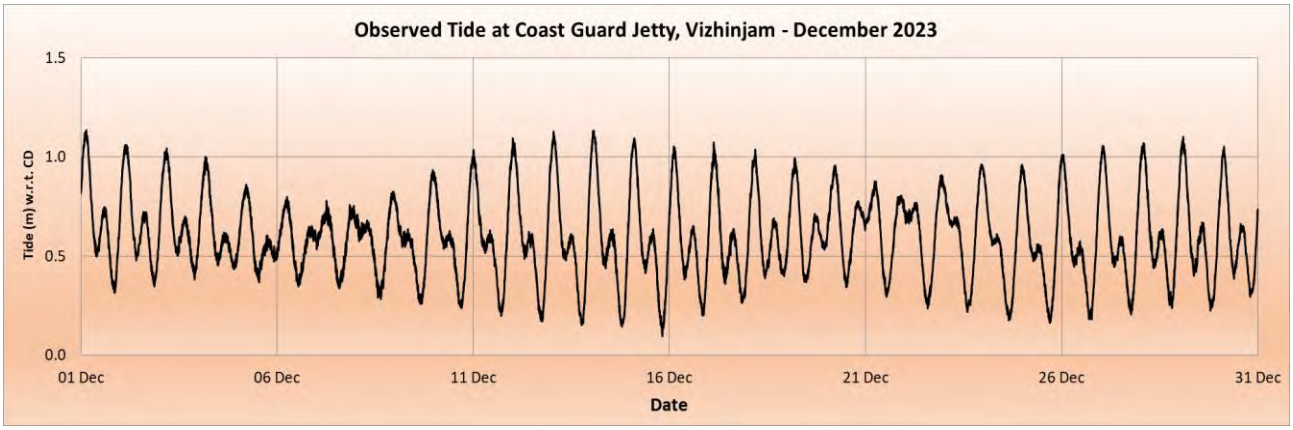
DOC-SSPL Tide Gauge Installation Rev 0

Figure 6-2: Schematic Diagram of Valeport Tidemaster Tide Gauge

The tides observed are mixed semi-diurnal in nature, with the maximum range being observed in the springs. The representation of tide data collected, in the form of graphs is placed below.







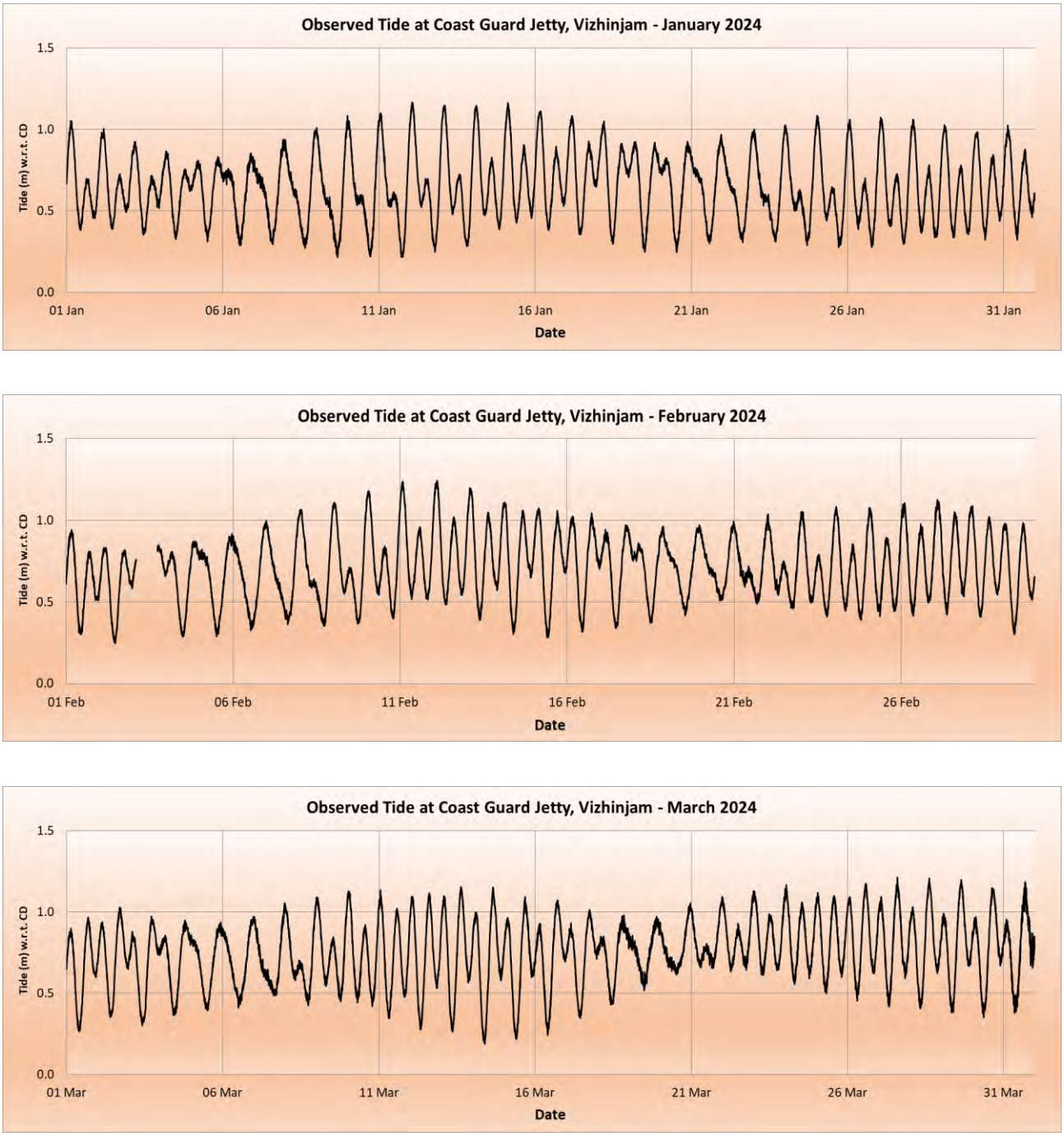


Figure 6-3: Time series of tide

6.2 Wave Measurements

The data from the WRB (provided by INCOIS after processing and quality control) was used to produce the time series and rose diagram, which are provided below:

Refer to the following rose plots of significant height (Hs) v/s direction for the entire period from October 2023 to March 2024.

The WRB drifted away on 4th October 2023. It was redeployed on 21st December 2023; therefore, no wave data is available for that period.

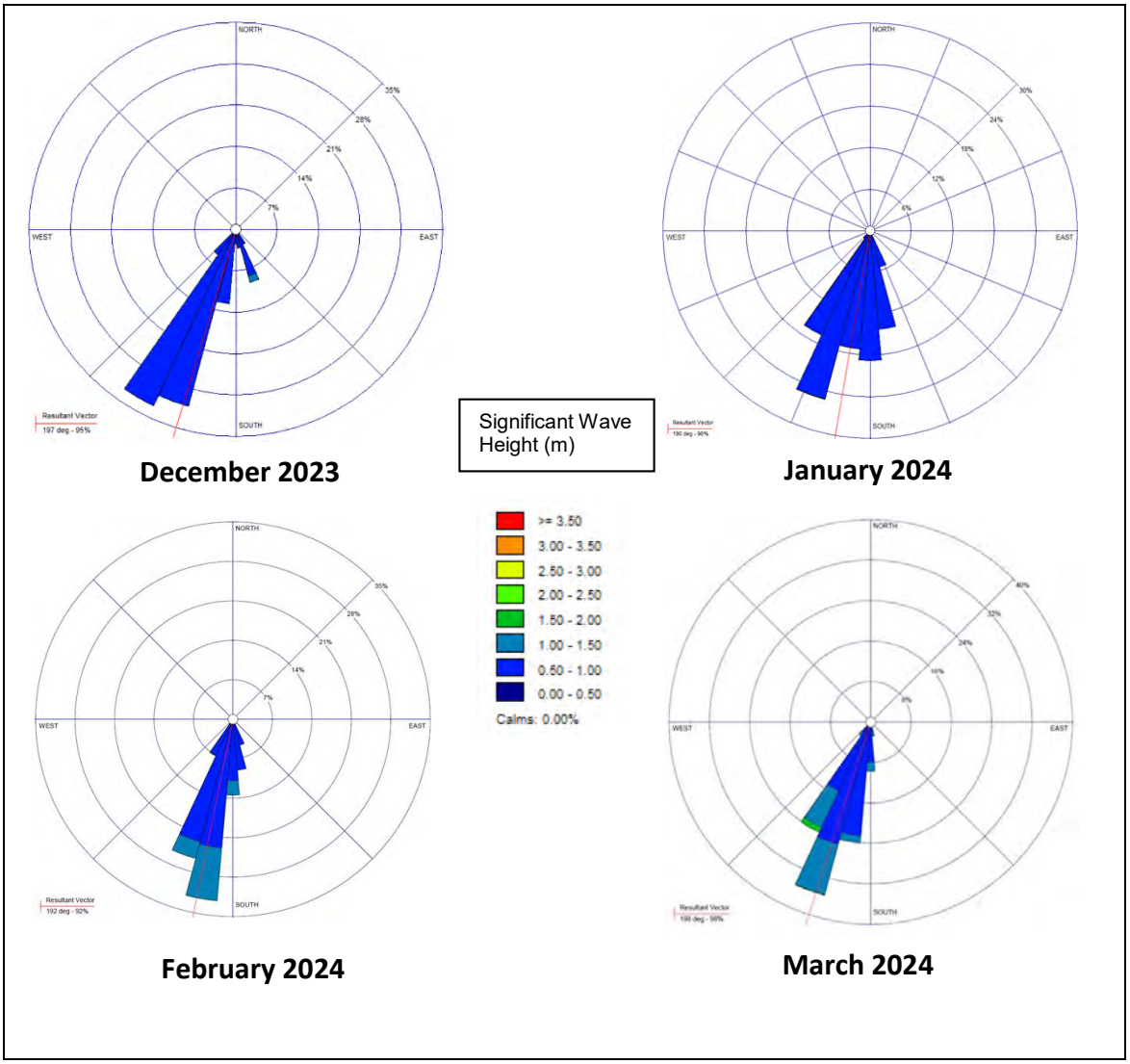


Figure 6-4: Wave Rose (Hs in metre v/s Direction)

The following table provides the monthly maximum significant wave height (Hs) and wave period (Tp) observed during the period from October 2023 to March 2024. Hmax data is not available for the months December 2023 and March 2024.

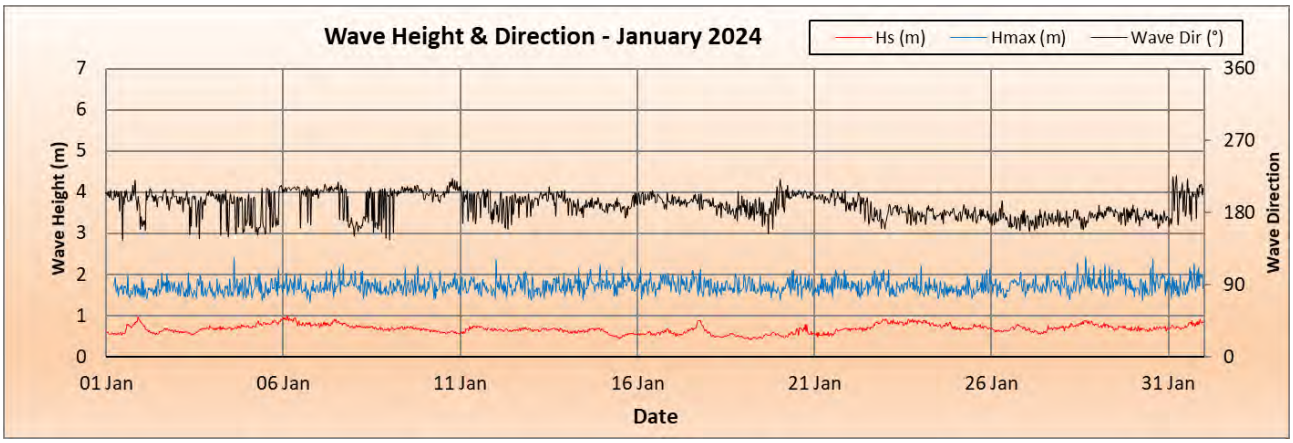
Table 6-2: Monthly maximum Hs, Hmax and Tp

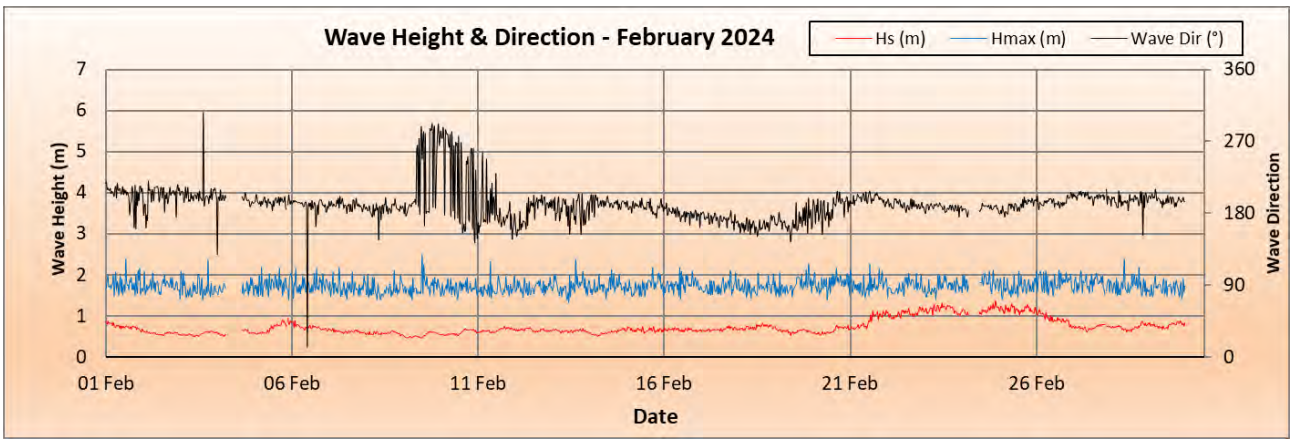
Maximum significant wave height (Hs), Hmax and Maximum wave period (Tp)				
Month	**Hs (m)**	**Predominant Direction (°)**	**Hmax (m)**	**Tp (sec)**
December 2023 (only 7 days)	1.05	197	No data	16.67
January 2024	0.99	190	2.41	18.18
February 2024	1.38	192	2.49	18.18
March 2024	1.74	198	No data	20.00

The above table indicates that with the onset of monsoon, the wave heights increased.

The time series of the available wave data from October 2023 to March 2024 is shown below.


Wave Height & Direction - December 2023
Hs (m)
Hmax (m)
Wave Dir (°)
Wave Height (m)
Wave Direction
0
1
2
3
4
5
6
7
0
90
180
270
360
01 Dec
06 Dec
11 Dec
16 Dec
21 Dec
26 Dec
31 Dec
Date


Wave Height & Direction - January 2024
Hs (m)
Hmax (m)
Wave Dir (°)
Wave Height (m)
Wave Direction
0
1
2
3
4
5
6
7
0
90
180
270
360
01 Jan
06 Jan
11 Jan
16 Jan
21 Jan
26 Jan
31 Jan
Date


Wave Height & Direction - February 2024
Hs (m)
Hmax (m)
Wave Dir (°)
Wave Height (m)
Wave Direction
0
1
2
3
4
5
6
7
0
90
180
270
360
01 Feb
06 Feb
11 Feb
16 Feb
21 Feb
26 Feb
Date

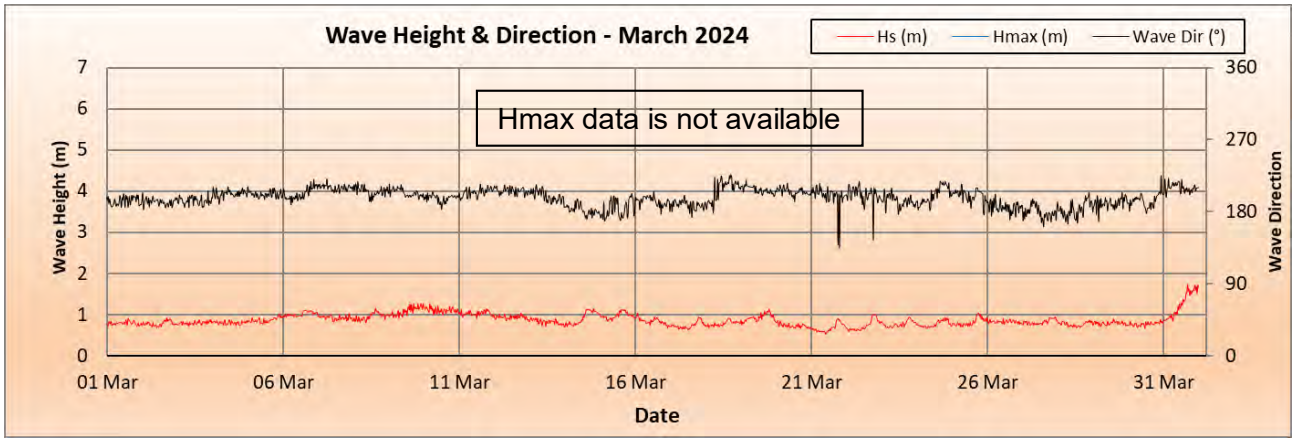
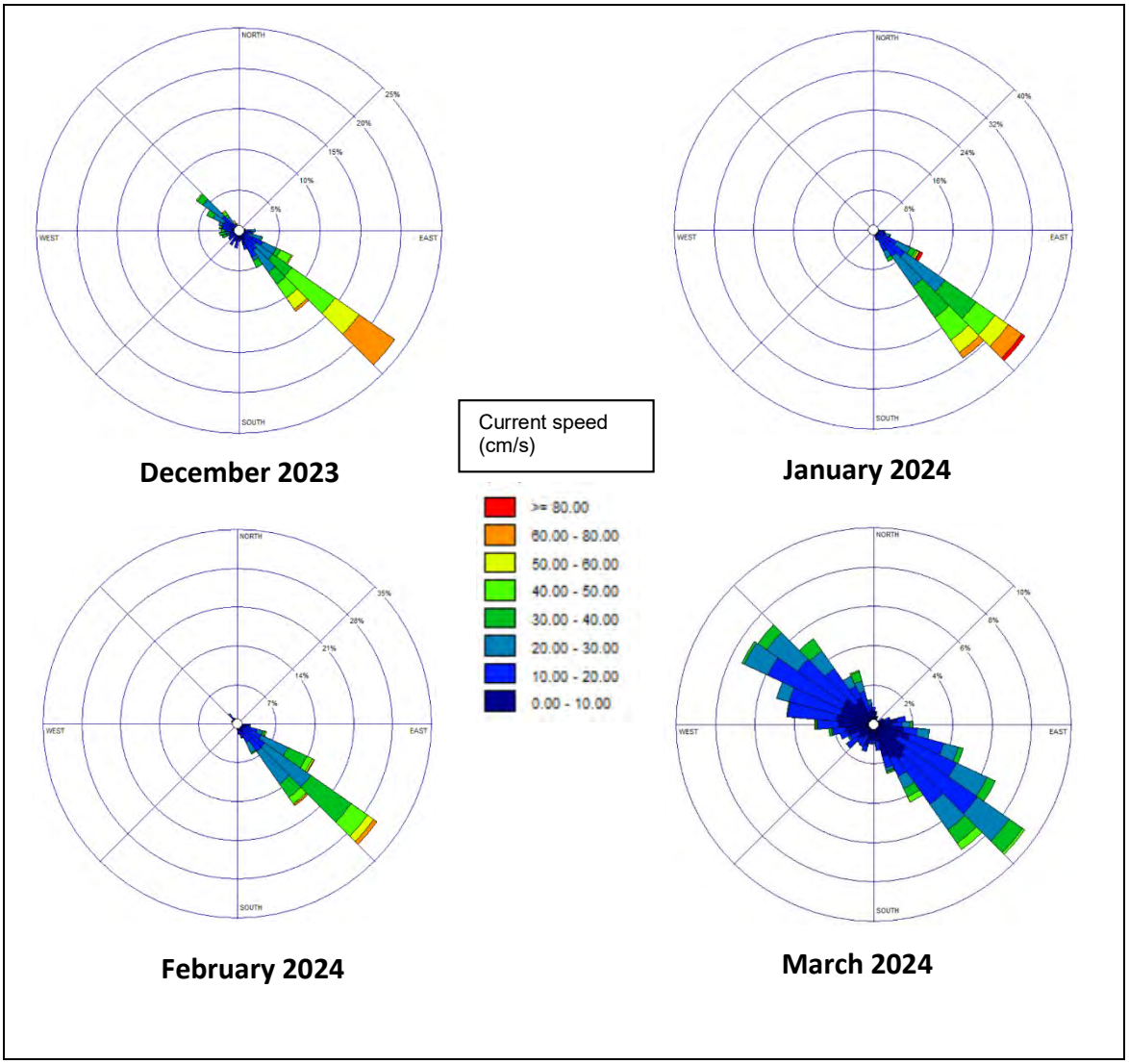


Figure 6-5: Time series of wave parameters

6.3 Current observations from WRB

The data from the wave rider buoy also has the surface current speeds and directions at the location. Available data is documented here.

Refer to the following rose plots of Current speed v/s Direction for the available data.



①

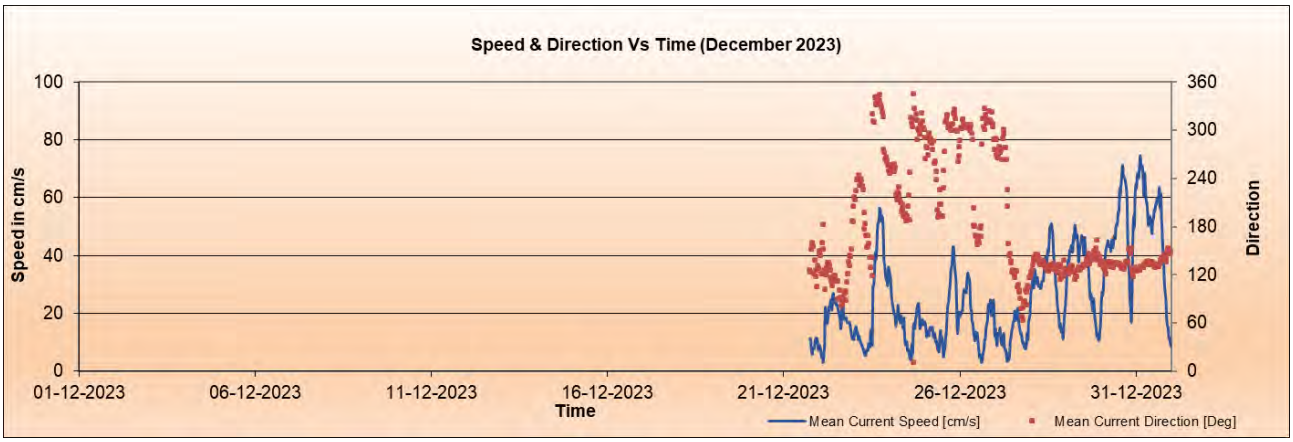
The following table provides the monthly maximum current speed (cm/s) and predominant direction observed during the period from October 2023 to March 2024.

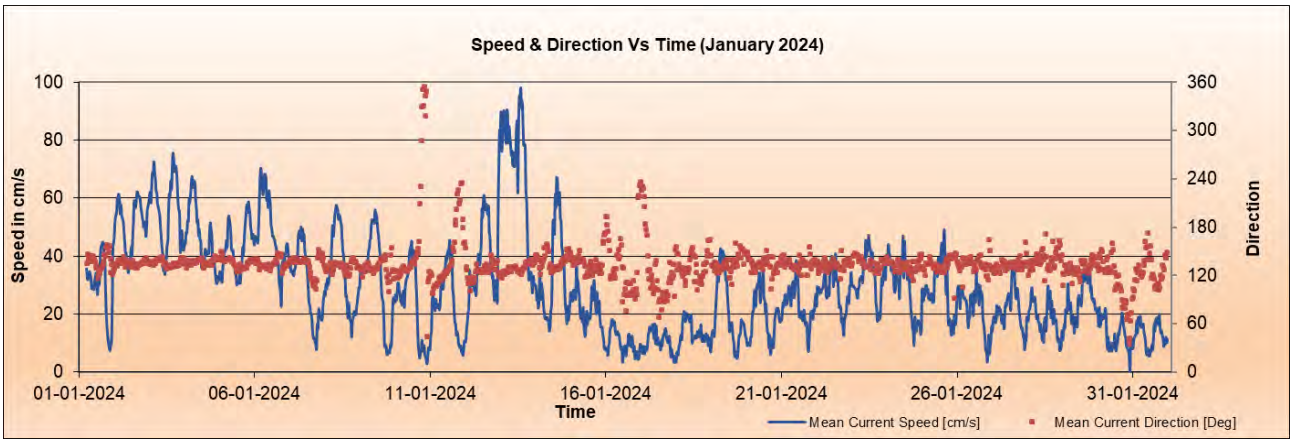
Table 6-3: Monthly maximum current speed and predominant direction

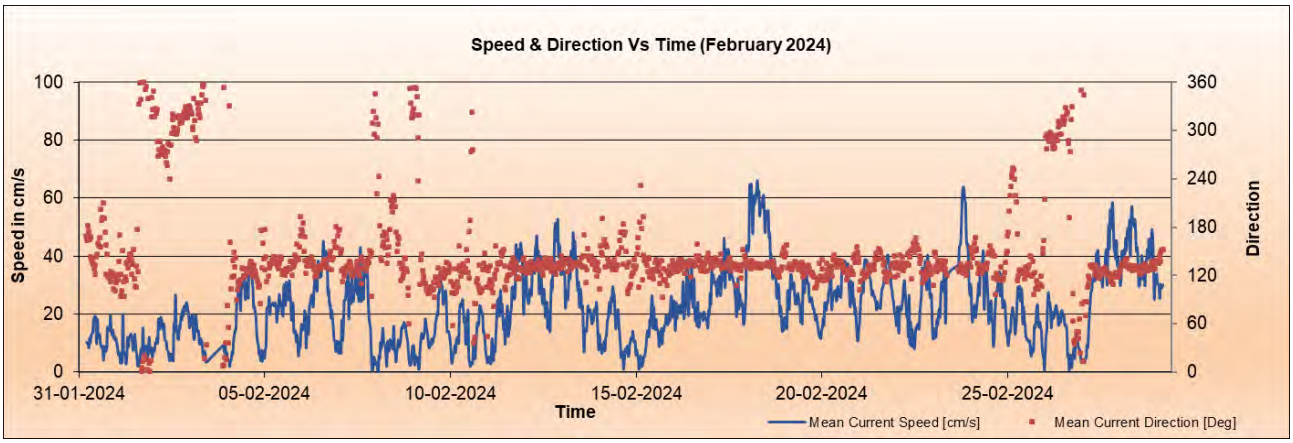
Maximum current speed (cm/s) and predominant direction		
Month	**Speed (cm/s)**	**Predominant Direction**
December 2023	74.6	Southeast
January 2024	98.1	Southeast
February 2024	66.1	Southeast
March 2024	48.6	Southeast-Northwest

The rose plot reveals a flow parallel to the shore. During the observation period, the flow was predominantly towards the southeast. The current speed decreased gradually as the monsoon retreated.

The time series of the available current data from October 2023 to March 2024 is shown below:







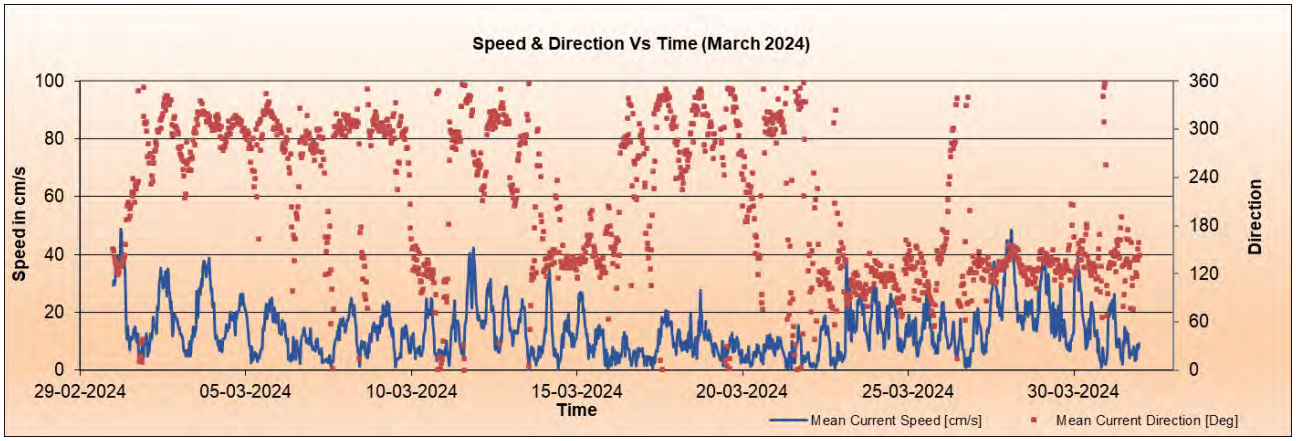


Figure 6-6: Time series of current and direction

6.4 Measurement of Meteorological Parameters

The automatic weather station was installed on the terrace of the Port Control Office building. The wind data from October 2023 to March 2024 is compiled and presented in the form of rose plots below.

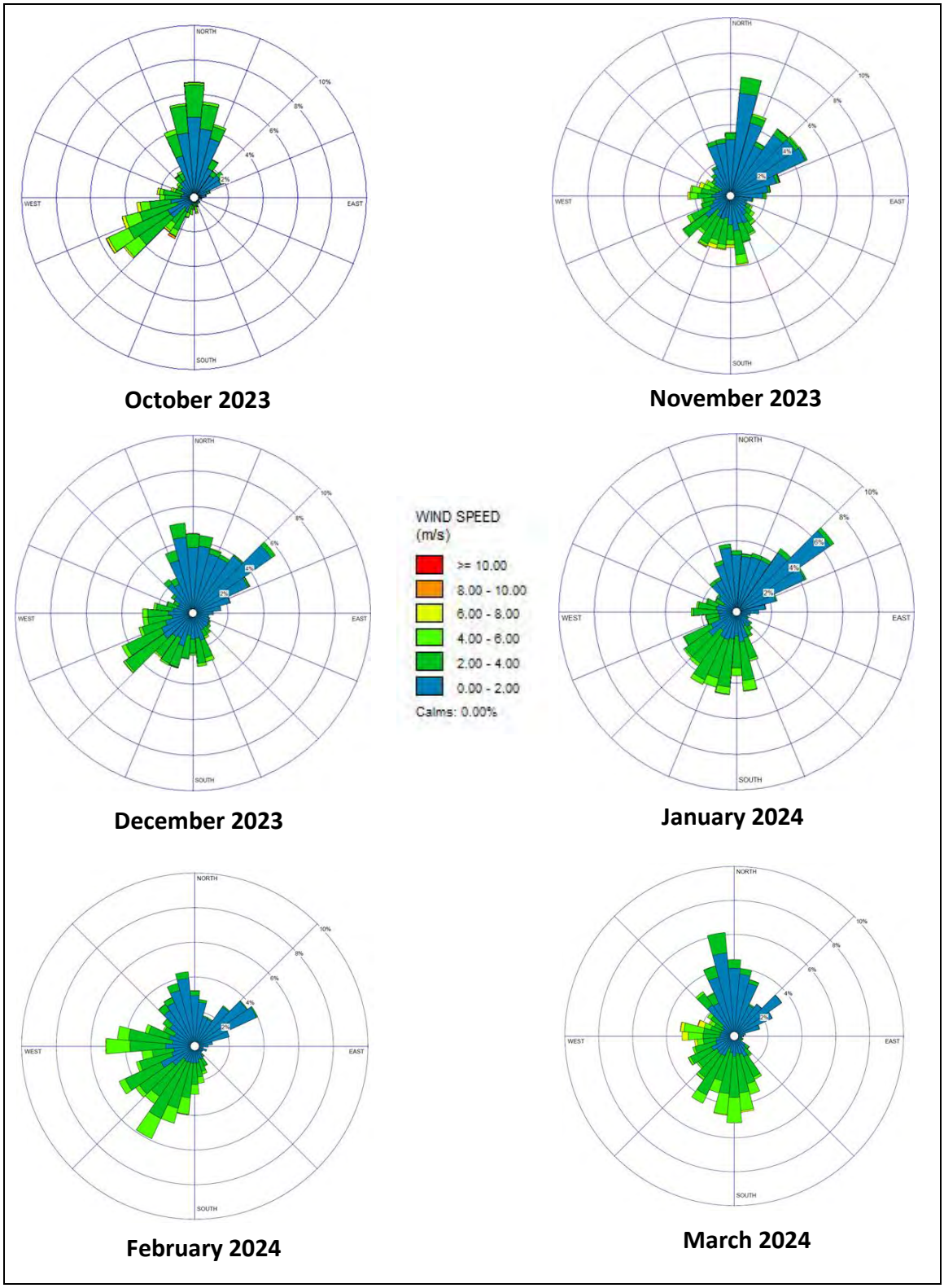


Figure 6-7: Wind rose (Speed in m/s vs direction)

The monthly maximum wind speed and predominant direction are provided in the tables below.

Table 6-4: Monthly maximum landward wind speed

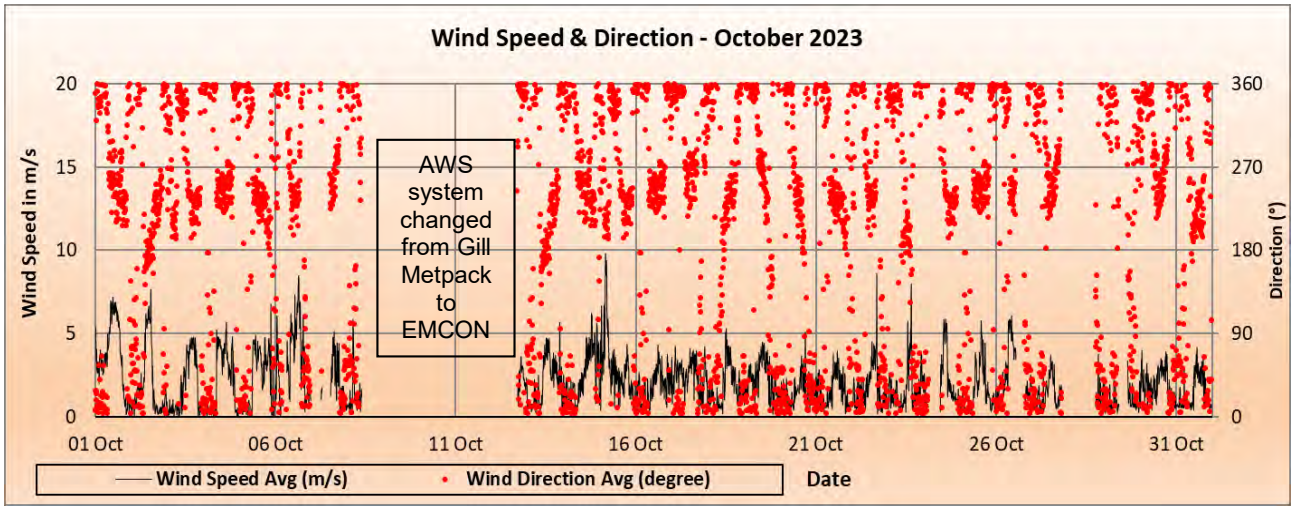
Month	Wind Speed (m/s)	Predominant Direction (°)
October 2023	7.92	31
November 2023	7.41	59
December 2023	6.00	54
January 2024	6.21	57
February 2024	5.33	59
March 2024	6.28	66

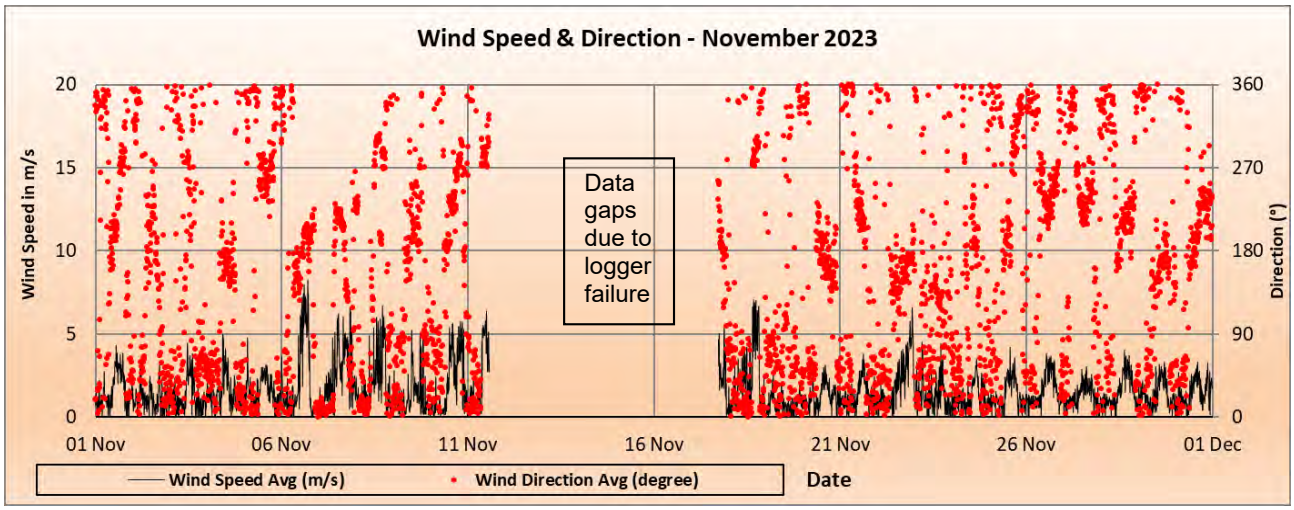
Table 6-5: Monthly maximum seaward wind speed

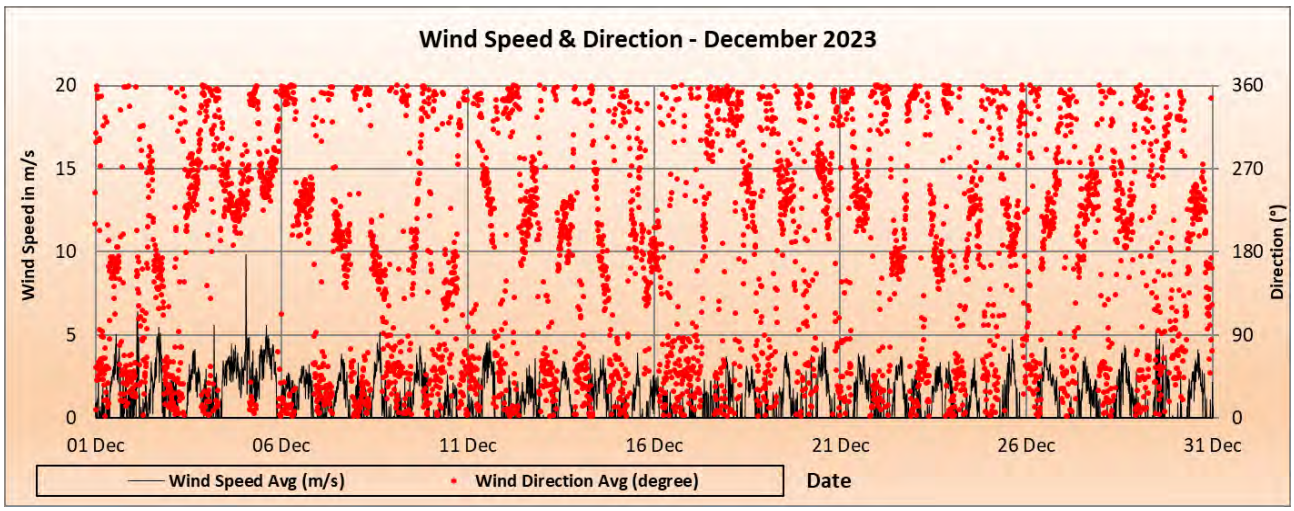
Month	Wind Speed (m/s)	Predominant Direction (°)
October 2023	9.77	265
November 2023	8.19	258
December 2023	9.75	260
January 2024	7.63	245
February 2024	6.41	261
March 2024	8.49	268

The time series of wind data from October 2023 to March 2024 is shown below:

①


Wind Speed & Direction - October 2023
Wind Speed in m/s
Direction (°)
AWS system changed from Gill Metpack to EMCON
01 Oct
06 Oct
11 Oct
16 Oct
21 Oct
26 Oct
31 Oct
Wind Speed Avg (m/s)
Wind Direction Avg (degree)
Date


Wind Speed & Direction - November 2023
Wind Speed in m/s
Direction (°)
Data gaps due to logger failure
01 Nov
06 Nov
11 Nov
16 Nov
21 Nov
26 Nov
01 Dec
Wind Speed Avg (m/s)
Wind Direction Avg (degree)
Date


Wind Speed & Direction - December 2023
Wind Speed in m/s
Direction (°)
01 Dec
06 Dec
11 Dec
16 Dec
21 Dec
26 Dec
31 Dec
Wind Speed Avg (m/s)
Wind Direction Avg (degree)
Date

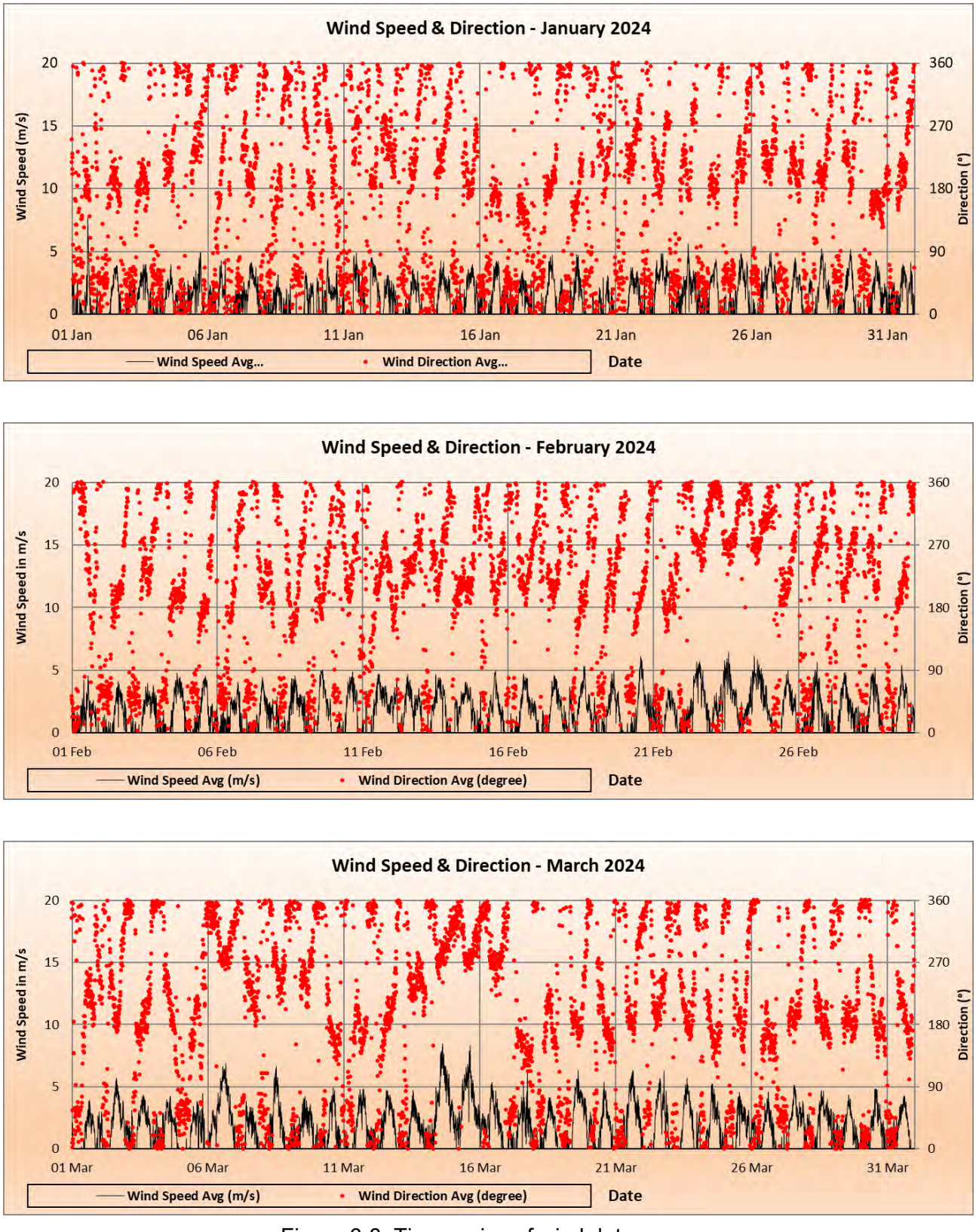


Figure 6-8: Time series of wind data

The percentage occurrence tables for atmospheric pressure, temperature and relative humidity for the period of October 2023 to March 2024 are shown below.

Table 6-6: Frequency distribution of atmospheric pressure

Frequency Distribution	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Atm. Pressure (mb)	**Percentage Occurrence**					
<1000	0.00	0.00	0.00	0.00	5.60	5.15
1000-1004	7.59	9.49	0.00	0.00	53.87	64.27
1004-1008	75.61	28.27	41.13	0.11	33.92	26.99
>1008	16.80	62.24	58.87	99.89	6.61	3.58
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table 6-7: Frequency distribution of temperature

Frequency Distribution	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Temperature (°)	**Percentage Occurrence**					
20-24	0.09	2.68	0.00	0.00	0.00	0.00
24-28	70.11	66.87	14.45	20.25	7.23	0.43
28-32	29.81	30.45	64.52	56.77	53.84	43.41
>32	0.00	0.00	21.03	22.98	38.92	56.16
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table 6-8: Frequency distribution of relative humidity

Frequency Distribution	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Rel. Humidity (%)	**Percentage Occurrence**					
50-60	0.00	0.00	0.74	2.24	1.96	0.07
60-70	0.00	1.66	9.07	13.28	12.38	8.22
70-80	14.72	31.62	42.52	46.91	54.42	63.58
>80	85.28	66.72	47.67	37.57	31.23	28.14
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Table 6-9: Cumulative rainfall in mm

Cumulative rainfall in mm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
	165.0	85.2	118.6	12.8	0.6	3.0

The frequency histograms for atmospheric pressure, temperature and relative humidity for the period of October 2023 to March 2024 are shown below.

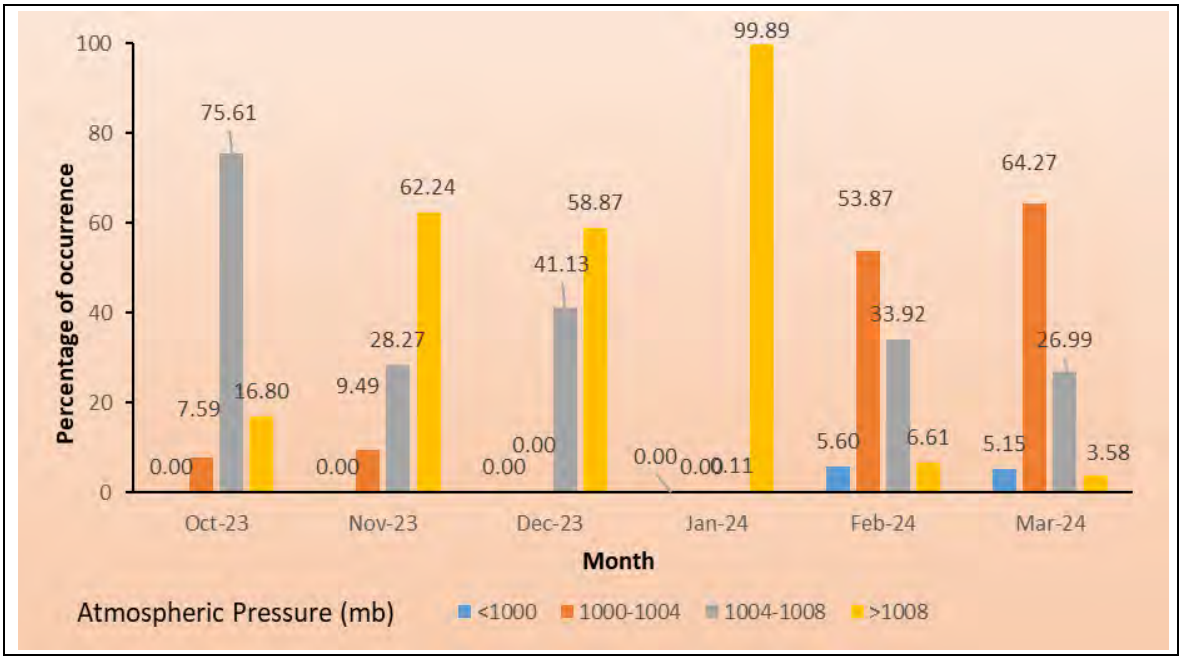


Figure 6-9: Histogram of atmospheric pressure

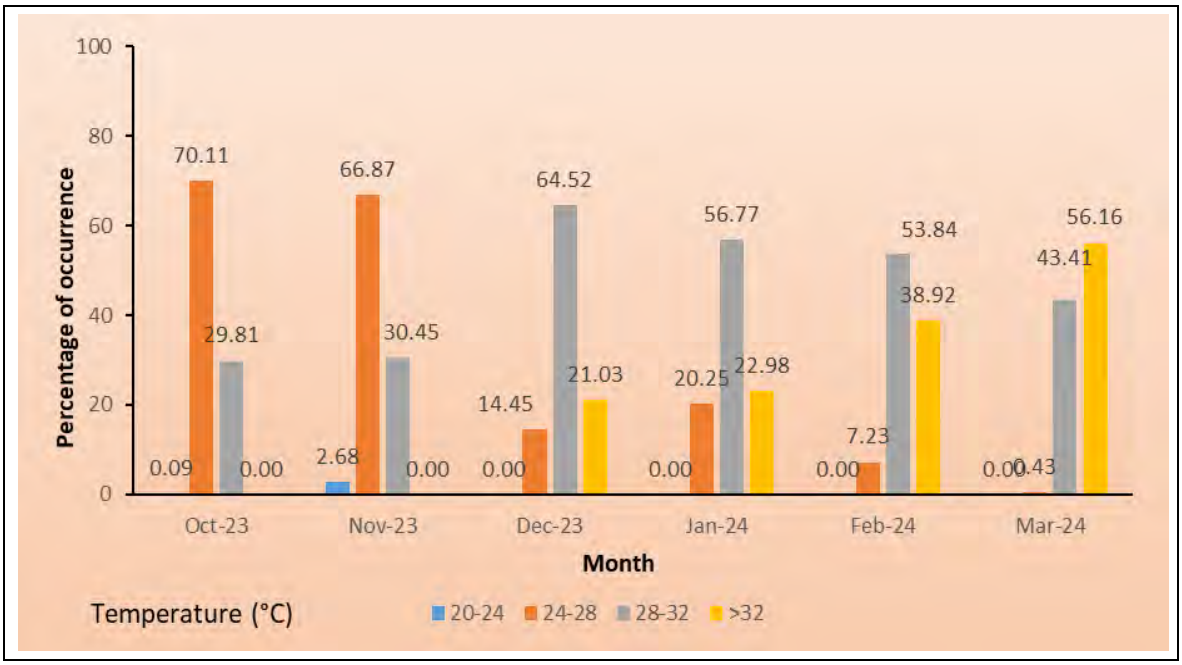


Figure 6-10: Histogram of temperature

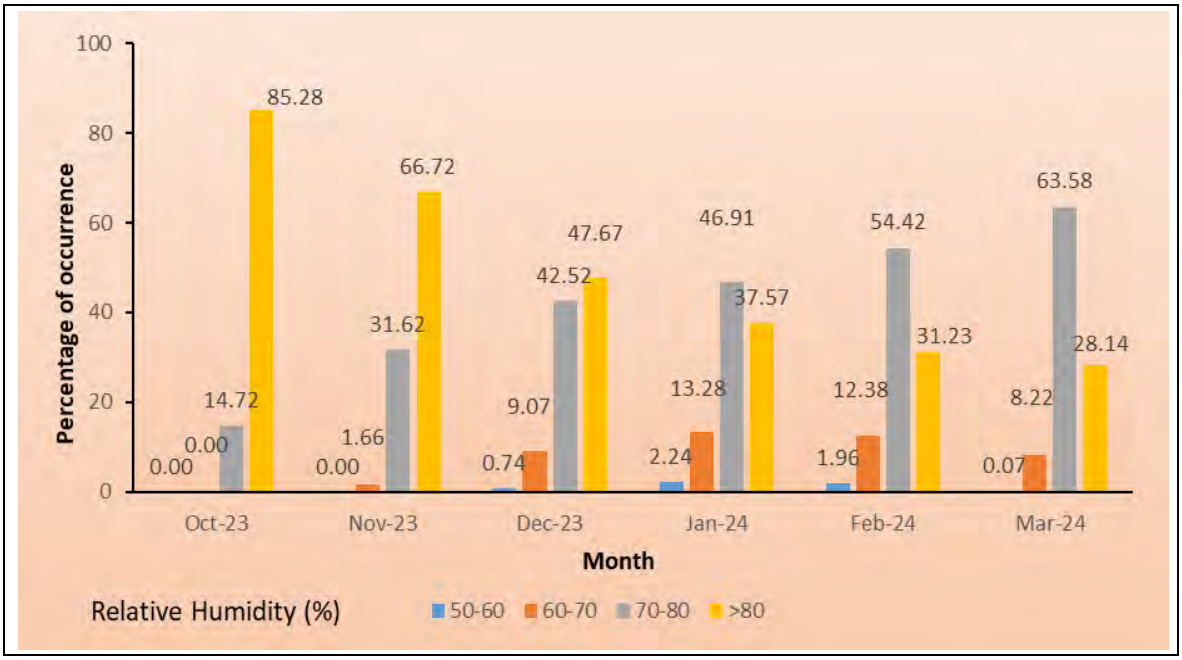


Figure 6-11: Histogram of relative humidity

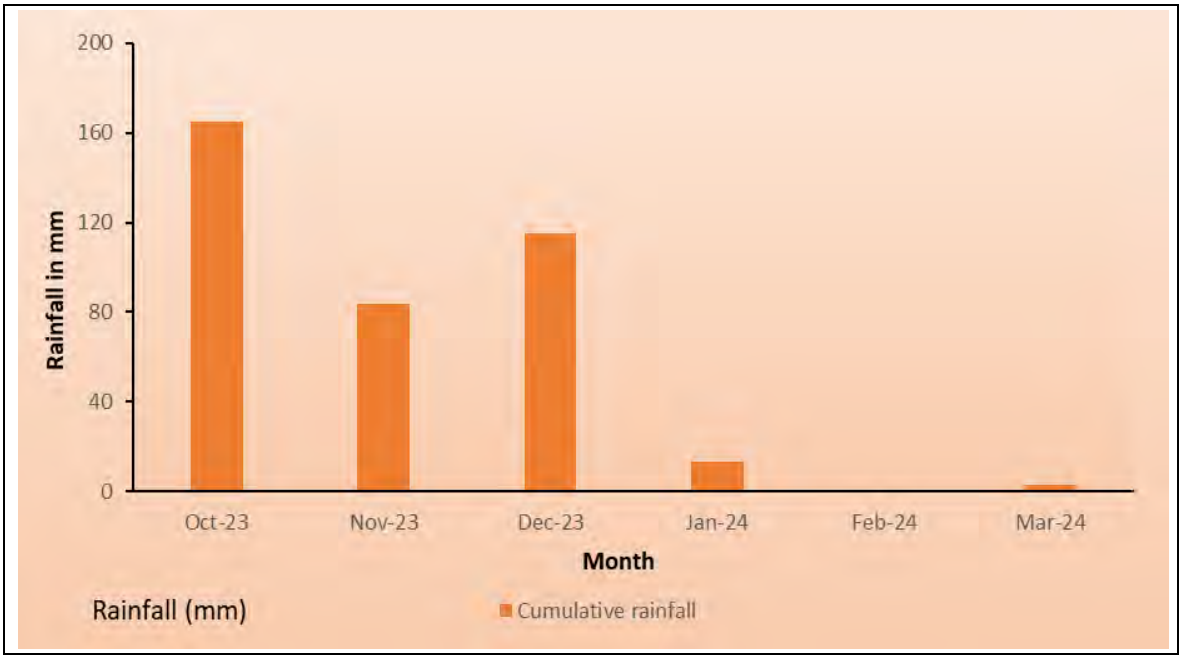


Figure 6-12: Histogram of relative humidity

The data reveals that the temperature increased rapidly from January to March 2023. The maximum occurrence of relative humidity readings greater than 80% was observed in the month of October 2023, gradually decreased towards March 2024 as a result of retreating monsoon.

6.5 Littoral Environment Observations

The LEO was to be carried out at 81 locations from October 2023 to March 2024. In the month of October 2023, 70 locations were covered, 69 locations in November 2023, 73 locations in December 2023 and January 2024, 72 locations in February 2024 and 68 locations in March 2024. The CSP locations 23 to 30 in which the LEO could not be carried out were primarily due to increased opposition faced from the locals residing in those areas. The LEO plate was deployed at all the locations and the same was tracked for about two minutes, as per the site conditions. The initial and final GPS positions were then used to calculate the SOG and COG. The estimated wave height, angle of wave, period and the stretch of breakers were also noted down in the log.

The along shore current followed a northward trend in the post-monsoon 2023 period. The following table shows the maximum along shore current speed recorded in each month.

Table 6-10: Monthly maximum along shore current

Month	Max Speed (cm/s)	Predominant Direction	Line No.	Location
October 2023	57.72	North	72	Vettucaud
November 2023	27.8	North	16	Poovar Beach South
December 2023	98.87	North	17	Poovar Beach South
January 2024	23.1	North	64A	Valiyathura
February 2024	16.19	North	42	Kovalam
March 2024	28.38	North	16	Poovar Beach South

A pictorial representation of the alongshore current direction during the post-Monsoon 2023 period is shown in the Google Earth image below.

Figure 6-13: Representation of surface current direction from October 2023 to March 2024

6.6 Photographic Documentation

Photographic documentation was to be carried out for all the 81 locations from October 2023 to March 2024, coinciding with the cross-shore profiling. Due to the local agitation, photographic documentation could not be carried in few locations during the period.

The latest photographs for the month of March 2024 are provided in **Annexure I**. As a common reference point, a flag was fixed at each of the cross-shore profiling alignments while taking the photograph. Using the RTK system, this point was staked during the photography.

6.7 Cross Shore Profiles

The cross-shore profiling for the period was carried out using RTK in the onshore region and a wide swath bathymetric system in the offshore region. The offshore profiling could not be carried out in few locations as a result of bad weather and rough sea conditions. The nearest depth which could be attained was about 4m to 5m due to the presence of waves breaking in the zone. The boat is not able to approach this zone, due to breakers nearshore considering the safety of personnel onboard.

The following table shows the locatins whee the onshsore and cross-shore profiles could not be carried out.

Table 6-11: Unavailability of CSP data

Month	Onshore CSP Nos.	Offshore CSP Nos.
October 2023	16, 23-33,35, 41, 67	-
November 2023	23-33, 35	40
December 2023	23-30, 34	34
January 2024	23-30	-
February 2024	23-30, 53	53-81
March 2024	3, 6-8, 23-30	1-25

The following table provides the identification of CSP vis-à-vis the local name:

Table 6-12: CSP Location names

CSP NO.	LANDMARK	LOCATION	SITE CONDITION
CSP-1	CATHOLIC CHARISMATIC PRAYER CENTER	EDAPPADU BEACH	Seawall, Groyne No. 1
CSP-2			Beach
CSP-3			Seawall
CSP-4	ST. MARY'S CHURCH	VALLAVILAY	Groyne Nos. 2 to 5 in the vicinity, Beach and Seawall
CSP-5			Groyne Nos. 6 to 8 in the vicinity, Beach and Seawall
CSP-6			Groyne Nos. 9 to 13 in the vicinity, Beach and Seawall
CSP-7	ST. NICOLAS' CHURCH	NEERODY	Groyne Nos. 14 to 16 in the vicinity, Beach and Seawall
CSP-8			Groyne Nos. 17 to 21 in the vicinity, Beach and Seawall
CSP-9			Groyne Nos. 22 to 24 in the vicinity, Beach and Seawall
CSP-10	SREE BHADRAKALI TEMPLE	POZHIYOOR	Groyne Nos. 25 to 27 in the vicinity, Beach and Seawall
CSP-11			Groyne Nos. 28 and 29 in the vicinity, Seawall
CSP-12			Seawall
CSP-13	ST. MATHEW'S CHURCH	PARUTHIYOOR	Seawall
CSP-14	CHURCH OF CHRIST		Seawall
CSP-15	POOVAR ISLAND RESORT	POOVAR BEACH SOUTH	Beach
CSP-16			Beach
CSP-17			Beach
CSP-18	POZHIKARA BEACH	POOVAR	Beach
CSP-19			Beach
CSP-20	ST. ANTONY'S CHAPEL	POOVAR BEACH NORTH	Beach
CSP-21			Beach
CSP-22	ST. ANTONY'S CHURCH	KARUMKULAM	Beach
CSP-23			Inaccessible due to opposition from locals
CSP-24			Inaccessible due to opposition from locals
CSP-25			Inaccessible due to opposition from locals
CSP-26			Inaccessible due to opposition from locals
CSP-27	GOTHAMBU ROAD	PULLUVILA	Inaccessible due to opposition from locals
CSP-28			Inaccessible due to

CSP NO.	LANDMARK	LOCATION	SITE CONDITION
			opposition from locals
CSP-29			Inaccessible due to opposition from locals
CSP-30			Inaccessible due to opposition from locals
CSP-31	ADIMALATHURA CATHOLIC CHURCH	ADIMALATHURA	Beach
CSP-32			Beach
CSP-33			Beach
CSP-34			Beach
CSP-35	AZHIMALA TEMPLE	AZHIMALA	Rocky area
CSP-35A	AZHIMALA TEMPLE	AZHIMALA	Beach
CSP-36	NAGAR BHAGAVATHY TEMPLE	MULLUR	Beach
CSP-37			Beach and Seawall
CSP-38	ADANI PORT RECLAMATION AREA	ADANI PORT OFFICE VIZHINJAM	Beach and Seawall
CSP-39			Port Construction
CSP-40			Port Construction
CSP-40A			Beach and Seawall
CSP-41	VIZHINJAM LIGHT HOUSE	KOVALAM	Beach and Seawall
CSP-42			Beach and Compound Wall
CSP-43			Beach and Compound Wall
CSP-44			Beach and Seawall
CSP-45			Beach and Compound Wall
CSP-46			Beach and Seawall
CSP-47	SAMUDRA BEACH PARK		Beach and Seawall
CSP-48	MOSQUE	PANATHURA	Beach and Seawall
CSP-49			Seawall
CSP-50	PANATHURA TEMPLE		Seawall
CSP-51			Seawall
CSP-52			Groyne No. 30 in the vicinity, Seawall
CSP-53	PUNTHURA FISH MARKET	PUNTHURA	Groyne No. 31 in the vicinity, Beach and Estuary
CSP-54			Beach
CSP-55			Beach and Seawall
CSP-56			Beach and Seawall
CSP-57			Beach and Seawall
CSP-58	BEEMA PALLY	BEEMA PALLY	Beach and Seawall
CSP-59			Seawall
CSP-60			Beach and Seawall
CSP-61	CHERIYATHURA SPORTS GROUND	CHERIYATHURA	Groyne Nos. 38 to 42 in the vicinity, Beach and Seawall

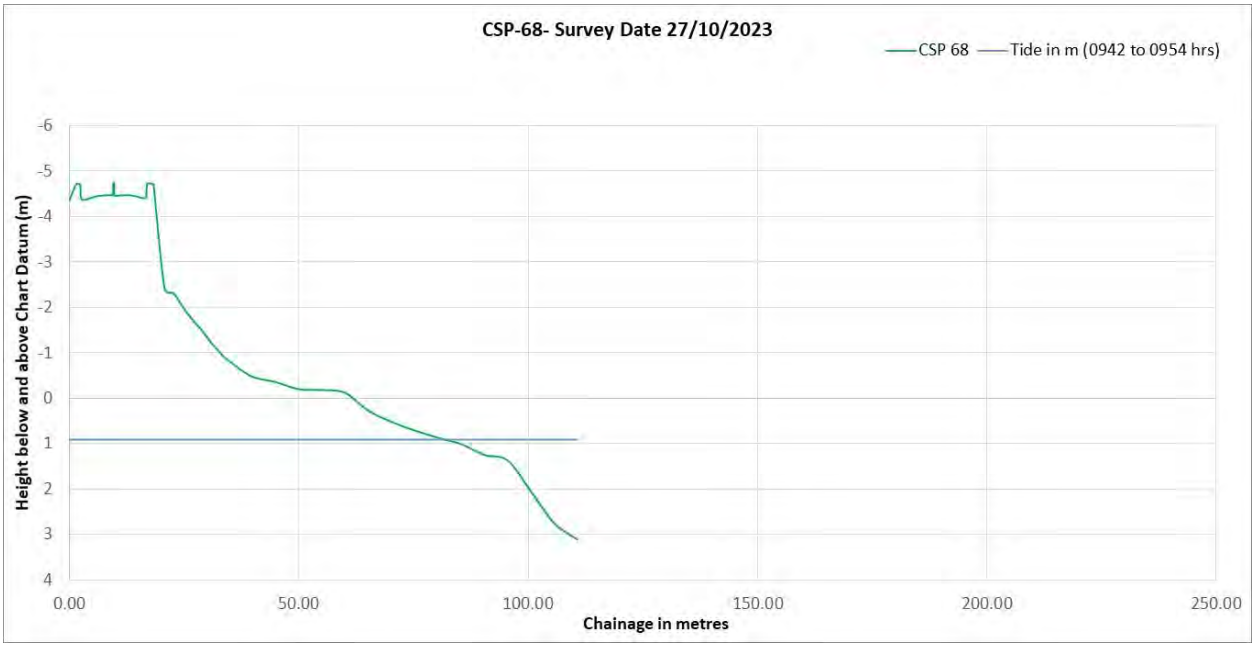
CSP NO.	LANDMARK	LOCATION	SITE CONDITION
CSP-62			Groyne Nos. 43 to 47 in the vicinity, Beach and Seawall
CSP-63	VALIYATHURA BRIDGE	VALIYATHURA	Groyne Nos. 48 to 51 in the vicinity, Seawall
CSP-64			Seawall, Valiyathura Bridge
CSP-64A			Beach
CSP-65			Seawall
CSP-66			Seawall
CSP-67			Beach and Seawall
CSP-68	SHANGUMUGHAM BEACH	SHANGUMUGHAM	Beach and Seawall
CSP-69			Beach and Seawall
CSP-70	ST. PETER'S CHURCH		Beach and Seawall
CSP-71			Beach and Seawall
CSP-72	VETTUCAUD CHURCH	VETTUCAUD	Beach
CSP-73			Beach and Seawall
CSP-74			Beach
CSP-75	VELI CHILDREN'S PARK	KOCHUVELI	Beach
CSP-76			Beach
CSP-77			Beach
CSP-78	ST. THOMAS' CHURCH	VALIYAVELI	Beach and Seawall
CSP-79			Beach and Seawall
CSP-80	CHRISTIAN BROTHEREN CHURCH	THUMBA	Beach
CSP-81			Beach

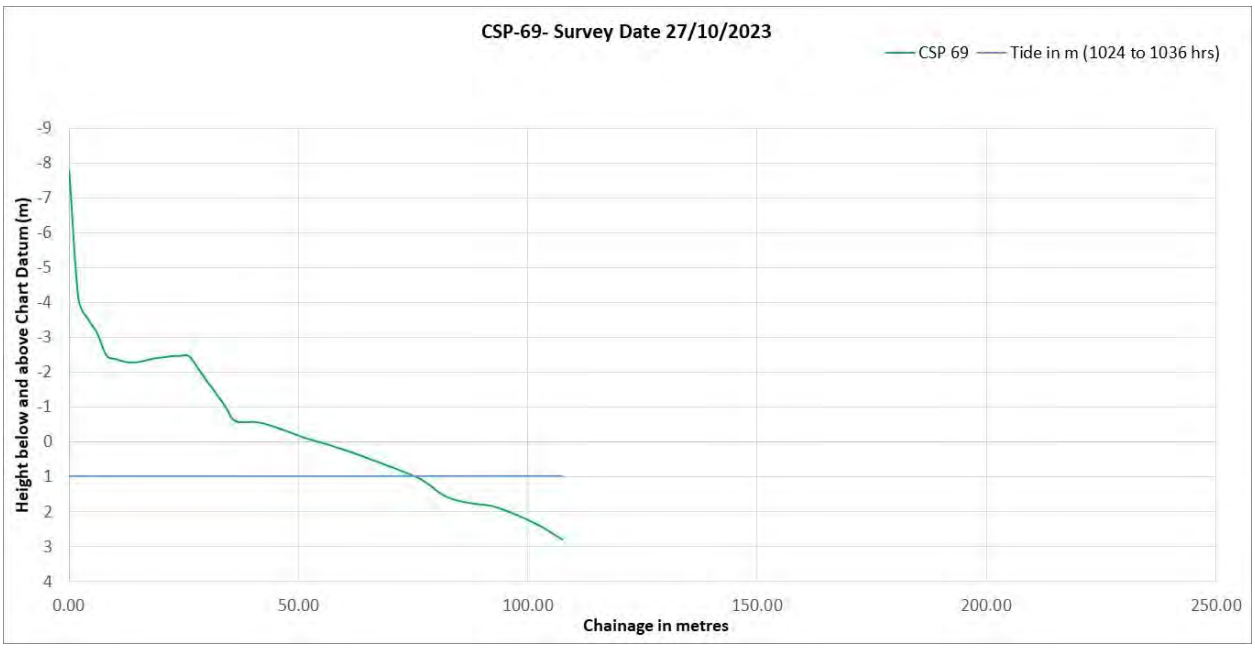
6.8 Near-shore (Sled Survey)

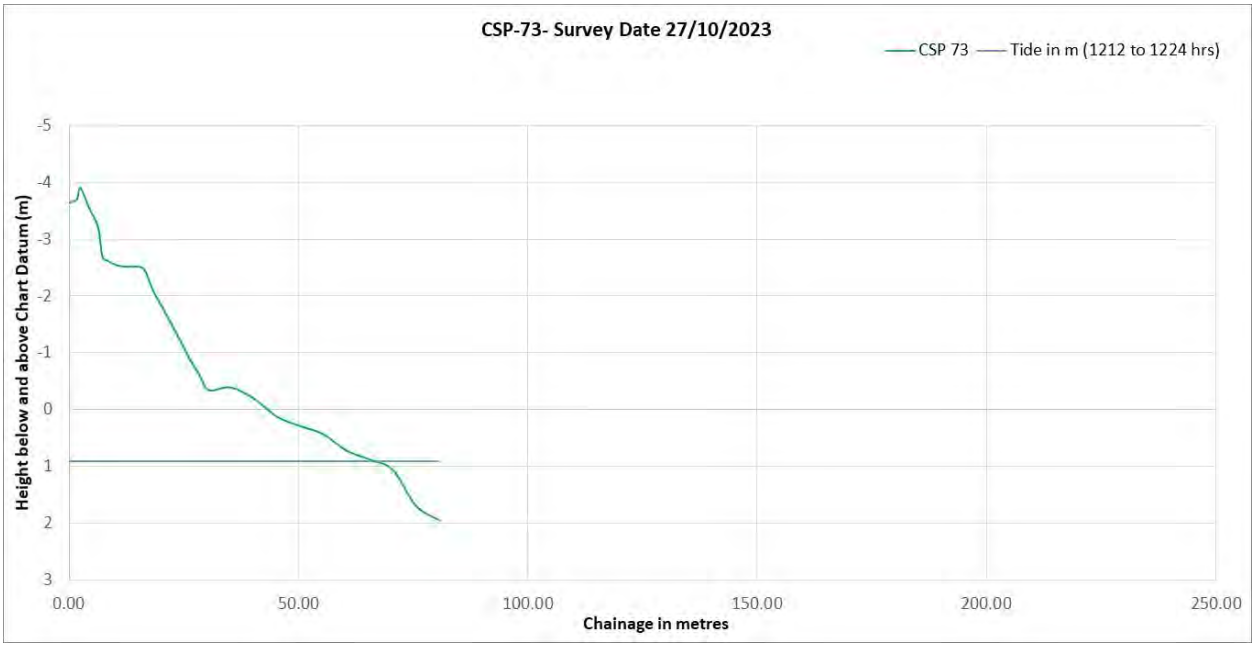
Near-shore survey was carried out along 4 CSP lines namely CSP-68, CSP-69 (Shangumugham), CSP-73 and CSP-74 (Vettucaud) using pressure sensor in the month of October 2023.

No near shore survey was carried out from November 2023 to March 2024 as the sensor cable got damaged. A new customized sensor with in-built data storage facility has been procured recently and mobilised.

The graphs for the near-shore survey carried out during October 2023 are provided below:


CSP-68- Survey Date 27/10/2023
CSP 68
Tide in m (0942 to 0954 hrs)
Height below and above Chart Datum (m)
-6
-5
-4
-3
-2
-1
0
1
2
3
4
0.00
50.00
100.00
150.00
200.00
250.00
Chainage in metres


CSP-69- Survey Date 27/10/2023
CSP 69
Tide in m (1024 to 1036 hrs)
Height below and above Chart Datum (m)
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
0.00
50.00
100.00
150.00
200.00
250.00
Chainage in metres



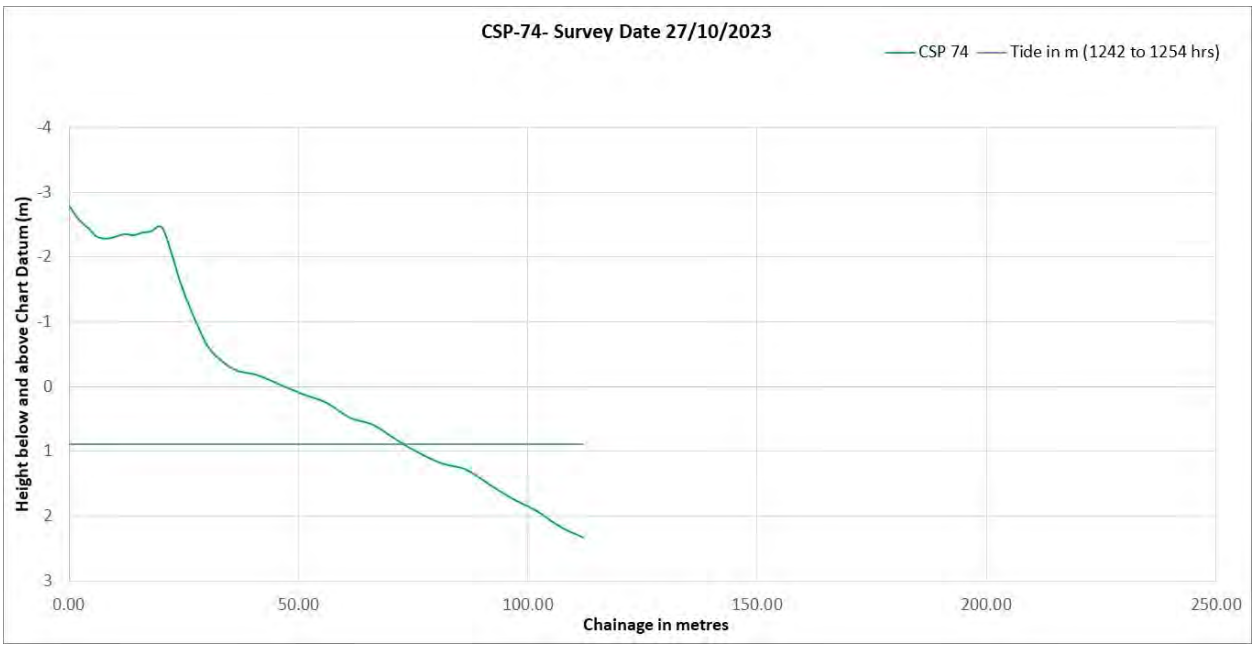


Figure 6-14: Graphs of near-shore survey

6.9 Shoreline Monitoring Survey

The entire 41 km of shoreline was to be surveyed during the period October 2023 to March 2024. Some CSP locations between CSP-22 to CSP-34 could not be approached for due to the agitation and protests. The survey was carried out using RTK system in GPS mode. This stretch extends from CSP-1 in the south (Eddapadu) to CSP-81 in the north (Thumba). A total of 51 groynes have been observed within the survey area. An overlay of month-on-month GPS survey charts is provided in **Annexure II** (8 charts).

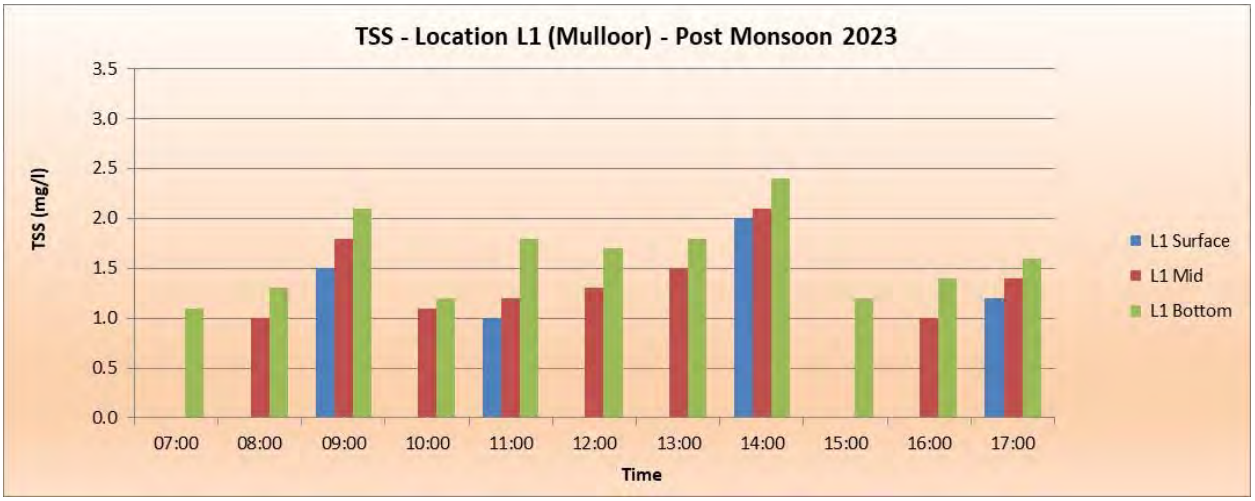
Table 6-13: Area wise number of groynes

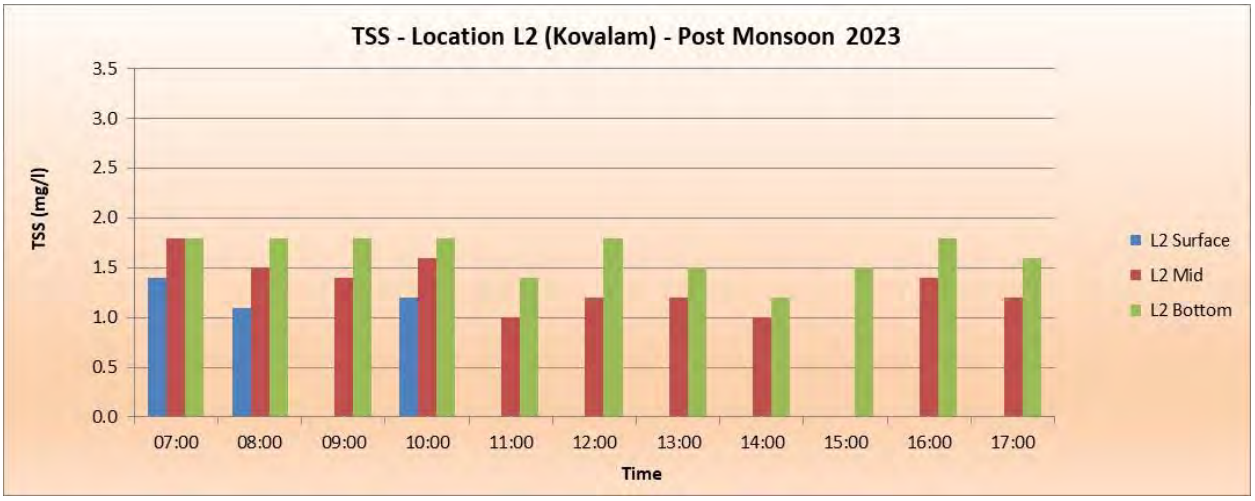
Area	Number of Groynes	North / South of the Port Area	Total no. of Groynes North/South of the Port
Edappadu Beach	1	South	29 South
Vallavilay	12	South	
Neerody	11	South	
Pozhiyoor	5	South	
Panathura	1	North	22 North
Punthura	2	North	
Beemapally	4	North	
Cheriyathura	10	North	
Valiyathura	5	North	
Total number of groynes			**51**

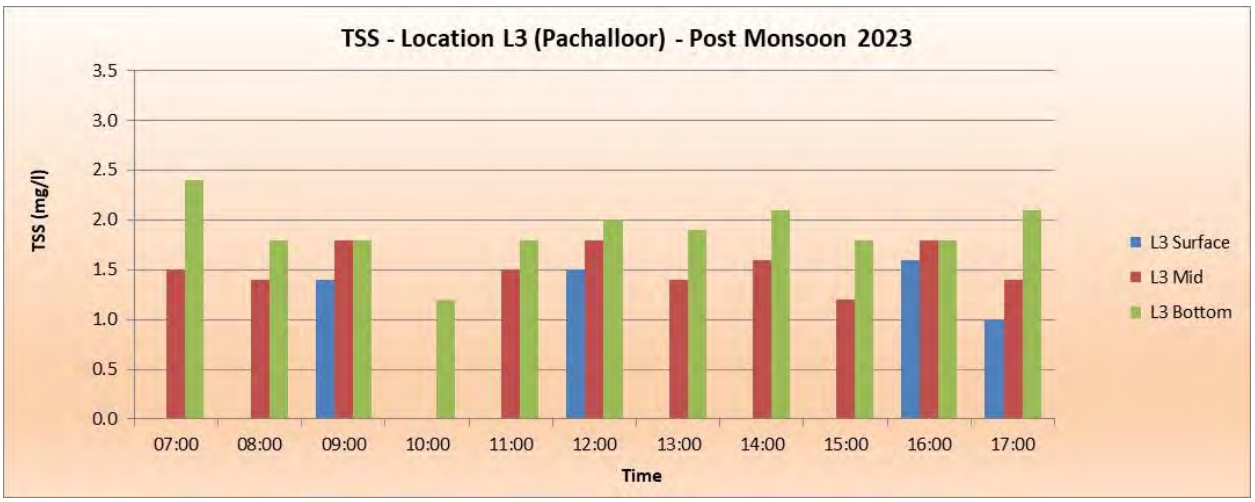
6.10 Water Sampling

For the Post-Monsoon 2023 period, water samples were collected from 4 locations, namely L1 (Mulloor) on 30th December, L2 (Kovalam) on 28th December, L3 (Pachalloor) on 29th December and L4 (Poovar) on 31st December 2023. The parameters measured were Total Suspended Solids (TSS), salinity and turbidity.

The histograms for TSS (in mg/l) for the above-mentioned locations are provided below.


TSS - Location L1 (Mulloor) - Post Monsoon 2023
TSS (mg/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
Time
L1 Surface
L1 Mid
L1 Bottom


TSS - Location L2 (Kovalam) - Post Monsoon 2023
TSS (mg/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
Time
L2 Surface
L2 Mid
L2 Bottom


TSS - Location L3 (Pachalloor) - Post Monsoon 2023
TSS (mg/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
Time
L3 Surface
L3 Mid
L3 Bottom

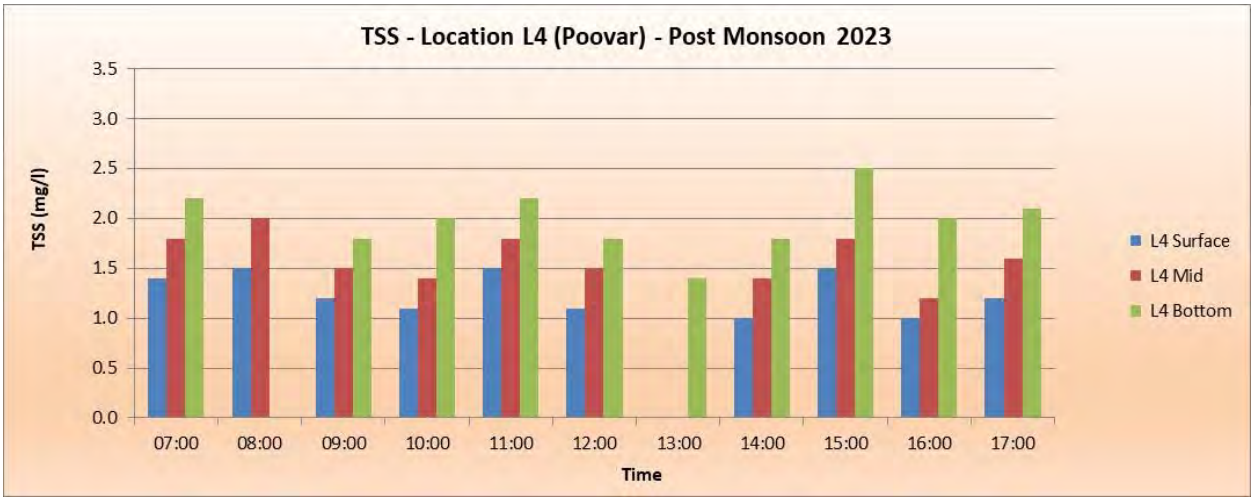
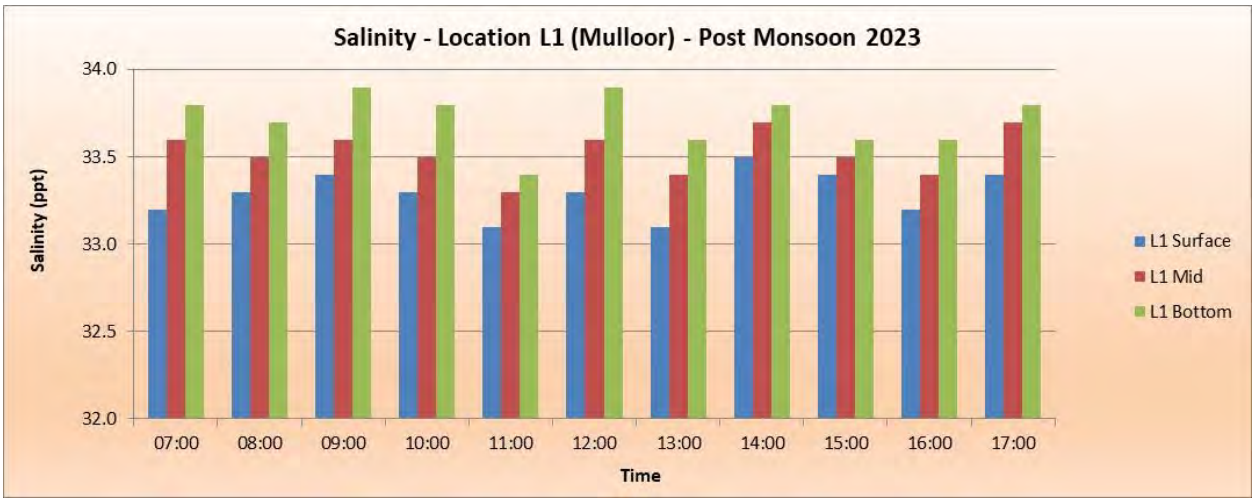


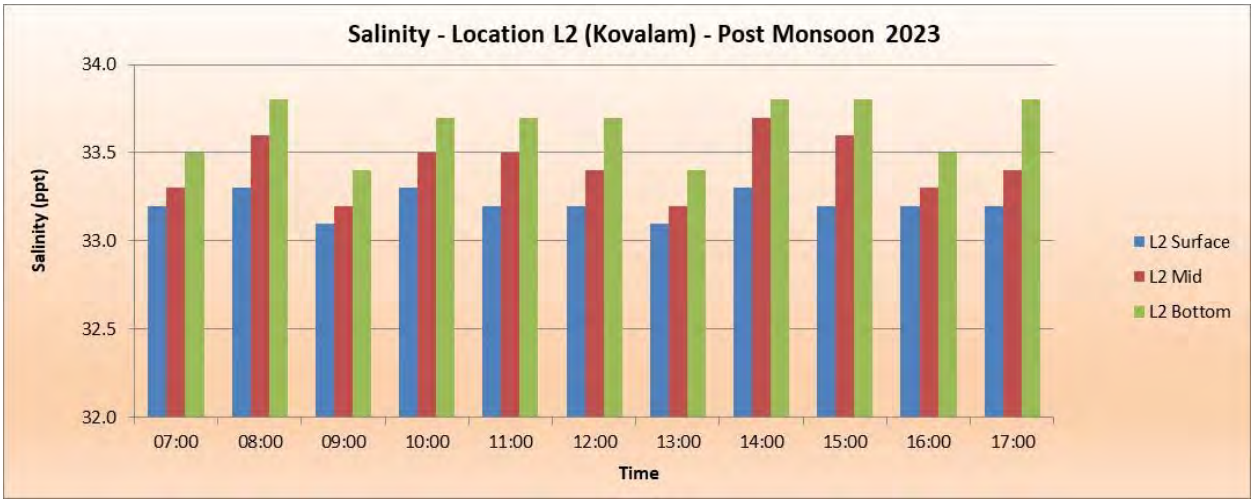
Figure 6-15: Time Series of TSS

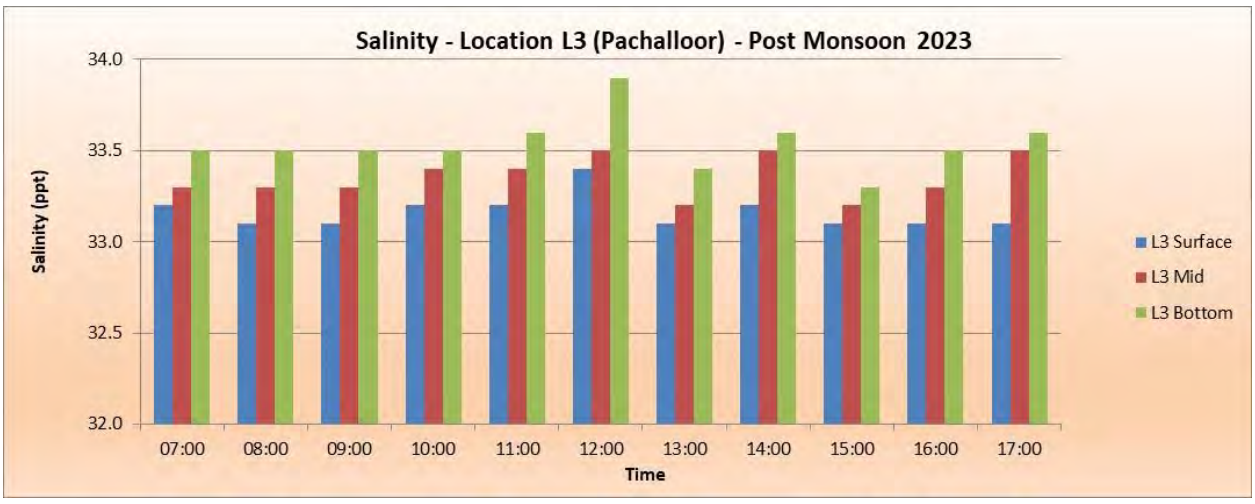
The maximum TSS recorded was 2.5 mg/l near the bottom at Location L4 (Poovar).

Note: TSS values below 1 mg/l are Below Detectable Limit (BDL) of the system and are hence not shown on the bar charts.

The histograms for salinity at all three levels for all the locations are given as follows.







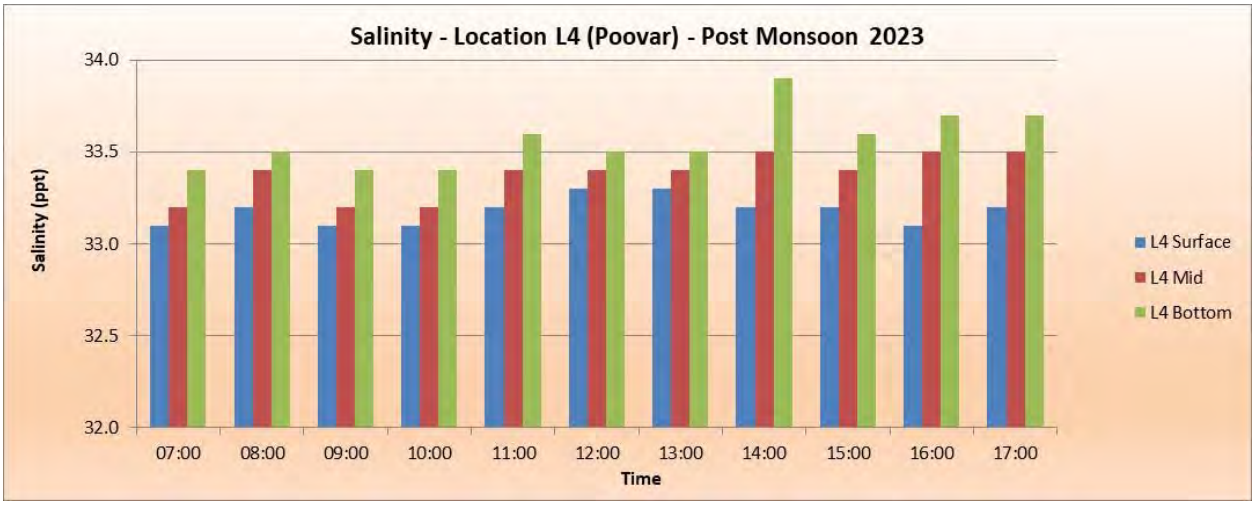
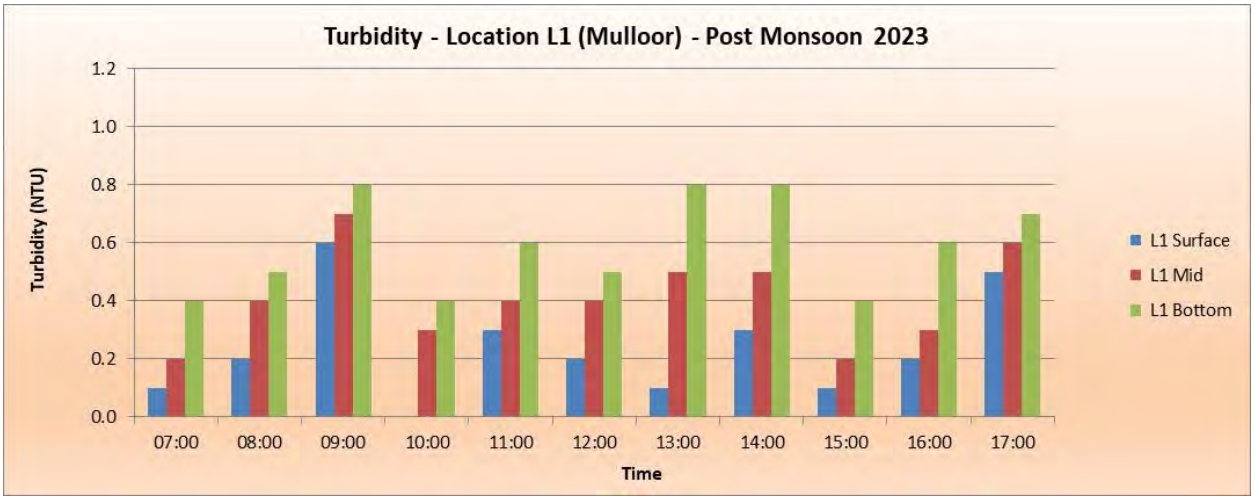


Figure 6-16: Time Series of salinity

The salinity at all locations is seen to be between 33.1 and 33.9 parts per thousand (ppt). The maximum salinity recorded was 33.9 ppt at Locations L1 (Mulloor), L3 (Pachalloor) and L4 (Poovar) all near the bottom.

The histograms for turbidity at all levels for the locations are shown below. The maximum turbidity recorded was 1.1 NTU near the bottom at Location L4 (Poovar).

Note: Turbidity values below 0.1 NTU are Below Detectable Level (BDL) of the system and are hence not displayed on the bar charts.



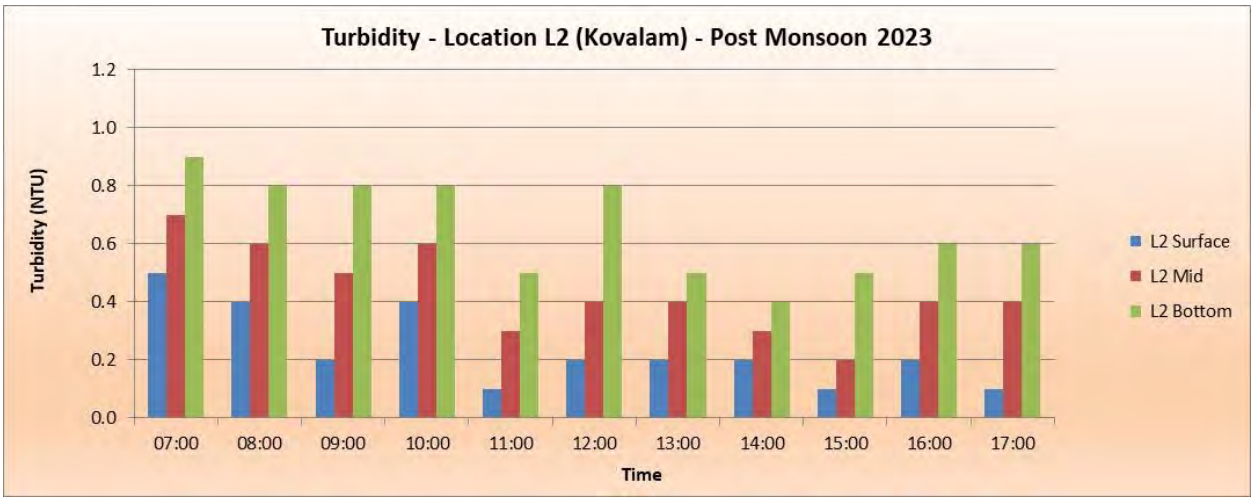


Figure 6-17: Time Series of Turbidity at water sampling locations

6.11 Beach Sampling

Beach samples were collected from 57 out of the 81 locations for the post-monsoon 2023 period in the month of December 2023. The samples which could not be collected due to lack of beach were BS-3, BS-11 to BS-14, BS-39, BS-40, BS-47, BS-49 to BS-52, BS-56, BS-59, BS-63, BS-64 and BS-65. Beach samples at CSP locations 23 to 30 could not be collected due to the protests from local people residing at those locations The following table shows the D50 value (in mm) of the sediments collected along with the soil classification as per Wentworth scale.

Table 6-14: Beach sample soil classification

Sample Name	Gravel %	Sand %	Mud%	Total	D50 (mm)	Classification
BS-1	0.00	100.00	0.00	0.00	0.3509	Medium Sand
BS-2	0.00	100.00	0.00	0.00	0.3291	Medium Sand
BS-3	Not collected due to lack of beach					
BS-4	0.00	100.00	0.00	0.00	0.3397	Medium Sand
BS-5	0.00	100.00	0.00	0.00	0.3513	Medium Sand
BS-6	0.00	100.00	0.00	0.00	0.3500	Medium Sand
BS-7	0.00	100.00	0.00	0.00	0.2519	Medium Sand
BS-8	0.00	100.00	0.00	0.00	0.5530	
BS-9	0.00	100.00	0.00	0.00	0.4323	Medium Sand
BS-10	0.00	100.00	0.00	0.00	0.3820	Medium Sand
BS-11	Not collected due to lack of beach					
BS-12						
BS-13						
BS-14						
BS-15	0.00	100.00	0.00	0.00	0.4619	Medium Sand
BS-16	0.00	100.00	0.00	0.00	0.4296	Medium Sand
BS-17	0.00	100.00	0.00	0.00	0.4683	Medium Sand
BS-18	0.00	100.00	0.00	0.00	0.3543	Medium Sand
BS-19	0.00	100.00	0.00	0.00	0.4656	Medium Sand
BS-20	0.00	100.00	0.00	0.00	0.4542	Medium Sand
BS-21	0.00	100.00	0.00	0.00	0.4479	Medium Sand
BS-22	0.00	100.00	0.00	0.00	0.4739	Medium Sand
BS-23	Sampling locations not approachable due to protests from locals					
BS-24						
BS-25						
BS-26						
BS-27						
BS-28						
BS-29						
BS-30						
BS-31	0.00	100.00	0.00	0.00	0.4877	Medium Sand
BS-32	0.00	100.00	0.00	0.00	0.3187	Medium Sand
BS-33	0.00	100.00	0.00	0.00	0.3626	Medium Sand
BS-34	0.00	100.00	0.00	0.00	0.3653	Medium Sand
BS-35	0.00	100.00	0.00	0.00	0.3123	Medium Sand
BS-35A	0.00	100.00	0.00	0.00	0.3027	Medium Sand
BS-36	0.00	100.00	0.00	0.00	0.3975	Medium Sand
BS-37	0.00	100.00	0.00	0.00	0.5279	Coarse Sand
BS-38	0.00	100.00	0.00	0.00	0.4168	Medium Sand
BS-39	Not collected due to lack of beach					
BS-40						
BS-40A	0.00	100.00	0.00	0.00	0.6074	Coarse Sand

Sample Name	Gravel %	Sand %	Mud%	Total	D50 (mm)	Classification
BS-41	0.00	100.00	0.00	0.00	0.5005	Coarse Sand
BS-42	0.00	100.00	0.00	0.00	0.2333	Fine Sand
BS-43	0.00	100.00	0.00	0.00	0.2299	Fine Sand
BS-44	0.00	100.00	0.00	0.00	0.2444	Fine Sand
BS-45	0.00	100.00	0.00	0.00	0.3240	Medium Sand
BS-46	0.00	100.00	0.00	0.00	0.3848	Medium Sand
BS-47	Not collected due to lack of beach					
BS-48	0.00	100.00	0.00	0.00	0.2411	Fine Sand
BS-49	Not collected due to lack of beach					
BS-50						
BS-51						
BS-52						
BS-53	0.00	100.00	0.00	0.00	0.3085	Medium Sand
BS-54	0.00	100.00	0.00	0.00	0.3050	Medium Sand
BS-55	0.00	100.00	0.00	0.00	0.3213	Medium Sand
BS-56	Not collected due to lack of beach					
BS-57	0.00	100.00	0.00	0.00	0.2355	Fine Sand
BS-58	0.00	100.00	0.00	0.00	0.3239	Medium Sand
BS-59	Not collected due to lack of beach					
BS-60	0.00	100.00	0.00	0.00	0.3510	Medium Sand
BS-61	0.00	100.00	0.00	0.00	0.3231	Medium Sand
BS-62	0.00	100.00	0.00	0.00	0.3456	Medium Sand
BS-63	Not collected due to lack of beach					
BS-64						
BS-64A	0.00	100.00	0.00	0.00	0.3594	Medium Sand
BS-65	Not collected due to lack of beach					
BS-66	0.00	100.00	0.00	0.00	0.3321	Medium Sand
BS-67	0.00	100.00	0.00	0.00	0.3544	Medium Sand
BS-68	0.00	100.00	0.00	0.00	0.3471	Medium Sand
BS-69	0.00	100.00	0.00	0.00	0.3564	Medium Sand
BS-70	0.00	100.00	0.00	0.00	0.3489	Medium Sand
BS-71	0.00	100.00	0.00	0.00	0.4639	Medium Sand
BS-72	0.00	100.00	0.00	0.00	0.3408	Medium Sand
BS-73	0.00	100.00	0.00	0.00	0.3958	Medium Sand
BS-74	0.00	100.00	0.00	0.00	0.3421	Medium Sand
BS-75	0.00	100.00	0.00	0.00	0.3620	Medium Sand
BS-76	0.00	100.00	0.00	0.00	0.3683	Medium Sand
BS-77	0.00	100.00	0.00	0.00	0.4191	Medium Sand
BS-78	0.00	100.00	0.00	0.00	0.3495	Medium Sand
BS-79	0.00	100.00	0.00	0.00	0.3726	Medium Sand
BS-80	0.00	100.00	0.00	0.00	0.3701	Medium Sand
BS-81	0.00	100.00	0.00	0.00	0.4013	Medium Sand

The classification is based on Wentworth scale as provided below:

Very fine Sand – 0.0625 to 0.125 mm
Fine Sand – 0.125 to 0.250 mm
Medium Sand – 0.250 to 0.500 mm
Coarse Sand – 0.500 to 1.000 mm
Very coarse Sand – 1.000 to 2.000 mm

The following graph shows the distribution of D50 value of the sediments collected in each location.

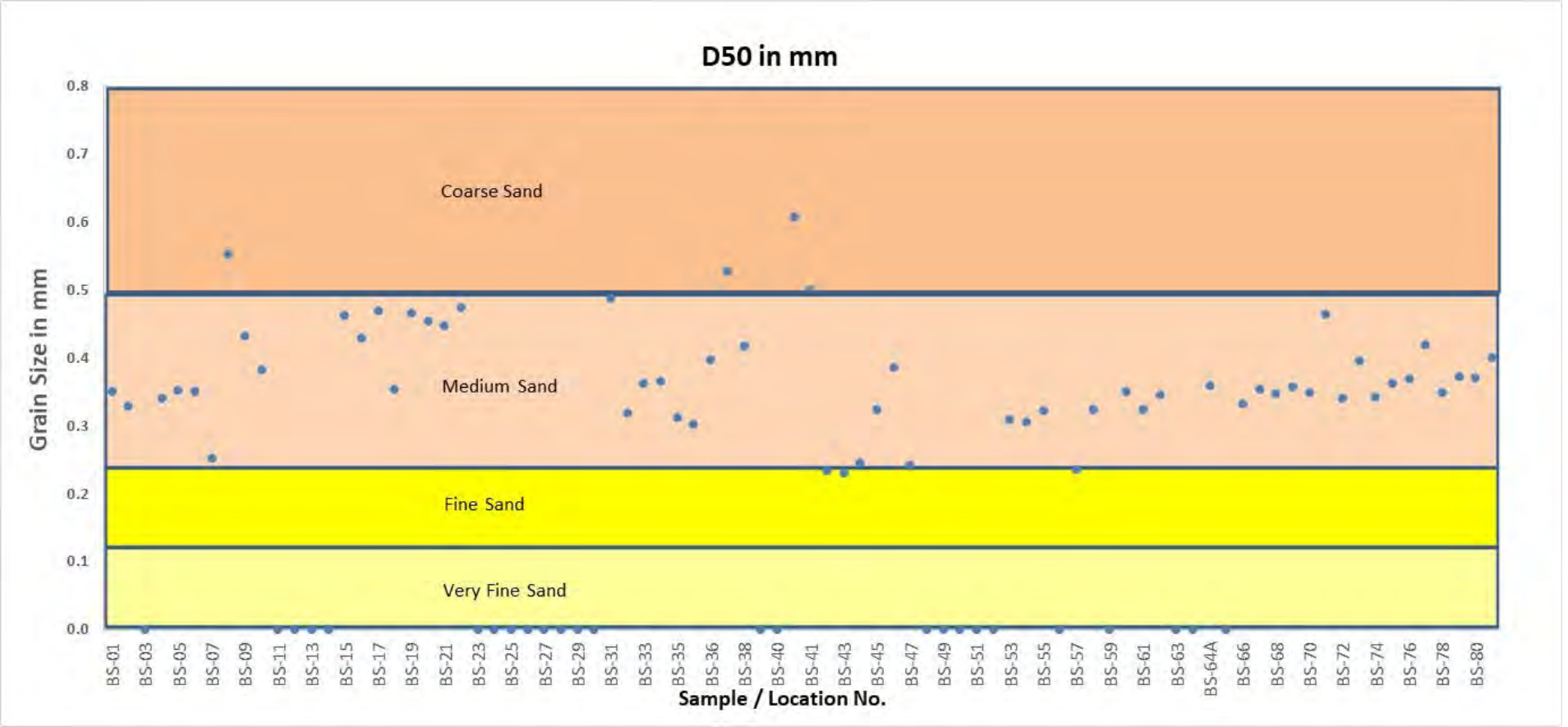
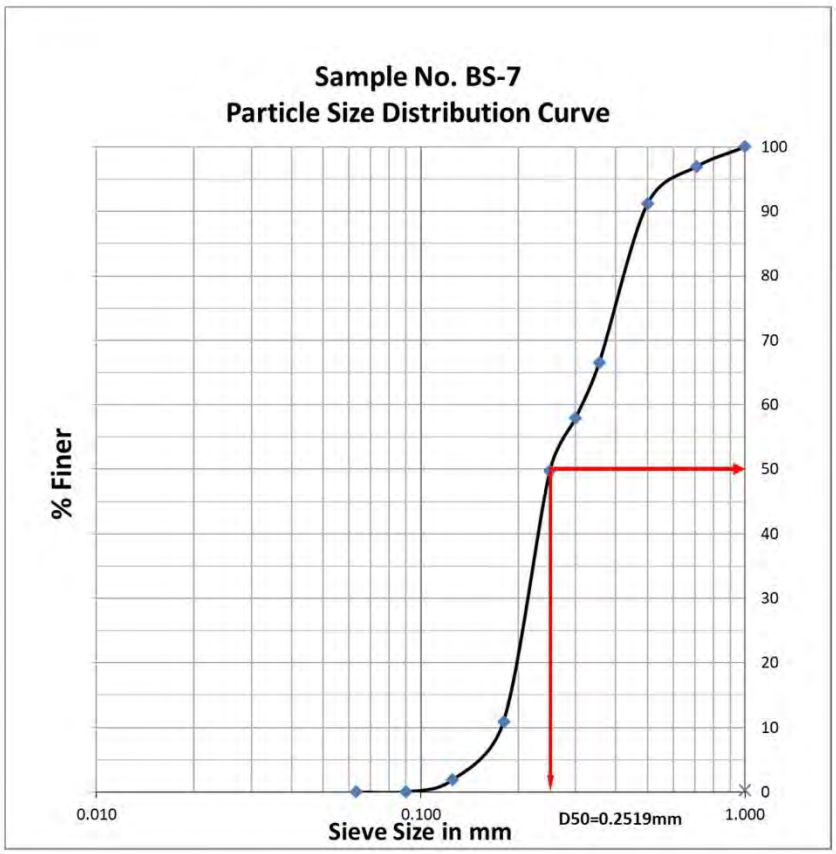


Figure 6-18: Distribution of D50 value of beach samples

The particle size distribution curves for beach samples collected a few locations are placed in the images below.

Standards



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Tel. 0484-2546660, 93872 72402, 90743 41443, Web: www.sealabs.in, E-mail: seaalab@gmail.com

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Figure 6-19: Grain size distribution curve for BS-7 (Monsoon 2023)

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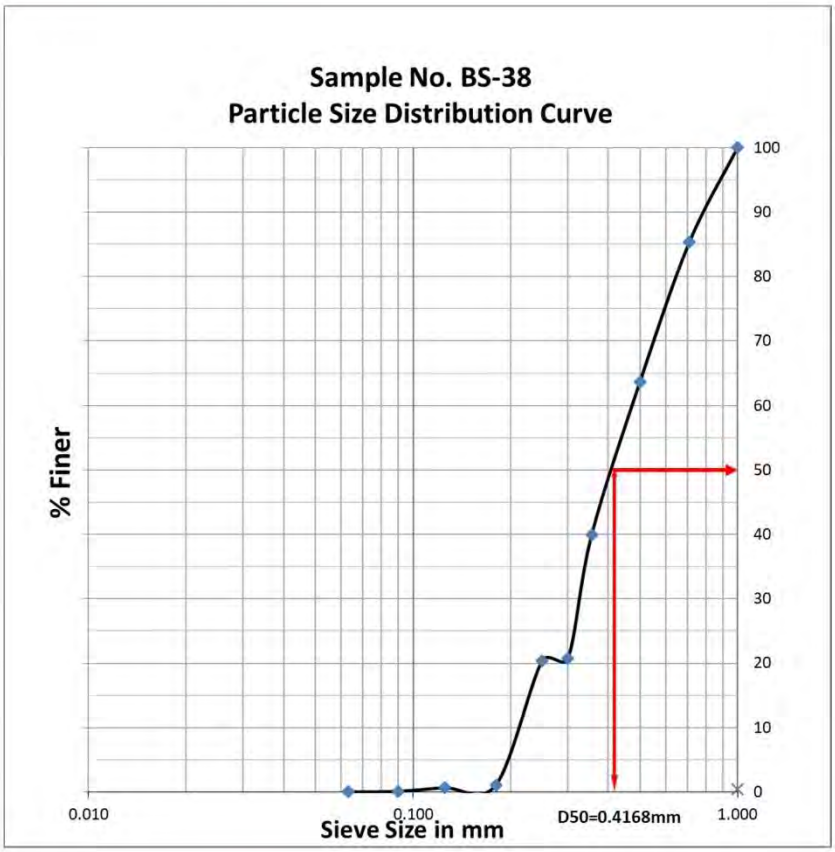

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Figure 6-20: Grain size distribution curve for BS-38 (Monsoon 2023)

Standards

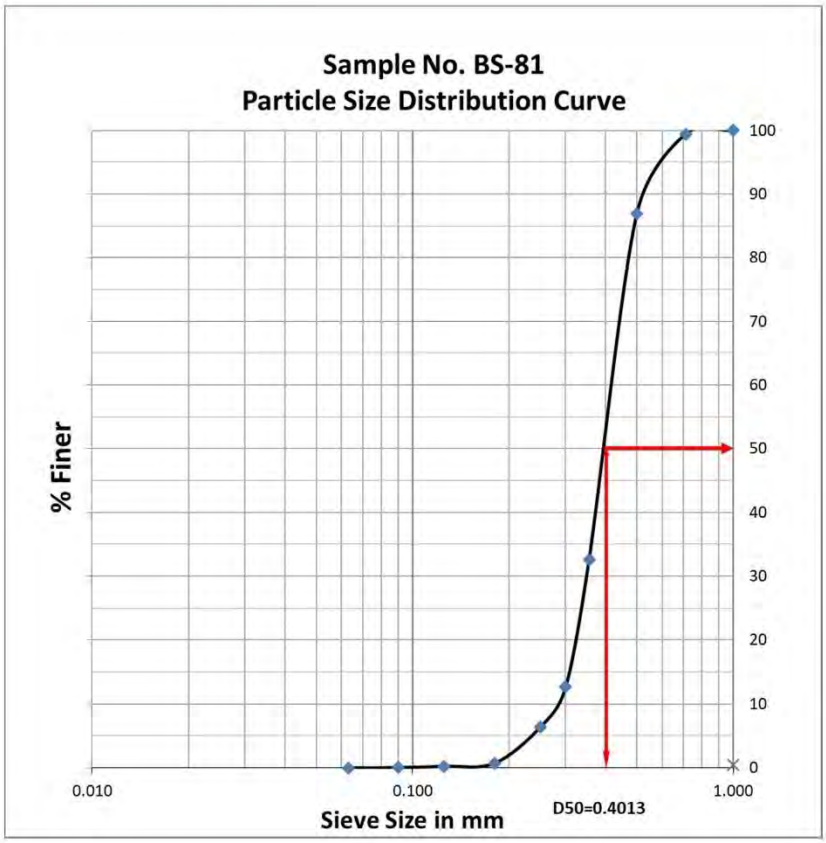

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Figure 6-21: Grain size distribution curve for BS-81 (Monsoon 2023)

6.12 Seabed Sediment Sampling

Seabed samples were collected from all the 80 locations for the 2023-2024 period in the month of February 2024. The following table shows the D50 value (in mm) of the sediments collected along with the soil classification as per Wentworth scale.

Table 6-15: D50 values of the seabed samples

Sample	Gravel %	Sand %	Mud % (Silt + Clay)	Total	D50 mm	Classification
GS-01-01	0.00	99.64	0.36	100.00	0.4648	Medium Sand
GS-01-02	0.00	100.00	0.00	100.00	0.3699	Medium Sand
GS-02-01	0.00	99.22	0.78	100.00	0.1997	Fine Sand
GS-02-02	0.00	99.61	0.39	100.00	0.2666	Medium Sand
GS-03-01	0.00	87.49	12.51	100.00	0.1368	Fine Sand
GS-03-02	0.00	99.31	0.69	100.00	0.4002	Medium Sand
GS-04-01	0.00	94.94	5.06	100.00	0.2147	Fine Sand
GS-04-02	0.00	100.00	0.00	100.00	0.5000	Medium Sand
GS-05-01	0.00	78.34	21.66	100.00	0.1172	Very fine Sand
GS-05-02	0.00	99.53	0.47	100.00	0.4549	Medium Sand
GS-06-01	0.00	93.57	6.43	100.00	0.1972	Fine Sand
GS-06-02	0.00	100.00	0.00	100.00	0.4961	Medium Sand
GS-07-01	0.00	98.98	1.02	100.00	0.2337	Fine Sand
GS-07-02	0.00	96.59	3.41	100.00	0.2085	Fine Sand
GS-08-01	0.00	100.00	0.00	100.00	0.6118	Coarse Sand
GS-08-02	0.00	100.00	0.00	100.00	0.4179	Medium Sand
GS-09-01	0.00	100.00	0.00	100.00	0.3938	Medium Sand
GS-09-02	0.00	100.00	0.00	100.00	0.3463	Medium Sand
GS-10-01	0.00	100.00	0.00	100.00	0.3516	Medium Sand
GS-10-02	0.00	100.00	0.00	100.00	0.4692	Medium Sand
GS-11-01	0.00	100.00	0.00	100.00	0.4224	Medium Sand
GS-11-02	0.00	100.00	0.00	100.00	0.4242	Medium Sand
GS-12-01	0.00	100.00	0.00	100.00	0.6195	Coarse Sand
GS-12-02	0.00	100.00	0.00	100.00	0.5862	Coarse Sand
GS-13-01	0.00	100.00	0.00	100.00	0.4206	Medium Sand
GS-13-02	0.00	100.00	0.00	100.00	0.5862	Coarse Sand
GS-14-01	0.00	100.00	0.00	100.00	0.3969	Medium Sand
GS-14-02	0.00	100.00	0.00	100.00	0.4926	Medium Sand
GS-15-01	0.00	99.32	0.68	100.00	0.3003	Medium Sand

Sample	Gravel %	Sand %	Mud % (Silt + Clay)	Total	D50 mm	Classification
GS-15-02	0.00	99.49	0.51	100.00	0.4250	Medium Sand
GS-16-01	0.00	95.95	4.05	100.00	0.4214	Medium Sand
GS-16-02	0.00	99.32	0.68	100.00	0.3003	Medium Sand
GS-17-01	0.00	100.00	0.00	100.00	0.4155	Medium Sand
GS-17-02	0.00	100.00	0.00	100.00	0.4109	Medium Sand
GS-18-01	0.00	100.00	0.00	100.00	0.4155	Medium Sand
GS-18-02	0.00	100.00	0.00	100.00	0.1490	Fine Sand
GS-19-01	0.00	100.00	0.00	100.00	0.4580	Medium Sand
GS-19-02	0.00	100.00	0.00	100.00	0.1474	Fine Sand
GS-20-01	0.00	100.00	0.00	100.00	0.1995	Fine Sand
GS-20-02	0.00	100.00	0.00	100.00	0.2257	Fine Sand
GS-21-01	0.00	100.00	0.00	100.00	0.1474	Fine Sand
GS-21-02	0.00	100.00	0.00	100.00	0.5649	Coarse Sand
GS-22-01	0.00	100.00	0.00	100.00	0.1997	Fine Sand
GS-22-02	0.00	100.00	0.00	100.00	0.2865	Medium Sand
GS-23-01	0.00	100.00	0.00	100.00	0.4467	Medium Sand
GS-23-02	0.00	100.00	0.00	100.00	0.4533	Medium Sand
GS-24-01	0.00	100.00	0.00	100.00	0.5542	Coarse Sand
GS-24-02	0.00	100.00	0.00	100.00	0.5012	Coarse Sand
GS-25-01	0.00	100.00	0.00	100.00	0.2425	Fine Sand
GS-25-02	0.00	100.00	0.00	100.00	0.4837	Medium Sand
GS-26-01	0.00	100.00	0.00	100.00	0.1691	Fine Sand
GS-26-02	0.00	100.00	0.00	100.00	0.4553	Medium Sand
GS-27-01	0.00	100.00	0.00	100.00	0.2705	Medium Sand
GS-27-02	0.00	100.00	0.00	100.00	0.1736	Fine Sand
GS-28-01	0.00	100.00	0.00	100.00	0.2032	Fine Sand
GS-28-02	0.00	100.00	0.00	100.00	0.1491	Fine Sand
GS-29-01	0.00	100.00	0.00	100.00	0.6779	Coarse Sand
GS-29-02	0.00	100.00	0.00	100.00	0.5484	Coarse Sand
GS-30-01	0.00	100.00	0.00	100.00	0.1537	Fine Sand
GS-30-02	0.00	100.00	0.00	100.00	0.3460	Medium Sand
GS-31-01	0.00	100.00	0.00	100.00	0.1871	Fine Sand
GS-31-02	0.00	100.00	0.00	100.00	0.4990	Medium Sand
GS-32-01	0.00	100.00	0.00	100.00	0.1542	Fine Sand
GS-32-02	0.00	100.00	0.00	100.00	0.6933	Coarse Sand

Sample	Gravel %	Sand %	Mud % (Silt + Clay)	Total	D50 mm	Classification
GS-33-01	0.00	100.00	0.00	100.00	0.1940	Fine Sand
GS-33-02	0.00	100.00	0.00	100.00	0.3463	Medium Sand
GS-34-01	0.00	100.00	0.00	100.00	0.2382	Fine Sand
GS-34-02	0.00	100.00	0.00	100.00	0.4065	Medium Sand
GS-35-01	0.00	100.00	0.00	100.00	0.2113	Fine Sand
GS-35-02	0.00	100.00	0.00	100.00	0.4349	Medium Sand
GS-36-01	0.00	100.00	0.00	100.00	0.6044	Coarse Sand
GS-36-02	0.00	100.00	0.00	100.00	0.4453	Medium Sand
GS-37-01	0.00	100.00	0.00	100.00	0.1575	Fine Sand
GS-37-02	0.00	100.00	0.00	100.00	0.3204	Medium Sand
GS-38-01	0.00	100.00	0.00	100.00	0.2060	Fine Sand
GS-38-02	0.00	100.00	0.00	100.00	0.2075	Fine Sand
GS-39-01	0.00	100.00	0.00	100.00	0.1910	Fine Sand
GS-39-02	0.00	100.00	0.00	100.00	0.1558	Fine Sand
GS-40-01	0.00	100.00	0.00	100.00	0.1745	Fine Sand
GS-40-02	0.00	100.00	0.00	100.00	0.4281	Medium Sand

Very fine Sand – 0.0625 to 0.1250 mm
Fine Sand – 0.1250 to 0.250 mm
Medium Sand – 0.2500 to 0.5000 mm
Coarse Sand – 0.500 to 1.000 mm
Very coarse Sand – 1.000 to 2.000 mm

The following graph shows the distribution of D50 value of the sediments collected in each location.

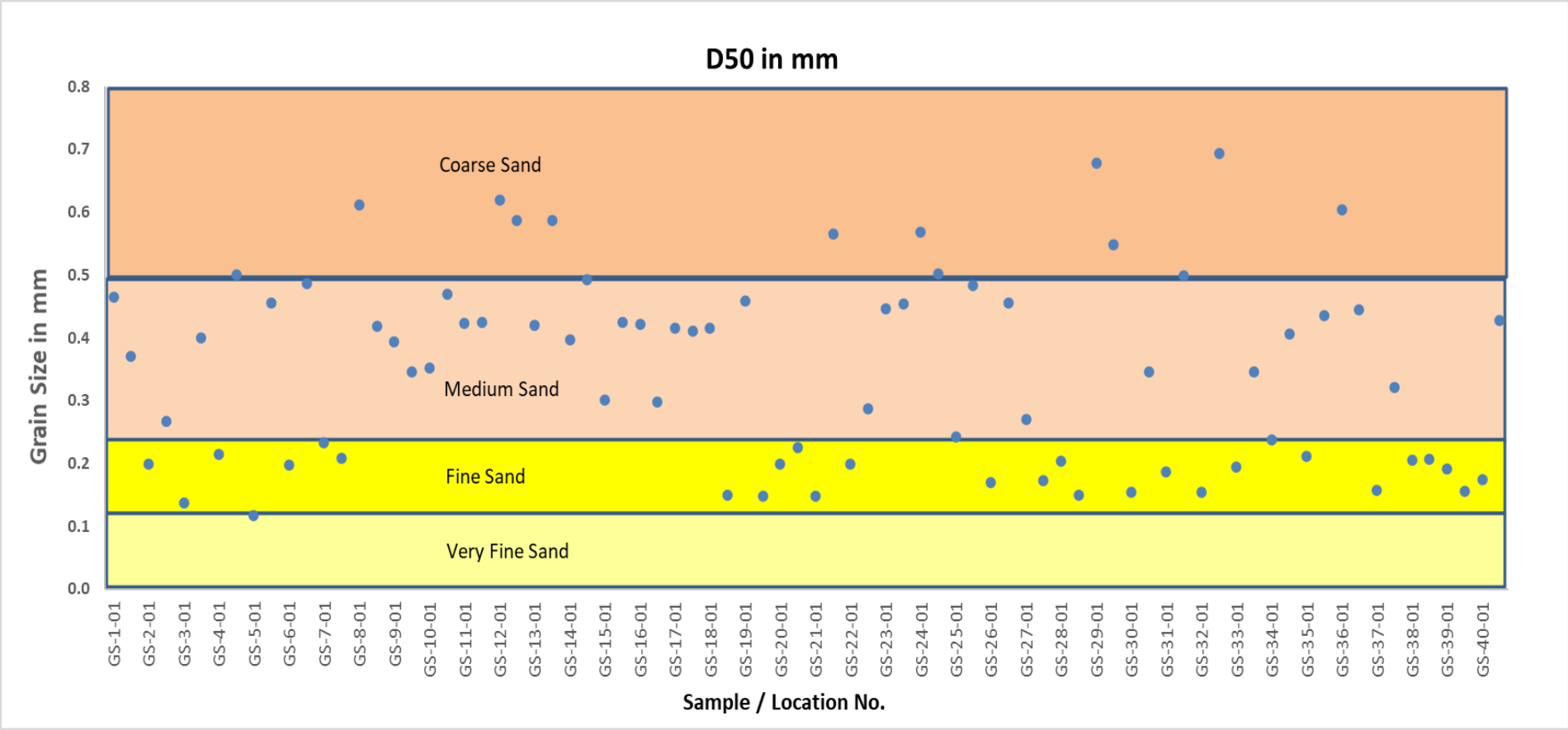


Figure 6-22: Distribution of D50 value of sediment samples

6.13 Bathymetry

Survey Location

The following image shows the coverage of the area surveyed using R2Sonic 2020 multibeam echo sounder.

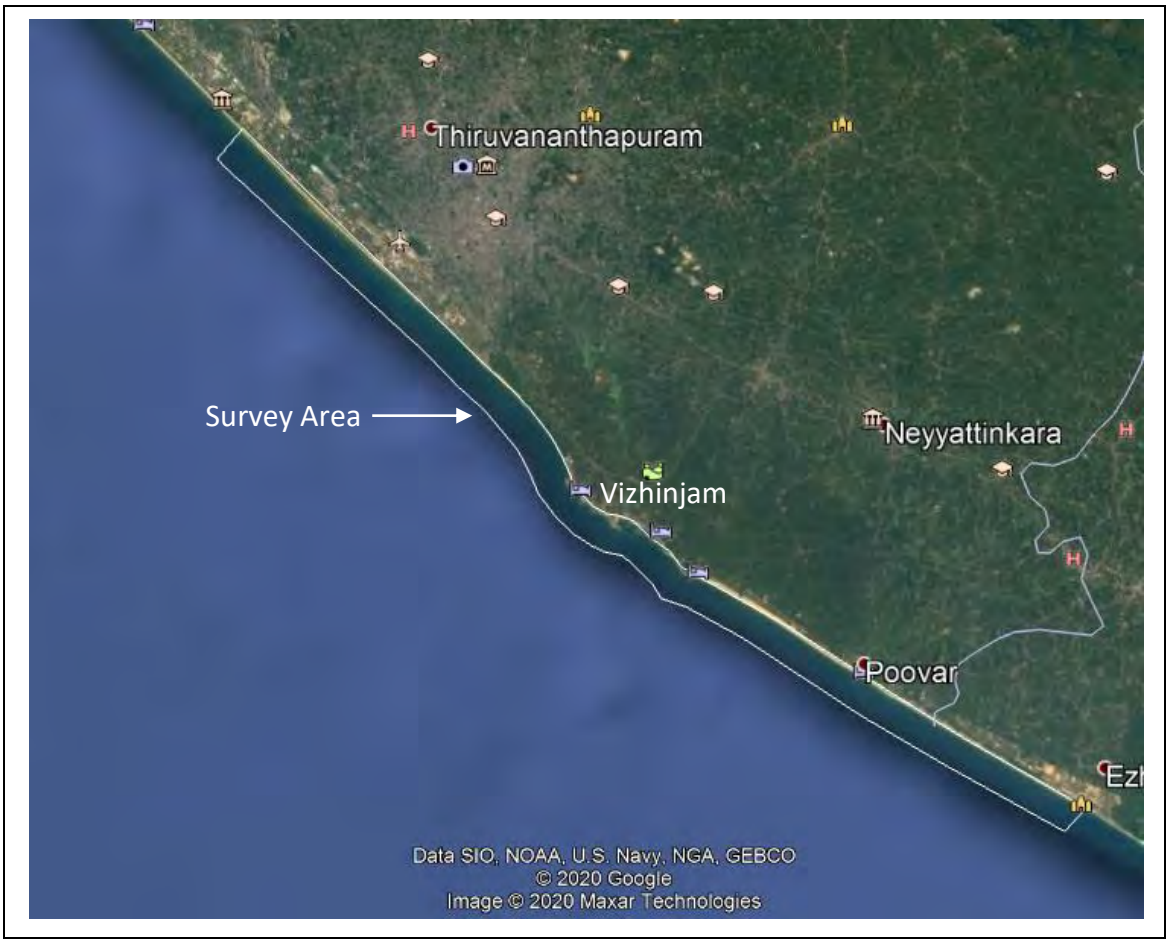


Figure 6-23: Bathymetry area coverage

Line Plan and Survey Methodology

The survey lines were planned at intervals of 25m parallel to the coast up to the depth of 20m for the post-monsoon 2023 period. The vessel was positioned using a Trimble DGPS system which also provided the heading. The vessel tracks and offset positions were recorded digitally and the data from the multibeam echo sounder was logged digitally within the Hypack acquisition software.

Prior to commencement of the survey, the DGPS and gyrocompass calibrations were carried out when the survey vessel was berthed at the Vizhinjam Fishing Jetty. The multibeam echo sounder was calibrated by conducting the patch test. The bathymetric data was reduced to Chart Datum (CD) by using the observed tides from the tide gauge

installed at the Coast Guard Jetty. A Valeport Sound Velocity Probe (SVP) was used to measure the speed of sound of in the water column. Motion compensation was achieved by the DMS-05 Motion Reference Unit (MRU). Quality checks were constantly performed at every step of the data processing. Data was processed using Hypack software. Calibration values obtained from the patch test were applied to the acquired data along with the required sound velocity profile and tide data for creation of final xyz file.

Results

The maximum depth recorded by multibeam echo sounder is 24.9m below CD in the northern part of the survey area at few locations along the western boundary. The seabed is seen to slope gently towards the southwest.

① A colour-coded image of the post-monsoon 2023 bathymetry is provided below.

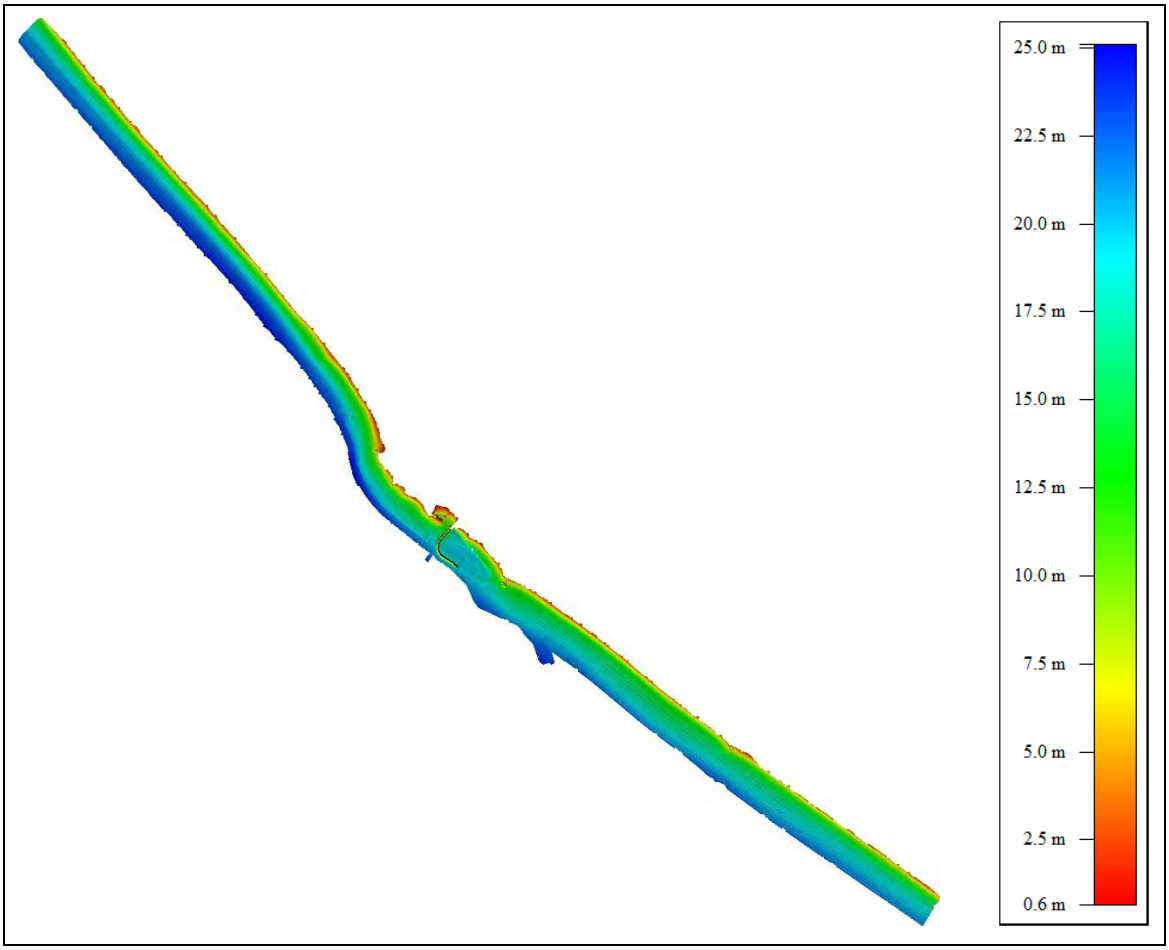


Figure 6-24: Colour-coded bathymetry image

7 WEATHER

The weather was not conducive to the survey operations. The offshore survey was carried out during favorable weather windows

8 REFERENCES

The following documents/web sites were referenced during the preparation of the report.

- AVPPL Service order 5702011433 dated 05th June 2023
- Web site https://www.vizhinjamport.in/home.html, and https://www.vizhinjamport.in/download/Feasibility-Report.pdf
- WMO manual, section 5.2.2
- Monthly survey reports from October 2023 to March 2024

9 CONCLUSIONS

① The following conclusions were made during this phase of the project:

1. Tide was mixed semi diurnal with a maximum range being observed during spring tide. The maximum tidal range of 1.05m was observed in the month of October 2023.
2. The significant wave heights increased after January 2024. The maximum significant wave height observed was 1.74m in the month of March 2024.
3. The maximum wind speeds were blowing from the north-northeasterly and south southwesterly direction. The maximum wind speed recorded was 7.92 m/s in the month of October 2023.
4. The current direction was predominantly towards southeast and northwest direction.
5. The along-shore current speed was recorded in a northward direction in post monsoon period.
6. At the water sampling locations, a maximum TSS content of 2.5 mg/l was recorded at Location L4 (Poovar) at the bottom, the salinity was in the range of 33.1 and 33.9 ppt and maximum turbidity of 1.1 NTU near the bottom of Location L4 (Poovar).
7. The beach sediments are seen to consist of medium sand in most locations.

8. The seabed sediments are seen to consist of medium to fine sand., with coarse sand also being observed in a few locations
9. The seabed is seen slope gently towards the southwest. The maximum depth recorded by multibeam echo sounder is 24.9m below CD in the northern part of the survey area at few locations along the western boundary.

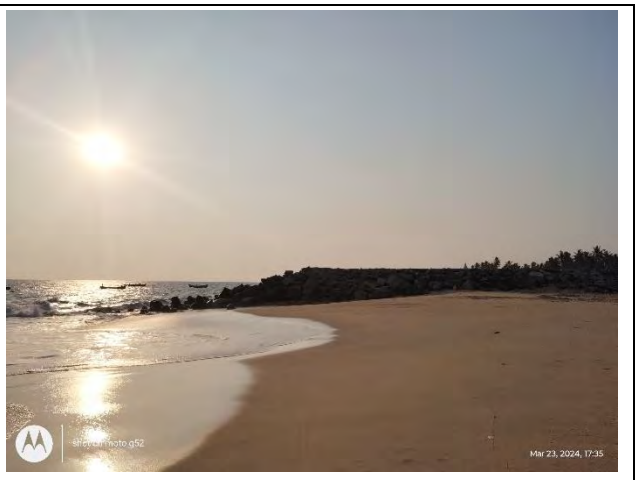
10 ACKNOWLEDGEMENTS

During the course of project, the support received from AVPPL staff is highly appreciated and acknowledged. The guidance received throughout the project from NIOT scientists is also hereby appreciated. The boat crew and all others, who had supported us during the project is also acknowledged.

Annexure I

Photo Documentation At CSP Locations

Figure 1- March CSP 01



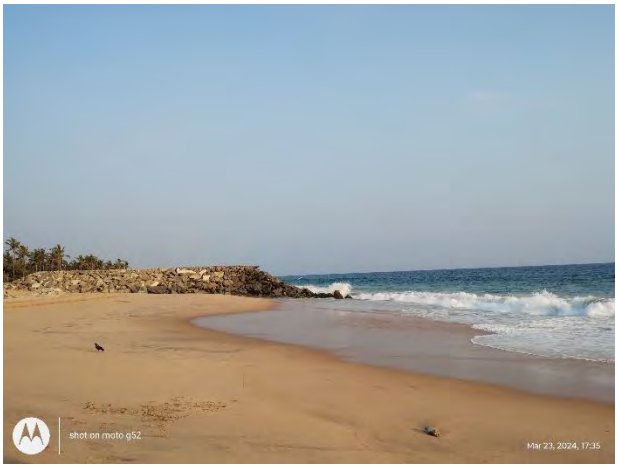
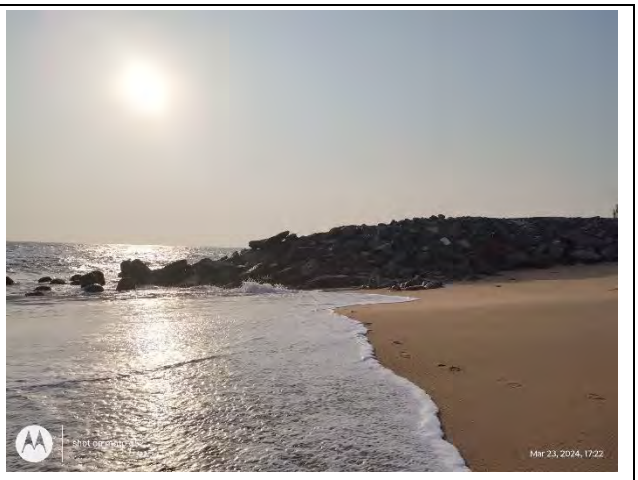


Figure 2- March CSP 04



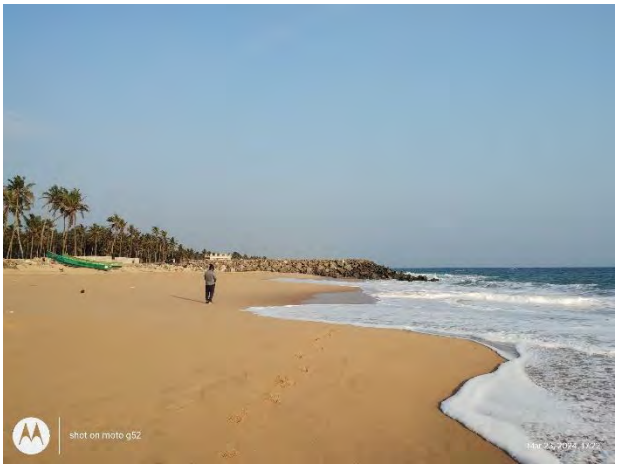


Figure 3- March CSP 05

Figure 4- March CSP 09

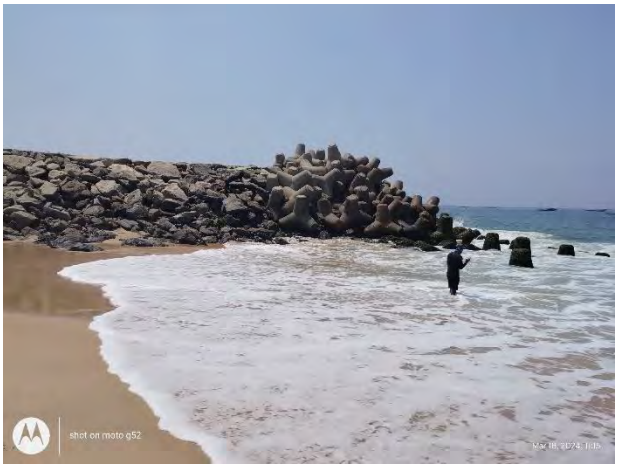


Figure 5- March CSP 10




Figure 6- March CSP 11

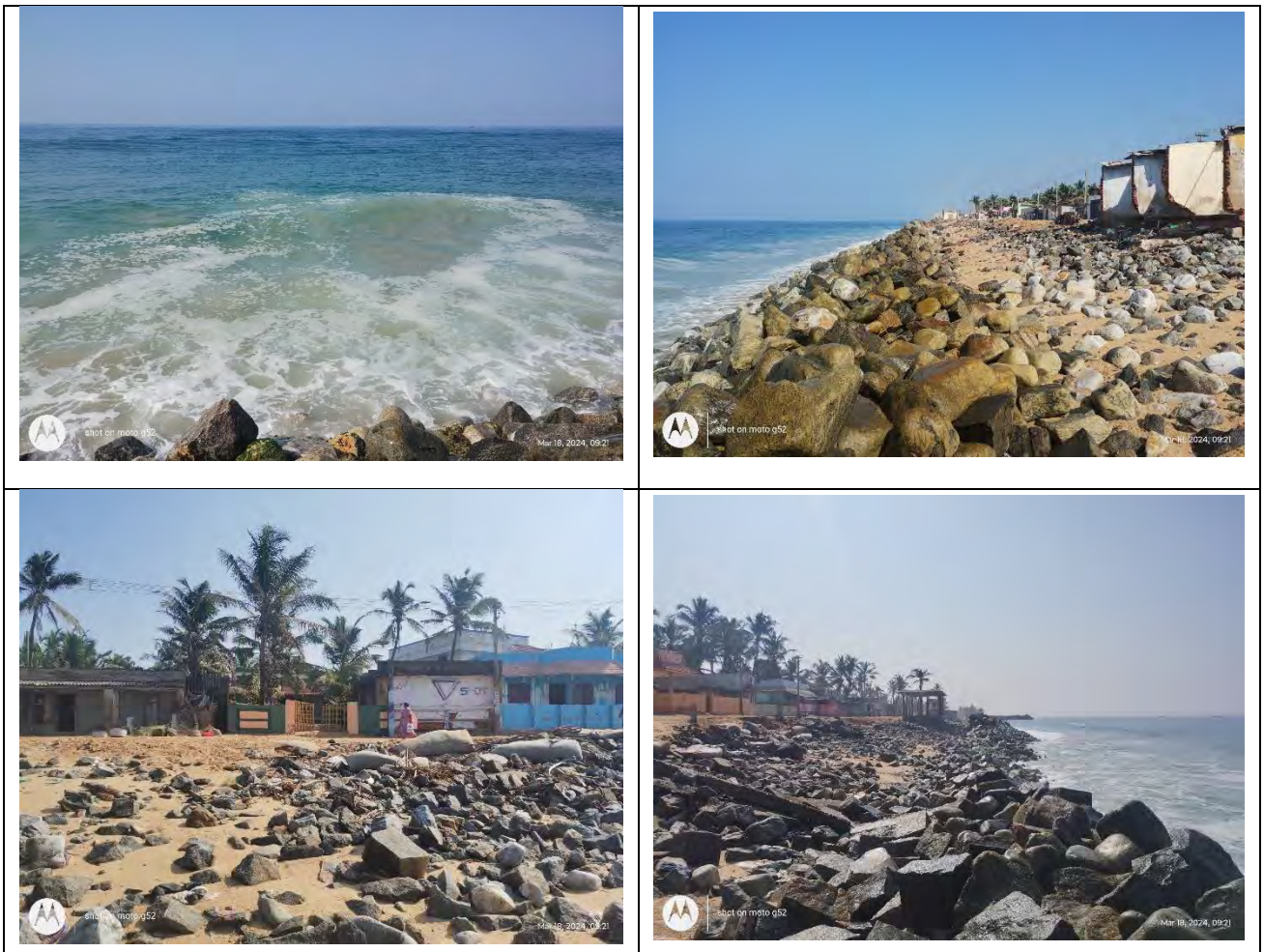


Figure 7- March CSP 12

Figure 8- March CSP 13

Figure 9- March CSP 14

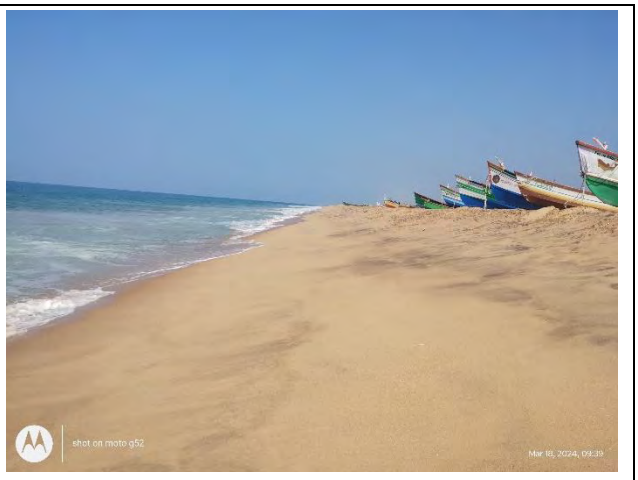
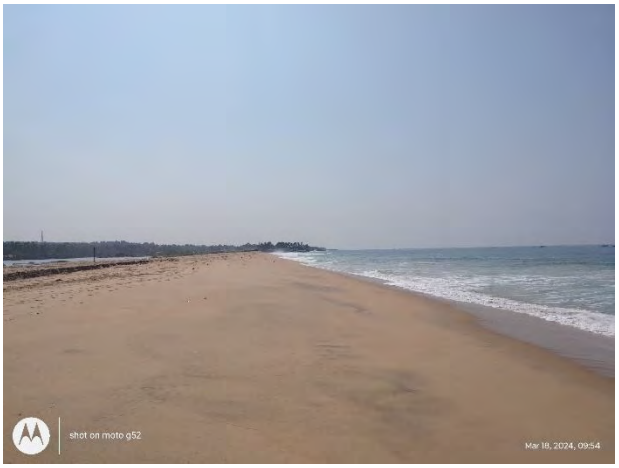


Figure 10- March CSP 15



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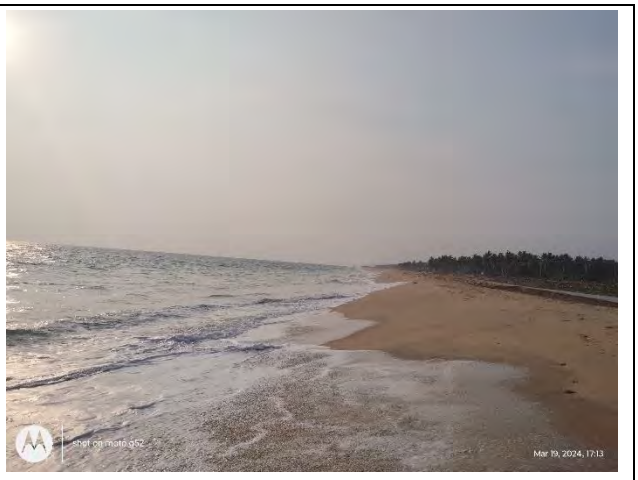


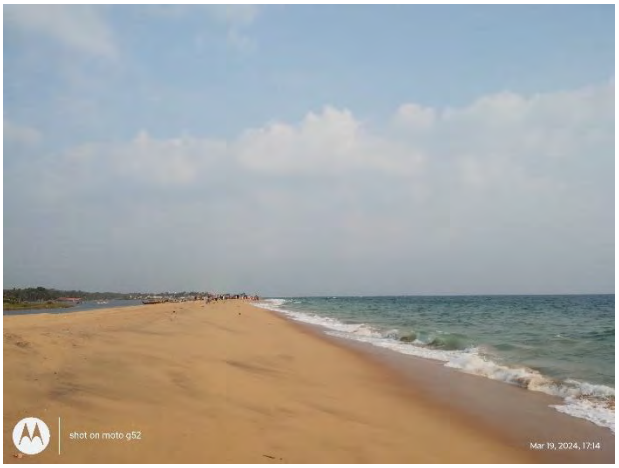
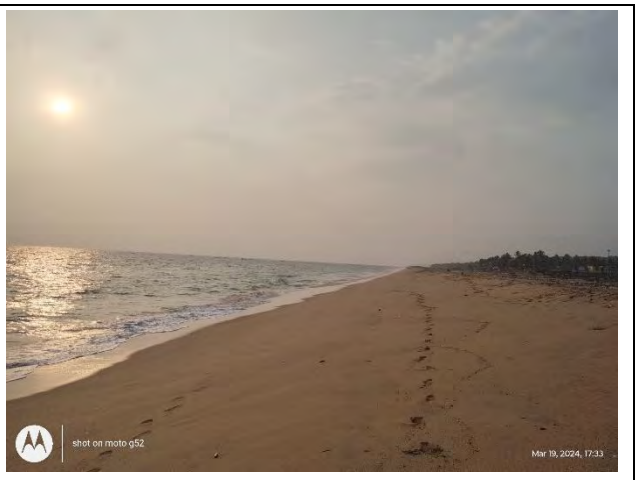


Figure 12- March CSP 17



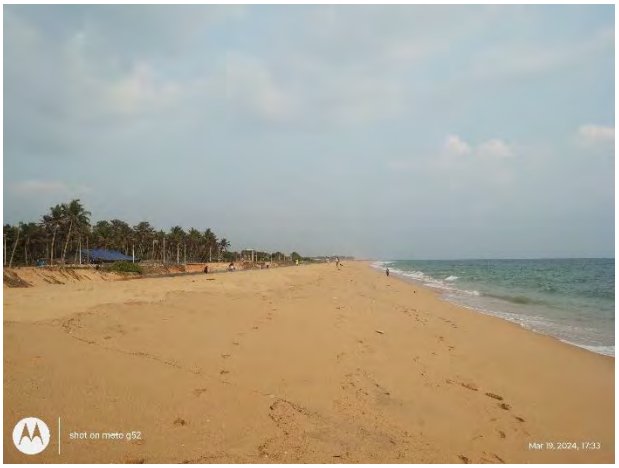
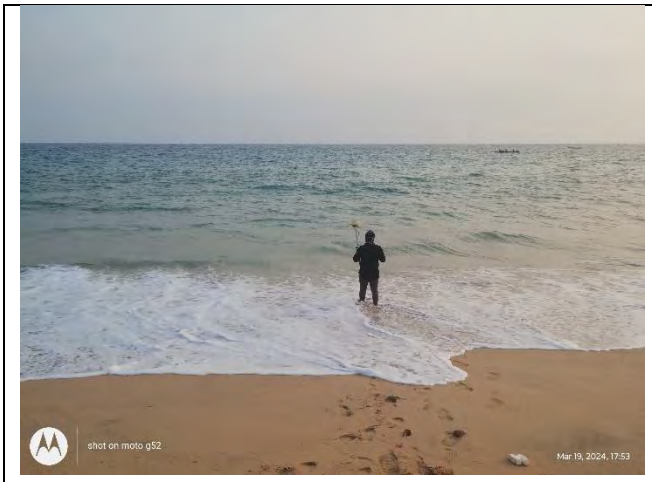
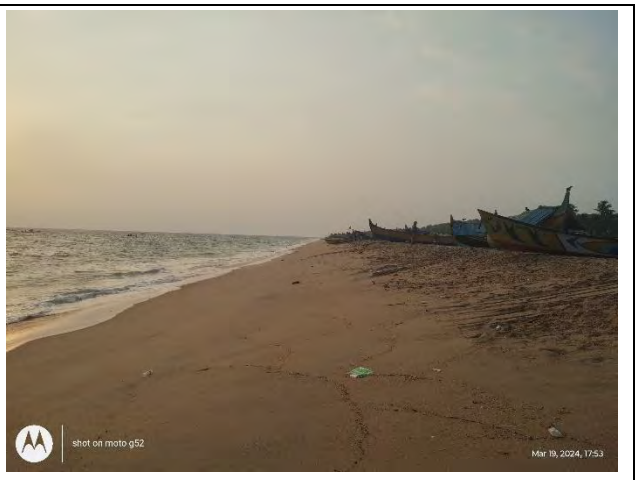


Figure 13- March CSP 18





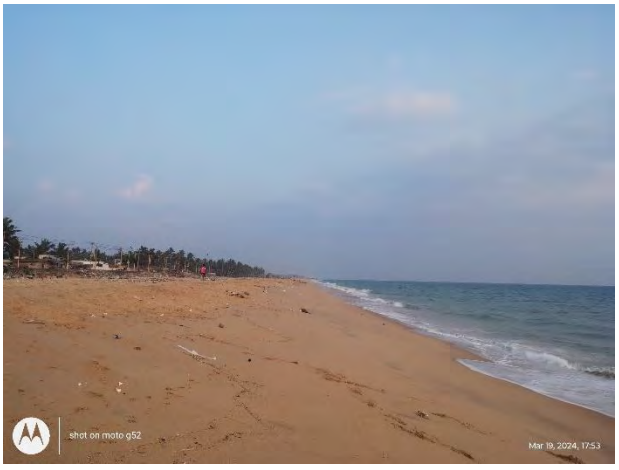
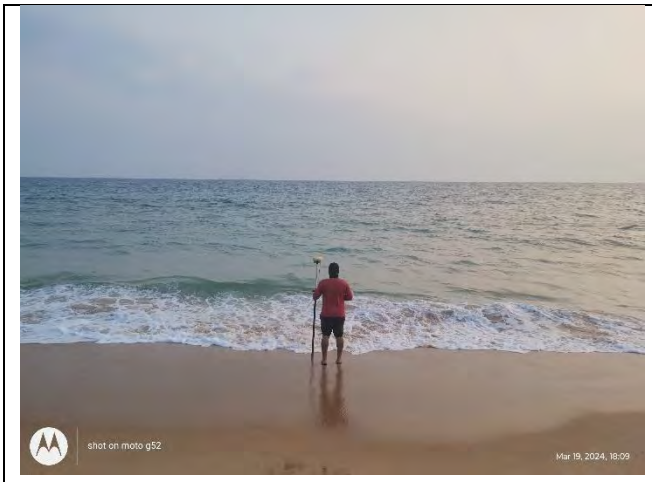
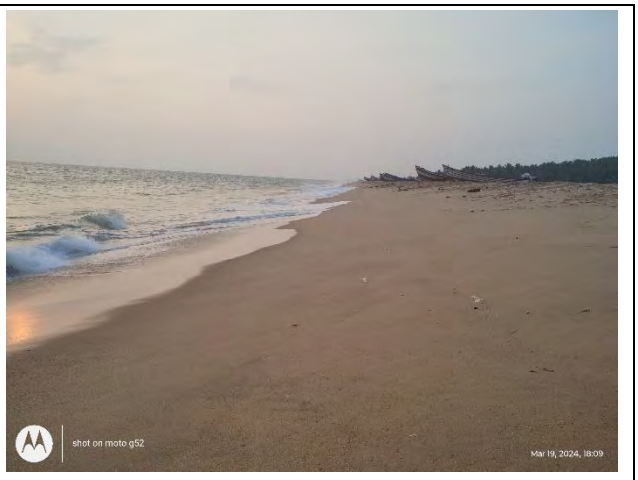
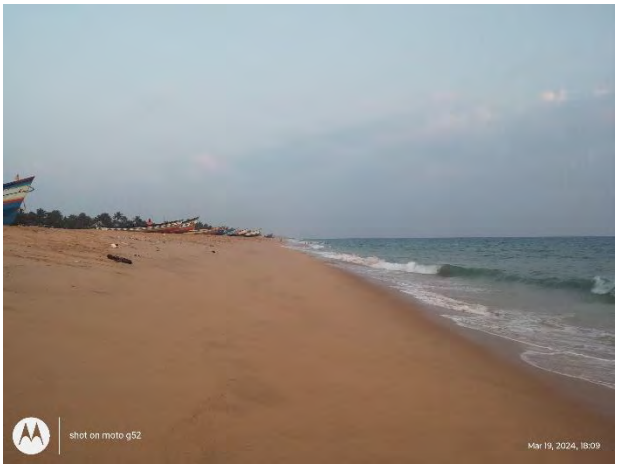


Figure 14- March CSP 19







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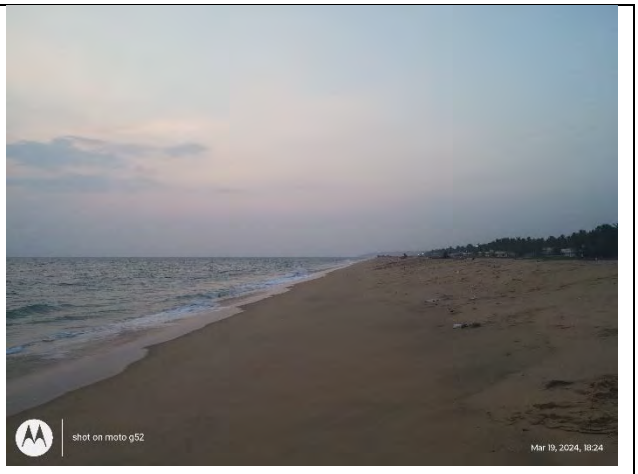

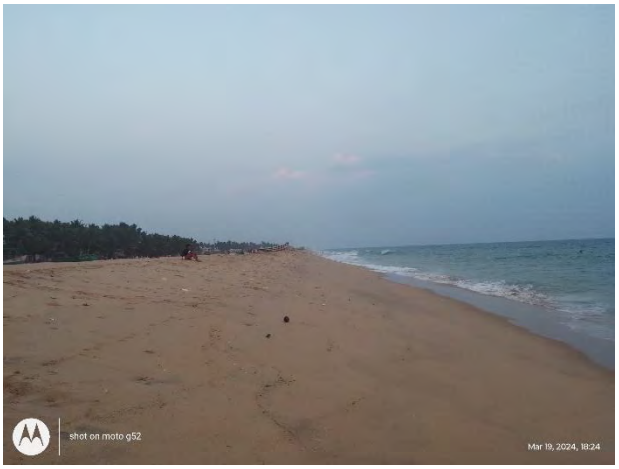

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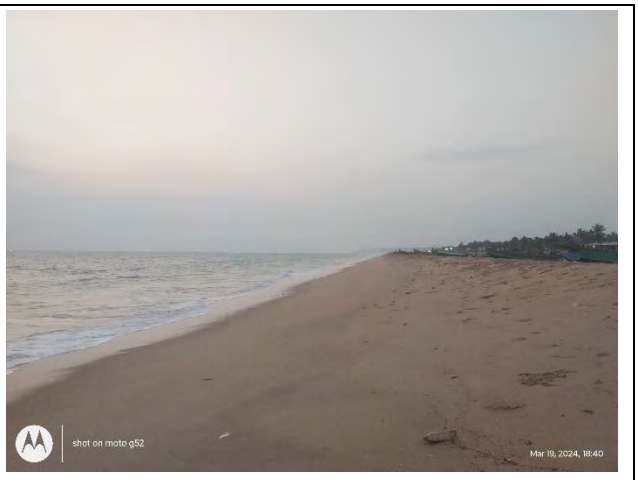
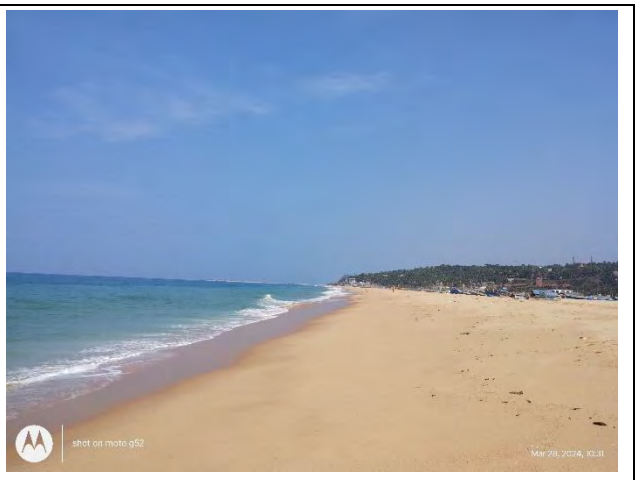
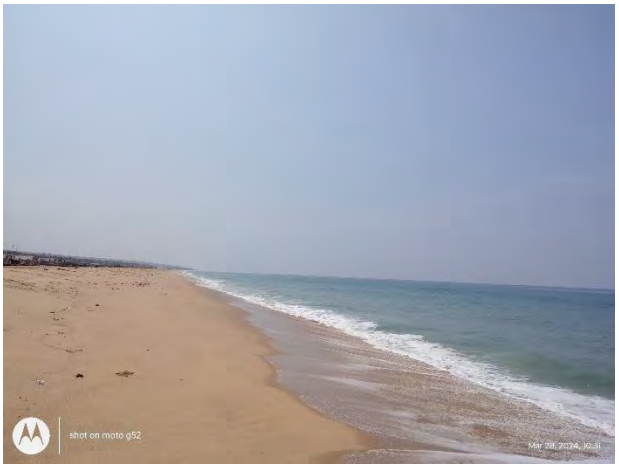


Figure 17- March CSP 22

Figure 18- March CSP 31





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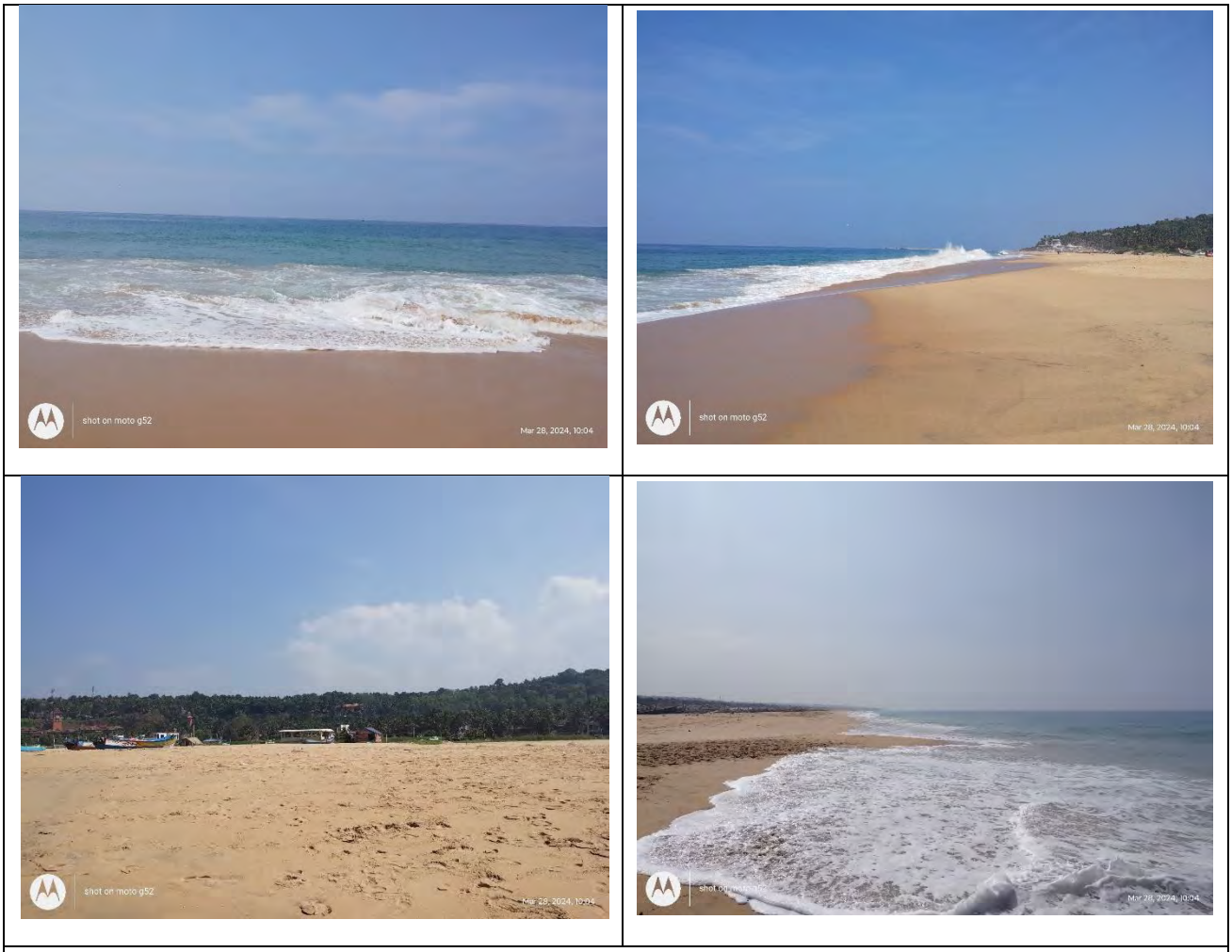
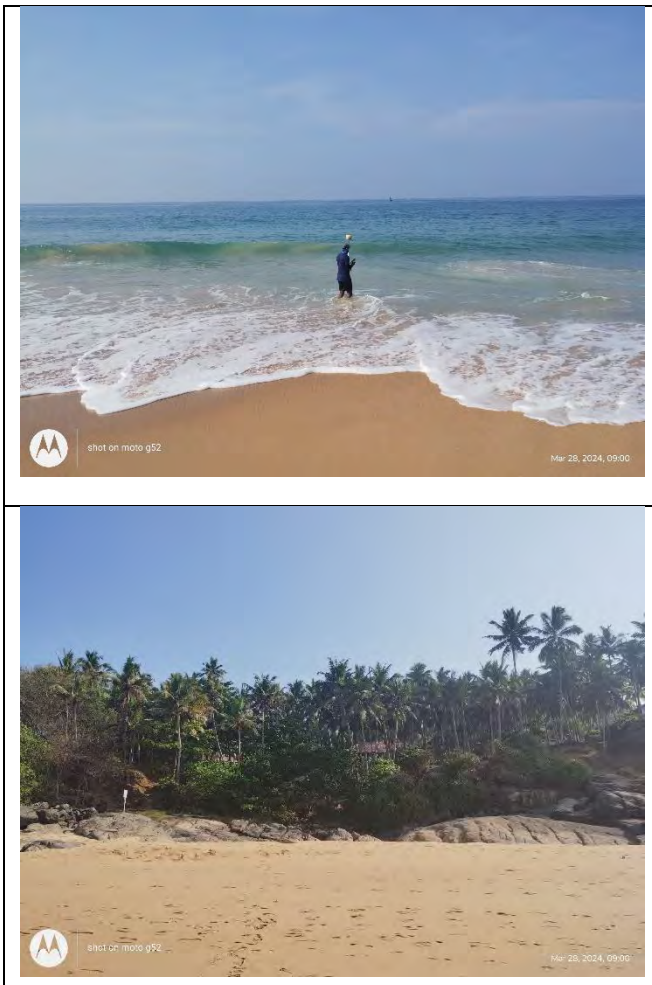
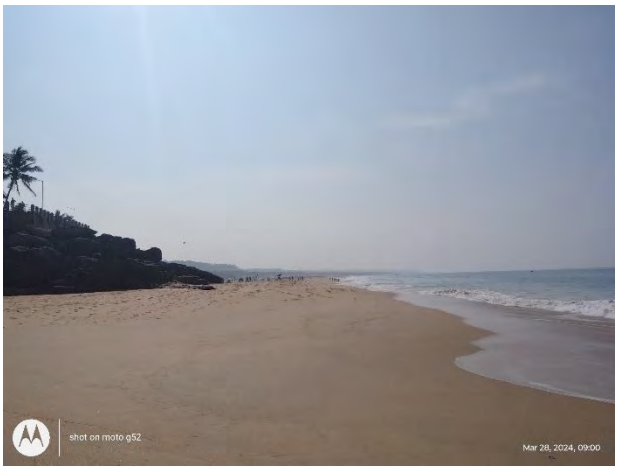


Figure 20- March CSP 33

Figure 21- March CSP 34

Figure 22- March CSP 35A





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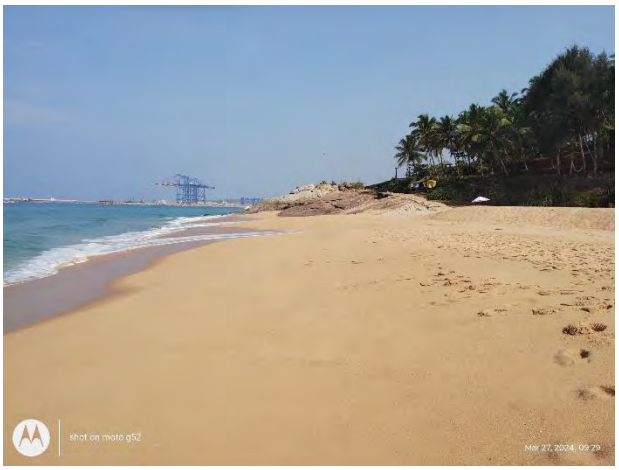
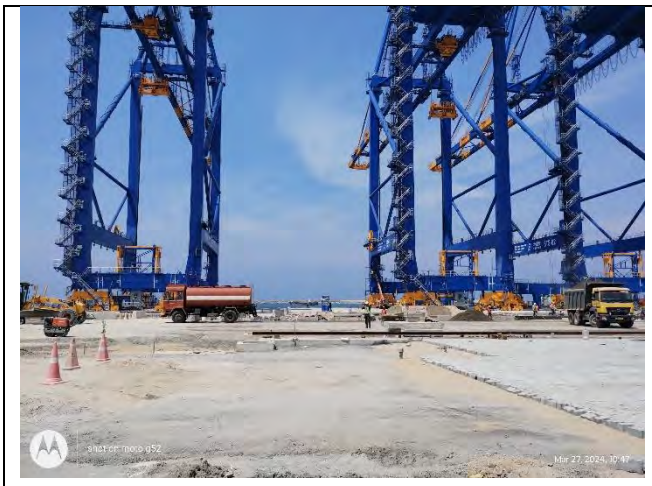
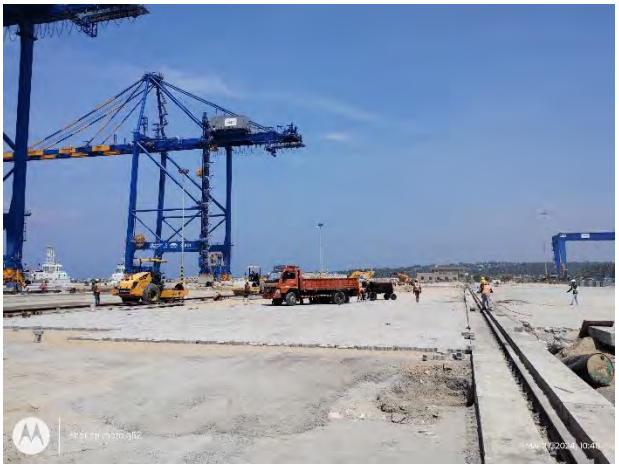


Figure 24- March CSP 36

Figure 25- March CSP 37




Figure 26- March CSP 38

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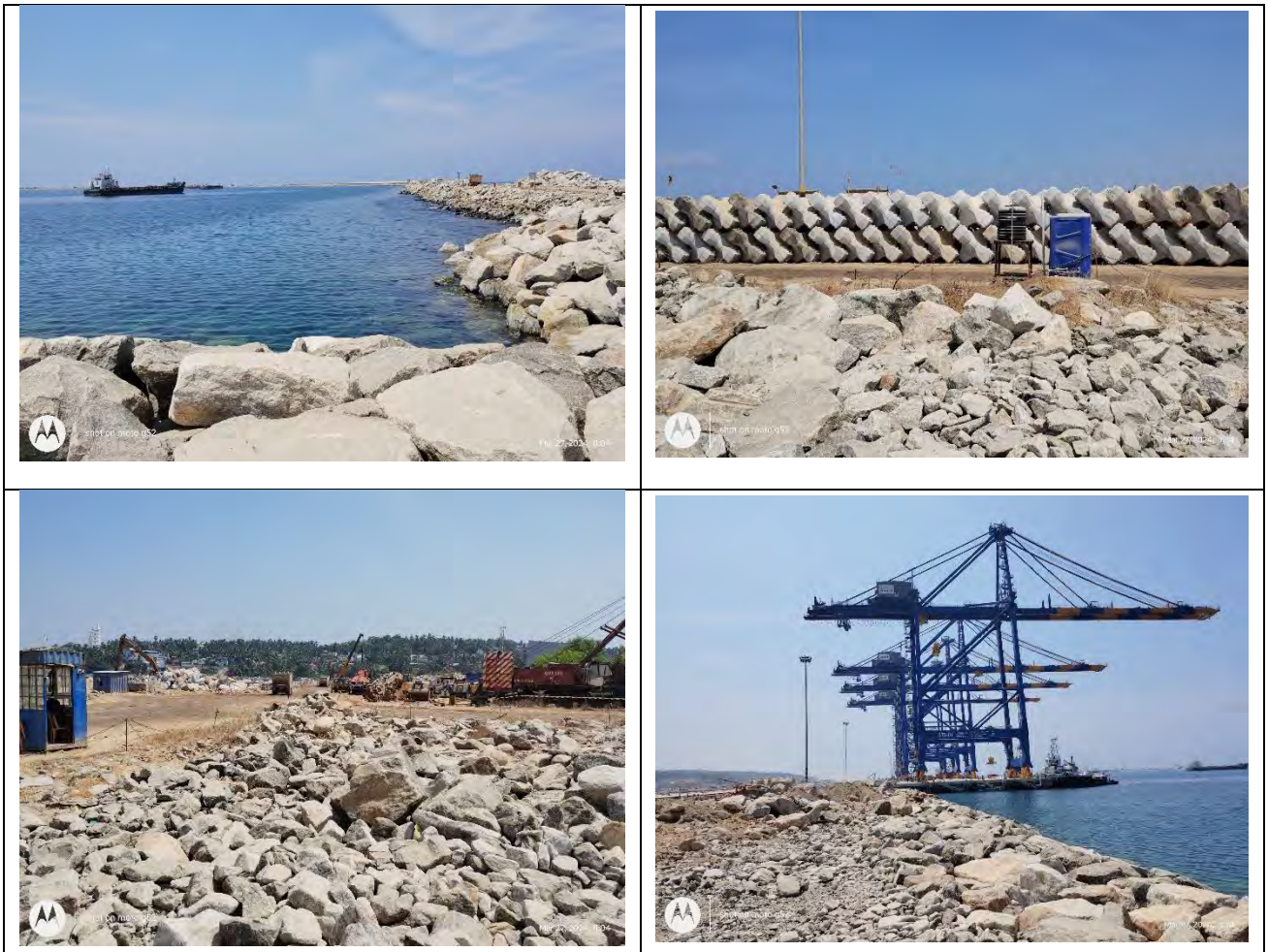


Figure 28- March CSP 40

Figure 29- March CSP 40A

Figure 30- March CSP 41

Figure 31- March CSP 42

Figure 32- March CSP 43

Figure 33- March CSP 44

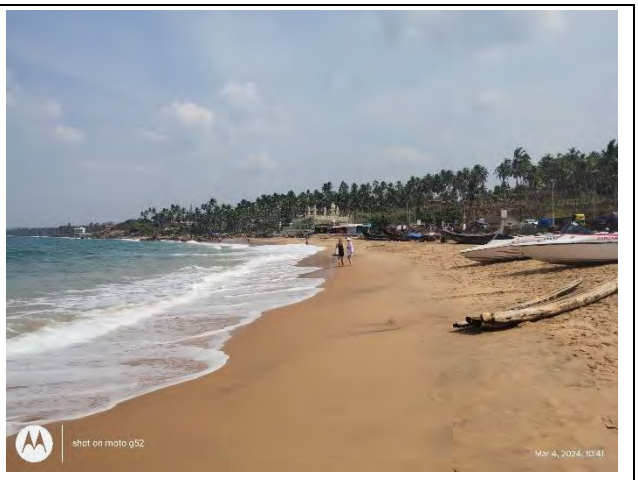


Figure 34- March CSP 45

Figure 35- March CSP 46

Figure 36- March CSP 47

Figure 37- March CSP 48

Figure 38- March CSP 49

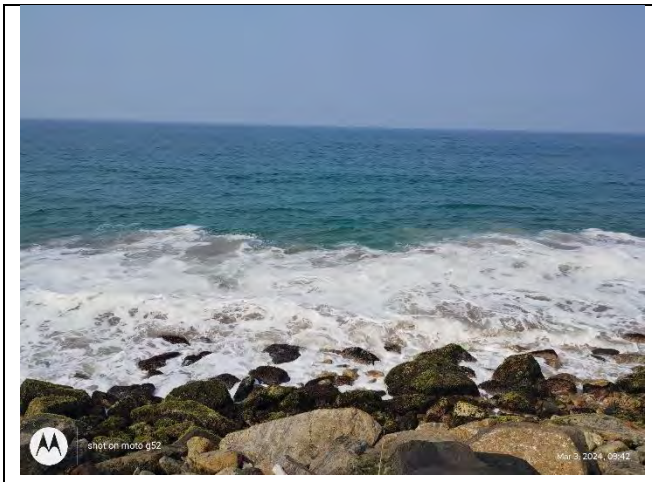
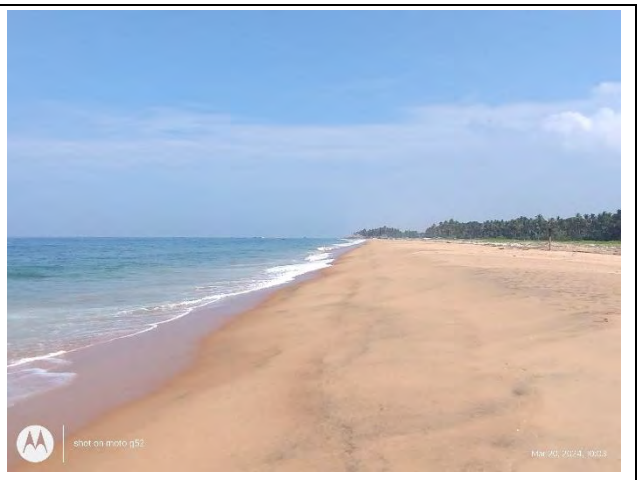


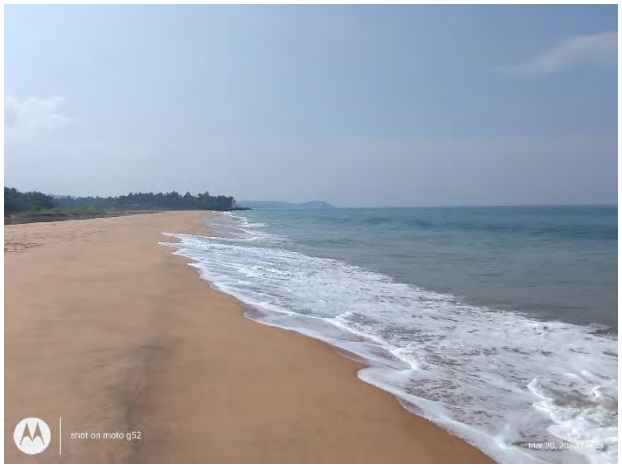

Figure 39- March CSP 50

Figure 40- March CSP 51

Figure 41- March CSP 52

Figure 42- March CSP 53





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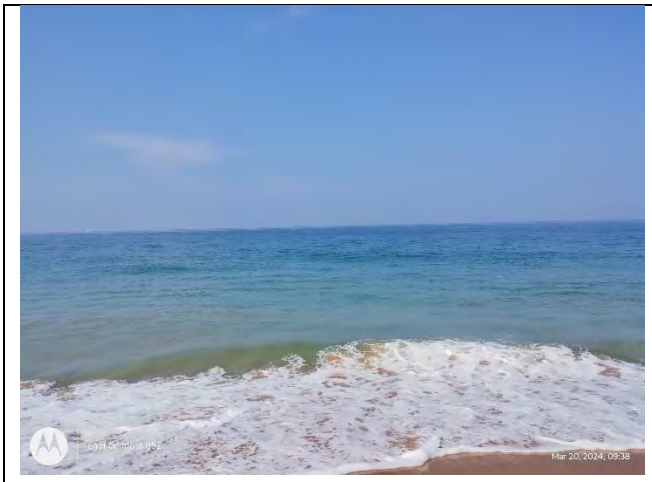


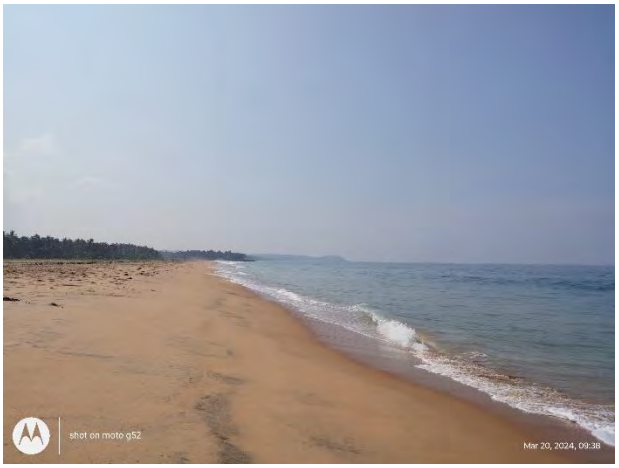


Figure 44- March CSP 55

Figure 45- March CSP 56

Figure 46- March CSP 57

Figure 47- March CSP 58

Figure 48- March CSP 59

Figure 49- March CSP 60

Figure 50- March CSP 61

Figure 51- March CSP 62

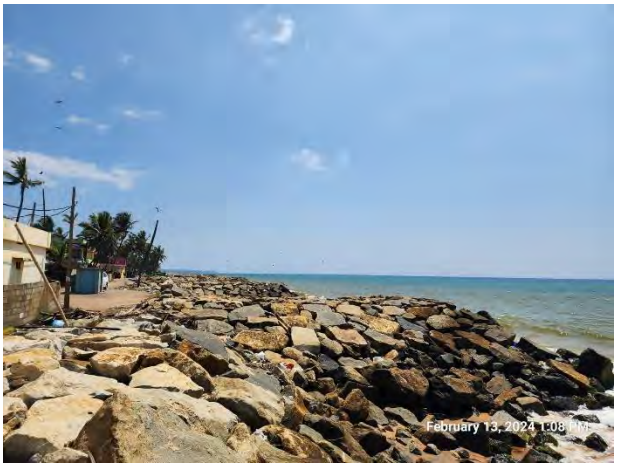


Figure 52- March CSP 63

Figure 53- March CSP 64

Figure 54- March CSP 64 A

V

Figure 55- March CSP 65

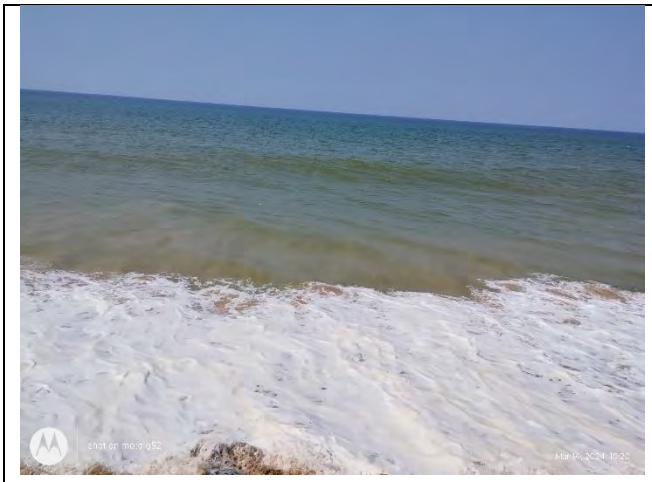
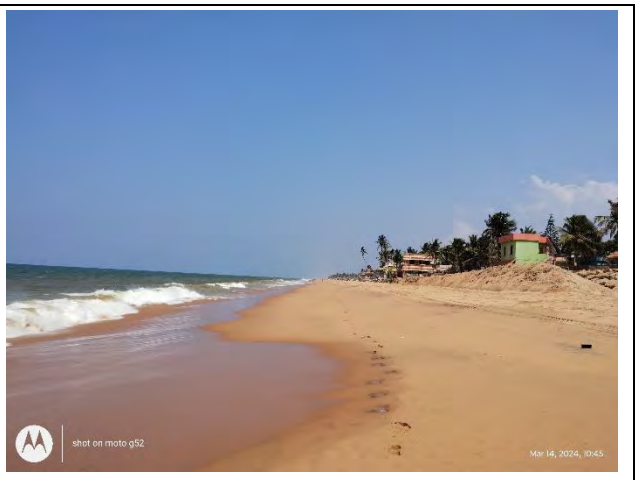


Figure 56- March CSP 66



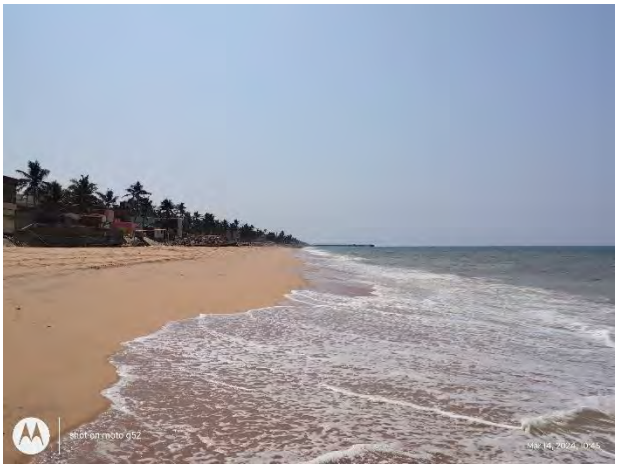
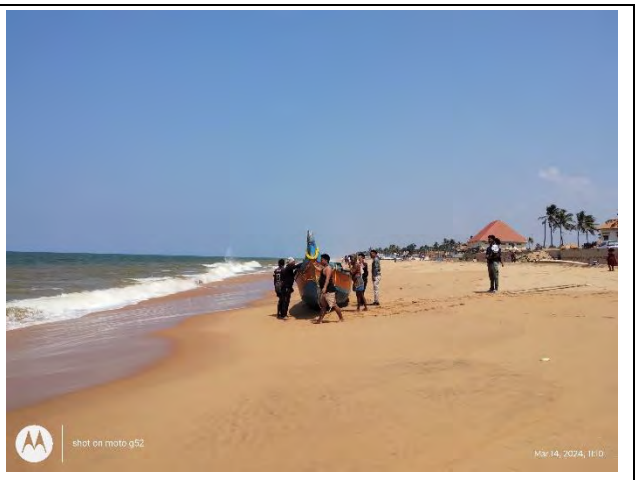


Figure 57- March CSP 67



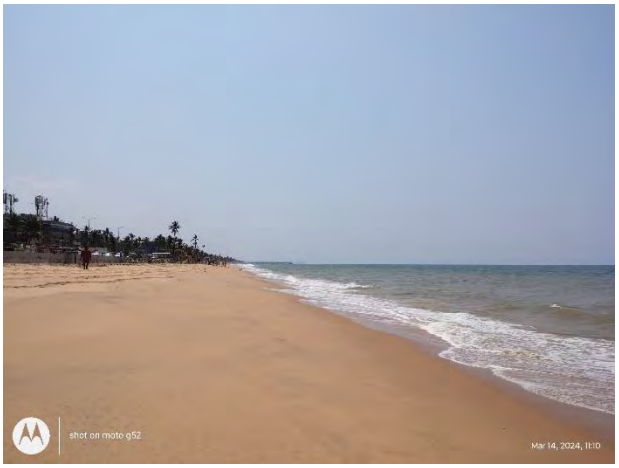
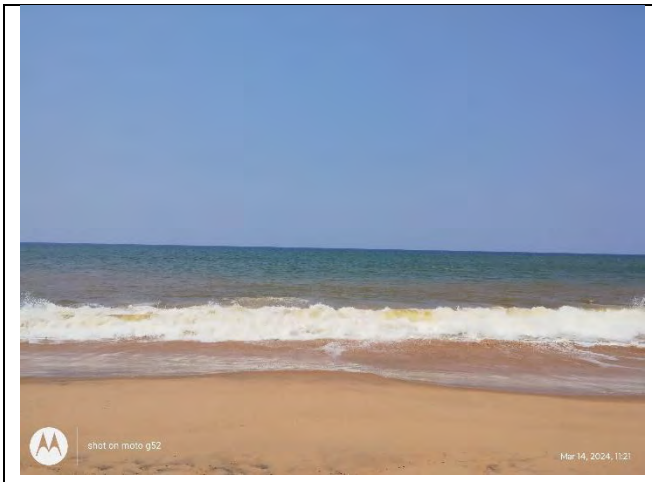


Figure 58- March CSP 68



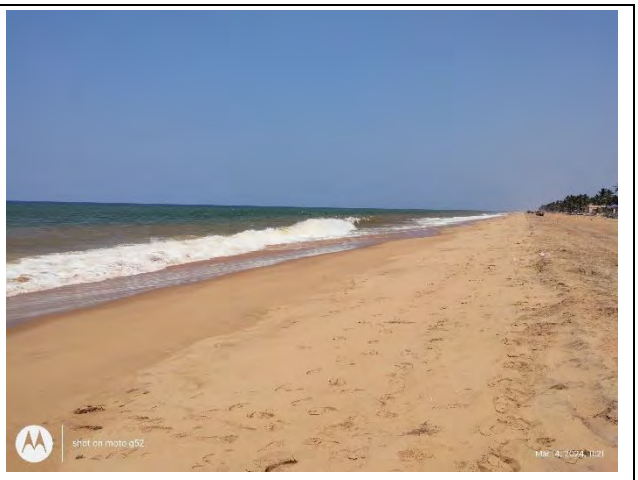


Figure 59- March CSP 69

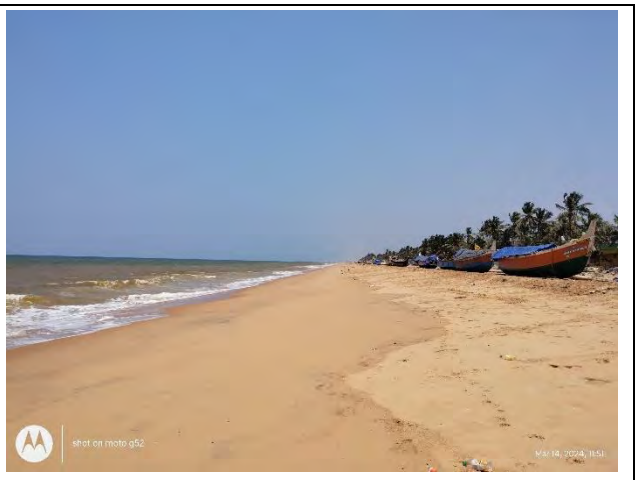


Figure 60- March CSP 70

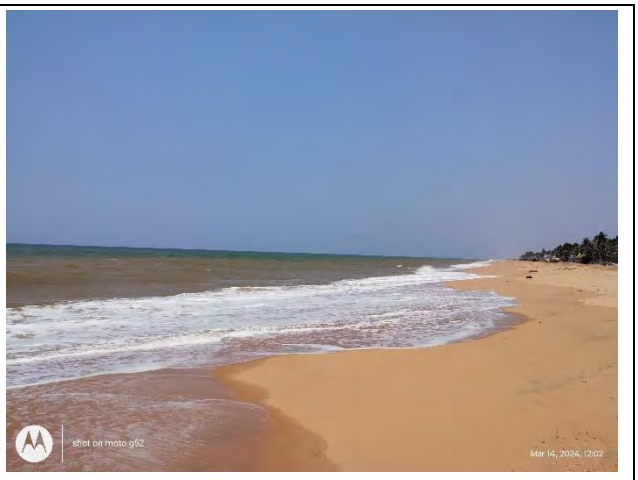
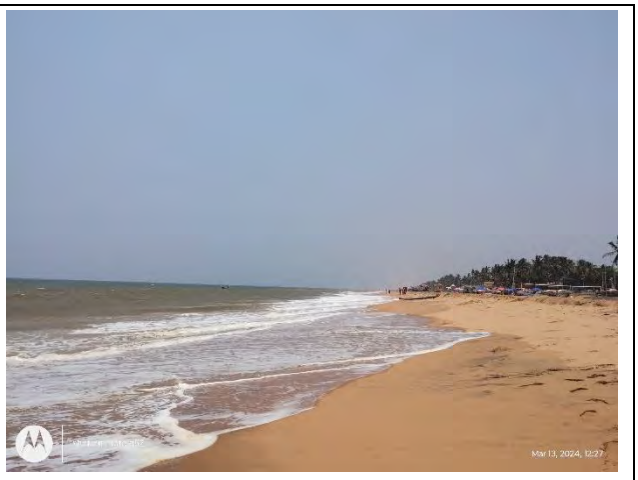


Figure 61- March CSP 71

Figure 62- March CSP 72



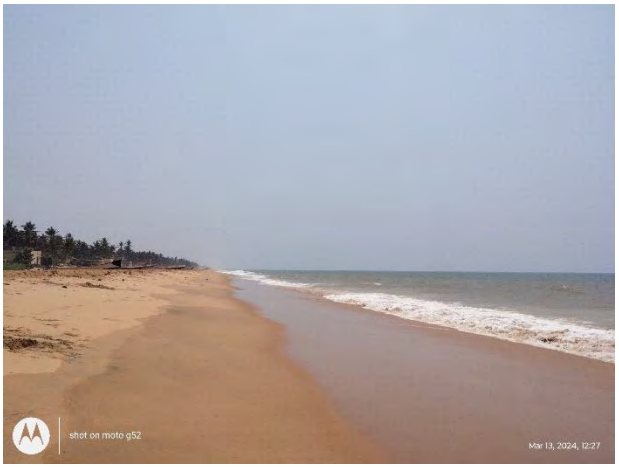


Figure 63- March CSP 73

Figure 64- March CSP 74

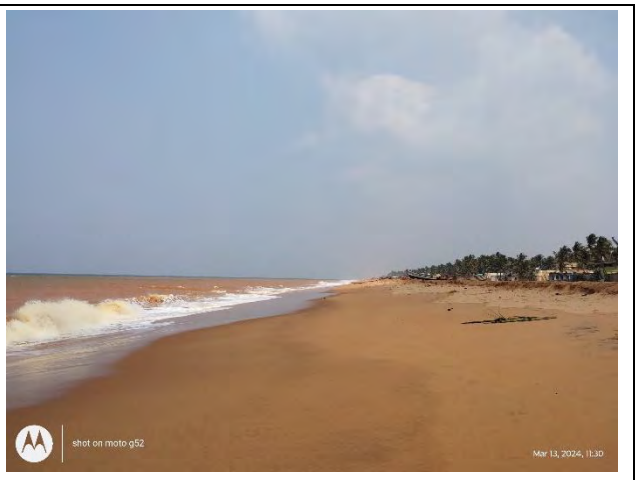
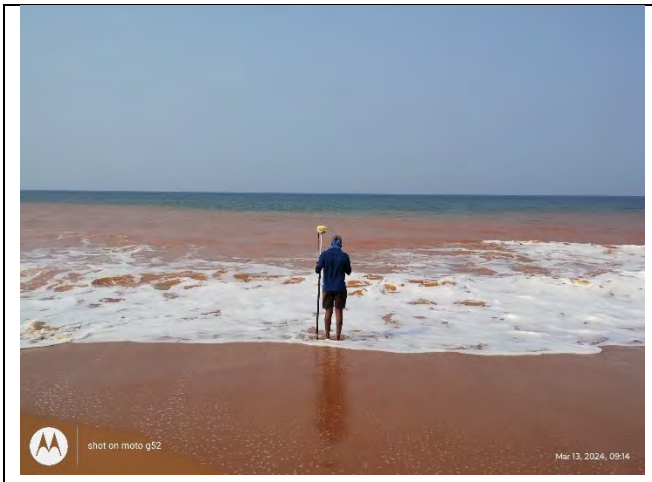


Figure 65- March CSP 75

Figure 66- March CSP 76



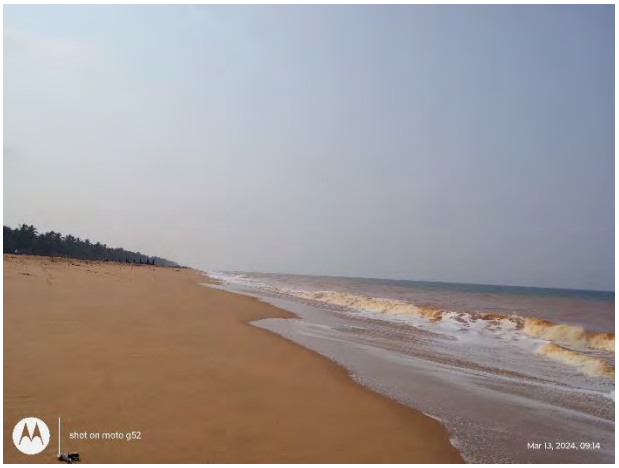


Figure 67- March CSP 77

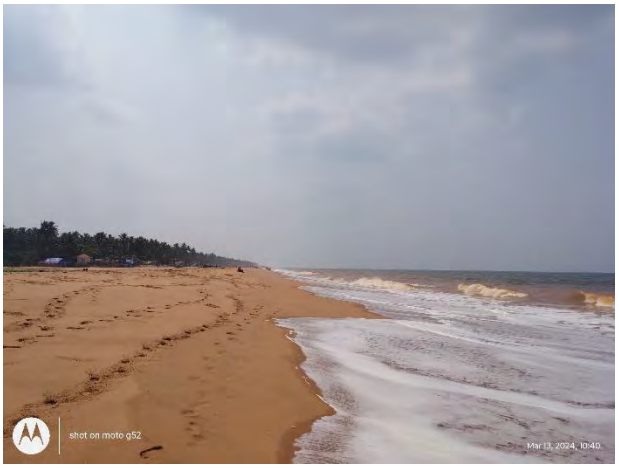


Figure 68- March CSP 78

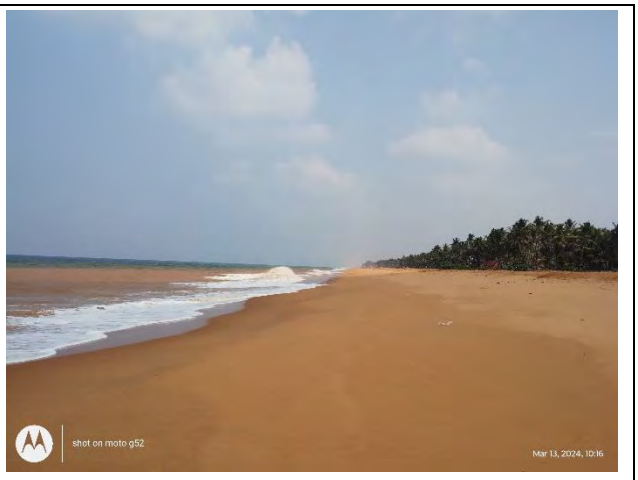


Figure 69- March CSP 79

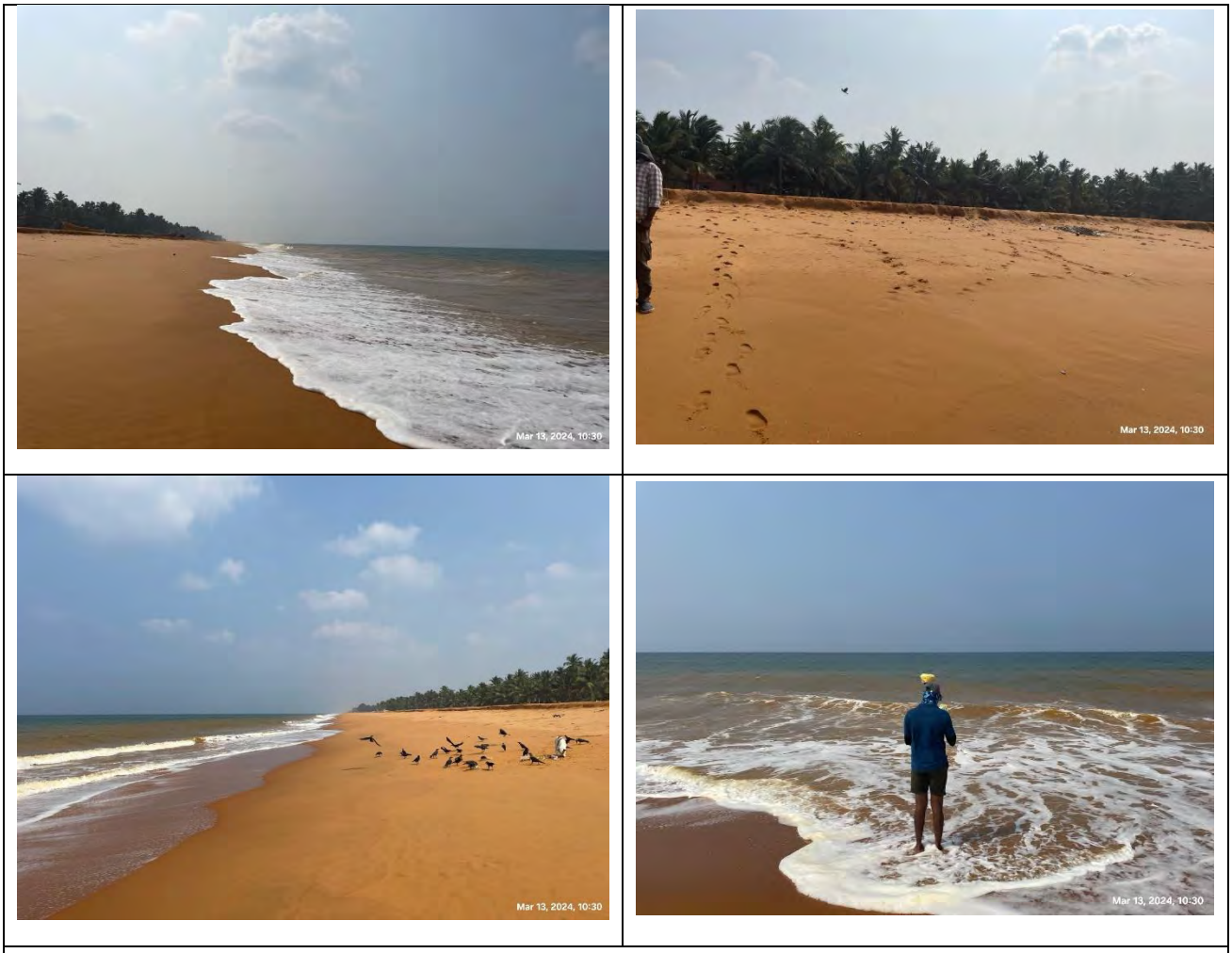


Figure 70- March CSP 80

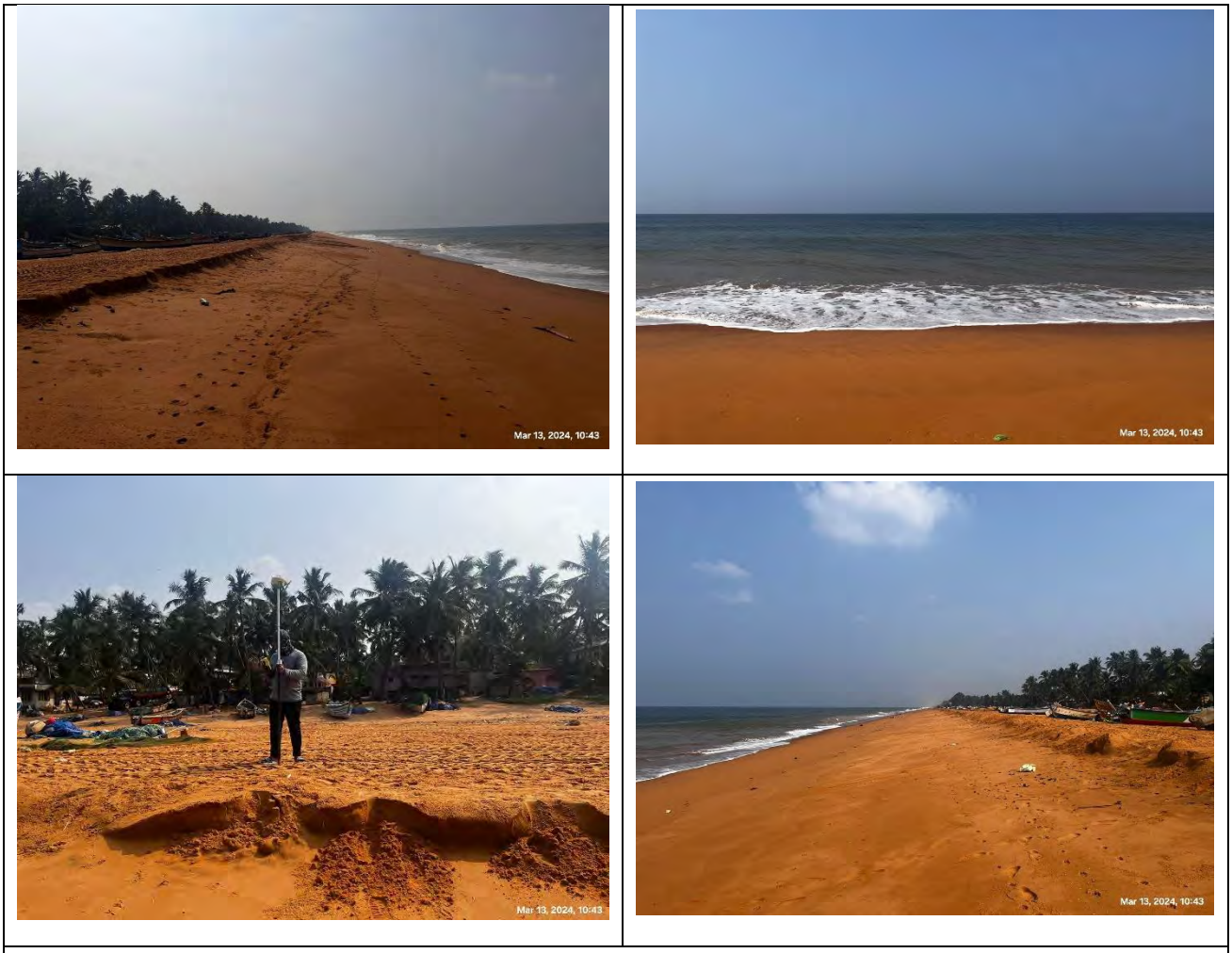
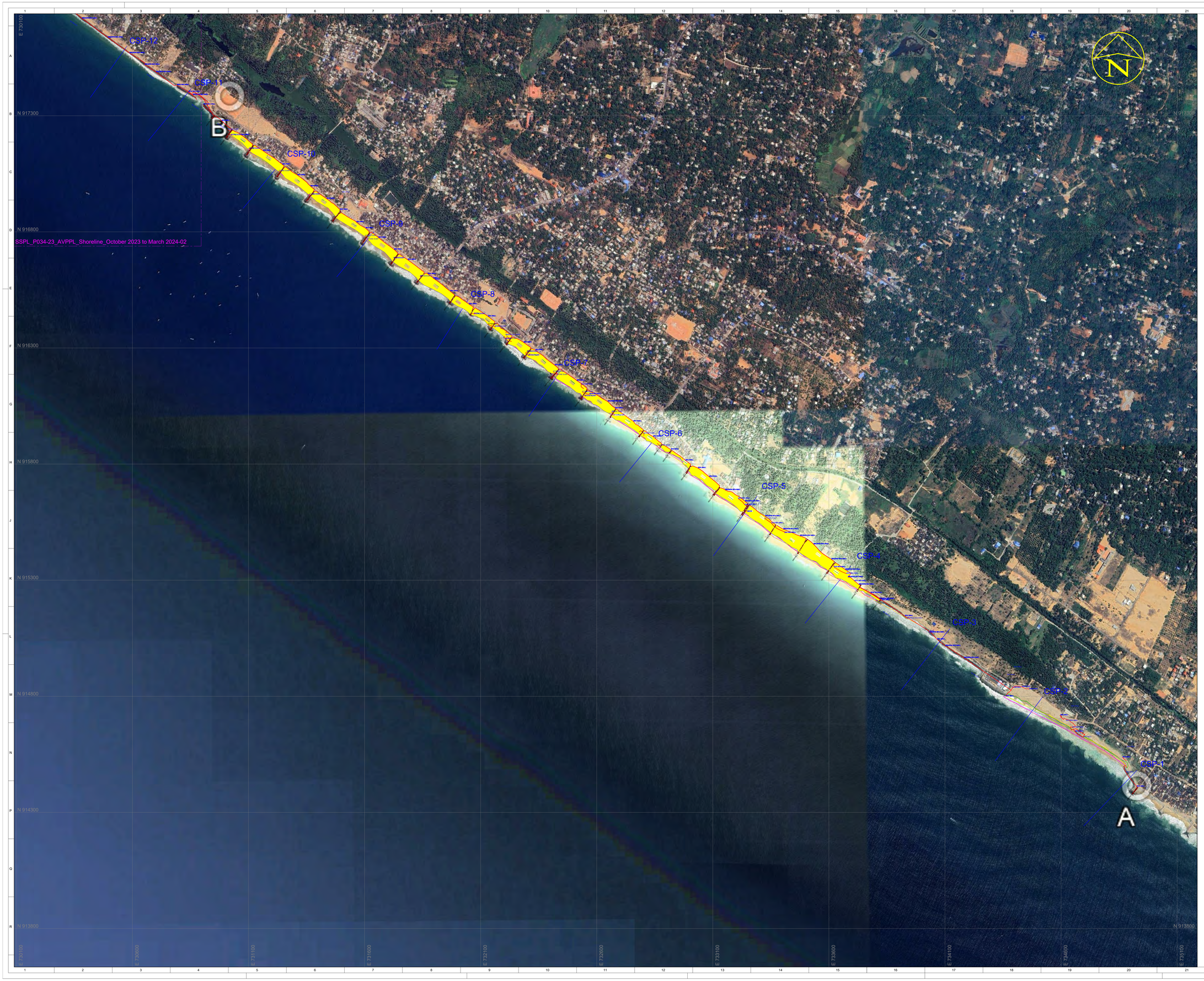


Figure 71- March CSP 81

Annexure II

Overlay of month-on-month Shoreline Monitoring Charts



Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning : Geomax Zenith (GPS Mode)

Geodetic Parameters :

Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1 : 5000

100 0 100 200 300 400 500metres

Key Plan

Client

ADANI VIZHINJAM PORT PVT. LTD.
3rd Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS PVT.LTD
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

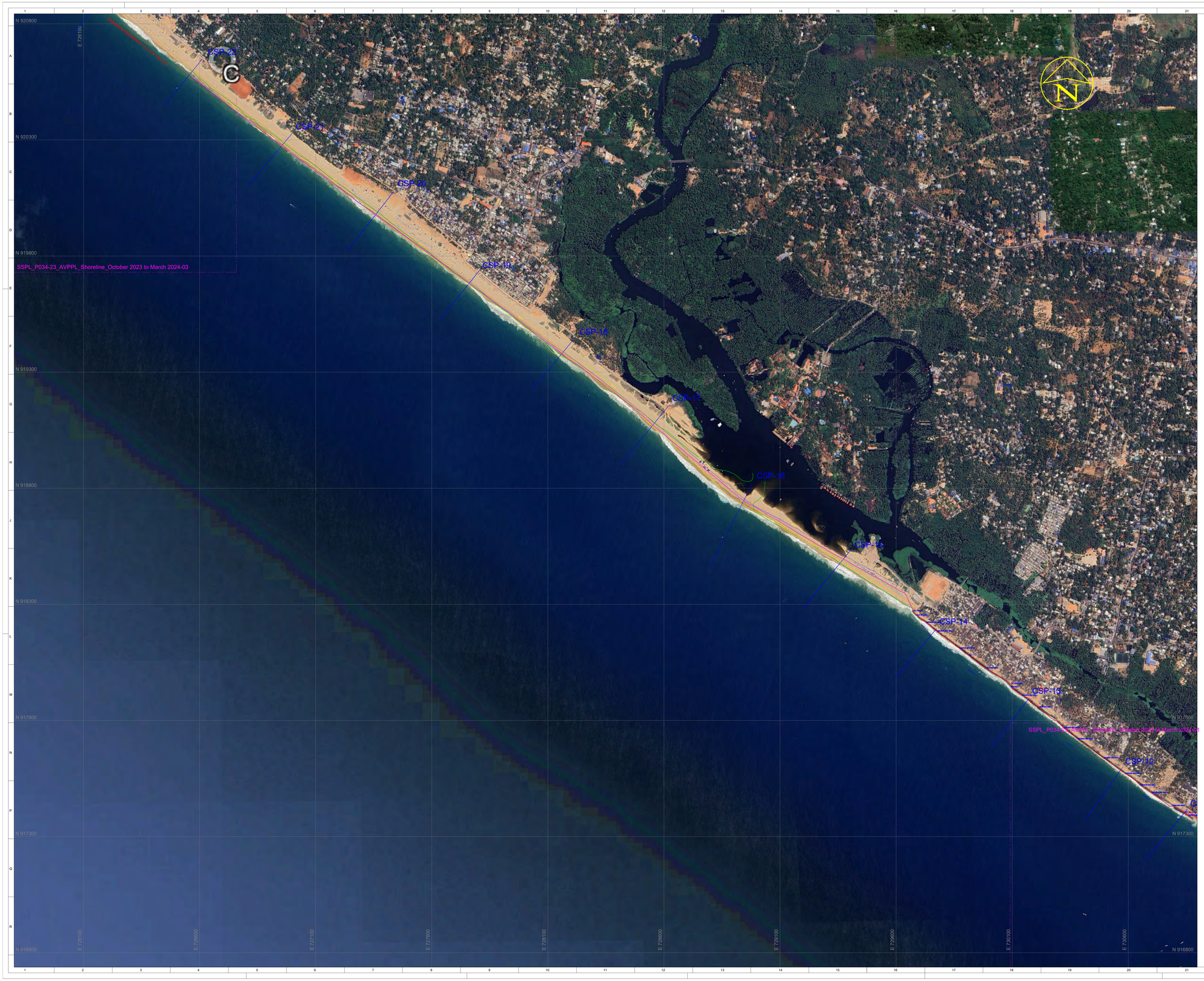
Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu. R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-01



Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning	:	Geomax Zenith (GPS Mode)

Geodetic Parameters :

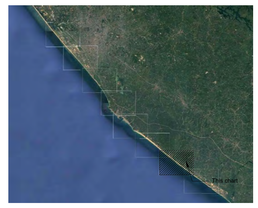
Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1: 5000

100 0 100 200 300 400 500metres

Key Plan



Client

ADANI VIZHINJAM PORT PVT. LTD.
3rd Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

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Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

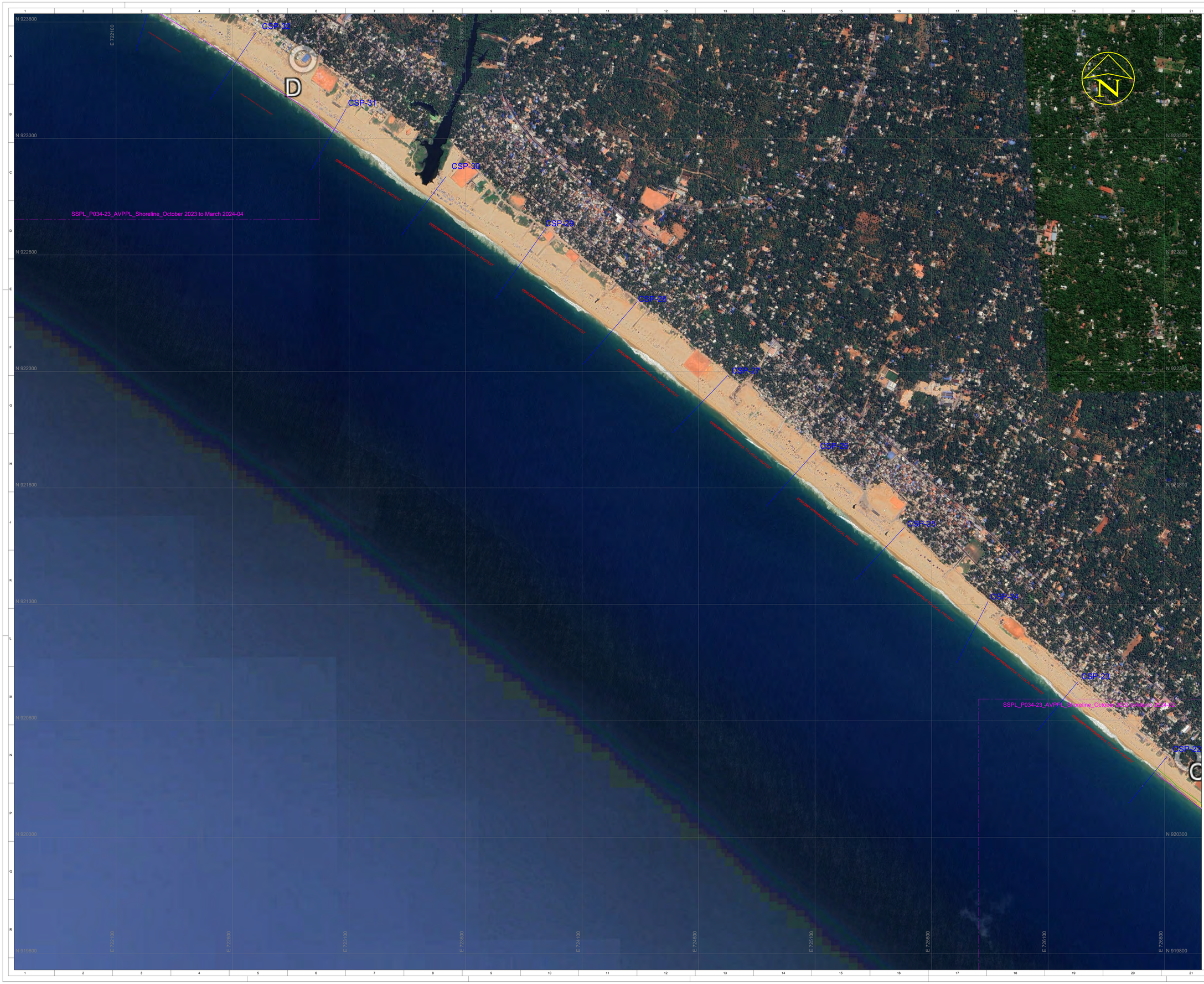
Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu. R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-02



Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning : Geomax Zenith (GPS Mode)

Geodetic Parameters :

Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1: 5000

100 0 100 200 300 400 500metres

Key Plan

Client

ADANI VIZHINJAM PORT PVT. LTD.
3rd Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS PVT.LTD
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu. R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-03

Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning	:	Geomax Zenith (GPS Mode)

Geodetic Parameters :

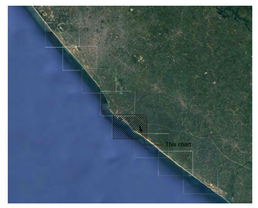
Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1 : 5000

100 0 100 200 300 400 500metres

Key Plan



Client

ADANI VIZHINJAM PORT PVT. LTD.
3rD Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS PVT.LTD
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire	Interpreted : Vishnu. R	Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-04

Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning : Geomax Zenith (GPS Mode)

Geodetic Parameters :

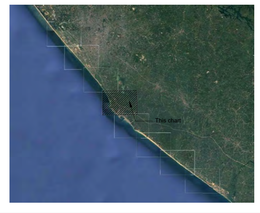
Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1 : 5000

100 0 100 200 300 400 500metres

Key Plan



Client

ADANI VIZHINJAM PORT PVT. LTD.
3rD Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS Pvt. Ltd.
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanograohic And Bathymetric Data Collection
For Assessment of Shoreline Changes

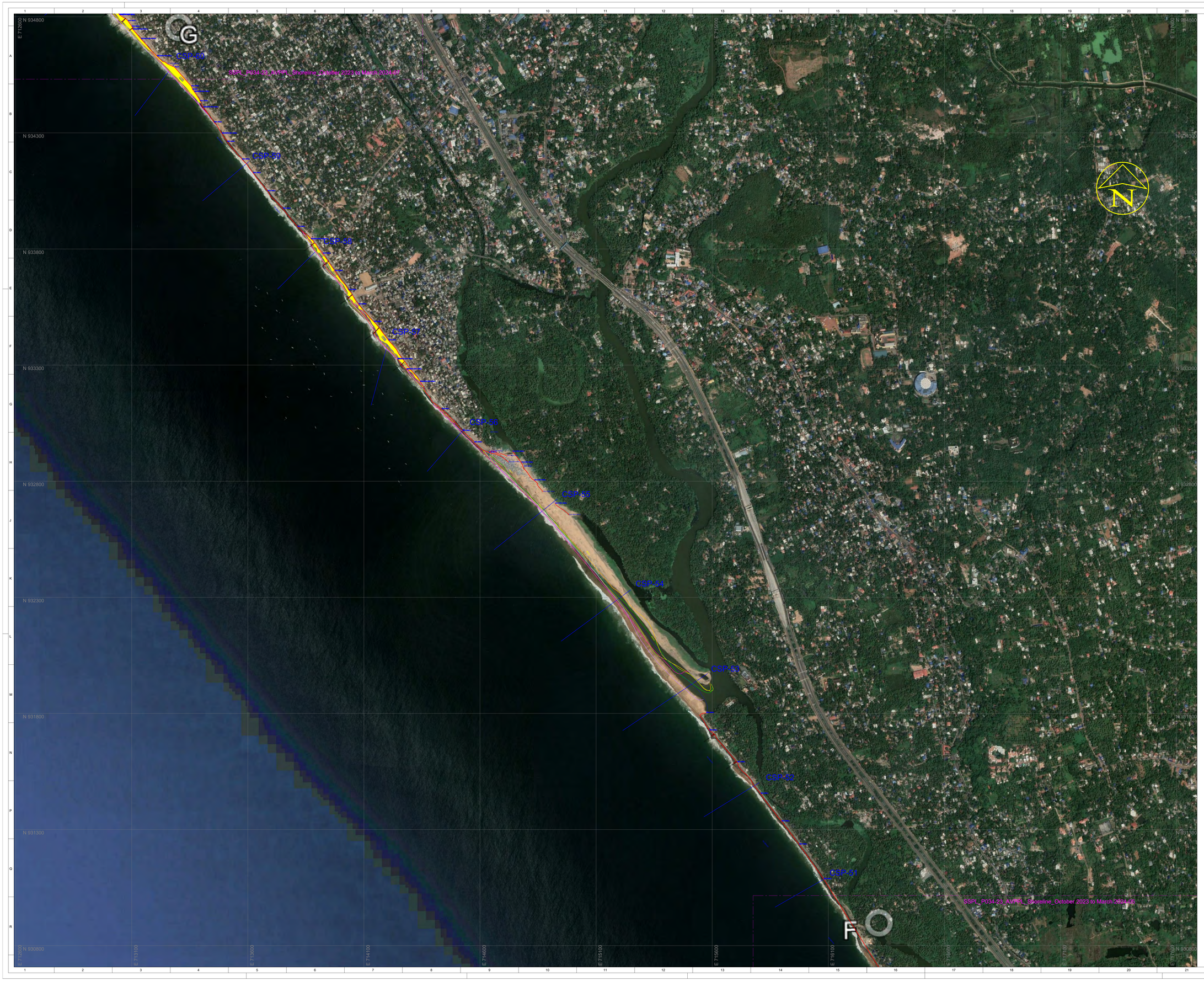
Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu. R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-05



Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning : Geomax Zenith (GPS Mode)

Geodetic Parameters :

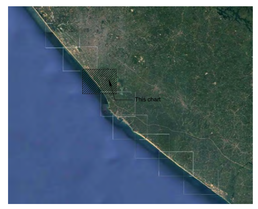
Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1: 5000

100 0 100 200 300 400 500metres

Key Plan



Client

ADANI VIZHINJAM PORT PVT. LTD.
3rD Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS PVT.LTD
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu. R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-06

Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning	:	Geomax Zenith (GPS Mode)

Geodetic Parameters :

Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1: 5000

100 0 100 200 300 400 500metres

Key Plan

Client

ADANI VIZHINJAM PORT PVT. LTD.
3rD Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

SHANKAR SURVEYS PVT.LTD
115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

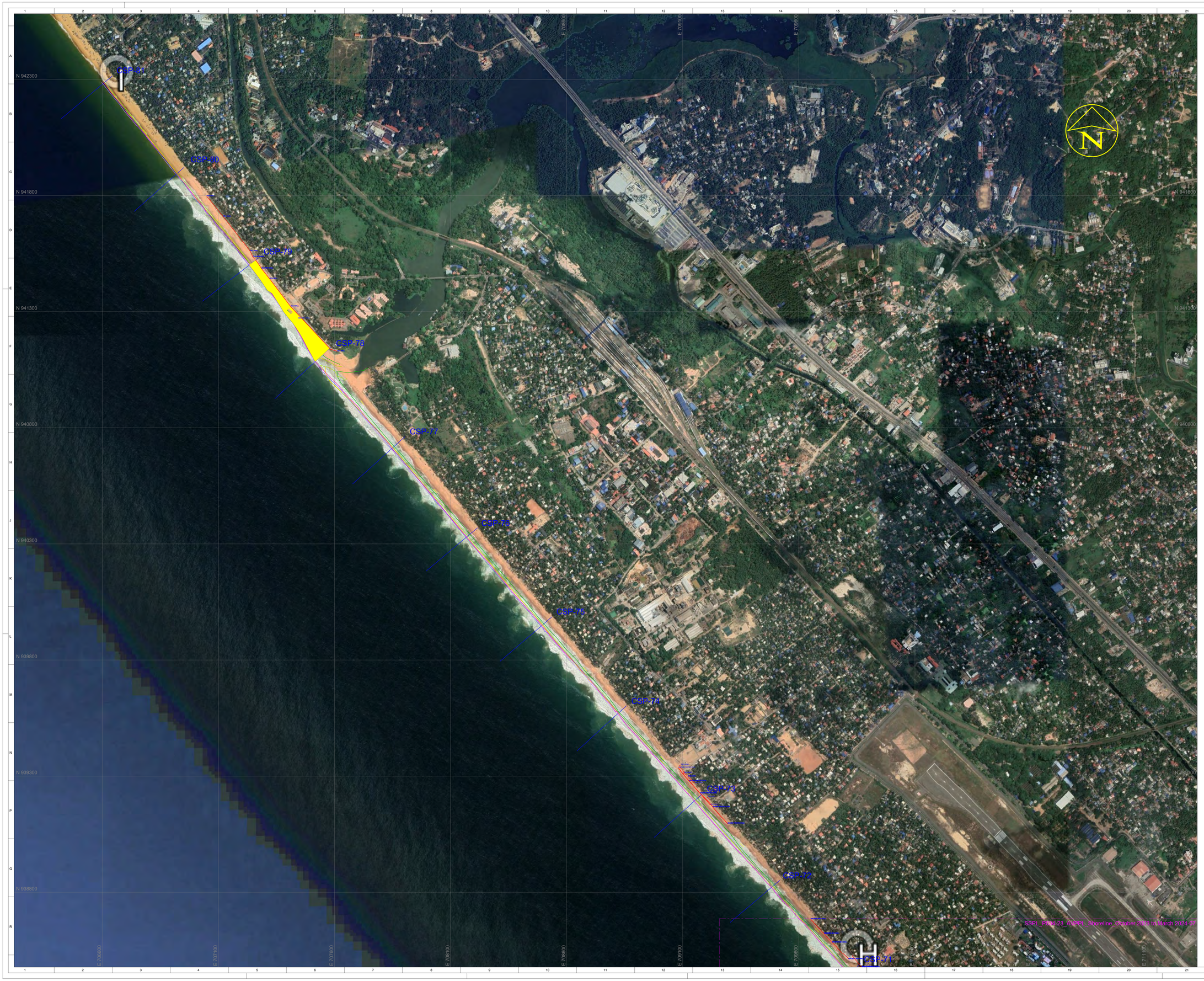
Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu.R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-07



Notes :

1. All coordinates are in WGS 84 datum, UTM grid system, Zone 43 North

LEGEND

- GROYNES
- BEACH
- ROCK
- SEAWALL
- SHORELINE OCTOBER 2023
- SHORELINE NOVEMBER 2023
- SHORELINE DECEMBER 2023
- SHORELINE JANUARY 2024
- SHORELINE FEBRUARY 2024
- SHORELINE MARCH 2024

Survey Notes

Surface Positioning : Geomax Zenith (GPS Mode)

Geodetic Parameters :

Horizontal Coordinate System	:	WGS84
Geodetic Datum / Spheroid	:	WGS84
Semi-Major Axis (a) (meters)	:	6378137.000m
Semi-Minor Axis	:	6356752.314245m
Inverse Flattening	:	298.2572235630
Projection	:	Universal Transverse Mercator
Longitude of Origin (CM)	:	75° E (Zone 43)
Latitude of Origin	:	0° N (Equator)
Hemisphere	:	North
False Easting	:	500 000 m
False Northing	:	0 m
Scale Factor at CM	:	0.9996
Units	:	Metres

Scale

HORIZONTAL 1: 5000

100 0 100 200 300 400 500metres

Key Plan

Client

ADANI VIZHINJAM PORT PVT. LTD.
3rD Floor, Aspinwall House,
Kawdiar Road, Kuravankonam,
Thiruvananthapuram - 695003

Survey Contractor

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115, 1st Floor, Neco Chambers
Sector 11, CBD Belapur, Navi Mumbai
Tele/Fax:- 022 27562900
E-mail : info@shankarsurveys.com

Project

Oceanographic And Bathymetric Data Collection
For Assessment of Shoreline Changes

Drawing Title

Shoreline Monitoring Chart

Rev.No.	Description	Date
0	First issue	15.05.2024

Drawn : S. Khaire | Interpreted : Vishnu R | Checked : V. Mehta

Dwg No. SSPL_P034-23_AVPPL_Shoreline_October 2023 to March 2024-08

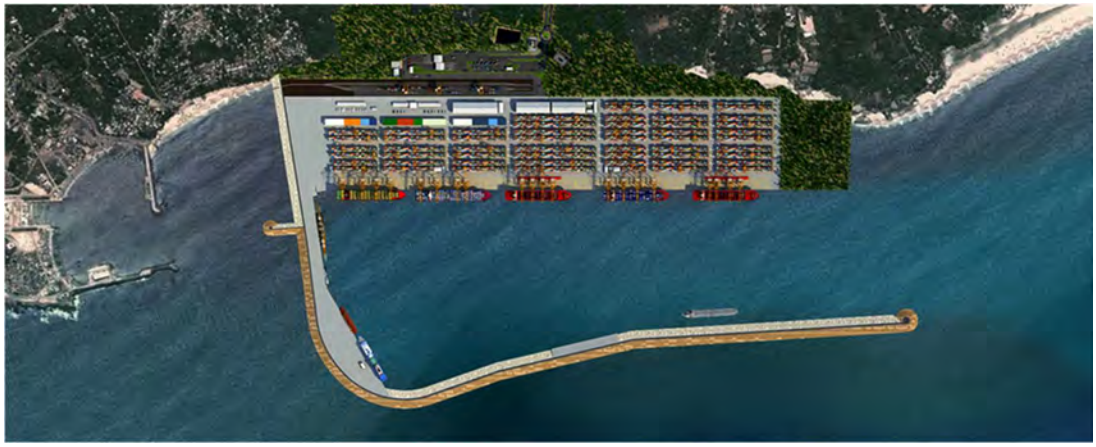
Annexure II

Environment Monitoring Report

(October 2023 to March 2024)

HALF-YEARLY ENVIRONMENT MONITORING REPORT

FOR THE PERIOD OCTOBER 2023 TO MARCH 2024



ADANI VIZHINJAM PORT PVT. LTD.
Vizhinjam, Kerala

Report No.: SEAAL/EMR-AVPPL-2324HY-II

Report Date: 10th May, 2024

This Report presents the discussion and the results of Environmental Monitoring at Adani Vizhinjam Port. The monitoring has been conducted and the report has been prepared & issued by Standards Environmental & Analytical Laboratories, Ernakulum-683110 to M/s Adani Vizhinjam Port Pvt Limited, Thiruvananthapuram-695 014

HYR-A	Table of Contents

HYR-1	Introduction

Standards Environmental & Analytical Laboratories is an organization providing Testing Services, Technical Consultancy for Environmental Pollution Control, Designing, Commissioning & Operation of Effluent & Sewage Treatment Plants to clients of various industries, Hotels, Hospitals & Building Apartments. It provides various training for the industries and for the budding scientists.

Standards Environmental & Analytical Laboratories was established in 2013 at K.J. Tower, Pathalam, Udhyogamandal, Ernakulam – 683501. The Lab has built a state of art building of 7000 sq. Ft. with fully furnished at 'Standards', Building No. 338/A, B, C, D, E, (Behind BPCL Petrol Pump), Edayar, Muppathadam, P.O., Ernakulam – 683110. The lab is relocated to the new building in June, 2023.It has been provided with sophisticated instruments such as GC-MS, AAS, UV Spectrophotometer, Flame Photometer and other Supporting Instruments with required accuracy & precision.

Standards is guided and lead by highly qualified scientists with rich experiences. Its technical personnel are well trained and competent and dedicated.

Testing Laboratory of Standards is accredited as per ISO/IEC 17025:2017 by NABL for testing of Food & Agricultural Products, Water and Environmental Samples, Medical Accessories under Chemical & Biological Disciplines. It is an "A" Grade laboratory certified by Kerala State Pollution Control Board (KSPCB). It delivers reliable testing services on time to the customers after ensuring the compliance of each stage of the testing activities to the stringent Quality Control and Quality Assurance Criteria established by international forums.

Standards gives Technical Consultancy in the field of Water & Wastewater Treatment and has completed a number of Turn-Key projects to solve the water pollution issues for different clients and making them compliant to the statutory requirements.

Standards had been engaged by Adani Vizhinjam Port Pvt. Ltd. (AVPPL) for performing Environmental Monitoring as per the Plan mentioned in EIA and EC.

AVPPL issued Service Order vide email dated 22-01-2024 which mentions the matrix, parameters and frequency of environmental monitoring. Standards carried out said environmental monitoring strictly as per above mentioned service order, viz. Ambient Air Monitoring (twice in a week), Ambient Noise Monitoring (fortnightly), Marine Ecological Survey including marine water, sediment, phytoplankton and zooplankton analysis (monthly), Ground Water and Surface Water Analysis (monthly), Soil Analysis (yearly).

Standards submits monthly reports of Environmental Monitoring which includes details of sampling locations, methodology used, analytical results and summary of reports. The monthly environmental monitoring report serves the information about the present environmental status as per terms and conditions mentioned in service order.

This present report is the consolidated half yearly report over the period from October 2023 to March 2024.

HYR-2	Quality Assurance & Quality Control

The quality assurance and quality control plan include following elements:

- Monitoring and Collection, Preservation & Transportation of samples;
- Sample Registration, Chain of Custody & Report Preparation;
- Laboratory Analysis & Review of Results; and
- Validation of Technical Activities.

HYR-2.1. Monitoring and Collection, Preservation & Transportation of samples:

The authorized Laboratory Sampling Team prepares the checklist for the required Sampling Kits, other auxiliary equipment and Sampling Procedures including Datasheets. The team collects the required item as per the list and visits the sampling site.

The team identifies the appropriate monitoring location as per the agreement and keep the sampling kits at the identified location. The team notes down the environmental conditions of the site in the sampling data sheets and all other required information. Then the team starts the monitoring activity.

Periodically the team inspects the status of the conditions of the sampling kits and records the necessary data on the sampling data sheet as per the requirements.

After the completion of monitoring as per PCB standards, the team collects the samples and preserves them safely and securely in an appropriate labelled container as per the procedure to prevent from contamination and deterioration.

Then the team returns to the laboratory and takes due care to maintain the integrity of the samples during transport. The team submits the samples and sampling data sheets to the Executives - Sample Registration.

HYR-2.2. Sample Registration, Chain of Custody & Report Preparation:

After receiving the samples, the Executive - Sample Registration examines the sample conditions and the sampling data sheets along with the agreement as per the Checklist and records the findings.

The executive registers the samples for testing in the Sample Entry Register and assigns the unique Sample Code for each sample only if all the criteria are fulfilled. The Executive prepares the Job Card for each sample as per the agreement and enters the allotted Sample Code in the Job Card and on the Test Item. The Test Item is identified throughout its life in the laboratory only by the unique Sample Code.

The executive then delivers the sample to the respective section of the Laboratory and the Job Card along with necessary sampling details required for performing the analysis excluding the details of the origin of the samples. The delivery is recorded in the Sample Delivery Register and the same is acknowledged by the Laboratory Technical personnel.

The information available in the Job Card are the test parameters to be performed, test method to be adopted, units in which the analytical results to be expressed, the due date for completion of analysis and the details about sample storage and retention conditions.

The executive submits the other Customer information and Sample details to the Reporting Section for preparing the Test Reports.

After completion of analysis, the technical personnel enter all the results and dates of analysis in the Job Card and submit the same to Reporting Section.

The Reporting Executive decodes the Job Card with the Test Request details, prepares the Draft Report as per the respective report format and submits the draft report to the Authorized Signatory. This draft report is verified and returned back to the Reporting Section for making the final report. Final reports are prepared by the Reporting Executive with necessary corrections if any and authorized by the Authorized Signatory. Then the Final Test Report is delivered to the customer.

HYR-2.3. Laboratory Analysis & Review of Test Results:

After receiving the Test Items along with the Job Card, the Technical Manager allots the Job to the authorized Technical Personnel. The assigned Technical Personnel performs the allotted tests as per the method mentioned in the Job Card as well as the required Quality Control Checks (QC) and submits the results to the Technical Manger. The Technical Personnel conforms that all the required calibration status of the equipment is valid and the Certified Reference Material are valid. Also, the Technical Personnel ensures that the results of daily verification conforming to the specified criteria.

The Technical Manager reviews the results of samples & QC checks and approves the results only if the results of QC checks are compliance to the Acceptance Criteria. Then the Job Card is submitted to the Reporting Section.

HYR-2.4. Validation of Technical Activities:

For the validation of Technical Activities, the laboratory performs Internal Quality Assurance Check, Proficiency Testing and Inter Laboratory Comparison. Quality Assurance Team prepares Annual Internal Quality Assurance Check (IQC) Plan, Inter laboratory Comparison (ILC)/ Proficiency Testing (PT) Plan.

As per the IQA plan, Quality Assurance Team prepare and send the Test Items to the respective section of the Laboratory. After getting the results, Quality Assurance team evaluates the results against the predefined criteria. The results of evaluation are submitted and discussed during Management Review meeting.

Quality Assurance Team identify and register the suitable PT Scheme authorized by NABL. Also, Quality Assurance Team identifies suitable ILC or conducts by covering at least five NABL accredited Laboratories.

If the QA team conducts ILC, then they evaluate the performance and calculate the Z-score after getting the results of the participating laboratories.

The acceptance criteria for the ILC/PT is ±2. The summary of the PT/ILC is prepared and discussed during Management Review Meeting.

The Quality Assurance Team monitors the performance of the Laboratory activities by conducting Internal Quality Audits and Vertical Audit periodically. The Audit reports are prepared and discussed during Management Review Meeting.

HYR-3	Ambient Air Quality Monitoring

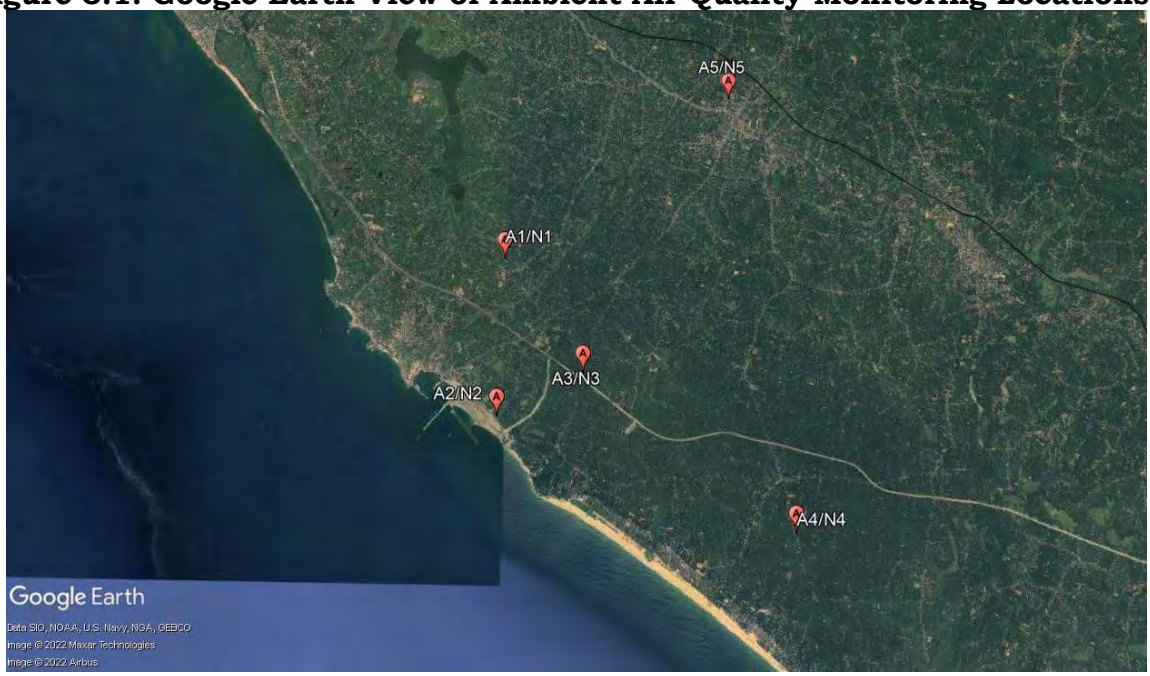
HYR-3.1. Ambient Air Quality Monitoring location details:

This section describes the sampling location, methodology adopted for monitoring and analysis of Ambient Air Quality. The prime objective of the environment monitoring with respect to Ambient Air Quality is to establish the air quality of present condition and its conformity to Applicable Standards. Ambient Air quality monitoring was carried out at five (5) locations including Venganoor, Port Site, Proposed Port Estate Area, Chani and Balarampuram from October 2023 to March 2024.

Table 3.1: Coordinates of Ambient Air Quality Monitoring Locations

Location	Legend	Latitude	Longitude
Venganoor	A1	8°23'55.10"N	77°00'12.19"E
Port Site	A2	8°22'13.73"N	77°00'08.39"E
Proposed Port Estate Area	A3	8°22'41.37"N	77°01'03.17"E
Chani	A4	8°21'02.11"N	77°03'16.59"E
Balarampuram	A5	8°25'43.73"N	77°02'39.99"E

Figure 3.1: Google Earth View of Ambient Air Quality Monitoring Locations



HYR-3.2. Methodology of Sampling and Analysis:

Table 3.2: Ambient Air Quality Monitoring Methodology

S. No.	Parameter	Unit	Detection Limit	Method Reference
1.	Particulate Matter (size less than 10 µm) or PM_{10}	µg/m³	5.0	IS 5182 (Part 23): 2006
2.	Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m³	2.0	EPA 40 CFR Part 50 Appendix-L: 1997
3.	Sulphur Dioxide (SO_2)	µg/m³	2.0	IS 5182 (Part 2): 2001
4.	Nitrogen Dioxide (NO_2)	µg/m³	2.0	IS 5182 (Part 6): 2006
5.	Carbon Monoxide (CO)	mg/m³	1.15	IS 5182 (Part 10):1999 (NDIR Method)
6.	Hydrocarbon (HC)	ppm	0.0003	IS 5182 (Part 17):1979

HYR-3.3. National Ambient Air Quality Standards (NAAQS):

Table 3.3: National Ambient Air Quality Standards dated 16th November 2009

S. No.	Pollutant, Unit	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive Areas
1.	Sulphur dioxide (SO_2), µg/m³	Annual	50	20
		24 h	80	80
2.	Nitrogen Dioxide (NO_2), µg/ m³	Annual	40	30
		24 h	80	80
3.	Particulate matter (size less than 10µm) or PM_{10}, µg/ m³	Annual	60	60
		24 h	100	100
4.	Particulate matter (size less than 2.5µm) or $PM_{2.5}$, µg/m³	Annual	40	40
		24 h	60	60
5.	Carbon Monoxide (CO), mg/m³	8 h	02	02
		1 h	04	04
6.	Hydrocarbon (HC), ppm	-	-	-

HYR-3.4. Ambient Air Quality Monitoring Results for the period from October 2023 to March 2024:

Table 3.4: Location – Venganoor (A1)

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-10-2023	62.5	29.3	4.28	5.10	BDL	BDL
05-10-2023	70.9	29.9	4.75	5.55	BDL	BDL
09-10-2023	78.3	36.9	5.63	6.11	BDL	BDL
12-10-2023	73.1	33.4	4.92	5.73	BDL	BDL
16-10-2023	69.9	30.1	4.87	5.38	BDL	BDL
19-10-2023	65.2	27.9	4.25	4.79	BDL	BDL
23-10-2023	61.1	25.3	4.38	4.99	BDL	BDL
26-10-2023	70.3	36.2	5.36	5.98	BDL	BDL
30-10-2023	65.7	31.9	4.59	5.77	BDL	BDL
02-11-2023	66.7	31.6	4.51	5.22	BDL	BDL
06-11-2023	62.9	26.4	4.10	4.89	BDL	BDL
09-11-2023	63.8	22.6	4.05	4.66	BDL	BDL
13-11-2023	72.9	34.9	4.61	5.10	BDL	BDL
16-11-2023	74.6	35.2	4.78	5.54	BDL	BDL
20-11-2023	80.3	39.1	5.23	5.98	BDL	BDL
23-11-2023	70.8	33.5	4.52	5.30	BDL	BDL
27-11-2023	65.3	30.1	4.11	4.92	BDL	BDL
30-11-2023	79.3	35.1	4.85	5.66	BDL	BDL
04-12-2023	67.4	33.5	4.75	5.61	BDL	BDL
07-12-2023	73.1	36.7	4.88	5.79	BDL	BDL
11-12-2023	63.9	29.3	4.79	5.71	BDL	BDL
14-12-2023	61.9	28.4	4.15	4.84	BDL	BDL
18-12-2023	66.2	31.5	4.65	5.10	BDL	BDL
21-12-2023	61.6	29.9	4.50	5.09	BDL	BDL
25-12-2023	58.1	26.8	4.37	4.75	BDL	BDL
28-12-2023	68.4	33.2	4.66	5.31	BDL	BDL
01-01-2024	53.6	22.9	4.50	4.97	BDL	BDL
04-01-2024	48.9	20.1	4.39	4.83	BDL	BDL
08-01-2024	43.5	20.9	4.11	4.93	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
13-01-2024	46.9	21.7	4.42	4.85	BDL	BDL
15-01-2024	49.2	23.5	4.52	4.99	BDL	BDL
18-01-2024	55.3	26.7	4.68	5.10	BDL	BDL
22-01-2024	46.3	21.5	4.05	4.63	BDL	BDL
25-01-2024	50.9	25.2	4.24	4.92	BDL	BDL
29-01-2024	49.6	23.7	4.25	4.89	BDL	BDL
01-02-2024	45.2	24.2	4.22	5.37	BDL	BDL
05-02-2024	43.6	21.8	4.35	5.24	BDL	BDL
08-02-2024	46.3	23.6	4.40	5.17	BDL	BDL
12-02-2024	41.8	20.1	4.75	5.32	BDL	BDL
15-02-2024	45.1	22.8	4.25	5.14	BDL	BDL
19-02-2024	42.5	20.4	4.55	5.62	BDL	BDL
22-02-2024	39.5	18.9	4.27	5.28	BDL	BDL
26-02-2024	45.9	22.5	4.62	5.19	BDL	BDL
29-02-2024	42.8	21.8	4.51	5.25	BDL	BDL
04-03-2024	49.5	22.8	4.16	4.65	BDL	BDL
07-03-2024	50.8	24.3	4.25	4.80	BDL	BDL
11-03-2024	52.2	24.7	4.51	4.89	BDL	BDL
14-03-2024	49.6	22.9	4.26	4.56	BDL	BDL
18-03-2024	51.7	23.8	4.38	4.48	BDL	BDL
21-03-2024	45.6	21.6	4.47	4.97	BDL	BDL
25-03-2024	49.5	23.4	4.29	5.11	BDL	BDL
28-03-2024	50.9	24.1	4.42	5.04	BDL	BDL
NAAQS 2009 Limits	**100**	**60**	**80**	**80**	**4**	**-**

BDL: Below Detectable Limit

Table 3.5: Location – Project Site (A2)

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-10-2023	72.5	32.5	4.86	5.87	BDL	BDL
05-10-2023	75.7	37.1	5.17	5.81	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
09-10-2023	68.5	28.1	4.66	5.00	BDL	BDL
12-10-2023	69.7	30.3	4.68	5.24	BDL	BDL
16-10-2023	71.1	33.1	4.29	4.91	BDL	BDL
19-10-2023	68.4	29.4	4.68	5.26	BDL	BDL
23-10-2023	62.3	30.6	4.38	4.95	BDL	BDL
26-10-2023	63.7	28.5	4.26	4.86	BDL	BDL
30-10-2023	67.4	33.1	4.58	5.84	BDL	BDL
02-11-2023	65.3	30.5	4.25	5.12	BDL	BDL
06-11-2023	70.6	34.1	4.63	5.35	BDL	BDL
09-11-2023	73.2	36.2	4.89	5.85	BDL	BDL
13-11-2023	66.3	31.2	5.11	5.99	BDL	BDL
16-11-2023	75.3	36.8	5.32	5.89	BDL	BDL
20-11-2023	70.2	32.8	4.36	5.12	BDL	BDL
23-11-2023	66.2	32.2	4.09	4.72	BDL	BDL
27-11-2023	72.5	34.9	4.45	5.34	BDL	BDL
30-11-2023	78.2	37.2	5.22	6.10	BDL	BDL
04-12-2023	80.2	39.1	4.98	5.67	BDL	BDL
07-12-2023	73.6	36.9	4.55	5.39	BDL	BDL
11-12-2023	78.2	37.2	4.38	5.12	BDL	BDL
14-12-2023	75.1	33.7	4.71	5.73	BDL	BDL
18-12-2023	83.1	42.3	5.01	5.92	BDL	BDL
21-12-2023	69.5	31.9	4.68	5.13	BDL	BDL
25-12-2023	73.2	36.4	4.93	5.55	BDL	BDL
28-12-2023	79.5	39.9	4.60	5.22	BDL	BDL
01-01-2024	88.4	43.1	5.28	5.99	BDL	BDL
04-01-2024	79.6	39.5	4.83	5.54	BDL	BDL
08-01-2024	83.7	40.3	4.66	5.39	BDL	BDL
13-01-2024	80.9	39.4	4.26	5.12	BDL	BDL
15-01-2024	76.5	36.2	4.10	4.75	BDL	BDL
18-01-2024	73.1	34.7	4.49	5.44	BDL	BDL
22-01-2024	81.5	40.1	4.69	5.29	BDL	BDL
25-01-2024	86.4	43.5	4.87	5.61	BDL	BDL
29-01-2024	78.6	41.5	4.35	5.24	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
01-02-2024	82.6	40.4	5.35	6.52	BDL	BDL
05-02-2024	86.4	44.1	5.66	6.42	BDL	BDL
08-02-2024	85.6	42.4	5.52	6.25	BDL	BDL
12-02-2024	84.5	40.3	5.23	6.12	BDL	BDL
15-02-2024	88.6	43.5	5.72	6.33	BDL	BDL
19-02-2024	90.5	45.9	5.88	6.52	BDL	BDL
22-02-2024	85.2	42.1	5.50	6.80	BDL	BDL
26-02-2024	87.4	44.1	5.61	6.45	BDL	BDL
29-02-2024	80.9	39.5	5.42	6.60	BDL	BDL
04-03-2024	88.2	46.2	5.14	6.87	BDL	BDL
07-03-2024	82.1	39.2	5.27	6.22	BDL	BDL
11-03-2024	84.3	40.1	5.32	5.99	BDL	BDL
14-03-2024	79.1	35.1	5.10	6.58	BDL	BDL
18-03-2024	80.5	37.6	5.24	6.54	BDL	BDL
21-03-2024	82.6	40.5	5.36	6.20	BDL	BDL
25-03-2024	76.3	36.9	5.14	6.38	BDL	BDL
28-03-2024	81.2	39.4	5.24	6.21	BDL	BDL
NAAQS 2009 Limits	**100**	**60**	**80**	**80**	**4**	**-**

BDL: Below Detectable Limit

Table 3.6: Location – Proposed Port Estate Area (A3)

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-10-2023	67.9	30.2	4.35	5.23	BDL	BDL
05-10-2023	65.2	28.6	4.20	5.15	BDL	BDL
09-10-2023	70.4	31.8	4.62	5.48	BDL	BDL
12-10-2023	66.3	25.4	4.39	5.37	BDL	BDL
16-10-2023	63.9	28.8	4.23	4.79	BDL	BDL
19-10-2023	69.2	27.6	4.62	5.13	BDL	BDL
23-10-2023	73.4	32.8	4.55	5.39	BDL	BDL
26-10-2023	68.1	30.5	4.35	5.22	BDL	BDL
30-10-2023	71.2	34.5	4.78	5.41	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-11-2023	62.3	26.5	4.15	5.11	BDL	BDL
06-11-2023	69.2	32.9	4.09	5.68	BDL	BDL
09-11-2023	77.4	36.2	4.98	5.79	BDL	BDL
13-11-2023	72.3	32.6	4.62	5.60	BDL	BDL
16-11-2023	75.4	34.2	4.55	5.39	BDL	BDL
20-11-2023	78.9	36.9	4.98	5.99	BDL	BDL
23-11-2023	68.6	30.2	4.15	5.00	BDL	BDL
27-11-2023	73.6	33.6	4.69	5.62	BDL	BDL
30-11-2023	76.3	36.3	5.20	5.99	BDL	BDL
04-12-2023	73.6	36.8	4.75	5.58	BDL	BDL
07-12-2023	69.4	34.2	5.12	5.93	BDL	BDL
11-12-2023	65.7	31.5	4.61	5.37	BDL	BDL
14-12-2023	66.9	32.7	4.95	5.43	BDL	BDL
18-12-2023	66.3	31.1	5.20	5.96	BDL	BDL
21-12-2023	70.9	33.8	4.52	5.49	BDL	BDL
25-12-2023	72.4	36.1	4.72	5.67	BDL	BDL
28-12-2023	67.2	34.1	5.32	5.93	BDL	BDL
01-01-2024	50.3	23.4	4.23	4.66	BDL	BDL
04-01-2024	55.4	25.3	4.59	4.85	BDL	BDL
08-01-2024	51.8	23.8	4.35	4.73	BDL	BDL
13-01-2024	55.7	26.1	4.66	5.12	BDL	BDL
15-01-2024	52.9	23.1	4.29	5.79	BDL	BDL
18-01-2024	58.1	29.2	4.41	4.98	BDL	BDL
22-01-2024	56.8	27.6	4.88	5.30	BDL	BDL
25-01-2024	52.7	23.9	4.51	4.99	BDL	BDL
29-01-2024	54.6	24.7	4.51	5.24	BDL	BDL
01-02-2024	54.6	27.5	4.58	5.29	BDL	BDL
05-02-2024	58.9	29.4	4.75	5.60	BDL	BDL
08-02-2024	55.4	27.9	4.82	5.87	BDL	BDL
12-02-2024	52.1	22.5	4.95	5.55	BDL	BDL
15-02-2024	56.4	26.1	4.51	5.62	BDL	BDL
19-02-2024	52.7	25.2	4.75	5.50	BDL	BDL
22-02-2024	60.5	29.4	5.24	5.85	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
26-02-2024	58.5	26.8	5.12	5.66	BDL	BDL
29-02-2024	59.1	28.7	5.23	5.78	BDL	BDL
04-03-2024	53.9	24.5	4.22	4.99	BDL	BDL
07-03-2024	51.1	26.9	4.46	5.12	BDL	BDL
11-03-2024	60.1	28.4	4.25	5.11	BDL	BDL
14-03-2024	55.6	26.8	4.59	5.06	BDL	BDL
18-03-2024	52.8	25.4	4.32	5.16	BDL	BDL
21-03-2024	48.6	22.9	4.15	4.90	BDL	BDL
25-03-2024	55.4	25.8	4.62	5.36	BDL	BDL
28-03-2024	51.6	24.9	4.51	5.21	BDL	BDL
NAAQS 2009 Limits	**100**	**60**	**80**	**80**	**4**	**-**

BDL: Below Detectable Limit

Table 3.7: Location – Chani (A4)

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-10-2023	62.8	28.7	4.53	5.48	BDL	BDL
05-10-2023	59.2	24.9	4.47	5.05	BDL	BDL
09-10-2023	62.4	32.1	4.41	5.14	BDL	BDL
12-10-2023	66.7	34.7	4.52	5.35	BDL	BDL
16-10-2023	69.1	36.3	4.66	5.49	BDL	BDL
19-10-2023	64.5	34.2	4.76	4.88	BDL	BDL
23-10-2023	62.3	29.4	4.57	4.76	BDL	BDL
26-10-2023	59.1	23.8	4.31	4.36	BDL	BDL
30-10-2023	68.4	33.8	4.77	5.55	BDL	BDL
02-11-2023	58.3	23.9	4.03	4.65	BDL	BDL
06-11-2023	52.9	21.8	4.10	4.96	BDL	BDL
09-11-2023	60.5	26.9	4.25	5.10	BDL	BDL
13-11-2023	55.5	22.3	4.18	5.02	BDL	BDL
16-11-2023	62.8	29.3	4.34	5.12	BDL	BDL
20-11-2023	68.2	33.6	4.85	5.68	BDL	BDL
23-11-2023	60.9	25.3	4.19	4.89	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
27-11-2023	66.5	33.7	4.63	5.38	BDL	BDL
30-11-2023	63.2	28.9	4.50	5.10	BDL	BDL
04-12-2023	69.2	32.5	4.46	5.10	BDL	BDL
07-12-2023	62.6	29.1	4.35	4.89	BDL	BDL
11-12-2023	66.7	32.8	4.72	5.19	BDL	BDL
14-12-2023	60.3	26.7	4.30	4.96	BDL	BDL
18-12-2023	70.5	34.5	4.72	5.45	BDL	BDL
21-12-2023	73.4	35.9	4.99	5.68	BDL	BDL
25-12-2023	65.4	31.2	4.31	4.88	BDL	BDL
28-12-2023	71.4	33.5	4.89	5.59	BDL	BDL
01-01-2024	58.6	26.4	4.21	4.86	BDL	BDL
04-01-2024	51.9	22.1	4.05	4.59	BDL	BDL
08-01-2024	55.7	23.9	4.15	4.75	BDL	BDL
13-01-2024	52.9	21.5	4.09	4.62	BDL	BDL
15-01-2024	61.5	25.9	4.55	5.24	BDL	BDL
18-01-2024	63.2	28.7	4.62	5.19	BDL	BDL
22-01-2024	70.5	35.1	4.86	5.62	BDL	BDL
25-01-2024	65.1	29.7	4.75	5.24	BDL	BDL
29-01-2024	54.9	26.3	4.19	5.07	BDL	BDL
01-02-2024	50.1	24.7	4.88	5.42	BDL	BDL
05-02-2024	55.5	26.9	4.52	5.20	BDL	BDL
08-02-2024	49.8	24.1	4.66	5.32	BDL	BDL
12-02-2024	56.4	28.5	4.82	5.45	BDL	BDL
15-02-2024	59.6	29.9	4.87	5.72	BDL	BDL
19-02-2024	50.5	23.8	4.96	5.35	BDL	BDL
22-02-2024	53.8	25.1	4.52	5.11	BDL	BDL
26-02-2024	56.9	28.5	4.47	5.33	BDL	BDL
29-02-2024	51.8	25.9	4.55	5.20	BDL	BDL
04-03-2024	47.3	22.5	4.75	5.32	BDL	BDL
07-03-2024	58.4	27.8	4.89	5.24	BDL	BDL
11-03-2024	53.6	25.1	4.78	5.21	BDL	BDL
14-03-2024	60.1	28.6	4.94	5.39	BDL	BDL
18-03-2024	55.2	26.4	4.81	5.34	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
21-03-2024	46.4	22.2	4.56	5.29	BDL	BDL
25-03-2024	50.8	23.9	4.61	5.18	BDL	BDL
28-03-2024	57.5	27.3	4.83	5.22	BDL	BDL
NAAQS 2009 Limits	**100**	**60**	**80**	**80**	**4**	**-**

BDL: Below Detectable Limit

Table 3.8: Location – Balarampuram (A5)

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
02-10-2023	64.8	23.1	4.37	4.82	BDL	BDL
05-10-2023	67.3	29.5	4.31	4.93	BDL	BDL
09-10-2023	62.8	31.4	4.56	4.77	BDL	BDL
12-10-2023	64.9	34.5	4.86	5.14	BDL	BDL
16-10-2023	66.2	30.9	4.93	5.38	BDL	BDL
19-10-2023	65.7	29.6	4.62	5.66	BDL	BDL
23-10-2023	66.9	31.7	4.73	5.31	BDL	BDL
26-10-2023	62.4	27.3	4.46	5.24	BDL	BDL
30-10-2023	72.4	34.5	4.32	5.64	BDL	BDL
02-11-2023	58.6	22.8	4.56	5.32	BDL	BDL
06-11-2023	63.8	28.9	4.32	5.10	BDL	BDL
09-11-2023	59.3	26.3	4.63	5.39	BDL	BDL
13-11-2023	68.6	34.5	4.80	5.72	BDL	BDL
16-11-2023	60.5	26.8	4.38	5.45	BDL	BDL
20-11-2023	54.9	22.3	4.05	4.68	BDL	BDL
23-11-2023	65.9	36.5	4.29	4.99	BDL	BDL
27-11-2023	60.1	25.1	4.20	5.10	BDL	BDL
30-11-2023	68.2	31.9	4.68	5.39	BDL	BDL
04-12-2023	76.2	35.3	4.68	5.44	BDL	BDL
07-12-2023	78.9	36.4	4.76	5.82	BDL	BDL
11-12-2023	77.2	35.9	4.51	5.63	BDL	BDL
14-12-2023	72.5	32.6	4.89	5.34	BDL	BDL
18-12-2023	67.2	28.1	4.66	5.14	BDL	BDL

Date	Parameters					
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	HC
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	ppm
21-12-2023	63.8	25.9	4.49	5.27	BDL	BDL
25-12-2023	60.1	24.9	4.25	4.92	BDL	BDL
28-12-2023	65.4	26.1	4.80	5.62	BDL	BDL
01-01-2024	82.5	40.3	4.70	5.69	BDL	BDL
04-01-2024	72.3	31.9	4.34	5.41	BDL	BDL
08-01-2024	68.9	28.6	4.18	5.35	BDL	BDL
13-01-2024	76.8	35.4	4.59	5.11	BDL	BDL
15-01-2024	71.9	33.9	4.28	4.72	BDL	BDL
18-01-2024	69.7	29.1	4.05	4.65	BDL	BDL
22-01-2024	66.7	27.9	4.11	5.03	BDL	BDL
25-01-2024	72.5	32.6	4.45	5.22	BDL	BDL
29-01-2024	72.5	34.2	4.32	5.06	BDL	BDL
01-02-2024	88.3	45.2	5.26	6.25	BDL	BDL
05-02-2024	85.3	42.1	5.12	6.10	BDL	BDL
08-02-2024	81.2	36.4	5.30	6.32	BDL	BDL
12-02-2024	86.4	44.7	5.55	6.20	BDL	BDL
15-02-2024	75.6	32.1	4.82	5.68	BDL	BDL
19-02-2024	79.8	38.4	4.62	5.39	BDL	BDL
22-02-2024	83.7	40.2	5.28	5.78	BDL	BDL
26-02-2024	72.9	33.5	4.99	5.65	BDL	BDL
29-02-2024	80.4	39.5	5.22	5.45	BDL	BDL
04-03-2024	83.5	40.1	5.09	5.89	BDL	BDL
07-03-2024	79.6	34.6	4.96	5.13	BDL	BDL
11-03-2024	80.5	41.3	5.27	5.72	BDL	BDL
14-03-2024	75.9	36.1	4.89	5.64	BDL	BDL
18-03-2024	79.7	37.4	4.76	5.49	BDL	BDL
21-03-2024	81.5	41.3	4.78	5.53	BDL	BDL
25-03-2024	74.2	36.7	5.11	5.83	BDL	BDL
28-03-2024	76.4	36.8	5.18	5.86	BDL	BDL
NAAQS 2009 Limits	**100**	**60**	**80**	**80**	**4**	**-**

BDL: Below Detectable Limit

HYR-3.5. Monthly Average Results of Ambient Air Quality Monitoring (October 2023 to March 2024)

Table 3.9: Monthly Average Results

Parameter, Unit	NAAQS 2009 Limits	Month	Venganoor (A1)			Port Site (A2)			Proposed Port Estate Area (A3)			Chani (A4)			Balarampuram (A5)		
			Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min
Particulate matter (size less than 10µm) or PM_{10}, µg/ m^3	100	Oct-23	78.3	68.6	61.1	75.7	68.8	62.3	73.4	68.4	63.9	69.1	63.8	59.1	72.4	65.9	62.4
		Nov-23	80.3	70.7	62.9	78.2	70.9	65.3	78.9	72.7	62.3	68.2	61.0	52.9	68.6	62.2	54.9
		Dec-23	73.1	65.1	58.1	83.1	76.6	69.5	73.6	69.1	65.7	73.4	67.4	60.3	78.9	70.2	60.1
		Jan-24	55.3	49.4	43.5	88.4	81.0	73.1	58.1	54.3	50.3	70.5	59.4	51.9	82.5	72.6	66.7
		Feb-24	46.3	43.6	39.5	90.5	85.7	80.9	60.5	56.5	52.1	59.6	53.8	49.8	88.3	81.5	72.9
		Mar-24	52.2	50.0	45.6	88.2	81.8	76.3	60.1	53.6	48.6	60.1	53.7	46.4	83.5	78.9	74.2
		Half Yearly	**80.3**	**57.9**	**39.5**	**90.5**	**77.5**	**62.3**	**78.9**	**62.4**	**48.6**	**73.4**	**59.9**	**46.4**	**88.3**	**71.9**	**54.9**
Particulate matter (size less than 2.5µm) or PM $_{2.5}$, µg/ m^3	60	Oct-23	36.9	31.2	25.3	37.1	31.4	28.1	34.5	30.0	25.4	36.3	30.9	23.8	34.5	30.3	23.1
		Nov-23	39.1	32.1	22.6	37.2	34.0	30.5	36.9	33.3	26.5	33.7	27.3	21.8	36.5	28.3	22.3
		Dec-23	36.7	31.2	26.8	42.3	37.2	31.9	36.8	33.8	31.1	35.9	32.0	26.7	36.4	30.7	24.9
		Jan-24	26.7	22.9	20.1	43.5	39.8	34.7	29.2	25.2	23.1	35.1	26.6	21.5	40.3	32.7	27.9
		Feb-24	24.2	21.8	18.9	45.9	42.5	39.5	29.4	27.1	22.5	29.9	26.4	23.8	45.2	39.1	32.1
		Mar-24	24.7	23.5	21.6	46.2	39.4	35.1	28.4	25.7	22.9	28.6	25.5	22.2	41.3	38.0	34.6
		Half Yearly	**39.1**	**27.1**	**18.9**	**46.2**	**37.4**	**28.1**	**36.9**	**29.2**	**22.5**	**36.3**	**28.1**	**21.5**	**45.2**	**33.2**	**22.3**
Sulphur dioxide (SO_2), µg/m^3	80	Oct-23	5.63	4.78	4.25	5.17	4.62	4.26	4.78	4.45	4.20	4.77	4.56	4.31	4.93	4.57	4.31
		Nov-23	5.23	4.53	4.05	5.32	4.70	4.09	5.20	4.60	4.09	4.85	4.34	4.03	4.80	4.43	4.05
		Dec-23	4.88	4.59	4.15	5.01	4.73	4.38	5.32	4.90	4.52	4.99	4.59	4.30	4.89	4.63	4.25
		Jan-24	4.68	4.35	4.05	5.28	4.61	4.1	4.88	4.49	4.23	4.86	4.39	4.05	4.7	4.38	4.05
		Feb-24	4.75	4.44	4.22	5.88	5.54	5.23	5.24	4.88	4.51	4.96	4.69	4.47	5.55	5.13	4.62
		Mar-24	4.51	4.34	4.16	5.36	5.23	5.10	4.62	4.39	4.15	4.94	4.77	4.56	5.27	5.01	4.76
		Half Yearly	**5.63**	**4.51**	**4.05**	**5.88**	**4.91**	**4.09**	**5.32**	**4.62**	**4.09**	**4.99**	**4.56**	**4.03**	**5.55**	**4.69**	**4.05**

Parameter, Unit	NAAQS 2009 Limits	Month	Venganoor (A1)			Port Site (A2)			Proposed Port Estate Area (A3)			Chani (A4)			Balarampuram (A5)		
			Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min
Oxides of Nitrogen (NO_x), µg/m³	80	Oct-23	6.11	5.49	4.79	5.87	5.30	4.86	5.48	5.24	4.79	5.55	5.12	4.36	5.66	5.21	4.77
		Nov-23	5.98	5.25	4.66	6.10	5.50	4.72	5.99	5.57	5.00	5.68	5.10	4.65	5.72	5.24	4.68
		Dec-23	5.79	5.28	4.75	5.92	5.47	5.12	5.96	5.67	5.37	5.68	5.22	4.88	5.82	5.40	4.92
		Jan-24	5.10	4.90	4.63	5.99	5.37	4.75	5.79	5.07	4.66	5.62	5.02	4.59	5.69	5.14	4.65
		Feb-24	5.62	5.29	5.14	6.80	6.45	6.12	5.87	5.64	5.29	5.72	5.34	5.11	6.32	5.87	5.39
		Mar-24	5.11	4.81	4.48	6.87	6.37	5.99	5.36	5.11	4.90	5.39	5.27	5.18	5.89	5.64	5.13
		Half Yearly	**6.11**	**5.17**	**4.48**	**6.87**	**5.74**	**4.72**	**5.99**	**5.38**	**4.66**	**5.72**	**5.18**	**4.36**	**6.32**	**5.41**	**4.65**
Carbon Monoxide (CO), mg/m³	4	Oct-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Nov-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Dec-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Jan-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Feb-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Mar-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Half Yearly	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**
Hydrocarbon (HC), ppm	-	Oct-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Nov-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Dec-22	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Jan-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Feb-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Mar-23	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--	--	BDL	--
		Half Yearly	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**	**--**	**BDL**	**--**

HYR-3.6. Graphical representation of Half-Yearly Results (October-2023 to March-2024)

Figure 3.2: Respirable Particulate Matter (PM10)

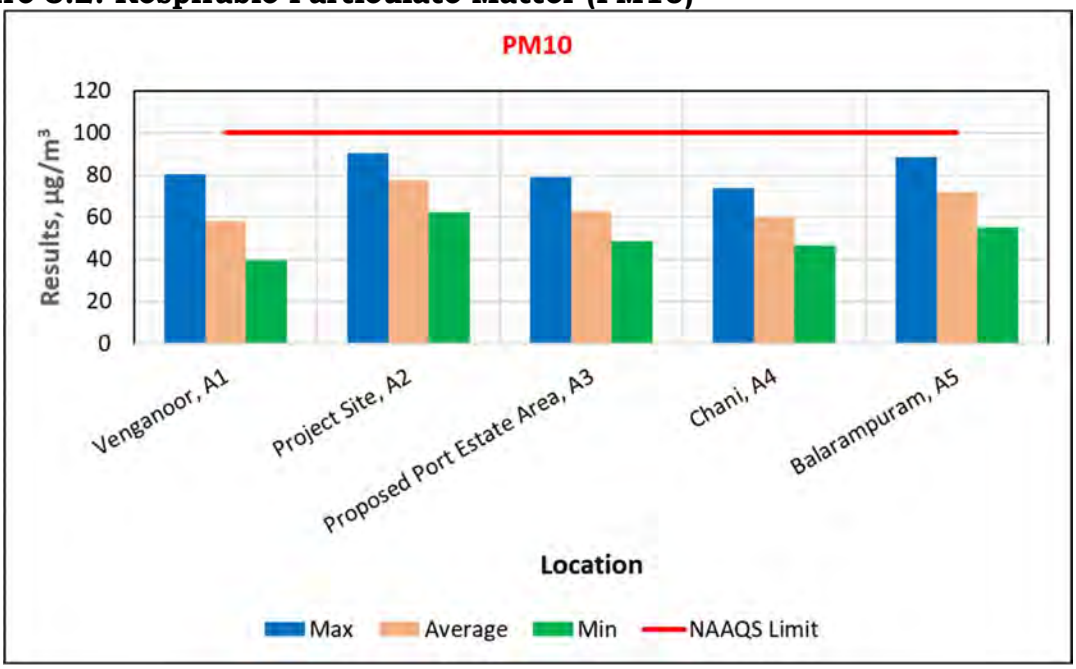


Figure 3.3: Fine Particulate matter (PM2.5)

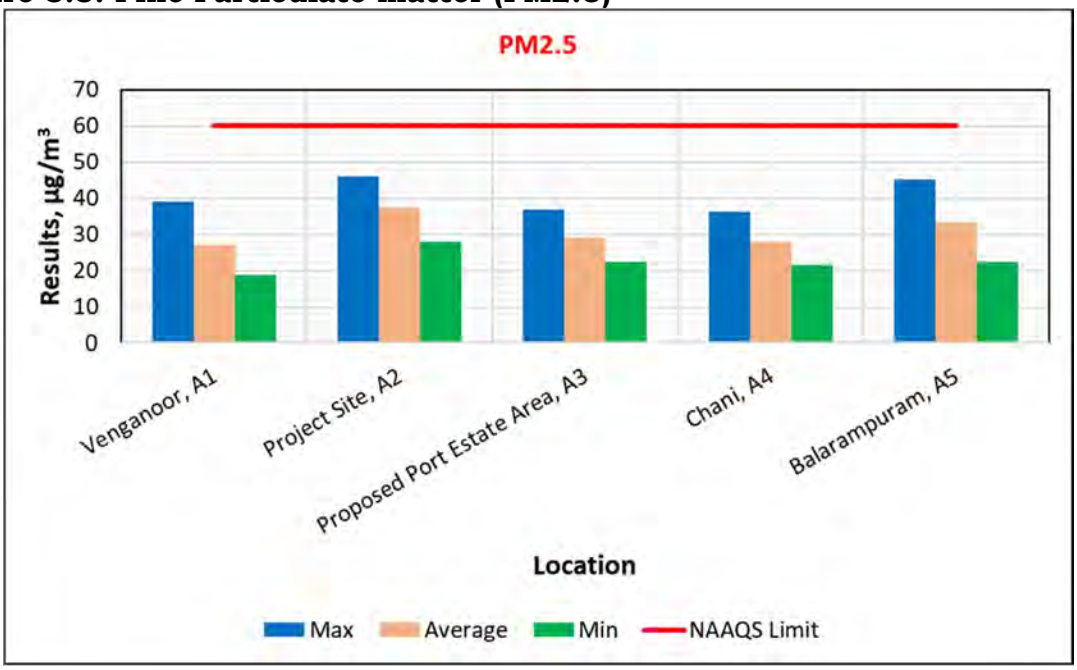


Figure 3.4: Sulphur Dioxide as SO_2

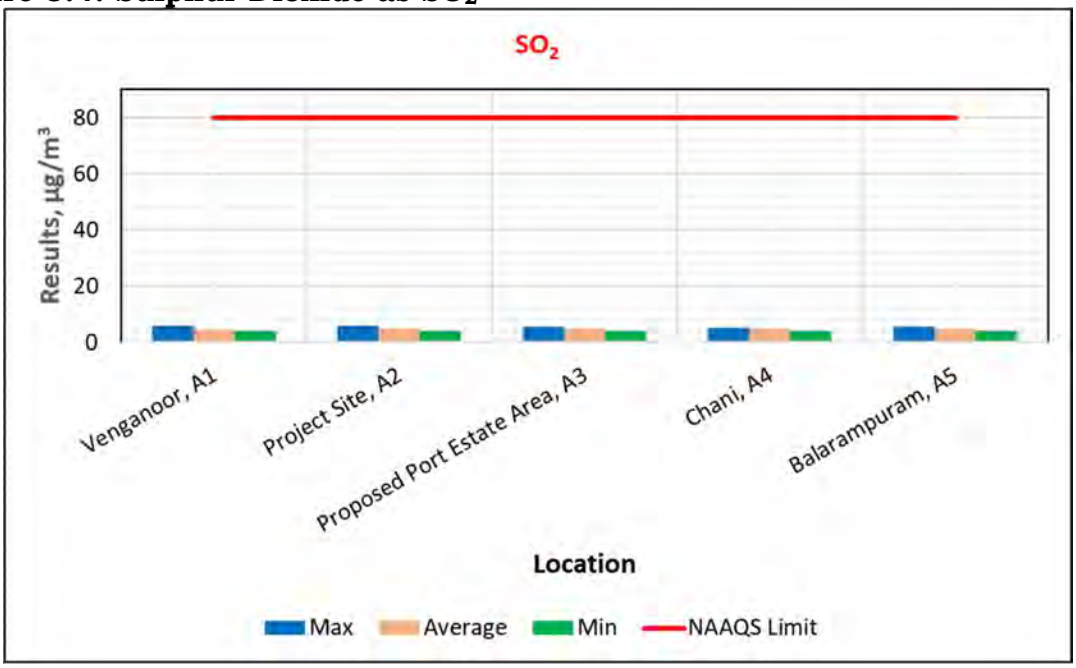
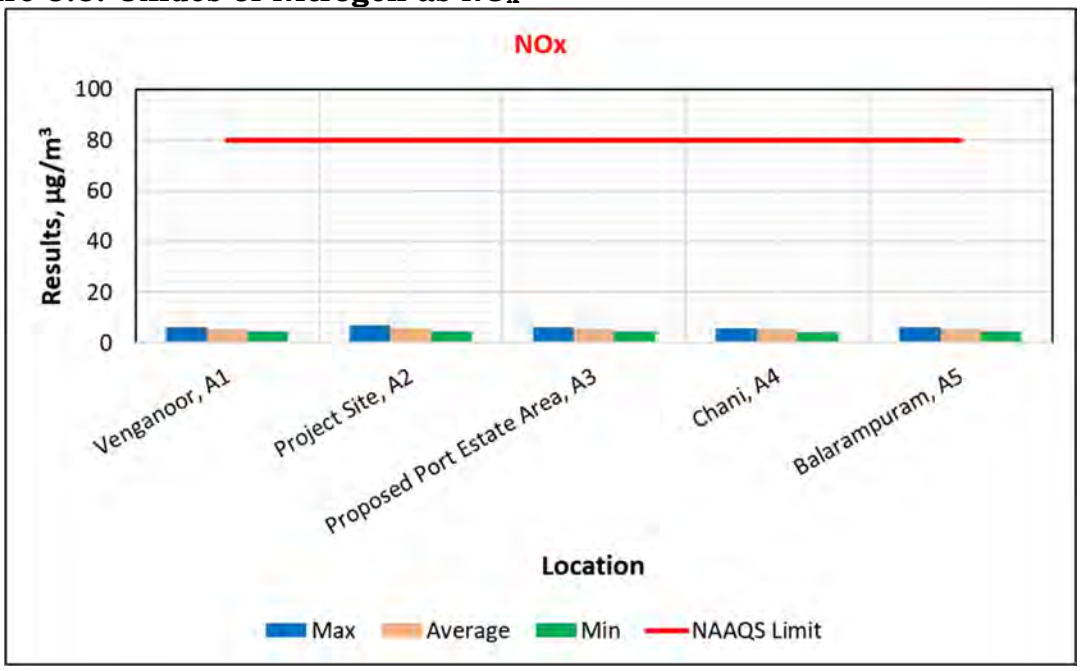


Figure 3.5: Oxides of Nitrogen as NO_x



HYR-3.7. Summary - Ambient Air Quality

During the period of October 2023 to March 2024, following is the summary of ambient air quality results:

a) At the location **Venganoor**:
- PM_{10} was observed in the range between 39.5-80.3 µg/m^3 with an average of 57.9 µg/m^3
- $PM_{2.5}$ was observed in the range between 18.9-39.1 µg/m^3 with an average of 27.1 µg/m^3
- SO_2 was observed in the range between 4.05-5.63 µg/m^3 with an average of 4.51µg/m^3
- NO_2 was observed in the range between 4.48 – 6.11 µg/m^3 with an average of 5.17 µg/m^3
- CO & HC were observed below detectable limits

b) At the location **Port Site**:
- PM_{10} was observed in the range between 62.3-90.5 µg/m^3 with an average of 77.5 µg/m^3
- $PM_{2.5}$ was observed in the range between 28.1-46.2 µg/m^3 with an average of 37.4 µg/m^3
- SO_2 was observed in the range between 4.09-5.88 µg/m^3 with an average of 4.91 µg/m^3
- NO_2 was observed in the range between 4.72– 6.87 µg/m^3 with an average of 5.74 µg/m^3
- CO & HC were observed below detectable limits

c) At the location **Proposed Port Area**:
- PM_{10} was observed in the range between 48.6-78.9 µg/m^3 with an average of 62.4 µg/m^3
- $PM_{2.5}$ was observed in the range between 22.5-36.9 µg/m^3 with an average of 29.2 µg/m^3

- SO_2 was observed in the range between 4.09-5.32 µg/m^3 with an average of 4.62 µg/m^3
- NO_2 was observed in the range between 4.66 – 5.99 µg/m^3 with an average of 5.38 µg/m^3
- CO & HC were observed below detectable limits

d) At the location **Chani**:

- PM_{10} was observed in the range between 46.4-73.4 µg/m^3 with an average of 59.9 µg/m^3
- $PM_{2.5}$ was observed in the range between 21.5-36.3 µg/m^3 with an average of 28.1 µg/m^3
- SO_2 was observed in the range between 4.03-4.99 µg/m^3 with an average of 4.56 µg/m^3
- NO_2 was observed in the range between 4.36–5.72 µg/m^3 with an average of 5.18 µg/m^3
- CO & HC were observed below detectable limits

e) At the location **Balarampuram**:

- PM_{10} was observed in the range between 54.9-88.3 µg/m^3 with an average of 71.9 µg/m^3
- $PM_{2.5}$ was observed in the range between 22.3-45.2 µg/m^3 with an average of 33.2 µg/m^3
- SO_2 was observed in the range between 4.05-5.55 µg/m^3 with an average of 4.69 µg/m^3
- NO_2 was observed in the range between 4.65 – 6.32 µg/m^3 with an average of 5.41 µg/m^3
- CO & HC were observed below detectable limits

f) Overall Comparison of Results from **all Locations**:

- PM_{10} was observed a maximum of 90.5 µg/m^3 at Port Site and a minimum of 39.5 µg/m^3 at Venganoor. The overall average of all locations is 65.9 µg/m^3

- $PM_{2.5}$ was observed a maximum of 46.2 µg/m³ at Port Site and a minimum of 18.9 µg/m³ at Venganoor. The overall average of all locations is 31.0 µg/m³
- SO_2 was observed a maximum of 5.88 µg/m³ at Port Site and a minimum of 4.03 µg/m³ at Chani. The overall average of all locations is 4.66 µg/m³

- NO_2 was observed a maximum of 6.87 µg/m³ at Port Site and a minimum of 4.36 µg/m³ at Chan. The overall average of all locations is 5.38 µg/m³

- CO & HC were observed below detectable limits at all times at all locations.

Table 3.10: Overall Summary of Results from all Locations

Parameter	Unit	NAAQS 2009 Limits	Max	Avg.	Min
PM10	µg/m³	100	90.5	65.9	39.5
PM 2.5	µg/m³	60	46.2	31.0	18.9
SO2	µg/m³	80	5.88	4.66	4.03
NOx	µg/m³	80	6.87	5.38	4.36
CO	mg/m³	4	BDL	BDL	BDL
HC	ppm	--	BDL	BDL	BDL

The obtained results were compared with National Ambient Air Quality Standards (NAAQS), 2009. The results were well within the limits on all monitoring days at all 5 locations during the monitoring months (from October 2023 to March 2024).

HYR-4	Ambient Noise Monitoring

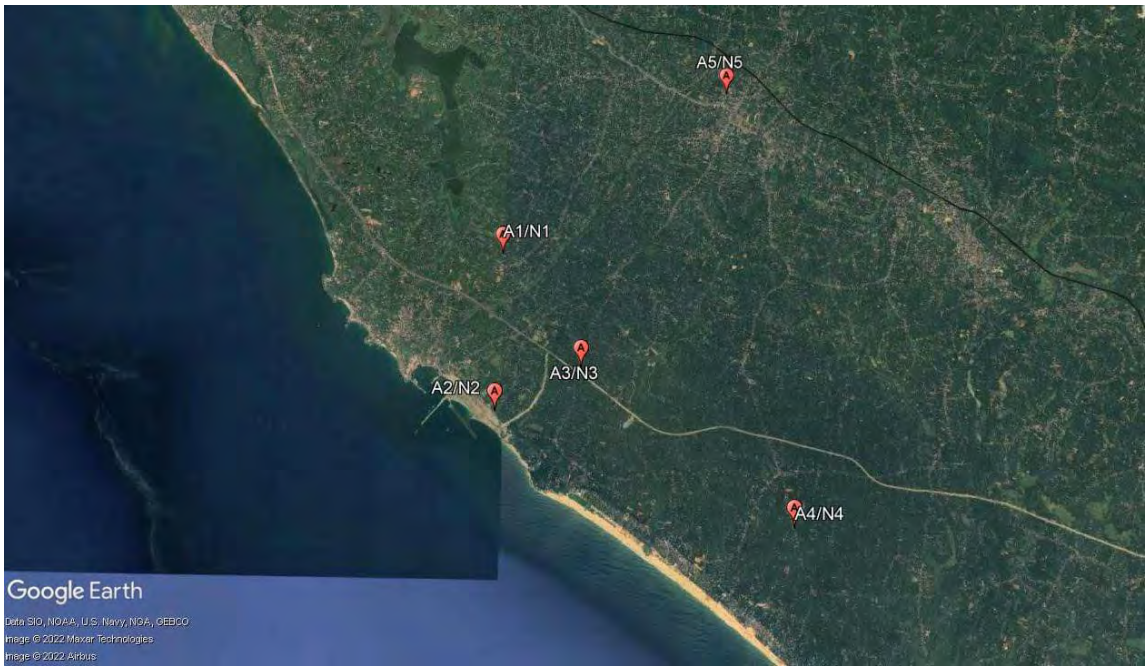
HYR-4.1. Ambient Noise Monitoring location details

This section describes the sampling location, methodology adopted for monitoring ambient noise and analysis of monitored results. Ambient Noise Monitoring during October 2023 to March 2024 was carried out at Venganoor, Port Site, Proposed Port Estate Area, Chani and Balarampuram. Classification of locations as per the Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3 (1) and 4(1)) are as below.

Table 4.1: Coordinates of Ambient Noise Monitoring Locations

Location	Legend	Area Type	Latitude	Longitude
Venganoor	N1	Residential	8°23'55.10"N	77°00'12.19"E
Port Site	N2	Industrial	8°22'13.73"N	77°00'08.39"E
Proposed Port Estate Area	N3	Residential	8°22'41.37"N	77°01'03.17"E
Chani	N4	Residential	8°21'02.11"N	77°03'16.59"E
Balarampuram	N5	Commercial	8°25'43.73"N	77°02'39.99"E

Figure 4.1: Google Earth View of Ambient Noise Monitoring Locations



HYR-4.2. Methodology of Sampling

Ambient Noise Monitoring is being carried out as per IS 9989:1981.

HYR-4.3. Ambient Noise Standards

The results obtained were compared with the standards as per the Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3 (1) and 4(1)) given in the Table 4.2.

Table 4.2: Ambient Noise Standard

Area Code	Area Type	Limits in dB (A) Leq	
		Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a.m.)
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45

HYR-4.4. Ambient Noise Monitoring Results for the period from October 2023 to March 2024

Table 4.3: Location – Venganoor, N1 - (Residential Area)

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
Oct-23	03-10-2023	62.4	61.0	30.9	31.9	50.9	42.7
	17-10-2023	66.7	64.5	31.5	31.4	52.3	44.8
Nov-23	03-11-2023	70.4	50.0	31.2	30.5	53.3	40.7
	17-11-2023	76.1	65.4	33.9	34.3	53.3	42.5
Dec-23	05-12-2023	90.7	74.6	35.3	33.8	53.2	44.2
	19-12-2023	83.7	73.9	33.9	33.1	53.7	44.6
Jan-24	02-01-2024	83.0	75.8	34.9	33.3	52.2	44.4
	16-01-2024	80.5	72.9	34.8	32.6	53.3	43.3
Feb-24	02-02-2024	82.5	74.2	34.2	32.7	51.1	44.8

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
	16-02-2024	84.9	71.3	35.4	32.4	53.5	43.9
Mar-24	05-03-2024	81.7	66.5	41.8	40.9	54.2	43.4
	19-03-2024	85.3	64.1	43.2	42.6	54.8	43.2
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]						**55**	**45**

Table 4.4: Location – Port Site, N2 - (Industrial Area)

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
Oct-23	04-10-2023	70.7	73.1	41.7	43.2	58.8	57.2
	18-10-2023	73.7	73.3	42.5	42.0	61.0	59.5
Nov-23	07-11-2023	70.6	77.5	43.5	40.0	67.2	62.2
	21-11-2023	95.5	93.9	49.4	45.0	63.3	64.5
Dec-23	06-12-2023	88.4	86.7	40.8	45.8	65.3	56.9
	20-12-2023	93.4	92.1	44.8	47.2	65.6	60.8
Jan-24	03-01-2024	87.1	84.2	53.6	50.2	63.9	60.8
	17-01-2024	86.9	83.3	48.4	45.3	63.3	58.7
Feb-24	06-02-2024	87.2	82.7	42.6	38.7	64.3	61.5
	20-02-2024	86.5	85.5	46.9	45.1	65.0	57.9
Mar-24	06-03-2024	83.7	89.6	44.3	45.2	64.3	60.1
	20-03-2024	83.7	84.9	38.8	37.2	60.6	49.1
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]						**75**	**70**

Table 4.5: Location – Proposed Port Estate Area, N3 - (Residential Area)

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
Oct-23	06-10-2023	62.6	52.5	34.2	32.0	49.2	38.4
	20-10-2023	68.5	54.6	34.7	32.9	51.5	41.0
Nov-23	08-11-2023	69.9	51.8	33.7	32.7	54.0	39.3
	22-11-2023	76.9	65.6	41.5	38.5	53.6	42.0
Dec-23	08-12-2023	86.5	70.4	42.1	38.7	54.0	44.2
	22-12-2023	84.0	77.7	40.8	37.2	54.8	43.3
Jan-24	05-01-2024	80.4	75.4	39.3	36.7	54.5	44.2
	19-01-2024	87.8	72.7	40.8	37.3	53.7	44.0
Feb-24	07-02-2024	82.8	75.7	40.3	35.2	54.6	43.4
	21-02-2024	80.3	75.3	39.5	34.2	52.8	43.3
Mar-24	08-03-2024	86.7	62.7	39.3	38.8	52.7	42.9
	22-03-2024	81.9	75.7	37.1	32.6	54.7	43.1
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]						**55**	**45**

Table 4.6: Location – Chani, N4 - (Residential Area)

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
Oct-23	10-10-2023	65.7	55.8	31.3	31.0	48.9	42.5
	24-10-2023	63.7	53.8	32.6	29.3	49.5	40.9
Nov-23	10-11-2023	81.3	72.8	37.2	36.1	54.3	44.0
	24-11-2023	82.6	73.0	37.6	31.5	54.3	42.6
Dec-23	12-12-2023	84.0	70.9	44.1	42.0	53.4	43.5
	26-12-2023	83.6	71.4	42.3	39.6	53.2	42.0
Jan-24	09-01-2024	86.9	77.7	35.0	34.1	54.4	43.2

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
	23-01-2024	84.9	76.7	36.1	35.2	53.0	42.5
Feb-24	09-02-2024	85.5	72.3	39.7	31.7	53.8	43.3
	23-02-2024	80.8	72.0	36.6	32.5	53.7	43.9
Mar-24	13-03-2024	87.9	71.1	35.1	32.1	54.0	44.4
	27-03-2024	87.7	70.2	35.8	32.0	54.2	44.5
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]						**55**	**45**

Table 4.7: Location – Balarampuram, N5 - (Commercial Area)

Month	Date	L_{max} Day time	L_{max} Night time	L_{min} Day time	L_{min} Night time	L_{eq} Day time	L_{eq} Night time
		dB (A)					
Oct-23	13-10-2023	72.9	62.9	33.0	30.5	53.5	44.6
	27-10-2023	69.2	70.4	32.6	30.9	52.4	51.0
Nov-23	14-11-2023	91.5	80.8	37.9	36.6	60.5	51.2
	28-11-2023	94.0	80.8	39.1	36.0	59.2	50.6
Dec-23	15-12-2023	91.4	60.4	33.6	32.4	56.5	52.4
	29-12-2023	95.2	85.9	39.6	37.4	58.2	50.3
Jan-24	14-01-2024	82.9	75.7	38.6	37.1	58.0	49.1
	26-01-2024	86.5	78.3	39.7	36.3	59.3	50.2
Feb-24	13-02-2024	88.3	70.6	39.1	38.4	59.1	51.7
	27-02-2024	86.5	78.3	39.7	36.3	58.6	49.3
Mar-24	15-03-2024	89.0	84.2	39.8	34.0	58.0	50.9
	29-03-2024	91.5	76.8	39.2	37.0	59.0	49.0
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]						**65**	**55**

HYR-4.5. Half Yearly Average Results of Ambient Noise Monitoring (October-2023 to March-2024)

Table 4.8: Half Yearly Average Results

Parameter		Venganoor (N1)	Proposed Port Estate Area (N3)	Chani (N4)	Port Site (N2)	Balarampuram (N5)
		Residential	Residential	Residential	Industrial	Commercial
L_{max} Day time dB (A)	Max	90.7	87.8	87.9	95.5	95.2
	Min	62.4	62.6	63.7	70.6	60.4
	Avg.	79.0	79.0	81.2	84.0	81.0
L_{max} Night time dB (A)	Max	75.8	77.7	77.7	93.9	85.9
	Min	50.0	51.8	53.8	73.1	60.4
	Avg.	67.8	67.5	69.8	83.9	75.4
L_{min} Day time dB (A)	Max	43.2	42.1	44.1	53.6	39.8
	Min	30.9	33.7	31.3	38.8	32.6
	Avg.	35.1	38.6	36.9	44.8	37.6
L_{min} Night time dB (A)	Max	42.6	38.8	42.0	50.2	38.4
	Min	30.5	32.0	29.3	37.2	30.5
	Avg.	34.1	35.6	33.9	43.7	35.2
Leq Day time dB (A)	Max	54.8	54.8	54.4	67.2	60.5
	Min	50.9	49.2	48.9	58.8	52.4
	Avg.	**53.0**	**53.3**	**53.1**	**63.5**	**57.7**
	Limit	**55**	**55**	**55**	**75**	**65**
Leq Night time dB (A)	Max	44.8	44.2	44.5	64.5	52.4
	Min	40.7	38.4	40.9	49.1	44.6
	Avg.	**43.5**	**42.4**	**43.1**	**59.1**	**50.0**
	Limit	**45**	**45**	**45**	**70**	**55**

HYR-4.6. Graphical Representation of Half Yearly Results (October-2023 to March-2024)

Figure 4.2: Residential Area Noise Level

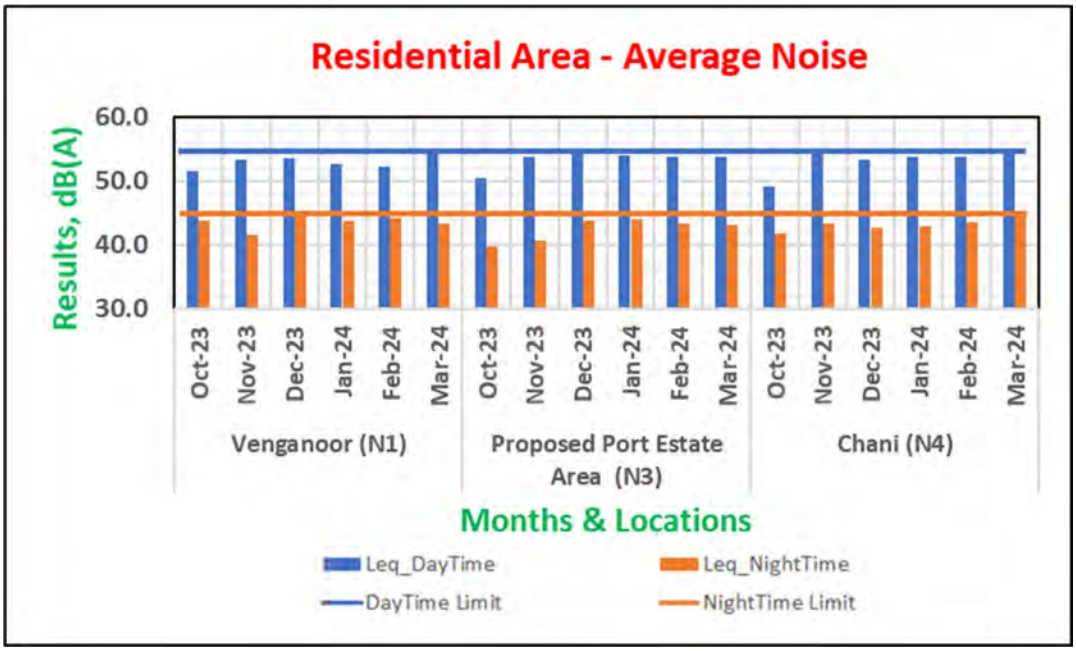


Figure 4.3: Industrial Area Noise Level

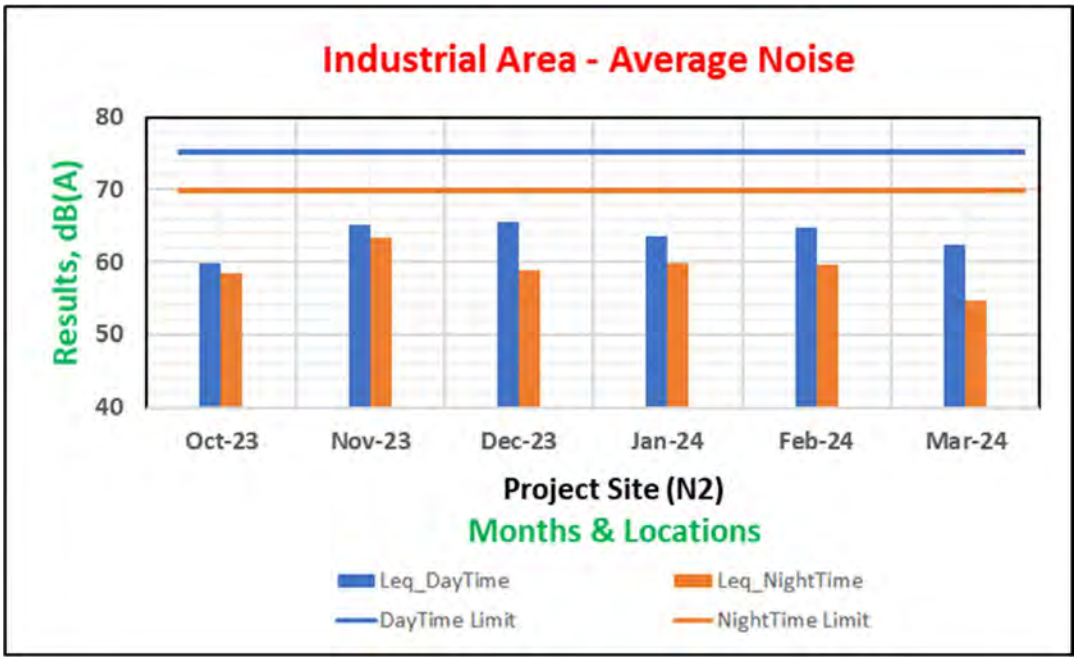
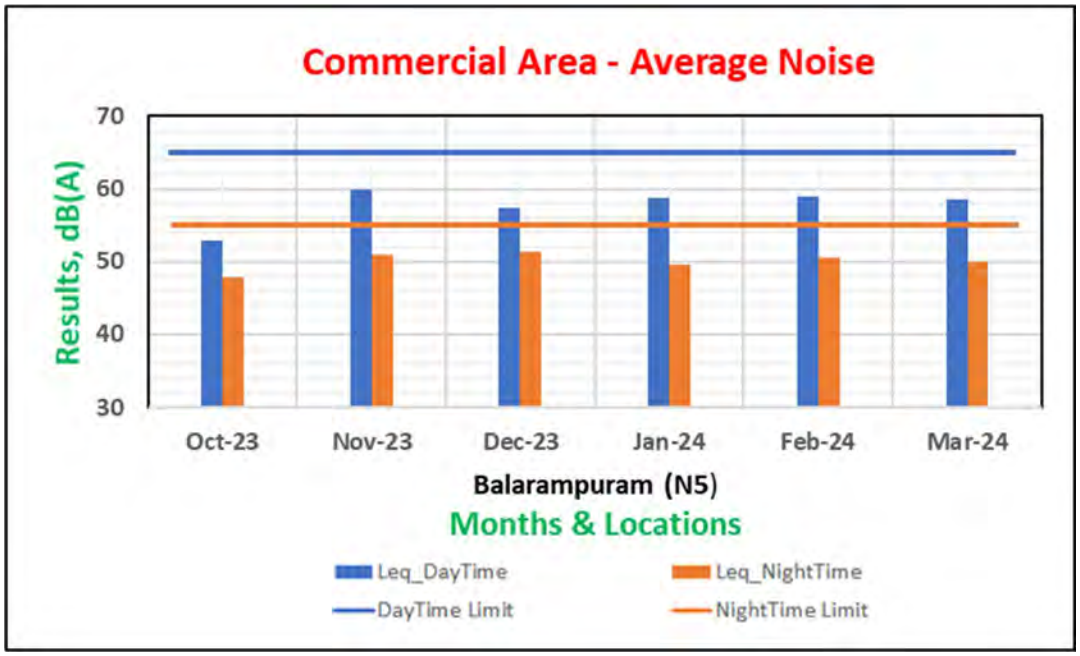


Figure 4.4: Commercial Area Noise Level



HYR-4.7. Summary - Ambient Noise Monitoring

During the period from October 2023 to March 2024, the following is the average noise levels observed.

Table 4.9: Summary - Ambient Noise Monitoring

Parameter		Venganoor (N1)	Proposed Port Estate Area (N3)	Chani (N4)	Port Site (N2)	Balarampuram (N5)
		Residential	Residential	Residential	Industrial	Commercial
		Day Time (Limit: 55) Night Time (Limit: 45)			Day Time (Limit: 75) Night Time (Limit: 70)	Day Time (Limit: 65) Night Time (Limit: 55)
Leq Day time dB (A)	Avg	53.0	53.3	53.1	63.5	57.7
Leq Night time dB (A)	Avg	43.5	42.4	43.1	59.1	50.0

- The average Leq values observed at day time and night time were 53.0 dB(A) and 43.5 respectively at Venganoor

- The average Leq values observed at day time and night time were 63.5 dB(A) and 59.1 respectively at Port Site
- The average Leq values observed at day time and night time were 53.3 dB(A) and 42.4 respectively at Proposed Port Estate Area
- The average Leq values observed at day time and night time were 53.1 dB(A) and 43.1 respectively at Chani
- The average Leq values observed at day time and night time were 57.7 dB(A) and 50.0 respectively at Balarampuram
- Overall Comparison of Results from **all Locations**:
    - The average Leq value at day time was observed a maximum of 63.5 dB(A) at Port Site and a minimum of 53.0 dB(A) at Venganoor
    - The average Leq value at night time was observed a maximum of 59.1 dB(A) at Port Site and a minimum of 42.4 dB(A) at Proposed Port Estate Area

The results obtained were compared with Noise Pollution (Regulation & Control) Rule, 2000 (Rule 3(1) and 4(1)) and it is observed that noise readings (average Leq values of day time and night time) were within limits at all locations during the monitoring months (from October 2023 to March 2024).

HYR-5	Marine Water & Sediment Analysis

HYR-5.1. Marine Water and Sediment Sampling Location Details:

This section describes the sampling location, methodology adopted for analysis and the analysis of monitored data for Marine Water and Sediment. Sampling and analysis of marine water at high tide and low tide during from October 2023 to March 2024 carried out at different locations such as Near Kovalam Beach, Proposed Dredging site, South of Break Water, Port Basin, Inner Approach Channel and Kovalam Beach.

Table 5.1: Coordinates of Marine Water and Sediment Sampling Locations

Location	Legend	Latitude	Longitude
Near Kovalam Beach	M1/MS1	8°22'49.29"N	76°58'40.77"E
Proposed Dredging Site	M2/MS2	8°22'31.11"N	76°58'57.92"E
Port Basin	M3/MS3	8°22'06.96"N	76°59'27.85"E
South of Breakwater	M4/MS4	8°21'51.07"N	77°00'00.21"E
Inner Approach Channel	M5/MS5	8°21'12.68"N	77°00'35.14"E
Kovalam Beach	M6/MS6	8°23'08.16"N	76°58'26.09"E

Figure 5.1: Google earth view of Marine Water and Sediment Sampling Locations

HYR-5.2. Methodology of Sampling and Analysis

Table 5.2: Sampling and Analysis Methodology

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
Marine Water Analysis				
1.	Temperature	˚C	1	IS 3025 Part 9 : 1984 RA 2017
2.	pH Value	-	1	IS 3025 Part 11: 1983 RA 2017
3.	Turbidity	N.T.U.	0.1	IS 3025 Part 10: 1984 RA 2017
4.	Electrical Conductivity (at 25°C)	µmho/cm	1	IS 3025 Part 14:1984 RA 2019
5.	Total Suspended Solids	mg/L	1	IS 3025 Part 17: 1984 RA 2017
6.	Total Dissolved Solids	mg/L	1	IS 3025 Part 16: 1984 RA 2017
7.	Dissolved Oxygen	mg/L	0.2	IS 3025 Part 38:1989 RA 2019
8.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	IS 3025 Part 44:1993 RA 2019
9.	Floating Materials – Oil, Grease and Scum (Including Petroleum Products)	mg/L	1	IS 3025 Part 39:1991 RA 2019
10.	Nitrite (as NO_2)	mg/L	0.02	IS 3025 Part 34:1988 RA 2019
11.	Nitrate (as NO_3)	mg/L	1	APHA 23rd Edition 4500 -NO_3 B: 2017
12.	Phenolic Compounds (as C_6H_5OH)	mg/L	0.001	IS 3025 Part 43: 1992 RA 2019
13.	Ammonical Nitrogen (as NH_3-N)	mg/L	1	IS 3025 Part 34:1988 RA 2019
14.	Total Nitrogen (as N)	mg/L	1	IS 3025 Part 34:1988 RA 2019
15.	Total Phosphorous (as P)	mg/L	0.01	IS 3025 Part 31 :1988 RA2019
16.	Reactive Phosphorous	mg/L	0.01	IS 3025 Part 31 :1988 RA2019
17.	Polycyclic Aromatic Hydrocarbon	mg/L	0.000005	SEAAL/INS/RWM/SOP/02
18.	Salinity	ppt	0.0036	APHA 23rdEdition 2520 – B : 2017
19.	Total Chlorophyll	mg/m^3	0.1	APHA 23rd Edn:10200.H
20.	Total Coliforms	MPN/100 ml	2	IS 1622: 1981
21.	Faecal Coliforms	MPN /100ml	2	IS 1622: 1981
22.	Phytoplanktons	No./100ml	--	APHA 23rd Edn:10200.F
23.	Zooplanktons	No./100ml	--	APHA 23rd Edn:10200.G
Sediment Analysis				
1.	Texture	-	--	SEAAL/EN/SLS/SOP/14
2.	Organic Matter	%	0.1	IS 2720 Part 22:1972
3.	Total Phosphorus (as P)	mg/kg	10	IS 10158: 1982

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
4.	Aluminium (as Al)	mg/kg	5	USEPA 7000B : 2017
5.	Chromium (as Cr)	mg/kg	5	USEPA 7000B : 2007
6.	Copper (as Cu)	mg/kg	1.5	EPA 7000B : 2007
7.	Iron (as Fe)	mg/kg	2.5	USEPA 7000B : 2007
8.	Lead (as Pb)	mg/kg	5	EPA 7000B : 2007
9.	Manganese (as Mn)	mg/kg	1.5	EPA 7000B : 2007
10.	Mercury (as Hg)	mg/kg	0.10	SEAAL/EN/SLS/SOP/13
11.	Zinc (as Zn)	mg/kg	1	USEPA 7000B : 2007
12.	Nickel (as Ni)	mg/kg	2.5	EPA 7000B : 2007
13.	Benthic Organism	No./m^2	1	APHA 23rd Edn:10750.B

HYR-5.3. Marine Water Standards

As per the Environment (Protection) Rules, 1986 Schedule I.

Table 5.3: Marine Water Standard

Parameter	Unit	# E(P)A Rules, 1986
pH Value	-	6.5-9.0
Dissolved Oxygen	mg/L	3.0 mg/L or 40% saturation value; whichever is higher
Colour and Odour	-	No visible colour or offensive odour
Floating Materials (Oil, Grease and Scum) (Including Petroleum Products)	mg/L	*Max.* 10
Faecal Coliforms	MPN/100ml	*Max.* 500
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	*Max.* 5
#: Environment (Protection) Rules, 1986, Schedule I, Table 1.4, Primary Water Quality Criteria for Class – IV Water (For Harbour Waters).		

HYR-5.4. Marine Water Analysis Results for the period from October 2023 to March 2024

Table 5.4: Marine Water Analysis Results

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
1	Temperature (°C)	Oct-23	High tide	28.9	28.9	28.8	29.7	29.6	30.1
			Low tide	28.0	28.6	29.2	28.2	28.4	29.6
		Nov-23	High tide	29.5	30.0	28.7	29.8	29.9	30.5
			Low tide	28.3	29.9	28.2	28.9	28.9	30.1
		Dec-23	High tide	30.3	29.8	29.8	30.1	30.4	32.5
			Low tide	29.1	29.0	28.6	28.3	27.0	30.0
		Jan-24	High tide	28.5	28.5	28.4	29.1	28.5	28.9
			Low tide	27.5	28.1	27.5	28.7	27.9	27.5
		Feb-24	High tide	29.1	29.4	28.9	29.1	29.2	29.5
			Low tide	28.2	28.4	28.5	27.8	27.6	27.5
		Mar-24	High tide	28.6	27.9	28.3	27.5	27.6	28.6
			Low tide	27.5	27.1	27.6	28.1	27.2	28.2
2	Colour	Oct-23	High tide	1	1	1	1	1	1
			Low tide	1	1	1	1	1	1
		Nov-23	High tide	1	1	1	1	1	1
			Low tide	1	1	1	1	1	1
		Dec-23	High tide	1	1	1	1	1	1
			Low tide	1	1	1	1	1	1
		Jan-24	High tide	1	1	1	1	1	1
			Low tide	1	1	1	1	1	1
		Feb-24	High tide	1	1	1	1	1	1

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
			Low tide	1	1	1	1	1	1
		Mar-24	High tide	1	1	1	1	1	1
			Low tide	1	1	1	1	1	1
3	pH Value	Oct-23	High tide	7.94	7.58	7.90	7.84	7.80	7.84
			Low tide	7.69	7.57	7.88	7.83	7.73	7.74
		Nov-23	High tide	7.88	7.96	7.97	7.92	8.01	8.00
			Low tide	8.05	7.99	7.95	8.01	7.97	8.06
		Dec-23	High tide	8.01	7.96	7.98	7.96	7.87	7.95
			Low tide	8.05	8.00	8.04	7.85	8.02	8.00
		Jan-24	High tide	7.98	7.98	7.96	7.95	7.80	7.94
			Low tide	8.02	8.01	7.98	7.98	7.99	8.02
		Feb-24	High tide	7.91	7.91	7.96	7.92	7.91	7.99
			Low tide	7.95	7.97	7.98	7.93	7.93	8.05
		Mar-24	High tide	7.81	7.90	7.82	7.78	7.79	7.88
			Low tide	7.85	7.95	7.86	7.91	7.84	7.96
4	Turbidity (N.T.U.)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	0.1	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	0.1	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
5	Electrical Conductivity (at 25°C) (µmho/cm)	Oct-23	High tide	53130	54110	52820	52170	53510	53940
			Low tide	52850	52000	51920	51800	52860	52480
		Nov-23	High tide	51940	53810	51960	51310	52850	53770
			Low tide	50990	52910	51690	50390	50790	51650
		Dec-23	High tide	48050	49350	48980	48080	50100	51237
			Low tide	47960	48300	48600	48170	49875	50214
		Jan-24	High tide	53500	52840	51110	53210	54800	53300
			Low tide	52800	51390	51470	52420	53190	53410
		Feb-24	High tide	53987	53178	52678	53689	53789	54005
			Low tide	51976	52710	50987	52970	52198	52978
		Mar-24	High tide	52789	53461	51987	51873	53106	52647
			Low tide	51203	51996	51487	51247	51134	51521
6	Total Suspended Solids (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids (mg/L)	Oct-23	High tide	34050	34680	33810	33386	34246	34764
			Low tide	33820	33276	33240	33168	33830	33488
		Nov-23	High tide	33246	34450	33240	32830	32944	34420
			Low tide	32712	33874	33080	32252	32360	33058
		Dec-23	High tide	30752	31584	31347	30771	32064	32792
			Low tide	30694	30912	31104	30829	31920	32137
		Jan-24	High tide	34240	33820	32710	34050	35072	34110
			Low tide	33840	32890	32940	33550	34060	34180
		Feb-24	High tide	34552	34034	33714	34361	34452	34560
			Low tide	33265	33734	32632	33901	33407	33906
		Mar-24	High tide	33784	34215	33271	33198	33987	33694
			Low tide	32769	33277	32951	32798	32725	32973
8	Dissolved Oxygen (mg/L)	Oct-23	High tide	6.4	6.3	6.7	6.3	6.4	6.4
			Low tide	6.7	6.9	6.9	6.8	6.8	6.9
		Nov-23	High tide	6.7	6.6	6.8	6.8	6.8	6.8
			Low tide	6.8	6.8	6.4	6.9	6.9	6.6
		Dec-23	High tide	6.8	7.0	7.0	6.9	6.9	6.9
			Low tide	6.7	6.9	6.9	6.9	6.9	7.0
		Jan-24	High tide	6.9	6.8	6.9	6.8	6.8	6.9
			Low tide	7.2	6.9	7.1	7.0	7.1	7.2
		Feb-24	High tide	7.0	6.9	6.8	7.1	6.9	6.8
			Low tide	7.1	6.9	7.2	7.2	6.9	6.9
		Mar-24	High tide	6.9	6.8	6.8	6.9	6.9	6.9
			Low tide	7.2	7.1	7.2	7.2	7.1	7.1

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
9	Biochemical Oxygen Demand (3 days, 27°C) (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
10	Floating Materials (Oil, Grease and Scum) (Including Petroleum Products) (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
11		Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
	Nitrite (as NO_2) (mg/L)		Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	0.02	0.02	0.02	0.02	BDL	0.03
			Low tide	0.03	0.03	0.03	0.03	0.02	0.03
		Feb-24	High tide	0.03	0.03	0.03	0.03	BDL	0.03
			Low tide	0.03	0.03	0.03	0.04	BDL	0.04
		Mar-24	High tide	0.03	0.03	0.03	0.03	BDL	0.03
			Low tide	0.03	0.03	0.03	0.03	BDL	0.04
12	Nitrate (as NO_3) (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
13		Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
	Phenolic Compounds (as C_6H_5OH) (mg/L)	Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
14	Ammonical Nitrogen (as NH_3-N) (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
15	Total Nitrogen (as N)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
	(mg/L)		Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Phosphorous (as P) (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
17	Reactive Phosphorous (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
18	Polycyclic Aromatic Hydrocarbon (mg/L)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
19	Salinity (ppt)	Oct-23	High tide	34.375	35.009	34.175	33.754	34.621	34.899
			Low tide	34.194	33.644	33.592	33.515	34.200	33.955
		Nov-23	High tide	33.605	34.715	33.618	33.198	33.248	34.388
			Low tide	32.991	34.033	33.443	32.602	32.614	33.312
		Dec-23	High tide	31.090	31.930	31.690	31.110	32.410	33.150

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
			Low tide	31.030	31.250	31.440	31.170	32.270	32.490
		Jan-24	High tide	34.615	34.187	33.068	34.427	35.456	34.485
			Low tide	34.162	33.249	33.301	33.916	34.414	34.556
		Feb-24	High tide	34.930	34.410	34.080	34.740	34.800	34.940
			Low tide	33.630	34.100	32.990	34.270	33.770	34.280
		Mar-24	High tide	34.154	34.589	33.635	33.561	34.359	34.062
			Low tide	33.128	33.641	33.312	33.156	33.083	33.334
20	Total Chlorophyll (mg/m^3)	Oct-23	High tide	0.60	0.5	0.6	0.5	0.4	0.4
			Low tide	0.70	0.6	0.7	0.7	0.6	0.7
		Nov-23	High tide	0.60	0.6	0.6	0.6	0.5	0.5
			Low tide	0.50	0.3	0.7	0.4	0.5	0.4
		Dec-23	High tide	0.50	0.6	0.6	0.5	0.4	0.6
			Low tide	0.60	0.4	0.6	0.6	0.5	0.5
		Jan-24	High tide	0.40	0.4	0.4	0.5	0.6	0.5
			Low tide	0.60	0.6	0.5	0.7	0.7	0.6
		Feb-24	High tide	0.50	0.5	0.4	0.6	0.4	0.5
			Low tide	0.70	0.6	0.6	0.7	0.6	0.7
		Mar-24	High tide	0.40	0.4	0.5	0.4	0.5	0.4
			Low tide	0.60	0.5	0.7	0.5	0.6	0.6
21	Total Coliforms (MPN Index/100 mL)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL

Sl. No.	Parameter /unit	Month/Tide		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
22	Faecal Coliforms (MPN Index/100 mL)	Oct-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Nov-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Dec-23	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Jan-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Feb-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL
		Mar-24	High tide	BDL	BDL	BDL	BDL	BDL	BDL
			Low tide	BDL	BDL	BDL	BDL	BDL	BDL

HYR-5.5. Graphical representation of Results for marine water

Figure 5.2: Marine Water Analysis for Temperature

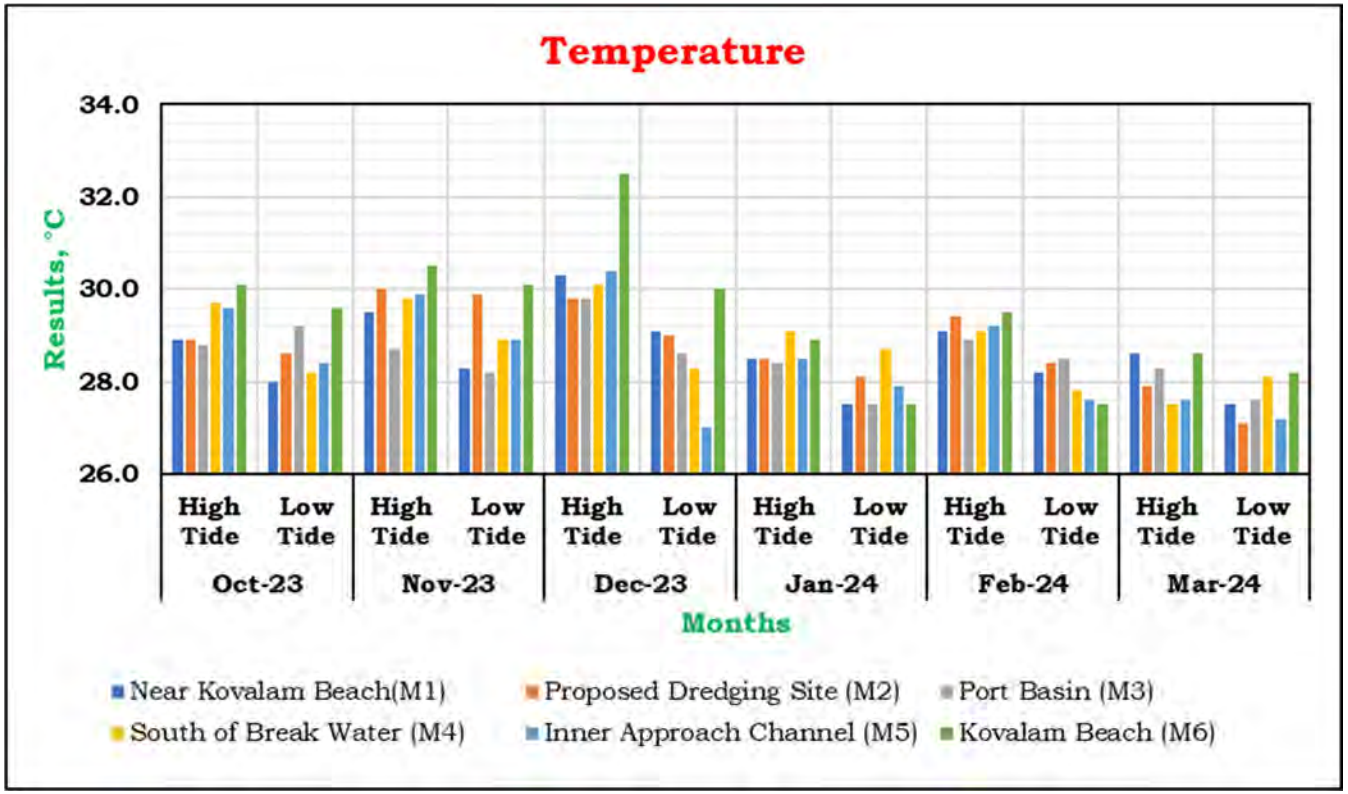


Figure 5.3: Marine Water Analysis for pH

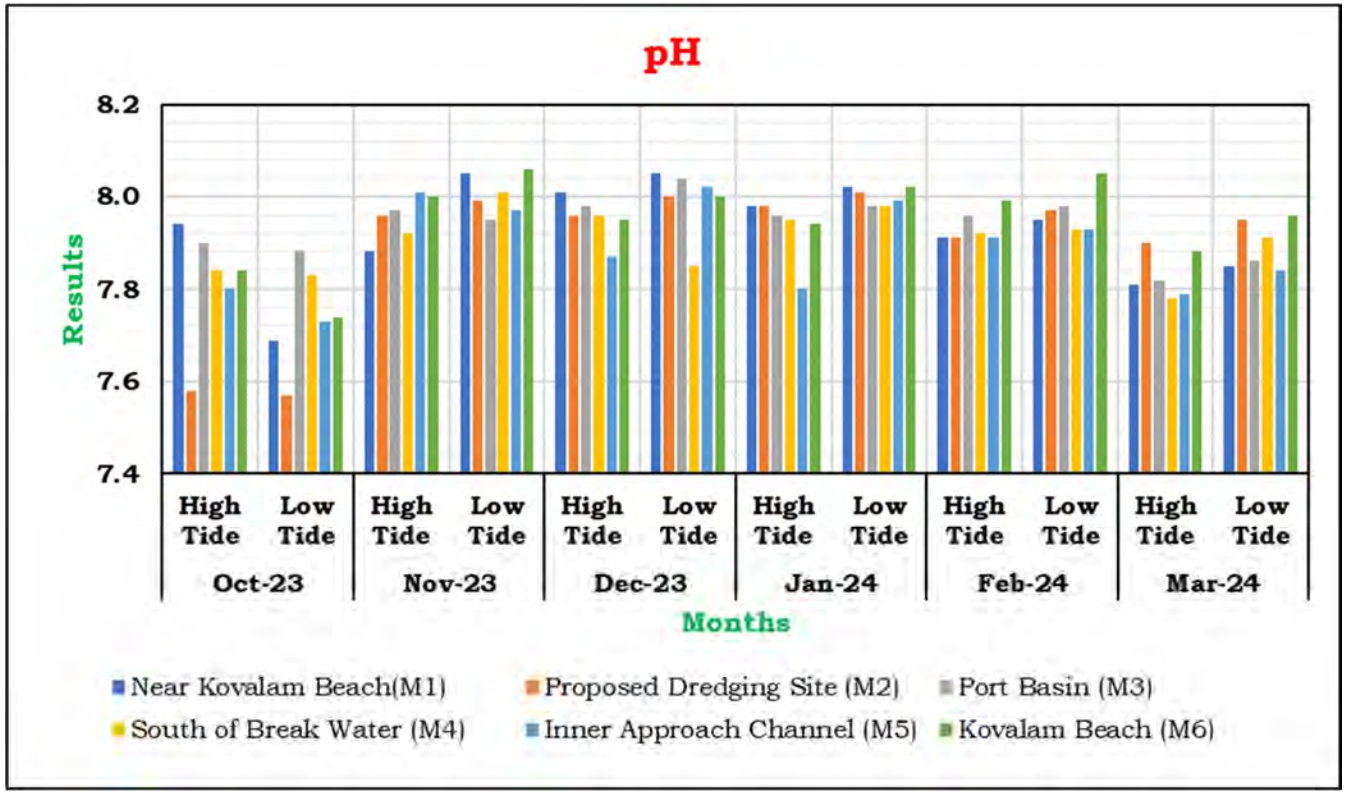


Figure 5.4: Marine Water Analysis for Electrical Conductivity

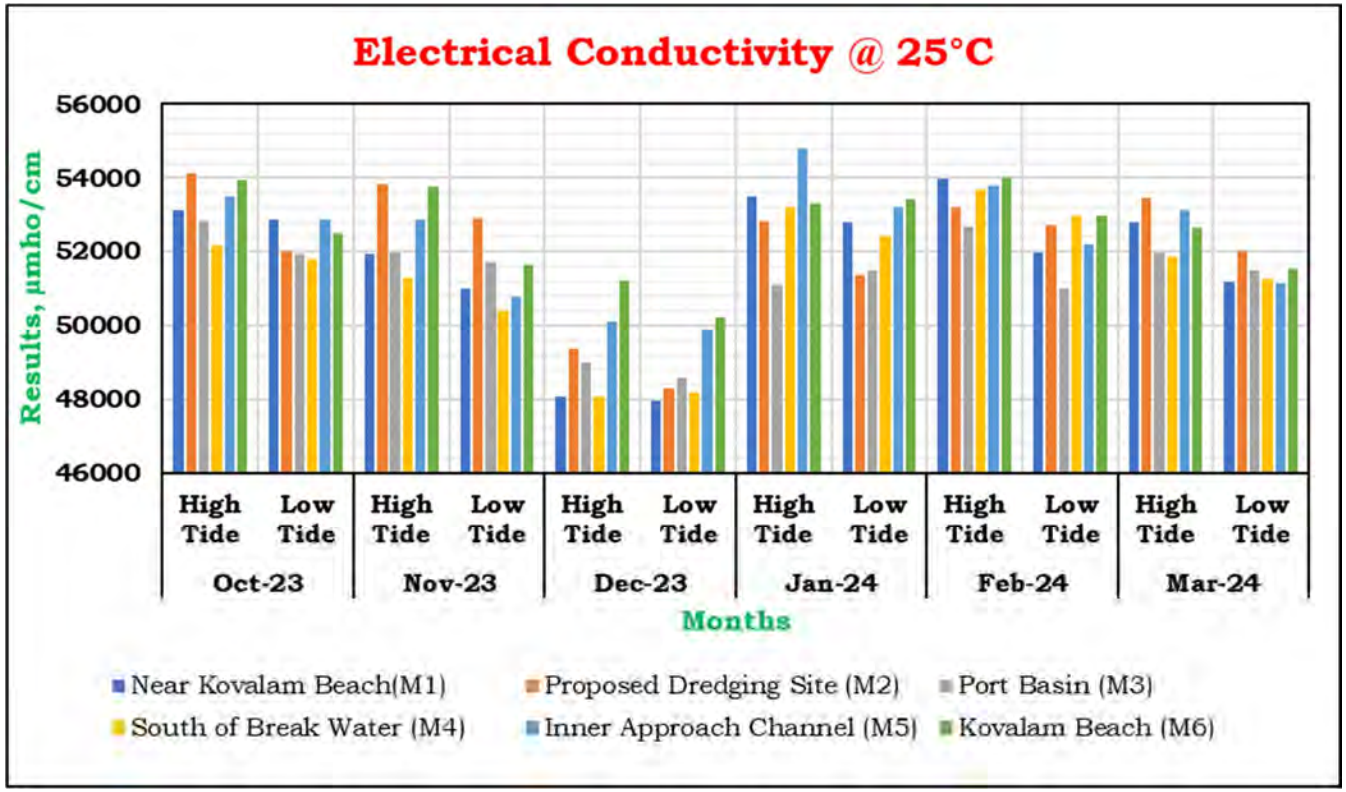


Figure 5.5: Marine Water Analysis for Total Dissolved Solids

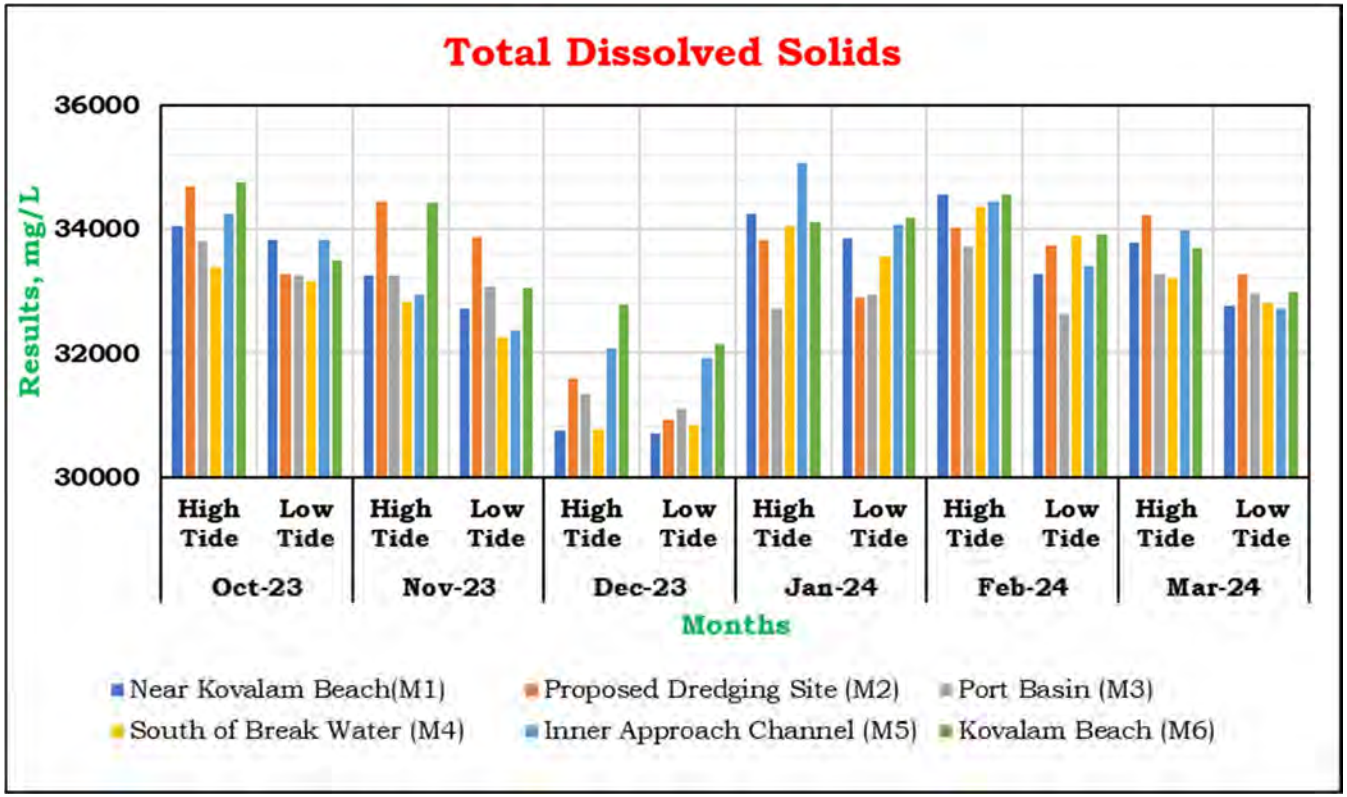


Figure 5.6: Marine Water Analysis for Dissolved Oxygen

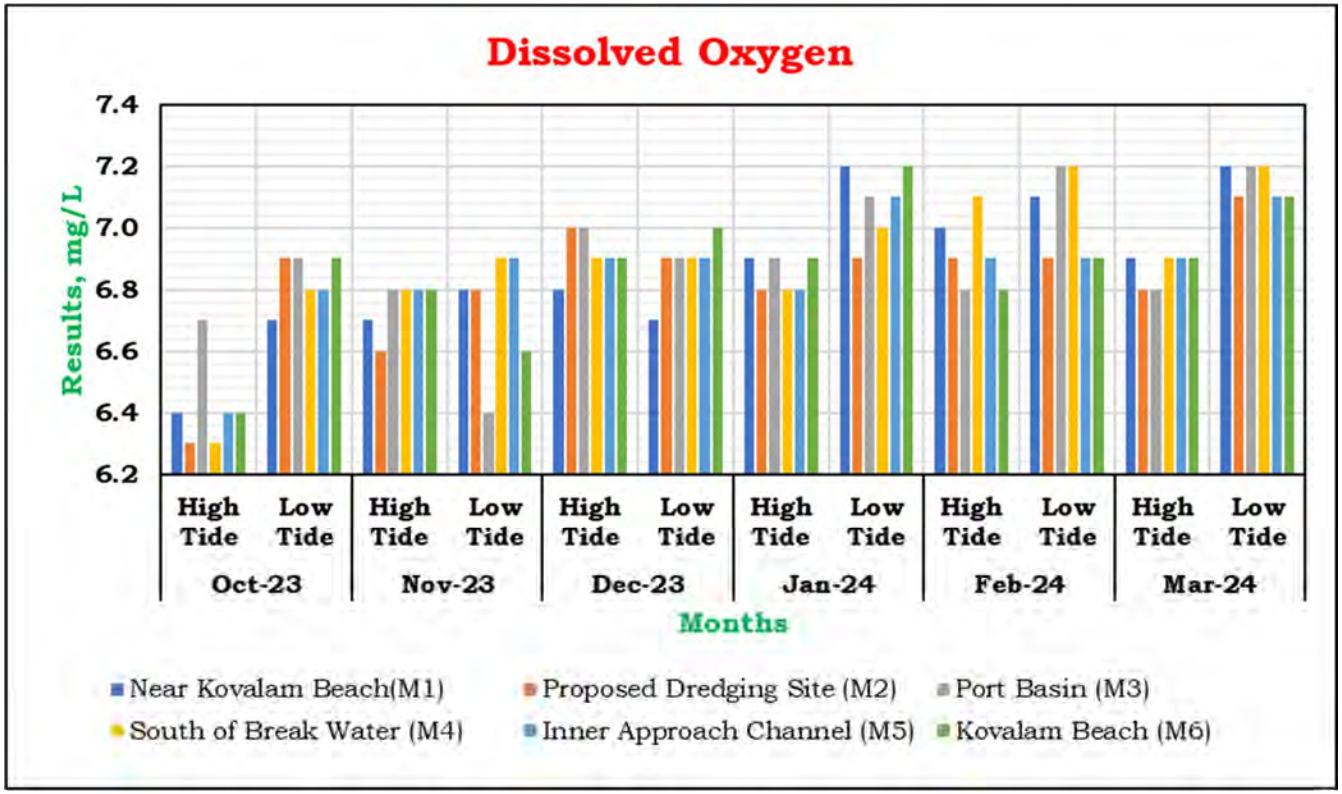


Figure 5.7: Marine Water Analysis for Salinity

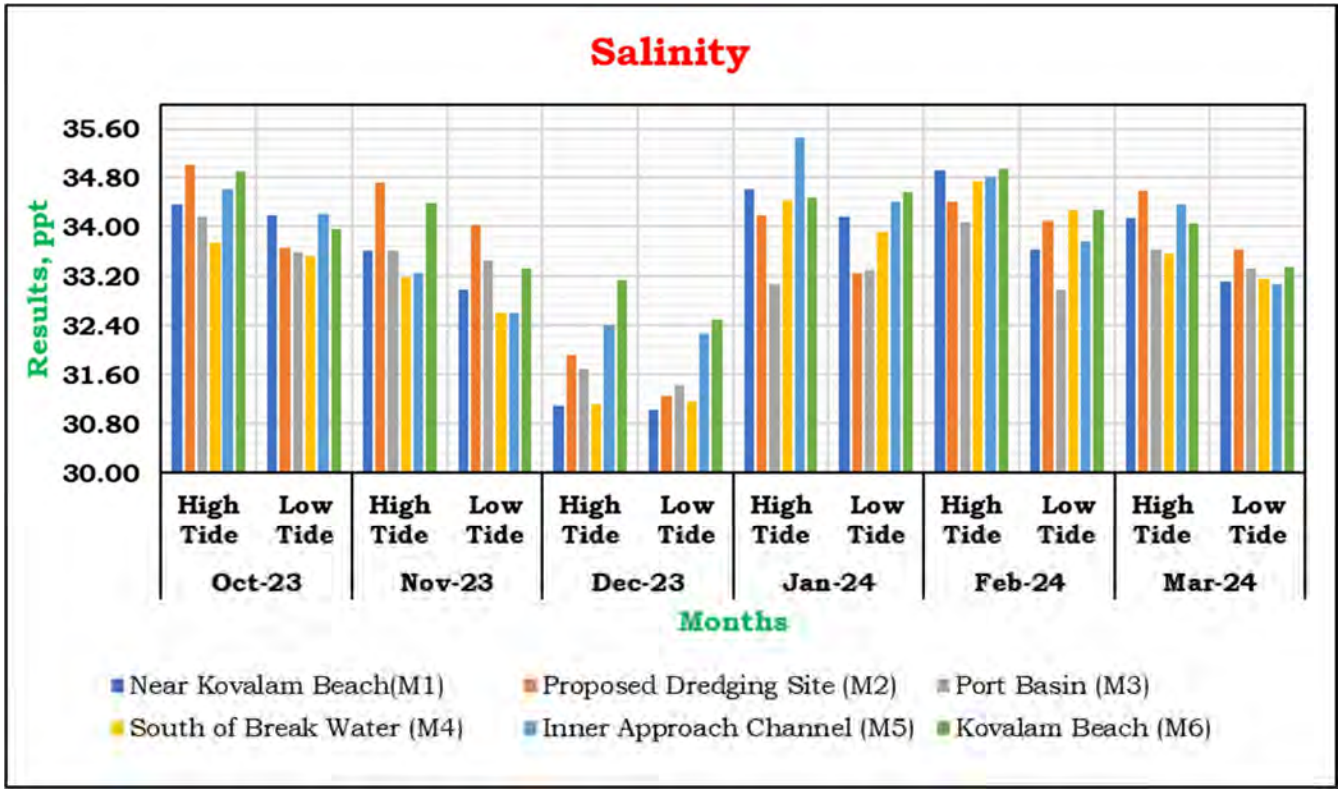


Figure 5.8: Marine Water Analysis for Chlorophyll

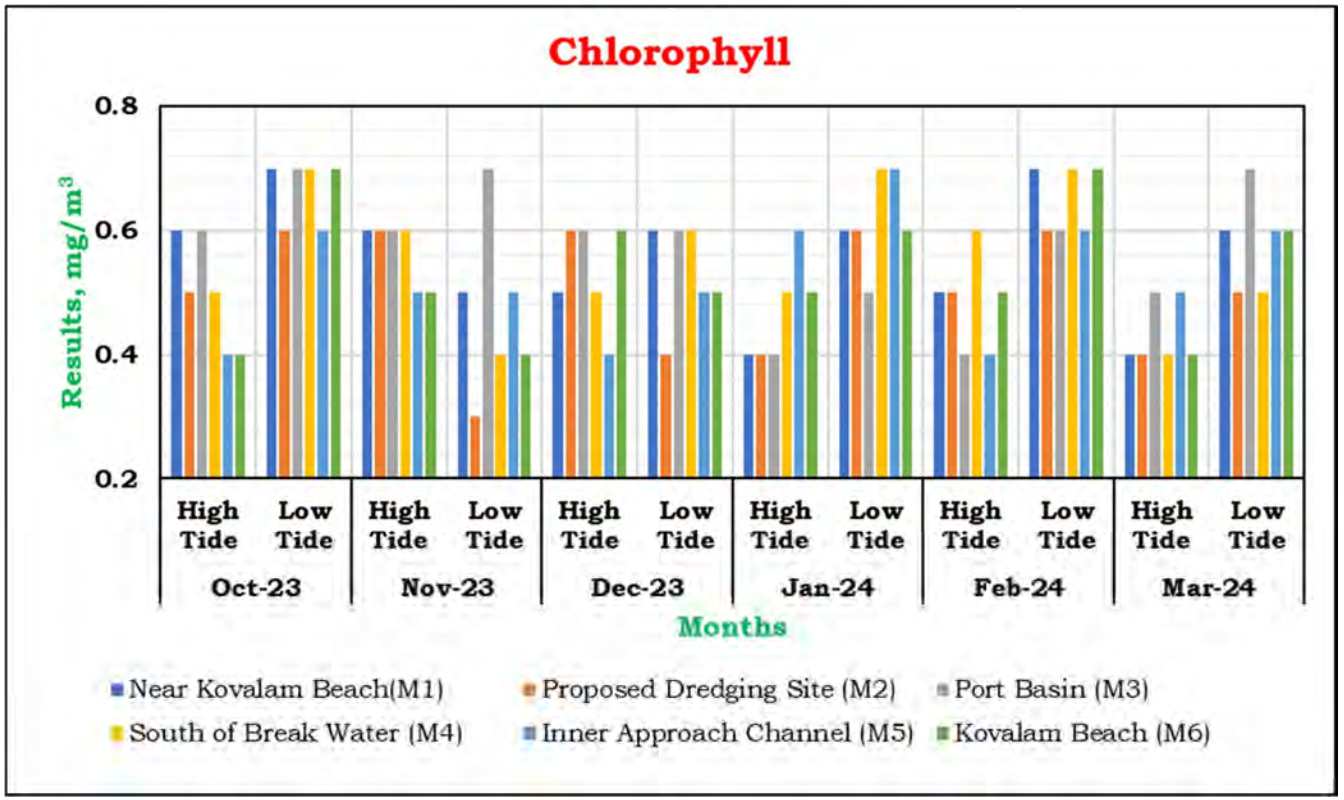
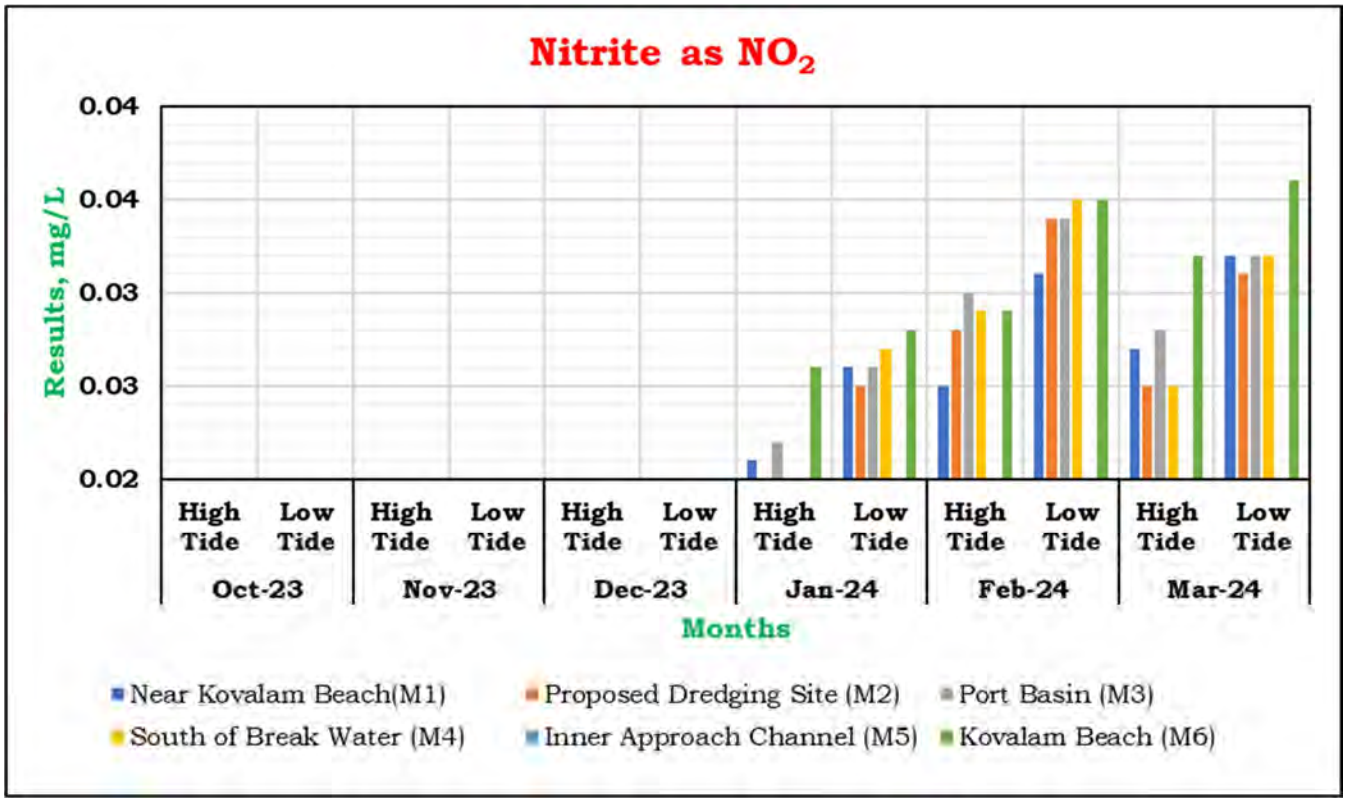


Figure 5.9: Marine Water Analysis for Nitrite



HYR-5.6. Summary - Marine water analysis:

During the months from October 2023 to March 2024, following is the summary of the marine water analysis:

a) At the location **Near Kovalam Beach** (low tide & high tide),

- Temperature was observed in the range from 27.5 to 30.3°C
- No visible colour was observed
- pH was observed in the range from 7.69 to 8.05
- Turbidity was observed in the range from 0.1 to 0.1NTU
- Electrical Conductivity (at 25°C) was observed in the range from 47960 to 53987 µmho/cm
- Total Dissolved Solids were observed in the range from 30694 to 34552 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.2 mg/L
- Nitrite (as NO_2) was observed in the range from 0.02 to 0.03 mg/L
- Salinity was observed in the range from 31.030 to 34.930 ppt
- Total Chlorophyll was observed in the range from 0.4 to 0.7 mg/m^3
- Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

b) At the location **Proposed Dredging Site** (low tide & high tide),

- Temperature was observed in the range from 27.1 to 30.0°C
- No visible colour was observed
- pH was observed in the range from 7.57 to 8.01
- Electrical Conductivity (at 25°C) was observed in the range from 48300 to 54110 µmho/cm
- Total Dissolved Solids were observed in the range from 30912 to 34680 mg/L
- Dissolved Oxygen was observed in the range from 6.3 to 7.1 mg/L

- Nitrite (as NO_2) was observed in the range from 0.02 to 0.03 mg/L
- Salinity was observed in the range from 31.250 to 35.009 ppt
- Total Chlorophyll was observed in the range from 0.3 to 0.6 mg/m^3
- Turbidity, Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

c) At the location **Port basin** (low tide & high tide),

- Temperature was observed in the range from 27.5 to 29.8°C
- No visible colour was observed
- pH was observed in the range from 7.82 to 8.04
- Electrical Conductivity (at 25°C) was observed in the range from 48600 to 52820 µmho/cm
- Total Dissolved Solids were observed in the range from 31104 to 33810 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.2 mg/L
- Nitrite (as NO_2) was observed in the range from 0.02 to 0.03 mg/L
- Salinity was observed in the range from 31.440 to 34.175 ppt
- Total Chlorophyll was observed in the range from 0.4 to 0.7 mg/m^3
- Turbidity, Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

d) At the location **South of Break Water** (low tide & high tide),

- Temperature was observed in the range from 27.5 to 30.1°C
- No visible colour was observed
- pH was observed in the range from 7.78 to 8.01

- Electrical Conductivity (at 25°C) was observed in the range from 48080 to 53689 µmho/cm
- Total Dissolved Solids were observed in the range from 30771 to 34361 mg/L
- Dissolved Oxygen was observed in the range from 6.3 to 7.2 mg/L
- Nitrite (as NO_2) was observed in the range from 0.02 to 0.04 mg/L
- Salinity was observed in the range from 31.110 to 34.740 ppt
- Total Chlorophyll was observed in the range from 0.4 to 0.7 mg/m^3
- Turbidity, Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

e) At the location **Inner Approach Channel** (low tide & high tide),

- Temperature was observed in the range from 27.0 to 30.4°C
- No visible colour was observed
- pH was observed in the range from 7.73 to 8.02
- Electrical Conductivity (at 25°C) was observed in the range from 49875 to 54800 µmho/cm
- Total Dissolved Solids were observed in the range from 31920 to 35072 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.1 mg/L
- Nitrite (as NO_2) was observed in the range from 0.02 to 0.02 mg/L
- Salinity was observed in the range from 32.270 to 35.456 ppt
- Total Chlorophyll was observed in the range from 0.4 to 0.7 mg/m^3
- Turbidity, Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

f) At the location **Kovalam Beach** (low tide & high tide),

- Temperature was observed in the range from 27.5 to 32.5°C
- No visible colour was observed
- pH was observed in the range from 7.74 to 8.06
- Electrical Conductivity (at 25°C) was observed in the range from 50214 to 54005 µmho/cm
- Total Dissolved Solids were observed in the range from 32137 to 34764 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.2 mg/L
- Nitrite (as NO_2) was observed in the range from 0.03 to 0.04 mg/L
- Salinity was observed in the range from 32.490 to 34.940 ppt
- Total Chlorophyll was observed in the range from 0.4 to 0.7 mg/m^3
- Turbidity, Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits.

g) Overall Comparison of Results from **all Locations**:

- Temperature was observed a maximum of 32.5 °C at Kovalam Beach and a minimum of 27.0 °C at Inner Approach Channel. The overall average of all locations is 28.8 °C
- pH was observed a maximum of 8.06 at Kovalam Beach and a minimum of 7.57 at Proposed Dredging Site. The overall average of all locations is 7.92
- Turbidity was observed a maximum of 0.1 NTU at Near Kovalam Beach and a minimum of 0.1 NTU at Near Kovalam Beach. The overall average of all locations is BDL
- Electrical Conductivity (at 25°C) was observed a maximum of 54800 µmho/cm at Inner Approach Channel and a minimum of 47960 µmho/cm at Near Kovalam Beach. The overall average of all locations is 51939 µmho/cm

- Total Dissolved Solids was observed a maximum of 35072 mg/L at Inner Approach Channel and a minimum of 30694 mg/L at Near Kovalam Beach. The overall average of all locations is 33233 mg/L
- Dissolved Oxygen was observed a maximum of 7.2 mg/L at Near Kovalam Beach, Port basin, South Break of Water & Kovalam Beach and a minimum of 6.3 mg/L at Proposed Dredging Site & South Break of Water. The overall average of all locations is 6.9 mg/L
- Nitrite (as NO2) was observed a maximum of 0.04 mg/L at South Break of Water & Kovalam Beach and a minimum of 0.02 mg/L at Near Kovalam Beach, Proposed Dredging Site, Port Basin, South Break of Water & Inner Approach Channel. The overall average of all locations is 0.03 mg/L
- Salinity was observed a maximum of 35.456 ppt at Inner Approach Channel and a minimum of 31.030 ppt at Near Kovalam Beach. The overall average of all locations is 33.577 ppt
- Total Chlorophyll was observed a maximum of 0.7 mg/m^3 at Near Kovalam Beach, Port basin, South Break of Water, Inner Approach Channel & Kovalam Beach and a minimum of 0.3 mg/m^3 at Proposed Dredging Site. The overall average of all locations is 33.577 mg/m^3
- Total Suspended Solids, Nitrate (as NO_3), Total Nitrogen (as N), Total Phosphorous (as P), Reactive Phosphorous, Biological Oxygen Demand, Floating materials, Phenolic Compounds (as C_6H_5OH), Ammonical Nitrogen (as NH_3-N), Polycyclic Aromatic Hydrocarbon, Total Coliforms and Faecal Coliforms were observed below the detection limits at all locations.

HYR-5.7. Maximum Values observed - Marine water analysis:

During the period from October 2023 to March 2024, the following is the maximum value observed.

Table 5.5: Maximum Values observed

Sl. No.	Parameter /unit	Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
1	Temperature (°C)	30.3	30.0	29.8	30.1	30.4	32.5
2	Colour	1	1	1	1	1	1
3	pH Value	8.05	8.01	8.04	8.01	8.02	8.06
4	Turbidity (N.T.U.)	0.1	0	0	0	0	0
5	Electrical Conductivity (at 25°C) (µmho/cm)	53987	54110	52820	53689	54800	54005
6	Total Suspended Solids (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
7	Total Dissolved Solids (mg/L)	34552	34680	33810	34361	35072	34764
8	Dissolved Oxygen (mg/L)	7.2	7.1	7.2	7.2	7.1	7.2
9	Biochemical Oxygen Demand (3 days, 27°C) (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
10	Floating Materials (Oil, Grease and Scum) (Including Petroleum Products) (mg/L)	0.03	0.03	0.03	0.04	0.02	0.04
11	Nitrite (as NO_2) (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00
12	Nitrate (as NO_3) (mg/L)	0	0	0	0	0	0

Sl. No.	Parameter /unit	Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
13	Phenolic Compounds (as C_6H_5OH) (mg/L)	0	0	0	0	0	0
14	Ammonical Nitrogen (as NH_3-N) (mg/L)	0	0	0	0	0	0
15	Total Nitrogen (as N) (mg/L)	34.930	35.009	34.175	34.740	35.456	34.940
16	Total Phosphorous (as P) (mg/L)	0.7	0.6	0.7	0.7	0.7	0.7
17	Reactive Phosphorous (mg/L)	30.3	30.0	29.8	30.1	30.4	32.5
18	Polycyclic Aromatic Hydrocarbon (mg/L)	1	1	1	1	1	1
19	Salinity (ppt)	8.05	8.01	8.04	8.01	8.02	8.06
20	Total Chlorophyll (mg/m^3)	0.1	0	0	0	0	0
21	Total Coliforms (MPN Index/100 mL)	53987	54110	52820	53689	54800	54005
22	Faecal Coliforms (MPN Index/100 mL)	0.0	0.0	0.0	0.0	0.0	0.0

HYR-5.8. Sediment Analysis Results

Table 5.6: Sediment Analysis Results

Sl. No.	Parameter	Unit	Month	Near Kovalam Beach (MS1)	Proposed Dredging Site (MS2)	Port Basin (MS3)	South of Break Water (MS4)	Inner Approach Channel (MS5)	Kovalam Beach (MS6)
1	Texture	-	Oct-23	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
			Nov-23	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
			Dec-23	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
			Jan-24	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
			Feb-24	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
			Mar-24	Sandy	Sandy	Sandy Loam	Sandy	Sandy	Sandy
2	Organic Matter	%	Oct-23	0.65	0.59	0.72	0.48	0.51	0.28
			Nov-23	0.63	0.56	0.75	0.50	0.53	0.30
			Dec-23	0.60	0.58	0.68	0.47	0.49	0.31
			Jan-24	0.42	0.38	2.12	0.54	0.43	0.27
			Feb-24	0.38	0.29	1.89	0.45	0.38	0.22
			Mar-24	0.28	0.32	0.45	0.22	0.40	0.36
3	Total Phosphorus (as P)	mg/kg	Oct-23	224	165	223	254	166	268
			Nov-23	228	169	227	258	170	271
			Dec-23	223	156	232	251	176	268
			Jan-24	210	380	187	120	148	320

Sl. No.	Parameter	Unit	Month	Near Kovalam Beach (MS1)	Proposed Dredging Site (MS2)	Port Basin (MS3)	South of Break Water (MS4)	Inner Approach Channel (MS5)	Kovalam Beach (MS6)
			Feb-24	245	326	165	140	158	425
			Mar-24	210	310	148	120	189	544
4	Aluminium (as Al)	mg/kg	Oct-23	1431	1567	1312	1318	1455	1338
			Nov-23	1445	1625	1320	1327	1460	1340
			Dec-23	1434	1588	1308	1322	1451	1282
			Jan-24	1232	1056	1765	1243	570	2159
			Feb-24	1036	1254	1462	1526	426	1988
			Mar-24	1010	1105	1260	1289	285	1455
5	Chromium (as Cr)	mg/kg	Oct-23	BDL	BDL	BDL	BDL	BDL	BDL
			Nov-23	BDL	BDL	BDL	BDL	BDL	BDL
			Dec-23	BDL	BDL	BDL	BDL	BDL	BDL
			Jan-24	BDL	BDL	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL	BDL	BDL
6	Copper (as Cu)	mg/kg	Oct-23	BDL	BDL	BDL	BDL	BDL	BDL
			Nov-23	BDL	BDL	BDL	BDL	BDL	BDL
			Dec-23	BDL	BDL	BDL	BDL	BDL	BDL
			Jan-24	BDL	BDL	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL	BDL	BDL
7	Iron (as Fe)	mg/kg	Oct-23	6066	1641	7860	1796	1482	1282
			Nov-23	6098	1850	7961	1801	1521	1308
			Dec-23	6018	1858	7830	1779	1507	1300
			Jan-24	6786	2980	5376	2460	1080	1254
			Feb-24	4628	2548	5201	2258	1220	1089

Sl. No.	Parameter	Unit	Month	Near Kovalam Beach (MS1)	Proposed Dredging Site (MS2)	Port Basin (MS3)	South of Break Water (MS4)	Inner Approach Channel (MS5)	Kovalam Beach (MS6)
			Mar-24	3256	2157	6845	2102	1047	956
8	Lead (as Pb)	mg/kg	Oct-23	BDL	BDL	BDL	BDL	BDL	BDL
			Nov-23	BDL	BDL	BDL	BDL	BDL	BDL
			Dec-23	BDL	BDL	BDL	BDL	BDL	BDL
			Jan-24	BDL	BDL	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL	BDL	BDL
9	Manganese (as Mn)	mg/kg	Oct-23	1.52	1.60	1.78	1.91	1.56	1.28
			Nov-23	6.43	6.06	5.96	9.26	5.80	8.42
			Dec-23	6.37	6.10	6.00	8.76	5.62	8.31
			Jan-24	2.52	3.87	2.62	1.34	1.12	1.78
			Feb-24	2.11	2.83	2.96	1.45	1.07	1.23
			Mar-24	1.89	2.16	2.78	1.62	1.22	1.56
10	Mercury (as Hg)	mg/kg	Oct-23	BDL	BDL	BDL	BDL	BDL	BDL
			Nov-23	BDL	BDL	BDL	BDL	BDL	BDL
			Dec-23	BDL	BDL	BDL	BDL	BDL	BDL
			Jan-24	BDL	BDL	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL	BDL	BDL
11	Zinc (as Zn)	mg/kg	Oct-23	1.52	1.68	1.50	1.73	1.62	1.80
			Nov-23	6.1	4.2	8.6	7.9	3.1	5.4
			Dec-23	5.9	4.1	7.3	7.8	3.5	5.6
			Jan-24	1.19	1.25	2.65	1.20	2.22	2.78
			Feb-24	1.03	1.48	1.98	1.40	2.16	2.33
			Mar-24	1.20	1.56	1.78	1.63	1.65	2.19

Sl. No.	Parameter	Unit	Month	Near Kovalam Beach (MS1)	Proposed Dredging Site (MS2)	Port Basin (MS3)	South of Break Water (MS4)	Inner Approach Channel (MS5)	Kovalam Beach (MS6)
12	Nickel (as Ni)	mg/kg	Oct-23	BDL	BDL	BDL	BDL	BDL	BDL
			Nov-23	BDL	BDL	BDL	BDL	BDL	BDL
			Dec-23	BDL	BDL	BDL	BDL	BDL	BDL
			Jan-24	BDL	BDL	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL	BDL	BDL
Benthic Organism									
13	Micro Benthic Organism	No./m^2	Oct-23	63925	60987	58167	60987	61247	64983
			Nov-23	65458	61247	57968	60987	61478	65128
			Dec-23	67891	64789	59874	62105	63987	67984
			Jan-24	69125	67142	62145	63045	65781	68745
			Feb-24	67894	64785	61025	62876	63789	66148
			Mar-24	65987	62897	60145	60587	61978	64123
14	Macro Benthic Organism	No./m^2	Oct-23	58102	57327	56032	55124	56003	58967
			Nov-23	59124	58475	55398	54781	56789	57894
			Dec-23	61235	60147	57145	56138	58124	59874
			Jan-24	65124	63145	57934	58364	60124	64123
			Feb-24	63174	59871	55897	58471	57845	59874
			Mar-24	62045	59120	52789	55987	56798	60124
15	**Total Benthos**	**No./m^2**	**Oct-23**	**122027**	**118314**	**114199**	**116111**	**117250**	**123950**
			Nov-23	**124582**	**119722**	**113366**	**115768**	**118267**	**123022**
			Dec-23	**129126**	**124936**	**117019**	**118243**	**122111**	**127858**
			Jan-24	**134249**	**130287**	**120079**	**121409**	**125905**	**132868**
			Feb-24	**131068**	**124656**	**116922**	**121347**	**121634**	**126022**
			Mar-24	**128032**	**122017**	**112934**	**116574**	**118776**	**124247**

HYR-5.9. Graphical representation of Results for Sediment analysis

Figure 5.10: Sediment Analysis for Organic Matter

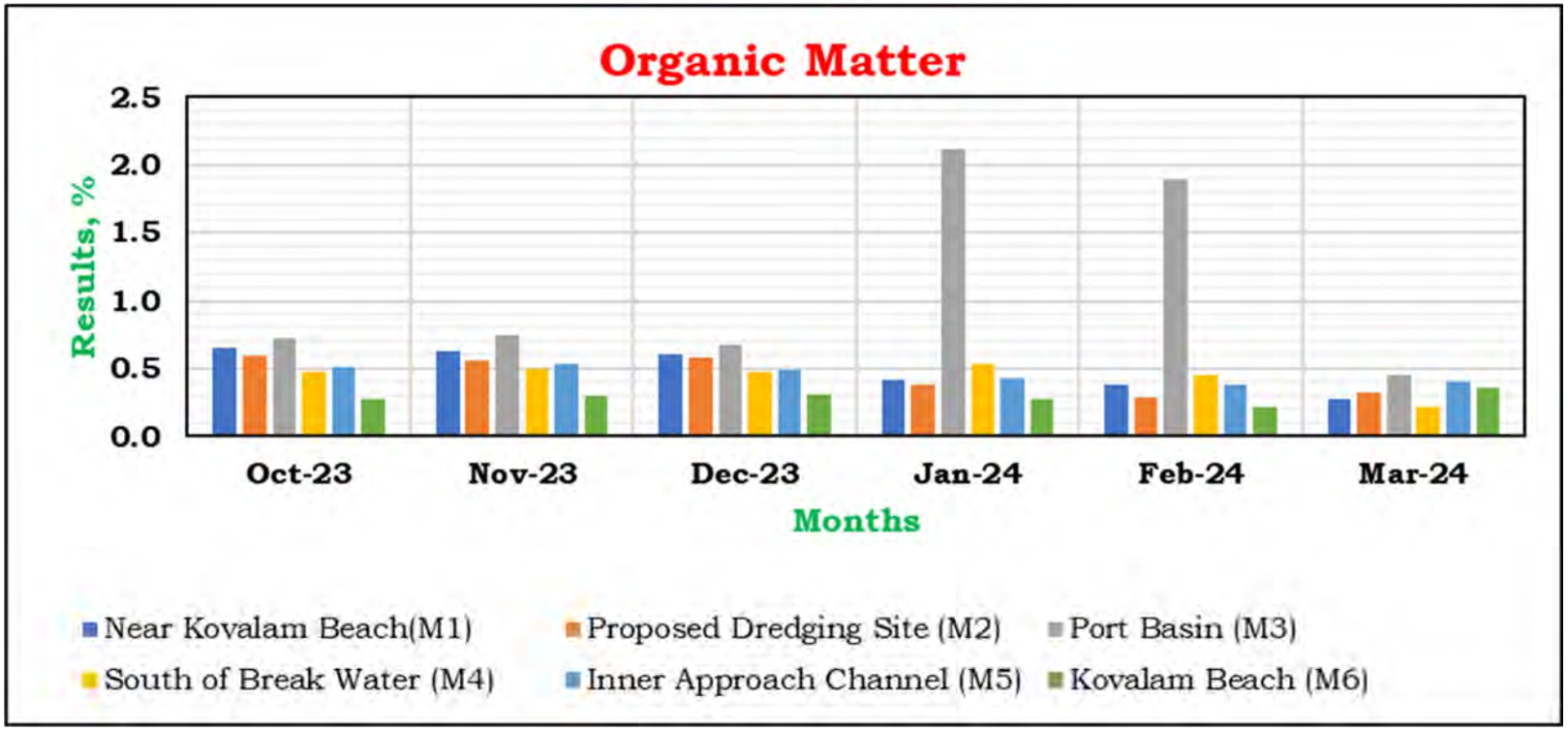


Figure 5.11: Sediment Analysis for Total Phosphorous as P

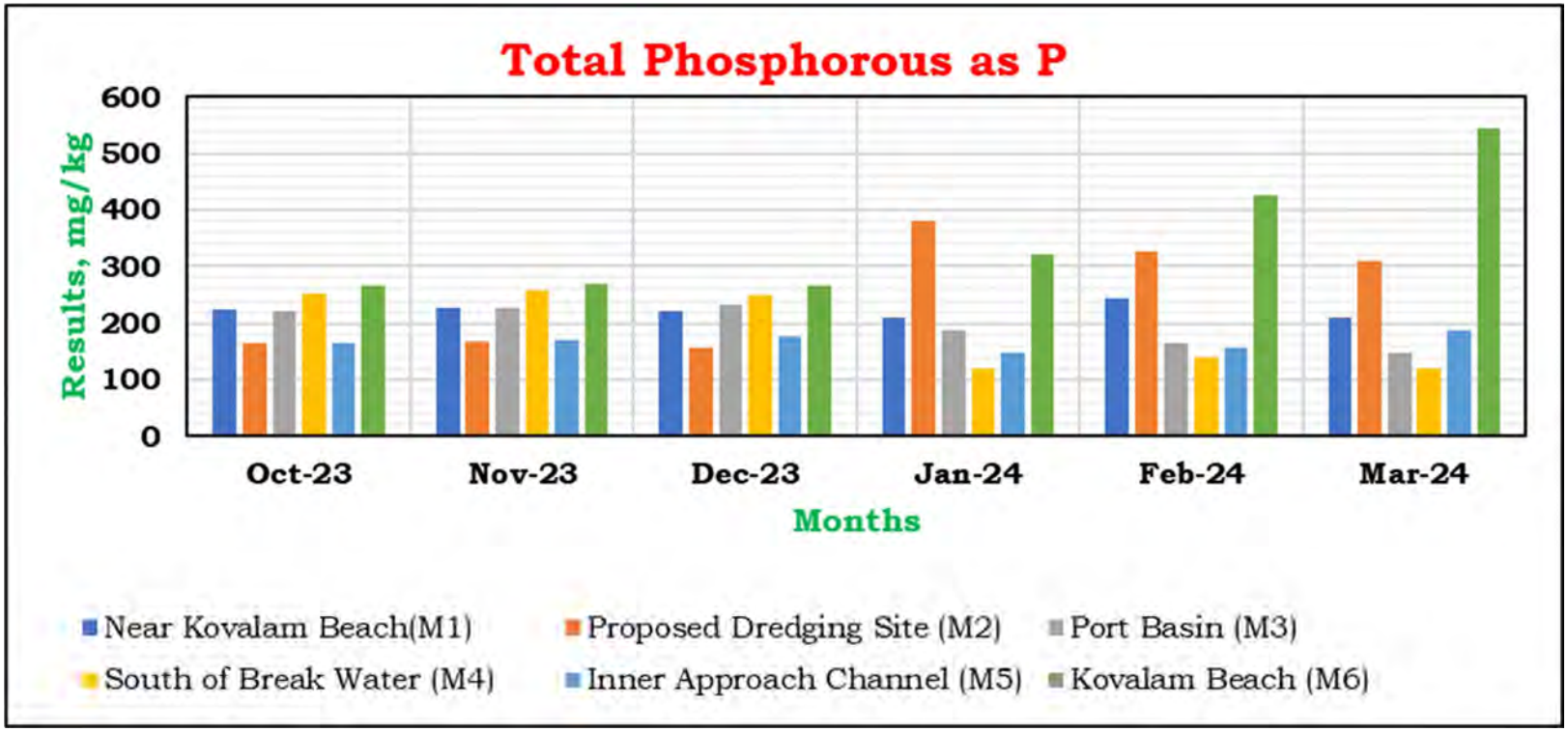


Figure 5.12: Sediment Analysis for Aluminium as Al

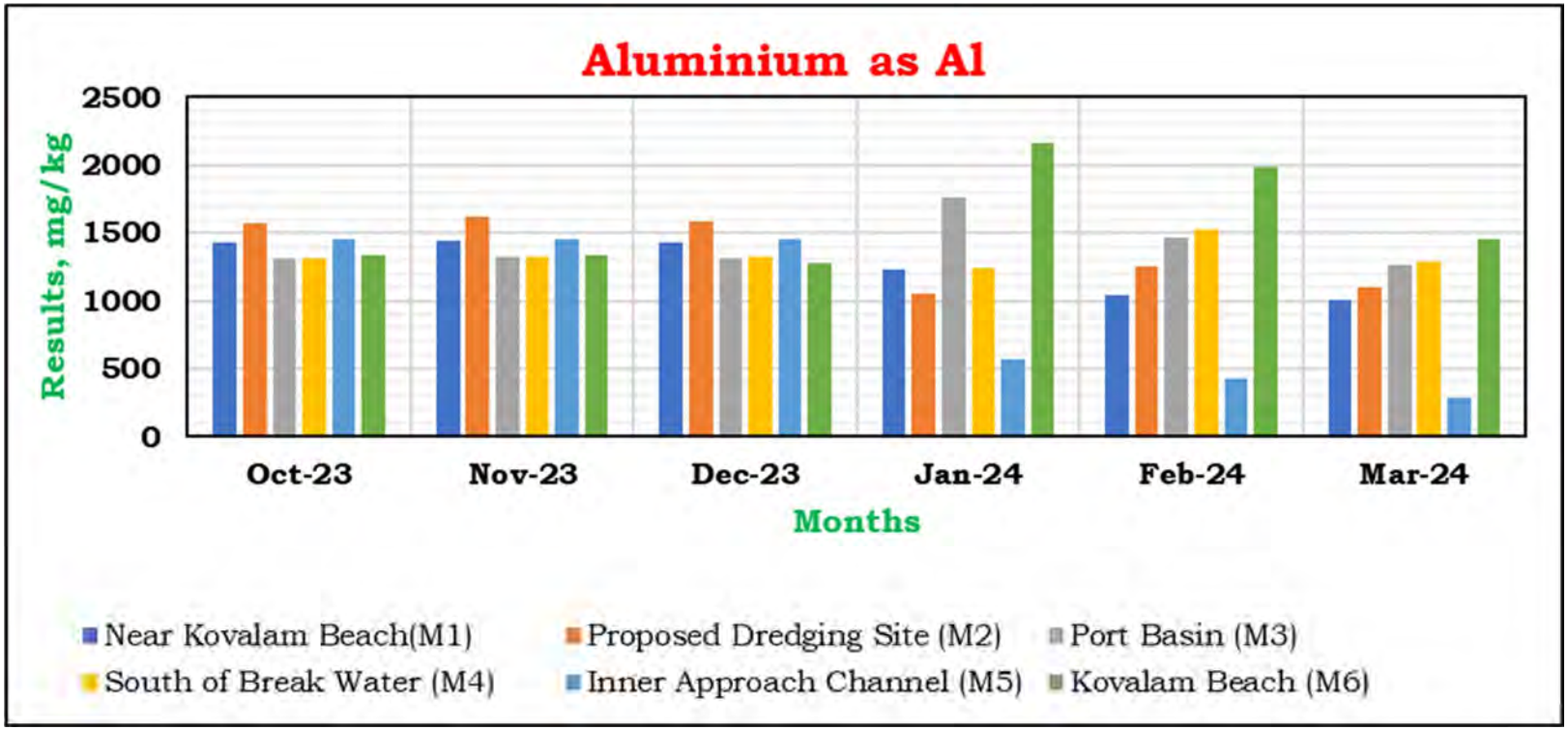


Figure 5.13: Sediment Analysis for Iron as Fe

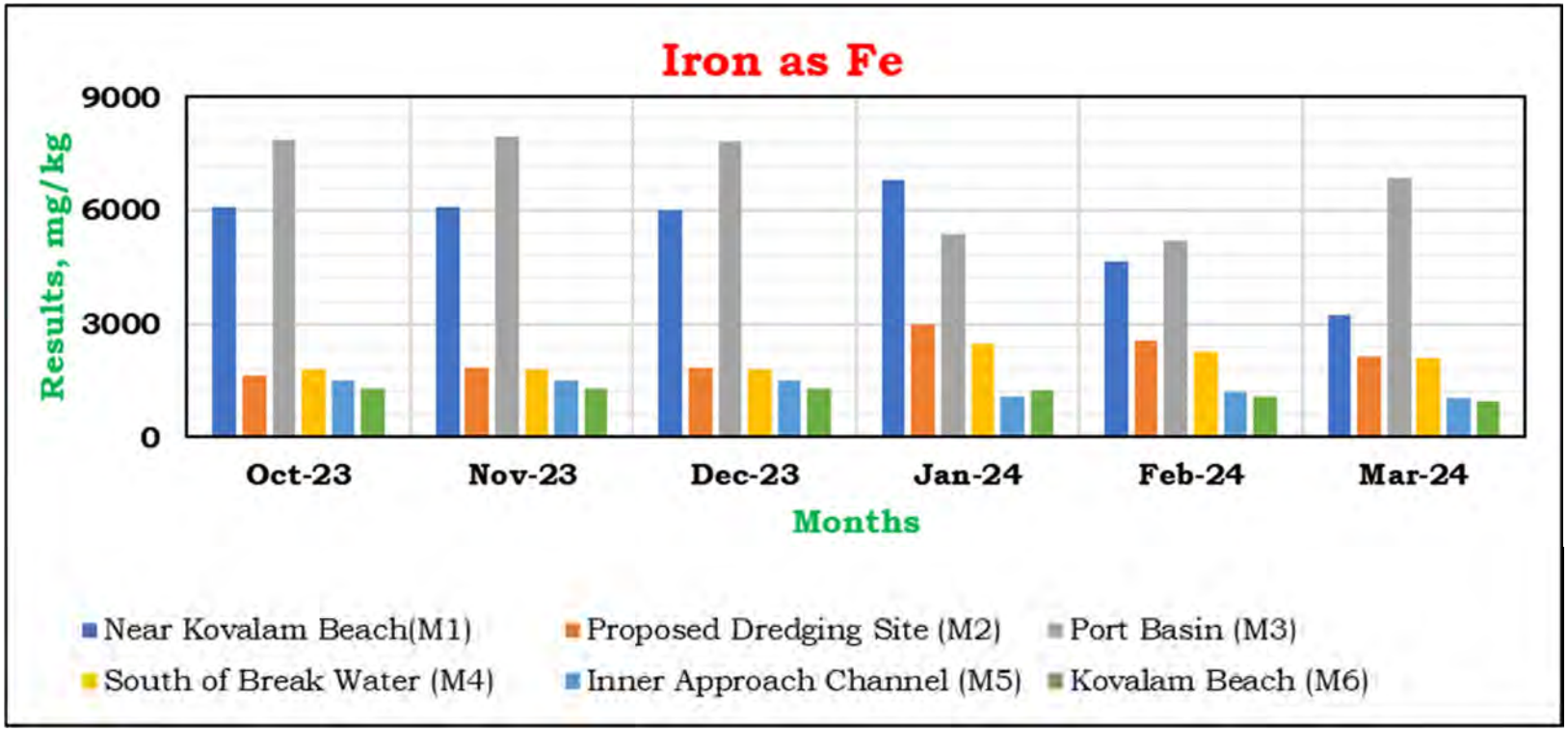


Figure 5.14: Sediment Analysis for Manganese as Mn

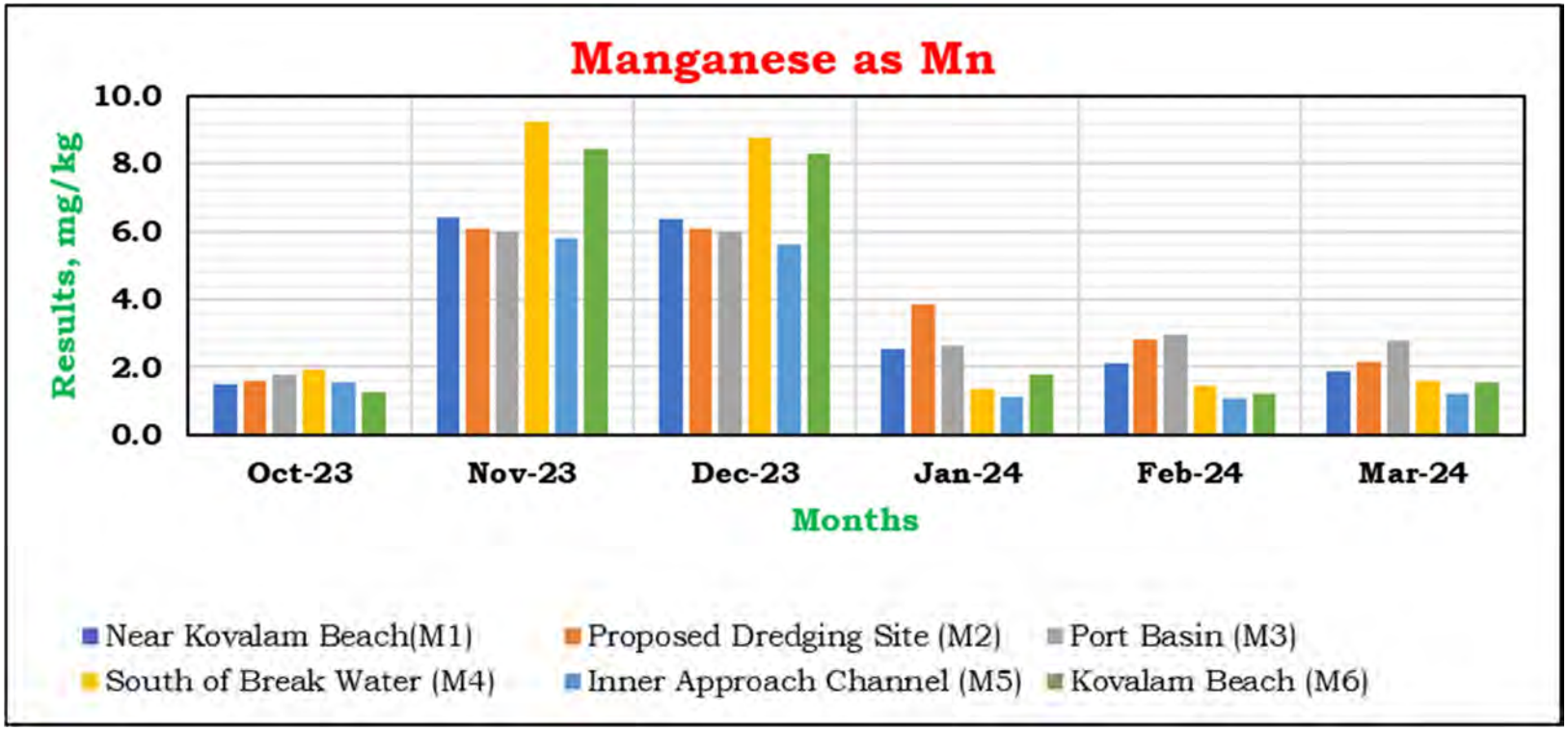


Figure 5.15: Sediment Analysis for Zinc as Zn

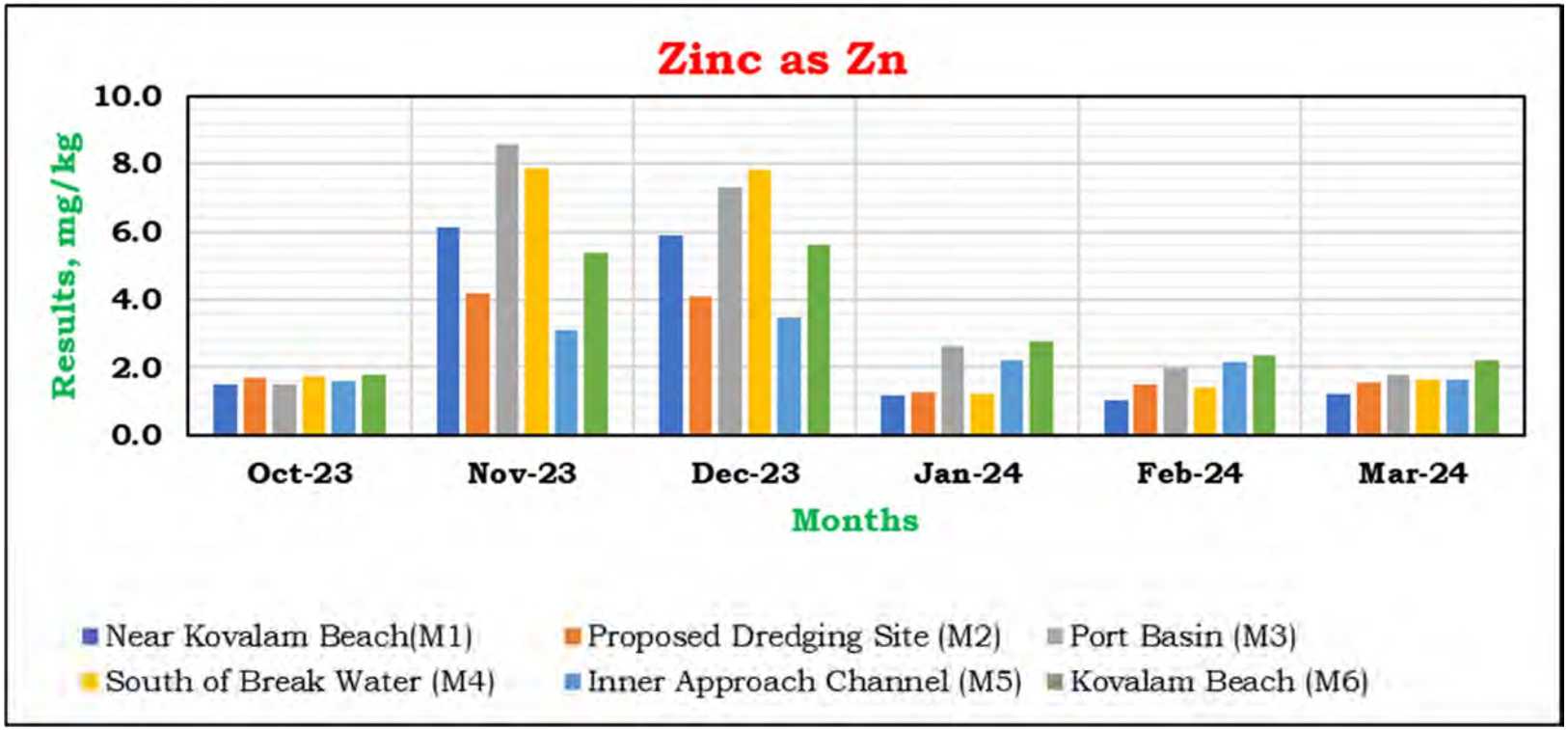
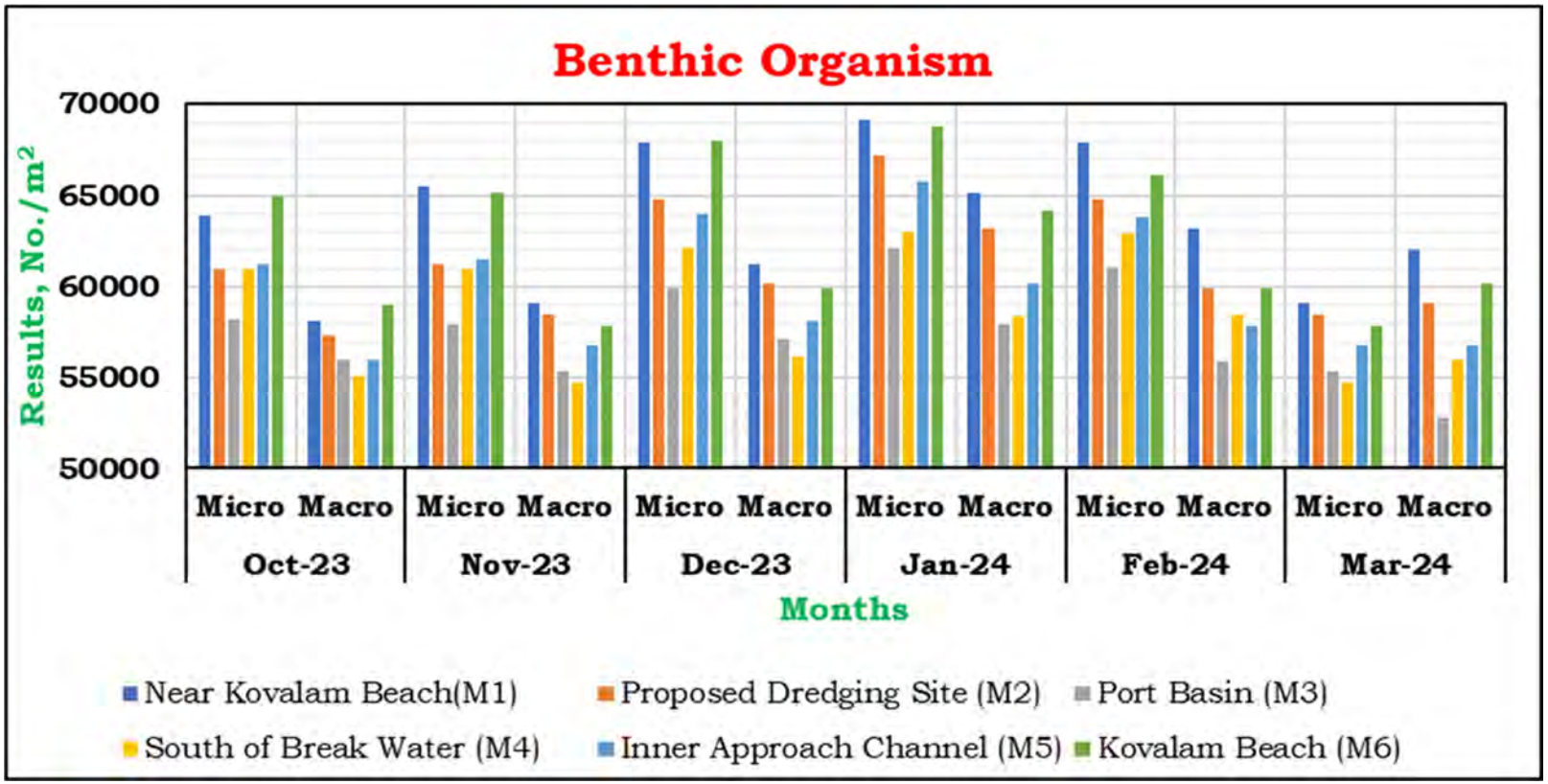


Figure 5.16: Sediment Analysis for Benthic Organism



HYR-5.10. Summary - Sediment Analysis:

During the months from October 2023 to March 2024, following is the summary of sediment analysis:

a) At the location **Near Kovalam Beach**,
- The observed texture was sandy
- Organic matter was observed in the range from 0.28 to 0.65 %
- Total Phosphorus (as P) was observed in the range from 210 to 245mg/kg
- Aluminium (as Al) was observed in the range from 1010 to 1445 mg/kg
- Iron (as Fe) was observed in the range from 3256 to 6786 mg/kg
- Manganese (as Mn) was observed in the range from 1.52 to 6.43 mg/kg
- Zinc (as Zn) was observed in the range from 1.03 to 6.12 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 63925 to 69125/m^2
- Macro benthic organisms were observed in the range from 58102 to 65124/m^2

b) At the location **Proposed Dredging Site**,
- The observed texture was sandy
- Organic matter was observed in the range from 0.29 to 0.59 %
- Total Phosphorus (as P) was observed in the range from 156 to 380 mg/kg
- Aluminium (as Al) was observed in the range from 1056 to 1625 mg/kg
- Iron (as Fe) was observed in the range from 1641 to 2980 mg/kg
- Manganese (as Mn) was observed in the range from 1.60 to 6.10 mg/kg
- Zinc (as Zn) was observed in the range from 1.25 to 4.17 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 60987 to 67142/m^2

- Macro benthic organisms were observed in the range from 57327 to 63145/m^2

c) At the location **Port Basin**,

- The observed texture was sandy loam
- Organic matter was observed in the range from 0.45 to 2.12 %
- Total Phosphorus (as P) was observed in the range from 148 to 232 mg/kg
- Aluminium (as Al) was observed in the range from 1260 to 1765 mg/kg
- Iron (as Fe) was observed in the range from 5201 to 7961 mg/kg
- Manganese (as Mn) was observed in the range from 1.78 to 6.00 mg/kg
- Zinc (as Zn) was observed in the range from 1.50 to 8.60 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 57968 to 62145/m^2
- Macro benthic organisms were observed in the range from 52789 to 57934/m^2

d) At the location **South of Break Water**,

- The observed texture was sandy
- Organic matter was observed in the range from 0.22 to 0.54 %
- Total Phosphorus (as P) was observed in the range from 120 to 258 mg/kg
- Aluminium (as Al) was observed in the range from 1243 to 1526 mg/kg
- Iron (as Fe) was observed in the range from 1779 to 2460 mg/kg
- Manganese (as Mn) was observed in the range from 1.34 to 9.26 mg/kg
- Zinc (as Zn) was observed in the range from 1.20 to 7.87 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 60587 to 63045/m^2
- Macro benthic organisms were observed in the range from 54781 to 58471/m^2

e) At the location **Inner Approach Channel**,

- The observed texture was sandy
- Organic matter was observed in the range from 0.38 to 0.53 %
- Total Phosphorus (as P) was observed in the range from 148 to 189mg/kg
- Aluminium (as Al) was observed in the range from 285 to 1460 mg/kg
- Iron (as Fe) was observed in the range from 1047 to 1521 mg/kg
- Manganese (as Mn) was observed in the range from 1.07 to 5.80 mg/kg
- Zinc (as Zn) was observed in the range from 1.62 to 3.50 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 61247 to 65781/m^2
- Macro benthic organisms were observed in the range from 56003 to 60124/m^2

f) At the location **Kovalam Beach**,

- The observed texture was sandy
- Organic matter was observed in the range from 0.22 to 0.36 %
- Total Phosphorus (as P) was observed in the range from 268 to 544 mg/kg
- Aluminium (as Al) was observed in the range from 1282 to 2159 mg/kg
- Iron (as Fe) was observed in the range from 956 to 1308 mg/kg
- Manganese (as Mn) was observed in the range from 1.23 to 8.42 mg/kg
- Zinc (as Zn) was observed in the range from 1.80 to 5.60 mg/kg
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits
- Micro benthic organisms were observed in the range from 64123 to 68745/m^2
- Macro benthic organisms were observed in the range from 57894 to 64123/m^2

g) Summary – Comparison of Results of **All Locations**,

- The observed texture was sandy in all locations except Port Basin which was sandy loam
- Maximum value of Organic matter observed was 2.12 % at Port Basin
- Maximum value of Total Phosphorus (as P) observed was 544 mg/kg at Kovalm Beach
- Maximum value of Aluminium (as Al) observed was 2159 mg/kg at Kovalm Beach
- Maximum value of Iron (as Fe) observed was 7961 mg/kg at Port Basin
- Maximum value of Manganese (as Mn) observed was 9.26 mg/kg at South of Break Water
- Maximum value of Zinc (as Zn) observed was 8.60 mg/kg at Port Basin
- Chromium (as Cr), Copper (as Cu), Lead (as Pb), Mercury (as Hg) and Nickel (as Ni) were observed below the detection limits at all locations
- Maximum value of Micro benthic organisms observed was 69125/m^2 at Near Kovalam Beach
- Maximum value of Macro benthic organisms observed was 65124/m^2 at Near Kovalam Beach

HYR-5.11. Marine Water Analysis for Phytoplankton and Zooplankton

Table 5.7: Total Phytoplankton and Zooplankton Results

Parameter	Month	Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
Total Phytoplankton No/100 mL	Oct-23	75782	72560	71897	63618	62452	61777
	Nov-23	78108	73655	72354	66542	64055	63786
	Dec-23	83539	77004	73571	70105	67827	65652
	Jan-24	88692	82299	80428	77010	72128	69471
	Feb-24	79690	76635	74003	69376	65441	62561
	Mar-24	80024	77618	73238	70678	68551	65045
Total Zooplankton No/100 mL	Oct-23	11174	7010	8773	10874	7684	8485
	Nov-23	11426	7180	8889	10888	7831	8490
	Dec-23	12279	7900	9760	11938	8573	9216
	Jan-24	13088	8712	10681	12662	9476	9708
	Feb-24	13875	9144	11319	12943	9980	10344
	Mar-24	14051	9907	12271	13144	10480	11390

HYR-5.12. Graphical representation of Results for Marine Phytoplankton and Zooplankton

Figure 5.17: Marine Water Analysis for Total Phytoplankton

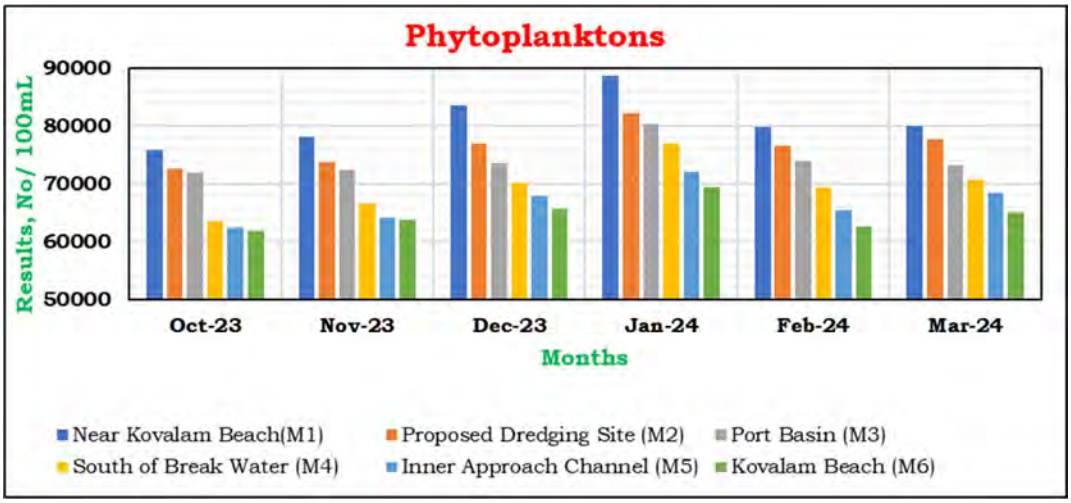
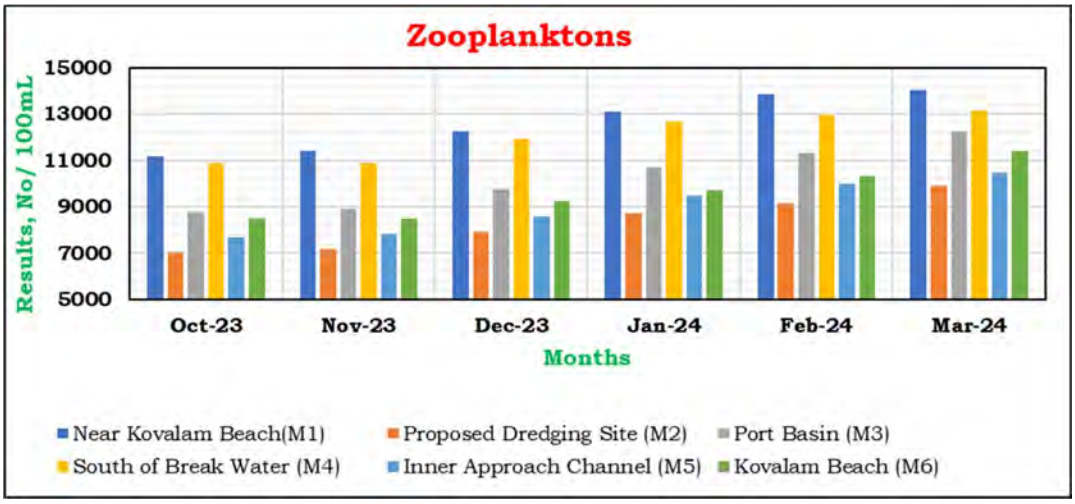


Figure 5.18: Marine Water Analysis for Total Zooplankton



HYR-5.13. Summary-Marine Water Analysis for Phytoplankton and Zooplankton

During the months from October 2023 to March 2024, following is the summary of Marine Water Analysis for Phytoplankton and Zooplankton:

Table 5.8: Summary-Marine Water Analysis for Phytoplankton and Zooplankton Results

Parameter	Range	Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
Total Phytoplankton No/100 mL	From	75782	72560	71897	63618	62452	61777
	To	88692	82299	80428	77010	72128	69471
Total Zooplankton No/100 mL	From	11174	7010	8773	10874	7684	8485
	To	14051	9907	12271	13144	10480	11390

a) At the location **Near Kovalam Beach**,
- Total Phytoplankton were observed in the range from 75782 to 88692 No/100 mL
- Total Zooplankton were observed in the range from 11174 to 14051 No/100 mL

b) At the location **Proposed Dredging Site**,
- Total Phytoplankton were observed in the range from 72560 to 82299 No/100 mL
- Total Zooplankton were observed in the range from 7010 to 9907 No/100 mL

c) At the location **Port Basin**,
- Total Phytoplankton were observed in the range from 71897 to 80428 No/100 mL
- Total Zooplankton were observed in the range from 8773 to 12271 No/100 mL

d) At the location **South of Break Water**,

- Total Phytoplankton were observed in the range from 63618 to 77010 No/100 mL
- Total Zooplankton were observed in the range from 10874 to 13144 No/100 mL

e) At the location **Inner Approach Channel**,

- Total Phytoplankton were observed in the range from 62452 to 72128 No/100 mL
- Total Zooplankton were observed in the range from 7684 to 10480 No/100 mL

f) At the location **Kovalam Beach**,

- Total Phytoplankton were observed in the range from 61777 to 69471 No/100 mL
- Total Zooplankton were observed in the range from 8485 to 11390 No/100 mL

g) Summary – Comparison of Results of **All Locations**,

- Maximum value of Total Phytoplankton observed was 88692 No/100 mL at Near Kovalam Beach
- Maximum value of Total Zooplankton observed was 14051 No/100 mL at Near Kovalam Beach.

HYR-6	Ground Water & Surface Water Analysis

HYR-6.1. Ground Water & Surface Water Location Details:

This section describes the sampling location, methodology adopted for analysis and analysis results of Ground Water and Surface Water during the period from October 2023 to March 2024.

Ground water sampling was carried out at three locations including Port Site, PAF Area and Proposed Port Estate Area.

Surface water sampling was carried out at three locations including Poovar West Canal, Vizhinjam Branch Canal and Vellayani Lake.

Surface water sampling was carried out in addition location, Poovar Estuary from January 2024 to March 2024

Table 6.1: Coordinates of Ground Water Location

Location	Legend	Latitude	Longitude
Project Site	G1	8°22'03.72"N	77°00'16.92"E
Proposed Port Estate Area	G2	8°22'24.96"N	77°00'45.84"E
PAF Area	G3	8°22'17.60"N	77°00'11.12"E

Table 6.2: Coordinates of Surface Water Location

Location	Legend	Latitude	Longitude
Poovar West Canal	S1	8°19'22.66"N	77°04'31.70"E
Vizhinjam Branch Canal	S2	8°22'55.59"N	76°59'36.29"E
Vellayani Lake	S3	8°25'31.91"N	76°59'37.10"E
Poovar Estuary	S4	8°18'30.71"N	77°04'36.95"E

Figure 6.1: Google earth views of Ground Water & Surface Water Sampling Locations

HYR-6.2. Methodology of Sampling and Analysis:

Table 6.3: Ground Water & Surface Water Methodology

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
Surface and Ground Water Analysis				
1.	Colour	Hazen Units	1	IS 3025 Part 4: 1983 RA 2017
2.	Odour	-	--	IS 3025 Part 5: 1983 RA 2018
3.	pH Value	-	1	IS 3025 Part 11: 1983 RA 2017
4.	Turbidity	N.T.U.	0.1	IS 3025 Part 10: 1984 RA 2017
5.	Electrical Conductivity (at 25°C)	µmho/cm	0.001	IS 3025 Part 14:1984 RA 2019
6.	Total Dissolved Solids	mg/L	1	IS 3025 Part 16: 1984 RA 2017
7.	Dissolved Oxygen	mg/L	0.2	IS 3025 Part 38:1989 RA 2019
8.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	IS 3025 Part 44:1993 RA 2019
9.	Oil & Grease	mg/L	1	IS 3025 Part 39: 1991 RA 2019
10.	Aluminium (as Al)	mg/L	0.03	IS 3025 Part 55:2003 RA 2019
11.	Ammonia (as NH_3- N)	mg/L	1	IS 3025 Part 34:1988 RA 2019

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
12.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	0.01	IS 13428 Annex K:2005
13.	Barium (as Ba)	mg/L	0.17	APHA 23rd Edition 3111D:2017
14.	Boron (as B)	mg/L	0.2	IS 3025 Part 57 :2005 RA 2017
15.	Calcium (as Ca)	mg/L	1	IS 3025 Part 40: 1991 RA 2019
16.	Chloramines (as Cl_2)	mg/L	1	APHA 23rd Edition 4500 Cl,G:2017
17.	Chloride (as Cl)	mg/L	1	IS 3025 Part 32: 1988 RA 2019
18.	Copper (as Cu)	mg/L	0.016	IS 3025 Part 42: 1992 RA 2019
19.	Fluoride (as F)	mg/L	0.1	APHA 23rd Edition 4500 -F- B, D: 2017
20.	Iron (as Fe)	mg/L	0.1	IS 3025 Part 53: 2003 RA 2019
21.	Magnesium (as Mg)	mg/L	1	IS 3025 Part 46: 1994 RA 2019
22.	Manganese (as Mn)	mg/L	0.016	IS 3025 Part 59: 2006 RA 2017
23.	Mineral Oil	mg/L	0.50	IS 3025 Part 39: 1991 RA 2019
24.	Nitrate (as NO_3)	mg/L	1	APHA 23rd Edition 4500 -NO_3 B: 2017
25.	Phenolic Compounds (as C_6H_5OH)	mg/L	0.001	IS 3025 Part 43: 1992 RA 2019
26.	Selenium (as Se)	mg/L	0.001	APHA 23rd Edition 3114C:2017
27.	Silver (as Ag)	mg/L	0.03	APHA 23rd Edition 3111B:2017
28.	Sulphate (as SO_4)	mg/L	1	IS 3025 Part 24: 1986 RA 2019
29.	Sulphide (as H_2S)	mg/L	0.01	IS 3025 Part 29 : 1986 RA 2019
30.	Total Phosphate (as PO_4)	mg/L	0.1	IS 3025 Part 31:1988 RA 2019
31.	Total Alkalinity (as $CaCO_3$)	mg/L	1	IS 3025 Part 23: 1986 RA 2019
32.	Total Hardness (as $CaCO_3$)	mg/L	1	IS 3025 Part 21: 2009 RA 2019
33.	Calcium Hardness (as $CaCO_3$)	mg/L	1	IS 3025 Part 40: 1991 RA 2019
34.	Zinc (as Zn)	mg/L	0.008	APHA 23rd Edition 3111B:2017
35.	Sodium (as Na)	mg/L	1	IS 3025 Part 45: 1993 RA 2019
36.	Potassium (as K)	mg/L	0.5	IS 3025 Part 45: 1993 RA 2019
37.	Sodium Absorption Ratio	-	1	IS 11624 : 1986
38.	Cadmium (as Cd)	mg/L	0.003	IS 3025 Part 41: 1992 RA 2019
39.	Cyanide (as CN)	mg/L	0.01	IS 3025 Part 27: 1986 RA 2019
40.	Lead (as Pb)	mg/L	0.01	IS 3025 Part 47: 1994 RA 2019
41.	Mercury (as Hg)	mg/L	0.001	IS 3025 Part 48: 1994 RA 2019
42.	Molybdenum (as Mo)	mg/L	0.07	APHA 23rd Edition 3111D:2017
43.	Nickel (as Ni)	mg/L	0.02	IS 3025 Part 54: 2003 RA 2019
44.	***Pesticide Residues***			
i.	Alachlor	µg/L	0.005	SEAAL/INS/RWM/SOP/01
ii.	Atrazine	µg/L	0.005	SEAAL/INS/RWM/SOP/01
iii.	Aldrin/Dieldrin	µg/L	0.005	SEAAL/INS/RWM/SOP/01
iv.	Alpha HCH	µg/L	0.005	SEAAL/INS/RWM/SOP/01

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
v.	Beta HCH	µg/L	0.005	SEAAL/INS/RWM/SOP/01
vi.	Butachlor	µg/L	0.005	SEAAL/INS/RWM/SOP/01
vii.	Chlorpyrifos	µg/L	0.005	SEAAL/INS/RWM/SOP/01
viii.	Delta HCH	µg/L	0.005	SEAAL/INS/RWM/SOP/01
ix.	2,4D chlorophenoxyacetic acid	µg/L	0.005	SEAAL/INS/RWM/SOP/01
x.	DDT (o,p & p,p- Isomers of DDT, DDE, DDD)	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xi.	Endosulfan (□,□ & Sulphate)	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xii.	Ethion	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xiii.	γ HCH (Lindane)	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xiv.	Isoproturon	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xv.	Malathion	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xvi.	Methyl Parathion	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xvii.	Monocrotophos	µg/L	0.005	SEAAL/INS/RWM/SOP/01
xviii.	Phorate	µg/L	0.005	SEAAL/INS/RWM/SOP/01
45.	Polychlorinated Biphenyls (PCB)	mg/L	0.000005	SEAAL/INS/RWM/SOP/03
46.	Polynuclear Aromatic Hydrocarbons (PAH)	mg/L	0.000005	SEAAL/INS/RWM/SOP/02
47.	Total Arsenic (as As)	mg/L	0.002	IS 3025 Part 37:1988 RA 2019
48.	Total Chromium (as Cr)	mg/L	0.05	IS 3025 Part 52 :2003 RA 2019
49.				
a)	Bromoform	mg/L	0.005	SEAAL/INS/RWM/SOP/04
b)	Dibromochloromethane	mg/L	0.005	SEAAL/INS/RWM/SOP/04
c)	Bromodichloroethane	mg/L	0.005	SEAAL/INS/RWM/SOP/04
d)	Chloroform	mg/L	0.005	SEAAL/INS/RWM/SOP/04
50.	*E.coli*	MPN/100 ml	2	IS 1622: 1981
51.	Total Coliforms	MPN/100 ml	2	IS 1622: 1981
52.	Faecal Coliforms	MPN/100 ml	2	IS 1622: 1981

HYR-6.3. Ground Water Analysis Results for the period from October 2023 to March 2024:

Table 6.4: Ground Water Analysis Results

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
Organoleptic & Physical Parameters							
1.	Colour	Hazen Units	*Max.* 5	Oct-23	1	1	1
				Nov-23	1	1	1
				Dec-23	1	1	1
				Jan-24	1	1	1
				Feb-24	1	1	1
				Mar-24	1	1	1
2.	Odour	-	Agreeable	Oct-23	Agreeable	Agreeable	Agreeable
				Nov-23	Agreeable	Agreeable	Agreeable
				Dec-23	Agreeable	Agreeable	Agreeable
				Jan-24	Agreeable	Agreeable	Agreeable
				Feb-24	Agreeable	Agreeable	Agreeable
				Mar-24	Agreeable	Agreeable	Agreeable
3.	pH Value	-	6.5 to 8.5	Oct-23	7.63	6.76	7.45
				Nov-23	7.54	7.56	7.50
				Dec-23	7.71	7.45	6.65
				Jan-24	7.9	7.25	6.62
				Feb-24	7.81	7.58	6.6
				Mar-24	7.72	7.46	6.62
4.	Turbidity	N.T.U.	Max. 1	Oct-23	0.4	BDL	BDL
				Nov-23	BDL	0.2	BDL
				Dec-23	0.2	0.2	0.3
				Jan-24	0.8	0.7	0.8
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
5.	Total Dissolved Solids	mg/L	Max. 500	Oct-23	316	276	219
				Nov-23	492	138	210
				Dec-23	338	181	300
				Jan-24	292	310	285
				Feb-24	305	380	340
				Mar-24	310	370	390
General Parameters concerning substances undesirable in excessive amounts							
6.	Aluminium (as Al)	mg/L	Max. 0.03	Oct-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
7.	Ammonia (as NH_3-N)	mg/L	Max.0.5	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
8.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	Max. 0.2	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
9.	Barium (as Ba)	mg/L	Max. 0.7	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
10.	Boron (as B)	mg/L	Max. 0.5	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
11.	Calcium (as Ca)	mg/L	Max. 75	Oct-23	31.2	12.0	24.8
				Nov-23	33.6	14.4	16.0
				Dec-23	29.6	12.0	16.0
				Jan-24	28.0	17.6	12.8
				Feb-24	25.6	12.0	12.8
				Mar-24	23.2	28.8	24.0
12.	Chloramines (as Cl_2)	mg/L	Max. 4.0	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
13.	Chloride (as Cl)	mg/L	Max.250	Oct-23	106	135	46.7
				Nov-23	246	47.3	84.8
				Dec-23	117	71.9	146
				Jan-24	83.4	135	100
				Feb-24	95.6	135	102
				Mar-24	102	136	111
14.	Copper (as Cu)	mg/L	Max.0.05	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
15.	Fluoride (as F)	mg/L	Max. 1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
16.	Iron (as Fe)	mg/L	Max.0.3	Oct-23	0.31	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	0.35	0.88	0.49
				Jan-24	BDL	BDL	BDL
				Feb-24	0.12	0.18	BDL
				Mar-24	0.16	0.13	BDL
17.	Magnesium (as Mg)	mg/L	Max. 30	Oct-23	6.82	BDL	3.90
				Nov-23	16.6	3.92	10.3
				Dec-23	9.8	4.89	8.32
				Jan-24	9.35	4.38	10.3
				Feb-24	7.79	9.74	9.74
				Mar-24	9.74	6.82	5.84
18.	Manganese (as Mn)	mg/L	Max.0.1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Mar-24	BDL	BDL	BDL
19.	Mineral Oil	mg/L	Max.0.5	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
20.	Nitrate (as NO_3)	mg/L	Max.45	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
21.	Phenolic Compounds (as C6H5OH)	mg/L	Max. 0.001	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
22.	Selenium (as Se)	mg/L	Max. 0.01	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
23.	Silver (as Ag)	mg/L	Max. 0.1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
24.	Sulphate (as SO_4)	mg/L	Max. 200	Oct-23	48.5	48.9	48.0
				Nov-23	18.0	8.47	17.6
				Dec-23	34.1	13.50	49.8
				Jan-24	35.5	14.6	22.0
				Feb-24	41.6	46.8	32.5
				Mar-24	42.5	40.2	40.7
	Sulphide (as H_2S)	mg/L	Max. 0.05	Oct-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
25.				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
26.	Total Alkalinity (as $CaCO_3$)	mg/L	Max.200	Oct-23	68.3	12.1	52.3
				Nov-23	84.0	26.0	26.0
				Dec-23	78.0	34.0	8.00
				Jan-24	81.6	19.9	5.97
				Feb-24	99.0	11.9	7.92
				Mar-24	91.1	5.94	7.92
27.	Total Hardness (as $CaCO_3$)	mg/L	Max. 200	Oct-23	106	70.0	78.0
				Nov-23	153	52.3	82.4
				Dec-23	115	50.3	74.4
				Jan-24	109	62.6	66.7
				Feb-24	92.0	70.0	72.0
				Mar-24	98.0	64.0	84.0
28.	Zinc (as Zn)	mg/L	Max. 5	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
Parameters Concerning Toxic Substances							
29.	Cadmium (as Cd)	mg/L	Max. 0.003	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
30.	Cyanide (as CN)	mg/L	Max.0.05	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
31.	Lead (as Pb)	mg/L	Max. 0.01	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
32.	Mercury (as Hg)	mg/L	Max. 0.001	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
33.	Molybdenum (as Mo)	mg/L	Max. 0.07	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
34.	Nickel (as Ni)	mg/L	Max.0.02	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
35. Pesticide Residues							
i.	Alachlor	µg/L	20	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
ii.	Atrazine	µg/L	2	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
iii.	Aldrin/Dieldrin	µg/L	0.03	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
iv.	Alpha HCH	µg/L	0.01	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
v.	Beta HCH	µg/L	0.04	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
vi.	Butachlor	µg/L	125	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
vii.	Chlorpyrifos	µg/L	30	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
viii.	Delta HCH	µg/L	0.04	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
ix.	2,4D chlorophenoxyacetic acid	µg/L	30	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Mar-24	BDL	BDL	BDL
x.	DDT (o,p & p,p-Isomers of DDT, DDE, DDD)	µg/L	1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xi.	Endosulfan (α,β & Sulphate)	µg/L	0.4	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xii.	Ethion	µg/L	3	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xiii.	γ HCH (Lindane)	µg/L	2	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xiv.	Isoproturon	µg/L	9	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xv.	Malathion	µg/L	190	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
	Methyl Parathion	µg/L	0.3	Oct-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
xvi.				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xvii.	Monocrotophos	µg/L	1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
xviii.	Phorate	µg/L	2	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
36.	Polychlorinated Biphenyls (PCB)	mg/L	Max.0.0005	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
37.	Polynuclear Aromatic Hydrocarbons (PAH)	mg/L	Max.0.0001	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
38.	Total Arsenic (as As)	mg/L	Max. 0.01	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
39.	Total Chromium (as Cr)	mg/L	Max. 0.05	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
40.Trihalomethanes							
a)	Bromoform	mg/L	Max. 0.1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
b)	Dibromochloromethane	mg/L	Max. 0.1	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
c)	Bromodichloroethane	mg/L	Max. 0.06	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
d)	Chloroform	mg/L	Max. 0.2	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
Bacteriological Analysis							
41.	E.coli	MPN Index /100 ml	Not Detectable	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL
42.	Total Coliforms	MPN Index /100 ml	Not Detectable	Oct-23	BDL	BDL	BDL
				Nov-23	BDL	BDL	BDL
				Dec-23	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Month	Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
				Jan-24	BDL	BDL	BDL
				Feb-24	BDL	BDL	BDL
				Mar-24	BDL	BDL	BDL

HYR-6.4. Graphical representation of Results for Ground Water Analysis:

Figure 6.2: Ground Water Analysis for pH

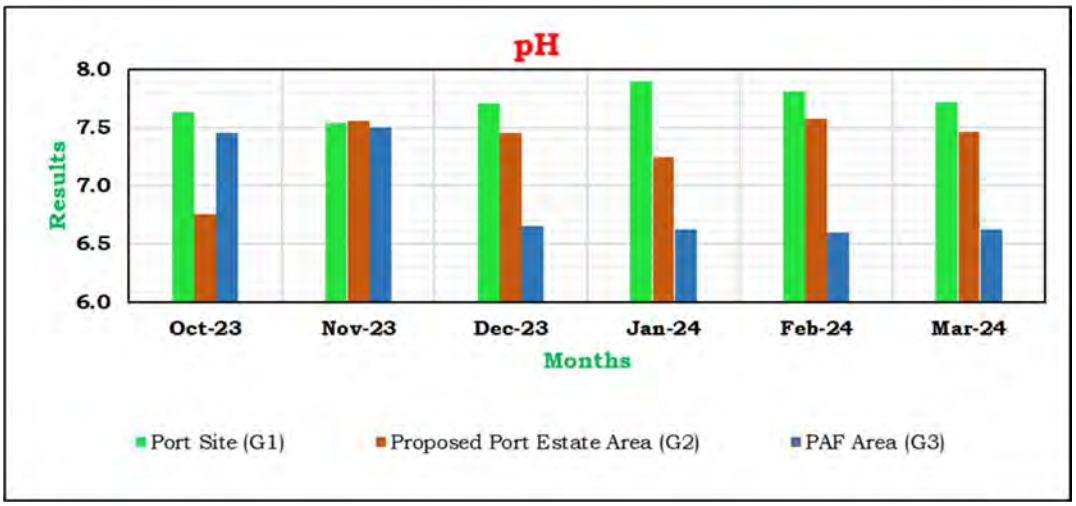


Figure 6.3: Ground Water Analysis for Total Dissolved Solids

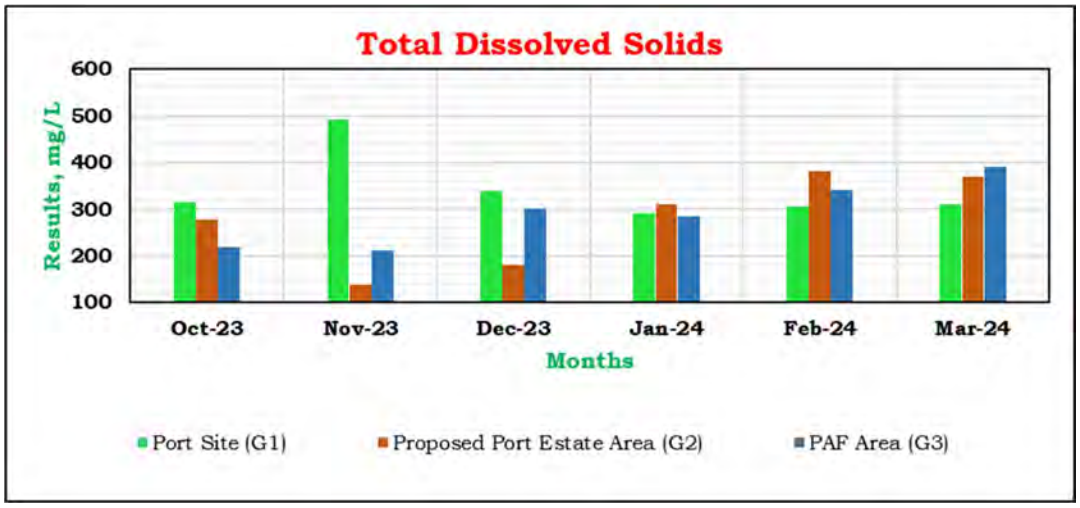


Figure 6.4: Ground Water Analysis for Chloride

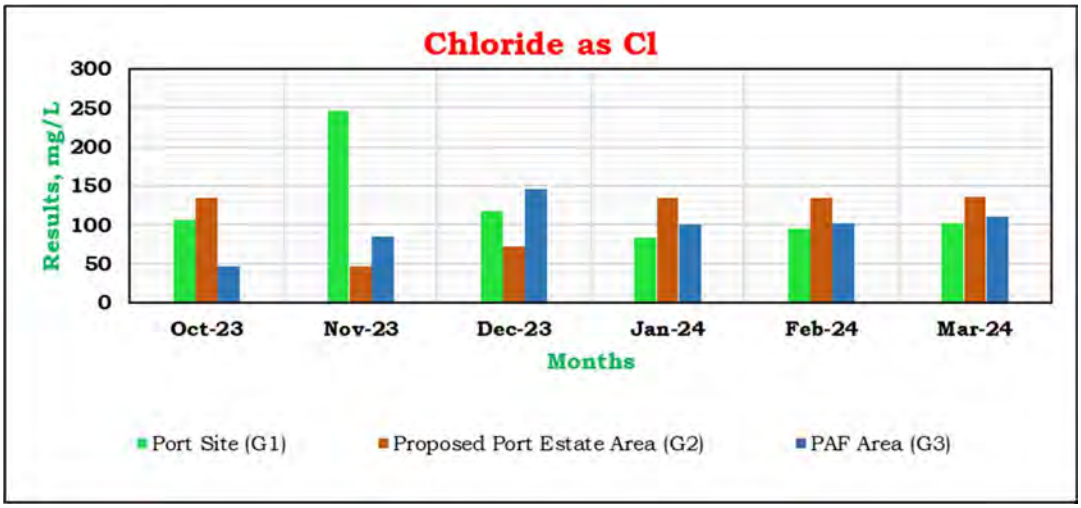


Figure 6.5: Ground Water Analysis for Sulphate as SO_4

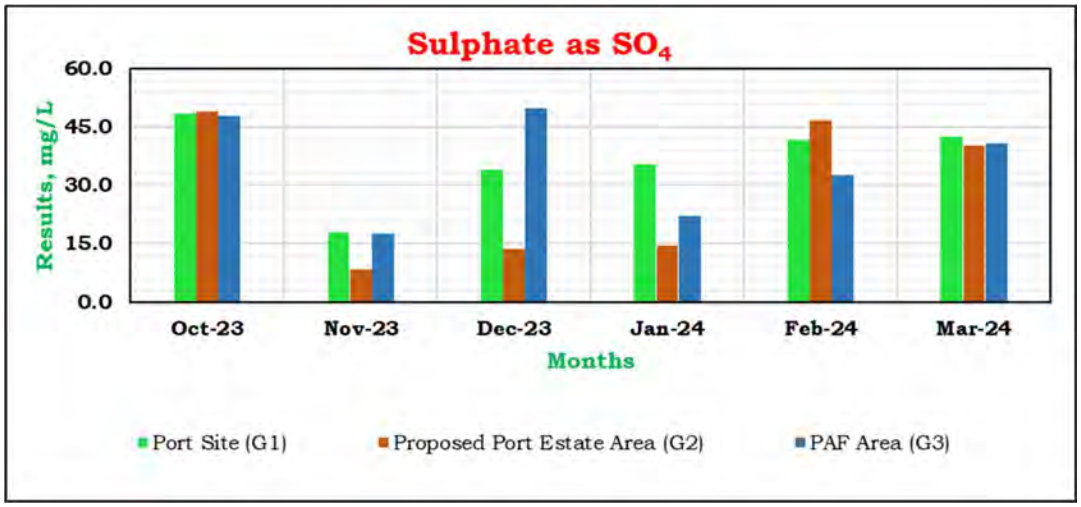


Figure 6.6: Ground Water Analysis for Calcium as Ca

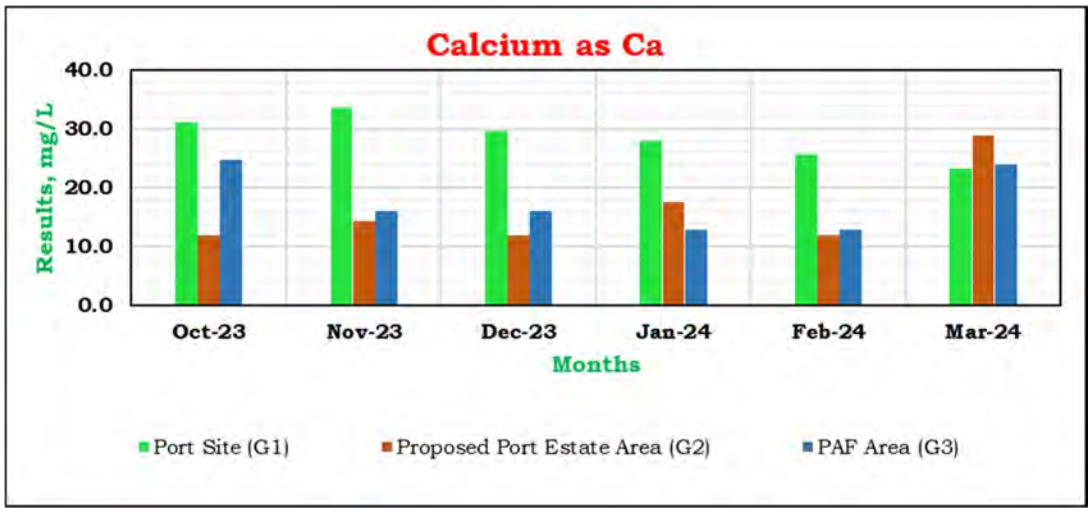


Figure 6.7: Ground Water Analysis for Magnesium as Mg

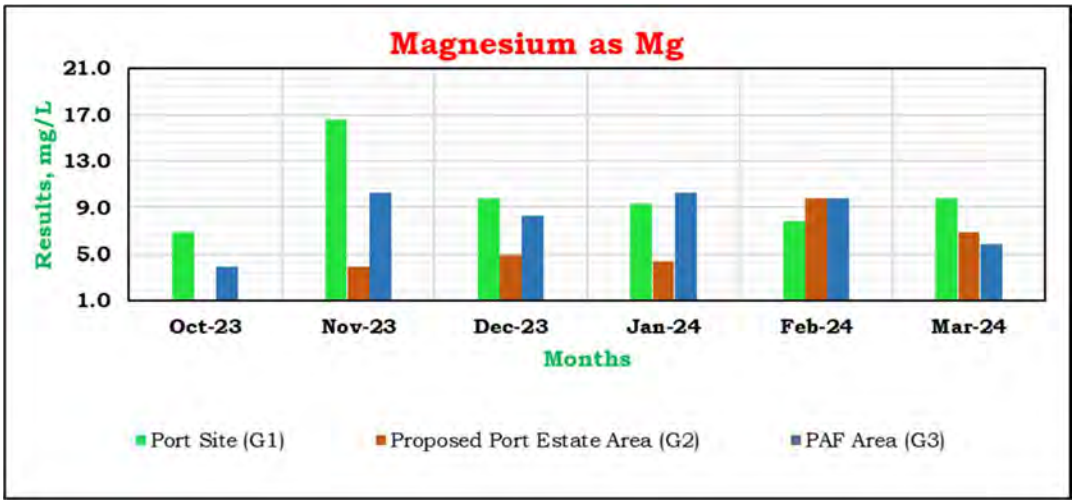


Figure 6.8: Ground Water Analysis for Iron as Fe

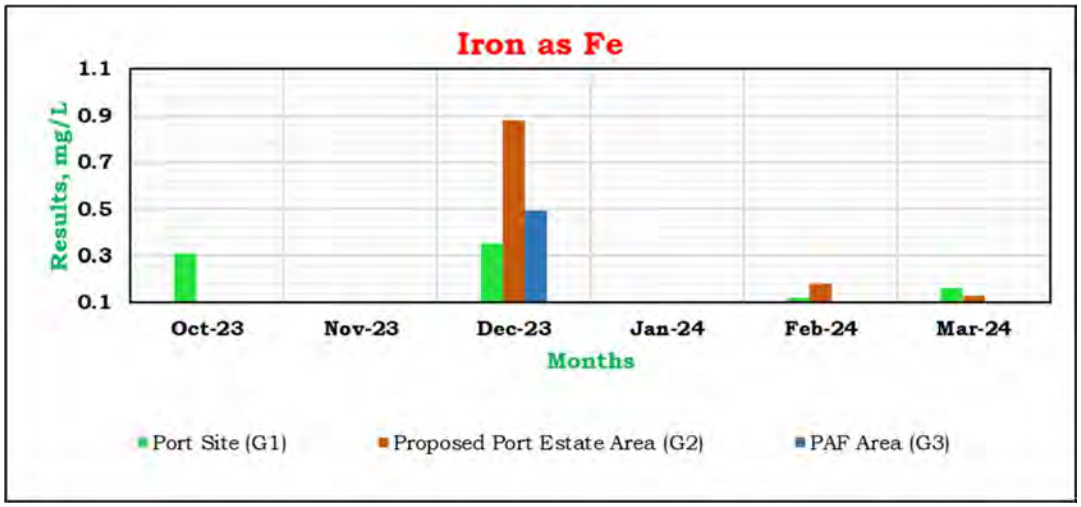


Figure 6.9: Ground Water Analysis for Total Alkalinity as $CaCO_3$

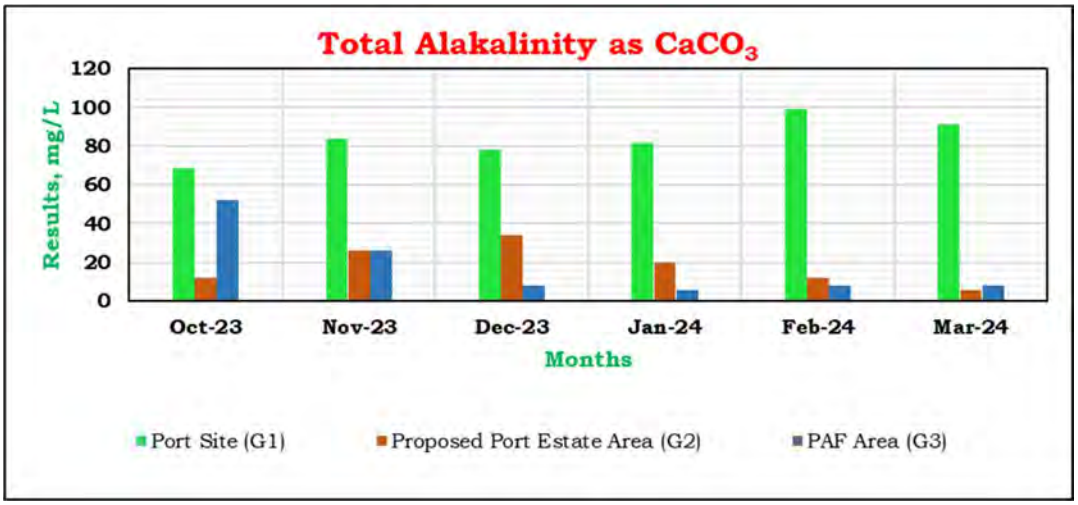
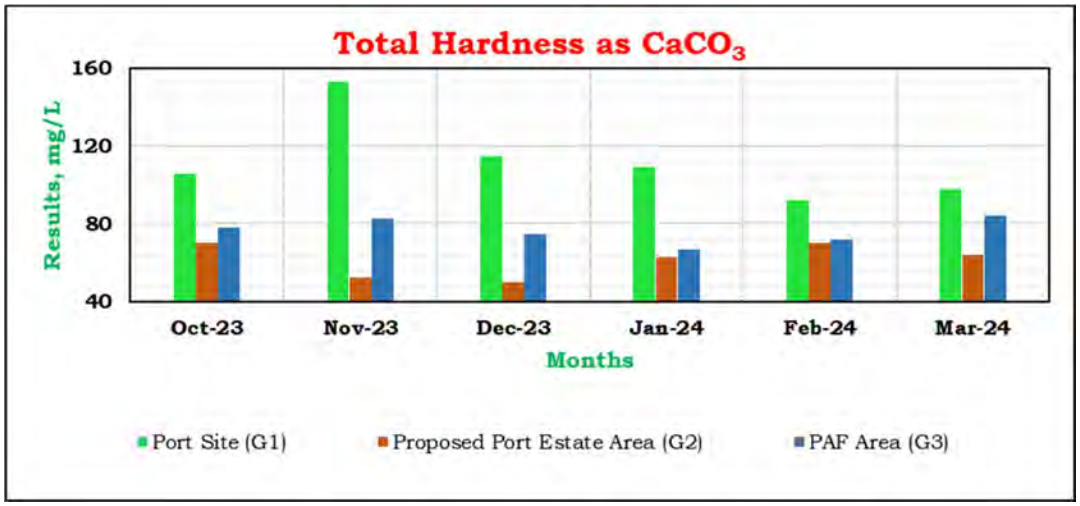


Figure 6.10: Ground Water Analysis for Total Hardness as $CaCO_3$



HYR-6.5. Summary- Ground Water Analysis

During the period from October 2023 to March 2024, following is the summary of ground water analysis:

a) At the location **Port Site** (Open Well),

- Colour observed was 1 Hazen unit and the odour was agreeable
- pH was observed in the range from 7.54 to 7.90
- Turbidity was observed in the range from BDL to 0.8 NTU
- Total Dissolved Solids were observed in the range from 292 to 492 mg/L
- Calcium (as Ca) was observed in the range from 23.2 to 33.6 mg/L
- Chloride (as Cl) was observed in the range from 83.4 to 246 mg/L
- Iron (as Fe) was observed in the range from BDL to 0.35 mg/L
- Magnesium (as Mg) was observed in the range from 6.82 to 16.6 mg/L
- Sulphate (as SO_4) was observed in the range from 18.0 to 48.5 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 68.3 to 99.0 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 92.0 to 153 mg/L
- Ammonia (as NH_3-N), Manganese (as Mn), Nitrate (as NO_3), Aluminium (as Al), Zinc (as Zn), Anionic Detergents, Barium (as Ba), Boron (as B) Chloramines (as Cl_2), Fluoride (as F), Copper (as Cu), Mineral Oil, Phenolic Compounds(as C_6H_5OH), Selenium (as Se), Silver (as Ag), Hydrogen Sulphide (as H_2S), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Molybdenum (as Mo), Nickel (as Ni), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues, Trihalomethanes, Polychlorinated Biphenyls (PCB) and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as *E.coli* and Total Coliforms were not detected.

b) At the location **Proposed Port Estate Area** (Open Well),

- Colour observed was 1 Hazen unit and the odour was agreeable
- pH was observed in the range from 6.76 to 7.58
- Turbidity was observed in the range from BDL to 0.7 NTU
- Total Dissolved Solids were observed in the range from 138 to 380 mg/L
- Calcium (as Ca) was observed in the range from 12.0 to 28.8 mg/L
- Chloride (as Cl) was observed in the range from 47.3 to 136 mg/L

- Iron (as Fe) was observed in the range from BDL to 0.88 mg/L
- Magnesium (as Mg) was observed in the range from BDL to 9.74 mg/L
- Sulphate (as SO_4) was observed in the range from 8.47 to 48.9 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 5.94 to 34.0 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 50.3 to 70.0 mg/L
- Ammonia (as NH_3-N), Manganese (as Mn), Nitrate (as NO_3), Aluminium (as Al), Zinc (as Zn), Anionic Detergents, Barium (as Ba), Boron (as B) Chloramines (as Cl_2), Fluoride (as F), Copper (as Cu), Mineral Oil, Phenolic Compounds(as C_6H_5OH), Selenium (as Se), Silver (as Ag), Hydrogen Sulphide (as H_2S), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Molybdenum (as Mo), Nickel (as Ni), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues, Trihalomethanes, Polychlorinated Biphenyls (PCB) and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as *E.coli* and Total Coliforms were not detected.

c) At the location **PAF Area** (Open Well),

- Colour observed was 1 Hazen unit and the odour was agreeable
- pH was observed in the range from 6.60 to 7.50
- Turbidity was observed in the range from BDL to 0.8 NTU
- Total Dissolved Solids were observed in the range from 210 to 390 mg/L
- Calcium (as Ca) was observed in the range from 12.8 to 24.8 mg/L
- Chloride (as Cl) was observed in the range from 46.7 to 146 mg/L
- Iron (as Fe) was observed in the range from BDL to 0.49 mg/L
- Magnesium (as Mg) was observed in the range from 3.90 to 10.3 mg/L
- Sulphate (as SO_4) was observed in the range from 17.6 to 49.8 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 5.97 to 52.3 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 66.7 to 84.0 mg/L
- Ammonia (as NH_3-N), Manganese (as Mn), Nitrate (as NO_3), Aluminium (as Al), Zinc (as Zn), Anionic Detergents, Barium (as Ba), Boron (as B) Chloramines (as Cl_2), Fluoride (as F), Copper (as Cu), Mineral Oil, Phenolic Compounds(as C_6H_5OH), Selenium (as Se), Silver (as Ag), Hydrogen Sulphide (as H_2S), Cadmium (as Cd), Cyanide (as CN), Lead (as

Pb), Mercury (as Hg), Molybdenum (as Mo), Nickel (as Ni), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues, Trihalomethanes, Polychlorinated Biphenyls (PCB) and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits

- Bacteriological parameters such as *E.coli* and Total Coliforms were not detected.

d) Summary – Comparison of Results of **All Locations**,

- Colour observed was 1 Hazen unit and the odour was agreeable in all locations
- Maximum value of pH observed was 7.90 at Port Site
- Maximum value of Turbidity observed was 0.8 NTU at Port Site and PAF Area
- Maximum value of Total Dissolved Solids observed was 492 mg/L at Port Site
- Maximum value of Calcium (as Ca) observed was 33.6 mg/L at Port Site
- Maximum value of Chloride (as Cl) observed was 246 mg/L at Port Site
- Maximum value of Iron (as Fe) observed was 0.88 mg/L at Proposed Port Estate Area
- Maximum value of Magnesium (as Mg) observed was 16.6 mg/L at Port Site
- Maximum value of Sulphate (as SO_4) observed was 49.8 mg/L at PAF area
- Maximum value of Total Alkalinity (as $CaCO_3$) observed was 99.0 mg/L at Port Site
- Maximum value of Total Hardness (as $CaCO_3$) observed was 153 mg/L at Port Site
- Ammonia (as NH_3-N), Manganese (as Mn), Nitrate (as NO_3), Aluminium (as Al), Zinc (as Zn), Anionic Detergents, Barium (as Ba), Boron (as B) Chloramines (as Cl_2), Fluoride (as F), Copper (as Cu), Mineral Oil, Phenolic Compounds(as C_6H_5OH), Selenium (as Se), Silver (as Ag), Hydrogen Sulphide (as H_2S), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Molybdenum (as Mo), Nickel (as Ni), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues, Trihalomethanes, Polychlorinated Biphenyls (PCB) and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits at all locations

- Bacteriological parameters such as *E.coli* and Total Coliforms were not detected at all locations.

HYR-6.6. Surface Water Analysis Results for the period from October 2023 to March 2024:

Table 6.5: Surface Water Analysis Results

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
Physical Parameters							
1.	Colour	Hazen Units	Oct-23	1	1	1	--
			Nov-23	1	1	1	--
			Dec-23	1	1	1	--
			Jan-24	1	1	1	1
			Feb-24	1	1	1	1
			Mar-24	1	1	1	1
2.	Odour	-	Oct-23	Agreeable	Agreeable	Agreeable	--
			Nov-23	Agreeable	Agreeable	Agreeable	--
			Dec-23	Agreeable	Agreeable	Agreeable	--
			Jan-24	Agreeable	Agreeable	Agreeable	Agreeable
			Feb-24	Agreeable	Agreeable	Agreeable	Agreeable
			Mar-24	Agreeable	Agreeable	Agreeable	Agreeable
3.	pH Value	-	Oct-23	6.61	6.79	6.81	--
			Nov-23	7.20	7.65	7.27	--
			Dec-23	7.24	7.84	7.51	--
			Jan-24	7.09	7.05	7.08	7.41
			Feb-24	7.5	7.5	7.56	7.82
			Mar-24	7.15	7.12	7.18	7.25
4.	Turbidity	N.T.U.	Oct-23	0.8	0.2	BDL	--
			Nov-23	0.8	0.5	0.2	--
			Dec-23	0.8	0.4	0.2	--
			Jan-24	5.4	3.6	0.2	2.3
			Feb-24	4.6	4.5	1.8	1.8
			Mar-24	1.8	3.5	0.6	0.7
5.	Electrical Conductivity (at 25°C)	µmho/cm	Oct-23	778	748	778	--
			Nov-23	707	447	433	--
			Dec-23	225	359	350	--
			Jan-24	869	245	265	6074
			Feb-24	1170	240	255	7647
			Mar-24	1260	260	285	5722
6.	Total Dissolved Solids	mg/L	Oct-23	292	295	305	--
			Nov-23	456	287	278	--
			Dec-23	143	230	225	--
			Jan-24	565	120	170	3158
			Feb-24	515	115	160	3755
			Mar-24	610	136	180	3140
Chemical Parameters							

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
7.	Dissolved Oxygen	mg/L	Oct-23	6.4	6.2	6.4	--
			Nov-23	7.1	6.9	7.0	--
			Dec-23	6.9	7.0	6.9	--
			Jan-24	6.7	6.8	7.1	6.6
			Feb-24	6.8	7.0	6.8	6.9
			Mar-24	6.9	6.8	7.1	6.7
8.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
9.	Oil & Grease	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
10.	Free Ammonia	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
11.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
12.	Barium (as Ba)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
13.	Boron (as B)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
14.	Calcium (as Ca)	mg/L	Oct-23	9.60	19.2	12.0	--
			Nov-23	20.8	17.6	14.4	--

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
			Dec-23	7.20	20.0	14.4	--
			Jan-24	40.0	10.4	12.0	44.0
			Feb-24	34.4	10.4	10.4	51.2
			Mar-24	34.4	9.60	12.8	41.6
15.	Chloride (as Cl)	mg/L	Oct-23	164	128	150	--
			Nov-23	241	147	158	--
			Dec-23	51.2	115	104	--
			Jan-24	131	32.8	55.6	1251
			Feb-24	136	38.3	54.4	1661
			Mar-24	141	35.2	65.4	886
16.	Copper (as Cu)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
17.	Fluoride (as F)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
18.	Iron (as Fe)	mg/L	Oct-23	1.02	0.290	0.130	--
			Nov-23	0.58	0.400	0.22	--
			Dec-23	0.77	1.80	0.24	--
			Jan-24	0.42	0.69	BDL	0.62
			Feb-24	0.42	0.86	BDL	0.47
			Mar-24	0.51	0.77	BDL	0.39
19.	Magnesium (as Mg)	mg/L	Oct-23	8.28	7.31	10.2	--
			Nov-23	28.4	9.79	9.30	--
			Dec-23	3.92	4.40	7.83	--
			Jan-24	29.5	BDL	2.44	81.2
			Feb-24	27.8	2.92	3.90	70.1
			Mar-24	27.8	4.38	5.36	54.1
20.	Manganese (as Mn)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
21.	Mineral Oil	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
22.	Nitrate (as NO_3)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
23.	Phenolic Compounds (as C_6H_5OH)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
24.	Selenium (as Se)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
25.	Silver (as Ag)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
26.	Sulphate (as SO_4)	mg/L	Oct-23	50.0	48.6	50.0	--
			Nov-23	10.9	7.77	3.95	--
			Dec-23	5.66	8.58	15.20	--
			Jan-24	18.7	11.5	8.18	197
			Feb-24	20.8	4.25	5.75	184
			Mar-24	27.3	5.65	8.65	180
27.	Total Phosphate (as PO_4)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
28.	Total Alkalinity (as $CaCO_3$)	mg/L	Oct-23	8.04	42.2	30.1	--
			Nov-23	16.0	38.0	28.0	--
			Dec-23	12.0	22.0	20.0	--
			Jan-24	11.9	30.2	31.8	41.8
			Feb-24	11.9	25.7	29.7	43.6
			Mar-24	11.8	25.7	27.7	39.6

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
29.	Total Hardness (as $CaCO_3$)	mg/L	Oct-23	58.0	78.0	72.0	--
			Nov-23	169	84.4	74.4	--
			Dec-23	34.2	68.3	68.3	--
			Jan-24	222	28.3	40.4	444
			Feb-24	100	32.0	42.0	416
			Mar-24	88.0	54.0	54.0	326
30.	Calcium Hardness (as $CaCO_3$)	mg/L	Oct-23	24.0	48.0	30.0	--
			Nov-23	26.1	44.2	36.2	--
			Dec-23	18.1	36.2	36.2	--
			Jan-24	101	26.3	30.3	111
			Feb-24	86	20.0	26.0	128
			Mar-24	64.0	32.0	32.0	104
31.	Zinc (as Zn)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
32.	Sodium (as Na)	mg/L	Oct-23	75.8	58.2	69.5	--
			Nov-23	69.2	81.8	78.3	--
			Dec-23	33.2	75.6	67.5	--
			Jan-24	75.0	15.60	30.5	60.2
			Feb-24	88.0	17.20	25.0	55.6
			Mar-24	65.5	14.6	20.0	262
33.	Potassium (as K)	mg/L	Oct-23	5.07	6.98	7.16	--
			Nov-23	6.80	7.56	6.41	--
			Dec-23	4.59	6.88	6.78	--
			Jan-24	8.60	2.50	6.80	26.0
			Feb-24	10.20	3.10	4.20	17.8
			Mar-24	4.60	1.89	2.50	14.3
34.	Sodium Adsorption Ratio	-	Oct-23	4.326	2.870	3.560	--
			Nov-23	2.316	3.875	3.950	--
			Dec-23	2.470	3.980	3.550	--
			Jan-24	2.192	1.330	2.096	1.241
			Feb-24	2.703	1.322	1.676	1.185
			Mar-24	2.012	0.979	1.183	6.303
35.	Salinity	ppt	Oct-23	--	--	--	--
			Nov-23	--	--	--	--
			Dec-23	--	--	--	--
			Jan-24	1.239	0.101	0.109	2.742
			Feb-24	0.486	0.099	0.105	3.112
			Mar-24	0.735	0.133	0.149	3.644
36.	Cadmium (as Cd)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
37.	Cyanide (as CN)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
38.	Lead (as Pb)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
39.	Mercury (as Hg)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
40. Pesticide Residues							
i.	Alachlor	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
ii.	Atrazine	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
iii.	Aldrin/Dieldrin	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
iv.	Alpha HCH	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
v.	Beta HCH	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
vi.	Butachlor	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
vii.	Chlorpyrifos	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
viii.	Delta HCH	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
ix.	2,4D chlorophenoxyaceti c acid	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
x.	DDT (o,p & p,p-Isomers of DDT, DDE, DDD)	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xi.	Endosulfan (α,β & Sulphate)	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
			Mar-24	BDL	BDL	BDL	BDL
xii.	Ethion	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xiii.	γ HCH (Lindane)	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xiv.	Isoproturon	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xv.	Malathion	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xvi.	Methyl Parathion	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xvii.	Monocrotophos	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
xviii.	Phorate	µg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
		mg/L	Oct-23	BDL	BDL	BDL	--

Sl. No.	Parameters	Unit	Month	Poovar West Canal (S1)	Vizhinjam Branch Canal (S2)	Vellayani Lake (S3)	Poovar Estuary (S4)
41.	Polynuclear Aromatic Hydrocarbons (PAH)		Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
42.	Total Arsenic (as As)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
43.	Total Chromium (as Cr)	mg/L	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
Biological Analysis							
44.	Total Coliforms	MPN Index/100 ml	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL
45.	Faecal Coliforms	MPN Index/100 ml	Oct-23	BDL	BDL	BDL	--
			Nov-23	BDL	BDL	BDL	--
			Dec-23	BDL	BDL	BDL	--
			Jan-24	BDL	BDL	BDL	BDL
			Feb-24	BDL	BDL	BDL	BDL
			Mar-24	BDL	BDL	BDL	BDL

HYR-6.7. Graphical representation of Results for Surface Water Analysis:

Figure 6.10: Surface Water Analysis for pH value

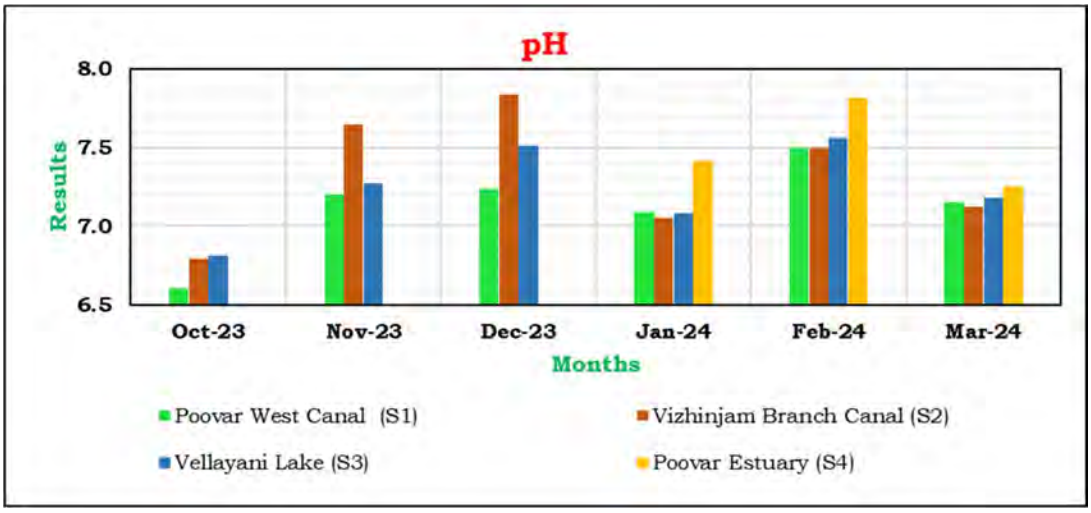


Figure 6.11: Surface Water Analysis for Turbidity

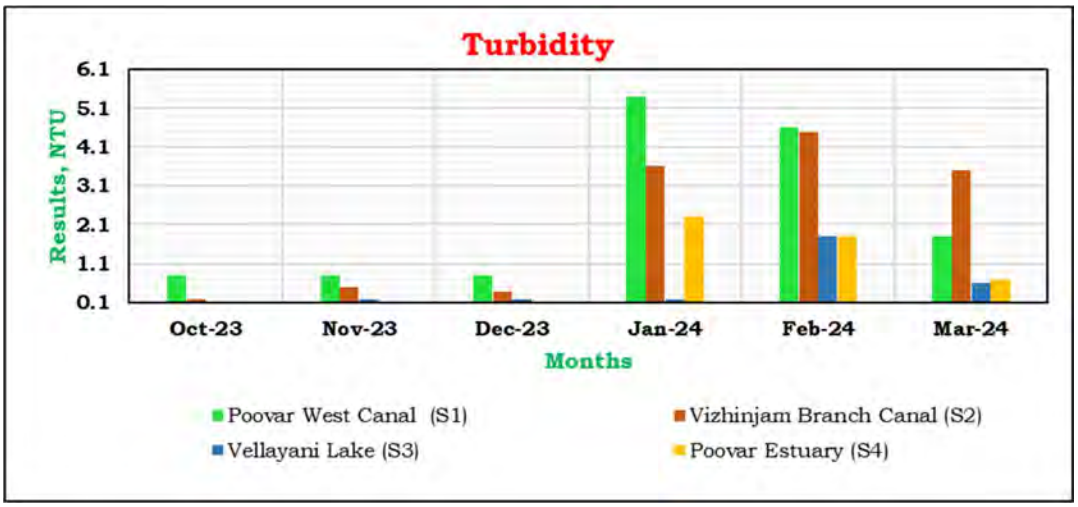


Figure 6.12: Surface Water Analysis for Electrical Conductivity @ 25 °C

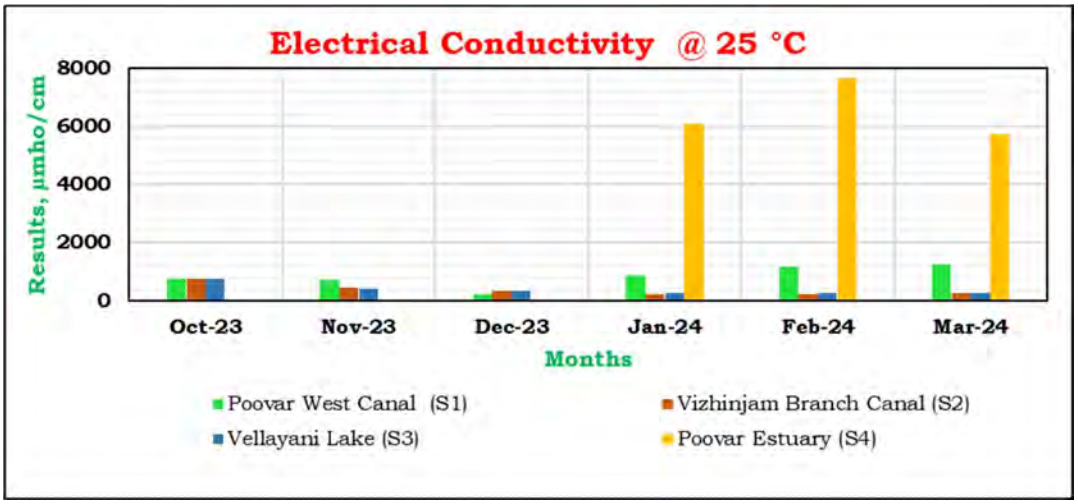


Figure 6.13: Surface Water Analysis for Total Dissolved Solids

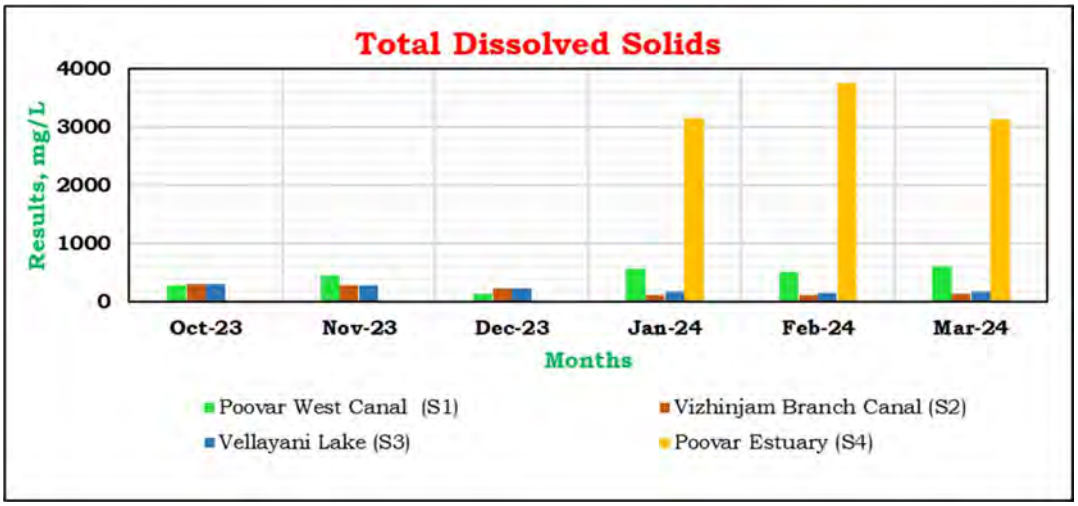


Figure 6.14: Surface Water Analysis for Dissolved Oxygen

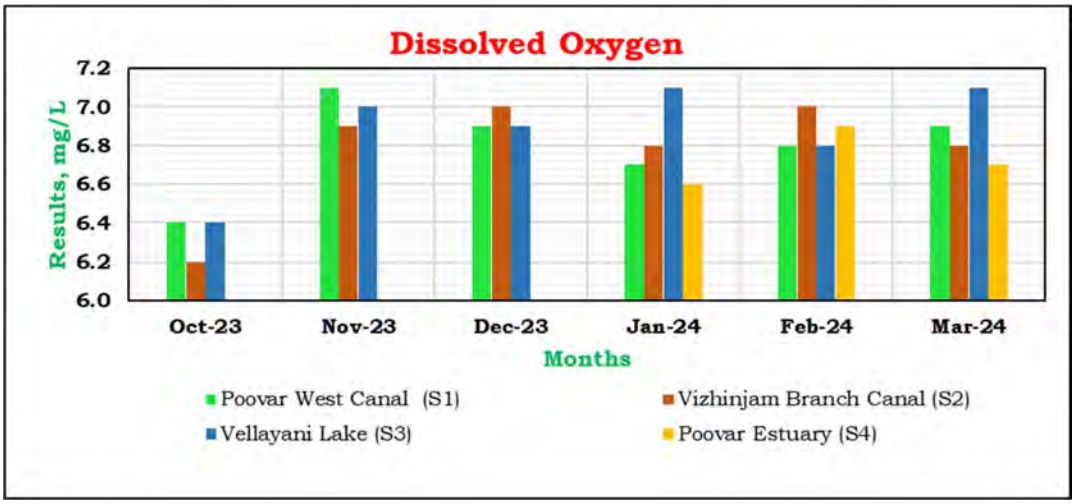


Figure 6.15: Surface Water Analysis for Chloride as Cl

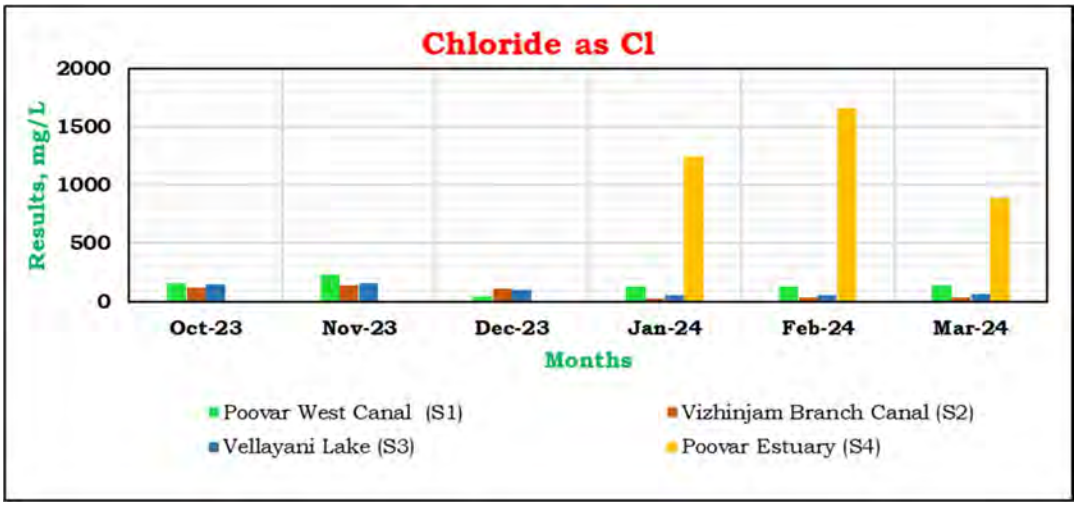


Figure 6.16: Surface Water Analysis for Sulphate as SO_4

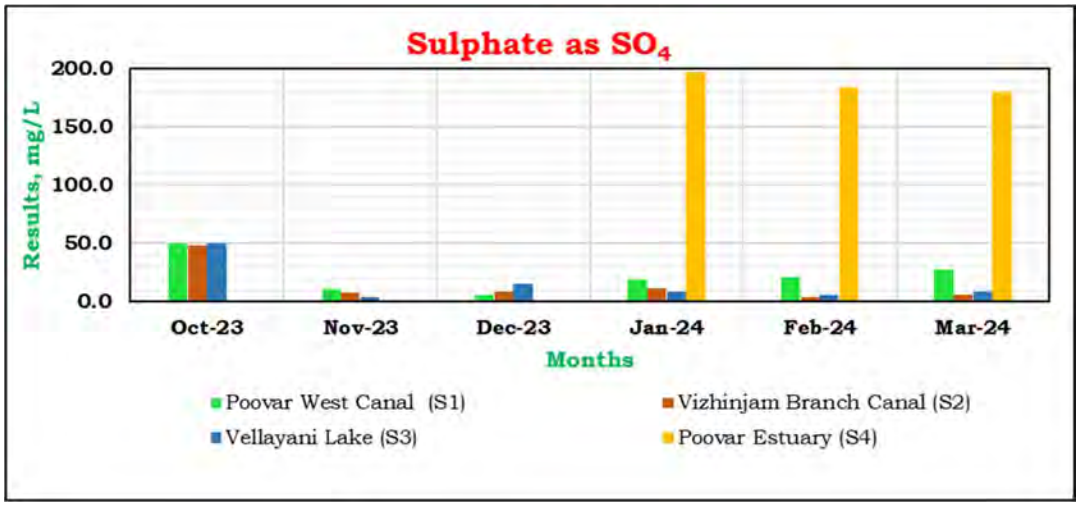


Figure 6.17: Surface Water Analysis for Calcium as Ca

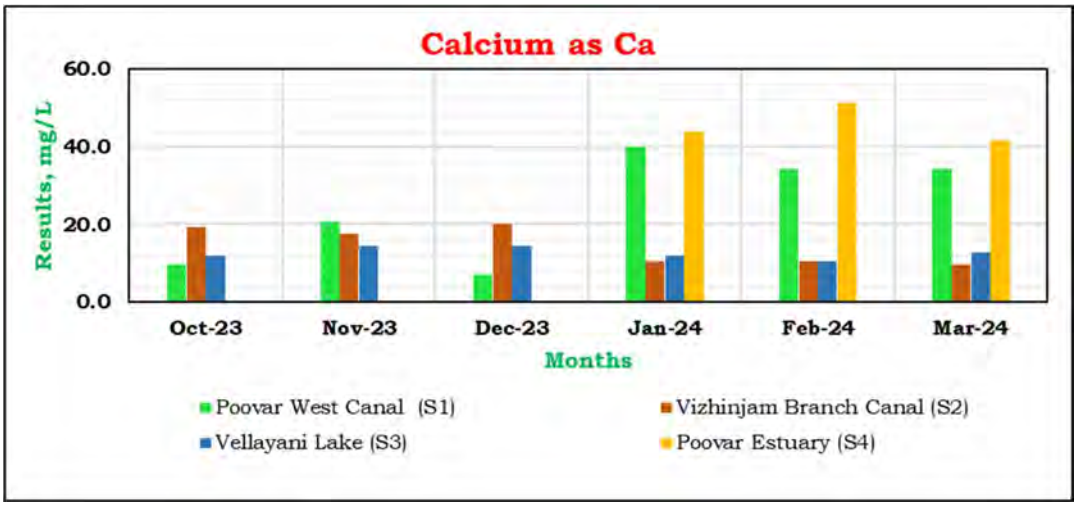


Figure 6.18: Surface Water Analysis for Magnesium as Mg

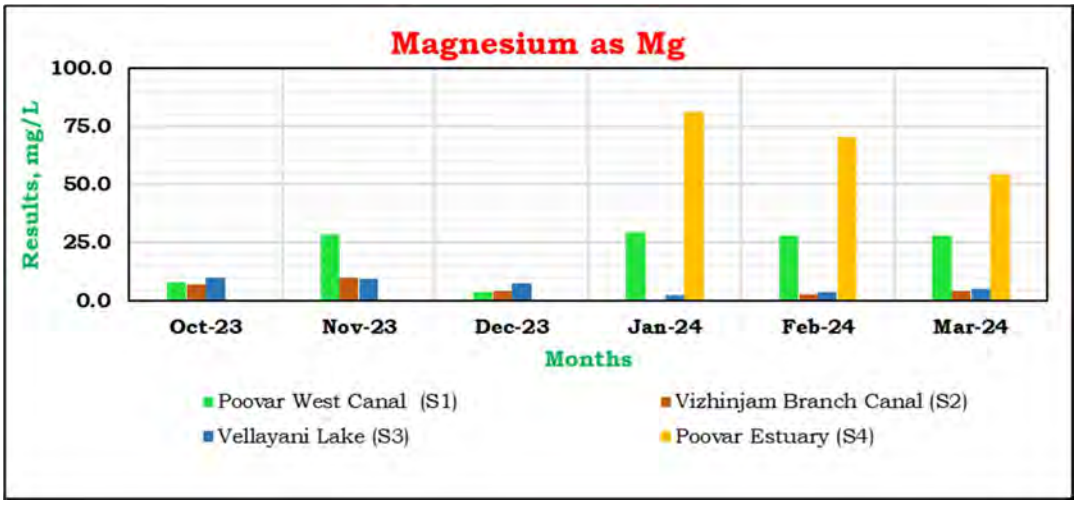


Figure 6.19: Surface Water Analysis for Iron as Fe

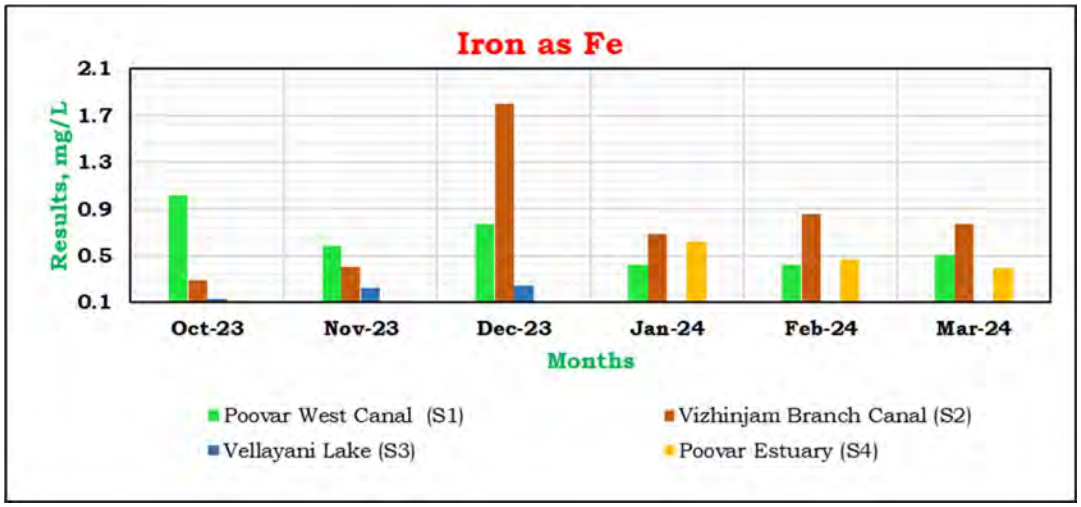


Figure 6.20: Surface Water Analysis for Total Alkalinity as $CaCO_3$

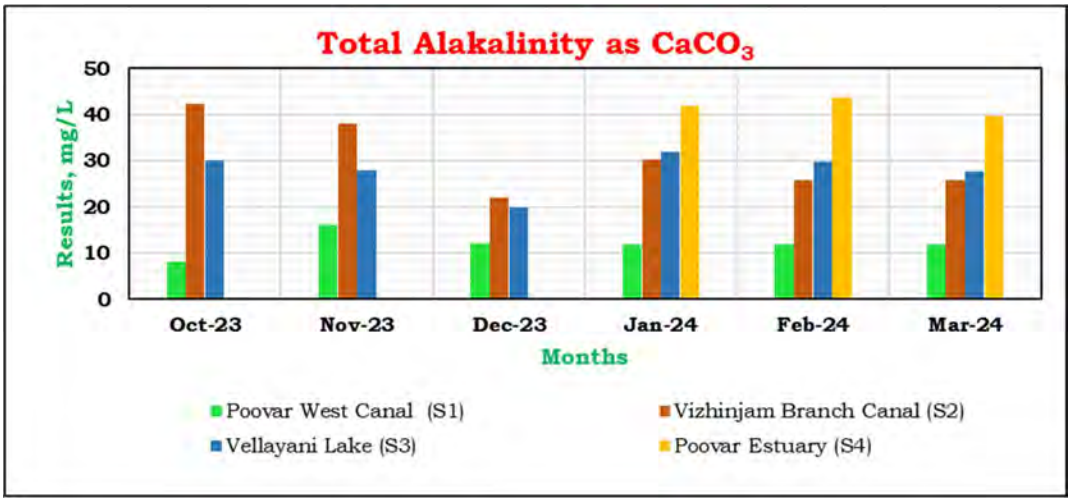


Figure 6.21: Surface Water Analysis for Total Hardness as $CaCO_3$

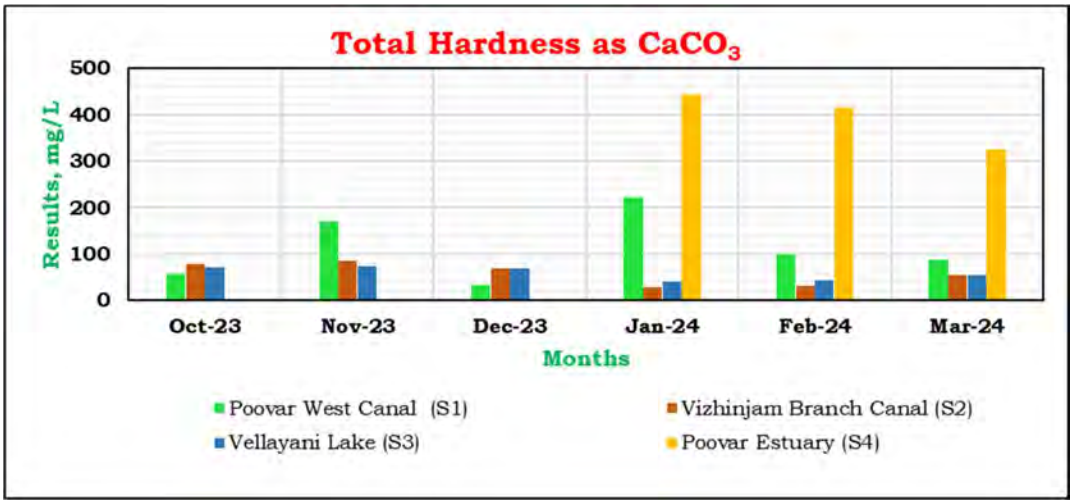


Figure 6.22: Surface Water Analysis for Calcium Hardness as $CaCO_3$

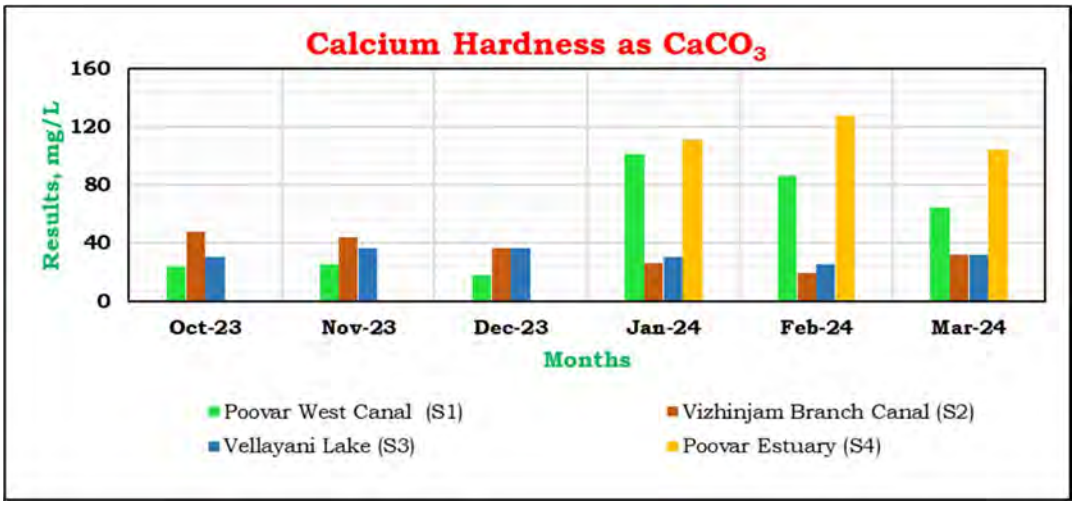


Figure 6.23: Surface Water Analysis for Sodium as Na

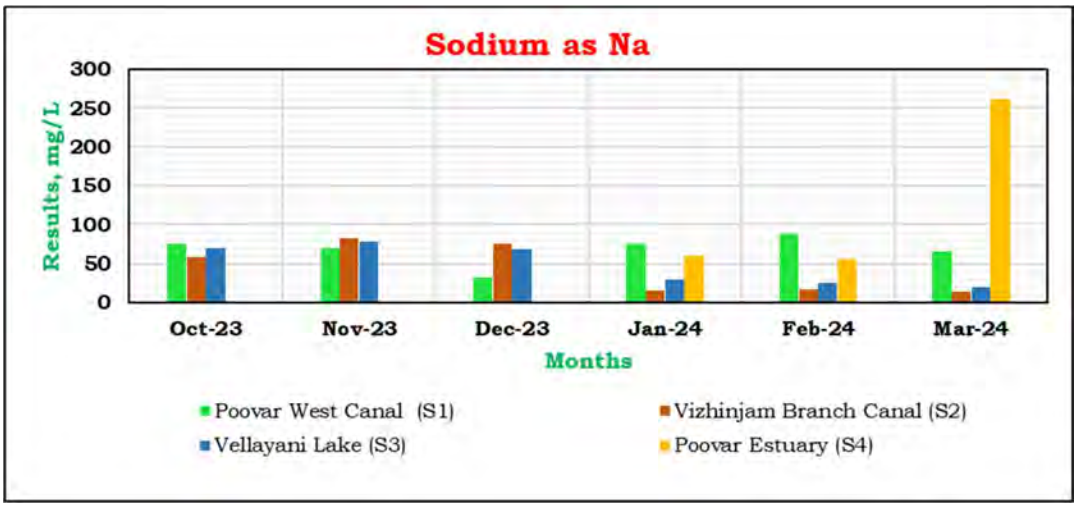


Figure 6.24: Surface Water Analysis for Potassium as K

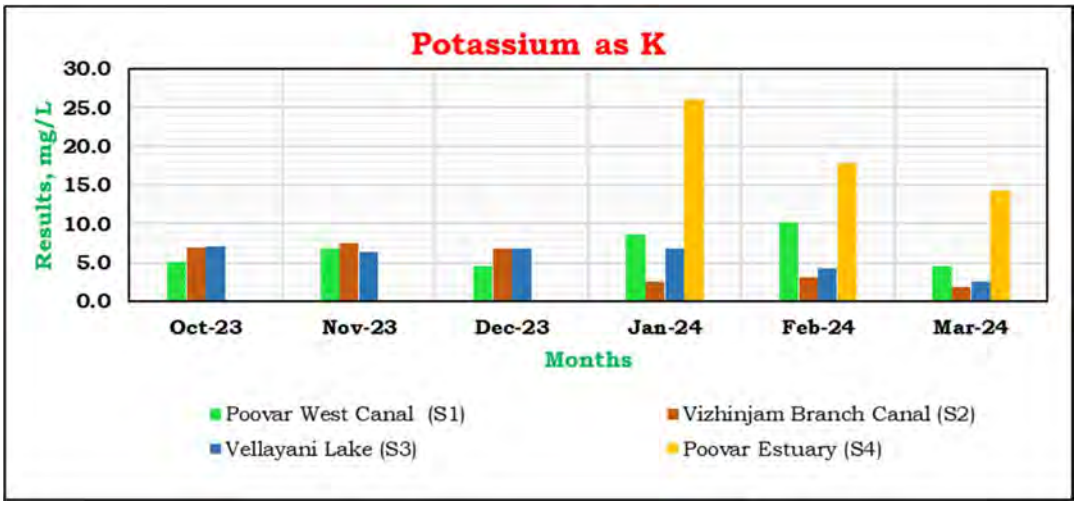


Figure 6.25: Surface Water Analysis for Sodium Adsorption Ratio

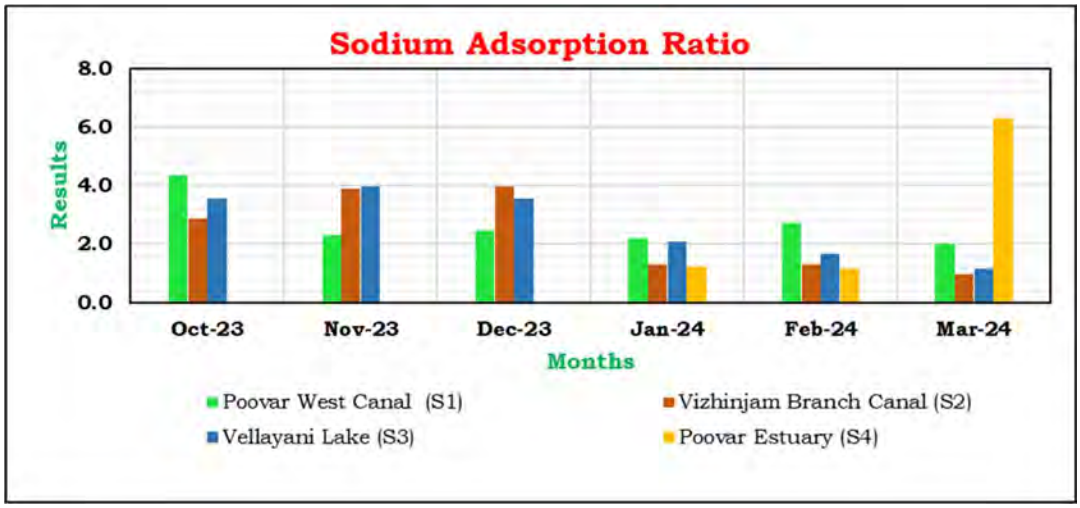
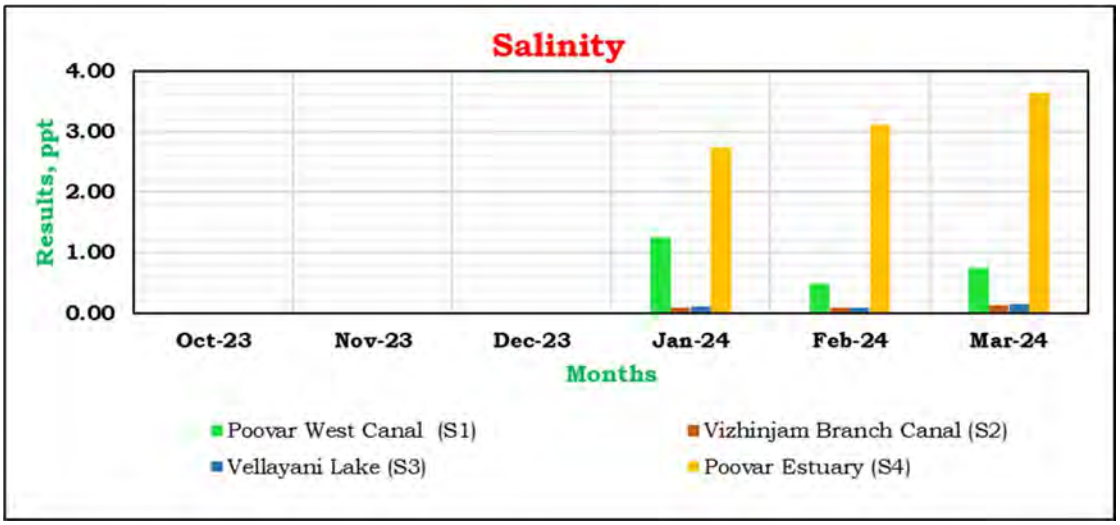


Figure 6.26: Surface Water Analysis for Salinity



HYR-6.8. Summary of Surface water

During the period from October 2023 to March 2024, following is the summary of surface water analysis:

a) At the location **Poovar West Canal**,

- Colour was observed 1 Hazen unit
- Odour was agreeable
- pH was observed in the range from 6.61 to 7.50
- Turbidity was observed in the range from 0.8 to 5.4 N.T.U.
- Electrical Conductivity was observed in the range from 225 to 1260 µmho/cm
- Total Dissolved Solids were observed in the range from 143 to 610 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.1 mg/L
- Calcium (as Ca) was observed in the range from 7.20 to 40.0 mg/L
- Chloride (as Cl) was observed in the range from 51.2 to 241 mg/L
- Iron (as Fe) was observed in the range from 0.42 to 1.02 mg/L
- Magnesium (as Mg) was observed in the range from 3.92 to 29.5 mg/L
- Sulphate (as SO_4) was observed in the range from 5.66 to 50.0 mg/L

- Total Alkalinity (as $CaCO_3$) was observed in the range from 8.04 to 16.0 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 34.2 to 222 mg/L
- Calcium Hardness (as $CaCO_3$) was observed in the range from 18.1 to 101 mg/L
- Sodium (as Na) was observed in the range from 33.2 to 88.0 mg/L
- Potassium (as K) was observed in the range from 4.59 to 10.2 mg/L
- Sodium Absorption Ratio was observed in the range from 2.012 to 4.326
- Salinity was observed in the range from 0.486 to 1.239 ppt
- Free Ammonia, Zinc (as Zn), Fluoride, Manganese (as Mn), Nitrate (as NO_3), Total Phosphate (as PO_4), Biochemical Oxygen Demand (3 days, 27°C), Oil & Grease, Anionic Detergents, Barium (as Ba), Boron (as B), Copper (as Cu), Mineral Oil, Phenolic Compounds (as C_6H_5OH), Selenium (as Se), Silver (as Ag), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as Total Coliforms and Faecal Coliforms were not detected.

b) At the location **Vizhinjam Branch Canal**,

- Colour was observed 1 Hazen unit
- Odour was agreeable
- pH was observed in the range from 6.79 to 7.84
- Turbidity was observed in the range from 0.2 to 4.5 N.T.U.
- Electrical Conductivity was observed in the range from 240 to 748 µmho/cm
- Total Dissolved Solids were observed in the range from 115 to 295 mg/L
- Dissolved Oxygen was observed in the range from 6.2 to 7.0 mg/L
- Calcium (as Ca) was observed in the range from 9.60 to 20.0 mg/L
- Chloride (as Cl) was observed in the range from 32.8 to 147 mg/L
- Iron (as Fe) was observed in the range from 0.29 to 1.80 mg/L
- Magnesium (as Mg) was observed in the range from BDL to 9.79 mg/L
- Sulphate (as SO_4) was observed in the range from 4.25 to 48.6 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 22.0 to 42.2 mg/L

- Total Hardness (as $CaCO_3$) was observed in the range from 28.3 to 84.4 mg/L
- Calcium Hardness (as $CaCO_3$) was observed in the range from 20.0 to 48.0 mg/L
- Sodium (as Na) was observed in the range from 14.6 to 81.8 mg/L
- Potassium (as K) was observed in the range from 1.89 to 7.56 mg/L
- Sodium Absorption Ratio was observed in the range from 0.979 to 3.980
- Salinity was observed in the range from 0.099 to 0.133 ppt
- Free Ammonia, Zinc (as Zn), Total Phosphate (as PO_4), Nitrate (as NO_3), Biochemical Oxygen Demand (3 days, 27°C), Oil & Grease, Anionic Detergents, Barium (as Ba), Boron (as B), Copper (as Cu), Fluoride (as F), Manganese (as Mn), Mineral Oil, Phenolic Compounds (as C_6H_5OH), Selenium (as Se), Silver (as Ag), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as Total Coliforms and Faecal Coliforms were not detected

c) At the location **Vellayani Lake**,

- Colour was observed 1 Hazen unit
- Odour was agreeable
- pH was observed in the range from 6.81 to 7.56
- Turbidity was observed in the range from BDL to 1.8 N.T.U.
- Electrical Conductivity was observed in the range from 255 to 778 µmho/cm
- Total Dissolved Solids were observed in the range from 160 to 305 mg/L
- Dissolved Oxygen was observed in the range from 6.4 to 7.1 mg/L
- Calcium (as Ca) was observed in the range from 10.4 to 14.4 mg/L
- Chloride (as Cl) was observed in the range from 54.4 to 158 mg/L
- Iron (as Fe) was observed in the range from BDL to 0.24 mg/L
- Magnesium (as Mg) was observed in the range from 2.44 to 10.2 mg/L
- Sulphate (as SO_4) was observed in the range from 3.95 to 15.2 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 20.0 to 31.8 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 40.4 to 74.4 mg/L

- Calcium Hardness (as $CaCO_3$) was observed in the range from 26.0 to 36.2 mg/L
- Sodium (as Na) was observed in the range from 20.0 to 78.3 mg/L
- Potassium (as K) was observed in the range from 2.50 to 7.16 mg/L
- Sodium Absorption Ratio was observed in the range from 1.183 to 3.950
- Salinity was observed in the range from 0.105 to 0.149 ppt
- Free Ammonia, Zinc (as Zn), Total Phosphate (as PO_4), Nitrate (as NO_3), Manganese (as Mn), Biochemical Oxygen Demand (3 days, 27°C), Oil & Grease, Anionic Detergents, Barium (as Ba), Boron (as B), Copper (as Cu), Fluoride (as F), Mineral Oil, Phenolic Compounds (as C_6H_5OH), Selenium (as Se), Silver (as Ag), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as Total Coliforms and Faecal Coliforms were not detected

d) At the location **Poovar Estuary**,

- Colour was observed 1 Hazen unit
- Odour was agreeable
- pH was observed in the range from 7.25 to 7.82
- Turbidity was observed in the range from 0.7 to 2.3 N.T.U.
- Electrical Conductivity was observed in the range from 5722 to 7647 µmho/cm
- Total Dissolved Solids were observed in the range from 3140 to 3755 mg/L
- Dissolved Oxygen was observed in the range from 6.6 to 6.9 mg/L
- Calcium (as Ca) was observed in the range from 41.6 to 51.2 mg/L
- Chloride (as Cl) was observed in the range from 886 to 1661 mg/L
- Iron (as Fe) was observed in the range from 0.39 to 0.62 mg/L
- Magnesium (as Mg) was observed in the range from 54.1 to 81.2 mg/L
- Sulphate (as SO_4) was observed in the range from 180 to 197 mg/L
- Total Alkalinity (as $CaCO_3$) was observed in the range from 39.6 to 43.6 mg/L
- Total Hardness (as $CaCO_3$) was observed in the range from 326 to 444 mg/L

- Calcium Hardness (as $CaCO_3$) was observed in the range from 104 to 128 mg/L
- Sodium (as Na) was observed in the range from 55.6 to 262 mg/L
- Potassium (as K) was observed in the range from 14.3 to 26.0 mg/L
- Sodium Absorption Ratio was observed in the range from 1.185 to 6.303
- Salinity was observed in the range from 2.742 to 3.644 ppt
- Free Ammonia, Zinc (as Zn), Total Phosphate (as PO_4), Nitrate (as NO_3), Manganese (as Mn), Biochemical Oxygen Demand (3 days, 27°C), Oil & Grease, Anionic Detergents, Barium (as Ba), Boron (as B), Copper (as Cu), Fluoride (as F), Mineral Oil, Phenolic Compounds (as C_6H_5OH), Selenium (as Se), Silver (as Ag), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits
- Bacteriological parameters such as Total Coliforms and Faecal Coliforms were not detected

e) Summary – Comparison of Results of **All Locations**,

- Colour was observed 1 Hazen unit at all locations
- Odour was agreeable at all locations
- Maximum value of pH observed was 7.84 at Vizhinjam Branch Canal
- Maximum value of Turbidity observed was 5.4 N.T.U. at Poovar West Canal
- Maximum value of Electrical Conductivity observed was 7647 µmho/cm at Poovar Estuary
- Maximum value of Total Dissolved Solids observed was 3755 mg/L at Poovar Estuary
- Maximum value of Dissolved Oxygen observed was 7.1 mg/L at Poovar West Canal and Vellayani Lake
- Maximum value of Calcium (as Ca) observed was 51.2 mg/L at Poovar Estuary
- Maximum value of Chloride (as Cl) observed was 1661 mg/L at Poovar Estuary
- Maximum value of Iron (as Fe) observed was 1.80 mg/L at Vizhinjam Branch Canal

- Maximum value of Magnesium (as Mg) observed was 81.2 mg/L at Poovar Estuary
- Maximum value of Sulphate (as SO_4) observed was 197 mg/L at Poovar Estuary
- Maximum value of Total Alkalinity (as $CaCO_3$) observed was 43.6 mg/L at Poovar Estuary
- Maximum value of Total Hardness (as $CaCO_3$) observed was 444 mg/L at Poovar Estuary
- Maximum value of Calcium Hardness (as $CaCO_3$) observed was 128 mg/L at Poovar Estuary
- Maximum value of Sodium (as Na) observed was 262 mg/L at Poovar Estuary
- Maximum value of Potassium (as K) observed was 26.0 mg/L at Poovar Estuary
- Maximum value of Sodium Absorption Ratio observed was 6.303 at Poovar Estuary
- Maximum value of Salinity observed was 3.644 mg/L at Poovar Estuary
- Free Ammonia, Zinc (as Zn)Total Phosphate (as PO_4), Nitrate (as NO_3), Manganese (as Mn), Biochemical Oxygen Demand (3 days, 27°C), Oil & Grease, Anionic Detergents, Barium (as Ba), Boron (as B), Copper (as Cu), Fluoride (as F), Mineral Oil, Phenolic Compounds (as C_6H_5OH), Selenium (as Se), Silver (as Ag), Cadmium (as Cd), Cyanide (as CN), Lead (as Pb), Mercury (as Hg), Total Arsenic (as As), Total Chromium (as Cr), Pesticide Residues and Polynuclear Aromatic Hydrocarbons (PAH) were observed below detectable limits at all locations
- Bacteriological parameters such as Total Coliforms and Faecal Coliforms were not detected at all locations.

HYR-7	Soil Analysis

HYR-7.1. Soil Sampling Location Details:

This section describes the location and analysis results of Soil Sampling during January 2024. Soil sampling was carried out at four locations including Port Site, Proposed Port Estate Area, Along with road Network (Mulloor) and Along with Rail Network (Balarampuram).

Table 7.1: Coordinates of Soil Sampling Location

Location	Legend	Latitude	Longitude
Port Site	P	8°22'03.00"N	77°00'16.92"E
Proposed Port Estate Area	C	8°21'02.16"N	77°03'15.84"E
Along with road Network (Mulloor)	M	8°22'23.88"N	77°00'37.08"E
Along with Rail Network (Balarampuram)	B	8°25'28.92"N	77°02'23.64"E

Figure 7.1: Google earth views of Soil Sampling Locations

HYR-7.2. Methodology of Soil Sampling and Analysis

Table 7.2: Soil Sampling Methodology

Sr. No.	Parameter	Unit	Detection Limit	Method Reference
Soil Analysis				
1.	Texture	-	--	SEAAL/EN/SLS/SOP/14
2.	Particle Size Distribution	%	0.1	SEAAL/EN/SLS/SOP/14
3.	pH (1:5 Suspension)	-	1	IS 10158: 1982
4.	Electrical Conductivity (1:5 Suspension at 25^{0}C)	µS/cm	1	IS 14767: 2000
5.	Porosity	%	5	SEAAL/EN/SLS/SOP/02
6.	Total Kjeldhal Nitrogen (as TKN)	mg/kg	50	IS 14684: 1999
7.	Available Phosphorus (as P)	mg/kg	1	SEAAL/EN/SLS/SOP/04
8.	Available Potassium (as K)	mg/kg	0.5	SEAAL/EN/SLS/SOP/03
9.	Total Organic Carbon	g/100g	0.1	IS 2720 Part 22:1972
10.	Organic Matter	g/100g	0.1	IS 2720 Part 22:1972
11.	Available Sodium	mg/kg	0.2	SEAAL/ENS/SLS/SOP/03
12.	Lead (as Pb)	mg/kg	5	EPA 7000B : 2007

HYR-7.3. Soil Analysis Results in the month of January 2023:

Table 7.3: Soil Analysis Results

Date of Sampling	**10-01-2024**

Parameter	Unit	Results			
		Port Site (P)	Proposed Port Estate Area (C)	Along with road Network (Mulloor) (M)	Along with Rail Network (Balarampuram) (B)
Texture	-	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
Particle Size Distribution - Gravel	%	1.84	1.25	1.18	2.11

Parameter	Unit	Results			
		Port Site (P)	Proposed Port Estate Area (C)	Along with road Network (Mulloor) (M)	Along with Rail Network (Balarampuram) (B)
Particle Size Distribution - Sand	%	71.50	66.78	65.89	60.30
Particle Size Distribution - Silt	%	17.34	20.65	20.43	24.51
Particle Size Distribution - Clay	%	9.32	11.32	12.50	13.08
pH (1:5 Suspension)	-	7.02	6.83	6.95	6.76
Electrical Conductivity (1:5 Suspension at 25 °C)	µS/cm	420	282	310	384
Porosity	%	20.5	24.2	22.8	54.1
Infiltration (Void Ratio)	-	5.87	6.21	6.02	5.56
Total Kjeldhal Nitrogen (as TKN)	mg/kg	2119	1068	1245	2357
Available Phosphorus (as P)	mg/kg	210	350	286	1256
Available Potassium (as K)	mg/kg	22.8	26.5	17.9	35.5
Total Organic Carbon	%	0.506	1.23	1.09	3.22
Organic Matter	%	0.872	2.12	1.89	5.55
Available Sodium	mg/kg	182	176	154	189
Lead (as Pb)	mg/kg	1.95	1.76	2.54	1.02

BDL: Below Detectable Limit

HYR-7.4. Graphical Representation of Results for Soil Analysis:

Figure 7.2: Soil Analysis for Particle Distribution

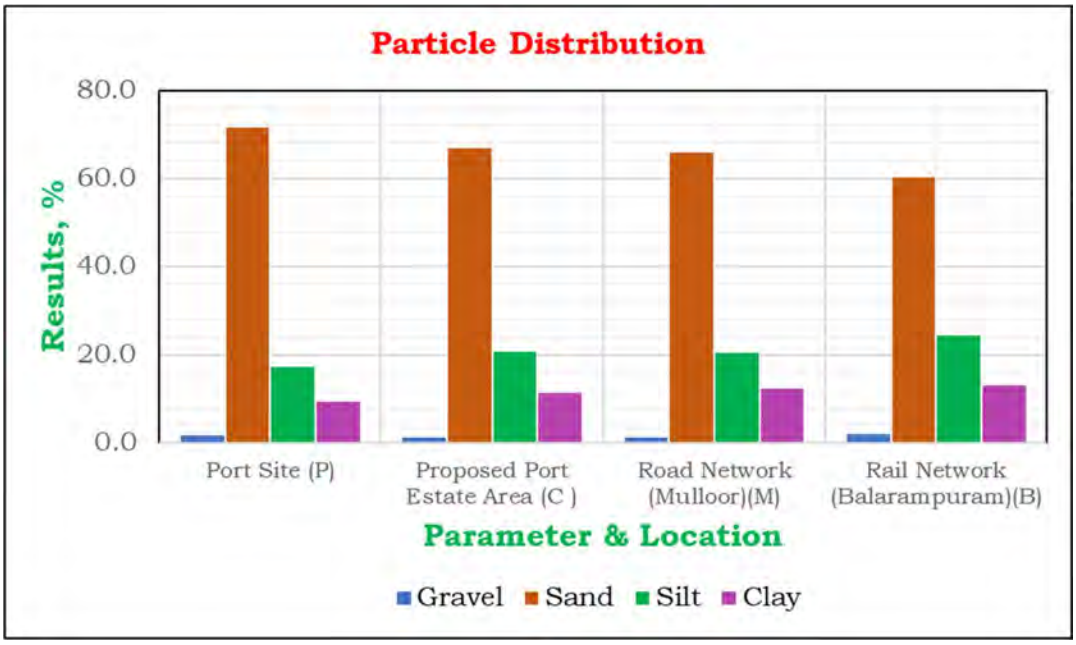


Figure 7.3: Soil Analysis for pH

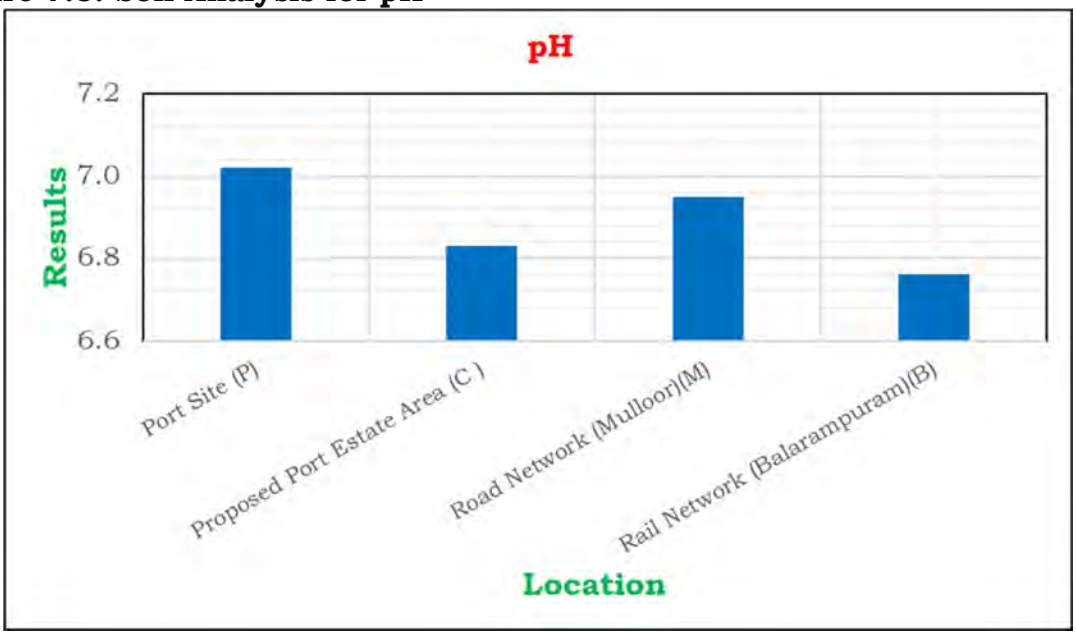


Figure 7.4: Soil Analysis for Electrical Conductivity

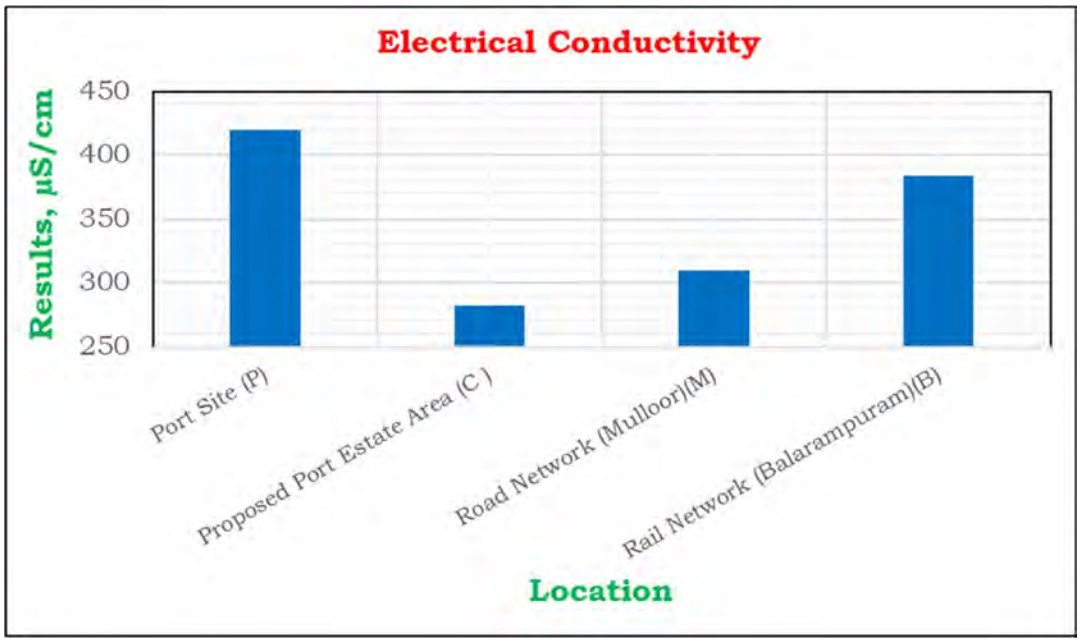


Figure 7.5: Soil Analysis for Porosity

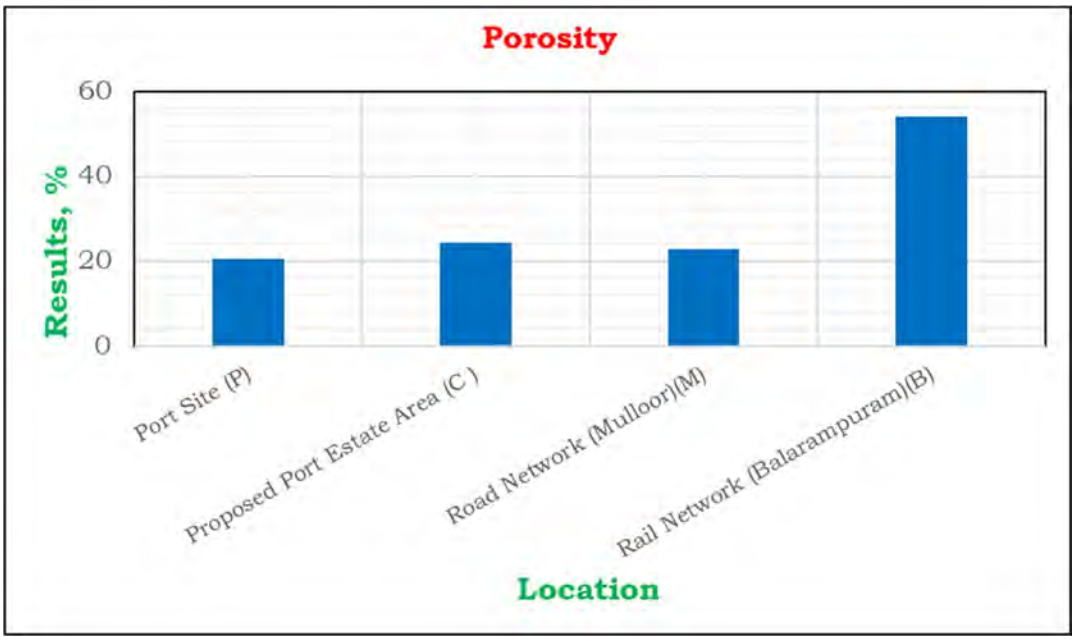


Figure 7.6: Soil Analysis for Infiltration Ratio

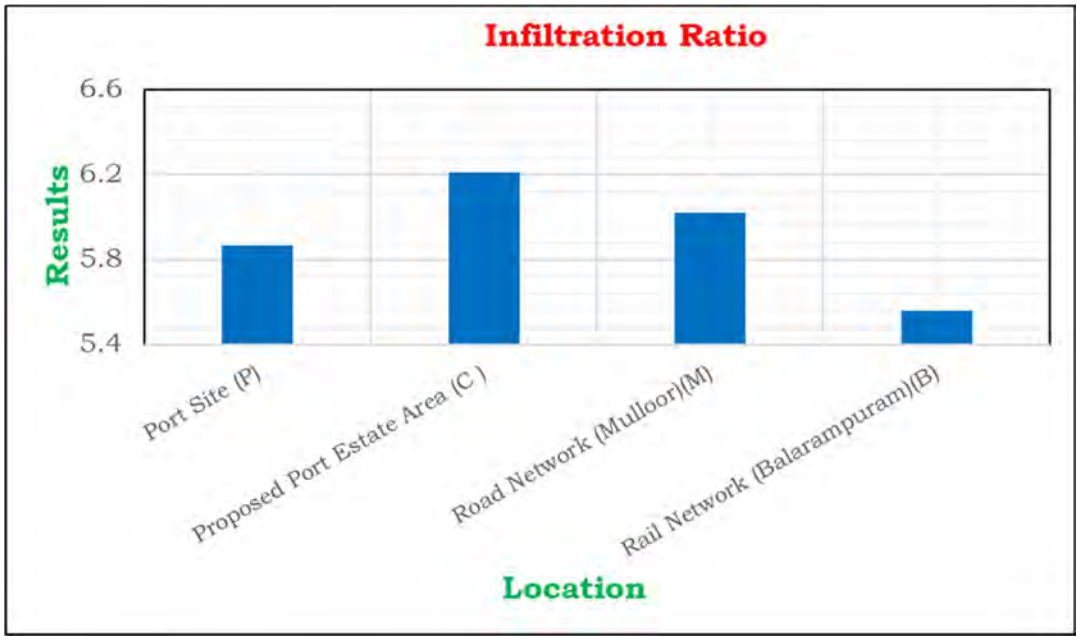


Figure 7.7: Soil Analysis for Total Kjeldhal Nitrogen

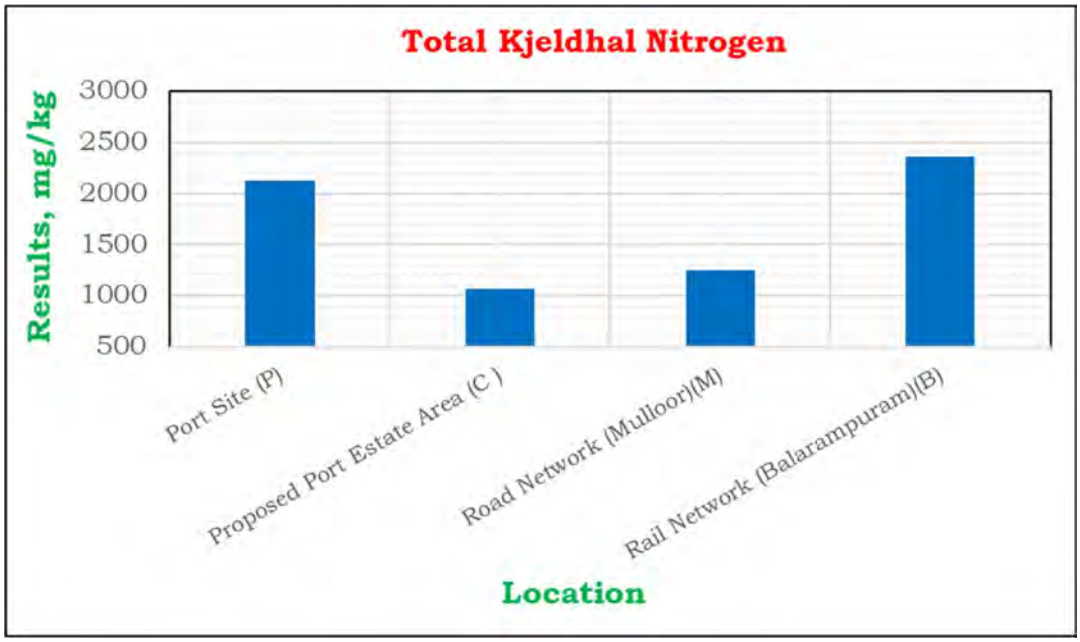


Figure 7.8: Soil Analysis for Available Phosphorous (as P)

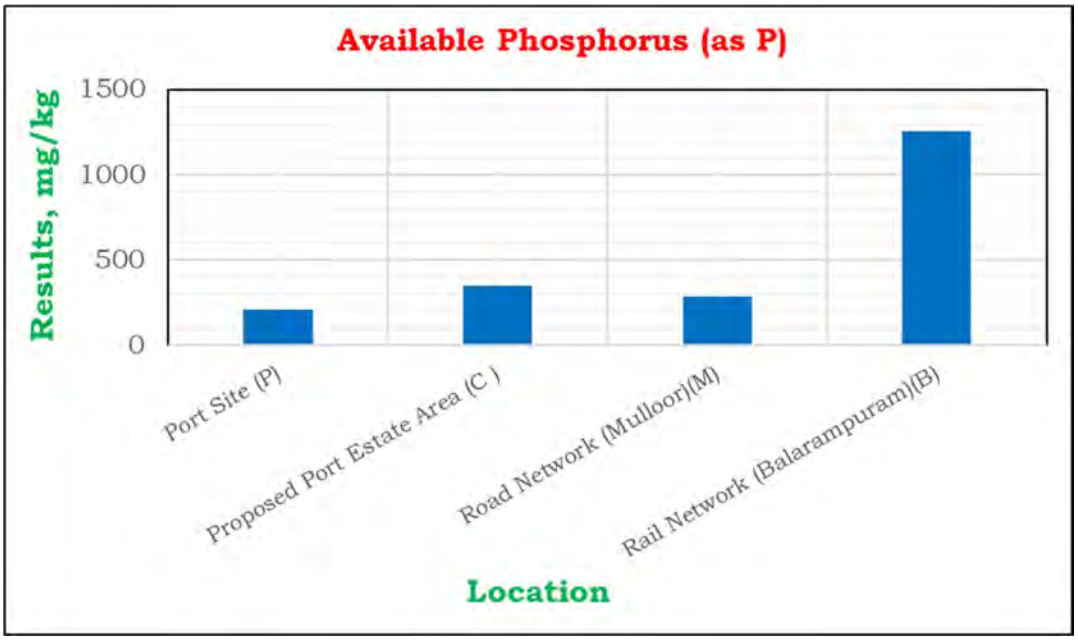


Figure 7.9: Soil Analysis for Available Potassium (as K)

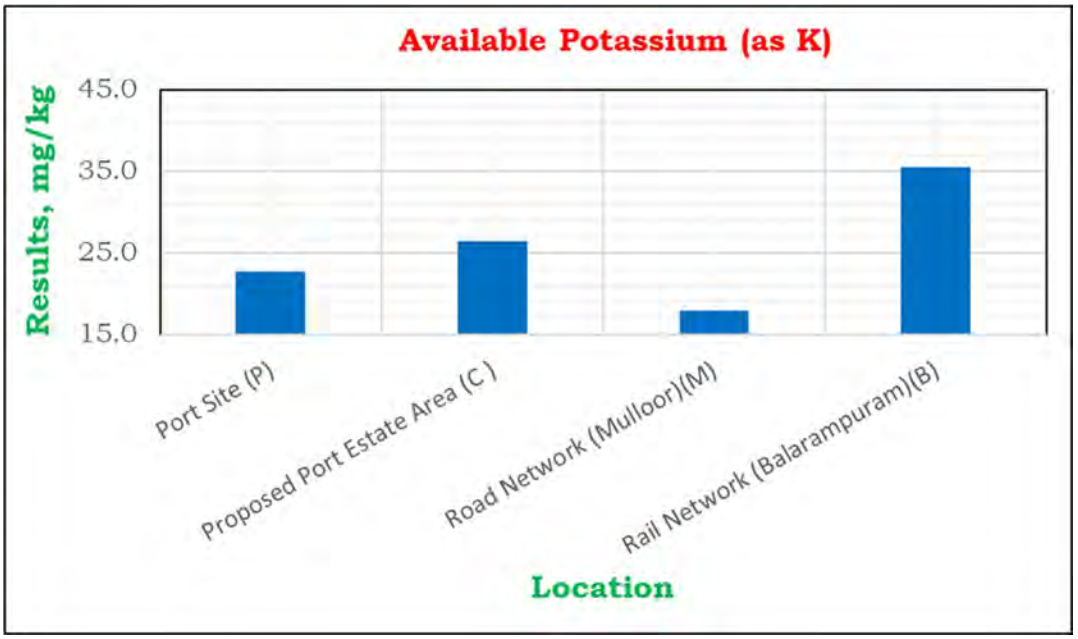


Figure 7.10: Soil Analysis for Total Organic Carbon

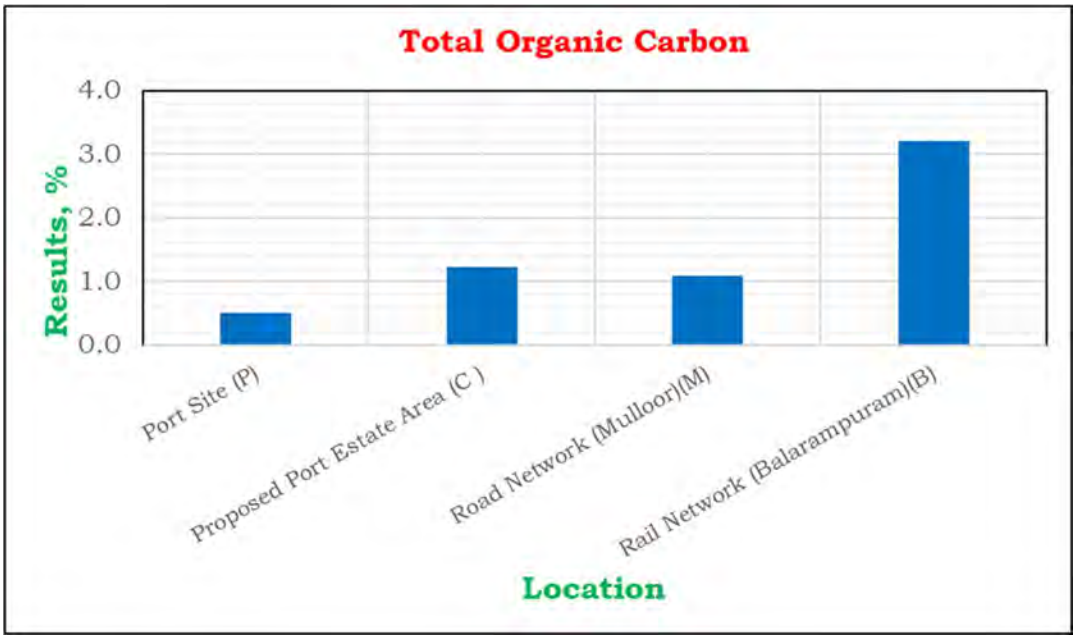


Figure 7.11: Soil Analysis for Organic Matter

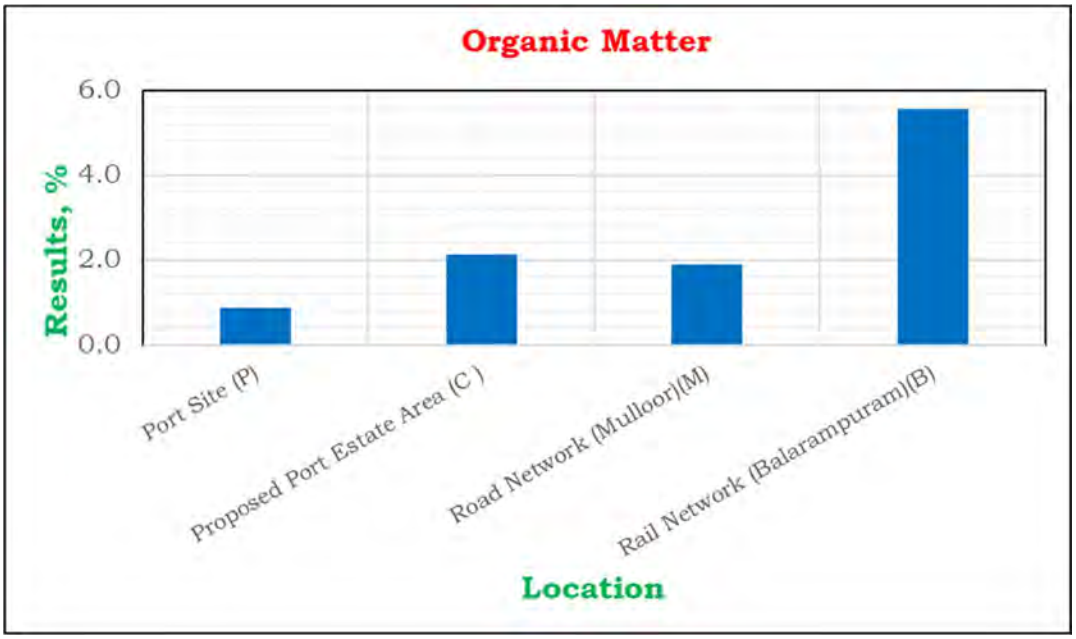


Figure 7.12: Soil Analysis for Available Sodium

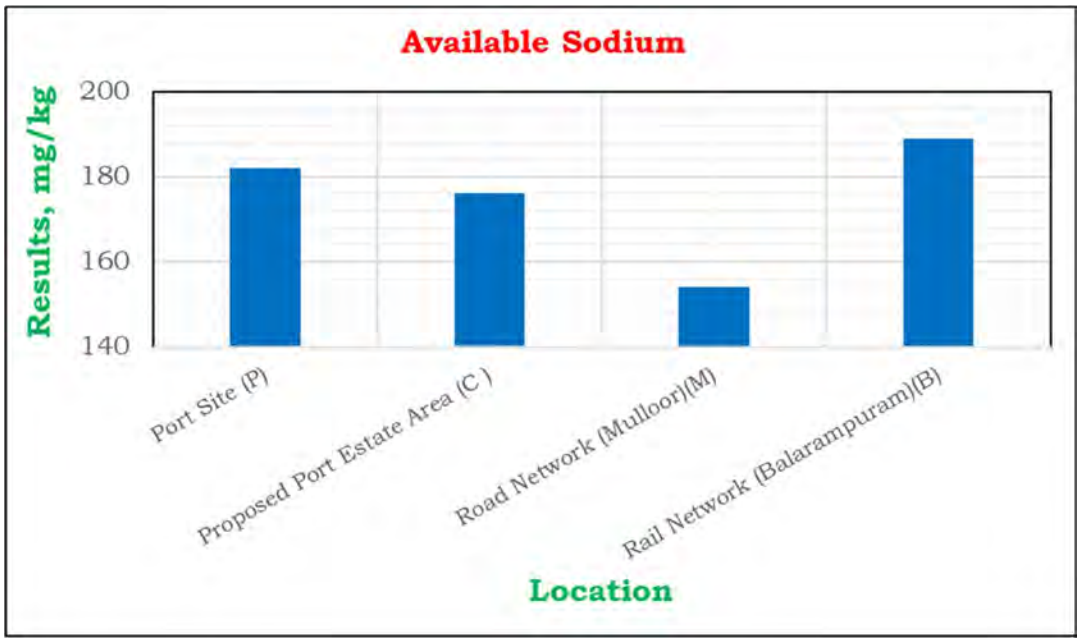
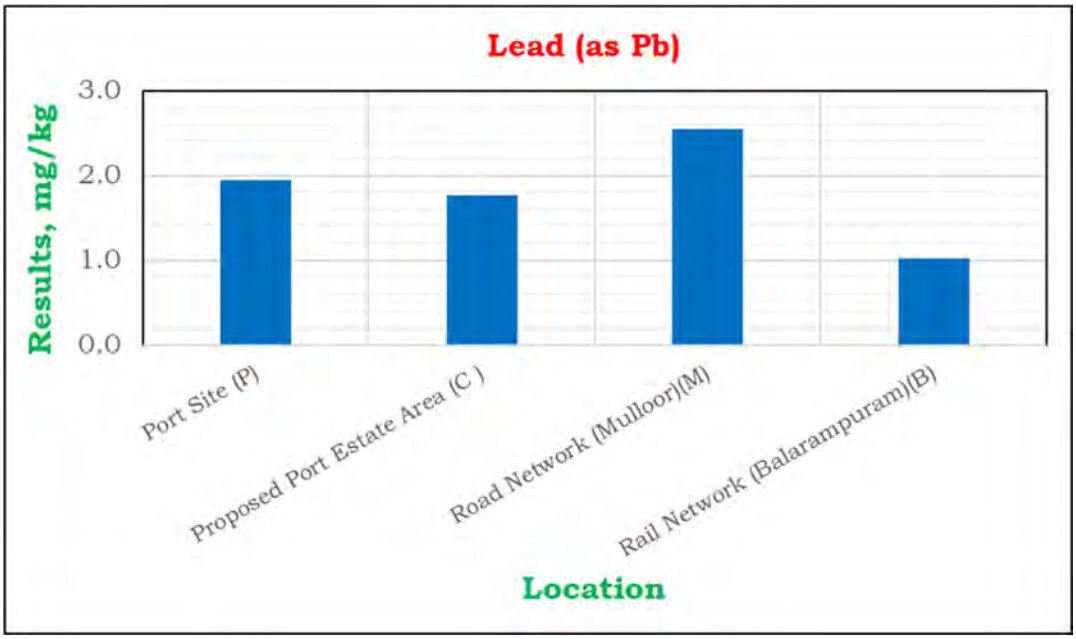


Figure 7.13: Soil Analysis for Lead (as Pb)



HYR-7.5. Summary of Soil Analysis:

- Texture was sandy loam at all locations
- Maximum value of Particle Size Distribution - Gravel observed was 2.11% at Along with Rail Network (Balarampuram)
- Maximum value of Particle Size Distribution - Sand observed was 71.50% at Port Site
- Maximum value of Particle Size Distribution - Silt observed was 24.51% at Along with Rail Network (Balarampuram)
- Maximum value of Particle Size Distribution - Clay observed was 13.08% at Along with Rail Network (Balarampuram)
- Maximum value of pH (1:5 Suspension) observed was 7.02 at Port Site
- Maximum value of Electrical Conductivity (1:5 Suspension at 25 °C) observed was 420 µS/cm at Port Site
- Maximum value of Porosity observed was 54.1% at Along with Rail Network (Balarampuram)
- Maximum value of Infiltration (Void Ratio) observed was 6.21 at Proposed Port Estate Area
- Maximum value of Total Kjeldhal Nitrogen (as TKN) observed was 2357 mg/kg at Along with Rail Network (Balarampuram)
- Maximum value of Available Phosphorus (as P) observed was 1256 mg/kg at Along with Rail Network (Balarampuram)
- Maximum value of Available Potassium (as K) observed was 35.5 mg/kg at Along with Rail Network (Balarampuram)
- Maximum value of Total Organic Carbon observed was 3.22% at Along with Rail Network (Balarampuram)
- Maximum value of Organic Matter observed was 5.55 % at Along with Rail Network (Balarampuram)
- Maximum value of Available Sodium observed was 189 mg/kg at Along with Rail Network (Balarampuram)
- Maximum value of Lead (as Pb) observed was 2.54 mg/kg at Along with Rail Network (Mulloor)

End of Report

Annexure III

CSR Activities by AVPPL

(October 2023 to March 2024)

HALF YEARLY CSR REPORT VIZHINJAM

(OCTOBER 2023 - MARCH 2024)

Adani Vizhinjam Port Pvt. Ltd, 2nd Floor.
01, Port Operation Building, Mulloor Road, Mulloor,
Trivandrum-695521

CSR REPORT VIZHINJAM FOR THE PERIOD OCTOBER 2023 TO MARCH 2024

Adani Foundation, the CSR arm of Adani Group has been implementing the CSR activities of Adani Vizhinjam Port Pvt. Ltd since 2016 at Vizhinjam. Every month, Adani Foundation touches more than ten thousand people through its various CSR activities. In continuation to that, Adani Foundation has done many activities in the following heads during the reporting period.

1. Education
2. Community Health
3. Sustainable Livelihood Development
4. Community Infrastructure Development
5. Others

1. Education activities

- **Gandhi Jayanthi Celebrations (2nd October 2023)**
- **International Day of Girl child (11th October 2023)**

1.1. Gandhi Jayanthi Celebrations

On October 2nd Gandhi Jayanthi was celebrated as a day for popularizing Gandhian ideologies among children of Project area. A program namely 'Gandhi Darshan & Children' was organized at HSS For Girls Venganoor. Eminent Gandhian Shri Murukkumpuzha Rajendran, Secretary Gandhi Peace Foundation, Kerala was the chief Speaker of the day. A total of 104 children and teachers attended this Function. Eminent Gandhian Shri Murukkumpuzha Rajendran Secretary, Gandhi Peace Foundation was the chief guest for the day.

1.2. **International Day of the Girl Child**

Adani Foundation and Students Police Cadet unit of HSS for Venganoor jointly celebrated the International Day of the Girl Child 2023 with its theme on 'Invest in Girls' Rights: Our Leadership, Our Well-being. The theme focuses on taking action to curtail girls' and women's rights and gain progress on gender equality. An awareness class was conducted for children on this day. This was followed by preparation of posters by children with Girl's Day messages.

2. COMMUNITY HEALTH

Following are the major activities conducted under Community Health during the period.

2.1. Kitchen Garden - Safe to Eat Vegetables for All Homes (SEVAH)

2.2. Farm School & Landscape maintenance at Port site

2.3. Cancer Detection camp

2.4. Cancer Care Support

2.5. Patient care support programme

2.6. Convergence of Govt. Schemes

2.7. Lifestyle disease detection camps

2.8. Spectacle selection & Distribution

2.9. SuPoshan

2.10. Sathwaro – Support to Artisans – Exhibition cum sales at Adani Corporate House

2.1. Safe to Eat Vegetables for All Homes (SEVAH) - 1280 Household homestead vegetable garden.

The Kitchen Garden programme, Safe to Eat Vegetables for all homes (SEVA) is progressing commendably with 1280 households. The kitchen garden programme is intended to cultivate pesticide free organic homely needs of vegetables at the space available within each homestead. During this period Kitchen Garden 2nd cycle for the year has been distributed for 400 beneficiaries in 20 groups. The whole planting materials of nearly 8400 Nos were produced at farm school and distributed among the interested beneficiaries.

2.2. Farm School

The Farm school activities are progressing commendably during the reporting period. The Farm School serves as a community school for agricultural learning. It is set in a majestic landscape with a bamboo house as training house and a lawn set in the shape of a leaf, symbolizing the solar energy receptor and plant food factory, thus ultimately the factory feeding humanity, and key oxygen producing organ for mother earth. Farm school has the functional specification of Horticultural Garden and honey production unit, Crop Museum (to house possible Crop Introduction for Vizhinjam), Vegetable and nutrition Garden, Vegetable nursery, Hi tech banana Farming. The activities at Farm School during the period are as follows.

The farm school cultivable area has been extended to 1.5 acres, to cultivate bananas of variety- Nendran. A total of 1000 suckers were planted with

vegetables as intercrop. It is expected to harvest by Sept. 2024. Also initiated summer vegetables cultivation

Status of Summer Vegetable cultivation

Sl No.	CROP	AFTER PLANTING	STAGE
1	Salad cucumber	45 days	Starts yielding
2	Brinjal	40 days	Yielded
3	Bhindi	43 days	Yielded
4	Cluster Beans	43 days	Flowering stage
5	Cucumber	55days	Yield started.
6	Yard long beans		

Status of Farm -front yard

Sl. No.	CROP	CROP STATUS	NEW CROP
1	Yard long beans	20 days form planting	Same crop as previous cycle
2	Chili	20 days from planting	Same crop as previous cycle
3	Bhindi	20 days from planting	Same crop as previous cycle
4	Cluster Beans	25 days from planting	Same crop as previous cycle
5	Salad cucumber	25 days from planting	Same crop as previous cycle

Status of Banana - Nendran cultivation in extended area

Plants at 5ft height with 5-7 leaves

Yield from farm during the period.

Sl.no.	Item	Oct	Nov	Dec	Jan	Feb	March	Total
1	Nentran banana	122.00	130.00	125.00	69.00	75.00	45.00	566.00
2	Rasakadali banana	5.50	35.00				5.00	45.50
3	Kaveri banana			1.50		4.00	1.50	7.00
4	Bhindi			8.50	56.00	45.50	7.30	117.30
5	Salad cucumber	21.00		6.75	39.00	80.00	142.00	288.75

Sl.no.	Item	Oct	Nov	Dec	Jan	Feb	March	Total
6	Yard long beans	5.00		25.00	105.00	25.75	2.75	163.50
7	Cucumber	4.50	40.00		97.00	3.00	66.50	211.00
8	Tapioca					248.00	100.00	348.00
9	Cluster beans	11.50	3.00	5.75	4.75	8.00	8.25	41.25
10	Bitter guard			1.50	11.00	6.00	10.75	29.25
11	Snake guard	0.50			37.00	11.00	19.00	67.50
12	Papaya	8.50	20.00	18.00	14.00	9.50	5.00	75.00
13	Tomato	7.00	0.50			1.00	3.25	11.75
14	Brinjal long	22.50	7.00	1.00	0.75	1.75	3.00	36.00
15	Brinjal round	19.00	9.50	1.25	0.50	2.75	2.75	35.75
16	Guava	0.50	3.00	0.50	1.75	0.40	0.60	6.75
17	Spinach				5.00	5.00	4.00	14.00
18	Chilli	2.00	1.00	1.50	0.30		3.65	8.45
19	Red banana		8.00		12.00		5.00	25.00
20	Morri's banana	7.00	4.00		9.00		9.00	29.00
21	Colocasia						7.00	7.00
22	Ladies finger	13.00	7.00			10.00	5.00	35.00
23	Attukadali Banana	8.50						8.50
24	Coriander leaves	1.00				2.00		3.00
25	Winged Bean		3.00	0.25				3.25
26	Poomkadali Banana		6.00					6.00
27	Greater yam			5.50				5.50
28	Sapota			10.75	5.00			15.75
29	Rose Apple				0.50			0.50
30	Arrowroot				7.00			7.00
31	Palayankodan Banana		277.00					277.00
Total		**259.00**	**554.00**	**212.75**	**474.55**	**538.65**	**456.30**	**2,495.25**

Horticulture Land scaping at port

The Horticulture Landscaping at the port site is maintained by Vanitha Karsheeka Karma Sena, one of the livelihood groups formed as part of the CSR activities. During the reporting period the ongoing Horticulture works at port extends around the fuel station area. The total area of the fuel station landscaped is maintained by Vanitha Krshika Karmasena. This includes the daily watering, weed control and management.

Green belt -work.

Pitting was completed for 1000 nos of pits along the RHS slope of the port area. The planting materials were ready. It is proposed to start planting from the first week of April 2024.

Indoor Horticulture

Completed the work of Indoor -Horticulture by rotating and replacing plants inside CEO's cabin. The estimate for the corridor area is submitted for approval.

External works -Karmasena -vegetation clearing and clearing works.

During the period Karmasena has created a total of 289 -man days in and around port by clearing vegetation and land clearing works.

2.3. Cancer Detection Camps

As part of the Cancer care programme five cancer detection Camps were organized in association with the Community Oncology Department, RCC. The field level implementations were done with the support of grass roots organizations as follows:

Sl.No	Place	Screened	Referral
1	Thiruvanthapuram District Tourism Development Cooperative Society, Kovalam	72	11
2	Vizhinjam Vadakkum Bhagam Muslim Jamayath	205	18
3	Vizhinjam Parish		

Sl.No	Place	Screened	Referral
4	Kottukal Gram Panchayat and Vidhyadhiraja	132	16
5	NSS Karayogam, Venganoor		
Total		**409**	**45**

The referral people were taken to the community Oncology Department for further checkups. The list of referral people attached as annexture -1.

2.4. Cancer Care Support - providing nutritious Food supplements & Medicines to poor cancer patients.

Cancer care food support to the poor patients has continued this period also. A total no of 142 patients were provided with food support during the period. This is in addition to regular house visits to the families of the suffering patients for consolation and for providing further mental strength.

List of Patients provided nutritious support during the period.

Sl.No	Month	No. of Patients
1	Oct	21
2	Nov	19
3	Dec	22
4	Jan	25
5	Feb	25
6	March	30
Total		**142**

Other support provided for Cancer patients.

A wheelchair to Mrs. Geetha, Harbour ward and a school kit including notebooks and bag for the child of Mr. Vinod, one of the cancer patients, were provided during the period.

Cancer Awareness – Skit and Street play

As part of the Cancer Care Programme a skit and a mime were organized to raise the awareness on the ill effects of Cancer and the use of drugs. The awareness programmes were conducted on 16th February 2024 under the leadership of Adani Foundation, Vizhinjam in association with Janamithri Police, Vizhinjam unit and SPC of HSS For Girls Venganoor. The students staged a skit named "Prathyasa, meaning Hope at two venues, one was at Fishng Harbour, Vizhinjam and other one was at Taxi stand, Vizhinjam junction. The theme of mine was the Destructive Toxicants – Drug and the sufferings of women. The students Police Cadets. The programme was attended by ASDC Students, Community People, School officials, Police offices and CSR team.


2.5. Patient care support programme/Benevolent support programme

As part of the patient care support programme, community volunteers along with CSR team have been visiting the houses of bedridden patients and provided palliative care services during the period as follows.

Sl.No	Month	No. of Patients
1	Oct	10
2	Nov	16
3	Dec	15
4	Jan	12
5	Feb	10
6	March	10
Total		**73**


2.6. Convergence of Govt. Schemes

The convergence of Govt. Grant-in-aids schemes in CSR activities is progressing well during the reporting period. Information regarding various schemes have been shared through the WhatsApp groups named "Phoenix – for Widows and

divorced" and 'Shalabhangal- Butterflies for children under 18yrs old. Information regarding PM Vishwakarma Shram Sammam Yogana, Walk in Interview for the posts in Vizhinjam Community Health Centre, application for interest -free loan scholarship for deserving Muslim students studying professional courses by Kerala State VAKAF Board, Online OP ticket taking machinisams introduced by Govt of Kerala for Medical institutions, Application for transfer of existing ration card to priority category through Akshaya, various Govt. Schemes provided by the Agri Culture Offices, Application for education support under PM Matsya Sampada Yojana in the fisheries sector, application for Three Wheeler with Ice Box from Fisheries Department, application for National Means Cum Merit Scholarship For 8th std Students, admission notification for Women Entrepreneur Training @ Kerala institute of Tourism& Travel Studies Thycaud, application for EPOR Entry Direct Admission for Diploma Students to B-Tech courses, Thozhil Theeram project of Kerala Knowledge Economic Mission and the private sector, BEDS Abacus training organized by the Child Development Department, Name change or change of address updation for old age pension, online quiz programme of RCC Trivandrum on cancer prevention, recruitment for central police force and "Job Fair" organized by Nehru Yuva Kendra, the Army Sports Rally at MEG & Centre Bangalore for the selection of outstanding Young Boys in Boxing, Hockey, Salling and Swimming sports disciplines is being organized for Army Boys sports Company. Mustering for old age pension, Self-Employment loan for women entrepreneurs from Kerala State Women Development Corporation, ITV Truck Operators training courses conducted by Adani Skill Development centre, Vizhinjam, renewal of employment registration in Employment Department. Application for the post of Counsellor in Police Department, the Managalya Samunnathi Scheme, Free water connection scheme for BLP families of Water Authority, Distribution of one crore fruit tree seedlings by agriculture department, PSC notification for the post of Police constable Trainee, Online registration of Gandhi Quiz, Lasher training notification of Adani Skill Development Centre, financial support for house reconstruction by Fisheries Department, Free Drinking Water connection scheme, various vacancies in Employability Centre under the district Employment Exchange, distribution of seeds and plants from Krishi Bhavan under Janakiyasutrana plan 2023-24, USS

Merit Scholarship, Vacancies in V-guard, internship in Navakerala Karma Phaddhathi , the Summer Training at the Squash Centre, Palayam, updating KYC for ration cards, Interviews for various posts by Employability Centre, District Employment Exchange, walk in interview at Military School, Kazhakootam, Application for Snehapoorvam Scholarship, online application for Change of Ration Cards were circulated during the period.

As the follow up of the information circulation, 19 young ladies from the nearby community participated the first level abacus training conducted Women and Child Development Department. All the candidates successfully completed the course. They are now the master trainers for Abacus first level certificate courses.

2.7. Lifestyle Disease detection Camps

As part of the community Health initiatives, 10 lifestyle diseases Camps were organized in association with Kerala Social Security Mission during the reporting period, screened 713 community people and referred 205 people for further treatment.

SL No	Venu	Date	Participants
1	Fisheries Office Adimalathura	11.10.2023	63
2	Janamaithri Police Station	25.06.2023	82
3	RC Church, Santhipuram, Kidarakuzhi	13.11.2024	68
4	Safety Induction Training Room - AVPPL	17.11.2023	86
5	District Tourism Co-operative Society Kovalam	17.12.2023	68
6	Chinnanvila Community Hall Punnakulam	27.12.2023	64
7	Sree Chamudeswari Temple Nellivila	16.02.2024	79
8	Safety Induction Room, Vizhinjam Port Pvt. Ltd	17.01.2024	73
9	Payattuvila - Uchakkada	24.01.2024	62
10	Sree Chamudeswari Temple Nellivila	12.03.2023	68
		Total	713

During the financial year 18 lifestyle disease detection camps were conducted and screened 1467 community people as detailed below

Sl. No	Type of Tests	Tested	Total Screened		
			Male	Female	Total
1	Blood Pressure	Tested	477	990	1467
		referred	46	43	89
2	Blood Sugar	Tested	477	990	1467
		referred	44	54	98
3	Total Cholesterol	Tested	477	990	1467
		referred	109	139	248
4	Blood Count	Tested	477	990	1467
		referred	18	24	42
5	Urine Sugar	Tested	477	990	1467
		referred	13	16	29
6	Urine Albumin	Tested	477	990	1467
		referred	15	14	29
7	Creatine	Tested	477	990	1467
		referred	9	5	14
8	Urea	Tested	477	990	1467
		referred	2	2	4
59	Uric Acid	Tested	477	990	1467
		referred	1	2	3
10	ECG	Tested	477	990	1467

Sl. No	Type of Tests	Tested	Total Screened		
			Male	Female	Total
		referred	2	2	4
116	Bilirubin	Tested	477	990	1467
		referred	8	6	14
12	HB	Tested	477	990	1467
		referred	74	97	171
Total		**Tested**	477	990	1467
		referred	**341**	**404**	**745**

2.8. Eye Screening camps – Spectacle frame selection camps

As the follow up of pervious eye screening camps, spectacles Frame Selection camps were conducted at four locations, viz 1. SNDP branch office, Kovalam 2. TSSS office Kottappuram 3.NSS Karayogam office, Mulloor and 4. Sree Krishna NSS Karayogam office, Vizhinjam during the period. These Frame Selections were done as per the doctor's prescriptions during the previous Eye Screening camps.

Spectacle Distribution

As the follow-up of the Eye Screening camps conducted in association with Regional Institute of Ophthalmology, Govt. Eye Hospital, Medical College Trivandrum, spectacles were distributed to 214 referred people from the weaker sections of society.

The distribution was done at five venues where the eye screening camps conducted earlier. The First program for spectacle distribution was inaugurated

by Asst. Vicar, Vizhinjam parish Rev. Fr. Pradeep at the training hall, TSSS, Kottappuram unit. 24 spectacles were distributed during the programme

The Second Program for spectacle distribution was inaugurated by Mr. Sukeshan, President, District Tourism Co-operative Society, Kovalam unit, where 31 spectacles were distributed.

The Third program was inaugurated by Dr. Anil Blalkrishnan, Head CSR South Region in the presence of Vizhinjam Vadakkum Bhagam Muslim Jammayath office beares at Ambedkar School, Vizhinjam, where 45 spectacles were distributed.

The fourth Progamme was inaugurated by Venganoor Ward Councilor Smt.Sindhu Vijaykumar in the presence of Venganoor ADS and CDS members at NSS Karayoga Mandiram, Mulloor. 70 spectacles were distributed during the program.

The final one was inaugurated by Shri. Mohanachandran Nair. President NSS Karayogam at NSS Karayogam Hall, Venganoor. 44 spectacles were distributed during the function.

Sl No	**Dates**	**Place**	**Number of Patients Suggested Specs**
1	12-12-2023	TSSS Kottappuram	24
2	17-12-2023	District Tourism Co-operative Society Kovalam	31
3	19-03-2023	Vizhinjam Vadakkum Bhagam Muslim Jamayath	45
4	20-03.2023	NSS Karayogam Mulloor	70
5	28.12.2023	NSS Karayogam Venganoor	44
Total			**214**

Other people recommended further treatment like Cataract surgery that was referred to Govt. Eye Hospital, medical College Trivandrum.

2.9. SUPOSHAN (SDG No.2 and SDG No4)

Community reach-out

'SuPoshan' is a healthcare initiative of Adani Foundation implementing to curb malnutrition and anemia among children below 5 years of age and women in reproductive age. The focus of SuPoshan project is on behavior change at family and at community level for healthy nutrition for children, women, and adolescent with family as a unit. SuPoshan Sanginis are the key change agent who promotes right knowledge, Skills, and attitudes through family counseling. During the reporting period, SuPoshan activities reached 8745 families in nineteen wards of CSR intervention through various programmes.

The following are the major activities conducted under SuPoshan during the period.

Breakup of Community Engagement program for the period

Sl. No	Programme	2nd Half Yearly
1	Household visits	5537
2	Family based counseling	1469
3	Anganwadi Visits	361
4	Focus Group Discussions	272
5	Village Level Events	188
6	Anthropometric Measurements	918
	Total	8745

Family Based Counselling

Focusing on the behavior change and to develop a healthy community 1469 family counselling sessions were done by the Sangini's on the theme Health and hygiene, Women empowerment, Local dietary practices, Health of Pregnant Women, and Infant & Young Child Feeding (IYCF) practices etc. The counselling was done by giving special attention and care to the children of age 5 and below, Adolescent, Pregnant and Lactating mothers.

Focus Group Discussions

To gain deep insight to the community especially mothers, teenage girls, pregnant & lactating mother on health and hygiene, Sanginies done 272 Focused group discussions in Kottukal panchayat during the reporting period. For this objective Sanginies visited their respective areas and found out the target group and gave awareness on the above-mentioned topics.


Village Level Meeting

To unite different types of groups of people village level meetings were held in the coordination of Sanginies. 188 Village events were held in Kottukal Gram Panchayath during the period.


Anganwadi visits

To maintain a good collaboration with the community, Sanginies regularly visit all the 32 Anganwadi in Kottukal Panchayat. Sanginis visited their respective Anganwadi weekly and activities for the month have been discussed with them. All the activities related to SuPoshan were done with the collaboration of the Anganwadis. Anganwadi visits will help the Sanginis and Anganwadi Workers for the interaction that includes the heath update of the targeted people such as children under 5 years, Newborn babies, Adolescent girls, and Women of reproductive age group and the pregnant and lactating mothers.

Anthropometry

During the reporting period, SuPoshan Sanginis have done universal anthropometry. Sanginis screened 918 children and identified 2 as Severe Acute Malnourished (SAM) and 2 are Moderate Acute Malnourished (MAM) and the rest of the children are measured as healthy. Sanginis done home visits and gave counselling to parents on local dietary practices of IYCF.

Sangini Monthly training

6 Sangini trainings were held during the period. Trainings programmes were on planned topics for community awareness like FGDs, Village level meetings. Discussions on various events and planning were done in the monthly training.

Global Handwashing Day

Global Handwashing Day is a global healthcare event celebrated on the 15th of October every year to create awareness and understanding about the need for handwashing with soap as a simple, effective, and affordable way to avoid diseases. Handwashing with soap and water is one of the most efficient and low-cost methods of preventing infections such as diarrhea and pneumonia. Handwashing with soap is one of the most influential and inexpensive strategies to prevent these infections. This year, 2023, the Global Handwashing Day theme is "Clean hands are within reach", a global reminder calls that one can practice or achieve universal hand hygiene access through strong leadership and collaborative contribution, thereby closing the gaps and having clean hands within reach. Project SuPoshan celebrated Global Handwashing Day in Kottukal Gram Panchayath by giving awareness on Water & Sanitation Hygiene (WASH) & 7 steps of Hand Wash.

World Food Day is an international day celebrated every year worldwide on October 16 to commemorate the date of the founding of the United Nations Food and Agriculture Organization in 1945. The day is celebrated widely by many other organizations concerned with hunger and food security, including the World Food Programme, the World Health Organization and the International Fund for Agricultural Development. The World Food Day 2023 theme is 'Water is Life, Water is Food. Leave No One Behind. ' It highlights the basic role of water in guaranteeing food security and focuses on the need for water resources in our attempts to battle hunger and malnutrition. SuPoshan Sanginis carried out activities such as cooking demonstrations & family counselling by spreading awareness on Food Hygiene, Tips for Safe Food Safety, consumption of Fresh seasonal foods.

Newborn Care Week

National Newborn Care Week is celebrated Every year, from November 15 to 21. The main goal is to make people aware of how important it is to take care of newborns for their health and growth. The first 28 days of a baby's life are very important for their survival. During this time, the risk of a baby dying is the highest compared to any other time in their childhood. This first month is also very important for their future health and growth. The focus this week is to make people aware of how to take care of newborns. The theme for this event is 'Safety, quality, and nurturing care – birthright of every newborn.' This year's theme is about making sure every newborn gets good healthcare services that support their development and keep them safe and respected at places like hospitals, community sessions, and homes. SuPoshan Sanginis carried out activities such as Rally, Family Counselling, Pregnant & Lactating mothers meeting by spreading awareness on Safety, quality, and nurturing care of newborn babies.

Protein Day Celebration

Protein day was celebrated in different places in the kottukal gram panchayat with participation of Children and their Family Members, Anganwadi teachers, Ward members, Asha worker etc. Cooking demo of protein rich food items, awareness sections, protein rich food competition, rallies were included to enrich the awareness of protein day in the community. A total of 202 participants participated in the events.

International Women's Day Celebration @ Kottukal Panchayat

International Women's Day was celebrated in different places of kottukal panchayat with the participation of Children and Family Members, Anganwadi teachers, Ward members, Asha worker etc. based on the theme Invest in Women, Accelerate Progress". The main attraction of the programmes was the sharing of experiences, competitions for sanginis, celebration with the whole CSR team of Adani foundation, Vizhinjam. A total of 923 people participated in the events conducted.

Poshan Pakhwada Celebration

The Ministry of Women and Child Development celebrates the sixth Poshan Pakhwada from 9th to 23rd March 2024 with various activities nationwide. The Poshan Pakhwada aims to raise awareness about the importance of nutrition

and promote healthy eating habits through Jan Andolan and Jan Bhagidari. The following activities were held as part of the Poshan Pakhwada celebrations at Kottukal:

- Rally

  As the part of Poshan Pakhwada celebration 3 rallies were conducted, with 16 children aged 0-5, 3 Pregnant women's, 18 Lactating mothers, 46 other women, 4 men, 12 adolescent boys, 414 girls, 1 PRI, 3 AWW and 2 ASHA workers in theme Regional & Local dietary practices focused sensitization around nutrition and Health of Pregnant Women and Infant & Young Child Feeding (IYCF) practices. The rally was conducted using pluck cards and charts regarding the theme to create awareness in the community.
- Focus Group Discussions

  On Regional & Local dietary practices focused on sensitization around nutrition and Health of Pregnant Women and Infant & Young Child Feeding (IYCF) practices, 6 FGD's were conducted with the target group. A total of 182 people participated in the activities. The discussion target was mainly based on the First 1000 days, Hand Wash, Sanitation, Diarrhea, Anemia, 10 intervention steps etc. And videos, PPT, charts were used to make the topics easily reachable to the participants.
- Yoga

  Yoga improves strength, balance, and flexibility. Slow movements and deep breathing increase blood flow and warm up muscles, while holding a pose can build strength. Yoga promotes a positive and healthy lifestyle for physical, mental, and emotional well-being. To make aware about yoga, 5 adolescent boys and 9 girls, 2 lactating mothers, and 3 other women of Kottukal panchayat participated the event conducted by the SuPoshan team.
- Family Counselling

  Behavioral change in the community will always start in the family from the individuals. Aimed to achieve good healthy dietary practices and healthy lifestyle for the community, SuPoshan Sanginis given counselling to the families based on the theme of Poshan Pakhwada.

- Adolescent Counselling

  Adolescent girls and boys of the kottukal panchayat were counselled about the healthy hand wash practices, sanitation, diarrhea, anemia, 10 intervention steps towards nutrition and eradication of anemia and local dietary practices. About 67 adolescents were counselled in the Poshan Pakhwada weeks
- Pregnant women Counselling

  Prenatal counseling prepares one in advance to start the pregnancy on a healthy note. It gives a chance to talk about all the concerns, clears the doubts and myths, and make the required healthy lifestyle changes for a healthy pregnancy outcome. And it is very important to practice local dietary practices which leads to the healthy practices. Thus, SuPoshan Sanginies given counselling to 12 pregnant women of Kottukal Gram Panchayat
- Lactating mothers Counselling

  It is important to eat healthy foods during the lactating times. It will lead to the health of the baby. It is very important to ensure that the mother's milk supply is adequate for the baby, and it can be ensured through eating healthy foods. Sanginis counselled the lactating mothers to have local dietary practices. In the Poshan week 42 lactating mothers were counselled.
- Cooking demo

  Cooking demonstrations are useful tools that show participants quick, easy ways to prepare food. During the Poshan Pakhwada week Sanginis demonstrated healthy food recipes which are locally available to a pregnant woman and a lactating mother.
- Drawing competition

  A drawing competition was held by the Sanginis for the students. The students are subjected to drawing pictures of their locally available food items. 7 students participated in the drawing competition. The winners of the competition were given prizes.
- Quiz Competition

Regarding the theme of 2024 Poshan Pakhwada, 2 quiz competitions were held. About 16 women, 2 pregnant women, 12 lactating mothers, 4 adolescent boys and 9 adolescent girls participated in the quiz competition. And prizes were distributed to the 1st, 2nd and 3rd prize winners.

- Kitchen Garden

  In order to develop kitchen gardens, about 22 house (Nine 0-5 children, 6 pregnant women, 18 lactating mothers, 17 adolescent girls) in Kottukal panchayat were distributed saplings of vegetables.

ED visit

Mr. Vasant Gadhavi, the Executive Director, Adani Foundation visited SuPoshan team on 7th March of 2024 in the nutrition expo, which was arranged in L P school, Mulloor, Pannavila by the SuPoshan team. Fifty items were exhibited of which all the items exhibited were rich in nutrition. The items were prepared by using grains, vegetables, nuts, pulses, millets etc. In this special occasion 457

participants visited and gone through the items displayed. Sanginis explained each item, its nutritional value, and its making to the visitors. The Charts prepared and exhibited by the Sanginis on SuPoshan activities in Kottukal Panchyat, 10 proven steps of intervention to health, menstrual hygiene, hand wash etc. were also one of the main attractions of the day. It was an immense pleasure to hear the ED words, appreciating the teamwork. In the visit, ED distributed prizes to the winners of the drawing competition which was conducted in the same day for 5th, 6th and 7th standard students on safety as part of the National Safety week celebrations.

Port Visit

SuPoshan sanginis visited Adani Vizhinjam Port Private Limited on 15th November 2023

2.10. Sathwaro project

Sathwaro, the national initiative of Adani Foundation for supporting Artisans has been progressing Vizhinjam also during the period. As part of the programme 3 exhibitions cum sales were organized during the period. The first one was at Adani Corporate House, Ahmedabad. One of our artisans, M/s. SISP, Kovalam, Trivandrum was selected and participated in the exhibition cum sales organized by Adani Foundation. Which was held on 1st and 2nd of November 2023.

Another one was organized as part of the celebration of international women's day on March 8th by Adani Foundation at Animation Centre, Kovalm. The third one was at Alsaj Convention Centre organized by Trivandrum Airport as part their family get together.

3. SUSTAINABLE LIVELIHOOD DEVELOPMENT (SLD)

The projects under SLD included,

1. Competitive Exam Preparation
2. Digital Literacy – E-Learnings
3. Skill Development Programme &
4. Livelihood Development Programme

3.1. "Coaching for Victory" – Competitive Exam Coaching Programme

Offline Training Classes

Progressing offline training sessions for the Competitive Exam Preparation candidates based on the notifications declared by the Central/State

Government job openings under different departments during the period. Subject wise classes for syllabus-based examinations are focusing on regular daily mock tests. In FY 2023-24, we achieved 83 admissions from the community youths for attending competitive exam preparation classes. Classes are going on with the previous batch trainees. Intensive syllabus-based training is provided for the candidates by the experts.

Learning Activities

In addition to the offline classes, other learning methods have been progressing simultaneously as follows.

- Study materials like Rank file pages, easy study methods from You Tube and voice clips related to the daily test topics links have been shared to groups on a regular basis.
- Different vacancy announcements from Central and State government have also been circulating through digital media.
- Daily mock test for a score of 30 has been conducted on a regular basis.
- After the successful completion of every day mock test the top scorers will be announced by the coordinator in the group.
- From this year onwards, a 100 marks mock test purely based on the previous question papers is conducted on regular weekends and the results will be announced through the groups.

As of now we are providing training sessions on the following topics,

i. General English.
ii. Mathematics.
iii. Indian Constitution.
iv. Malayalam.
v. General Knowledge.
vi. History.

Notifications from the Government agencies were circulated on a weekly basis through the social media groups.

Achievements during the period:

✓ 100% of the candidates are applying and attending Central/State Govt. examinations.

✓ In total 16 candidates are included in 55 several 10th/+2/Degree Level Shortlists/ Ranklists published by Kerala Public Service Commission.

✓ Aiswarya J R achieved 4th Rank in High School Teacher examination and joined GGHSS-Dhanuvachapuram.

- ✓ Mr. Jobin J from Kottappuram, who achieved 1661st rank in Civil Police Officer examination has successfully passed in the medical test on 20th March 2024. He may get the appointment letter very soon.

Details of the achievers are as follows,

Adani Skill Development Centre
Coaching For Victory
Achievers Details - 2023-24

Sl. No	**Name of the Candidate**	**Category Number**	**Selected Job Roles**	**Eligibility Level**	**Status**
1	Vishnu K	548/19	Last Grade Servant (Idukki)	Plus Two	Joined on 12-11-2022
		609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
		368/21	Village Field Assistant (Kasargod)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		558/21	Bevco Lower Division Clerk	Plus Two	Preliminary Exam passed. Selected for Main Exam
		027/22	Beat Forest Officer (Pathanamthitta)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		600/21	Prison Officer Men	Plus Two	Preliminary Exam passed. Selected for Main Exam
		466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
2	Vishnu S R	609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
		530/19	Civil Police Officer (Kasargod)	Plus Two	Achieved 380th Rank, received advice memo & joined on 02-09-2023
		368/21	Village Field Assistant (Idukki)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		558/21	Bevco Lower Division Clerk	Plus Two	Preliminary Exam passed. Selected for Main Exam
		027/22	Beat Forest Officer (Pathanamthitta)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		600/21	Prison Officer Men	Plus Two	Preliminary Exam passed. Selected for Main Exam
		466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
3	Jayasankar	609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
		340/20	Civil Police Officer (Trivandrum)	Plus Two	Achieved 8th Rank, Advice Memo Received & Joined on 17-08-2023
		530/19	Civil Police Officer (Trivandrum)	Plus Two	Achieved 383rd Rank
		368/21	Village Field Assistant (Trivandrum)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		558/21	Bevco Lower Division Clerk	Plus Two	Preliminary Exam passed. Selected for Main Exam

Sl. No	Name of the Candidate	Category Number	Selected Job Roles	Eligibility Level	Status
		653/21	Company Board /Corporation Assistant (KSRTC/KLDB)	Degree	Preliminary Exam passed. Selected for Main Exam
		388/19	Sub Inspector of Police	Degree	Supplementary List
		600/21	Prison Officer Men	Plus Two	Preliminary Exam passed. Selected for Main Exam
		251/21	Bevco Assistant	Degree	Preliminary Exam passed. Selected for Main Exam
		466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
4	Gopika R Murali	207/19	Lower Division Clerk (Malappuram District)	Plus Two	Joined on 28-11-2022
		94/20	Civil Police Officer (Women)	Plus Two	Physical Exam Passed. Waiting for Rank List.
		245/20	Firewomen	Plus Two	Selected for the Physical Examination.
		609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
		368/21	Village Field Assistant (Trivandrum)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		558/21	Bevco Lower Division Clerk	Plus Two	Preliminary Exam passed. Selected for Main Exam
		653/21	Company Board /Corporation Assistant (KSRTC/KLDB)	Degree	Preliminary Exam passed. Selected for Main Exam
		251/21	Bevco Assistant	Degree	Preliminary Exam passed. Selected for Main Exam
		027/22	Beat Forest Officer (Trivandrum)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		089/19	Secretariate Office Assistant (Special Recruitment)	Plus Two	Preliminary Exam passed. Selected for Main Exam
5	Jobin J	466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		027/22	Beat Forest Officer (Wayanad)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		530/19	Civil Police Officer (Malappuram)	Plus Two	Achieved 1661st Rank
6	Sreedevi G S	652/21	Prison Officer Women	Plus Two	Preliminary Exam passed. Selected for Main Exam
		609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
7	Jishnu Vinayan	368/21	Village Field Assistant (Kozhikode)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		530/19	Civil Police Officer (Thrissur)	Plus Two	Physical Exam Passed. Waiting for Rank List.
		466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
8	Sreekanth S Nair	466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam
		530/19	Civil Police Officer (Thrissur)	Plus Two	Physical Exam Passed. Waiting for Rank List.
9	Anoop Mohan	466/21	India Reserve Battalion (Regular Wing)	Plus Two	Preliminary Exam passed. Selected for Main Exam

Sl. No	Name of the Candidate	Category Number	Selected Job Roles	Eligibility Level	Status
10	Reshma	558/21	Bevco Lower Division Clerk	Plus Two	Preliminary Exam passed. Selected for Main Exam
		609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
11	Rani	609/21	Company Board Last Grade	Plus Two	Preliminary Exam passed. Selected for Main Exam
12	Karthika G	653/21	Company Board /Corporation Assistant (KSRTC/KLDB)	Degree	Preliminary Exam passed. Selected for Main Exam
		026/22	Company Board /Corporation Assistant (KSFE/KSEB/KMML)	Degree	Preliminary Exam passed. Selected for Main Exam
		027/22	Beat Forest Officer (Idukki)	Plus Two	Preliminary Exam passed. Selected for Main Exam
13	Chithra K	368/21	Village Field Assistant	Plus Two	Preliminary Exam passed. Selected for Main Exam
		747/21	Data Entry Operator	Plus Two	Preliminary Exam passed. Selected for Main Exam
14	Stenu J	530/19	Civil Police Officer (Trivandrum)	Plus Two	Achieved 933rd Rank
15	Jayasree S S	277/18	Confidential Assistant	Plus Two	Achieved 12th Rank, Advice Memo Received & Joined on 21-08-2023
16	Aiswarya J R	562/2021	High School Teacher (Hindi)	Degree	Achieved 4th Rank, joined on 24-01-2024

3.2. Digital Literacy E-Learning Programme

In FY 2023-24, we started offline classes for the Digital Literacy beneficiaries inside the community areas and achieved 79 admissions during the period.

The programme covers internet banking, social media, mobile banking, Digi locker, MS office, cyber security, barcode etc. The programme helped in making the people equip on online transactions, bill payments like KSEB, water bills, school fee payments and e-commerce activities without any others help.

The Digital Literacy Batch beneficiaries installed many useful mobile applications like BHIM App, SAKSHAM App and Digi-Locker.

Many other useful applications are familiarized in the sessions by the trainers.

Due to the upgradation process ongoing from HO, the Digital Literacy courses are on hold for few days. Artificial Intelligence, Cyber Crimes, Cyber Laws etc... are planning to integrate with the existing relevant modules. Once the modules are designed, batches will start accordingly.

3.3. SKILL DEVELOPMENT PROGRAMME

Employability Skilling Programmes

- During the financial year ASDC has been continuing five different domain courses and added 3 more for the community youths in and around Vizhinjam area. All the batches will start only after successfully conducting the Induction Programme.
- The number of trainees in different domains admitted for training in FY 2023-24 are as follows,

Sl. No.	Course Name	Eligibility	Duration	Certification	Venue of Classes	Parti.
1	Beauty Therapist - BT	10th	340 hrs	ASDC & ASAP	CSR Office, Mukkola	65
2	Self Employed Tailor – SET	10th	340 hrs	ASDC & ASAP	VizMart Livelihood Centre, Vizhinjam	86
3	General Duty Assistant – GDA	10th	420 hrs	ASDC & ASAP	Transit Campus, Mukkola	71
4	Domestic Data Entry Operator - DDEO	10th	400 hrs	ASDC & ASAP	Transit Campus, Mukkola	76

Sl. No.	Course Name	Eligibility	Duration	Certification	Venue of Classes	Parti.
5	Hair Stylist	10th	340 hrs	ASDC & ASAP	CSR Office, Mukkola	15
6	General Housekeeper	10th	220 hrs	ASDC & ASAP	Transit Campus, Mukkola	20
7	Lasher	10th	190 hrs	ASDC & ASAP	Transit Campus, Mukkola	18
8	ITV Truck Operator	10th	200 hrs	ASDC & ASAP	Transit Campus, Mukkola	15
Total						**366**

Mobilization for the new domain batches is also progressing. Trainers visit several community groups detailing the courses and collect the applications. During the period mobilization for various courses reaches 2589 community youth

General Duty Assistant (Batch 3 & 4)

Two batches for General Duty Assistant are progressing during the period, which were started from 22 November onwards. Theory and practical sessions were providing as part of the courses and which is handling by Ms. Sheeja M, Trainer-GDA. As part of intensive training, Learn with Fun activities are also conducting, and trainees shows their talents in the events.

On the Job Training

ASDC Vizhinjam is providing On the Job Training in association with NIMS Medicity at their hospital, Neyyattinkara. The current batch on the job training was started from 4th October 2023 and ends on 31st October 2023.

Guest Lecture sessions were provided on the topics on Infection control, fire & safety, Interview Preparation, Adaptability & Resilience for a new workplace during the period. Employer engagement programmes were also providing as part of the course to induct the trainees with their employers.

Beauty Therapist (Batch 2)

After the Induction Programme, we started a new batch for Beauty Therapist course with 8 trainees from 9th October 2023 onwards. Theory and Practical sessions were conducted at the CSR office building. All the trainees successfully completed the LMS assessment, Practical & Viva assessment on 28th February 2024.

Farewell Celebration

Beauty Therapist and Hair Stylist batches started in the month of October 2023 were ended on 4th March 2024. All the trainees from both the batches attended the assessments and successfully completed the training. The farewell celebration was conducted on 4th March at centre in the presence of the Adani Foundation team members and ASDC Team members. Trainees shared their experiences and feedback on that occasion.


Beauty Therapist (Batch 3 & 4)

As part of International Women's Day, ASDC Vizhinjam centre collected 52 applications from the community people for the beautician course. The induction programme was conducted at centre on 13th March 2024 with a participation of 38 applicants and parents meeting was done on 16th March. From 18th March 2024 onwards, new 2 batches were started with 34 trainees at CSR office building.


Domestic Data Entry Operator- (Batch 3)

On 27th November 2023, Vizhinjam Centre started Induction program as part of the Domestic Data Entry Operator course at centre. 48 community youth applied for the course and 23 participated in the Induction Program. Theory and practical training sessions were started from 1st December 2023 onwards at Transit Campus, Mukkola. As of now, 29 trainees have completed ERP registration, and the sessions are going on. Ms. Neethu V Nath, Trainer-DDEO is

handling the sessions which covers typing skills, English & Malayalam Typing, MS Office etc.

Self Employed Tailoring (Batch 3)

ASDC Vizhinjam Centre started a new batch for the Self-Employed Tailor trainees on 19th October 2023 with 13 applicants. An introduction session was handled by Mr. Anurag M J, Centre Head and a brief about the domain training was given by Ms. Preeja U P, Trainer-SET. As of now, the theory and practical sessions are going on with 20 trainees at Vizmart building. All the trainees completed the LMS assessment and downloaded their certificates. The practical assessment was conducted on 1st February 2024 and the batch ended by 2nd February 2024.

Self Employed Tailoring (Batch 4 & 5)

As part of International Women's Day, ASDC Vizhinjam Centre collected 51 applications from the community people for the beautician course. The induction programme was conducted at Centre on 11th March 2024 with a participation of 42 applicants. From 13th March 2024 onwards, new 2 batches were started with 31 trainees at Vizmart building, Vizhinjam.


Hair Stylist (Batch 1)

Vizhinjam centre started a new course named Hair Stylist for the community people under Vizhinjam ASDC centre. This is a NSQF Level-4 course having duration of 340 hrs under the Beauty and Wellness sector. We started a new batch from 26th October onwards with 15 trainees. Ms. Mini Jose -BT Trainer, is handling the session at CSR Office building. Trainees who had already completed the BT training and running their own parlors were registered and attending the sessions. The batches were successfully completed after the final assessment on 29th February 2024.




Hair Stylist (Batch 1)

As part of International Women's Day, ASDC Vizhinjam centre collected 52 applications from the community people for the beautician course. The induction programme was conducted at centre on 13th March 2024 with a participation of 38 applicants and parents meeting was done on 16th March.

From 18th March 2024 onwards, new 2 batches were started with 36 trainees at CSR office building.

General Houskeeper (Batch-1)

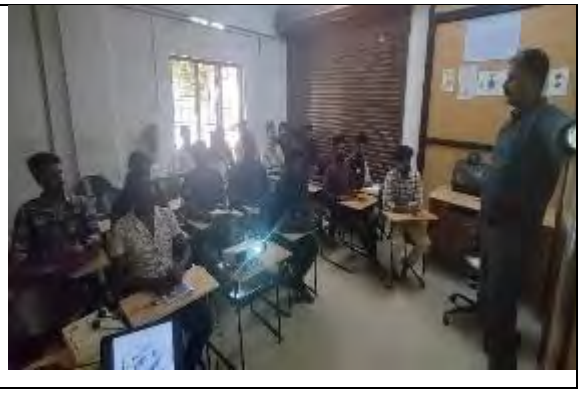
As the Vizhinjam International Seaport is moving to its operational stage, many buildings and companies are planning to start their offices at Vizhinjam and nearby areas. There may be more vacancies expecting in the housekeeping job role which may be useful for the community people having basic qualifications.

Based on the expected opportunities, ASDC Vizhinjam centre started a domain course on General Houskeeper from 18th December 2023 onwards at Transit Campus Vizhinjam with 20 trainees. Theory sessions are handled by Mr. Gopakumar G, who has over 20 years of experience in a Housekeeping Manager position and the practical sessions are handled by the Smash Housekeeping Service agency. They will make available modern cleaning machinery for the training purpose. All the trainees completed the assessment and practical test on 1st March 2024 and a farewell celebration was conducted on the same day.

Lasher (Batch 1)

ASDC Vizhinjam centre started providing training for the port related courses for the local youths in and around Vizhinjam areas. Applications were invited from the beneficiaries and received 78 applications for the Lasher course. An induction programme was conducted for the applicants on 13th March 2024 to 15th March 2024 at Transit Campus. From these, 18 showed interest and attended training sessions from 18th Mar 2024 onwards. The registration process is going on. Mr. Vipin S is handling the sessions for the Lasher batch.

#	Trade	Training duration	Particulars	Classroom Training Duration	Practical	Non-Domain
						Language & Soft Skills
1	Lasher	190 hrs	Classroom & Practical	40 hrs	100 hrs	50 hrs



ITV Truck Operator (Batch 1)

ITV Truck Operator batch training was started from 18th March 2024 at Transit Campus, Mukkola under ASDC Vizhinjam centre. 21 candidates showed interest in the training programme and the registration process is going on.

#	Trade	Training duration	Particulars	Classroom Training Duration	Practical	Non-Domain
						Language & Soft Skills
1	ITV Truck Operator	200 hrs	Classroom & Practical	40 hrs	110 hrs	50 hrs

Language & Soft Skill Training

Soft Skill portions like Communication skills, Language skills are provided to the domain trainees as per the SOP. M. Kavitha is handling the soft skill portions for the ongoing domain batches. Online sessions are provided for the DEO, GDA and BT trainees for covering the soft skill portions.

For the placement support, sessions on Interview Skills, Personality Skills, Time Management, Counselling etc. are provided as part of the training. More concentration is being given on the Resume Preparation and Mock Interview sessions. Free courses available on LMS like Interview Skill course was attended by the trainees of all the courses. Details as follows,

Sl. No.	Course Name	Total Trainees	Interview Skill Course Attendees
1	General Duty Assistant	71	54
2	Domestic Data Entry Operator	76	66
3	Beauty Therapist	65	29
4	Hair Stylist	49	10
5	General Housekeeper	20	20
6	Lasher	18	0
7	ITV Operator	15	0
	Total	**314**	**179**

Placements

All the candidates who joined in the domine skill courses will be provided placement support with the help of a placement manager. The details of the placed candidates are attached as annexure – 2. In addition to that all the

candidates will be supported with registering job portals like Indeed, Naukri etc....

Community Employment Support

Adani Skill Development Centre Vizhinjam provides placement support for the localities, those who are qualified and experienced in any of the domains. As we have contacts with many of the organizations, we redirect qualified and experienced hands to the interviews. For attending the interviews, we help and guidance on Resume Preparation, Grooming, Mock Interviews etc. the details during the period are as follows.

Placement Details									
Sr. No.	**Ward Name**	**Full Name**	**Gender**	**Employment Type**	**Date of Joining**	**Employer Name**	**Job Role**	**Employer District**	**Monthly Salary**
1	Kadaikulam	Jincy	Female	Salaried	02-06-24	Clean & Clean Hygine Services	Housekeeping Assistant	Trivandrum	12000
2	Kadaikulam	Nancy	Female	Salaried	02-06-24	Clean & Clean Hygine Services	Housekeeping Assistant	Trivandrum	12000
3	Mulo or	George	Male	Salaried	13/02/2024	Popular Vehichle	Service Technition	Trivandrum	14000

Basic Functional English (Batch 1-5)

As part of the request from the St. Mary's Higher Secondary School, Kottapuram, 147 students were registered under Vizhinjam centre for the Basic Functional English course. These students are divided into 5 batches for conducting the classes at the school. School management provided necessary support on batch registration, documents sharing and arranging the classes along with their regular timetable. Ms. Kavitha T R handles the batches. Classroom training and learning with fun activities are provided for the students for the better learning. The classes are monitored by the school principal, and we are getting very good feedback from the management.



Activities like Speaking, Self-Introduction, Reading were conducted for the students as part of intensive training. Students were more interested in participating in the same.




Mock Test based on the modules and final online assessment was conducted for the trainees in this reporting month and the batches were ended on 6th November 2023.



Request for hard copy certificates were shared with HO and the activity documents were collected from the students for designing a manuscript which is handed over to the press team for further binding process.



General Activities

Medical Camp support by GDA trainees

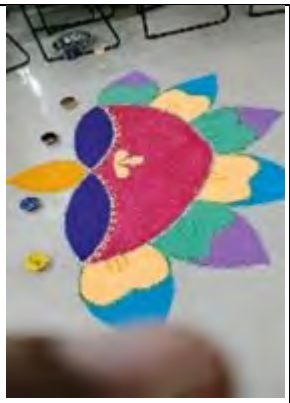
As a regular initiative, General Duty Assistant trainees of Vizhinjam centre engaged in the camp activities held at different locations. During the period the candidates supported for conducting 5 Eye screening camps, 10 lifestyle disease detection camps and 6 cancer camps.

Some of the main activities supported by the trainees are as follows,

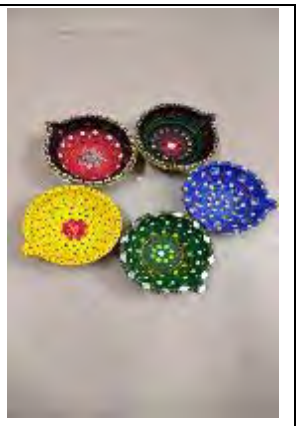
- Patient Registration.
- Weight Check.
- Assist doctors for check-ups.
- Direct patients for sample collection.
- Help and support on other activities for the camp.


Diwali Celebration

As part of the Diwali celebration, ASDC Vizhinjam centre conducted celebration for the ongoing batch trainees on 9th November 2023 at centre. Domain batch trainees put rangoli designs in their own classrooms and sweets were distributed to the trainees from the Centre side. They enjoyed it a lot and entertained with some extracurricular events.


On 10th November 2023, ASDC HO team conducted Diwali celebration virtually through Google Meet platform including all the ASDCians across India. Shri. Vasanth Gadhavi, Executive Director, Adani Skill Development Centre officially inaugurated the celebration in the presence of Mr. Jatin Trivedi, COO- Adani Skill Development Centre. All the team members, location wise participated in the Rangoli design and Diya decoration competitions.



AIDS Day Awareness Session

As 1st of December is observed as the AIDS Day, ASDC Vizhinjam centre conducted a seminar session for the ongoing batch trainees at centre. The sessions were handled by the ongoing batch General Duty Assistant trainees as per the guidance of GDA trainer. They did a presentation about AIDS disease and its preventive measures. Ms. Sheeja M, Trainer-GDA guided and coordinated

the trainees for conducting the same. They also designed ribbon as part of the importance of AIDS day and distributed to all the ongoing batch trainees and staff members.

National Energy Conservation Day

As 14th of December is observed as the National energy Conservation Day, Adani Skill Development Centre Vizhinjam conducted an awareness session on "Energy Conservation" in association with Energy Management Centre, Govt. of Kerala. The session started at 11:30am at Transit campus with a prayer song by the trainees. Mr. Anilkumar B S, Trainer ASDC Vizhinjam welcomed all the panel members to the sessions. The session was formally inaugurated by Mr. Sebastian Britto, Program Manager, Adani Foundation, Vizhinjam in the presence of Mr. Anurag M J, Centre Head, ASDC Vizhinjam and other team members. The session was handled by Shri. Subhash Babu B V, Registrar-EMC, for the 50 participants at Transit Campus.

He gave a briefing on the following areas,

- Importance of Natural Energy Conservation and examples of energy.
- About global warming and climate change.
- About loss of biodiversity.
- Melting polar icecaps and rising sea levels.
- Tips to conserve electric power in household appliances.

The session was very useful for the trainees, and they interacted with him about energy conservation and its methods. The session was ended at 1:00pm with a thanks note by Mr. Sreejith S, Placement Manger, ASDC Vizhinjam.

Christmas Celebration

Christmas – the festival which inspires the spirit of sharing, caring, and rejoicing. Soaking in the same spirit, trainees attending various domain skill training programs under ASDC Vizhinjam centre conducted Christmas celebration on 22nd December 2023 at CSR Office building with several cultural programmes.

Celebrations started with a prayer song by the trainees and formal inauguration was done by Dr. Anil Balakrishnan, Head-CSR Southern States & Chief Project Officer-CSP in the presence of Mr. Sebastian Britto, Program Manager, AF-Vizhinjam, Mr. Rakesh R, Senior Project Officer, AF-Vizhinjam, Mr. George Zen P T, Project Officer, AF, Mr. Stephen Vinod, Project Officer, AF and other CSR team members. ASDC Vizhinjam team coordinated the celebration in its own traditional way. Cake cutting ceremony was arranged and done by the guests and trainees of ASDC.

Our previous batch General Duty Assistant trainee, Ms. Mini J, who achieved gold medal in the National Roller Skatting Championship-2023 was felicitated by handing over a memento by Dr. Anil Balakrishnan. She is the first female from the coastal community to achieve the same.

All the participants were dressed in red, and we had our own Santa Claus to welcome all our guests with a greeting letter and sweets. Trainees sung songs

and performed dances very well in that occasion. A wonderful skit based on the importance of Christmas day was played by the trainees which was a mind blowing one.

Cakes and sweets were distributed to the trainees and all the other participants from the Digital Literacy team. The celebration ended by 4:30pm.


Celebration of National Girl Child Day

ASDC Vizhinjam centre conducted Girl Child Day celebration at Transit Campus building on 24th January 2024. Trainers shared the importance of the day with all the trainees on that occasion. From HSS for Girls, Venganoor, the 8th class students who are SPC volunteers visited our transit campus and showcased a mime which explains the importance of the special day and what are the challenges facing by a girl child in the current society. They did a mind-blowing performance in front our trainees and they congratulated them with huge applause.

CEO-AVPPL Visit at Transit Campus

On 6th February 2024, the new CEO of Adani Vizhinjam Port Pvt. Ltd. Shri. Pradeep Jayaraman visited all the CSR activities happening at Vizhinjam location. As part of the visit, he visited the Competitive Exam Preparation classes at Sahridayananda Library, Uchakkada and interacted with the PSC coaching candidates. After that he visited our Transit Campus at Mukkola and interacted with staff members and had a discussion with our ongoing batch GDA and DDEO trainees. He wished all the trainees to generate livelihood after the training.

He was very excited to visit the Community Skill Park building, at Panavilacode, near to the port site. Dr. Anil Balakrishnan, Head-CSR & Chief Project Officer-CSP, Southern States and Mr. Anurag M J, Centre Head, ASDC Vizhinjam accompany him throughout the visit and brief about the courses and facilities in the CSP, Vizhinjam. The status of the MoU and planning on the functioning of CSP was briefed by the Chief Project Officer.

The Beauty Therapist batch, General Housekeeping practical session and the Self-Employed tailor batches were also visited by him. He appreciated SET trainees for doing the assignments and showcasing it attractively.

He was very much satisfied and ensured all the support from the port team on the skilling activities to make it more potential.


International Mother Language Day Celebration

As the 21st day of the February month is observed as the International Day for Mother Language, Adani Skill Development Centre Vizhinjam conducted a competition for the ongoing GDA, BT, HS and DDEO batch trainees at centre. Competition on speaking in your mother language within the time limit based on a given topic was conducted for the trainees. A total of 12 trainees from all the batches participated and Ms. Archana N I from the DDEO batch was the winner.


Women's Self Defense Training Programme

As aiming to empower women with the necessary skills and confidence to protect themselves in various situations, Kerala Janamaithri Police as part of their Women Training Programme, conducted a Self Defense Training programme in association with Adani Skill Development Centre at Vizhinjam on 22nd February 2024. The training programme was basically for the female youths undergoing training in various domain courses under Adani Skill Development Vizhinjam centre.

The session was inaugurated by Mr. Rakesh, Senior Project Officer, AF in the presence of Mr. George Zen P T, Project Officer, AF, Mr. Stephen Vinod, Project Officer, AF and other CSR officials. The training programme was very well arranged by the ASDC Vizhinjam team members. From the police department, Ms. Anees Ben handled the session for the 52 female trainees. She taught about the need to learn self-defense and when it should be used. She gave a practice session on the different self-defensing techniques, and it was practiced by the trainees on that occasion. The trainer shared the women police helpline number with all the trainees and gave guidance on installing & using the women helpline application in their own smartphones.


യുവതികൾക്കായി സ്വയം പ്രതിരോധ പരിശീലനം

The training session ended at 4:30pm.

World Cancer Day Celebration

On 5th February 2024, Adani Skill Development Centre Vizhinjam celebrated World Cancer Day at Transit Campus. Our ongoing GDA batch trainees created pluck cards on cancer awareness and visited all the ongoing batches at centre for sharing the importance of the day and gave awareness about the cancer disease. The awareness sessions were coordinated by Ms. Sheeja M, GDA-Trainer.

German Language Training – Seminar

Adani Skill Development Centre entered a new initiative for the placements of Nursing Graduates in association with Indo-Euro Synchronization team for placing the candidates in reputed hospitals at Germany after providing German Language training through ASDC. On a pilot basis Vizhinjam centre took this opportunity to find minimum 30 number of candidates as a batch for providing language training. ASDC will provide the language training for the candidates in their own institutions and Indo-Euro Synchronization team will do the necessary procedure for the placements at Germany. Five mobilization workshops were conducted for the course during the period.

Kerala Piravi Celebration

As Kerala celebrating its 67th formation of the state on 1st November 2023, ASDC Vizhinjam centre conducted several programmes related to the same. All the trainees of the domain batches and team members selected to wear Kerala traditional wear. The celebration programme was arranged at Transit Campus building at 11 am.

Mr. Ratnakaran P, Rtd. Principal of DIET (District Institute of Education Training), Trivandrum was invited as the chief guest for inaugurating the celebration. He was one of the expert panelists of the Literature Club- an initiative of Adani Foundation, Vizhinjam. He made a wonderful speech about the history of Kerala State and about the formation of Kerala based on the language. He also encouraged all the participants with Malayalam stories and Kerala traditional events. Mr. Sebastian Britto, Program Manager, Adani Foundation also participated in the celebration and wished Kerala Piravi to all the participants. He mentioned the future of Kerala and how to become a participant in the development of Kerala state. Mr. Anilkumar, Trainer, ASDC Vizhinjam delivered a poem which took everyone to the traditional reality of Kerala in the older generation. Ms. Chinnu and the team from the Beauty Therapist batch sang a song about Kerala. Ms. Jobina & Ms. Jolly from the GDA batch and Ms. Jibitha & Ms. Sabreena from the DDEO batch delivered a speech in regional language. Ms. Athira & Ms. Parvathy from the GDA batches did a traditional dance performance on this occasion.

Mr. Anurag M J, Centre Head, ASDC Vizhinjam, Mr. Sreejith S, Placement Manager and all other ASDC Vizhinjam team members participated in the same and shared the Kerala Piravi wishes to everyone.

CEO- APSEZ Visit at Community Skill Park, Vizhinjam

On 19th March 2024, Shri. Ashwani Gupta, CEO-APSEZ and Shri. Subrat Tripathy, CFO-APSEZ visited Community Skill Park building along with Shri. Rajesh Kumar Jha, MD & CEO, AVPPL and Dr. Anil Balakrishnan, Head-CSR, South Region. ASAP construction team briefed about the facilities in the building and residential facilities also.

Launch of Port Related Courses & Special Batches

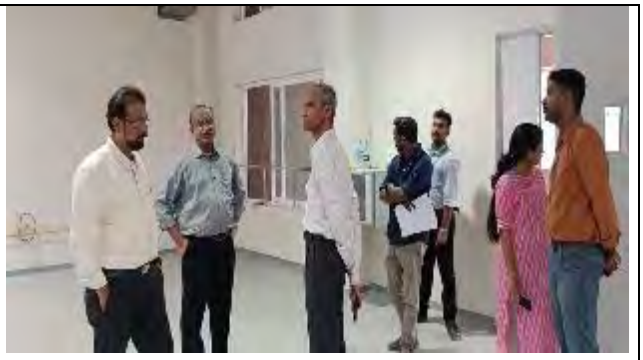
ASDC Vizhinjam centre conducted a new courses Launching Ceremony and the start of Special Women batches as part of International Women's Day on 6th March 2024 at Parish Hall, Uchakkada. The programme was officially inaugurated by Shri. M Vincent, MLA-Kovalam in the presence of Shri. Vasanth Gadhavi, ED-ASDC, Shri. Pradeep Jayaraman, COO-AVPPL, Shri. Tushar, Head-Operations, AVPPL, Dr. Anil Balakrishnan, CSR-Head, AF, and other team members. The announcement of new port-related courses like Lasher, ITV Truck

Operator, Diploma in Warehouse Management, Crane Operator and Port Operation and Terminal Management was done on that occasion. The handbook for the ITV Truck Operator course was released by the chief guest on that occasion.

Hard Copy certificates were distributed by the guests to the trainees from GDA, BT & DDEO batches who successfully completed the training under ASDC Vizhinjam Centre.

Executive Director Visit

Shri. Vasanth Gadhavi, Executive Director, Adani Foundation visited the locations related to skilling activities happening at Vizhinjam on 9th March 2024. He visited the Competitive Exam Preparation batch at Uchakkada, Self-Employed Tailor batch at Vizmart building and interacted with the candidates. He also visited the Community Skill Park building in the presence of ASAP team. ASAP construction team members briefed him about the building and residential facilities.



KASE – Kaushal Kendra at Pappanamcode

Partnership Forges New Opportunities for Learning: In a groundbreaking development, Adani Skill Development Centre and Kerala Academy for Skill Excellence-KASE (under Kerala Skill Mission) have officially linked an agreement on 25th January 2024 at KASE District Kaushal Kendra, Pappanamcode, Trivandrum to collaborate on the delivery of skill courses aimed at addressing the growing demand for specialized expertise in industries.

Agreement was signed and handed over between Dr. Veena N Madhavan, MD KASE and Shri. Rajesh Kumar Jha, MD & CEO, AVPPL. In this occasion, the 3000 sq.ft. District Kaushal Kendra of KASE building at Pappanamcode, Trivandrum was inaugurated by Shri. Sivankutty, Hon. Minister for Education, Skills and Labor, GoK in the presence of Mr. Vinod T V, COO-KASE, Dr. Anil Balakrishnan, Head CSR-Southern Region, Chief Project Officer-CSP Vizhinjam, other elected officials and team members of KASE and ASDC, Vizhinjam.

As per the agreement Adani Skill Development Centre started conducting batches for the Lasher, Front of House and Diploma in Warehouse Management courses at KASE building from March 2024 onwards.

Course Details

Lasher (Batch 1)

From the 28 applicants, 19 were showed interest for joining the Lasher training programme at District Skill Development Centre, Pappanamcode. An induction programme was conducted for the applicants on 13th March 2024 to 15th March 2024 at centre. The classes were started from 18th March 2024 with 19 trainees and Mr. Vipin S is handling the sessions.

#	Trade	Training duration	Particulars	Classroom Training Duration	Practical	Non-Domain
						Language & Soft Skills
1	Lasher	190 hrs	Classroom & Practical	40 hrs	100 hrs	50 hrs



Diploma in Warehouse Management (Batch 1)

Under ASDC Vizhinjam, Diploma in Warehouse Management batch were started at District Skill Development Centre, Pappanamcode from 18th March 2024 onwards. The session is being handled by Mr. Nidhin S Raj. As of now, 12 candidates showed interest and are attending the sessions regularly.

#	Trade	Training duration	Particulars	Classroom Training Duration	Practical	Non-Domain
						Language & Soft Skills
1	Diploma in Warehouse Management	400 hrs	Classroom & Practical	300 hrs	50 hrs	50 hrs


Community Skill Park, Vizhinjam

Community Skill Park (CSP) building construction is 95% completed inside Vizhinjam Port area in association with Additional Skill Acquisition Programme (ASAP). The land handover by Vizhinjam International Sea Port Ltd. team to the ASAP team for construction having 3 storied building as Ground Floor for office space, Seminar Hall Training Rooms, G-1 Floor for IT lab & Other Training room facilities including Library, Meeting room, Faculty room. We are planning to start High End Port related courses according to the anticipated vacancies abroad as well as in the top organizations. ASAP is planning to handover the building by the end of March once the building is commissioned.

From ASDC, course finalization process is in its final stage which will be happen after further discussions. High-end courses from the sectors like, Logistics, Health Care, Hospitality, IT-ITEs are preferred as per considering the placement market. The course finalization will be completed as earlier and will move forward with the infrastructure works. As of now the course are planning to have in 3 different levels as follows,

1) Post Graduate Diploma Courses.
2) Diploma Courses.
3) Certified Courses.

Highlights of CSP Infrastructure

- Sewage Treatment Plant - **STP 20 KLD MBBR** - Moving bed biofilm reactor (MBBR) is a biological technology used for wastewater treatment process suitable for municipal and industrial application. KLD - Volume of Collection / Equalization tank
- Water Treatment Plant - **WTP** for purifying the water from the Kerala Water Authority pipeline connection.
- Transformer of **250 KVA** with a **HT Outdoor Yard**. Planned provision for power back up placement.
- The **11 KV HT Power** electricity connection from KSEB. Separate HT supply lines in classroom and labs to cater high end electrical equipment used for training.
- **Heavy Machinery Lab** with one special entry gate, for ease of logistics. A **container** can get entered from the gate.
- **13 Passenger Lift** and Staircase with proper **Firefighting and Exit** plan.
- **Hostel** with capacity of 24 boys, 24 girls, 2 separate dining halls, 2 warden rooms, 1 sick room and visitor space.

Every window opens towards greenery since the building is in **Green Valley** area. A highly ventilated and soothing environment for the purpose of education & training.

Area Details of Constructed Portion in CSP Campus

Area Details of Training Blocks		
Sl. No.	Location	Floor Area (Meter. Square)
1	Lower Ground Floor (G-1)	988.18
2	Ground Floor	988.18
3	Terrace Floor	27.44
	Total Area	2002.80
Area Details of Hostel Blocks		
Sl. No.	Location	Floor Area (Meter. Square)
1	Ground Floor	254.72
2	First Floor	411.40
3	Second Floor	414.57
4	Third Floor	409.46
5	Terrace Floor	32.20
	Total Area	1522.35
Area Details of Service Building		
Sl. No.	Location	Floor Area (Meter. Square)
1	Security Cabin	14.04
2	Pump Room	21.44
3	Electrical & DG Room	60.10
	Total Area	95.58
	Gross Area Constructed	3621.73

Other Facilities		
Sl. No.	Facility	Demarcated for
1	Car Parking	28 Vehicles
2	Two-Wheeler Parking	35 Vehicles
3	Open Area for Lawn in front of building	Sufficient
4	Open Area for Students Outdoor Activities	Sufficient

Weekly review meeting has been arranged every Tuesday at Port Operation Building with Dr. Anil Balakrishnan, Head CSR, Southern Region, Dr. T M George, Technical Advisor, CSP Vizhinjam, Mr. Anurag M J, Centre Manager, ASDC Vizhinjam and Mr. Sreejith S, Placement Manager, ASDC Vizhinjam.

Actions:

1. CSP building construction is completed. Handing over may happen in the month of February 2024.
2. Agreement regarding the operation of CSP between ASDC & ASAP is approved by the Higher Education Dept. GoK and the signing ceremony will happen soon.
3. Updated Course details were prepared and will be integrated with the MoU.
4. Course Curriculum preparation is in the final stage. Prepared handbook for the ITV Truck Operator course.
5. Training Notification announced for the ITV Truck Operator and Lasher Course. 127 applications received for the ITV course and 48 for the Lasher course.
6. Infrastructure and Lab settings will be started once the agreement is signed.
7. Regular review meetings are conducting on the functioning of CSP by Dr. Anil Balakrishnan, Head-CSR, Southern State, AF and Dr. T M George, Technical Advisor-CSP on every Monday.

Seminar on Proposed Courses

As part of the mobilization and in guidance with the orders of Monitoring Committee constituted by Govt. of Keral under the chairmanship of Trivandrum District Collect for monitoring the progress of Vizhinjam port, Adani Skill Development Centre is providing seminars on 'The Port related courses" to the community people. During the period three such seminars were provided to the community youth by ASDC. The first one was on 27th October 2023 in association with Vizhinjam Church Parish Council at Parish Hall, Kottappuram Vizhinjam, participated 125 community youth from Kottappuram. The second

one was on 1st November 2023 at Prethibha College, Mulloor , participated 175 community people from Mulloor and nearby areas.

3.4. LIVELIHOOD UPDATES

Details of existing livelihood groups

Sl No	Group	Type of Business/ Status up
1	Clean 4 U (5 Members)	Hi Tech Cleaning for Flats, Hospitals, Offices, water tank, Vehicle and Public Institutions
2	Anaswara Poultry Unit (7Members)	Hi-tech poultry with 14 cages of 630 chicken for 7 members
3	Thripti Poultry Unit (7 Members)	Hi-tech poultry with 14 cages capacity of 630 chicken for 7-member group
4	Harbour Canteen Unit (5 Members)	Canteen unit specially for traditional seafood's
5	Sreebhadra Big Shopper Unit (3 Members)	Big shopper / Cloth Bag / Nonwoven Bag Unit
6	Eco Shop unit (3 members)	Selling of fresh vegetables at Viz Mart
7	Vizhinjam Karshika Karmasena (4 Members)	Clearing of vegetation and other Agri works
8	Prime Events (5 Members)	Power Laundry Unit and Steam Pressing Consultancy partner for Viz Mart – Livelihood market
9	Data Plus (3 Members)	Data entry Photostat, projects, designing and online jobs.
10	Thattukkada Unit (3 members)	Shop for preparation & selling steam-based snacks.
11	You Me & Tea Café (3 members)	Canteen unit, traditional Kerala Foods.
12	SRM Stitching & Garments unit. (3 Members)	Spot stitching and garments

Sl No	Group	Type of Business/ Status up
13	Turn to fresh -organic shop. (3 members)	Virgin coconut oil, natural pickles, and other provisional items
14	SWAP Data Services (3 Members)	Providing online services like PAN card, notice printing and designing, art works, Photostat, Money Transfer etc.... CSP of State Bank of India
15	SPANDHANAM Patient Care Unit (5 Members)	Providing patient care services for bedridden patients in houses as well as in nearby hospitals.
16	Samudra Activity Group	Making of fresh fish pickles and other pickle items.
17	Milk and Milk products – Milma Parlor	Selling of Milk and Milk products
19	Port Canteen	Canteen unit, traditional Kerala Foods. Specially working for port drivers

Total turnover of the livelihood

Name of IG activity of SHG's/JLG/FPC's	Financial Year of inception	Annual Turnover (2023-24)	Cumulative income (from inception of the groups)	
			No. of groups/JLG/FPC's	Amount in Rs.
Stiching/ weaving - (SRM Stitching Unit)	05.09.2019	117,551.00	1	814,214.00
Cleaning Services - Clean 4 U	10.04.2017	1,683,339.00	1	33,947,889.00
Poultry Units - Anaswara &Thripthi	20.01.2018	133,420.00	2	1,918,107.00
Canteen/Hotel Unit - Harbour , Canteen/Hotel Unit - U Me & Tea Shop, Canteen/Hotel Unit - Thattukada	13.07.2017 05.09.2019 16.07.2019	2,843,633.00	4	14,653,824.00
Eco friendly bag unit - Sreebhadhra Bags	05.11.2017	209,300.00	1	806,226.00
Vegetation Cleaning unit - Vanitha Karsheeka Karma Sena	05.09.2019	1,093,180.00	1	4,447,750.00
Laundry Service - Prime Events/Power laundry	06.02.2018 (Prime Events) 12.11.2019 (Laundry)	59,217.00	1	2,011,467.00
Data Entry and online services - Data Plus & SWAP	22.03.2018 (Data Plus) 01.12.2020 (SWAP)	367,612.00	2	2,767,080.00
Sale of Organic/Provisions - Turn to Fresh Organic Shop &/Provisions - Samudra Activity group	05.09.2019 (Turn to fresh) 03.12.2020	1,988,901.00	2	1,836,283.00

Name of IG activity of SHG's/JLG/FPC's	Financial Year of inception	Annual Turnover (2023-24)	Cumulative income (from inception of the groups)	
			No. of groups/JLG/FPC's	Amount in Rs.
Sale of State Lottery & Tender Coconut	02.02.2022	-	0	51,034.00
Sale of organic Vegetable - Eco Shop	10.08.2018	494,688.00	1	3,299,909.00
Patient Care Services - Spandanam	01.03.2021	840,000.00	1	1,569,300.00
Milk and Milk products – Milma Parlor	02.04.2022	1,194,153.00	1	1,541,298.00
Total Turnover		**11024994.00**	**18**	**69,664,381.00**

Basic Management training programme on Livelihood group and individual enterprises

As part of the livelihood support programme Adani Foundation organized a training programme on the basic management of livelihood ventures in association with Venganoor Gramapanchayath. The training was inaugurated by Mr. Sreekumar, President, Venganoor Gram Panchayat. 33 women aspirants were attended the training programme. The training deals with the basic cash management of a livelihood venture. The participants appreciated the session and expressed their willingness for initiating group/ individual enterprises.

Individual- micro–Enterprise Initiatives

AF has been supporting group enterprise since 2017 onwards, last year a new initiative of individual enterprise support programme started, under this programme the following enterprises were progressing during the reporting period.

Status of existing individual enterprises

Number of Individual Beneficiaries	Annual Turnover 2023-24	Cumulative income (from inception of the groups)	Average Income / Month in Rs.
Chinnu Stores - Sheeja	521,364.00	1,209,420.00	43,447.00
Sindhu Tailoring shop - Sindhu	179,600.00	348,490.00	14,966.00
Petty Tea Shop - Sulekhs	264,508.00	534,038.00	22,042.00
Stiching bag & Chappals - Peter	117,930.00	232,380.00	9,827.00
Petty Tea Shop - Baby	281,932.00	534,296.00	23,494.00
Street shop - Baby	-	120,010.00	-
Mrs. Nirmala - Fish Vending	634,680.00	845,548.00	52,890.00
Mrs. Jespi - Fish Vending	505,338.00	979,608.00	42,111.00
Mrs. Gulastic Amma	753,200.00	1,503,602.00	62,766.00
Total Turnover	**3258552**	**6307392.00**	

3.5. Sports Support

Sports Support to St. Mary's School Kottappuram

The sports training support to St. Mary's School Kottappuram is progressing well during the reporting period. The training support includes coaching to Football, Basketball, and volleyball has been providing daily two hours after class hours 6 days in a week. In addition to that coaching support for athletic items has also been provided for selected students.

Nutritious food support including milk, boiled egg and banana has also been provided as part of the programme for selected students. The playground on the school premises is being used for this purpose.

Some Achievements during the period

- Master. Rimo, 9th Standard, Captain of the school football team selected for U14 I LEAGUE matches in Karnataka during the period.
- St. Mary's School athletic team become the overall champions of Sub district championship during the period.

- St. Mary's School Team participated in the Trivandrum District Sports meet held at LNCP ground.

Sports support to Kovalm FC

Adani Foundation has been supporting the selected players from coastal part of Vizhinjam of Kovalm FC, a professional football club in Trivandrum. The support has been providing in the form of Nutritious food supplements practice materials and motivation sessions for players.

Some of the achievements of Kovalam FC during the period are as follows.

- Mr. Samson got selected for the Santhosh Trophy team, Pondicherry.
- Reached final stage in Reliance Cup Tournament for sub-Junior & Senior
- Won Trivandrum District youth league.
- Won Kerala Premier League
- Mr. Sreeraj and Mr. Vaishak are selected to MG University team and
- Mr. Abin, Prathap, Anto, Saju, Alan are selected to Kerala University team.
- Kovalam FC coaches Mr. Vipindas, Mr. Shawn, and Mr. Sinan cleared AIIF D License Course
- Won several series matches in Kerala Premier League
- 6 team members selected for all India inter University championship.

4. COMMUNITY INFRASTRUCUTRE DEVELOPMENT

4.1. Material Recovery Facility (MRF)

Material Recovery Facility centre is mainly designed to effectively manage plastic waste generated in Vizhinjam. Waste materials generated at source level are collected at MRF and segregated to sort plastic wastes. Stones and glass materials are initially removed. Segregated plastic wastes are dust removed, transported via conveyor belt to the shredding unit. Plastic with size below 6 microns are crushed to powdered form. Plastics of size above 6 microns are shredded to cube form. These shredded plastics will be taken from MRF for further reuse. Nearly 1 ton of plastic is expected to reach MRF daily. Waste will be collected from the wards of Kottapuram, Vizhinjam, Mulloor, Harbour and Venganoor by Haritha Karmasena members hired by Corporation.

The mentioned MRF centre is constructed in 3500 square feet area. (36.0X9.0=324m2). The structure is supported on 22 RCC column footings and super structure completed in solid block masonry. The roof of the building will be covered using corrugated G.I sheets. The area is divided into a spacious material receiving area, 6 numbers of waste segregation rooms, shredded

plastic collection area, office room, MRF hall, workers changing room and toilet. The maintenance of the MRF building will be undertaken by Trivandrum Municipal Corporation. Waste Management activities are implemented by Clean Kerala Company.

SL No	Description	Dimensions
1	Ramp for entrance and exit	4.0mX2.20m
2	MRF Hall- machinery, conveyor system, cleaning area	24.0mX4.35m
3	Waste collection Area	4.35X4.10m
4	Segregation Room-2 nos	3.26X3.2m
5	Segregated waste storage Rooms-6 nos	2.5X2.0m
6	Shredded plastic collection	3.5X3.0m
7	Office Room	2.7X3.0m
8	Toilet for gents and ladies	1.40mx 1.80m each
9	Changing rooms for gents and ladies.	2.70x3.0m
10	Total Height	6.2m(4.5m column height below trusswork)

Earthwork excavation was carried out for a depth of 65cm and width 50cm width all around. The depth of excavation for column construction was 1. 50m.For leach pit, the earth to be dug for 1.40 cm x 1.40 c m x 1.30 m size below ground level. For transferring load from building to soil, 22 isolated footings each of size 50cmX 50cm were cast. After excavation, 10 cm thick plain cement concrete was carried out and reinforced concrete mix of 1:1.5:3 was laid for column footings for 20cm thickness. The depth of trapezoidal portion of the footing was 25cm. columns were casted up to plinth level for a height 1.30m. The plinth belt was concreted for 30cm depth. The superstructure was completed using solid blocks of size 40x20x20cm in cement mortar 1:6. For lintel work, reinforced concrete mix 1:2:4 using 20m aggregates were used for thickness 15cm.After 7 days of curing, the columns were extended above lintel level. Total height of columns is 4.5m.12mm diameter bars were used for columns.16mm bars and 12mm bars were used for plinth beam and ramp.

For the entrance and exit portions, concrete beams are casted for a size 400mx300mm at a height 4.1 m from plinth level. 7 nos of 16 mm reinforcement bars are used:2 at the top,3 at bottom and 2 nos in the middle portion. The roof for MRF is completed in steel truss work (15 nos of trusses) covered with GI sheets.

Internal and External Plastering completed, tiling work for toilets, changing room, office rooms completed.

The pending works at the site are as follows:

- Grill work.
- Internal and External painting.
- Installation of doors and windows.
- Compound wall construction.
- Ramp construction at entrance and exit.
- Placing of Machinery.

4.2. Community Health Centre-NEW BLOCK

The new CHC building is a three storeyed RCC building (7000 sq feet area in each floor) constructed near to old CHC. The This hospital may be converted to Taluk Hospital in future thereby curtailing almost all the limitations of existing CHC. The inpatient admission will be raised from 40 to 100nos. The present services of the CHC will be slowly shifted to a new block. The basement floor is proposed as a parking space. On one side, a huge water storage facility (capacity of 1.0 lakh litre) is constructed to pump water to various levels of the new

building. Electrical works, fire and safety works are almost completed on this floor.

As the existing CHC building could not provide medical facilities in gynaecology, second floor (top floor) will function exclusively for attending pregnant women and gynaec related cases. Once upgraded to taluk level hospital, the mentioned gynaecology ward can attend 100 patients a day for periodic examination and medical advice.7labours can be carried out per day and admission ensured for baby and mother. The main facilities designed for the department are listed below.

1. Reception Area.
2. Gynaec Operation Theatre-2 nos.
3. Post Operation Area.
4. Nebulisation Unit.
5. Anaesthesia /Counselling Room.
6. Labour rooms-2 nos.
7. Prewash Area.
8. Doctor's Lounge.
9. Nurse Station.
10. Staff Lounge.
11. Changing Room.
12. Sterile Store.
13. Toilets for Men and Women

All work on the second floor completed, except lift services. In ground floor and first floor, electrical works, Aluminum partition works, floor works, lift services are pending. Interlock works in between the new and old building is being carried out.

The pending works included under CSR fund are as follows:

- The truss work for the front area of the hospital has not started.

4.3. Renovation of Gangayar canal to ensure water flow.

The Gangayar works included clearing off waste materials from canal, desilting, construction of 2 silt traps, construction of foot slab bridge and core wall. All works except core wall construction were carried out. The Church authorities suggested construction of RCC wastewater drain near one side within Gangayar thodu instead of core wall. This partially submerged drain is proposed near ice plants receives generated wastewater and discharges into sea without polluting canal water. This drain will be 230 m long and 1.25 meters wide and work is being initiated by the Irrigation department. The top of drain will be capped using RCC slabs. The size of slab is nearly 120X90X10cm.

Work started by placing boulders of varying sizes in 3 layers to form a strong and stable base. The width of base was 1.30m and depth of packing varied from 30cm to 45cm and 60cm considering the wet soil conditions of Gangayar.P.CC mix 1:4:8 was provided for entire width above rubble packing for a thickness 20cm.Another 15 cm thick rcc mix 1:2:4 was laid 1.20m wide over plain cement concreting. The works for the sides of the drain were carried out. The side walls were cast at 70cm height and for average width 25cm on both sides. Shuttering

works continued for two days for the side wall concrete. Reinforcement bars of 8mm diameter were provided throughout for the base and both sides of the drain. The first left side of the drain was concreted. After completion, right side concreting was completed. Drain was constructed for lengths 70m in first phase and 130m in second phase.

Presently the third phase of construction is progressing. Construction has progressed beyond the shrine. Work got delayed as there are a few concrete abutments hindering the construction of wastewater drain. Discussion held among Irrigation department, Church, and owners of ice plant units. The drain work was completed up to foot over bridge.

The work for the entire drain is now completed. The total length of reinforced concrete drain is nearly 230m.Internal plastering of the work, capping of the drain, construction of ramp for allowing JCB to perform cleaning activities are completed.

The fencing works are progressing for nearly 200m.

4.4. Model Anganwadi Building

The site location of Model Anganwadi is inside Vizhinjam Govt LPS School compound which is near to Vizhinjam Police Station. As majority of Anganwadis are functioning on rental basis with limited facilities, Adani Foundation in cooperation with Government has come up with an ideal plan to provide a kinder garden that can render Montessori environment to kids of Vizhinjam community. Montessori classrooms make use of real photographs of animals and objects, ceramic and metal utensils instead of plastic kid's size tables and

chairs. Kids experience freedom of movement, choice, and time, help each other, concentrate, and explore themselves.

Earth excavation for 13 footings carried out for a size 1.50mX1.5mX1.5m.13 Columns will be casted above mat and pedestals. Each mat is 1.35mX1.35mX0.15m. Each Pedestal size is 60cmx60cmx45cm.Mat and pedestal reinforcements are of 12mm diameter with 150mm centre to centre. 13 columns have 4 reinforcements each of 20mm diameter; placed at 75mm centre to centre.

4.5. PLAYGROUND AT VELYAKADAPURAM

A temporary playground is being constructed in Velyakadapuram for youth of fishermen community. The playground area is 70m long and 60m wide. The boundary for playground will be completed in reinforced cement concrete for a height 60cm and width 30cm.Owing to lose and weak soil condition of site, dredging sand and murrum will be mixed in equal proportions for providing a stable and firm ground surface.

Preliminary works have been started, levelling the site was carried out for 3 days. Ground was excavated on 3 sides for a width 1. 2metre.At the bottom, plain cement concrete was laid 55cm width and 15cm thick on 3 sides. Above PCC reinforced concrete work was done for 12m3, for a width 30cm and height 60cm.This work is partially done. Inside, the ground was excavated for a depth of 40 cm and is being filled with murrum and dredging sand. Mixing murrum with dredging sand is progressing for 2 weeks.17 m3 each of murrum and sand are being dumped and levelled at site.


Other major projects under progress

S No	Project	
1	Playground	• AS per the request of Kottappuram community a playground has been agreed to develop at Vizhinjam. • Harbour Engineering Department provided an acre of land for the purpose. • Sports Kerala Foundation has submitted a project at an estimated cost of Rs. 1.75 crore to establish the playground. • As got the NFA approval, instruction given to TCD for transferring the half share of amount Rs. 87.5 lakhs to VISL

5. OTHERS

5.1. Senior Citizen's Forum

As part of the CSR activities Adani Foundation formed a senior Citizen's Forum which is gathering on every month. The activities of the Forum during the period are as follows.

The first get together was held on 30 th October 2023 at C V Smaraka Grandhashala. The Program was started at 3:00 pm. 24 elders were present. Shri. Jhony -Adani Foundation performed fun activities with the elders. After Shri Sebastian Britto Program Manager Adani Foundation Performed Personality Development activities with the elders.

The Second gathering was on 29 th November at C V Smaraka Grandhashala. The Program was started at 3:00 pm. 18 elders were present. Shri. Jhony -Adani Foundation organized memory related & Fun activities for elders. Shri. Rajamani Sir Talked about the old age-related problems and solutions. Decisions were taken on Port Visit scheduled for December month and programmes for Christmas Celebrations.

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An exposure visit to Vizhinjam port for senior citizen forum members was organized on 13.12.2023. The team members visited all the construction area and assembled at Port Conference Hall for a briefing. The significance of the upcoming mother port in comparison to other ports of India was well explained Mr.Sarath .The visit ended by 5.30 Pm

World Elders Day Program

The monthly get together of Senior Citizen Forum was held on 29th February 2024 at C V Smaraka Grandhashala. The Program was started at 3:00 pm. 22 elders were present. Shri. Jhony, Adani Foundation performed fun activities with the elders. Shri George Zen, Livelihood Coordinator, Adani Foundation handled a session on Personality Development with activities for elders.

As part of the gathering a one-day trip was organized on 18.03.2024 for Senior Citizen Forum Members. They visited three Places during the visit 1.

Kumaranasan Memorial, Thonnakkal 2. Sai Gramam, Kazhakoottam, & 3. Lulu Mall @ Trivandrum. It was an exciting visit by getting a break from their daily routines and offering a memorable and enjoyable experience. The visit started at 9 am and ended by 5.30 PM. All the members expressed their gratitude to the Adani Foundation that the trip significantly benefiting their mental and physical wellbeing. 30 members participated. The evaluation and the experience of the participants will be shared in detail in the next gathering which is scheduled for the second Saturday of April 2024.

5.2. Exposure Visit – Loyola College of Social Studies, Trivandrum

On 26th October 2023, 48 Mater of Social Work students from Loyola College of Social Studies, Trivandrum visited Adani Foundation office, Vizhinjam as part of their exposure visit. Rev. Ft. Sabu S J, Vice-Principal was leading the team with 2 other department staff members. They came to Vizhinjam to understand the CSR activities of Adani Foundation since 2016.

Mr. Sebastian Britto, Program Manager explained all the details about the CSR activities which Adani Foundation is conducting since 2016. He explained all the verticals like Education, Community Health, Sustainable Livelihood Development and community infrastructure and special programmes like Suposhan, and Swachhagraha.

Mr. Anurag M J gave a brief about the training programmes which ASDC had been conducting from 2017 onwards at Vizhinjam. The list courses under ASDC transit campus were explained and the placement support which we are providing for the trainees was pointed out. A detailed note of Community Skill Park was mentioned in that occasion including the collaborations with ASAP Kerala. Many of the students raised questions about the courses, opportunities and other related to training and all were explained clearly.

Ms. Shalet V, representative of the students, conveyed their vote of thanks to all the Adani team members for handling and explaining the details to them.

5.3. Global Handwash Day

Adani Skill Development Centre observed Global Handwash Day on 13th October 2023 at Transit campus. GDA trainees shared the importance of handwashing and the steps of handwashing with soap and water. They demonstrated the handwashing methods to all the trainees participating on the same.

5.4. Visit of CEOs

CEO, Mr. Rajesh Jha visited farm school as part of routine visit on NOV 10th. Visited Miyawaki, Farm area, and biogas unit. Given recommendation for planting more cash crops to improve revenue.

Again, on 23rd November as part of grouping field Visit. He visited Vizmart and its various enterprises 1. You & Me Café 2. Turn 2 Fresh 3. Clean4 U 4.SRM Stitching, 5. Milma, 6. Swap Data 7. Laundry.8. Mat Production Unit's. CSR Head briefed about the current happening @ Vizmart and their future. As part of the visit the CEO visited the CSR office and Livelihood training Centre.

5.5. Port Visit by School Students

Students of Janatha HSS Thempammood School visited port 3rd November 2023. 51 Students belonging to Higher Secondary Class were given a brief outline of vizhinjam Port by officials of AVPPL and later they were taken around the port to have a first exposure on the docking facilities and the installed cranes.

Students of VHSS for Girls, Thiruvallom also visited port 13th November 2023. 15 Students and 3 faculties were given a brief outline of vizhinjam Port by officials of AVPPL and later they were taken around the port to have a first exposure on the docking facilities and the installed cranes.

5.6. Data Collection for the preparation of EIA report for 2nd and 3rd phase by L&T

As entrusted by Adani Vizhinjam International Sea Port Pvt. Ltd, L&T has started the data Collection for the preparation of Environmental Impact Assessment study report for the second and third phase of the expansion of Vizhinjam Port during the period. As part of the data collection, the L&T team visited Vizhinjam

twice during the reporting period. Both the teams were visited and assessed all the CSR activities currently progressing at Vizhinjam as part of the first phase. The later team visited all the proposed sites, conducted FGDs and personal interaction with all the concerned stakeholders. CSR team facilitated FGDs conducted in the field on 22nd to 24th January 2024. The visits include.

First Phase Project Area (Ongoing Works)

1.Vizmart-Visit to Livelihood activities

2.Harbour-Visit to Thumboormozhi

3. CHC Vizhinam-Visit to Infrastructure projects

4.Uchakkada Library-Interaction with PSC Students

5.Farm School-Visit to farm

6. Skill Centre -Interaction with Students

7.. CSR Office-Mukkola -Interaction with Livelihood Group Members & Community Leaders

Second Phase & Third Phase (Proposed works)

1.Community Hall -Interaction with Sanginis & Anganwadi Workers.

2.Venganoor Gramapanchayath- Meeting with President & Vice President

3.Kottukal Gramapanchayth -Meeting with Ex-President,New President

4.Adimalathura Church-Meeting with Parish Priest and members.

5.7. Visit of Amrit Bazar Patrika- news team

The news team visited CSR areas. To understand various stories concerning the beneficiaries on the project area. They have done video coverages of case stories from Farm school, Vizmart, Cancer Care Programme, and ASDC.

5.8. National Girl Child Day 2024

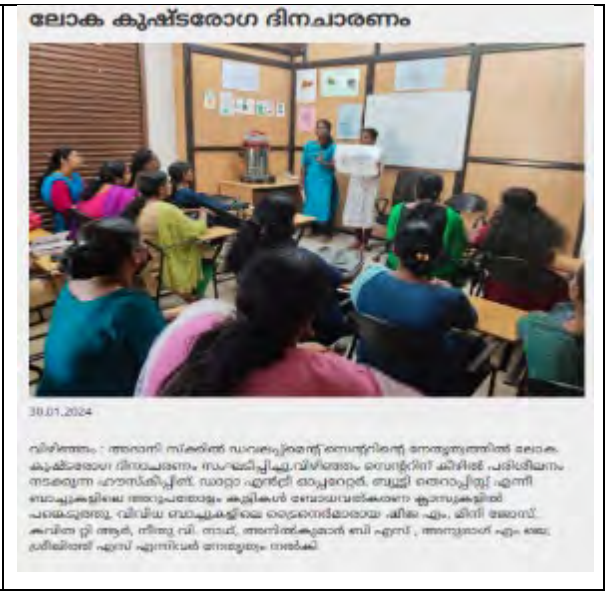
National Girl child day was celebrated as part of the CSR activities on 24th January 2024 under the leadership of Adani Foundation, Adani Skill Development Centre and SPC Students of HSS For Girls Venganoor. SPC students staged mimes in two locations on the topic "The destruction of intoxicants and the suffering of women due to intoxication" during the celebration.

Students also prepared various posters on the above topic. They have Presented Girls Child Day messages and recited the pledge on the day at CSR office and Transit Campus of Adani Skill Development Centre. The programme was attended by ASDC Students, Community People, School officials and CSR team.

5.9. National Leprosy Day – Awareness programme

World Leprosy Day is observed every year on the last Sunday of January. In India, it is observed on 30 January every year, coinciding with the death anniversary of Mahatma Gandhi. Leprosy is a neglected tropical disease (NTD) which still occurs in more than 120 countries, with more than 200 000 new cases reported every year. The aim of observing the World Leprosy Day is to create awareness against the stigma attached to the disease, by making the general community aware that it is a disease spread by a type of bacteria and it can be easily cured.

Based on the theme – "Beat Leprosy", ASDC Vizhinjam centre conducted an awareness programme on the leprosy disease on 30th January 2024. The session was conducted by the ongoing batch GDA trainees in the guidance of all the staff members. They delivered the awareness details using some pluck cards and chart papers for the various domain batch trainees under Vizhinjam centre.



5.10. National Youth Day Celebration

As the 12th day of the January month is observed as the National Youth Day, ASDC Vizhinjam centre celebrated with several competitions for the ongoing domain batch trainees. Considering the talents of the trainees, the below list of items was included in the competitions,

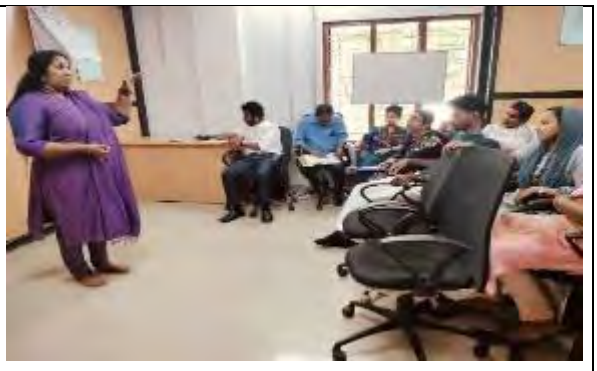
National Youth Day- Programme Sheet					
Date: 12.01.2024 (Friday)			Venue: Transit Campus, Mukkola		
Sl. No.	**Program Items**	**Time**	**Topic**	**Time Limit**	**No. of Participation**
1	Exhibition Competition	11:00am	To make models based on any of the domain topics with waste materials.	NA	10 teams
2	Speech Competition	11:15am - 12:00pm	Role of youths in nation building	5 min. (Max)	6 nos.
3	Debate Competition	12:20pm - 01:00pm	Brain drain is banned in nation building?	30 min.	2 teams
4	Pencil Drawing Competition	02:30pm - 03:00pm	Youths and Nation	30 min.	16 nos.

The competitions started as per the plan and there was a very good participation from the trainees also. For the competition judgement, Mr. Sebastian Britto, Program Manager-AF, Mr. George Zen P T, Project Officer-AF and Mr. Stephen Vinod, Project Officer-AF were present. They gave very good feedback on the

participation of the students and appreciated the efforts of the trainees took for attending the competition in its own perfection.

As per the judgement done by the panel, winners were announced after the competitions as below,

Adani Skill Development Centre			
Vizhinjam			
Winners List			
Date: 12.01.2024 (Friday)		Venue: Transit Campus, Mukkola	
#	Program Items	Participants	Result
1	Speech Competition (11:00am - 11:45am)	Nisha (BT)	1st Place
		Geethu M S (SET)	2nd Place
		Jindo (DDEO)	3rd Place
2	Drawing Competition (2:30pm - 3:30pm)	Jimcy W (GDA)	2nd Place
		Anju (BT)	1st Place
3	Debate Competition (12:00pm - 1:00pm)	Roy (DDEO)	Winners Team -B
		Bebato (GDA)	
		Freeda (DDEO)	
		Deepthi (GHK)	
		Anju (BT)	
		Vineesha V S (GDA)	
4	Exhibition Competition	Simi & Nisha (HS)	2nd Place (Paper Model)
		Chinchulekha & Vijithra (DDEO)	1st Place (Paper Model)
		Jini J (GDA)	1st Place (Working Model)
		Sreeja S (SET)	1st Place (Material Model)





5.11. National Startup Day Celebration

Startup India is a flagship initiative launched by the Government of India on 16th January 2016 to build a strong eco-system for nurturing innovation and startups in the country which will drive economic growth and generate large scale employment opportunities. The 'National Startup Day' aims to recognize and celebrate the extraordinary growth and contributions of the startup community to the Indian economy. This intended to catalyze startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India.

As valuing the importance of the day, ASDC Vizhinjam centre conducted a Guest Session about the "Startups- Importance and Supporting Schemes" for the ongoing batch trainees and entrepreneur groups in the community at centre. For the detailed session, Mr. Vishal S, Technical Officer, Kerala Startup Mission was deployed from the department. The session was held on 16th January 2024, at 2:00pm. Mr. Anurag M J, gave an introduction about the Adani Foundation and ASDC Skilling activities happening at Vizhinjam location and welcomed him to the session.

He was very excited to interact with our trainees about the topic and following were discussed,

- About Kerala Startup Mission.
- Difference between Self-Employment & Startups.
- Steps for starting a Startup.
- Importance of documentation in Startups & Livelihood.
- Types of Startups and its products.
- Successful Startups in Kerala.
- Central/State govt. schemes for supporting Startups. Etc.

Participants also interacted with him and cleared their doubts.

It was a great moment for our livelihood team members for sharing their simultaneous growth with the support of ASDC and Adani Foundation since 2016. Livelihood team members from Clean 4 U, Karshika Karmasena, Turn 2 Fresh, Sree Bhadra Big shopper unit etc... shared their experience on that occasion.

After the session, prizes for the winners in the competitions conducted as part of National Youth Day were distributed by the CSR Officials.

5.12. **Visit of new CEO to Farm school.**

New CEO Mr. Pradeep Jayaraman visited CSR sites on February 6th. He was given a warm floral welcome by Karmasena secretary and president. He had given a brief introduction on farm at farm hut. Later he had sowed some seeds of vegetables along with working karmasena members. CEO was taken around the farm to visit Compost yard- for vermin and biogas unit. At the Front yard, he visited Miyawaki forest, ornamental garden, and Farm counter.

After that he visited Viz Mart and interacted with the livelihood group members of You & Me Café, turn 2 Fresh, Clean4 U, SRM Stitching unit, Milma unit, Swap Data, Laundry unit and Mat Production Unit. He was very much impressed with the CSR activities. His birthday was also celebrated at the community resource centre cum CSR office with all the CSR staff.

5.13. Cyber Volunteer Training Programme

The Cyber Cell of Kerala Police organized a one-day Trainers Training Programme for Cyber Volunteers on 11th March 2024. The trainees must take sessions on cyber security at their local Police station area as allotted by the local police station. 15 of Adani Foundation's community volunteers were selected for the training as Cyber Volunteers.

5.14. International Women's Day Celebration

The International Women's Day was observed by Adani Foundation with the theme for the year 2024, "Invest in Women and Accelerate Progress" during the month. The day's celebration was inaugurated by Dr. Divya S Iyar IAS, MD, Vizhinjam International Sea Port Ltd, presided over by Mr. Vasant Gadhavi IAS, Executive Director, Adani Foundation. In her inaugural address she emphasized that women should realize her power which will make the life more meaningful and joyful. Mr. Vasant Gadhavi IAS congratulated the good work done by Adani Foundation Vizhinjam site for the empowerment of women by creating livelihood enterprises which is providing a decent livelihood for more than 105 more women in the project area. Most of the livelihood units become matured and generate a decent income for their family. Mrs. Omana C, ward counsellor, Mulloor facilitated the event. Dr. Anil Balakrishnan, Head CSR, Southern regional presented the CSR activities for the upliftment of people especially the women.

An exhibition of the services and products of livelihood groups and models of domain skill courses were also organized during the celebration. Outstanding

units were awarded with momentous for their growth in business. The following units were awarded during the celebration.

1. M/s. Clean 4 U for achieving highest annual turnover.
2. M/s. Vanitha Karsheeka Karma Sena for maximum number of jobs created.
3. M/s. U Me and Tea for maximum business spread.
4. M/s. SRM stitching for the creation of highest individual enterprises.
5. M/s. SWAP data for digital integration



a. KMA -Awards to CSR Of AVPPL.

Adani Foundation-CSR of Adani Vizhinjam port bagged two of the prestigious awards on CSR initiatives, for social inclusion and for health initiatives for the year 2024, instituted by Kerala Management Association, for honoring the Leaders -in recognition for outstanding CSR projects in education Health, social inclusion, and environment. The Awards were distributed on 7th march of 2024- **At KMA Sustainable Sumit** in Gokulam Convention center -Kochi in presence of delegates from more than 200 corporate houses, management institutes and NGOs. As per the organizers the awards were selected by an eminent jury from XLRI Jamshedpur from among 80 nominations within corporate houses of Kerala.

The award for CSR initiative of AVPPL, on health is in recognition for the remarkable work done in health projects on Cancer care -palliative support programme, Mobile health care unit for community, community awareness programme, medical camps, suposhan and eyecare clinical camps and its popular response. The second award on social inclusion -is in recognition for sustainable livelihood micro enterprise development programmes and related social upheaves.

b. Visit of Executive Director, Adani -Foundation (06.03.24 to 07.03.24)

Mr. Vasant Gadhavi. IAS, Executive Director, Adani Foundation officially visited vizhinjam site on 6th and 7th March 2024. As part of the visit, he interacted with the concerned stakeholders and evaluated all the CSR initiatives as follows.

06.03.2024 (Site Visits and Events)

- Visited Cancer Detection Cam site, Uchhakada , Competitive Exam Coaching Centre at Uchhakada, Trivandrum, Viz Mart Group Enterprises and marketing centre at Vizhinjam and CSP construction site, Nellikunnu, Vizhinjam
- Inaugurated Domain & Port related Courses – ITV operator, Lasher, SET, GDA, DOA courses at Transit Campus, Mukkola, Vizhinjam and new Bakery/snacks livelihood Unit at Farm School
- Interacted with Karma Sena at Farm Hut
- Visited Vermi Compost, and Biogas unit. Laundry unit, Cloth mat production unit, Plant Nursery, Miyawaki Forest, Farm Outlet and Fruit Orchard

07.03.2024

- Visited IE, Centre at Nandavanam, Palayam, Thiruvananthapuram, Mulloor UP School, Panavilacode
- Inaugurated new batches of Lasher, FOH and German Language at Pappancode Centre, Thiruvananthapuram
- Visited SuPoshan Nutrition Exhibition and distributed Prizes of Drawing Competition for students on 'Safety" theme as part of Safety week celebration.
- Visited CHC Building construction site, MRF site and Thumpoormuzhi
- Inaugurated international Women's Day Celebrations
- Met with CSR staff.

During the visit and there after the interaction with staff, he opined about the following.

1. Formulation of an integrated Cancer Care Programme in association with Regional Cancer Centre and the stakeholders concerned.
2. Establishment of a Literary award for Malayalam language
3. Integration of coaching for competitive exam programme to a mobile application
4. Federating 1260 kitchen garden families for sales and exhibition at farm school during Onam time.
5. Setting up of organic farm sales outlet with a corporate outlook

Press Releases

6:00 PM

ജീവിതശൈലി രോഗം നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു.

19-11-2023

വിഴിഞ്ഞം: അദാനി വിഴിഞ്ഞം തുറമുഖ കമ്പനിയുടെ സാമൂഹ്യ പ്രതിബദ്ധത പദ്ധതിയുടെ ഭാഗമായി കേരള സാമൂഹ്യസുരക്ഷാ മിഷന്റെയും മലബാർ ഗോൾഡിന്റെ യും സഹകരണത്തോടെ ജീവിതശൈലി രോഗം നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു. വിഴിഞ്ഞം തുറമുഖ കവാടത്തിൽ വച്ച് നടന്ന രോഗനിർണയ ക്യാമ്പിന്റെ ഉദ്ഘാടനം വിഴിഞ്ഞം പോർട്ട് സെക്യൂരിറ്റി വിഭാഗം ഡി.എസ്.ഒ. ശ്രീ പ്രകാശ് ദ്വരരാജ് നിർവഹിച്ചു. അദാനി ഫൗണ്ടേഷൻ ലൈവിലി ഹുഡ്

adani

HR BEACON

September 2023

അദാനി തുറമുഖ കമ്പനി

വിഴിഞ്ഞം● അദാനി വിഴിഞ്ഞം തുറമുഖക്കമ്പനി, വിഴിഞ്ഞം ജനമൈത്രി പൊലീസ് , വെങ്ങാനൂർ ഗേൾസ് എച്ച്എസ്എസ് എസ്പിസി കേഡറ്റ് എന്നിവയുടെ നേതൃത്വത്തിൽ ഗാന്ധിജയന്തി ആഘോഷം നടത്തി. മുരുക്കുമ്പുഴ രാജേന്ദ്രൻ, സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, ജോൺപോൾ, രഞ്ജിത്ത്, ജോർജ് സെൻ, രാകേഷ്, വിനോദ്, ഹരീന്ദ്രൻ നായർ, കുമാരി ഗോപിക എന്നിവർ സംബന്ധിച്ചു.

5:56 PM

തിരുവനന്തപുരം: അദാനി ഫൗണ്ടേഷൻ 2020 മുതൽ വെള്ളായണി തടാകത്തിന്റെ സംരക്ഷണവും പുനരുദ്ധാരണവും നടത്തിക്കൊണ്ടിരിക്കുകയാണ്. തടാകത്തിന്റെ ഇനിയുള്ള ഭാഗങ്ങളിലെ പ്രവർത്തനങ്ങൾക്കായി 2023 ആഗസ്റ്റ്, സെപ്റ്റംബർ മാസങ്ങളിൽ പ്രത്യേകമായുള്ള മാർഗങ്ങൾ ആരംഭിച്ചിട്ടുണ്ട്. ഫ്ളോട്ടിങ് ബാർജ് (ഹിറ്റാച്ചി) ഉപയോഗിച്ചുള്ളതാണ് ഈ രീതി.

നമ്മുടെ അടിസ്ഥാന തത്വങ്ങളും പരിസ്ഥിതി സംരക്ഷണവും സുസ്ഥിരതയും ഉയർത്തിപ്പിടിക്കുന്നതിൽ അദായി പോർട്ട്സിനും സ്പെഷൽ ഇക്കണോമിക് സോണിനുമുള്ള പ്രതിബദ്ധതയാണ് ഈ നീക്കത്തിലൂടെ കാണാനാവുന്നതെന്ന് അദാനി വിഴിഞ്ഞം പോർട്ട് പ്രൈവറ്റ് ലിമിറ്റഡ് മാനേജിങ് ഡയറക്ടറും സിഇഒയുമായ രാജേഷ് കുമാർ ത്ധാ പറഞ്ഞു.

വെള്ളായണി തടാകത്തിന്റെ പാരിസ്ഥിതിക പ്രാധാന്യവും ജൈവവൈവിധ്യവും കണക്കിലെടുത്ത് അദാനി ഫൗണ്ടേഷൻ ഇക്കാര്യങ്ങളിൽ പ്രാദേശിക സമൂഹം, സർക്കാർ അതോറിറ്റികൾ, സർക്കാർ ഇതര സംഘടനകൾ തുടങ്ങിയവയെ തുടർച്ചയായി പങ്കെടുപ്പിക്കുകയും അവബോധം വളർത്തുകയും ചെയ്യുന്നുണ്ട്. ഇതുവരെയുള്ള പുരോഗതി നിലനിർത്താനും ഫൗണ്ടേഷൻ പ്രാദേശിക പഞ്ചായത്തുകൾ, എൻജിഒകൾ ഇവിടെ താമസിക്കുന്നവർ എന്നിവരുമായി സഹകരിക്

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മാർക്ക് സർക്കാർ സാധ്യമായ എല്ലാ സൗകര

HOME ▸ KERALA

അദാനി ഫൗണ്ടേഷന്റെ പിന്തുണയോടെ വെള്ളായണി തടാകത്തിന്റെ പുനരുദ്ധാരണം പുരോഗമിക്കുന്നു

By Metro Desk Nov 19, 2023, 09:48 IST

സുപ്രഭാതം

കണ്ണടകൾ വിതരണം ചെയ്തു

മംഗളം

നേത്ര പരിശോധനാ ക്യാമ്പിന്റെ തുടർച്ചയായി കണ്ണടകൾ വിതരണം ചെയ്തു

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റെ പഴക്കമുള്ള മരങ്ങൾ അടക്കം മുറിച്ച

കണ്ണടകൾ വിതരണം ചെയ്തു

13.12.2023

വിഴിഞ്ഞം:തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെ നേതൃത്വത്തിൽ വിഴിഞ്ഞം ഇടവകയുടെയുടെയും തിരുവനന്തപുരം

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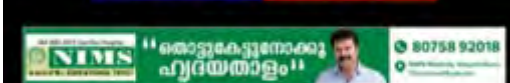

• വിവാദമായ മുട്ടിൽ മരംമുറി കേ

ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

14-12-2023

മംഗളം

ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

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സുപ്രഭാതം

ജീവിത ശൈലീ രോഗ നിർണയ ക്യാംപ് സംഘടിപ്പിച്ചു

വിഴിഞ്ഞം • തിരുവനന്തപുരം ജില്ലാ ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റിയും അദാനി ഫൗണ്ടേഷനും സംയുക്തമായി കേരള സാമൂഹ്യ സുരക്ഷാ മിഷന്റെയും മലബാർ ഗോൾഡ് ആന്റ് ഡയമണ്ട്സിന്റെയും സഹകരണത്തോടെ ജീവിതശൈലി രോഗ നിർണയ ക്യാംപ് നടത്തി. 88 പേരെ പരിശോധനാവിധേയരാക്കിയതിൽ 29 പേരെ തുടർ ചികിത്സകൾക്കായി നിർദേശിച്ചു.

തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെ നേതൃത്വത്തിൽ തിരുവനന്തപുരം ജില്ലാ ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റിയുടെ സഹകരണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നേത്ര പരിശോധനാ ക്യാംപും നടത്തി. സൗജന്യമായി കണ്ണടകളും വിതരണം ചെയ്തു.

ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റി പ്രസിഡന്റ് കോവളം സുകേശൻ അധ്യക്ഷനായി

[redacted]

2023 DECEMBER 15 FRIDAY 4

കണ്ണട വിതരണവും ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പും

കുഞ്ഞിനെ കൊന്നത് സത്യമല്ലേ, അവൻ സന്തോഷത്തോടെ ജീവിക്കാൻ പോകുവാ'; വൈകാരിക നിമിഷം, മൂകസാക്ഷിയായി കോടതി

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ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

14-12-2023

വിഴിഞ്ഞം:തിരുവനന്തപുരം ജില്ലാ ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റിയും അദാനി ഫൗണ്ടേഷനും സംയുക്തമായി കേരള സാമൂഹ്യ സുരക്ഷാ മിഷന്റെയും മലബാർ ഗോൾഡ് ആന്റ് ഡയമണ്ട്സി ന്റെയും സഹകരണത്തോടെ ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് നടത്തി. 88 പേരെ പരിശോധനാ വിധേയരാക്കിയതിൽ 29 പേരെ തുടർ ചികിത്സകൾക്കായി നിർദ്ദേശിച്ചു. തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെ നേതൃത്വത്തിൽ തിരുവനന്തപുരം ജില്ലാ ടൂറിസം

രോഗ നിർണയ ക്യാമ്പ്

കോവളം: ജില്ലാ ടൂറിസം ഡെവലപ്മെന്റ് സൊസൈറ്റിയും അദാനി ഫൗണ്ടേഷനും സംയുക്തമായി കേരള സാമൂഹ്യ സുരക്ഷാ മിഷന്റെയും മലബാർ ഗോൾഡ് ആൻഡ് ഡയമണ്ട്സിന്റെയും സഹകരണത്തോടെ ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് നടത്തി. 88 പേരെ പരിശോധനയ്ക്ക് വിധേയരാക്കിയതിൽ 29 പേരെ തുടർ ചികിത്സകൾക്കായി നിർദ്ദേശിച്ചു. തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെ നേതൃത്വത്തിൽ ജില്ലാ ടൂറിസം ഡെവലപ്മെന്റ് സൊസൈറ്റിയുടെ സഹകരണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നേത്ര പരിശോധനാ ക്യാമ്പും നടത്തി. ടൂറിസം ഡെവലപ്മെന്റ് സൊസൈറ്റി പ്രസിഡന്റ് കോവളം സുകേശൻ അദ്ധ്യക്ഷത വഹിച്ചു. അദാനി ഫൗണ്ടേഷൻ പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവഹിച്ചു.

ദേശീയ ഊർജ സംരക്ഷണ ദിനാചരണം.

15.12-2023

വിഴിഞ്ഞം: അദാനി തുറമുഖ പദ്ധതിയുടെ സാമൂഹ്യ പ്രതിബദ്ധത വിഭാഗത്തിന്റെ കീഴിൽ പ്രവർത്തിക്കുന്ന അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിൽ ദേശീയ ഊർജ സംരക്ഷണ ദിനാചരണം സംഘടിപ്പിച്ചു.പരിപാടിയുടെ ഉദ്ഘാടനം അദാനി ഫൌണ്ടേഷൻ പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോനിർവഹിച്ചു.കേരളസർക്കാരിന്റെ

മംഗളം

വെങ്ങാനൂരിൽ കണ്ണട വിതരണം നടത്തി

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെയും വെങ്ങാനൂർ വാർഡ് എ.ഡി.എസിന്റെയും സഹകരണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നടത്തിയ നേത്ര പരിശോധനാ ക്യാമ്പിന്റെ തുടർച്ചയായി തിരഞ്ഞെടുക്കപ്പെട്ടവർക്ക് കണ്ണടകൾ വിതരണം ചെയ്തു.

വെങ്ങാനൂർ വാർഡ് കൗൺസിലർ സിന്ധു വിജയൻ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവഹിച്ചു. എ.ഡി.എസ് ചെയർപേഴ്സൺ ശ്രീലത അദ്ധ്യക്ഷത വഹിച്ചു. അദാനി ഫൗണ്ടേഷൻ പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, പ്രോജക്ട് ഓഫീസർ [illegible] എസ്.ആർ പ്രതിനിധികൾ, എ.ഡി.എസ് ഭാരവാഹികൾ തുടങ്ങിയവർ പങ്കെടുത്തു.

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മംഗളം

അടുക്കളത്തോട്ട ഗ്രൂപ്പുകൾക്ക് കൃഷിക്കായി നടീൽ വസ്തുക്കൾ വിതരണം ചെയ്തു

വിഴിഞ്ഞം: അദാനി വിഴിഞ്ഞം തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി വിഷരഹിതമായ പച്ചക്കറികൾ വീട്ടിൽ തന്നെ ഉത്പാദിപ്പിച്ച് ഉപയോഗിക്കുന്നതിനായി രൂപീകരിച്ച 64 അടുക്കളത്തോട്ട ഗ്രൂപ്പുകളിലെ 780 കുടുംബങ്ങളിലെ 440 കുടുംബങ്ങൾക്ക് ഈ സീസണിലെ രണ്ടാംഘട്ട കൃഷിക്കായുള്ള നടീൽ വസ്തുക്കൾ വിതരണം ചെയ്തു. നടീൽ വസ്തുക്കളുടെ വിതരണ ഉദ്ഘാടനം അദാനി ഫൗണ്ടേഷൻ സീനിയർ പ്രോജക്ട് ഓഫീസർ രാകേഷ് നിർവഹിച്ചു. ഈ വർഷം [illegible] അടുക്കളത്തോട്ട നിർമ്മാണത്തിനുള്ള തൈകൾ, ഗ്രോബാഗ്, മണ്ണിര കമ്പോസ്റ്റ് എന്നിവയാണ് വിതരണം ചെയ്തത്.

വിഴിഞ്ഞം, [illegible], കോട്ടുകാൽ പഞ്ചായത്ത് തുടങ്ങിയ സ്ഥലങ്ങളിലെ 24 ഗ്രൂപ്പുകൾക്കാണ് ഈ ഘട്ടത്തിൽ തൈകൾ ലഭ്യമാക്കിയത്. പ്രസ്തുത ഗ്രൂപ്പുകളുടെ പ്രതിമാസ ത്രിഫ്റ്റ് പണം ഉപയോഗിച്ചാണ് നടീൽ വസ്തുക്കൾ വാങ്ങുന്നത്.

സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതിയുടെ ഭാഗമായി അദാനി ഫൗണ്ടേഷൻ രൂപീകരിച്ച വനിതാ കാർഷിക കർമ്മസേനയാണ് തൈകൾ ഉത്പാദിപ്പിക്കുന്നത്.

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ചന്ദ്രിക

ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ്

വിഴിഞ്ഞം: തിരുവനന്തപുരം ജില്ലാ ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റിയും അദാനി ഫൗണ്ടേഷനും സംയുക്തമായി കേരള സാമൂഹ്യ സുരക്ഷാ മിഷന്റെയും മലബാർ ഗോൾഡ് ആന്റ് ഡയമണ്ട്സിന്റെയുംസഹകരണത്തോടെ ജീവിത ശൈലി രോഗ നിർണയ ക്യാമ്പ് നടത്തി. 88 പേരെ പരിശോധനാ വിധേയരാക്കിയതിൽ 29 പേരെ തുടർ ചികിത്സകൾക്കായി നിർദ്ദേശിച്ചു. സൗജന്യമായി കണ്ണടകളും വിതരണം ചെയ്തു. ടൂറിസം ഡവലപ്പ്മെന്റ് സൊസൈറ്റി പ്രസിഡന്റ് കോവളം സുകേശൻ അദ്ധ്യക്ഷത വഹിച്ചു. അദാനി ഫൗണ്ടേഷൻ പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവ്വഹിച്ചു.

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NEWS 6 NEWS

ം ഇന്ന് സമർപ്പിക്കും. 500 വർഷത്തിലേ

കണ്ണടകൾ വിതരണം ചെയതു

19.12.2023

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെയും വിഴിഞ്ഞം വടക്കുംഭാഗം മുസ്ലിം

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കണ്ണടകൾ വിതരണം ചെയ്തു.

01.01.2024

വിഴിഞ്ഞം:വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായിതിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെയുംമുല്ലൂർഎൻ.എസ്.എസ് കരയോഗത്തിന്റെയും സഹക രണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നടത്തിയ നേത്ര പരിശോധനാക്യാമ്പിന്റെ തുടർച്ചായി നിർദ്ദേശിക്കപ്പെട്ടവർക്ക് കണ്ണടകൾ വിതരണം ചെയ്തു.മുല്ലൂർ എൻ.എസ്.എസ് കരയോഗം സെക്രട്ടറി മോഹനപന്ദ്രൻ നായർ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവ്വഹിച്ചു. എൻ.എസ്.എസ് നെയ്യാറ്റിൻകര വനിത

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NEWS 6 NEWS

ിവാദമായ മുട്ടിൽ മരംമുറി കേസിൽ കു

ക്രിസ്മസ് പുതുവത്സര ആഘോഷം സംഘടിപ്പിച്ചു

26.12.2023

തിരുവനന്തപുരം :അദാനി വിഴിഞ്ഞം

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newssixnews.com/De

കണ്ണടകൾ വിതരണം ചെയ്തു

19.12.2023

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി തിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെയും വിഴിഞ്ഞം വടക്കുംഭാഗം മുസ്ലിം ജമാഅത്തിന്റെയും സഹകരണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നടത്തിയ നേത്ര പരിശോധനാ ക്യാമ്പിന്റെ തുടർച്ചായി നിർദ്ദേശിക്കപ്പെട്ടവർക്കുള്ള കണ്ണടകൾ വിതരണം ചെയ്തു. വിഴിഞ്ഞം വടക്കുംഭാഗം മുസ്ലിം ജമാഅത്ത് ജനറൽ സെക്രട്ടറി എസ്.എം.എ.റഷീദ് അദ്ധ്യക്ഷത വഹിച്ച ചടങ്ങിൽ അദാനി ഫൗണ്ടേഷൻ സതേൺ സി. എസ്. ആർ. ഹെഡ് ഡോ. അനിൽ ബാലകൃഷ്ണൻ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവ്വഹിച്ചു. പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ,സി.എസ്.ആർ

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കണ്ണടകൾ വിതരണം ചെയ്തു.

01.01.2024

വിഴിഞ്ഞം:വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായിതിരുവനന്തപുരം കണ്ണാശുപത്രിയുടെയുംമുല്ലൂർഎൻ.എസ്.എ കരയോഗത്തിന്റെയും സഹക രണത്തോടെ അദാനി ഫൗണ്ടേഷൻ നടത്തിയ നേത്ര പരിശോധനാക്യാമ്പിന്റെ തുടർച്ചായി നിർദ്ദേശിക്കപ്പെട്ടവർക്ക് കണ്ണടകൾ വിതരണം ചെയ്തു.മുല്ലൂർ എൻ.എസ്.എസ് കരയോഗം സെക്രട്ടറി മോഹനചന്ദ്രൻ നായർ കണ്ണടകളുടെ വിതരണോദ്ഘാടനം നിർവ്വഹിച്ചു. എൻ.എസ്.എസ് നെയ്യാറ്റിൻകര വനിത

Karan Adani is the new MD of APSEZ

Ahmedabad : Adani Ports and Special Economic Zone Ltd (APSEZ), India's largest ports and logistics company, has elevated CEO Mr Karan Adani to the role of Managing Director, a position which was held by Mr Gautam Adani, Chairman of the Adani Group. Mr Gautam Adani is re-designated as 'Executive Chairman' of APSEZ, one of the fastest-growing integrated transport utilities in the world.

Under the leadership of Mr Karan Adani in his term as CEO, APSEZ has experienced a period of remarkable growth, significantly contributing to the nation's infrastructure development. Beginning his career with the Adani Group in 2009 at Mundra Port, he took over as CEO in 2016, after which the APSEZ portfolio rapidly expanded with the addition of four ports and terminals in India, one in Sri Lanka and one in Israel.Following a series of strategic expansions and partnerships, APSEZ has become India's fastest growing and largest private sector port developer and operator, with a spread of 14 ports along India's coastline and two ports outside India. Along with its subsidiary, Adani Logistics Ltd, APSEZ is also the largest and most diversified private rail operator in India, with a considerable share in both logistics and the harbour & dredging business.

APSEZ's board has also approved the appointment of Mr Ashwani Gupta, the former global Chief Operating Officer at Nissan Motors, as the new Chief Executive Officer of Adani Ports and Special Economic Zone Ltd.

"We are delighted to welcome Mr Ashwani Gupta as the new CEO of Adani Ports and Special Economic Zone Ltd," said Mr Karan Adani, Managing Director, APSEZ. "His appointment is a strategic move to strengthen our global leadership position in the port sector. We are confident that his expertise, leadership skills and global exposure will drive exceptional growth and foster new international partnerships aligned with the Adani Group's vision for expansion and innovation." Mr Ashwani Gupta has a notable track record in fostering key partnerships worldwide, and brings nearly three decades of experience across the automotive, retail and manufacturing sectors. A globally recognised leader who has led customer solutions through electrification, autonomous driving and digital transformation technologies, he has been at the forefront of industry sustainability, innovation and change, focusing on energy transition and customer centricity.

About Adani Ports & Special Economic Zone Ltd

Adani Ports and Special Economic Zone Ltd (APSEZ), a part of the globally diversified Adani Group, has evolved from a port company to an Integrated Transport Utility providing an end-to-end solution from its port gate to customer gate. It is the largest port developer and operator in India with 7 strategically located ports and terminals on the west coast (Mundra, Tuna, Dahej, and Hazira in Gujarat, Mormugao in Goa, Dighi in Maharashtra and Vizhinjam in Kerala) and 7 ports and terminals on the East coast of India (Haldia in West Bengal, Dhamra in Odisha, Gangavaram and Krishnapatnam in Andhra Pradesh, Kattupalli and Ennore in Tamil Nadu and Karaikal in Puducherry), representing 24% of the country's total port volumes, thus providing capabilities to handle vast amounts of cargo from both coastal areas and the hinterland. The company is also developing a transshipment port at Colombo, Sri Lanka and operates the Haifa Port in Israel. Our Ports to Logistics Platform comprising port facilities, integrated logistics capabilities including multimodal logistics parks, Grade A warehouses and industrial economic zones, puts us in an advantageous position as India stands to benefit from an impending overhaul in global supply chains. Our vision is to be the largest ports and logistics platform in the world in the next decade. With a vision to turn carbon neutral by 2025, APSEZ was the first Indian port and third in the world to sign up for the Science-Based Targets initiative (SBTi) committing to emission reduction targets to control global warming at 1.5°C above pre-industrial levels.

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സുപ്രഭാതം

സൗജന്യ കാൻസർ പരിശോധന ക്യാംപ്

കോവളം • അദാനി വിഴിഞ്ഞം തുറമുഖ കമ്പനിയുടെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതിയുടെ ഭാഗമായി തിരുവനന്തപുരം റീജിയണൽ കാൻസർ സെന്റർ, കോവളം ജനമൈത്രി പൊലിസ് സ്റ്റേഷൻ, റസിഡെന്റ്സ് അസ്സോസിയേഷനുകൾ എന്നിവയുടെ സംയുക്താഭിമുഖ്യത്തിൽ കാൻസർ പരിശോധന ക്യാംപ് സംഘടിപ്പിക്കുന്നു. കോവളം ജങ്ഷന് സമീപം ജില്ലാ ടൂറിസം ഡെവലപ്മെന്റ് കോഓപ്പറേറ്റീവ് സൊസൈറ്റി (പഴയ അമ്മ ആശുപത്രി)യിൽ ബുധനാഴ്ച രാവിലെ ഒമ്പത് മണി മുതൽ ഉച്ചയ്ക്ക് ഒരു മണി വരെയാണ് ക്യാംപ് . കൂടുതൽ വിവരങ്ങൾക്ക് .944.675.0295,944.655.2082, 944.661.6089.

Thiruvananthapuram Edition
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കേരള കൗമുദി
Epaper
07 Jan 2024

സൗജന്യ ക്യാൻസർ പരിശോധന ക്യാമ്പ്

കോവളം: അദാനിവിഴിഞ്ഞംതുറമുഖ കമ്പനിയുടെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതിയുടെഭാഗമായിതിരുവനന്തപുരംറീജിയണൽ ക്യാൻസർ സെന്റർ,കോവളം ജനമൈത്രി പൊലീസ്സ്റ്റേഷൻ,റസിഡന്റ്സ്അസോസിയേഷനുകൾ എന്നിവയുടെ സംയുക്താഭിമുഖ്യത്തിൽ ക്യാൻസർ പരിശോധനക്യാമ്പ്സംഘടിഷിക്കും.കോവളം ജംഗ്ഷനു സമീപം ജില്ലാ ടൂറിസം ഡെവലപ്മെന്റ് കോ-ഓപ്പറേറ്റീവ് സൊസൈറ്റിയിൽ ബുധനാഴ്ച രാവിലെ 9 മുതൽ ഉച്ചയ്ക്ക് 1 മണി വരെയാണ് ക്യാമ്പ്.

KERALA KAUMUDI EPAPER
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ക്യാൻസർരോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

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ക്യാൻസർ രോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

10.01.2024

കോവളം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധത പദ്ധതികളുടെ ഭാഗമായി തിരുവനന്തപുരം റീജണൽ കാൻസർ സെന്ററിന്റെ നേതൃത്വത്തിൽ തിരുവനന്തപുരം ജില്ലാ ടൂറിസം ഡെവലപ്മെന്റ് കോ-ഓപ്പറേറ്റീവ് സൊസൈറ്റി, ജനമൈത്രി പോലീസ് കോവളം, വിവിധ റസിഡൻസ് അസോസിയേഷനുകൾ, വെങ്ങാനൂർ ഗ്രാമ പഞ്ചായത്ത് എന്നിവരുടെ

മംഗളം

ക്യാൻസർ രോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

ദേശീയ യുവജന ദിനമാചരിച്ചു

വിഴിഞ്ഞം: അദാനി വിഴിഞ്ഞം തുറമുഖ പദ്ധതിയുടെ സാ ഹ്യ പ്രതിബദ്ധത വിഭാഗത്തിനു കീഴിൽ തൊഴിൽ നൈപ ണ്യ പരിശീലനം നൽകുന്ന അദാനി സ്കിൽ ഡെവലപ്മെ ന്റ് സെന്റർ വിഴിഞ്ഞത്ത് ദേശീയ യുവജന ദിന ആചരിച്ചു. രാഷ്ട്ര പുരോഗതിയിൽ യുവാക്കളുടെ പങ്ക് എന്ന വിഷ യത്തിൽ പ്രസംഗമത്സരവും, യുവത്വവും രാഷ്ട്രവും എന്ന നെ അടിസ്ഥാനമാക്കി ചിത്രരചനാ മത്സരവും സംഘടിപ്പി ച്ചു.പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ , ജോർ സൺ പി റ്റി, സ്റ്റീഫൻ വിനോദ് ,അദാനി സ്കിൽ സെന്റ ർ ഹെഡ് അനുരാഗ്, ശ്രീജിത്ത്, അനിൽകുമാർ , കവിത, നി ജോസ്, നീതു വി നാഥ്, ഷീജ എം എന്നിവർ നേതൃത്വ നൽകി.

മംഗളം

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പത്താം ക്ലാസ് ജയിച്ചവർക്ക് ഒരു സുവർണ്ണാവസരം

by Web Desk1 — January 18, 2024 Reading Time: 1 min

ശ്യാം വെണ്ണിയൂർ

വിഴിഞ്ഞം: അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ കീഴിൽ ITV Truck Operator പരിശീലനത്തിനുള്ള അപേക്ഷ സ്വീകരിക്കുന്നത് 20-01-2024 തീയതി നീട്ടിയിരിക്കുന്നു. അടിസ്ഥാന വിദ്യാഭ്യാസ യോഗ്യത SSLC (pass)

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ദേശീയ യുവജന ദിനമാചരിച്ചു.

12.01.2024

വിഴിഞ്ഞം: അദാനി വിഴിഞ്ഞം തുറമുഖ പദ്ധതിയുടെ സാമൂഹ്യ പ്രതിബദ്ധത വിഭാഗത്തിനു കീഴിൽ തൊഴിൽ നൈപുണ്യ പരിശീലനം നൽകുന്ന അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്റർ വിഴിഞ്ഞത്ത് ദേശീയ യുവജന ദിന ആചരിച്ചു. രാഷ്ട്ര പുരോഗതിയിൽ യുവാക്കളുടെ പങ്ക് എന്ന വിഷയത്തിൽ പ്രസംഗമത്സരവും, യുവത്വവും രാഷ്ട്രവും എന്നതിനെ അടിസ്ഥാന മാക്കി ചിത്രരചനാ മത്സരവും സംഘടിപ്പിച്ചു.പ്രോഗ്രാം മാനേജർ

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ലോക കുഷ്ടരോഗ ദിനാചാരണം

30.01.2024

വിഴിഞ്ഞം : അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ ലോക കുഷ്ടരോഗ ദിനാചരണം സംഘടിപ്പിച്ചു.വിഴിഞ്ഞം സെന്ററിന് കീഴിൽ പരിശീലനം നടക്കുന്ന ഹൗസ്‌കീപ്പിങ്, ഡാറ്റാ എൻട്രി ഓപ്പറേറ്റർ, ബ്യൂട്ടി തെറാപ്പിസ്റ്റ് എന്നീ ബാച്ചുകളിലെ അറുപതോളം കുട്ടികൾ ബോധവത്കരണ ക്ലാസുകളിൽ പങ്കെടുത്തു. വിവിധ ബാച്ചുകളിലെ ട്രൈനെർമാരായ ഷീജ എം, മിനി ജോസ്, കവിത റ്റി ആർ, നീതു വി. നാഥ്, അനിൽകുമാർ ബി എസ് , അനുരാഗ് എം ജെ, ശ്രീജിത്ത് എസ് എന്നിവർ

കേരളകൗമുദി

പ്ലാസ്റ്റിക് മാലിന്യ സംസ്കരണ പദ്ധതി കെട്ടിട നിർമ്മാണത്തിന് തുടക്കമായി

▶ഷജൻ കാവുങ്ങൽ

വിഴിഞ്ഞം: നഗരസഭയിലെ അഞ്ച് വാർഡുകളിൽ നിന്ന് ശേഖരിക്കുന്ന പ്ലാസ്റ്റിക് മാലിന്യം സംസ്കരിക്കുന്ന പദ്ധതിക്കായി കെട്ടിട നിർമ്മാണം ആരംഭിച്ചു.

അദാനി ഗ്രൂപ്പ് കമ്പനിയുടെ സി.എസ്.ആർ ഫണ്ട്, വിഴിഞ്ഞം രാജ്യാന്തര തുറമുഖ കമ്പനി (വിസിൽ), നഗരസഭ എന്നിവയുടെ സഹകരണത്തോടെയുള്ള പദ്ധതി മാർച്ചിൽ ഉദ്ഘാടനം ചെയ്യുമെന്നാണ് അധികൃതർ പറയുന്നത്. പദ്ധതിക്കായി 90 ലക്ഷം രൂപയിൽ 45 ലക്ഷം രൂപ വീതം അദാനി ഗ്രൂപ്പും വിസിൽ കമ്പനിയുമാണ് നൽകുന്നത്.

പ്ലാന്റിലെത്തിച്ച് സംസ്കരിച്ച് തരികളായി മാറ്റുന്ന പ്ലാസ്റ്റിക് റോഡ് ടാറിംഗിനും തരികളാക്കുന്നവ മറ്റ് ഉത്പന്നങ്ങളാക്കി മാറ്റുന്നതുമാണ് പദ്ധതി. മെറ്റീരിയൽ റിക്കവറി ഫെസിലിറ്റേഷൻ സെന്റർ (എം.ആർ.എഫ്) പേരിലെൺ പ്ലാന്റ് ആരംഭിക്കുന്നത്. വിഴിഞ്ഞം കോസ്റ്റൽ പൊലീസ് സ്റ്റേഷനു സമീപം ഹാർബർ എൻജിനിയറിംഗ് വകുപ്പ് നഗരസഭയ്ക്ക് നൽകിയ 15 സെന്റ് സ്ഥലത്താണ് നിർമ്മാണം.

ശേഖരിക്കുന്ന വാർഡുകൾ

വിഴിഞ്ഞം, കോട്ടപ്പുറം, മുല്ലൂർ, വെങ്ങാനൂർ, ഹാർബർ

പ്രവർത്തനം ഇങ്ങനെ

ദിവസവും ഒരു ടൺ പ്ലാസ്റ്റിക് പൊടിയാക്കാൻ കഴിയുന്ന വിധത്തിലാണ് പ്ലാന്റിന്റെ നിർമ്മാണം. നഗരസഭയ്ക്ക് ശേഖരിച്ചു വരുമാനവും ലഭിക്കും.

ശേഖരിക്കുന്ന പ്ലാസ്റ്റിക് കൂടി പൂർത്തിയാക്കി കെട്ടുകളാക്കിയശേഷം പ്ലാന്റിലൂടെ കടത്തിവിട്ട് കല്ലും മണ്ണും ചീളുകളുമടക്കമുള്ളവ നീക്കും. ശേഷം ആറ് മൈക്രോണിന് താഴെയുള്ള പ്ലാസ്റ്റിക് പൊടിരൂപത്തിലും മറ്റുള്ള വകകളുമായി വിൽക്കും. നഗരസഭയുടെ ഹരിതകർമ്മ സേനാംഗങ്ങൾ ശേഖരിക്കുന്ന പ്ലാസ്റ്റിക് പ്ലാന്റിലെത്തിക്കും.

കെട്ടിടം നിർമ്മിച്ച് നഗരസഭയ്ക്ക് കൈമാറിയാൽ ശുചിത്വ മിഷൻ യന്ത്രങ്ങൾ സ്ഥാപിക്കും. ശുചിത്വ മിഷൻ നടത്തിപ്പും പ്ലാന്റിന്റെ പരിപാലനം നഗരസഭയുമാണ് ചെയ്യുന്നത്.

പ്ലാന്റ് സ്ഥാപിക്കുന്നത് **15** സെന്റിൽ

വിസ്തീർണം **3500** ചതുരശ്ര അടി

ദേശീയ ബാലിക ദിനാഘോഷം

27.01.2024

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യപ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി അദാനി ഫൗണ്ടേഷൻ, അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ, വെങ്ങാനൂർ ഗേൾസ് എച്ച്.എസ്.എസ്. എസ്.പി.സി എന്നിവയുടെ നേതൃത്വത്തിൽ ദേശീയ ബാലിക ദിനാഘോഷം സംഘടിപ്പിച്ചു. ലഹരി നശിപ്പിക്കുന്ന യുവത്വം എന്ന പ്രമേയത്തിൽ കേഡറ്റുകൾ മൈം അവതരിപ്പിച്ചു. അദാനി ഫൗണ്ടേഷൻ സീനിയർ പ്രോജക്ട് ഓഫീസർ രാകേഷ്, ലൈവ്ലിഹുഡ് കോർഡിനേറ്റർ ജോർജ്ജ് സെൻ, പ്രോജക്ട് ഓഫീസർ വിനോദ്, അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ ഹെഡ്

← Post

Adani Ports and SEZ Ltd
@Adaniports

To celebrate Youth Day, AF and ASDC in Vizhinjam hosted activities like drawing exhibition and debate competition in which the students participated enthusiastically. It was a wonderful day, filled with creativity and optimism.

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ക്യാൻസർരോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

ഡിമോസ് ഷോറുമുകളിൽ റിപ്പബ്ലിക് ഡേ സെയിൽ ഫെബ്രുവരി 5 വരെ മാത്രം

ഡന്റൽ സർജറി അസിസ്റ്റന്റ് നിയമനം

ക്കസ്: 15 പ്രതികൾക്കും വധശിക്ഷ

ലോക കുഷ്ഠരോഗ ദിനാചരണം

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Adani Foundation

1 2h ·

The Adani Foundation is working to promote organic farming across India. In Vizhinjam, Kerala, it is promoting the growing of green vegetables organically under its initiative called 'Safe to Eat Vegetables for All (SEVAH)'.

It was started in the year 2020 with setting up of kitchen gardens in 260 households in the village. Women from these households were trained in using organic manure and it was also ensured that there is no use of chemical fertilizers in the process. Most of the harvest is consumed by the families of these women, which aids in providing them in quality nutrition.

Today, over 1,250 kitchen gardens are functioning in and around Vizhinjam, paving the way for chemical-free food intake.

#growthwithgoodness #adanifoundation #organicfarming #womenempowerment #kerela

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ദേശീയ ബാലിക ദിനാഘോഷം

27.01.2024

വിഴിഞ്ഞം:വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യപ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി അദാനി ഫൗണ്ടേഷൻ, അദാനിസ്ക്കിൽ ഡെവലപ്മെൻറ് സെൻറർ,വെങ്ങാനൂർ ഗേൾസ് എച്ച്എസ്എസ്,എസ്.പി.സി എന്നിവരുടെ നേതൃത്വത്തിൽ ദേശീയ ബാലിക ദിനാഘോഷം സംഘടിപ്പിച്ചു.ലഹരി നശിപ്പിക്കുന്ന യുവത്വം എന്ന പ്രമേയത്തിൽ രണ്ടിടങ്ങളിൽ മൈം അവതരിപ്പിച്ചു.അദാനി ഫൗണ്ടേഷൻ സീനിയർ പ്രോജക്ട് ഓഫീസർ രാകേഷ്,ലൈവിഹുഡ് കോർഡിനേറ്റർ ജോർജ്ജ് സെൻ,പ്രോജക്ട് ഓഫീസർ

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ക്യാൻസർരോഗ നിർണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു

08.02.2024

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധത പദ്ധതികളുടെ ഭാഗമായി തിരുവനന്തപുരം റീജണൽ കാൻസർ സെന്ററിന്റെ നേതൃത്വത്തിൽ വിഴിഞ്ഞം വടക്കും ഭാഗം മുസ്ലിം ജമാഅത്ത്,വിഴിഞ്ഞംജനമൈത്രി പോലീസ്,വിവിധ റസിഡൻസ് അസോസിയേഷനുകൾ,എന്നിവരുടെ സഹകരണത്തോടെ അദാനി ഫൗണ്ടേഷൻ ക്യാൻസർ രോഗ നിർണ്ണയ ക്യാമ്പ് സംഘടിപ്പിച്ചു.വിഴിഞ്ഞം പോലീസ്

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You
17 February, 6:59 am

NAUTICAL TIMES

കാൻസർ, ലഹരി ബോധവൽക്കരണവുമായി സ്റ്റുഡൻസ് പോലീസ്

ലോക്സഭാ തിരഞ്ഞെടുപ്പ്: കെ.സി.വേണുഗോപാൽ ഇല്ലെങ്കിൽ ആലപ്പുഴയിൽ രാഹുൽ മാങ്കൂട്ടത്തിൽ

മുഖ്യമന്ത്രിയുടെ മുഖാമുഖം നാളെ മുതൽ...

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ക്യാൻസർ - ലഹരി ബോധവൽക്കരണവുമാ സ്റ്റുഡൻസ് പോലീസ്

17.02.2024

വിഴിഞ്ഞം: വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യ പ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി അദാനി ഫൗണ്ടേഷൻ, വിഴിഞ്ഞം ജനമൈത്രി പോലീസ് സ്റ്റേഷൻ , വെങ്ങാനൂർ ഗേൾസ് ഹയർ സെക്കണ്ടറി സ്കൂൾ എസ്. പി. സി എന്നിവരുടെ നേതൃത്വത്തിൽ ക്യാൻസർ രോഗനിർണയ ക്യാമ്പിനോടനുബന്ധിച്ച് പ്രത്യാശ എന്ന പേരിൽ ലഘു ബോധവത്ക്കരണ നാടകം അവതരിപ്പിച്ചു. ലഹരിയുടെ ദൃഷ്യ വശങ്ങൾ അനാവരണം ചെയ്യുന്ന ലഹരി നശിപ്പിക്കുന്ന യുവത്വം എന്ന മൈമും അവതരിപ്പിച്ചു. വിഴിഞ്ഞം മത്സ്യബന്ധന തുറമുഖം, വിഴിഞ്ഞം ജംഗ്ഷനിലെ ടാക്സി സ്റ്റാൻഡ് എന്നിവിടങ്ങളിൽ

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യുവതികൾക്കായി സ്വയം പ്രതിരോധ പരിശീലനം

23.02.2024

തിരുവനന്തപുരം :അദാനി വിഴിഞ്ഞം തുറമുഖ കമ്പനിയുടെ സാമൂഹ്യ പ്രതിബദ്ധതാ വിഭാഗത്തിലെ അദാനി സ്കിൽ ഡവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ കേരള പോലീസിന്റെ സഹായത്തോടെ യുവതികൾക്ക് സ്വയം പ്രതിരോധ പരിശീലന പരിപാടി സംഘടിപ്പിച്ചു.കേരള പോലീസിലെ അനീസ് ബെൻ പരിശീലനം നൽകി. അദാനി സ്കിൽ ഡെവലപ്മെന്റ് വിഴിഞ്ഞം സെന്ററിന് കീഴിൽ പരിശീലനം നടക്കുന്ന ജനറൽ ഡ്യൂട്ടി അസിസ്റ്റന്റ്,

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ദേശീയ ബാലിക ദിനാഘോഷം

27.01.2024

വിഴിഞ്ഞം:വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തിന്റെ സാമൂഹ്യപ്രതിബദ്ധതാ പദ്ധതികളുടെ ഭാഗമായി അദാനി ഫൗണ്ടേഷൻ, അദാനിസ്ക്കിൽ ഡെവലപ്മെൻറ് സെൻറർ,വെങ്ങാനൂർ ഗേൾസ് എച്ച്എസ്എസ്,എസ്.പി.സി എന്നിവരുടെ നേതൃത്വത്തിൽ ദേശീയ ബാലിക ദിനാഘോഷം സംഘടിപ്പിച്ചു.ലഹരി നശിപ്പിക്കുന്ന യുവത്വം എന്ന പ്രമേയത്തിൽ രണ്ടിടങ്ങളിൽ മൈം അവതരിപ്പിച്ചു.അദാനി ഫൗണ്ടേഷൻ സീനിയർ പ്രോജക്ട് ഓഫീസർ രാകേഷ്,ലൈവിഹുഡ് കോർഡിനേറ്റർ ജോർജ്ജ് സെൻ,പ്രോജക്ട് ഓഫീസർ

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വെങ്ങാനൂർ ഗേൾസ് സ്കൂളിൽ ഗാന്ധിജയന്തി ആഘോഷ പരിപാടികൾ സംഘടിപ്പിച്ചു .

02-10-2023

വിഴിഞ്ഞം:അദാനി വിഴിഞ്ഞം തുറമുഖ കമ്പനിയുടെ സാമൂഹിക പ്രതിബദ്ധത പദ്ധതിയുടെ ഭാഗമായി വിഴിഞ്ഞം ജനമൈത്രി പോലീസ് സ്റ്റേഷൻറെയും, എച്ച്.എസ്.എസ് ഫോർ ഗേൾസ് വെങ്ങാനൂർ സ്കൂൾ എസ്.പി.സി കേഡറ്റിൻറെയുംസംയുക്താഭിമുഖ്യത്തിൽ ഗാന്ധിജയന്തി ആഘോഷ പരിപാടികൾ സംഘടിപ്പിച്ചു.വെങ്ങാനൂർ ഗേൾസ് സ്കൂളിൽ സംഘടിപ്പിച്ച പരിപാടിയിൽ

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2024 FEBRUARY 17 SATURDAY

ക്യാൻസർ, ലഹരി ബോധവൽക്കരണവുമായി സ്റ്റുഡൻസ് പോലീസ്

ഡബിൾസ് കിരീടം നേടി ദമ്പതികൾ

എക്സൈസ് സേനയെ ആധുനിക വൽക്കരിക്കും: മന്ത്രി എം ബി രാജേഷ്

കേരളകൗമുദി

തുറമുഖ നിർമ്മാണം തുടങ്ങിയിട്ട് 3000 ദിനം

2028ൽ പൂർത്തിയാക്കും

▶ഷജൻ കാവുങ്ങൽ

വിഴിഞ്ഞം: രാജ്യാന്തര തുറമുഖ നിർമ്മാണം തുടങ്ങിയിട്ട് ഇന്നേക്ക് 3000 ദിനങ്ങൾ. ആദ്യഘട്ടം 1000 ദിനങ്ങൾ കൊണ്ട് പൂർത്തിയാക്കുമെന്ന് അറിയിച്ചെങ്കിലും നിരവധി പ്രതിസന്ധികൾ പണി തടസപ്പെടുന്നതിനിടയാക്കി. ഇവയെല്ലാം തരണം ചെയ്ത് കഴിഞ്ഞവർഷം ഒക്ടോബർ 12ന് എത്തിയ ആദ്യ കപ്പലിനെ 15ന് ഔദ്യോഗികമായി വിഴിഞ്ഞം തീരത്തേക്ക് സ്വാഗതം ചെയ്തിരുന്നു. മേയ് അവസാനത്തോടെ ആദ്യ കണ്ടെയ്നർ കപ്പൽ അടുപ്പിക്കുമെന്ന് മന്ത്രി അറിയിച്ചു. തുറമുഖം ആദ്യ കണ്ടെയ്നർ കപ്പലിനെ വരവേൽക്കാൻ സജ്ജമാവുകയാണ്. തുറമുഖ നിർമ്മാണ കാര്യങ്ങൾ നേരിട്ടറിയുന്നതിനും അവലോകനത്തിനുമായി മന്ത്രി വി.എൻ. വാസവൻ 21ന് രാവിലെ 11.30ന് തുറമുഖത്ത് എത്തും. പുലിമുട്ട് നിർമ്മാണം 2800 മീറ്റർ പൂർത്തിയായി. ബാക്കിയുള്ള 165 മീറ്റർ നിർമ്മാണം കൂടി പൂർത്തിയായാൽ ആകെയുള്ള 2965 മീറ്റർ നീളവും ആദ്യഘട്ടം പൂർത്തിയാകും. ആദ്യഘട്ടം പൂർത്തിയാകേണ്ട 800 മീറ്റർ ബെർത്തിൽ 400 മീറ്റർ ഇതും പൂർത്തിയായി. അവശേഷിക്കുന്നവ ഏപ്രിൽ അവസാനത്തോടെ പൂർത്തിയാക്കാനാണ് അധികൃതർ പറയുന്നത്. 56 ഹെക്ടർ ഭൂമിയാണ് ആദ്യഘട്ടത്തിൽ പൂർത്തിയാകേണ്ടത്. ഇതിൽ 53 ഹെക്ടറോളം ഭൂമി കടൽ നികത്തിയെടുത്തിട്ടുണ്ട്. ഇതുവരെ നാല് കപ്പലുകളിലായി എത്തിച്ച നാല് ഷിപ് ടു ഷോർ ക്രെയിനുകൾ ഉൾപ്പെടെയുള്ളവ പലഭാഗങ്ങളിൽ ഉറപ്പിച്ച് പരീക്ഷണം നടത്തിയിരുന്നു. ഇവയുടെ ശേഷിപരിശോധന നടന്നുവരികയാണ്. ക്രെയിനുകളുടെ അവസാനഘട്ട പരിശോധനകൾക്കായി ചൈനയിൽ നിന്നുള്ള ക്രെയിൻ നിർമ്മാണ കമ്പനിയിലെ 15 അംഗ വിദഗ്ദ്ധ സംഘം ഏപ്രിലിൽ വിഴിഞ്ഞത്തെത്തും. ഇതുവരെ എത്തിച്ച 17 ക്രെയിനുകൾ അടുത്ത മാസം മുതൽ വിഴിഞ്ഞത്തെത്തെ... ഷ് എത്തിക്കും. ഇവ സ്ഥാപിക്കുന്നതിനുള്ള പാളങ്ങൾ സജ്ജമാക്കുന്ന ജോലിയും പുരോഗമിക്കുകയാണ്.

നാൾവഴികൾ

2015ൽ	ഔദ്യോഗിക ഉദ്ഘാടനം
2017ലെ	ഓഖി ദുരന്തമുൾപ്പെടെ നിരവധി പ്രതിസന്ധികൾ തരണം ചെയ്തു
2018 ജൂലായ്	കടൽക്ഷോഭത്തിൽ നിർമ്മാണം തടസപ്പെട്ടു
2019 ഒക്ടോബർ	കരിങ്കൽ ക്ഷാമം, അനിശ്ചിതത്വങ്ങൾക്കൊടുവിൽ പുലിമുട്ട് നിർമ്മാണം തുടങ്ങി
2022 ജൂൺ 30	220 കെ.വി വൈദ്യുത സബ്സ്റ്റേഷന്റെ ഉദ്ഘാടനം. ഗ്യാസ് ഇൻസുലേറ്റഡ് 220 കെ.വി സബ്സ്റ്റേഷൻ കാട്ടാക്കടയിലെ കെ.എസ്.ഇ.ബി ഗ്രിഡുമായാണ് ലിങ്ക് ചെയ്തിരിക്കുന്നത്
2022 ആഗസ്റ്റ്	തീരശോഷണം ഉൾപ്പെടെയുള്ള വിഷയങ്ങൾ ഉന്നയിച്ച് അനിശ്ചിതകാല രാപ്പകൽ സമരം
2022 ഡിസംബർ	സമര ഭാഗമായി പൊലീസ് സ്റ്റേഷൻ ആക്രമണം

കഴിഞ്ഞവർഷം ഒക്ടോബർ 12ന് എത്തിയ ആദ്യ കപ്പലിനെ 15ന് ഔദ്യോഗികമായി വിഴിഞ്ഞം തീരത്തേക്ക് സ്വാഗതം ചെയ്തിരുന്നു. മേയ് അവസാനത്തോടെ ആദ്യ കണ്ടെയ്നർ കപ്പൽ അടുപ്പിക്കുമെന്ന് മന്ത്രി അറിയിച്ചു.

ആദ്യഘട്ടം പൂർത്തിയാകേണ്ട 800 മീറ്റർ ബെർത്തിൽ 400മീറ്റർ ഇതും പൂർത്തിയായി. അവശേഷിക്കുന്നവ ഏപ്രിൽ അവസാനത്തോടെ പൂർത്തിയാക്കാനാണ് അധികൃതർ പറയുന്നത്.

പദ്ധതി കരാർ പ്രകാരം 2045ൽ ആണ് മൂന്നാം ഘട്ടം പൂർത്തിയാക്കേണ്ടത്. എന്നാൽ രണ്ടും മൂന്നും ഘട്ടങ്ങൾ 2028ൽ പൂർത്തിയാക്കണമെന്ന പുതിയ വ്യവസ്ഥ സർക്കാർ മുന്നോട്ടുവച്ചിട്ടുണ്ട്.

Adani Foundation's

'SEVAH' paves the way for a healthier lifestyle

The Adani Foundation, with an aim to ensure that quality nutrition reaches the remotest and most backward regions of the country, set up kitchen gardens in 260 homes of rural Vizhinjam, Kerala, in 2020 under an initiative called 'Safe To Eat Vegetables For All (SEVAH).

As part of the initiative, women of these households are guided towards organic agricultural and farming practices. The Foundation also provides necessary gardening kits and equipment to these women. No chemical fertilizers are used in the process, and the harvest produced is completely organic and unadulterated.

As of today, as many 1,260 kitchen gardens are functioning in the area, paving the way for chemical-free food intake for these households.

This way, the Foundation is helping to ensure that the nutritional needs of these households are addressed. The harvest is mostly consumed by the families and sometimes the surplus is sold in the market, which fetches additional income.

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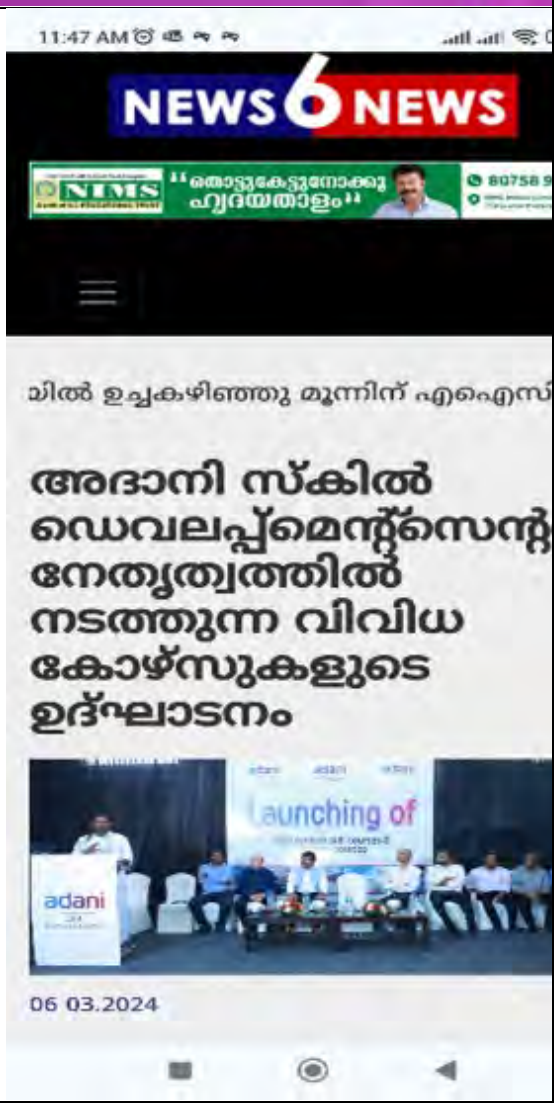

വിഴിഞ്ഞം തുറമുഖത്ത് തദ്ദേശീയർക്ക് തൊഴിൽ

വിവിധ കോഴ്സുകൾക്ക് അപേക്ഷ ക്ഷണിച്ചു

സുനീഷ് ജോ

തിരുവനന്തപുരം

വിഴിഞ്ഞം അന്താരാഷ്ട്ര തുറമുഖത്തും അനുബന്ധമേഖലകളിലും മത്സ്യത്തൊഴിലാളികളുടെ മക്കൾക്ക് കൂടുതൽ തൊഴിൽ അവസരം ലഭ്യമാക്കാൻ നടപടി തുടങ്ങി. അർഹരായവരെ കണ്ടെത്താൻ അഞ്ചു കോഴ്സുകൾക്ക് അദാനി പോർട് കമ്പനി (എവിപിഎൽ) അപേക്ഷ ക്ഷണിച്ചു. ഇന്റേണൽ ടാൻസ്ഫർ വെഹിക്കിൾ (ഐടിവി), ലാഷെർ, ക്രെയിൻ ഓപ്പറേറ്റർ, ഡിപ്ലോമ ഇൻ വെയർഹൗസ് മാനേജ്മെന്റ്, ഫ്രണ്ട് ഓഫ് ഹൗസ് എക്സിക്യൂട്ടീവ് എന്നിവയിലാണ് കോഴ്സ് ആരംഭിക്കുന്നത്. ഈമാസം അവസാനം ക്ലാസുകൾ ആരംഭിക്കും.

ഇരുപതിനായിരം മുതൽ മുപ്പതിനായിരംവരെയാണ് കോഴ്സ് ഫീസ്. തദ്ദേശീയർക്ക് തൊഴിൽ ലഭ്യമാക്കുന്നതിന് സംസ്ഥാന സർക്കാർ സ്കിൽഡെവലപ്മെന്റ് പാർക്കിന് രൂപം നൽകിയിരുന്നു. ഇതിന്റെ നിർമാണം അന്തിമഘട്ടത്തിലാണ്.

മുക്കോലയിലെ താൽക്കാലിക കെട്ടിടത്തിലാണ് ക്ലാസുകൾ ആരംഭിക്കുക. സ്കിൽ ഡെവലപ്മെന്റ് പാർക്ക് സജ്ജമാകുന്നതോടെ പഠനം അങ്ങോട്ടേക്ക് മാറ്റും. 25 മുതൽ 30 വരെ പേർക്ക് ഓരോ ബാച്ചിലും പ്രവേശനം നൽകും.

മത്സ്യത്തൊഴിലാളികളുടെ മക്കൾക്ക് കോഴ്സ് തുകയിൽ അമ്പത് ശതമാനം ഇളവ് ലഭിക്കും. ഇവർക്ക് പ്രവേശനത്തിന് മുൻഗണനയും നൽകും. മേയിൽ തുറമുഖം പ്രവർത്തനസജ്ജമാകുമ്പോഴും തുടർന്നും ഈ മേഖലയിൽ ഉണ്ടാകുന്ന തൊഴിൽ അവസരങ്ങൾ പ്രദേശവാസികൾക്ക് ഉറപ്പുവരുത്തുകയാണ് സ്കിൽഡെവലപ്പ്മെന്റ് പാർക്കിന്റെ ലക്ഷ്യം.

ഇതിന് ആവശ്യമായ കോഴ്സുകളും പരിശീലനവും അദാനി പോർട്ട് നൽകണം. ഇതിനുള്ള കെട്ടിട സൗകര്യവും ഒരുക്കി കമ്പനിക്ക് കൈമാറും.

ദേശാഭിമാനി Wed, 06 March 2024
https://epaper.deshabhimani.com/c/74686500

വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം

വിഴിഞ്ഞം: തുറമുഖവുമായി ബന്ധപ്പെട്ട് വിഴിഞ്ഞം അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന വിവിധ കോഴ്സുകൾ ഉടൻ തുടങ്ങും. ലാഷർ, ഐ.ടി.വി ഓപറേറ്റർ കോഴ്സുകളാണ് ആദ്യ മാരംഭിക്കുന്നത്. മാർച്ച് 15 വരെ അപേക്ഷ സ്വീകരിച്ച് 30നുള്ളിൽ ക്ലാസുകൾ തുടങ്ങുന്ന തരത്തിലാണ് ക്രമീകരണങ്ങൾ.

പരമാവധി 30 പേർക്കാണ് ഒരു ബാച്ചിൽ പരിശീലനം. പ്രദേശവാസികൾക്ക് മുൻഗണനയുണ്ടാകും.

ക്രെയിൻ ഓപറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്തമാസം തുടങ്ങും.

കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസെന്റ് എം.എൽ.എ നിർവഹിച്ചു. ലോജിസ്റ്റിക് മേഖലയിലെ ലോകോത്തര നിലവാരമുള്ള പരിശീലന കേന്ദ്രമായി വിഴിഞ്ഞത്തെ വികസിപ്പിക്കണമെന്ന് ഉദ്ഘാടന പ്രസംഗത്തിൽ എം.എൽ.എ പറഞ്ഞു.

ഇന്ത്യയിലെയും വിദേശത്തെയും തുറമുഖങ്ങളിലേക്കുള്ള റിക്രൂട്ടിങ് കേന്ദ്രമായി മാറാൻ വിഴിഞ്ഞത്തിന് ശേഷിയുണ്ടെന്ന് അധ്യക്ഷത വഹിച്ച അദാനി വിഴിഞ്ഞം പോർട്ട് സി.ഇ.ഒ പ്രദീപ് ജയരാമൻ പറഞ്ഞു. വിവരങ്ങൾക്ക് 8075497373 എന്ന നമ്പറിൽ ബന്ധപ്പെടാം.

അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ പരിശീലന പരിപാടി

തിരുവനന്തപുരം : അദാനി ഫൗണ്ടേഷന്റെ പ്രത്യേക പദ്ധതിയായ അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ (എഎസ്ഡിസി) തുറമുഖ പ്രവർത്തനങ്ങളുമായി ബന്ധപ്പെട്ട് ദേശീയ അന്തർദേശീയ തലത്തിൽ ജോലി സാധ്യതകളുള്ള പരിശീലന പരിപാടികൾ ആരംഭിച്ചു. അന്താരാഷ്ട്ര വനിതാ ദിനത്തിന് മുന്നോടിയായി എഎസ്ഡിസി സ്ത്രീകൾക്കായി നൈപുണ്യ വികസന കോഴ്സുകളുടെ ഒരു ശ്രേണിയും അവതരിപ്പിച്ചു.

ഇൻറേണൽ ട്രാൻസ്ഫർ വെഹിക്കിൾ (ഐടിവി) ഓപ്പറേഷൻ, ലാഷർ പരിശീലനം എന്നിവയുൾപ്പെടെ തുറമുഖ പ്രവർത്തനങ്ങളുമായി ബന്ധപ്പെട്ട കോഴ്സുകൾ തുറമുഖങ്ങളുടെ ദൈനംദിന ആവശ്യങ്ങൾ നിറവേറ്റുന്നതിനും കാര്യക്ഷമവും സുരക്ഷിതവുമായ തുറമുഖ പ്രവർത്തനങ്ങൾക്ക് ആവശ്യമായ വൈദഗ്ധ്യം ട്രെയിനികൾ നേടിയെടുക്കുന്നുണ്ടെന്ന് ഉറപ്പാക്കുന്ന രീതിയിലാണ് രൂപകൽപ്പന ചെയ്തിരിക്കുന്നത്. കൂടാതെ, അന്താരാഷ്ട്ര വനിതാ ദിനം അനുസ്മരിക്കുന്നതിനായി നൂറിലധികം വനിതാ ഉദ്യോഗാർത്ഥികളെ അവരുടെ കഴിവുകൾ വർധിപ്പിച്ച് ഉപജീവനത്തിനായി തയ്യാറാക്കി അവസരങ്ങൾ തേടാൻ പ്രാപ്തരാക്കുന്നതാണ് കേന്ദ്രം. ജനറൽ ഡ്യൂട്ടി അസിസ്റ്റന്റ് (നഴ്സിംഗ് അസിസ്റ്റന്റർ), എഐ ടൂൾ ഡാറ്റാ എൻട്രി ഓപ്പറേറ്റർ, സ്റ്റിച്ചിംഗ്, ബ്യൂട്ടി തെറാപ്പിസ്റ്റ് തുടങ്ങിയ വൈവിധ്യമാർന്ന കോഴ്സുകളുണ്ട്.

തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം

വിഴിഞ്ഞം: വിഴിഞ്ഞം അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസെന്റ് എം. എൽ. എ നിർവഹിച്ചു. ഷിപ്പിംഗ്, ലോജിസ്റ്റിക് മേഖലയിലെ ലോകോത്തര നിലവാരമുള്ള പരിശീലന കേന്ദ്രമായി വിഴിഞ്ഞത്തെ വികസിപ്പിക്കണമെന്ന് എം. എൽ. എ പറഞ്ഞു. ലാഷർ, ഐ.ടി.വി ഓപ്പറേറ്റർ കോഴ്സുകളാണ് തുടങ്ങിയത്. ക്രെയിൻ ഓപ്പറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്ത മാസം തുടങ്ങും. ഇന്ത്യയിലെയും വിദേശത്തെയും തുറമുഖങ്ങളിലേക്കുള്ള റിക്രൂട്ടിംഗ് കേന്ദ്രമായി മാറാൻ വിഴിഞ്ഞത്തിന് ശേഷിയുണ്ടെന്ന് അദാനി വിഴിഞ്ഞം പോർട്ട് സി. ഇ. ഒ പ്രദീപ് ജയരാമൻ പറഞ്ഞു. അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗദാവി, ദക്ഷിണേന്ത്യ സി. എസ്. ആർ മേധാവി ഡോ. അനിൽ ബാലകൃഷ്ണൻ, ഓപ്പറേഷൻസ് മേധാവി തുഷാർ രാഹത്തെകർ, പ്രകാശ് പിള്ള, സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, എം. ജെ. അനുരാഗ് എന്നിവർ പങ്കെടുത്തു.

മംഗളം

അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്റർ നടത്തുന്ന കോഴ്സുകളുടെ ഉദ്ഘാടനം നടന്നു

വിഴിഞ്ഞം: തുറമുഖവുമായി ബന്ധപ്പെട്ട് വിഴിഞ്ഞം അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന വിവിധ കോഴ്സുകൾ ഉടൻ തുടങ്ങും. ലാഷർ, ഫെടിവി ഓപ്പറേറ്റർ കോഴ്സുകളാണ് ആദ്യമാരംഭിക്കുന്നത്. ഈ മാസം 15 വരെ അപേക്ഷ സ്വീകരിച്ച് 30 നുള്ളിൽ ക്ലാസുകൾ തുടങ്ങുന്നതരത്തിലാണ് ക്രമീകരണങ്ങൾ നടത്തുന്നതെന്ന് അധികൃതർ അറിയിച്ചു. പരമാവധി 30 പേർക്കാണ് ഒരു ബാച്ചിൽ പരിശീലനം നൽകുക. ആർക്കും അപേക്ഷിക്കാമെങ്കിലും പ്രദേശവാസികൾക്ക് മുൻഗണനയുണ്ടാകും. ക്രെയിൻ ഓപ്പറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്ത മാസം തുടങ്ങും. കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എംഎൽഎ നിർവഹിച്ചു.

ലോജിസ്റ്റിക് മേഖലയിലെ ലോകോത്തര നിലവാരമുള്ള പരിശീലന കേന്ദ്രമായി വിഴിഞ്ഞത്തെ വികസിപ്പിക്കണമെന്ന് ഉദ്ഘാടന പ്രസംഗത്തിൽ എംഎൽഎ പറഞ്ഞു. ഇന്ത്യയിലെയും വിദേശത്തെയും തുറമുഖങ്ങളിലേക്കുള്ള റിക്രൂട്ടിംഗ് കേന്ദ്രമായി മാറാൻ വിഴിഞ്ഞത്തിനു ശേഷിയുണ്ടെന്ന് ചടങ്ങിൽ അധ്യക്ഷത വഹിച്ച അദാനി വിഴിഞ്ഞം പോർട്ട് സിഇഒ പ്രദീപ് ജയരാമൻ പറഞ്ഞു.

●വിഴിഞ്ഞം തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എംഎൽഎ നിർവഹിക്കുന്നു

അദാനി ഹൌബ്ലേഷൻ എക്സിക്യൂട്ടിവ് ഡയറക്ടർ വസന്ത് ഗദാവി, ദക്ഷിണേന്ത്യ സിഎസ്ആർ മേധാവി ഡോ. അനിൽ ബാലകൃഷ്ണൻ, ഓപറേഷൻസ് മേധാവി തുഷാർ രാഹത്തെകർ, പ്രകാശ് പിള്ള, സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, എ.ജെ. അനുരാഗ് എന്നിവർ പ്രസംഗിച്ചു. ഉദ്യോഗാർത്ഥികൾക്ക് തുറമുഖ മേഖലയിൽ കൂടുതൽ തൊഴിൽ അവസരം ലഭ്യമാക്കുകയെന്ന ലക്ഷ്യത്തോടെ നടത്തുന്ന കോഴ്സുകളുടെ കൂടുതൽ വിവരങ്ങൾക്ക് 8075497373 എന്ന നമ്പറിൽ ബന്ധപ്പെടാം.

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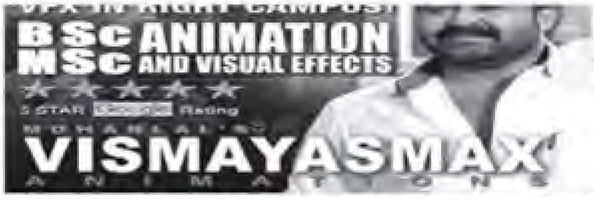

04 വനിതാ വ്യവസായകേന്ദ്രം മാലിന്യ സംഭരണ കേന്ദ്രമാക്കിയതിനെതിരെ പ്രതിഷേധം

തുറമുഖതൊഴിലുകൾക്ക് അദാനിയുടെ ട്രെയിനിംഗ്

[illegible]

https:// www.adanisaksham.com/ course-details/194?ype=2, https:// www.adanisaksham.com/ course-details/194t?ype=3 [illegible]

തുറമുഖവുമായി ബന്ധപ്പെട വിവിധ കോഴ്സുകൾ ഉദ്ഘാടനം ചെയ്തു

വിഴിഞ്ഞം: വിഴിഞ്ഞം അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകൾക്ക് തുടക്കമാകുന്നു. പരിപാടിയുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എം എൽഎ നിർവഹിച്ചു.

ലാഷർ, ഐടിവി ഓപ്പറേറ്റർ കോഴ്സുകളാണ് ആദ്യമാരംഭിക്കുന്നത്. ഈ മാസം 15വരെ അപേക്ഷ സ്വീകരിച്ച് 30 നുള്ളിൽ ക്ലാസുകൾ തുടങ്ങുന്നതരത്തിലാണ് ക്രമീകരണങ്ങൾ നടത്തുന്നതെന്ന് അധികൃതർ അറിയിച്ചു. പരമാവധി 30 പേർക്കാണ് ഒരു ബാച്ചിൽ പരിശീലനം നൽകുക. ആർക്കും അപേക്ഷിക്കാമെങ്കിലും പ്രദേശവാസികൾക്ക് മുൻഗണനയുണ്ടാകും . ക്രയിൻ ഓപ്പറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്ത മാസം തുടങ്ങുമെന്നും ബന്ധപ്പെട്ടവർ പറയുന്നു.

ലോജിസ്റ്റിക് മേഖലയിലെ ലോകോത്തര നിലവാരമുള്ള പരിശീലന കേന്ദ്രമായി വിഴിഞ്ഞത്തെ വികസിപ്പിക്കണമെന്ന് എംഎൽഎ പറഞ്ഞു. സിഇഒ പ്രദീപ് ജയരാമൻ , അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗദാവി, ദക്ഷിണേന്ത്യ സിഎസ്ആർ മേധാവി ഡോ. അനിൽ ബാലകൃഷ്ണൻ, ഓപറേഷൻസ് മേധാവി തുഷാർ രാഹത്തെകർ, പ്രകാശ് പിള്ള, സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, എം.ജെ. അനുരാഗ് എന്നിവർ പ്രസംഗിച്ചു. ഉദ്യോഗാർഥികൾക്ക് തുറമുഖ മേഖലയിൽ കൂടുതൽ തൊഴിൽ അവസരം ലഭ്യമാക്കുകയെന്ന ലക്ഷ്യത്തോടെ നടത്തുന്ന കോഴ്സുകൾക്ക് https://www.adanisaksham.com/course-details/194?type=2, https://www.adanisaksham.com/course-details/194?type=3 എന്നീ ലിങ്കുകൾ വഴി അപേക്ഷിക്കാം. വിവരങ്ങൾക്ക് ഫോൺ: 80-75497373 എന്ന നമ്പറിൽ ബന്ധപ്പെടാം. വിഴിഞ്ഞം തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം എം.വിൻസന്റ് എംഎൽഎ നിർവഹിക്കുന്നു.

Port-related skilling courses

The Hindu Bureau
THIRUVANANTHAPURAM

M. Vincent, MLA, has inaugurated port-related skill development courses conducted by Adani Skill Development Centre, Vizhinjam. Lasher and ITV operator courses are being offered. More courses, including crane operator and warehouse management, will start next month, said a release on Wednesday. Adani Vizhinjam Port Chief Executive Officer Pradeep Jayaraman, who presided, said that Vizhinjam had the potential to become a recruiting hub for ports in India and abroad. For details, call: 80754 97373.

അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്റർ നടത്തുന്ന കോഴ്സുകളുടെ ഉദ്ഘാടനം എം.വിൻസെന്റ് എംഎൽഎ നിർവഹിക്കുന്നു.

കോഴ്സുകളുടെ ഉദ്ഘാടനം

വിഴിഞ്ഞം: അദാനി സ്കിൽഡ് ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എംഎൽഎ നിർവഹിച്ചു. ലാഷർ, ഐടിവി ഓപ്പറേറ്റർ കോഴ്സുകളാണ് തുടങ്ങിയത്. ക്രയിൻ ഓപ്പറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്ത മാസം തുടങ്ങും. ഷിപ്പിംഗ്, ലോജിസ്റ്റിക് മേഖലയിലെ ലോകോത്തര നിലവാരമുള്ള പരിശീലന കേന്ദ്രമായി വിഴിഞ്ഞത്തെ വികസിപ്പിക്കണമെന്ന് ഉദ്ഘാടന പ്രസംഗത്തിൽ എംഎൽഎ പറഞ്ഞു. ഇന്ത്യയിലെയും വിദേശത്തെയും തുറമുഖങ്ങളിലേക്കുള്ള റിക്രൂട്ടിംഗ് കേന്ദ്രമായി മാറാൻ വിഴിഞ്ഞത്തിനു ശേഷിയുണ്ടെന്ന് അദാനി വിഴിഞ്ഞം പോർട്ട് സിഇഒ പ്രദീപ് ജയരാമൻ പറഞ്ഞു. ഉദ്യോഗാർഥികൾക്ക് തുറമുഖ മേഖലയിൽ കൂടുതൽ തൊഴിൽ അവസരം ലഭ്യമാക്കുകയെന്ന ലക്ഷ്യത്തോടെ നടത്തുന്ന കോഴ്സുകൾക്ക് https://www.adanisaksham.com/course-details/194?type=2, https://www.adanisaksham.com/course-details/194?type=3 എന്നീ ലിങ്കുകൾ വഴി അപേക്ഷിക്കാം. വിവരങ്ങൾക്ക് ഫോൺ: 80-75497373.

അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ നടത്തുന്ന കോഴ്സുകളുടെ ഉദ്ഘാടനം

വിഴിഞ്ഞം: തുറമുഖവുമായി ബന്ധപ്പെട്ട് വിഴിഞ്ഞം അദാനി സ്കിൽ ഡെവലപ്പ്മെന്റ് സെന്ററിന്റെ നേതൃത്വത്തിൽ നടത്തുന്ന വിവിധ കോഴ്സുകൾ ഉടൻ ആരംഭിക്കും. ലാഷർ, ഐടിവി ഓപ്പറേറ്റർ കോഴ്സുകളാണ് ആദ്യം തുടങ്ങുന്നത്. ഈ മാസം 15 വരെ അപേക്ഷ സ്വീകരിച്ച് 30 നുള്ളിൽ ക്ലാസുകൾ തുടങ്ങുന്ന തരത്തിലാണ് ക്രമീകരണങ്ങൾ നടത്തുന്നതെന്ന് അധികൃതർ പറഞ്ഞു. പരമാവധി 30 പേർക്കാണ് ഒരു ബാച്ചിൽ പരിശീലനം നൽകുക. ക്രെയിൻ ഓപ്പറേറ്റർ, വെയർഹൗസ് മാനേജ്മെന്റ് ഉൾപ്പെടെ കൂടുതൽ കോഴ്സുകൾ അടുത്ത മാസം തുടങ്ങും. കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എംഎൽഎ നിർവഹിച്ചു. അദാനി വിഴിഞ്ഞം പോർട്ട് സിഇഒ പ്രദീപ് ജയരാമൻ, അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗദാവി, ദക്ഷിണേന്ത്യ സിഎസ്ആർ മേധാവി ഡോ. അനിൽ ബാലകൃഷ്ണൻ, ഓപ്പറേഷൻസ് മേധാവി തുഷാർ രാഹത്തെകർ, പ്രകാശ് പിള്ള, സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, എം.ജെ. അനുരാഗ് എന്നിവർ സംസാരിച്ചു.

ഉദ്യോഗാർത്ഥികൾക്ക് തുറമുഖ മേഖലയിൽ കൂടുതൽ തൊഴിൽ അവസരം ലഭ്യമാക്കുകയെന്ന ലക്ഷ്യത്തോടെ നടത്തുന്ന കോഴ്സുകളുടെ കൂടുതൽ വിവരങ്ങൾക്ക് 8075497373 എന്ന നമ്പരിൽ ബന്ധപ്പെടാം. പ്രദേശവാസികൾക്ക് മുൻഗണന

വിഴിഞ്ഞം പോർട്ടിൽ വനിതാ ദിനാഘോഷങ്ങ

തിരുവനന്തപുരം: അദാനി വിഴിഞ്ഞം പോർട്ടിന്റെ വനിതാ ദിനാഘോഷങ്ങൾ വിസിൽ എംഡി ഡോ. ദിവ്യ.എസ്. അയ്യർ ഉദ്ഘാടനം ചെയ്തു. സ്ത്രീകളുടെ ശക്തി അവർ സ്വയം തിരിച്ചറിയണമെന്നും അത് ജീവിതത്തെ കൂടുതൽ അർഥപൂർണമാക്കുമെന്നും അവർ പറഞ്ഞു.

അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗധാവി അധ്യക്ഷത വഹിച്ചു.

മുല്ലൂർ കൗൺസിലർ സി. ഓമന, അദാനി പോർട്ട് സിഎസ്ആർ മേധാവി ഡോ. അനിൽ ബാലകൃഷ്ണൻ, പ്രോഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ എന്നിവർ പ്രസംഗിച്ചു. അദാനി ഫൗണ്ടേഷന് കീഴിൽ വിജയകരമ പരിശീലനം പൂർത്തിയ സംരംഭങ്ങൾ നടത്തുന്നവ വിവിധ സ്ഥാപനങ്ങളിൽ ലി നേടിയവരെയും ചട ആദരിച്ചു. ലൈവ്‌ലിഹുഡ ണിറ്റുകളുടെ ഉത്പന്നങ്ങ പ്രദർശ നവും കലാപരി കളും നടന്നു.

വിഴിഞ്ഞം പോർട്ടിന്റെ വനിതാ ദിനാഘോഷങ്ങൾ സംബന്ധിച്ച് വിസിൽ എംഡി ഡോ. ദിവ്യ.എ അയ്യർ ഉദ്ഘാടനം ചെയ്യുന്നു.

അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ പരിശീലന പരിപാടികൾ ആരംഭിക്കുന്നു

തിരുവനന്തപുരം അദാനി ഫൗണ്ടേഷന്റെ പ്രത്യേക പദ്ധതിയായ അദാനി സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ (എഎസ്ഡിസി) തുറമുഖ പ്രവർത്തനങ്ങളുമായി ബന്ധപ്പെട്ട് ദേശീയ അന്തർദേശീയ തലത്തിൽ ജോലി സാധ്യതകളുള്ള പരിശീലന പരിപാടികൾ ആരംഭിച്ചു. അന്താരാഷ്ട്ര വനിതാ ദിനത്തിന് മുന്നോടിയായി എഎസ്ഡിസി സ്ത്രീകൾക്കായി നൈപുണ്യ വികസന കോഴ്സുകളുടെ ഒരു ശ്രേണിയും അവതരിപ്പിച്ചു. കഴിഞ്ഞ ദിവസം വിഴിഞ്ഞത്താണ് ലോഞ്ച് ഇവന്റ് നടന്നത്. ഇൻറേണൽ ട്രാൻസ്ഫർ വെഹിക്കിൾ (ഐടിവി) ഓപ്പറേഷൻ, ലാഷർ പരിശീലനം എന്നിവയുൾപ്പെടെ തുറമുഖ പ്രവർത്തനങ്ങളുമായി ബന്ധപ്പെട്ട കോഴ്സുകൾ തുറമുഖങ്ങളുടെ ദൈനംദിന ആവശ്യങ്ങൾ നിറവേറ്റുന്നതിനും കാര്യക്ഷമവും സുരക്ഷിതവുമായ തുറമുഖ പ്രവർത്തനങ്ങൾക്ക് ആവശ്യമായ വൈദഗ്ധ്യം ട്രെയിനികൾ നേടിയെടുക്കുന്നുണ്ടെന്ന് ഉറപ്പാക്കുന്ന രീതിയിലാണ് രൂപകൽപ്പന ചെയ്തിരിക്കുന്നത്.

കോവളം എം.എൽ.എ എം.വിൻസെന്റ്, അദാനി വിഴിഞ്ഞം തുറമുഖ സി.ഇ.ഒ പ്രദീപ് ജയരാമൻ, അദാനി ഫൗണ്ടേഷൻറെയും എ.എസ്.ഡി.സിയുടെയും എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗധവി, ഡോ. അനിൽ ബാലകൃഷ്ണൻ (സിഎസ്ആർ മേധാവി) എന്നിവരുടെ സാന്നിധ്യത്തിൽ കോഴ്സുകളുടെ ഉദ്ഘാടനം നടന്നു.

തുറമുഖ പ്രവർത്തനങ്ങളിൽ നിർണായകമായ മേഖലകളിൽ പരിശീലനവും പരിജ്ഞാനവും നൽകുന്നതിലൂടെ, വ്യവസായ ആവശ്യകതകളും തൊഴിലില്ലായ്മയും തമ്മിലുള്ള വിടവ് നികത്താൻ എഎസ്ഡിസി ശ്രമിക്കുന്നു.

തുറമുഖവുമായി ബന്ധപ്പെട്ട പുതിയ കോഴ്സുകൾ ആരംഭിച്ചതിന് കോവളം എം.എൽ.എ എം.വിൻസെൻറ് എഎസ്ഡിസി ടീമിനെ അഭിനന്ദിച്ചു.

കോവളം എം.എൽ.എ എം.വിൻസെൻറ്, അദാനി വിഴിഞ്ഞം തുറമുഖ സി.ഇ.ഒ പ്രദീപ് ജയരാമൻ, അദാനി ഫൗണ്ടേഷൻറെയും എ.എസ്.ഡി.സിയുടെയും എക്സിക്യൂട്ടീവ് ഡയറക്ടർ വസന്ത് ഗധവി, ഡോ. അനിൽ ബാലകൃഷ്ണൻ (സിഎസ്ആർ മേധാവി) എന്നിവരുടെ സാന്നിധ്യത്തിൽ കോഴ്സുകളുടെ ഉദ്ഘാടനം ചെയ്യുന്നു

വിഴിഞ്ഞം തുറമുഖം വനിതാദിന ആഘോഷം

വിഴിഞ്ഞം ▸ അദാനി വിഴിഞ്ഞം പോർട്ടിന്റെ വനിതാ ദിനാഘോഷങ്ങൾ വിസിൽ എം.ഡി ഡോ.ദിവ്യ.എസ് അയ്യർ ഉദ്ഘാടനം ചെയ്തു.

സ്ത്രീകളുടെ ശക്തി അവർ സ്വയം തിരിച്ചറിയണമെന്നും അത് ജീവിതത്തെ കൂടുതൽ അർഥപൂർണമാക്കുമെന്നും അവർ പറഞ്ഞു. അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂട്ടീവ് ഡയരക്ടർ വസന്ത് ഗധാവി അധ്യക്ഷനായി. മുല്ലൂർ വാർഡ് കൗൺസിലർ സി.ഓമന, അദാനി പോർട്ട് സി.എസ്.ആർ മേധാവി ഡോ .അനിൽ ബാലകൃഷ്ണൻ, പ്രോ ഗ്രാം മാനേജർ സെബാസ്റ്റ്യൻ ബ്രിട്ടോ സംസാരിച്ചു.

അദാനി ഫൗണ്ടേഷന് കീഴിൽ വിജയകരമായി പരിശീലനം പൂർത്തിയാക്കി സംരംഭങ്ങൾ നടത്തുന്നവരെയും വിവിധ സ്ഥാപനങ്ങളിൽ ജോലി നേടിയവരെയും ചടങ്ങിൽ ആദരിച്ചു. ലൈവ്‌ലിഹുഡ് യൂനിറ്റുകളുടെ ഉൽപന്നങ്ങളുടെ പ്രദർശനവും കലാപരിപാടികളും നടന്നു.

കോഴ്സ് ഉദ്ഘാടനം

വിഴിഞ്ഞം● അദാനി സ്കിൽ ഡവലപ്മെന്റ് സെന്റർ നേതൃത്വത്തിൽ നടത്തുന്ന തുറമുഖവുമായി ബന്ധപ്പെട്ട വിവിധ കോഴ്സുകളുടെ ഉദ്ഘാടനം എം. വിൻസന്റ് എംഎൽഎ നിർവഹിച്ചു.

അദാനി വിഴിഞ്ഞം പോർട്ട് സിഇഒ പ്രദീപ് ജയരാമൻ, അദാനി ഫൗണ്ടേഷൻ എക്സിക്യൂ ഡയറക്ടർ വസന്ത് ഗദാവി, ദ ണേന്ത്യ സിഎസ്ആർ മേധ ഡോ. അനിൽ ബാലകൃഷ്ണ ഓപറേഷൻസ് മേധാവി തുഷ രാഹത്തെകർ, പ്രകാശ് പി സെബാസ്റ്റ്യൻ ബ്രിട്ടോ, എം. അനുരാഗ് എന്നിവർ പ്രസംഗി

Case Story of AISWARYA. J. R

(Competitive Exam Preparation)

Aiswarya J R, 27 years old, who is a native of Venganoor, near the Vizhinjam Seaport area successfully secured her achievement as a High School Hindi Teacher conducted by Kerala Public Service Commission. Her father is a photographer and her mother a housewife. Her father is the only breadwinner of her family. Aiswarya has a sister, and she is studying. The family faced financial difficulties. She witnessed the daily struggle of her parents, and her father suffered a lot to meet the daily needs. She knew that finding employment was crucial not only for her own well-being but also for supporting her family.

She is a postgraduate with B.Ed. (Bachelor of Education) in Hindi Language. So, she tried to get a government job. She was very hardworking. At that time, she heard about the Competitive Exam Preparation of ASDC Vizhinjam from her friends and joined the programme. She decided to utilize the opportunity to fulfil her dreams. She actively participated in the programme very well and prepared the portions with the help of her teachers. She had attended daily mock tests and weekly mock tests. As it was a free course, she was so happy to continue her studies and hard work. She actively attended offline classes and attended the exams well with top scores.

As she is the beneficiary of the programme, she is a leader and inspiration for the other candidates. Then she got married. Her husband is a mechanic. After her marriage she continued her studies, and she secured 4th Rank in High School Hindi Teacher Examination conducted by Government of Kerala through Kerala Public Service Commission. In the last week of January 2024, she joined GGHSS Dhanuvachapuram, Kerala as a High School Hindi Teacher. She conveyed her thanks and success to our Centre. She is a perfect example of sincerity and a magnificent case of SAKSHAM.

Annexure: 1

List of referral Patients from Cancer Detection Camps

Sl No	Name	Age	Ward	Phone No	Remark
1	Sarath Chandran	67	Thiruvallam	70129259950	Completed Check Up
2	Vasantha	70	Harbour	9895585097	Appoinment @ RCC
3	Sindhu B	53	Harbour	8921148023	Appoinment @ RCC
4	Jayakumari	55	Venniyoor	7736699779	Completed Check Up
5	Girija K	54	Venniyoor	9061124849	Appoinment @ RCC
6	Santha S	50	Venganoor	7306683826	Afrer 3 month report to RCC
7	Teena	46	Harbour	8129768776	Appoinment @ RCC
8	Beena	48	Harbour	7736655673	Completed Check Up
9	Hamitha Beevi	62	Harbour	8281343883	Completed Check Up
10	Syamala	70	Harbour	8137037973	Appoinment @ RCC
11	Athira	31	Kottukal	7994423884	Completed Check Up
12	Burnabas	67	Kottappuram	7356693995	After three months report to RCC
13	Baby	56	Kottappuram	7012510567	Appointment @ RCC
14	Reji	41	Kottappuram	9048042202	Appointment @ RCC
15	Thasal	61	Kottappuram	9633086431	Appointment @ RCC
16	Igin	54	Kottappuram	8138803630	Appointment @ RCC
17	Suseela	52	Kottappuram	9633762388	After 3-month report to RCC
18	Virgin Mary	43	Kottappuram	9778121664	Appointment @ RCC
19	Aji	48	Kottappuram	8848618512	Appointment @ RCC
20	Sheela	43	Kottappuram	9142646623	Appointment @ RCC
21	Kochuthresia	42	Kottappuram	9567721362	Appointment @ RCC

Sl No	Name	Age	Ward	Phone No	Remark
22	Fathima	52	Kottappuram	9645001831	Appointment @ RCC
23	Sabi	48	Kottappuram	7994796614	Appointment @ RCC
24	Santhi	55	Kottappuram	8921047218	Appointment @ RCC
25	Princy	34	Kottappuram	7591943082	Appointment @ RCC
26	Jessey	47	Kottappuram	7994825410	Appointment @ RCC
27	Nisha Subhan	35	Parashala	7909132688	Appointment @ RCC
28	Musaifa Beevi	40	Nedumangad	8129696196	Appointment @ RCC
29	Stella	38	Kottappuram	8089256216	Appointment @ RCC
30	Vijayakumari	59	Kottukal	9947395424	After three months report to RCC
31	Bheema	51	Kottukal	9656915225	Appointment @ RCC
32	Saritharaju	38	Kottukal	7736146380	Appointment @ RCC
33	Geetha	54	Kottukal	9567569166	Appointment @ RCC
34	Vimala	62	Kottukal	9497430401	Appointment @ RCC
35	Susheela	61	Kottukal	9567974257	After 3-month report to RCC
36	Sheeja BR	51	Kottukal	7736038567	Appointment @ RCC
37	Sulochana	46	Kottukal	8891614602	Appointment @ RCC
38	Monisha	33	Kottukal	9809537244	Appointment @ RCC
39	Pankajakshi	69	Kottukal	9656915225	Appointment @ RCC
40	Sheeba S K	46	Venganoor	9526296039	
41	Jayalekshmi	59	Venganoor	9995565267	Appointment @ RCC
42	Mini Mol	43	Venganoor	9349686535	Appointment @ RCC
43	Syam Kumari	45	Venganoor	9495270214	Appointment @ RCC
44	Remya	41	Venganoor	9656159832	Appointment @ RCC
45	Bhagya Lekshmi	33	Venganoor	9446986435	Appointment @ RCC

Annexture: 2. Placement Details

The details of the Interviews and selection of domain skill course candidates are as follows during the period.

SL NO	CANDIDATE NAME	COURSE	COMPANY NAME	JOB ROLE	SALARY	INTERVIEW DATE	REMARKS
1	Jibitha Das S	DDEO	Jyothidev's Diabetes and Research Centre	Front Office Assistant	8000-10000	25-10-2023	Selected
2	Shiji A	GDA	Season Two Senior Living Care Centre	Patient Care Assistant	18000 - 20000	30-10-2023	Waiting for Interview results
3	Anchu A	GDA	Jyothidev's Diabetes and Research Centre	Patient Care Assistant	15000	30-10-2023	Waiting for Interview results
4	Anju SS	GDA	Jyothidev's Diabetes and Research Centre	Patient Care Assistant	15000	30-10-2023	Waiting for Interview results
5	Samual	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
6	Ziyana B S	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
7	Suhaila R	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
8	Shereena H	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
9	Theerthana G S	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
10	Sefy I	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results

SL NO	CANDIDATE NAME	COURSE	COMPANY NAME	JOB ROLE	SALARY	INTERVIEW DATE	REMARKS
11	Suhaida Farzana	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
12	Sandhya V S	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
13	Swaliha	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
14	Jibitha Das S	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results
15	Liya Prasad	DDEO	Lulu Mall/Lulu Hyper Market/Lulu Fashion	Sales Associate/Cash	13000 - 14000	31-10-2023	Waiting for Interview results

Sr. No.	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer State	Employer District	Monthly Salary
16	Domestic Data Entry Operator	Joyson J	Male	Salaried	06-01-2023	The Hearth Kitchen	Kerala	Ernakulam	12000

#	Course	Full Name	Date of Interview	Employer Name	Job Role	Monthly Salary	Status
17	Domestic Data Entry Operator	Archana	22-03-2024	Jyothidev Diabetic Hospital	Front Office Executive	10,000/-	Selected
18	Domestic Data Entry Operator	Naziya	22-03-2024	Jyothidev Diabetic Hospital	Front Office Executive	10,000/-	Selected
19	Domestic Data Entry Operator	Aswathy	22-03-2024	Jyothidev Diabetic Hospital	Data Entry Operator / Tally	10,000/-	Not Selected

#	Course	Full Name	Date of Interview	Employer Name	Job Role	Monthly Salary	Status
20	Domestic Data Entry Operator	Naziya	25-03-2024	EVM Motors, Niramankara	Data Entry / Back Office	10,000/-	Joined on 26-03-2024
21	Domestic Data Entry Operator	Krishnapriya	25-03-2024	EVM Motors, Niramankara	Data Entry / Back Office	10,000/-	Not Selected

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
22	General Duty Assistant	Renjith R	Male	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
23	General Duty Assistant	Paulose F	Male	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
24	General Duty Assistant	Ajeesha E	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
25	General Duty Assistant	Laslet N	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
26	General Duty Assistant	Ammu M T	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
27	General Duty Assistant	Reena B	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
28	General Duty Assistant	Anchu A	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
29	General Duty Assistant	Shiji A	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
30	General Duty Assistant	Jifa S	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
31	General Duty Assistant	Josphin Jeena V	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
32	General Duty Assistant	Nirmala Pathrose	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
33	General Duty Assistant	Pushpadasi S M	Female	Placed	11-09-2023	Season Two Senior Living	Trivandrum	17000
34	General Duty Assistant	Stephin S	Male	Placed	18-11-2023	Season Two Senior Living	Trivandrum	17000

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
35	Domestic Data Entry Operator	Sabreena F	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
36	Domestic Data Entry Operator	Safiya Beevi V	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
37	Domestic Data Entry Operator	Shereena H	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
38	Domestic Data Entry Operator	Shamila Beevi H	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
39	Domestic Data Entry Operator	Hasna Beevi F	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
40	Domestic Data Entry Operator	Mary Benija	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
41	Domestic Data Entry Operator	Swaliha S	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000
42	Domestic Data Entry Operator	Sandhya V S	Female	Placed	14-11-2023	Popular Vehicles & Service	Trivandrum	10000

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
43	General Duty Assistant	Flosy S	Male	Placed	9/11/2023	Season Two Senior Living	Trivandrum	17000
44	General Duty Assistant	Parvathy S R	Male	Placed	20-11-2023	NIMS Hospital (NIMS Medicity)	Trivandrum	10000
45	General Duty Assistant	Athira B	Female	Placed	20-11-2023	NIMS Hospital (NIMS Medicity)	Trivandrum	10000
46	General Duty Assistant	Jolly J	Female	Placed	20-11-2023	NIMS Hospital (NIMS Medicity)	Trivandrum	10000
47	General Duty Assistant	Preethi R	Female	Placed	20-11-2023	NIMS Hospital (NIMS Medicity)	Trivandrum	10000

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
48	General Duty Assistant	Anju S S	Female	Salaried	8/11/2023	Jothydev's Diabetics and Research Centre	Trivandrum	15000/-
49	General Duty Assistant	Surya S S	Female	Salaried	8/12/2023	Clean & Clean Hygiene Services	Trivandrum	10000/-
50	General Duty Assistant	Akhila R S	Female	Salaried	8/12/2023	Clean & Clean Hygiene Services	Trivandrum	10000/-

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
51	Domestic Data Entry Operator	Shereena N S	Female	Salaried	8/12/23	Clean & Clean Hygiene Services	Trivandrum	13,494/-

#	Course	Full Name	Gender	Employment Type	Date of Joining	Employer Name	Employer District	Monthly Salary
52	Domestic Data Entry Operator	Sefy J	Female	Placed	14/12/2023	Lulu Hyper Market	Trivandrum	14,052

Annexure IV

Compliance to Conditions of KCZMA Recommendation

Annexure IV

Half Yearly Compliance of Conditions Stipulated in KCZMA Recommendations for Environment and CRZ Clearance (EC) for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
(i)	The developmental works and the construction of the structures may be undertaken as per the plans approved by the concerned local Authorities, local administration, conforming to the existing local and central rules and regulations including the existing provisions of CRZ Notification.	**Complied** All the construction activities are being carried out as per existing Central/local rules. Necessary permissions under CRZ Notification 2011 & its amendments have been obtained. Further, necessary approvals from concerned Statutory Departments/Agencies have been obtained for the construction designs/drawings relating to construction activities as mentioned hereunder: • Consent to Establish (CTE) No. PCB/HO/TVM/ICE/08/2015 dated 15.09.2015 valid up to 31.07.2018 was renewed from Kerala State Pollution Control Board (KSPCB) vide Consent No. PCB/HO/TVM/ICE-R/02/2018, dated 19.07.2018 valid up to 31.07.2023 and further renewed vide Consent No. KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 valid up to 31.07.2028 (A Copy of the same was submitted along with HYCR for the period April 2023 to September 2023). All other port construction-related aligned activities such as paver blocks, batching plants, etc. fall under this CTE taken for the port development. • Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 7.12.2015. • As per the exemption granted by GoK G.O. No. 310/2015/LSGD dated 01/10/2015, AVPPL is not required to obtain any further building permits/permission to construct port related building within the port premises. • Permissions with respect to store petroleum in tank/s in connection with pump outfit for fuelling motor conveyances has been obtained in Form XIV for the storage of 40.00 KL of Petroleum class B in tank/s in the port premises from Petroleum & Explosives Safety Organisation (PESO) as per the provisions of the Petroleum Act, 1934 and under the Petroleum Rules, 2002 vide License No.:

Half Yearly Compliance of Conditions Stipulated in KCZMA Recommendations for Environment and CRZ Clearance (EC) for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
		P/SC/KL/14/3732(P499906) dated 05.10.2023 (Copy of the same is enclosed as **Annexure X**).
(ii)	Since the project envisages development of roads, infrastructural facilities, dredging of the lake and kayals proper environmental safety measures must be ensured.	**Complied** All safety measures are being adopted. Full-time Environment & Safety professionals are employed by AVPPL, contractors & subcontractors, to oversee the implementation of environmental safety measures. Organizational Structure for Environment, Health, and Safety (EHS) & CSR for construction phase is enclosed as **Annexure IX**. All work plans are executed after assessing the defined EHS plans. It is also submitted that dredging of lakes or kayals are not envisaged as part of this project.
(iii)	The project proponent must obtain necessary clearance separately from the Kerala State Pollution Control Board, Health Department and other appropriate Authorities when such implementation programmes are undertaken.	**Complied** CTE has been obtained from KSPCB vide Consent No. PCB/HO/TVM/ICE/08/2015, dated 15.09.2015 valid up to 31.07.2018. Subsequently, the CTE was renewed vide Consent No. PCB/HO/TVM/ICE-R/02/2018 dated 19.07.2018 valid up to 31.07.2023. The CTE was further renewed vide Consent No. KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 valid up to 31.07.2028 (A Copy of the same was submitted along with HYCR for the period April 2023 to September 2023).
(iv)	The construction should be undertaken, if any with least damages to the existing mangroves. A buffer zone of 50m shall be provided for mangroves present in the area.	**Not Applicable** There are no mangroves in the vicinity of the project area.
(v)	The project proponent must take necessary arrangements for disposal of solid wastes and for the treatment of effluents / wastes. It must be ensured that the effluents/solid	**Being Complied** No solid waste is being disposed in the CRZ area. Bio-degradable waste is being treated in an Organic Waste Converter (OWC) installed at site and the output is being used as manure in greenbelt development within the port project areas.

Half Yearly Compliance of Conditions Stipulated in KCZMA Recommendations for Environment and CRZ Clearance (EC) for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
	wastes are not discharged into the backwater area/sea.	The dry waste is being properly collected, segregated, and disposed of in line with the Solid Waste Management Rules 2016, as amended. The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**. A Provision for installing Sewage Treatment Plant (STP) facility of adequate capacity in phased manner in accordance with the CRZ Notification is being implemented. The work order to develop the STP with capacity of 50 KLD has been awarded to M/s. Starcon Infra Projects (I) Pvt. Ltd. The STP system material is dispatched and is expected to arrive at the Vizhinjam Port site in May 2024.
(vi)	The project proponent should provide necessary facilities for official of the Kerala Coastal Zone Management Authority (KCZMA) for inspection of the project site and its premises at any time.	**Noted** All necessary support will be extended to officials of KCZMA during inspection of the project/site visit; at any time.
(vii)	The KCZMA may be duly informed of any construction/developmental works/major activities undertaken in the CRZ area of the project	**Being Complied** • Member Secretary KCZMA is also the member secretary of NGT appointed committee; the committee meets every six months to review the compliance of Environmental & CRZ Clearance and the progress of the project are being presented. • Meetings are held with officials of KCZMA to appraise them on various project related activities. • HYCRs are being furnished to KCZMA including the details of the development works. Following construction activities have taken place till March 2024: • During the compliance period, 3.25 Mm^3 material has been dredged and a total 7.21 Mm^3 dredged material has been utilized for reclamation of 65.71

Half Yearly Compliance of Conditions Stipulated in KCZMA Recommendations for Environment and CRZ Clearance (EC) for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
		Ha area of land. With respect to dredging and reclamation, the requirements for reclamation of berths for Phase I development of the port have been completed. • Container berth deck slab in-situ concreting works, breakwater marine and land mode construction (marine dumping of core for breakwater completed on 13.03.2024), wave wall and crown slab pre-casting works, container berth rehabilitation works, container berth rock bund works, retaining wall erection works, Container backup yard development works, yard 1E IT & automation works, approach road works, etc. are in progress. • Boundary wall construction and port approach road work along available front has been completed at various locations; remaining construction work is on hold owing to several local disputes as well as R&R issues. Temporary Fencing has been completed for 730 m at certain locations. • Excavation for levelling in backup area considering present and future port development activities. • 6 nos. of Rail Mounted Quay Cranes (RMQC) are offloaded at the Container berth and 21 nos. of Cantilever Rail Mounted Gantry (CRMG) cranes are offloaded at the Container Backup yard of the port.
(viii)	Environmental clearance must be obtained from the Ministry of Environment & Forests.	**Complied** Environment & CRZ Clearance (EC) has been obtained from Ministry of Environment & Forest vide MoEF letter dated 03.01.2014 (F.No.11-122/2011-IA.III). Due to the validity limit of Five (05) years at the time, the EC was valid till 02.01.2019. Thereafter, as per EIA Notification 2006 and Office Memorandum (O.M.) dated 12.04.2016, the validity of the EC will stand automatically is for Seven (07) years and therefore considered up to 02.01.2021. Further, as per the provisions of MoEF&CC, the validity of the EC may be further extended for a maximum period of three years. VISL had submitted online

Half Yearly Compliance of Conditions Stipulated in KCZMA Recommendations for Environment and CRZ Clearance (EC) for the Period October 2023 to March 2024		
S. No.	**Conditions**	**Compliance Status as on 31.03.2024**
		application and required documents on PARIVESH for extension of EC. The Proposal was considered in the 247th EAC meeting of Infra-1 committee and MoEF&CC vide letter No. IA/KL/MIS/178082/2020 dated 29.12.2020 have extended the validity of EC of Vizhinjam Seaport by three (03) years till 02.01.2024. Further, considering the outbreak of COVID-19 pandemic, MoEF&CC have issued Notification (SO-221 E) dated 18.01.2021 such that the period from the 01.04.2020 to the 31.03.2021 shall not be considered for the purpose of calculation of validity of existing ECs. Therefore, the EC of Vizhinjam Seaport is valid till 02.01.2025 (which can be further extended up on application to MoEF&CC for 1 more year).
(ix)	An adequate financial provision has to be made for environmental protection measures.	**Complied** A total of approx. Rs. 40 Crore has been set aside for environmental protection measures as per the EIA report. Till date, an amount of Rs. 29.69 Crores has been spent on environmental protection measures. The activity-wise fund break-up and expenditure is enclosed as **Annexure VIII**.
(x)	Scrutiny fee of Rs. 10,00,000/- (Rupees Ten lakh only) to be remitted under the head account 1425-800-97 applications for scrutiny fee etc. for CRZ clearance, in the district/Sub Treasury concerned, if private parties are involved in the project and the challan receipt in original be forwarded to the Science & Technology Department quoting this letter.	**Not Applicable** The condition is not applicable since the application for EC was submitted by Vizhinjam International Seaport Ltd. (VISL), a Government of Kerala (GoK) undertaking.

Annexure V

Compliance of the Commitments made during Public Hearing

Annexure V

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
1	Good compensation package for all livelihood issues have been included for all related PAPs for all affected sectors including the fisheries sector. Strict adherence to EMP compliance with all relevant rules and regulations will be done	**Being Complied** In consultation with the fishermen, enhanced livelihood compensation of Rs. 108.32 Crores was sanctioned by GoK and distributed by VISL to fishermen as livelihood compensation, instead of Rs. 8.55 crores, as suggested earlier in the EIA. Till 31.03.2024 an amount of Rs. 106.93 Crores have been disbursed for a total number of 2697 Livelihood Affected Persons (LAPs) whose verification was complete in all respects; this includes boat owners to whom kerosene is supplied free of cost during the breakwater construction period. Remaining disbursals would be completed as soon as possible. *(Source: VISL)* Regarding the EMP, there are 5 identified areas for EMP as per EIA: (1) Port Site, (2) Road/Rail Corridor, (3) Warehouse Area, (4) PAF (Project Annex Facility) and (5) Backup Areas. Recommendation of the construction EMP for these areas are being implemented in strict adherence with all relevant rules and regulations. Status of construction stage EMP in matrix format is enclosed as **Annexure VI**.
2	Land under the Jamaath which includes Karimppaly, Magham, Varuthari Pally, etc. need to be protected and should not be acquired.	**Complied** These lands have not been acquired.
3	Compensation for the land acquired (rail/road connectivity and back up areas) are paid promptly and any for additional land required also will be paid in the same way.	**Complied** Compensation for all the acquired land has been disbursed along with R&R package. Similar policy will be followed for the remaining extent of land acquisition also as per rules in force viz-a-viz applicable. *(Source: VISL)*
4	Additional fish landing centre will be constructed	**Being Complied** Even though planning work for the fish landing centre (Rs. 16.00 crores) and the fishery breakwater (Rs. 131.12 crores) had been initiated as part of the funded work component of the Port concession agreement with AVPPL, based on report of physical model studies carried out by

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		CWPRS at the proposed new fishing harbour, the landing centre needs to be relocated after construction of an extension of seaward breakwater of the old fishing harbour. GoK is finalising the way forward to build the additional fish landing centre for the benefit of the local fishermen. *(Source: VISL)*
5	Existing harbour will be improved under the CSR provisions of the project	**Being Complied** GoK has formed a higher-level committee to prepare a master plan for the old fishing harbour. Government Departments concerned are coordinating to resolve the differences and to arrive at an acceptable plan in consultation with all stakeholders and accordingly a proposal for 25 crores for additional landing facilities at the southern side and a project for 45 crores with necessary facilities at the Northern Part has been formulated and submitted under PMMSY scheme and waiting for approval of GoI. *(Source: VISL)*
6	Fisherman will get first preference to cross the ship channel	**Will be Complied** As per the applicable laws.
7	GoK/VISL will monitor the shore line changes during construction and operational phases. If necessary, intervention to arrest erosion will be carried out.	**Being Complied** Based on the Shoreline Monitoring Plan prepared by L&T Infra Engineers Ltd (L&T IEL) under the guidance of National Institute of Ocean Technology (NIOT), oceanographic and shoreline monitoring is being carried out by agency Shankar Surveys Pvt, Ltd. (SSPL) for a stretch of 40 km (20 km on both sides of the project site) and reports are being regularly submitted to Ministry of Environment and Forests & Climate Change (MoEF&CC) as a part of the HYCRs. Broadly the scope covers: • Wave Observations • Onshore & Offshore Cross beach profiling • Littoral Environmental Observations (LEO) • Beach Sampling • Multi-beam Echo Sounder (MBES) survey • River cross section surveys • Grab Sampling • Current & Tide Observations • Weather Observations • Marine Water Sampling

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		Shoreline Monitoring Report by SSPL for the period October 2023 to March 2024 is enclosed as **Annexure I**. L&T IEL had conducted data analysis based on available oceanographic and shoreline monitoring data provided by SSPL and carried out accompanying model study and the corresponding data analysis and modelling reports, which were vetted by NIOT, were submitted to MoEF&CC as a part HYCRs. Modelling reports have been prepared by L&T IEL and submitted as detailed below: **Data Period** / **Modelling Report Submitted with HYCR for the Period** Feb 2015 to Feb 2017 — Apr 2017 to Sep 2017 Mar 2017 to Feb 2018 — Apr 2018 to Sep 2018 Mar 2018 to Feb 2019 — Apr 2019 to Sep 2019 Mar 2019 to Feb 2020 — Apr 2020 to Sep 2020 Mar 2020 to Feb 2021 — Apr 2021 to Sep 2021 Mar 2021 to Sep 2022 — Apr 2022 to Sep 2022 Oct 2022 to Sep 2023 — Apr 2023 to Sep 2023 Thereafter, AVPPL have engaged Assystem India Limited (Formerly known as L&T IEL) to carry out the data analysis and accompanying model study of the shoreline changes based on the oceanographic and shoreline monitoring data being collected for the period October 2023 to September 2024.
8	Water supply provision to the Vizhinjam fishing village	**Complied** Kerala Water Authority (KWA) set up a 3.00 MLD water supply scheme for the project with the source of water being Vellayani Lake which was commissioned in April 2013 by expending an amount of Rs. 7.10 Crores by VISL. The net availability of treated water from this supply scheme is 2.49 MLD of potable water out of which 1.49 MLD of water shall be distributed to the local people as part of social welfare measures of VISL. The balance 1.0 MLD was to be used for port related activities. However, at present, the entire treated water from the scheme is being utilised by

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		the community. For Operation & Maintenance (O&M) of the same, an amount of Rs. 5.38 crores have been spent up to 31.03.2021. From 04.04.2019 onwards, O&M of the scheme is being done by KWA. An additional amount of Rs. 1.74 Crores has been sanctioned and deposited by VISL to KWA to extend piped water connections for treated water supply facilities to the community at Kottapuram Village. More than 1000 free domestic water connections have been given to the project affected areas. KWA now have adequate coverage of water supply around the project affected areas. VISL is coordinating with local body representatives to identify water shortage areas and taking effort to resolve the same. *(Source: VISL)*
10	Railway work will be initiated after Environment Clearance (EC)	**Will be Complied** Konkan Railway Corporation Limited (KRCL) has been engaged for turnkey execution of the project. Out of the total rail route length of 10.7 km, about 9.0 km is planned to be passing through an underground tunnel to minimize the disturbance to the local population. Detailed Project Report (DPR) has been approved by Southern Railway and Railway Board. Geophysical and geomorphological studies, flood mapping studies, hydrogeological studies, Various subsidence studies such as Ground subsidence, blasting impacts, and rail movement subsidence have also been completed. EC amendments in this regard had been submitted to MoEF&CC on 17.08.2022 vide Proposal No. IA/KL/NCP/285459/2022 and File No. 11-122/2011-IA.III. The Expert Appraisal Committee (EAC) during their 308th, 322nd, 363rd meetings held on 15.09.2022, 21.03.2023, 25.04.2024 respectively apprised the proposal and necessary clearance are expected to be received shortly. *(Source: VISL)*
11	Job Opportunity - Preference will be given	**Being Complied** Preference is being given to local people based on Skill & competency during the construction stage.

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
	to local people during construction stage	Out of an average of 848 persons (employees, staff and construction workers) engaged at site for different construction activities during the compliance period, 293 people are from Kerala and out of them 182 are from nearby wards of the project site.
13	Take all possible measures for judicial use of lighting system as part of the Green Port concept to reduce the carbon footprint	**Will be Complied** Is being considered with appropriate planning.
16	Waste management is included in the EMP and C&D waste management is part of the SWMP.	**Being Complied** Adequate budgetary provision has been kept for waste management as part of EMP as well as CSR. As mentioned in EIA, contractors have been made responsible for management of Waste. All contractors working at site are following the waste management practices in line to waste management rules 2016, as amended. A dedicated integrated solid waste management facility is planned which will be constructed along with project. No solid waste is being disposed in the CRZ area. Bio-degradable waste is being treated in an Organic Waste Converter (OWC) installed at site and the output is being used as manure in greenbelt development within the port project areas. The domestic dry waste is being properly collected, segregated, and disposed of in line with the Solid Waste Management Rules 2016, as amended. The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**. Additionally, as a part of CSR activities, AVPPL are taking up activities with respect to solid waste management (Refer **Annexure III**).
17	Upgradation of PHC at Vizhinjam will be carried out	**Being Complied** The construction work of Community Health Center at Vizhinjam is progressing and civil works are completed. The project cost is Rs. 7.79 Crores

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		where the Government component is of Rs. 482 Lakhs and CSR component is of Rs. 297 Lakhs from Adani Foundation. Adani Foundation handed over the first instalment of Rs. 1.18 Crores on 03.10.2018 and the Second instalment of Rs. 1.18 Crores on 24.04.2023 to the Harbour Engineering Department. The final instalment will be transferred only after the completion of the work. The new CHC building is a three storeyed RCC building (7000 sq feet area in each floor) constructed near to old CHC. This hospital may be converted to Taluk Hospital in future thereby curtailing almost all the limitations of existing CHC. The inpatient admission will be raised from 40 to 100 Nos. The present services of the CHC will be slowly shifted to a new block. The basement floor is proposed as a parking space. On one side, a huge water storage facility (capacity of 1.0 lakh litre) is constructed to pump water to various levels of the new building. Electrical works, fire and safety works are almost completed on this floor. The basement floor is proposed as parking space. The entire basement floor is completed in RCC. Huge water storage facility (capacity of 1.0 lakh litre) is constructed to pump water to various levels of the new building. Electrical works, fire and safety works are almost completed in this floor. Ground Floor and First floor are designed to provide inpatient and outpatient services, specialty clinics. The structure is fully completed, and interior works are progressing. Electrical works are almost completed for ground floor. False ceiling for the ground floor progressing whereas for the first floor this work not yet started. Fabrication works are simultaneously carried out in ground floor as well as first floor. As the existing CHC building could not provide medical facilities in gynaecology, second floor (top

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		floor) will function exclusively for attending pregnant women and gynac related cases. Once upgraded to taluk level hospital, the mentioned gynaecology ward can attend 100 patients a day for periodic examination and medical advice.7labours can be carried out per day and admission ensured for baby and mother. The main facilities designed for the department are listed below: • Reception Area. • Gynaec Operation Theatre-2 nos. • Post Operation Area. • Nebulisation Unit. • Anaesthesia /Counselling Room. • Labour rooms-2 nos. • Prewash Area. • Doctor's Lounge. • Nurse Station. • Staff Lounge. • Changing Room. • Sterile Store. • Toilets for Men and Women The requirements for additional hospital staff and equipment have been estimated and the health department is in the process of its procurement. The second-floor work of CHC is completed. In ground floor and first floor, electrical works, aluminium partition works, floor works, lift services are pending. Interlock works in between the new and old building is being carried out. All work on the second floor completed, except lift services. In ground floor and first floor, electrical works, Aluminium partition works, floor works, lift services are pending. Interlock works in between the new and old building is being carried out.

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		 **Community Health Centre, Vizhinjam**
19	Appropriate compensation will be given to the resort owners as per the regulatory advice of KCZMA and MoEF since the resorts are seen to be located in No Development Zone (NDZ) as per CRZ Notification 2011	**Being Complied** Resort owners evicted have been compensated adequately for land and few of the structures could not be compensated since they were in violation of CRZ notifications in force. Further as last stage acquisition land of 2.865 Ha is yet to be acquired by Land Acquisition (LA) process; for which notification has been published and the acquisition is in an advanced stage. *(Source: VISL)*
20	Rail, Road, Coastal and Inland Waterways connectivity will be ensured to the rest of Kerala and other Indian Peninsula Ports	**Being Complied** Multi-Modal (Road, Rail & Coastal) connectivity is within the scope of the project, and this will be fully materialised once all phases of the project are implemented. Rail: Konkan Railway Corporation Limited (KRCL) has been engaged for turnkey execution of the project. Out of the total rail route length of 10.7 km, about 9.0 km is planned to be passing through an underground tunnel to minimize the disturbance to the local population. Detailed Project Report (DPR) has been approved by Southern Railway and Railway Board. Geophysical and geomorphological studies, flood mapping studies, hydrogeological studies, Various subsidence studies such as Ground subsidence, blasting impacts, and rail movement subsidence have also been completed. EC amendments in this regard had been submitted to MoEF&CC on 17.08.2022 vide Proposal No. IA/KL/NCP/285459/2022 and File No. 11-122/2011-

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		IA.III. The Expert Appraisal Committee (EAC) during their 308th, 322nd, 363rd meetings held on 15.09.2022, 21.03.2023, 25.04.2024 respectively apprised the proposal and necessary clearance are expected to be received shortly. *(Source: VISL)* Road: In-principle approval was received for the plan for the junction between NH66 and port road. After meeting with National Highways Authority of India (NHAI), it was jointly decided that AVPPL will resubmit the plan after integrating it with Outer Ring Road (ORR) intersection plan of NHAI. Based on the recommendation of NHAI, the design and drawing were submitted by AVPPL and was approved NHAI vide letter 31.01.2024. Detailed Engineering, Estimation and Bidding documents preparation for Contractor Selection are in progress. Waterways: Development of Coastal shipping and Inland Waterways connectivity are being planned to the rest of Kerala and other peninsular ports by Government Departments concerned. *(Source: VISL)*
21	Waste Management, Water Treatment plants, etc. will be part of an operational EMP	**Being Complied** No solid waste is being disposed in the CRZ area. Bio-degradable waste is being treated in an OWC installed at site and the output is being used as manure in greenbelt development within the port project areas. The dry waste is being properly collected, segregated, and disposed of in line with the Solid Waste Management Rules 2016, as amended. The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**. A Provision for installing Sewage Treatment Plant (STP) facility of adequate capacity in phased manner in accordance with the CRZ Notification is being implemented. The order to develop the STP with capacity of 50 KLD has been awarded to M/s. Starcon Infra Projects (I) Pvt. Ltd. The STP system

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
		material is dispatched and is expected to arrive at the Vizhinjam Port site in May 2024.
23	VISL will ensure that appropriate dredging and reclamation methodology as suggested in EIA report will be adopted to contain the turbidity within applicable limits.	**Complied** Appropriate dredging and reclamation methodology has been utilized. During the compliance period, 3.25 Mm^3 material has been dredged and a total 7.21 Mm^3 dredged material has been utilized for reclamation of 65.71 Ha area of land. With respect to dredging and reclamation, the requirements for reclamation of berths for Phase I development of the port have been completed. The turbidity details for the compliance period are given in **Annexure II**.
24	Appropriate measures relating to maintenance of health, hygiene, safety and security will be implemented as per EIA report	**Being Complied** Appropriate institutional mechanism for maintenance of health, hygiene, safety, security has been put in place. An officer of VISL has been designated as Head (EHS & CSR) for effective implementation of the stipulated EHS safeguards & CSR activities. AVPPL, the concessionaire executing the project has also appointed officers for EHS & CSR. In addition to the above, independent environment, health and safety consultants have been appointed as required in the concession agreement signed with AVPPL. Organizational Structure for Environment, Health, and Safety (EHS) & CSR for construction phase is enclosed as **Annexure IX**. It is also ensured that contractors working at site also deploy EHS professional to implement suggested EMP measures. Proper provisions for maintenance of health, hygiene, safety, security for workforce has also been provided/ensured.
25	VISL will ensure that livelihood issues of Mussel collectors are addressed as per the EIA report	**Being Complied** Government Orders have been issued for disbursal of Rs. 12.65 Crore for 271 mussel collectors. Till date 262 Mussel collectors have collected the compensation amount totalling to Rs. 12.36 Crore. Although they were offered alternate livelihood plan through cage fishing, they opted for one-time settlement citing the risks involved in such fishing. *(Source: VISL)*

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
26	VISL will ensure all the project components i.e., including road/rail connectivity are implemented in time. In addition the planned CSR and EMP measures will also be implemented and monitored to ensure the socio-economic development of the region.	**Being Complied** Refer point 20 above. CSR activities are detailed in **Annexure III**. Status of construction stage EMP in matrix format is enclosed as **Annexure VI**.
27	The implementation of the EMP/RAP/CSR will be ensured through the institutional and regulatory mechanism with regular monitoring and periodic compliance reports to the MoEF	**Being Complied** Refer point 24 above. Regular monitoring of Environment Parameters is being carried out. Detailed Monitoring Reports for the period October 2023 to March 2024 is enclosed as **Annexure II**. Half Yearly Compliance Reports (HYCRs) which are six monthly reports on the status of compliance of the stipulated clearance conditions including results of monitored data are regularly submitted to all the concerned regulatory authorities/agencies. As per the MoEF&CC Notification dated 26.11.2018, wherein submission of HYCRs by email/soft copy is declared acceptable, therefore the HYCR for the period April 2023 to September 2023 has been submitted to the MoEF&CC, Regional Office (Bangalore), Zonal office of the CPCB (Bangalore), KSPCB & KCZMA via email dated 28.11.2023 (a copy of the email is enclosed as **Annexure XII**). Additionally, as per the MoEF&CC Office Memorandum dated 14.06.2022, the HYCR for the period April 2023 to September 2023 has been submitted online through newly developed compliance module in the PARIVESH Portal.
28	Special care will be taken to minimise the tree felling in the backup area and to plan the	**Being Complied** Being complied with the extent possible, but in line with the technical requirements of the project. Due

<table>
<tr><th colspan="3">Compliance of the Response/Commitments made during Public Hearing</th></tr>
<tr><th>S. No.</th><th>Responses/Commitments</th><th>Status as on 31.03.2024</th></tr>
<tr><td></td><td>development in tune with the topography.</td><td>permission is taken for tree felling from concerned department (Forest Department).

AVPPL, in collaboration with Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department, for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the requirement of compensatory afforestation required for the development of Vizhinjam Port. Details of the same are provided below:
<table>
<tr><th>Phase</th><th>Location</th><th>Area (ha)</th><th>No. of Trees</th><th>Cost (Rs. Lakhs)</th></tr>
<tr><td>1</td><td>Sainik School, Kazhakootam</td><td>12.05</td><td>15,540</td><td>80.50</td></tr>
<tr><td>2</td><td>Kerala University Campus, Karyavattom</td><td>12.60</td><td>16,500</td><td rowspan="2">174.00</td></tr>
<tr><td>2</td><td>STP, Muttathara</td><td>5.00</td><td>8,000</td></tr>
<tr><td colspan="2">Total</td><td>29.65</td><td>40,040</td><td>254.50</td></tr>
</table></td></tr>
<tr><td>31</td><td>The number of fishermen who will be temporarily affected in the Adimalathura stretch have been assessed and livelihood restoration measures have been framed for the construction period</td><td>Being Complied
Earlier it was proposed that the fishermen at Adimalathura will be compensated for the construction period of three years, treating them as temporarily affected. However, based on the request of the fishermen (stating that demarcation of the shipping channel and movement of ships would affect them permanently) their compensation has been enhanced considering seven years of livelihood loss. The GoK order to this effect has been issued on 31.05.2018 and compensation has been disbursed to 602 eligible fishermen amounting to a total of Rs. 36.42 Crore. (Source: VISL)</td></tr>
<tr><td>33</td><td>An Area Development Plan (ADP) is being prepared by CEPT University (Ahmedabad) for planned development</td><td>Being Complied
An Integrated Area Development Plan was prepared through CEPT University, Ahmedabad in consultation with Town Planning as early as in 2012. Tourism Department, Industries Department and other line departments were consulted during</td></tr>
</table>

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
	of the region to avoid haphazard development.	the review by an expert committee constituted by GoK. An updated area development plan shall be prepared based on the observations. *(Source: VISL)*
34	Maximum 3 ships are expected per day in phase I. Appropriate traffic mechanism to cross the ship channel for fisherman with first priority will be practised as is happening in Cochin Port where fishing harbour, container berth, navy, shipyard, inland water transport etc are co-existing	**Will be Complied** Restrictions on fishing will be as per the applicable laws.
36	Implementation of CSR measures and planned development of the region through well designed area development plan will arrest the formation of slums and the like.	**Being Complied** Details of CSR activities carried out during the compliance period are given in **Annexure III**. Refer point 33 above for area development plan.
37	"Inconvenience Allowances" during construction period of three years to the fisherman (As per EIA Report)	**Complied** An amount of Rs. 31.57 Crores have been sanctioned by the GoK as inconvenience compensation in the form of kerosene for a period of 3 years. The entire Rs. 31.57 Crore has been given to the disbursal agency (Matsyafed) for disbursal as per rules. *(Source: VISL)*
38	As per the Entitlement Framework, Hardship Allowance is suggested in the EIA/EMP for resort workers who lost their job due to acquisition of the resort	**Complied** Compensation for livelihood loss; Rs 6.08 Crores out of allocated Rs. 6.11 Crores has been disbursed to 211 out of 213 number of resorts workers and settled completely. The remaining two workers were unable to provide the requisite necessary documents and therefore could not be confirmed for disbursement. *(Source: VISL)*
40	Ensure that all EMP related aspects are properly implemented	**Being Complied** As the project is in construction stage, construction stage EMP is being implemented. Operation stage EMP will be implemented during

Compliance of the Response/Commitments made during Public Hearing		
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	during construction and operational phase	operation stage. Refer **Annexure VI** for status of construction stage EMP.
41	A dedicated port road directly connecting to NH-47 bypass is envisaged.	**Being Complied** This is part of the concession agreement and is in the process of being developed. Refer point 20 above.
43	The port project will not affect the inflow of Neyyar river and AVM canal	**Not Applicable** Not affected since both are away from the project site.
44	The port road will be access controlled for the exclusive use of container and related port movements. The suggestion for a new approach road can be considered on technical feasibility and subject to surrendering of adequate land by the beneficiaries	**Not Applicable** The port road will not be access controlled and connectivity for the residents will not be affected.
46	Reconstruction of Roads in the nearby area- Adequate provisions have been made for the old fishing harbour and its linkage roads as it will be adopted as a part of best practice and beautification process	**Not Applicable** Being complied on a routine basis through HED; the maintenance agency for the fishing harbour and the coastal road network.
47	The development of the warehouse area will be taken up	**Will be Complied** This is part of the proposed port estate development.
49	CSR activity suggested a skill development centre to equip the local people to adapt to the industrial needs of port/tourism and fisheries so that they can be appropriately employed based on their merit. However during construction period the EIA study has suggested	**Being Complied** Additional Skill Acquisition Program (ASAP) is a GoK initiative aimed to impart required skills to local youth for improving their employability. ASAP proceeded with the construction of a Community Skill Park (CSP) in an area of 1.5 acres of land at Vizhinjam and the infrastructure is completed. It will operate on a PPP model wherein 25,000 sq. ft. building with facilities for students' hostel are constructed by GoK by ASAP with ADB assistance, whereas the operation of the centre with logistics

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S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
	to adequately employ local population to the maximum extent possible	and other high-end courses are being taken up by Adani Skill Development Centre (ASDC) as per agreement with GoK/ASAP/VISL. CSP building construction is 90% completed inside Vizhinjam Port area in association with ASAP. The land handed over to the ASAP team by VISL for construction is having a 3 storied building with Ground Floor for office space, Seminar Hall Training Rooms, G-1 Floor for IT lab. Major infrastructure highlights are the sewage treatment plant, water treatment plant, 250 KVA transformer, heavy machinery lab, passenger lift and hostel facilities. CSP building construction is completed. Handing over may happen in the month of February 2024. From ASDC, course finalization process is in its final stage which will happen after further discussions. High-end courses from the sectors like Logistics, Health Care, Hospitality, IT-ITEs are preferred considering the placement market. Agreement regarding the operation of CSP between ASDC and ASAP is approved by the Higher Education Dept. GoK and the signing ceremony will happen soon. Updated Course details were prepared and will be integrated with the MoU. Course Curriculum preparation is in the final stage. Infrastructure and Lab settings will be started once the agreement is signed. On 27.11.2023, a meeting was called by Principal Secretary at Secretariat as per the decision by Hon. Chief Minister and discussion was done about the 50% of space utilization by ASDC and revenue sharing. Preference is being given to local people based on Skill & competency during the construction stage. Out of an average of 848 persons (employees, staff and construction workers) engaged at site for different construction activities during the compliance period, 293 people are from Kerala and out of them 182 are from nearby wards of the project site.
51	Only prohibited area for fishing is inside the breakwater. However,	**Will be Complied** Restrictions on fishing will be as per the applicable laws.

Compliance of the Response/Commitments made during Public Hearing		
S. No.	**Responses/Commitments**	**Status as on 31.03.2024**
	fishing will be restricted along ship channel and port limits subject to safety norms and operational requirements.	
52	The existing notification of the Vizhinjam Port includes the Vizhinjam Fishing harbour. The revised Notification will include the Vizhinjam Deep Water Port based on revised Port limit provided in the EIA report. Except inside the breakwater of the Deep-Water Port in all other areas of the port limit fishing is allowed with all safety and operational restrictions.	**Will be Complied** GoK notified the limits of the Vizhinjam International Deepwater Multipurpose Seaport and altered the limits of the existing Vizhinjam Port (Vizhinjam Fishing harbour) vide G.O. (P) No. 22/2019/F&D dated 21.05.2019. Vizhinjam fishing harbour is excluded from revised notification. Restrictions on fishing will be as per the applicable laws.
53	There will only be a movement of 8 barges per day during the construction period of 3 years and the same will not be a hindrance for the fisherman to cross since this is far less than the number of ships being crossed by them daily in the international ship channel.	**Noted for Compliance** Barge movement will be planned as per the requirements in such a way that it will not be a hindrance to fishermen.
57	The cruise terminal proposed in the project, will promote tourism in the Kovalam-Poovar belt and the region may become the cruise hub/tourism gate way of India in future	**Noted** Once the first phase of port becomes operational, it would naturally attract cruise tourism. Based on the development of cruise business, dedicated cruise berth/ Multipurpose berths are being planned in the subsequent phases. Action is also being taken in consultation with the State Tourism Department, to design port linked tourism packages focussing on the Kovalam-Vizhinjam-Poovar tourism corridor.

Annexure VI

Status of Environment Management Plan

Annexure VI

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
1	Capital dredging	Marine water quality Marine ecology	o Check turbidity levels with baseline levels as reference during entire monitoring programme o Preparation of Dredge/reclamation Management plan o Discharge of waste into sea will be prohibited o Oil Spill control measures will be adopted o Ensure that slop tanks will be provided to barges/ workboats for collection of liquid/ solid waste o Marine environmental monitoring as per environmental monitoring programme	**Being Compiled** o During the compliance period, 3.25 Mm^3 material has been dredged and a total 7.21 Mm^3 dredged material has been utilized for reclamation of 65.71 Ha area of land. With respect to dredging and reclamation, the requirements for reclamation of berths for Phase I development of the port have been completed. o The turbidity details for the compliance period are given in **Annexure II**. o A Dredging Management plan had been prepared and was followed during dredging. o Discharge of waste into the sea is prohibited and not being carried out. o Procurement of oil spill pollution response equipment is under progress presently. o Marine Environmental Monitoring at 5 locations as per the Environment Monitoring Plan prescribed in EIA has commenced since August 2016, one additional marine water monitoring location has been added from October 2017 after suggestion from NGT committee and the parameters are comparable with baseline. o Six monthly monitoring reports are regularly submitted to regulatory authorities as a part of Half Yearly EC

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				Compliance Reports (HYCRs).
2	Material transport and construction activities	Air Quality	o Most of the Breakwater stones will be transported from the quarries to the nearest harbour. From there through Barges it will be transported to project site. This is will avoid substantiate flow of Heavy Vehicles during construction Phase thereby minimizing impact on Air and Noise Quality in the project region. o To reduce impacts from exhausts, emission control norms will be enforced / adhered. o All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards o Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt o Providing adequately sized	**Being Complied** o Presently stones for construction of breakwater are being transported from nearby quarries by trucks through road network to the Vizhinjam site. From the project site, the stones are unloaded onto barges for marine dumping through loud out facilities within the port; Marine Dumping of Core for Phase I Breakwater completed on 13.03.2024. o It is ensured that all vehicles entering the Port have a valid PUC certification. o Adequately sized construction yard has been provided for storage of construction materials, equipment tools, earthmoving equipment, etc. o The dumpers have speed governors ensuring adherence to speed limit. o Signage for speed control is displayed inside port area restricting vehicle speed to 20km/hr. o Water sprinkling is carried out for supressing dust. o It is ensured that all trucks transporting material are covered by tarpaulin. o Regular awareness programme on various Environment aspects is being imparted to workers and employees.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			construction yard for storage of construction materials, equipment tools, earthmoving equipment etc. o Provide enclosures on all sides of construction site o Movement of material will be mostly during non-peak hours. o On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic o Water sprinkling will be carried out to suppress fugitive dust o Environmental awareness program will be provided to the personnel involved in developmental works o Use of tarpaulin covers and speed regulations for vehicles engaged in transportation	
		Noise	o Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution	**Being Complied** o Noise levels are being monitored every fortnight and are found to be well within the permissible limits within the project area.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			Control Board (CPCB)/KSPCB o Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A) o Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used o Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors o Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers o High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimise noise impacts	o Contractors are also monitoring the Noise level in their work area and results are within the stipulated limits. o Protective gear like earplugs, muffs are provided to workers exposed to noise level beyond threshold limits. o Acoustic Barriers and Enclosures shall be set up wherever necessary for noisy equipment. o Well-maintained construction equipment, which meets the regulatory standards for source noise levels, is being used. o No piling activity carried out during the compliance period. Piling for Phase I construction has been completed.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			o Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc. o Ambient noise levels will be monitored at regular intervals	
		Disturbance to Natural Drainage pattern	o Port development is mostly on reclaimed land o Rainwater/surface water harvesting pond included in design o Existing drainage near port boundary (backup area) will be integrated with port storm water drainage & management plan o Existing drains / Streams that are passing in ware house area will not be closed/ diverted. And these streams will be de-silted and enhanced to improve their carrying capacities	**Being Complied** o Measures have been taken for maintaining the natural flow of the streams debouching in the construction site, by laying drain pipes beneath the temporary road. o A study has been conducted to access the rainwater harvesting potential and recommend for planning accurate, successful and implementable rainwater harvesting management system within the proposed sites for the sustainable development of existing groundwater resources and thereby suitable rainwater harvesting structures are recommended. To capture, store and reuse a percentage of the estimated runoff, rainwater collection and storage sumps are recommended at suitable locations. However, since the area within the port is reclaimed land, rainwater harvesting structures at the suggested locations were found to be not feasible. o A Provision for installing Sewage Treatment Plant (STP) facility of adequate capacity in phased manner in

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				accordance with the CRZ Notification is being implemented. The order to develop the STP with capacity of 50 KLD has been awarded to M/s. Starcon Infra Projects (I) Pvt. Ltd. The STP system material is dispatched and is expected to arrive at the Vizhinjam Port site in May 2024. o Drains/streams passing through the port area are not closed/diverted.
		Vegetation and Strain on existing infrastructure	o Port development is planned mostly on reclaimed land; o Land use at backup area, PAF Zone and warehouse area will be mostly coconut plantation and low mixed plantation o Adequate green belt will be developed in port and its associated (backup area, PAF, warehouse and road & rail connectivity). o Temporary workers camp with self-sufficient infrastructure facilities.	**Being Complied** o Although a natural greenbelt exists, the greenbelt of adequate width with suitable species as identified in the EIA will be developed in all possible areas including back-up areas and along the boundary of the project area in line with the establishment of the project. A greenbelt development plan has been considered in the Master Plan and adequate budgetary provision has been kept for this purpose. Landscape development work has been completed at several locations in the port areas. o Care is taken to limit the felling of trees to the minimum. Due permission is taken for trees to be cut down because of the port development from concerned department (Forest Department). o AVPPL, in collaboration with Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department,

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the requirement of compensatory afforestation required for the entire Master Plan development of Vizhinjam Port. o There are no labourers residing in the labour camps. It is ensured that construction workers who are staying outside in the contractor rented houses/apartments are provided with necessary infrastructure facilities.
		Existing Traffic	o NH-47 bypass under construction around 2.0 km from the proposed Port site and the Transportation of construction materials will be carried out during non- peak hours. Hence a dedicated road of 45 M RoW is proposed to connect site with NH Bypass o Regularization of truck movement o Majority of rock for breakwater construction will be transported through sea route via barges from nearby quarry sites o A dedicated rail network of approximately 15 km is proposed from port to Nemom railway station	**Being Complied** o Development of dedicated road connectivity approach road (2.0 km) from the port to the NH-47 Bypass is in progress. In-principle approval was received for the plan for the junction between NH66 and port road. After meeting with National Highways Authority of India (NHAI), it was jointly decided that AVPPL will resubmit the plan after integrating it with Outer Ring Road (ORR) intersection plan of NHAI. Based on the recommendation of NHAI, the design and drawing were submitted by AVPPL and was approved NHAI vide letter 31.01.2024. Detailed Engineering, Estimation and Bidding documents preparation for Contractor Selection are in progress. o Traffic monitoring and regularization is being carried out for maximum efficiency. o Transportation of construction materials is being carried out considering the non-peak traffic timing and local

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				restrictions during festivals, strikes, etc. o Konkan Railway Corporation Limited (KRCL) has been engaged for turnkey execution of the project. Out of the total rail route length of 10.7 km, about 9.0 km is planned to be passing through an underground tunnel to minimize the disturbance to the local population. Detailed Project Report (DPR) has been approved by Southern Railway and Railway Board. Geophysical and geomorphological studies, flood mapping studies, hydrogeological studies, Various subsidence studies such as Ground subsidence, blasting impacts, and rail movement subsidence have also been completed. EC amendments in this regard had been submitted to MoEF&CC on 17.08.2022 vide Proposal No. IA/KL/NCP/285459/2022 and File No. 11-122/2011-IA.III. The Expert Appraisal Committee (EAC) during their 308th, 322nd, 363rd meetings held on 15.09.2022, 21.03.2023, 25.04.2024 respectively apprised the proposal and necessary clearance are expected to be received shortly. *(Source: VISL)*
3.	Land Reclamation	Existing Water Resources like Groundwater and surface water	o Land to be reclaimed will be separated from adjoining land by creating containment bund. o Return sea water will be sent back to sea through appropriate	**Being Complied** o During the compliance period, 3.25 Mm^3 material has been dredged and a total 7.21 Mm^3 dredged material has been utilized for reclamation of 65.71 Ha area of land. With respect to dredging and reclamation, the

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			channels.	requirements for reclamation of berths for Phase I development of the port have been completed. o During dredging return sea water is sent back to sea through appropriate channels. o With respect to dredging and reclamation, the requirement of Phase I development of the port has been completed. o The existing drains are maintained for unhindered disposal of surface drainage water.
4.	Solid Waste Management	Soil quality	o Construction waste will be used within port site for filling of low lying areas. o Composted bio-degradable waste will be used as manure in greenbelt. o Other recyclable wastes will be sold. o Excavated soil at backup, PAF Zone and ware house area will be stockpiled in a corner of the site in bunded area to avoid run off with storm water. o General refuse generated on-site will be collected in waste skips	**Being Complied** o Construction waste is used within port site for filling of low-lying areas in line to C&D Waste Management Rules 2016, as amended. o Contractors working at the site have been made responsible for management of Solid Waste during construction stage. They are complying with the provisions pertaining to management of Solid Waste in line to Solid Waste Management Rules 2016, as amended. o An Organic Waste Converter (OWC) has been installed at site and is operating for bio-degradable waste; output is being used as manure in greenbelt development. o General refuse waste is being stored separately and sent to approved recyclers and/or sold. o No burning of refuse at construction sites is being done.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			and separated from construction waste. o Burning of refuse at construction sites will be prohibited. o All control measure will be taken to avoid the contamination of groundwater during construction phase	o There is no disposal of waste in the project area which may lead to groundwater contamination. o The Half Yearly Report of the Solid Waste Management at Vizhinjam Port for the period October 2023 to March 2024 is enclosed as **Annexure VII**.
5.	Handling of hazardous wastes	Human safety and property loss	o Adequate safety measures as per OSHA standards will be adopted o Construction site will be secured by fencing with controlled/limited entry points. o Hazardous materials such as lubricants, paints, compressed gases, and varnishes etc., will be stored as per the prescribed/approved safety norms. o Medical facilities including first aid will be available for attending to injured workers. o Handling and storage as per statutory guidelines. o Positive isolation procedures will	**Being Complied** o Adequate safety measures as per OSHA standards are adopted as and when necessary, as per the HSE Plan. o Construction site is being secured by fencing wherever possible with controlled/limited entry points. Boundary wall construction is ongoing at available fronts. o Medical facilities including first aid are available for attending to injured workers. Ambulance is also available at site for shifting the injured to the nearby hospitals. o Handling and storage of Hazardous Materials is being done as per statutory guidelines. o Hazardous waste is disposed through approved KSPCB/CPCB vendors.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			be adhered o Hazardous wastes will be disposed through approved KSPCB/CPCB vendors.	
6.	Water Resources	Water scarcity / Pollution	o Water requirement during the construction is expected to be around 0.10 MLD o Water will be sourced from Vellayani lake o Avoid/minimise the loss during conveyance o Optimized utilization of the water o Care will be taken to prevent the runoff from the construction site to the nearby natural streams, if any	**Being Complied** o KWA set up a 3.00 MLD water supply scheme for the project with the source of water being Vellayani Lake. The net availability of treated water from this supply scheme is 2.49 MLD of potable water out of which 1.49 MLD of water shall be distributed to the local people as part of social welfare measures of VISL. The balance 1.0 MLD was to be used for port related activities. However, at present, the entire treated water from the scheme is being utilised by the community. o The water for construction purposes for the port is being sourced from the open market/private suppliers. o Care is being taken to prevent the runoff from the construction site to the nearby natural streams.
7.	Fishing	Fishermen and fishing villages	o Signboards will be placed at the construction activities in order to make fishermen aware of the ongoing construction activities o Necessary marker buoys will be installed	**Being Complied** o Signboards have been placed for demarcation of construction area. o Navigational buoys/marker buoys are placed in the marine area for fishing boats to maintain a safe distance from the areas of breakwater construction.

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			o Interactions will be initiated with the fishing community before commencement of construction works	o The number of buoys for monitoring in the project area has been optimized, considering the safety of fishermen and ease of movement during construction. o Using the technological advancement the dedicated CSR team of AVPPL are in constant touch with the fishermen/fishing community members to facilitate the flow of various project related information/updates. o AVPPL CSR team also provides regular updates to the committee which has been formed by the local church representatives adjoining to the port area, who in turn pass on port project execution information to the fishermen.
8.	Tourism	Effect on tourism	o Tourism activity is observed at Kovalam located about 2.0 km towards the North of Proposed Port. Mathematical Modelling studies on shoreline changes show the insignificant impact due to the port development on the existing coastline. However, the Shoreline monitoring during construction as well as operation Phases were proposed. o A cruise terminal and related facilities is part and parcel of the	**Being Complied** o The tourism activity in the nearby Kovalam area is not impacted by the construction of the port. o Shoreline monitoring for a stretch of 40 km (20 km on both sides of the project site) is being done and reports are regularly submitted to regulatory authorities. o Once the first phase of port becomes operational, it would naturally attract cruise tourism. Based on the development of cruise business, dedicated cruise berths will be planned in a phased manner. Action is also being taken in consultation with the State tourism department, to design port linked tourism packages focussing on the Kovalam-Vizhinjam-Poovar tourism

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			project. This is to largely compensate the losses made o For all acquired properties and land adequate compensation will be provided based on legally valid documents	corridor o Resort owners evicted have been compensated adequately for land and few of the structures could not be compensated since they were in violation of CRZ notifications in force. Further as last stage acquisition land of 2.865 Ha is yet to be acquired by Land Acquisition (LA) process; for which notification has been published and the acquisition is in an advanced stage. *(Source: VISL)*
9	Breakwater	Change in shoreline	o Shoreline monitoring shall be carried out o Suitable Shoreline protection measures will be implemented based on the observations	**Being Complied** o Comprehensive Shoreline Monitoring is being carried out under the technical Guidance of NIOT and Six monthly monitoring reports are being submitted regularly as part of EC & CRZ Compliance. The existing Shoreline Monitoring consists of: o Wave Observations o Onshore & Offshore Cross beach profiling o Littoral Environmental Observations (LEO) o Beach Sampling o Multi-beam Echo Sounder (MBES) survey o River cross section surveys o Grab Sampling o Current Observations o Tide Observations

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				o Weather Observations o Water Sampling o L&T Infrastructure Engineering Ltd. (L&T IEL) had prepared Mathematical Modelling Reports based on Shoreline Monitoring data; which were vetted by National Institute of Ocean Technology (NIOT). o Suitable Shoreline protection measures will be implemented based on the observations, if any.
10	Effect on existing fishing harbour	Movement of fishing boats	o Detailed modelling studies have been carried out on tranquillity conditions in the fishing harbour with port development. The studies reveal that the tranquillity conditions will be improved in fishing harbour with construction of the port. Further minor accretion happening within the fishing harbour will be arrested o Traffic of Marine vessel/ fishing boats will be planned without affecting each other o Adoption of fishing harbour to manage it to perform as per	**Being Complied** o Wave, current and tide data are being monitored along with the shoreline monitoring of 40 km stretch. Based on the above, the modelling studies done at the EIA stage has been further evaluated. o During operation phase traffic of Marine vessel/fishing boats will be planned without affecting each other as per the applicable laws. o Based on the recommendation of the study carried out by Central Water and Power Research Station (CWPRS) the location originally proposed for the fishing harbour is not a suitable location with respect to tranquillity. Harbour Engineering Department (HED) has prepared a preliminary estimate for the extension of seaward breakwater of the existing fishing harbour at an angle of 45 degrees as proposed by CWPRS. Discussions between

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			International standard o A new fishing harbour provided under CSR initiatives because of additional tranquillity creator. o Loss of livelihood will be either taken care of in the new port premises or adequately compensated mostly in the form of employment	Fisheries Department and Ports Department, Government of Kerala (GoK) and consultation with the fishermen community are ongoing to finalise a suitable location for the fishing harbour. GoK would be soon finalising the plan of action to develop and make available the additional fish landing facilities for the benefit of the local fishermen. *(Source: VISL)* o In consultation with the fishermen, enhanced livelihood compensation of Rs. 108.32 Crores was sanctioned by GoK and distributed by VISL to fishermen as livelihood compensation, instead of Rs. 8.55 crores, as suggested earlier in the EIA. Till 31.03.2024 an amount of Rs. 106.93 Crores have been disbursed for a total number of 2697 Livelihood Affected Persons (LAPs) whose verification was complete in all respects; this includes boat owners to whom kerosene is supplied free of cost during the breakwater construction period. Remaining few disbursals would be done as soon as possible. *(Source: VISL)*
11	Shoreline changes	Erosion/accretion	Final shoreline Impact management plan will be prepared in consultation with agencies like CESS/INCOIS, NGO and local bodies and will implemented.	**Being Complied** o NIOT has been engaged to give technical advice on aspects related to shoreline monitoring & shoreline evolution. o Comprehensive Shoreline Monitoring is being carried out under the technical Guidance of NIOT and six-

Status of Environment Management Plan-Port Site-Construction Stage Potential Impacts and Mitigation Measures of Various Project Activities				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				monthly monitoring reports are being submitted regularly as part of EC & CRZ Compliance. o Wave, current and tide data are being monitored a 40 km stretch. o L&T IEL had prepared Mathematical Modelling Reports based on Shoreline Monitoring data; which were vetted by NIOT.

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
1	Environmental Management and Monitoring Facility Equipment for EMP (Meters, Vehicles and Buildings)	o This will include institutional requirements, training, environmental management and monitoring. Provision for purchasing required equipment.	**Noted for Compliance** o An Environment Management Cell has been established to look after day-to-day affairs like Monitoring, Training, etc. o Appropriate institutional mechanism for maintenance of health, hygiene, safety, security has been put in place. An officer of VISL has been designated as Head (EHS & CSR) for effective implementation of the stipulated EHS safeguards & CSR activities. AVPPL, the concessionaire executing the project has also appointed officers for EHS & CSR, Horticulture. In addition to the above, independent environment, health and safety consultants have been appointed as required in the concession agreement signed with AVPPL. Organizational Structure for Environment, Health, and Safety (EHS) & CSR for construction phase is enclosed as **Annexure IX**. o It is also ensured that contractors working at site also deploy EHS professional to implement suggested EMP measures. Proper provisions for maintenance of health, hygiene, safety, security for workforce is being ensured. o Third party environmental monitoring through NABL accredited laboratory has commenced since August 2016 and the monitoring results are satisfactory.
2	Altered Road embankment	o Retaining walls and gabions should be provided	**Noted for Compliance** o AVPPL engaged Kerala State Remote Sensing and Environment Centre (KSREC) to undertake study on Groundwater impact due to construction of port approach

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
			road. KSREC had provided recommendations for AVPPL in the process of constructing the approach road to port: o The de-silting and rejuvenating the existing pond at the higher elevation, between chainages 1510 to 1570, and by constructing elevated road and the status quo maintenance of the pond A at the lower elevation within the chainages 980 to 1080 and by building elevated road will improve the recharge. o Subsurface dyke suggested will provide additional recharge not only nullify the impact of impervious area generated due to the road construction but will provide water in the wells during summer. o Cross Vents suggested below the road will help in sustaining the recharge of groundwater in the lean period and will act as drain-out mechanism at times of high groundwater level. o The surface ponds suggested are additional facilities to improve the recharge and to increase the water retaining capacity of the watershed. o These suitable mitigation measures as suggested in the KSREC report are being adopted during construction.
3	Dust	o Water should be sprayed during the construction phase, at mixing sites, and temporary roads. o In laying sub-base, water spraying is needed to aid compaction of the material. After the	**Being Compiled** o Regular Water Sprinkling is done on the approach road by water tankers. o Water spraying is carried out at regular intervals after compaction

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
		compaction, water spraying should be carried out at regular intervals to prevent dust. o Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.	o Tarpaulin cover is used in vehicles delivering materials.
4	Air Pollution	o Vehicles and machinery are to be maintained so that emissions conform to National and State standards. o All vehicles and machineries should obtain Pollution Under Control Certificates (PUC).	**Being Complied** o Ambient air quality monitoring is carried out at 5 locations as per the Environment Monitoring Plan prescribed in EIA and has commenced since August 2016, the results obtained are within the limits prescribed by National Ambient Air Quality Standards (NAAQS) o It is ensured that all vehicles entering port have Pollution Under Control (PUC) Certificate.
5	Noise	o Machinery and vehicles will be maintained to keep their noise to a minimum. o Construction of noise barriers of an average length of 100m and eight feet height wherever necessary. o Proper maintenance of the rail track and rail wagon, by frequent lubrication to avoid frictional noise. o Regular monitoring shall be carried out as per the Environmental Monitoring Plan.	**Being Compiled** o All the machinery and vehicles are maintained to keep the noise at minimum o Noise monitoring is being done since August 2016, and the readings are within the limits at port site o Regular monitoring of ambient Noise is carried out since August 2016 as per the Environmental Monitoring Plan prescribed in EIA and results are within the prescribed limit at port site.

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
6	Loss of low lying land and ponds	o Impacted ponds can be enhanced by constructing bridged structures like Gabions to avoid plugging of springs. o Mitigation/Compensation shall be affected for the completely impacted ponds. o At Chainage km 6.500 the Railway alignment goes below the Existing NH and then at km 6.600 it will hit pond. The pond will be excavated partially and the soil material shall be used to fill in the western part and an equivalent area lost may be excavated to compensate the loss of effective pond area.	**Being Complied** o AVPPL engaged KSREC to undertake study on Groundwater impact due to construction of port approach road. KSREC had provided recommendations for AVPPL in the process of constructing the approach road to port: o The de-silting and rejuvenating the existing pond at the higher elevation, between chainages 1510 to 1570, and by constructing elevated road and the status quo maintenance of the pond A at the lower elevation within the chainages 980 to 1080 and by building elevated road will improve the recharge. o Subsurface dyke suggested will provide additional recharge not only nullify the impact of impervious area generated due to the road construction but will provide water in the wells during summer. o Cross Vents suggested below the road will help in sustaining the recharge of groundwater in the lean period and will act as drain-out mechanism at times of high groundwater level. o The surface ponds suggested are additional facilities to improve the recharge and to increase the water retaining capacity of the watershed. o These suitable mitigation measures as suggested in the KSREC report are being adopted during construction. o Konkan Railway Corporation Limited (KRCL) has been engaged for turnkey execution of the project. Out of the total

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
			rail route length of 10.7 km, about 9.0 km is planned to be passing through an underground tunnel to minimize the disturbance to the local population. Detailed Project Report (DPR) has been approved by Southern Railway and Railway Board. Geophysical and geomorphological studies, flood mapping studies, hydrogeological studies, Various subsidence studies such as Ground subsidence, blasting impacts, and rail movement subsidence have also been completed. EC amendments in this regard had been submitted to MoEF&CC on 17.08.2022 vide Proposal No. IA/KL/NCP/285459/2022 and File No. 11-122/2011-IA.III. The Expert Appraisal Committee (EAC) during their 308th, 322nd, 363rd meetings held on 15.09.2022, 21.03.2023, 25.04.2024 respectively apprised the proposal and necessary clearance are expected to be received shortly. *(Source: VISL)*
7	Flood Impacts and Cross Drainage Structures	o Formation level should be raised according to the design and the cross drainage structures suitably planned for the flood events.	**Being Complied** o During the construction, care was taken such that the formation level is as per suitable design and the cross-drainage structures are also being implemented.
8	Alteration of drainage	o In sections along watercourses, earth and stone will be properly disposed of so as not to block rivers and streams, thereby preventing any adverse impact on water quality. o All necessary measures shall be taken to prevent earthworks and stone works from	**Being Complied** o AVPPL engaged KSREC to undertake study on Groundwater impact due to construction of port approach road. KSREC had provided recommendations for AVPPL in the process of constructing the approach road to port: o The de-silting and rejuvenating the existing pond at the higher elevation, between chainages 1510 to 1570, and by

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
		impeding cross drainage at streams and canals or existing irrigation and drainage systems in conformity to the Contractors visual integration and management plan and EMP.	constructing elevated road and the status quo maintenance of the pond A at the lower elevation within the chainages 980 to 1080 and by building elevated road will improve the recharge. o Subsurface dyke suggested will provide additional recharge not only nullify the impact of impervious area generated due to the road construction but will provide water in the wells during summer. o Cross Vents suggested below the road will help in sustaining the recharge of groundwater in the lean period and will act as drain-out mechanism at times of high groundwater level. o The surface ponds suggested are additional facilities to improve the recharge and to increase the water retaining capacity of the watershed. o These suitable mitigation measures as suggested in the KSREC report are being adopted during construction.
9	Contamination from Wastes	o All justifiable measures will be taken to prevent the wastewater produced during construction from entering directly into rivers and irrigation systems.	**Being Complied** o Measures are being taken up to prevent the wastewater produced during construction from entering directly into rivers and irrigation systems. o No waste water is disposed into the water bodies.
10	Borrow pits	o Borrow pits are to be identified, opened and closed after consultations and proper documentation.	**Will be Complied as and when required**

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
11	Quarrying and Material sources	o Quarrying will be carried out at approved and licensed quarries only.	**Will be Complied** The road constructed so far has been made with material available on site.
12	Soil Erosion and Soil Conservation	o On slopes and other suitable places along the two proposed corridors, trees and grass should be planted. o On sections with filling and deep cutting their slopes should be covered by sod, or planted with grass, etc. o If existing irrigation and drainage system, ponds are damaged, they will be suitably repaired. o Retaining walls and gabions shall be suitably provided.	**Being Complied** o AVPPL engaged KSREC to undertake study on Groundwater impact due to construction of port approach road. KSREC had provided recommendations for AVPPL in the process of constructing the approach road to port: o The de-silting and rejuvenating the existing pond at the higher elevation, between chainages 1510 to 1570, and by constructing elevated road and the status quo maintenance of the pond A at the lower elevation within the chainages 980 to 1080 and by building elevated road will improve the recharge. o Subsurface dyke suggested will provide additional recharge not only nullify the impact of impervious area generated due to the road construction but will provide water in the wells during summer. o Cross Vents suggested below the road will help in sustaining the recharge of groundwater in the lean period and will act as drain-out mechanism at times of high groundwater level. o The surface ponds suggested are additional facilities to improve the recharge and to increase the water retaining capacity of the watershed. o These suitable mitigation measures as suggested in the

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
			KSREC report are being adopted during construction.
13	Loss of agricultural topsoil	o Arable land should not be used for topsoil borrowing. o Topsoil will be kept and reused after excavation is over. o Any surplus to be used on productive agricultural land.	**Being Complied** o Arable land is not being used for topsoil borrowing o The topsoil excavated is being stored and will be reused during development of greenbelt.
14	Compaction of Soil and Damage to Vegetation	o Construction vehicles should operate within the Corridor of Impact avoiding damage to soil and vegetation.	**Being Complied** o Construction vehicles are being operated only alongside the road boundary; thereby avoiding damage to soil and vegetation.
15	Loss of trees and Avenue Planting	o Areas of trees cleared will be replaced according to Compensatory Afforestation Policy under the Forest Conservation Act - 1980. o Landscaping shall be done at major junctions.	**Being Compiled** o Although a natural greenbelt exists, the greenbelt of adequate width with suitable species as identified in the EIA will be developed in all possible areas including back-up areas and along the boundary of the project area in line with the establishment of the project. A greenbelt development plan has been considered in the Master Plan and adequate budgetary provision has been kept for this purpose. Landscape development work has been completed at several locations in the port areas including turning circle. o Care is taken to limit the felling of trees to the bare minimum. Due permission is taken for trees being cut down because of the port development from concerned department (Forest Department).

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
			o AVPPL, in collaboration with Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department, for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the requirement of compensatory afforestation required for the entire Master Plan development of Vizhinjam Port. o Plantation of saplings along the road margins, road junctions and road medians are being carried out as part of the greenbelt development plan.
16	Vegetation clearance	o Tree clearing within the ROW should be avoided beyond that which is directly required for construction activities and/ or to reduce accidents. o Especially in plantation and house garden areas both along road and rail alignment.	**Being Complied** o Care is taken to limit the felling of trees to the bare minimum. o Permission for trees being cut down because of the port development has been obtained from concerned department (Forest Department).
17	Fauna	o Construction workers should protect natural resources and animals. Hunting of birds and other local animals is prohibited.	**Being Complied** o Regular awareness sessions are conducted for construction workers regarding importance of natural resources and animals. o Hunting of birds & other local animals is strictly prohibited
18	Traffic Jams and congestion	o If there is traffic congestion during construction, measures should be taken to relieve it as far as possible with the co-operation of the traffic police.	**Being Complied** o In order to avoid traffic congestion, if any, during the construction of the road, measures will be taken to relieve it as far as possible with the co-operation of the traffic police.

Environmental Management Plan – Rail*/Road Corridors *No Construction work was carried out during the compliance period in the rail corridor			
S. No.	**Environmental Impacts and Issues**	**Mitigation Measures**	**Status as on 31.03.2024**
19	Health and Safety	o All contractors' staff and workers must wear high visibility purpose made overalls or trousers/waist coat at all times. All operators working with any materials above head height (even in trenches) must wear hard hats all at times on the worksite.	**Being Compiled** o All the workers are provided with Personal Protective Equipment's (PPEs), and it is ensured that they wear it all the time o Also, all the contractors working at the site have a dedicated health and safety person to oversee the work carried out.
20	Pollution of Streams parallel or along the alignments	o Construction material/waste should be disposed of properly so as not to block or pollute streams or ponds with special attention to confining concrete work.	**Being Complied** o Construction materials/waste are being disposed properly; so as not to block or pollute streams or ponds.
21	Cultural Remains	o Construction should be stopped until authorised department assess the remains to preserve Archaeological relics and cultural structures like Temples, mosques and churches. o Archaeologists will supervise the excavation to avoid any damage in the relics.	**Will be Complied** o A cultural heritage management plan including a procedure to be followed in case of chance find has been prepared. Same will be implemented for preservation of Archaeological sites and any cultural/archaeological structure found.

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
1	Material transport and construction activities	Air Quality/Dust	o To reduce impacts from exhausts, emission control norms will be enforced / adhered. o All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards. o Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt. o Providing adequately sized construction yard for storage of construction materials, equipment, tools, earthmoving equipment, etc. o Provide enclosures on all sides of construction site o Movement of material will be mostly during non-peak hours. o On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic o Water should be sprayed during the construction phase, at mixing sites, and temporary roads. o In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried	**Complied** o Monthly Environment Monitoring is being carried out and all the parameters are within the stipulated limit. o It is ensured that all vehicles entering the area have a valid PUC certification. o It is ensured that all the vehicles entering the site are following the speed limit. o Tarpaulin cover is used in vehicles. o Water sprinkling is carried out to arrest dust generation. o Environment awareness programs are being carried out for staff/contractors on a regular basis.

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			out at regular intervals to prevent dust. o Vehicles delivering materials should be covered to reduce spills and dust blowing off the load. o Environmental awareness program will be provided to the personnel involved in developmental works. o Use of tarpaulin covers and speed regulations for vehicles engaged in transportation.	
		Noise	o Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB. o Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A). o Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used o Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors. o Noise attenuation will be practiced for noisy equipment by employing suitable techniques	**Complied** o Ambient Noise is being monitored fortnightly for Day & Nighttime and results are within the prescribed limit. o Construction equipment machinery procurement is done in accordance with specifications conforming to the prescribed standards. o Personnel engaged in construction activity are provided with appropriate PPE's (Earplugs/muffs)

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			such as acoustic controls, insulation and vibration dampers. o High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimize noise impacts. o Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc. o Ambient noise levels will be monitored at regular intervals	
2	Construction of Buildings, Roads, Sheds, etc.	Vegetation and Strain on existing infrastructure	o Most of the land is covered with coconut trees and few other trees. Trees that are cut down will be accounted for and the same no. of trees of the same or some other species will be replanted at another location to compensate for the loss of greenery.	**Being Complied** o Care is taken to limit the felling of trees to the bare minimum. Due permission is taken for trees to be cut down because of the port development from the concerned department (Forest Department). o AVPPL, in collaboration with the Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department, for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the requirement of compensatory afforestation required for

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
				the entire Master Plan development of Vizhinjam Port.
		Water Environment	o The streams 1 and 2 will be made to avoid entering the warehouse area by diverging them into the Karichal River. o A tunnel like arrangement with RCC structures will be used so as to not affect the streams (3 and 4) that will go through the warehouse area. The streams will be made to go under the warehouse areas through the tunnel. o Another option is to divert the stream through the boundary o An application has been filed with the irrigation department for permission.	**Will be Complied** o Will be appropriately planned during the development stage. There is no work carried out during the compliance period.
			o The low lying area in the region is already made use by the local people, and has been degraded. There are no active ecological systems in the area. As far as possible, during operation phase the network of streams that add to the low lying area of the region will be diverted or channeled under the constructed buildings to avoid impact to the low lying area. o Filling of low lying areas (if required) shall be done	**Will be Complied** o Will be appropriately planned during the development stage. There is no work carried out during the compliance period. o In G.O. dated GO(MS)No.27/2022/AGRI dated 18.04.2022, the government verified the area in detail and have given permission and order for the conversion of the 24.7980 Ha of paddy land for use of port activities.

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			o Construction waste such as cement, paint, and other construction waste will flow into the downstream parts of the streams and Karichal River. Construction will be avoided during rainy season. Good housekeeping practices, such as cement being stored in dry areas will be taken care of. Labour camps will be provided with proper support services.	**Will be Complied** o Will be appropriately planned during the development stage. There is no work carried out during the compliance period.
		Disturbance to Natural Drainage pattern	o As mentioned above, formidable measures will be taken to avoid the disturbance to the natural flow of water. If some structure or building comes in the way of the existing flow of water, the flow will be redirected to the closest stream in the drainage pattern. o In sections along watercourses, earth and stone will be properly disposed of so as not to block rivers and streams, thereby preventing any adverse impact on water quality. o All necessary measures shall be taken to prevent earthworks and stone works from impeding cross drainage at streams and canals or existing irrigation and drainage systems in conformity EMP.	**Will be Complied** o Will be appropriately planned during the development stage. There is no work carried out during the compliance period.
		Existing Traffic	o Transportation of construction materials will	**Will be Complied**

Environment Management Plan – Warehouse Area* (Construction Phase) *No work was carried out in Warehouse area during compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			be carried out during non- peak hours. o Regularization of truck movement. o Existing roads shall be strengthened and shall be used for the construction material transportation.	
3	Solid Waste Management	Soil quality	o Construction waste will be used within warehouse site for filling of low lying areas. o Composted bio-degradable waste will be used as manure in greenbelt. Other recyclable wastes will be sold. o Excavated soil will be stockpiled in a corner of the site in bunded area to avoid run off with storm water. o General refuse generated on-site will be collected in waste skips and separated from construction waste. o Burning of refuse at construction sites will be prohibited.	**Will be Complied** o Will be appropriately planned during the development stage. There is no work carried out during the compliance period.

Project Annex Facility (PAF) Zone - Construction Phase *Construction work was carried out in a limited way during the compliance period in PAF Zone				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
1	Material transport and construction activities	Air Quality/Dust	o To reduce impacts from exhausts, emission control norms will be enforced / adhered. o All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards. o Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt. o Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc. o Provide enclosures on all sides of construction site o Movement of material will be mostly during non-peak hours. o On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic o Water should be sprayed during the construction phase, at mixing sites, and temporary roads o In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried out at regular intervals to prevent dust.	**Complied** o Monthly Ambient Air Monitoring is being carried out and all the parameters are within the stipulated limits. o It is ensured that all vehicles entering the area have a valid PUC certification o Vehicles entering the site are following speed limit. o Tarpaulin cover is used for vehicles transporting the construction material o Water sprinkling is carried out on the temporary roads by contractors o Environment awareness program is provided to the personnel engaged in development work

Project Annex Facility (PAF) Zone - Construction Phase *Construction work was carried out in a limited way during the compliance period in PAF Zone				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			o Vehicles delivering materials should be covered to reduce spills and dust blowing off the load. o Environmental awareness program will be provided to the personnel involved in developmental works. o Use of tarpaulin covers and speed regulations for vehicles engaged in transportation.	
		Noise	o Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB. o Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A). o Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used o Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors. o Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers. o High noise generating activities such as piling	**Complied** o Ambient Noise is being monitored fortnightly for Day & Nighttime and results are within the prescribed limits. o Construction equipment machinery procurement is done in accordance with specifications conforming to the prescribed standard. o Personnel engaged in construction activity are provided with appropriate PPE's (Earplugs/muffs).

Project Annex Facility (PAF) Zone - Construction Phase *Construction work was carried out in a limited way during the compliance period in PAF Zone				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimise noise impacts. o Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc. o Ambient noise levels will be monitored at regular intervals	
2	Construction of Buildings, Roads, Parking features, etc.	Vegetation and Strain on existing infrastructure	o Most of the land is covered with coconut trees and few other trees. Trees that are cut down will be accounted for and the same no. of trees of the same or some other species will be replanted at another location to compensate for the loss of greenery. o There are very few existing buildings and infrastructure on the PAF zone area land which will be acquired and people in that area will be rehabilitated.	**Being Complied** o Due permission is taken for trees to be cut down because of the port development from the concerned department (Forest Department). o AVPPL, in collaboration with the Forest department, have carried out planting of 40,040 trees in two Phases in adequate land as identified by social Forest Department, for a total area of 29.65 Ha spending Rs. 254.50 Lakhs. This has sufficiently covered the requirement of compensatory afforestation required for the entire Master Plan development of Vizhinjam Port. o Land acquisition has been completed by following due process.

Project Annex Facility (PAF) Zone - Construction Phase *Construction work was carried out in a limited way during the compliance period in PAF Zone				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
		Existing Traffic	o Transportation of construction materials will be carried out during non-peak hours. o Regularization of truck movement. o The existing roads shall be strengthened and shall be used for the construction material transportation.	**Being Complied** o Transportation of construction materials is being carried out considering the non-peak traffic timing and local restrictions during festivals, strikes, etc. o Traffic monitoring & regularization is being carried out for maximum efficiency. o Existing roads are being used for transportation of construction material.
		Solid Waste	o Construction waste will be used within port site for filling of low lying areas. o Composted bio-degradable waste will be used as manure in greenbelt. Other recyclable wastes will be sold. o Excavated soil will be stockpiled in a corner of the site in bunded area to avoid run off with storm water. o General refuse generated on-site will be collected in waste skips and separated from construction waste. o Burning of refuse at construction sites will be prohibited.	**Being Complied** o Construction waste is used within port site for filling of low-lying areas in line to C&D Waste Management Rules 2016, as amended. o No burning of refuse at construction sites is being done. o Contractors working at the site have been made responsible for management of Solid Waste during construction stage. They are complying with the provisions pertaining to management of Solid Waste in line to Solid Waste Management Rules 2016, as amended.

BACK UP AREA – Construction Phase Construction of buildings is ongoing in reclaimed area during the compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
1	Material transport and construction activities	Air Quality	o To reduce impacts from exhausts, emission control norms will be enforced / adhered. o All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards o Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt o Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc. o Provide enclosures on all sides of construction site o Movement of material will be mostly during non-peak hours. o On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic o Water sprinkling will be carried out to suppress fugitive dust o Environmental awareness program will be provided to the personnel involved in developmental works o Use of tarpaulin covers and speed regulations for vehicles engaged in transportation	**Being Complied** o Ambient air quality monitoring is carried out at 5 locations (including one location at port site) as per the Environment Monitoring Plan prescribed in EIA and has commenced in August 2016. The results obtained are within the limits prescribed by NAAQS. o It is ensured that all vehicles entering the port have PUCs. o Water sprinkling is being carried out at regular intervals over the temporary road during transportation of materials. o All the trucks transporting material are covered by tarpaulin cover. o Signage's for speed control are placed within the port area. o Adequate storage for construction material is provided within the port area on reclaimed land. o Environmental awareness program is being regularly carried out for contractors working at site.

BACK UP AREA – Construction Phase Construction of buildings is ongoing in reclaimed area during the compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
		Noise	o Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB o Procurement of machinery/construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A) o Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used o Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors o Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers o High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimise noise impacts o Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc. o Ambient noise levels will be monitored at regular intervals	**Being Compiled** o All the machinery and vehicles are maintained to keep the noise at minimum. o Regular Ambient Noise monitoring is being carried out as per the Environmental Monitoring Plan prescribed in EIA since August 2016, and the readings are within the limits at port site. o Personnel exposed to noise levels beyond threshold limits are provided with protective gear.

BACK UP AREA – Construction Phase Construction of buildings is ongoing in reclaimed area during the compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
2	Construction Activities	Water Environment	o Formation level should be raised according to the design and the cross drainage structures suitably planned for the flood events. o All justifiable measures will be taken to prevent the wastewater produced during construction from entering directly into the water bodies.	**Being Compiled** o During the construction, care was taken such that the formation level is as per suitable design and the cross-drainage structures are also being implemented. o An STP of 50 KLD will be developed along with the port and the sewerage and storm water flow from two streams near the port will be treated in the proposed STP. o No wastewater is disposed into the water bodies.
		Land Environment	o On slopes and other suitable places along the two proposed corridors, trees and grass should be planted. o On sections with filling and deep cutting their slopes should be covered by sod, or planted with grass, etc. o If existing irrigation and drainage system, ponds are damaged, they will be suitably repaired. o Retaining walls and gabions shall be suitably provided.	**Being Complied** o Plantation of saplings along the port boundary is being carried out as a part of the master plan development/greenbelt development plan. o Retaining walls or gabions are suitably provided.
			o Arable land should not be used for topsoil borrowing. o Topsoil will be kept and reused after excavation is over.	**Being Complied** o Topsoil is not being used for borrowing. o If any topsoil needs to be excavated, the same will be stored in a designated area

BACK UP AREA – Construction Phase Construction of buildings is ongoing in reclaimed area during the compliance period				
S. No.	**Activity**	**Relevant Environmental Components likely to be impacted**	**Proposed Mitigation Measures**	**Status as on 31.03.2024**
			o Any surplus to be used on productive agricultural land.	and will be utilized for greenbelt development as per the greenbelt development plan.
			o Construction vehicles should operate within the Backup Areas avoiding damage to soil and vegetation.	**Being Complied** o Construction vehicles are being operated only alongside the road and port boundaries; thereby avoiding damage to soil and vegetation.
			o Areas of trees cleared will be replaced according to Compensatory Afforestation Policy under the Forest Conservation Act - 1980. o Landscaping shall be done at major junctions.	Refer point No.15 of Environment Management Plan – Road/Rail Corridors
			o Tree clearing within the backup areas should be avoided beyond that which is directly required for construction activities and/or to reduce accidents.	**Being Complied** o Tree clearing is done only for the purpose of development of port and/or for avoiding causalities due to natural calamities where the trees were standing very dangerously.

Annexure VII

Solid Waste Management Report

(October 2023 to March 2024)

HALF YEARLY REPORT
Solid Waste Management at Vizhinjam Port

October 2023 - March 2024

Client: Adani Vizhinjam Port Pvt. Ltd.
01, Port Operation Building, Vizhinjam Seaport, Mulloor P.O., Vizhinjam,
Thiruvananthapuram - 695521, Kerala, India

Contractor: Qrex Bio Solutions Pvt. Ltd.
Door No.26/391(11), Sathabdhi Smaraka Building, Municipal Market,
Market Road, Attingal, Thiruvananthapuram - 695 101, Kerala

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1 Introduction

Qrex Bio Solutions Pvt. Ltd, a reputable company in the field of waste management, has been actively engaged in various initiatives aimed at promoting sustainable environmental practices. With a proven track record spanning 23 years, we have consistently played a central role in the conception, development, and execution of impactful waste management projects across diverse sectors.

Our commitment to excellence and innovation has been demonstrated through our involvement in municipal, industrial, and commercial waste management projects. The versatility and expertise of Qrex Bio Solutions Pvt. Ltd have been showcased through the successful implementation of effective waste management strategies. Notably, our organization introduced innovative composting techniques to the Attingal Municipality, resulting in a substantial reduction of 4500 tons of organic waste sent to landfills annually.

At Qrex Bio Solutions Pvt. Ltd, we pride ourselves on utilizing cutting-edge technologies such as windrow composting, vermicomposting, bio methanation, and black soldier fly methods. These advanced techniques are instrumental in contributing to a cleaner environment and promoting a more responsible approach to waste management.

We express our sincere gratitude for the trust placed in us by Adani Vizhinjam Port Pvt. Ltd. (AVPPL) as reflected in the service order (Order no 5702011963, Date 11.07.2023). With this opportunity, we are committed to ensuring that all solid waste management processes are executed effectively and with the utmost dedication.

2 Scope of Work

This project of waste management at Vizhinjam Seaport aims to achieve Zero Waste to Landfill of waste generated from the Port through end-to-end solutions in coordination with environment department of AVPPL. Qrex has been made responsible for handling solid waste management activities from Collection, Segregation, Transportation, Treatment till final disposal of all the various types of organic and inorganic domestic solid waste being generated at Vizhinjam port and managing with 5R principles of waste management (Reduce- Reprocess-Reuse-Recycle & Recover), aligned with all govt. rules & regulations.

2.1 Responsibility

- Waste collection & transportation from various locations in the Vizhinjam port site and specified AVPPL locations within a radius of 2 km outside the project site.
- Waste from AVPPL locations not within the port processed separately outside of the port site.
- Sorting and segregation and management of segregated waste.

- Ensuring collected waste undergoes proper disposal procedures through approved and authorized channels and submit the required documentation to uphold environmental standards and regulatory compliance.
- Recycle/disposal certificates/receipts from Pollution Control Board (PCB) approved/authorized agencies provided to AVPPL.

3 Activity Overview

This comprehensive waste management process involves the systematic collection, handling, and disposal of various types of waste generated by vessels, construction and operations, and related activities. The primary objective is to mitigate the environmental impact of maritime and land ward side operations while complying with international regulations and standards to create a cleaner and more sustainable environment within the port premises and beyond. Our company focused on prioritizing environmental cleanliness and implemented various activities to achieve this goal.

October 2023 – March 2024 activities are described as follows.

3.1 Daily Activities

A significant aspect of our activities involves the daily collection of waste from strategically placed bins throughout the port premises. During this period, we maintained our rigorous collection schedule, ensuring that waste was properly sorted and segregated according to designated categories for efficient disposal. Our team meticulously gathered waste from these bins daily apart from Sundays (Weekly off), thereby promoting an organized waste management system. Our daily activities are detailed in the following sections.

3.1.1 Bin Monitoring

Our team employs a proactive approach by closely monitoring waste bins placed strategically throughout the port. Through regular checks, we ensure that waste bins are not allowed to overflow, preventing litter accumulation and potential hazards.

Table 1: Waste Bin Details

S. No.	Waste Bin Locations	Waste Bin	Qty (Set of 2: Dry & Wet)
1	GIS Building, Mukkola	Bin 1	1
2	Police Aid Post	Bin 2	1
3	Substation	Bin 3	1
4	Main Gate	Bin 4	1
5	Security Building	Bin 5	1
6	CSR Canteen	Bin 6	1
7	Dredging Canteen	Bin 7	1
8	POB	Bin 8	1

9	Workshop Building	Bin 9	1
10	Outside Workshop Building	Bin 10	1
11	RMU Building	Bin 11	1
TOTAL			**11**

Bin 1

Bin 2

Bin 3

Bin 4

Bin 5

Bin 6

Bin 7

Bin 8

Bin 9

Bin 10

Bin 11

Figure 1: Strategically Placed Waste Bins in the Port

3.1.2 Collection of waste from bins

Waste Collection:

Our team diligently collects waste from the designated bins placed throughout the port premises on a daily basis. Our waste collection team adheres to a predetermined schedule. Every morning

our team initiates a comprehensive waste collection effort within the port premises. Our trained personnel follow waste handling protocols, employing appropriate safety equipment and techniques to collect waste efficiently.

Figure 2: Collection of waste from strategically placed Bins

3.1.3 Weighing and Segregation of Collected Waste

Weighing:

Each day, our team ensures that the accumulated waste undergoes a systematic weighing process and is documented in daily and monthly reports.

Segregation:

Waste is segregated at the point of collection to separate different types of waste, such as general waste, recyclables, and more. This initial sorting streamlines the recycling process.

Figure 3: Waste Segregation

Transport to Processing Centre:

Collected waste is transported to a centralized processing centre equipped to handle different waste types. This reduces transportation-related emissions and facilitates efficient waste management.

Figure 4: Transportation of Waste

Sorting Facility:

At the processing centre, waste undergoes further sorting to categorize materials accurately. Automated and manual sorting processes are employed to separate recyclable materials from non-recyclables.

3.1.4 Emergency Response

Our waste collection team remains prepared to address urgent waste disposal needs, responding promptly to unexpected situations or spills that require immediate attention.

3.2 Waste Audit and Reporting

We conduct regular waste audits to assess our waste management processes and generate detailed reports for analysis.

3.2.1 Month Wise Waste Collection Report October 2023 - March 2024

Waste collection details are provided in the tables below:

Table 2: Waste Collection Details October 2023

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermo-col	Wood	Tin	Glass
	Quantity in kg								
01.10.23	Sunday (Weekly Off)								
02.10.23	56.0	12.0	28.7	-	4.9	-	-	-	-
03.10.23	61.1	11.1	26.9	-	5.9	0.7	-	0.1	-
04.10.23	57.5	14.8	22.7	-	2.3	-	0.2	-	-
05.10.23	71.7	10.2	34.4	0.9	9.4	-	-	-	-
06.10.23	72.5	7.9	33.6	-	4.5	1.6	-	0.2	-
07.10.23	63.8	7.5	26.4	0.2	3.0	-	2.9	-	-
08.10.23	Sunday (Weekly Off)								
09.10.23	64.8	11.8	31.4	-	11.9	-	-	-	-
10.10.23	76.7	13.5	36.0	-	13.2	-	-	-	-
11.10.23	63.6	12.9	33.0	-	4.6	2.1	-	-	-
12.10.23	76.3	14.7	40.0	-	7.9	-	15.1	0.2	-
13.10.23	72.8	14.7	41.7	-	7.0	-	6.3	-	-
14.10.23	71.5	18.6	47.0	1.2	18.3	-	-	-	-
15.10.23	67.8	16.5	41.7	-	12.6	-	-	-	-
16.10.23	89.9	20.9	55.9		7.4	4.9	-	-	-
17.10.23	72.7	14.3	45.1	-	5.6	-	-	-	-
18.10.23	62.4	10.7	38.0	-	7.6	-	-	-	-
19.10.23	79.6	15.1	36.4	-	12.3	-	0.1	-	-
20.10.23	78.2	10.4	32.7	-	3.4	-	-	-	-
21.10.23	76.7	11.1	43.3	-	4.7	0.6	-	-	-
22.10.23	Sunday (Weekly Off)								
23.10.23	83.0	12.7	42.1	-	6.5	-	-	-	-
24.10.23	71.3	9.6	33.3	0.2	5.3	2.1	0.2	-	-
25.10.23	80.0	12.6	40.7	-	5.6	-	-	-	-
26.10.23	83.2	10.2	48.6	-	2.1	-	47.2	-	-
27.10.23	68.9	11.2	38.2	-	2.6	-	-	-	-
28.10.23	51.9	9.3	28.9	-	2.4	1.7	0.1	-	-
29.10.23	Sunday (Weekly Off)								
30.10.23	93.9	14.6	50.8	-	5.0	-	-	0.2	-
31.10.23	76.3	12.3	39.9	-	8.4	-	-	-	-
Total	**1944.1**	**341.2**	**1017.4**	**2.5**	**184.4**	**13.7**	**72.1**	**0.7**	**0**

Table 3: Waste Collection Details Nov 2023

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
01.11.23	69.3	15.9	30.3	-	8.7	-	-	0.6	-
02.11.23	74.1	23.1	21.9	-	7.6	-	-	0.8	-
03.11.23	78.0	15.1	30.6	-	5.8	-	-	-	-
04.11.23	43.5	12.3	20.6	-	2.3	-	-	1.4	-
05.11.23	Sunday (Weekly Off)								
06.11.23	81.3	20.7	35.1	-	9.4	-	-	-	-
07.11.23	83.4	14.7	30.4	-	8.3	-	-	-	-
08.11.23	76.2	17.0	31.3	-	6.2	-	-	1.8	-
09.11.23	84.0	15.1	33.0	0.1	57.3	-	-	-	-
10.11.23	81.1	15.4	36.8	-	14.9	-	-	0.4	-
11.11.23	57.7	14.2	21.2	-	8.2	-	-	-	-
12.11.23	Sunday (Weekly Off)								
13.11.23	87.3	23.8	32.4	-	7.8	-	-	0.6	-
14.11.23	86.9	18.7	33.6	-	7.5	-	-	-	-
15.11.23	76.1	19.7	32.8	-	8.4	-	-	0.8	-
16.11.23	78.3	18.7	26.5	-	3.2	-	-	-	-
17.11.23	78.3	23.5	32.3	-	8.5	-	-	0.4	-
18.11.23	61.0	14.8	32.0	0.2	2.9	-	-	-	-
19.11.23	Sunday (Weekly Off)								
20.11.23	85.9	17.4	32.6	-	9.5	-	-	-	-
21.11.23	82.6	19.3	28.3	-	30.0	-	-	0.8	-
22.11.23	80.7	12.7	25.0	-	26.8	-	-	-	-
23.11.23	82.2	19.5	23.9	-	11.0	-	-	-	-
24.11.23	74.9	18.8	30.5	0.1	9.6	-	-	0.8	-
25.11.23	63.7	14.9	19.9	-	8.2	-	-	-	-
26.11.23	Sunday (Weekly Off)								
27.11.23	87.8	22.9	31.4	-	8.0	-	-	-	-
28.11.23	86.0	18.9	33.2	-	13.5	-	-	0.4	-
29.11.23	72.4	19.5	30.9	-	5.2	-	-	-	-
30.11.23	81.4	17.5	24.8	-	9.4	-	-	1.2	-
Total	**1994.1**	**464.1**	**761.3**	**0.4**	**298.2**	**0**	**0**	**10.0**	**0**

Table 4: Waste Collection Details December 2023

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
01.12.23	70.4	13.7	27.8	-	5.7	-	-	-	-
02.12.23	59.1	12.0	20.3	-	4.6	-	-	-	-
03.12.23	Sunday (Weekly Off)								

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
04.12.23	99.2	22.1	29.5	-	9.5	-	-	-	-
05.12.23	79.8	12.8	30.9	-	4.9	-	-	-	-
06.12.23	81.4	19.2	33.1	-	10.4	-	-	-	-
07.12.23	76.0	13.7	26.7	-	2.4	-	-	-	-
08.12.23	84.8	16.9	31.0	-	3.2	-	-	-	-
09.12.23	56.3	11.8	18.9	-	7.0	-	-	-	-
10.12.23	Sunday (Weekly Off)								
11.12.23	86.6	17.6	36.1	-	9.0	-	-	-	-
12.12.23	86.4	18.1	29.1	-	5.1	-	-	-	-
13.12.23	84.4	17.8	21.3	-	5.6	-	-	-	-
14.12.23	91.3	14.4	25.4	-	6.6	-	-	-	-
15.12.23	84.0	11.6	26.1	-	6.3	-	-	-	-
16.12.23	60.5	8.9	19.7	-	4.0	-	-	-	-
17.12.23	Sunday (Weekly Off)								
18.12.23	101.3	19.9	33.4	-	8.2	-	-	-	-
19.12.23	83.7	16.4	27.4	-	5.2	-	-	-	-
20.12.23	77.5	16.7	29.7	-	11.9	-	-	-	-
21.12.23	86.7	18.8	28.0	-	7.8	-	-	-	-
22.12.23	84.0	17.1	25.3	-	6.9	-	-	-	-
23.12.23	67.6	11.2	23.0	-	23.5	-	-	-	-
24.12.23	Sunday (Weekly Off)								
25.12.23	93.8	22.0	32.8	-	8.5	-	-	-	-
26.12.23	83.7	18.3	30.3	-	4.4	-	-	-	-
27.12.23	93.3	19.2	28.4	-	5.5	-	-	-	-
28.12.23	82.7	21.4	29.8	-	30.7	-	-	-	-
29.12.23	80.4	18.0	27.4	-	6.6	-	-	-	-
30.12.23	87.0	18.3	26.0	-	10.1	-	-	-	-
31.12.23	Sunday (Weekly Off)								
Total	**2121.9**	**427.9**	**717.4**	**0**	**213.6**	**0**	**0**	**0**	**0**

Table 5: Waste Collection Details January 2024

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
01.01.24	86.9	14.1	17.2	-	8.8	0.4	-	-	-
02.01.24	92.2	14.2	20.0	-	1.9	0	-	-	-
03.01.24	98.3	17.6	20.7	-	4.3	0	-	-	-

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
04.01.24	92.8	13.0	16.2	-	11.3	2.2	-	-	-
05.01.24	92.9	14.8	18.5	-	10.1	0.6	-	-	-
06.01.24	74.1	12.5	12.9	-	5.4	0	-	-	-
07.01.24	Sunday (Weekly Off)								
08.01.24	118.9	17.5	22.4	-	1.9	0	-	-	-
09.01.24	99.6	18.8	19.0	-	5.5	0	-	-	-
10.01.24	100.6	15.5	16.3	-	10.0	0.2	-	-	-
11.01.24	110.9	16.2	17.6	-	0.8	0	-	-	-
12.01.24	106.0	16.5	17.9	-	17.7	1.2	-	-	-
13.01.24	95.2	11.9	15.0	-	1.4	0	-	-	-
14.01.24	Sunday (Weekly Off)								
15.01.24	125.2	18.5	17.6	-	8.9	0.1	-	-	-
16.01.24	107.8	15.7	19.2	-	3.7	0	-	-	-
17.01.24	117.9	16.4	21.1	-	16.4	0	-	-	-
18.01.24	119.4	19.3	21.3	-	12.9	0.9	-	-	-
19.01.24	112.4	15.7	20.6	-	4.4	0	-	-	-
20.01.24	101.3	13.8	14.5	-	7.0	0.2	-	-	-
21.01.24	Sunday (Weekly Off)								
22.01.24	127.1	18.5	21.6	-	7.5	0.1	-	-	-
23.01.24	119.2	20.0	19.0	-	4.2	0	-	-	-
24.01.24	111.1	18.7	20.1	-	7.3	0	-	-	-
25.01.24	111.8	16.8	21.8	-	7.0	0	-	-	-
26.01.24	117.9	15.2	15.7	-	7.8	0.1	-	-	-
27.01.24	95.3	13.0	17.6	-	7.3	0	-	-	-
28.01.24	Sunday (Weekly Off)								
29.01.24	134.2	22.0	22.6	-	8.3	0	-	-	-
30.01.24	113.9	15.2	19.2	-	6.7	0.2	-	-	-
31.01.24	133.6	16.9	21.4	-	6.6	0.2	-	-	-
Total	**2916.5**	**438.3**	**507.0**	**0**	**195.1**	**6.4**	**0**	**0**	**0**

Table 6: Waste Collection Details February 2024

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
01.02.24	109.3	14.8	20.1	-	3.6	-	-	-	-
02.02.24	111.1	17.2	18.5	-	6.4	-	-	-	-

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
03.02.24	89.4	9.4	16.1	-	5.2	-	-	-	-
04.02.24	Sunday (Weekly Off)								
05.02.24	133.9	18.0	21.2	-	4.7	-	-	-	-
06.02.24	122.3	14.5	20.4	-	5.1	2.6	-	-	-
07.02.24	117.7	12.0	18.1	-	3.8	1.3	-	-	-
08.02.24	103.5	12.3	17.5	-	6.4	1.8	-	-	-
09.02.24	122.3	15.0	16.9	-	4.7	1.4	-	-	-
10.02.24	92.0	9.8	12.3	-	4.2	-	-	-	-
11.02.24	Sunday (Weekly Off)								
12.02.24	142.1	19.4	22.4	-	9.5	2.3	-	-	-
13.02.24	122.6	13.8	16.9	-	9.2	-	-	-	-
14.02.24	134.6	16.5	22.2	-	4.9	-	-	-	-
15.02.24	142.6	14.6	19.7	-	5.8	-	-	-	-
16.02.24	134.4	16.3	23.4	-	6.3	1.6	-	-	-
17.02.24	116.9	14.4	17.4	-	4.6	-	-	-	-
18.02.24	Sunday (Weekly Off)								
19.02.24	139.0	19.9	22.8	-	9.8	3.2	-	-	-
20.02.24	132.3	17.0	19.8	-	37.1	-	-	-	-
21.02.24	141.5	16.3	23.0	-	4.4	2.8	-	-	-
22.02.24	140.0	16.3	20.4	-	7.4	1.6	-	-	-
23.02.24	137.6	15.1	20.6	-	3.4	1.6	-	-	-
24.02.24	124.7	14.0	17.5	-	19.7	3.4	-	-	-
25.02.24	Sunday (Weekly Off)								
26.02.24	137.4	19.5	22.9	-	26.1	2.8	-	-	-
27.02.24	130.4	17.9	21.5	-	8.3	0.6	-	-	-
28.02.24	138.7	16.7	21.3	-	8.3	-	-	-	-
29.02.24	133.7	15.9	20.7	-	25.0	2.9	-	-	-
Total	**3150.0**	**386.6**	**493.6**	**0**	**233.9**	**29.9**	**0**	**0**	**0**

Table 7: Waste Collection Details March 2024

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
01.03.24	132.4	14.4	19.1	-	9.3	0.4	-	-	0.9
02.03.24	140.1	14.0	16.8	-	14.6	-	-	-	-

Date	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
03.03.24	Sunday (Weekly Off)								
04.03.24	156.7	23.4	28.1	-	4.1	0.1	-	1.2	1.4
05.03.24	129.8	16.9	22.2	-	5.2	0.3	-	-	0.2
06.03.24	130.5	19.0	19.6	-	6.3	0.8	-	-	0.2
07.03.24	136.3	21.4	21.5	-	2.1	-	-	-	0.3
08.03.24	135.9	17.0	25.9	-	3.1	-	-	1.6	0.7
09.03.24	54.8	15.6	17.5	-	7.2	0.7	-	-	-
10.03.24	Sunday (Weekly Off)								
11.03.24	149.6	18.0	26.8	-	11.1	0.2	-	-	1.4
12.03.24	138.0	18.3	23.4	-	9.3	0.4	-	-	0.2
13.03.24	137.7	16.2	20.4	-	6.1	0.1	-	1.6	0.8
14.03.24	151.3	18.9	21.5	-	20.6	2.4	-	-	0.2
15.03.24	136.0	15.1	21.4	-	4.1	1.8	-	-	0.3
16.03.24	138.2	19.1	16.0	-	3.6	-	-	-	0.9
17.03.24	Sunday (Weekly Off)								
18.03.24	148.4	19.6	20.5	-	5.5	0.4	-	-	0.7
19.03.24	129.9	16.6	16.4	-	4.0	-	-	1.2	1.2
20.03.24	14.8	3.1	2.0	-	-	-	-	-	0.8
21.03.24	-	-	0	-	-	-	-	-	-
22.03.24	86.1	14.8	20.2	-	5.8	-	-	-	-
23.03.24	114.8	13.2	15.6	-	2.7	-	-	1.2	-
24.03.24	Sunday (Weekly Off)								
25.03.24	133.1	22.4	22.8	-	10.8	1.0	-	-	1.2
26.03.24	135.5	22.1	18.4	-	6.3	0.7	-	-	0.9
27.03.24	121.7	15.8	16.6	-	3.0	-	-	-	1.2
28.03.24	134.8	18.7	17.8	-	6.4	-	-	-	0.4
29.03.24	136.8	17.6	17.8	-	3.0	-	-	1.6	1.3
30.03.24	128.5	18.2	16.7	-	4.7	0.6	-	-	0.8
31.03.24	Sunday (Weekly Off)								
Total	**3151.7**	**429.4**	**485.0**	**0**	**158.9**	**9.9**	**0**	**8.4**	**16.0**

3.2.2 Total Waste Collection Report October 2023 - March 2024

Item wise collection report October 2023 - March 2024 is given below:

Table 8: Total Waste Collection Report October 2023 - March 2024

Month	Food	Plastic	Paper	Metal Scrap	Card Board	Thermocol	Wood	Tin	Glass
	Quantity in kg								
Oct 2023	1944.1	341.2	1017.4	2.5	184.4	13.7	72.1	0.7	-
Nov 2023	1994.1	464.1	761.3	0.4	298.2	-	-	10.0	-
Dec 2023	2121.9	427.9	717.4	-	213.6	-	-	-	-
Jan 2024	2916.5	438.3	507.0	-	195.1	6.4	-	-	-
Feb 2024	3150.0	386.6	493.6	-	233.9	29.9	-	-	-
Mar 2024	3151.7	429.4	485.0	-	158.9	9.9	-	8.4	16.0
Total	**15278.3**	**2487.5**	**3981.7**	**2.9**	**1284.1**	**59.9**	**72.1**	**19.1**	**16.0**

Figure 5: Item Wise Waste Collection October 2023 - March 2024 2024

3.2.3 Total Bin Wise Collection (dry and wet) October 2023 - March 2024

Total bin wise collection (dry and wet) October 2023 - March 2024 is given below:

Table 9: Bin Wise Collection Details (Wet Waste) October 2023 - March 2024

S. No.	BIN	DRY WASTE (Quantity in kg)						
		Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Total
1	BIN 1	26.6	21.5	19.7	16.3	18.7	20.4	123.2
2	BIN 2	455.9	491.7	441.5	126.0	125.3	141.7	1782.1
3	BIN 3	24.2	19.8	22.3	17.8	18.4	19.6	122.1
4	BIN 4	392.7	303.3	221.3	183.6	144.6	141.0	1386.5
5	BIN 5	38.2	35.7	34.3	29.8	31.0	36.2	205.2
6	BIN 6	63.5	83.3	99.0	125.9	108.2	128.5	608.4
7	BIN 7	252.6	169.7	177.0	184.0	139.4	165.3	1088.0
8	BIN 8	213.9	251.3	174.5	283.1	397.5	350.3	1670.6
9	BIN 9	70.7	78.8	78.2	75.4	61.7	47.8	412.6
10	BIN 10	62.7	58.6	63.7	75.4	70.6	37.2	368.2
11	BIN 11	17.3	20.3	27.4	29.5	62.5	19.6	176.6
TOTAL		**1618.3**	**1534.0**	**1358.9**	**1146.8**	**1177.9**	**1107.6**	**7943.5**

Note:
Wet Waste (Food Waste)

Table 10: Bin Wise Collection Details (Dry Waste) October 2023 - March 2024

S. No.	BIN	WET WASTE (Quantity in kg)						
		Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Total
1	BIN 1	30.3	22.9	24.4	36.1	28.1	27.2	169.0
2	BIN 2	774	546.8	509.3	264.9	268.8	299.0	2662.8
3	BIN 3	21.3	30.5	29.9	29.3	30.5	35.8	177.3
4	BIN 4	351.6	391.3	337.9	352.8	324.5	344.5	2102.6
5	BIN 5	50.1	40.5	49.5	51.4	53.3	59.3	304.1
6	BIN 6	42.9	259.7	361.1	357.0	361.5	331.7	1713.9
7	BIN 7	474.1	497.2	534.7	564.0	550.6	491.1	3111.7
8	BIN 8	83.6	79.9	139.9	1093.2	1403.5	1425.6	4225.7
9	BIN 9	38.8	43.8	39.5	51.3	41.1	43.4	257.9
10	BIN 10	46.4	50.1	57.8	66.3	54.2	62.0	336.8
11	BIN 11	31.0	31.4	37.9	50.2	33.9	32.1	216.5
TOTAL		**1944.1**	**1994.1**	**2121.9**	**2916.5**	**3150.0**	**3151.7**	**15278.3**

Note:
Dry Waste (Plastic+Paper+Cardboard)

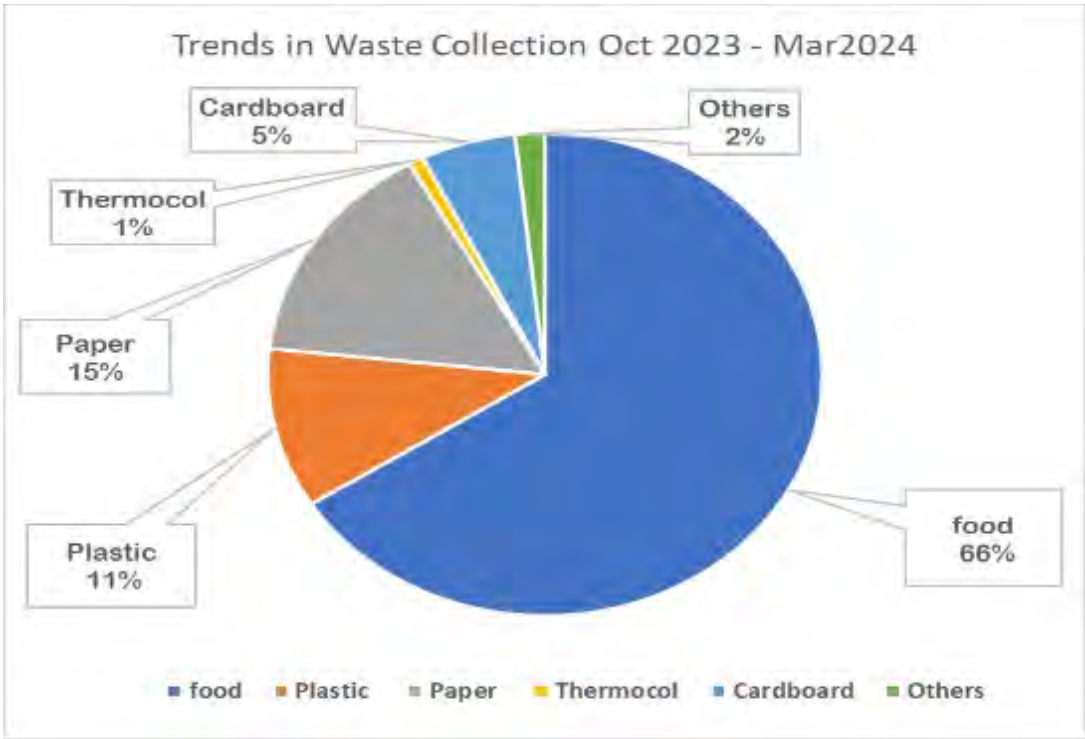


Figure 6: Trends in Waste Collection October 2023 - March 2024

Note:
Others (Metal Scrap, Wood, Tin, Glass)

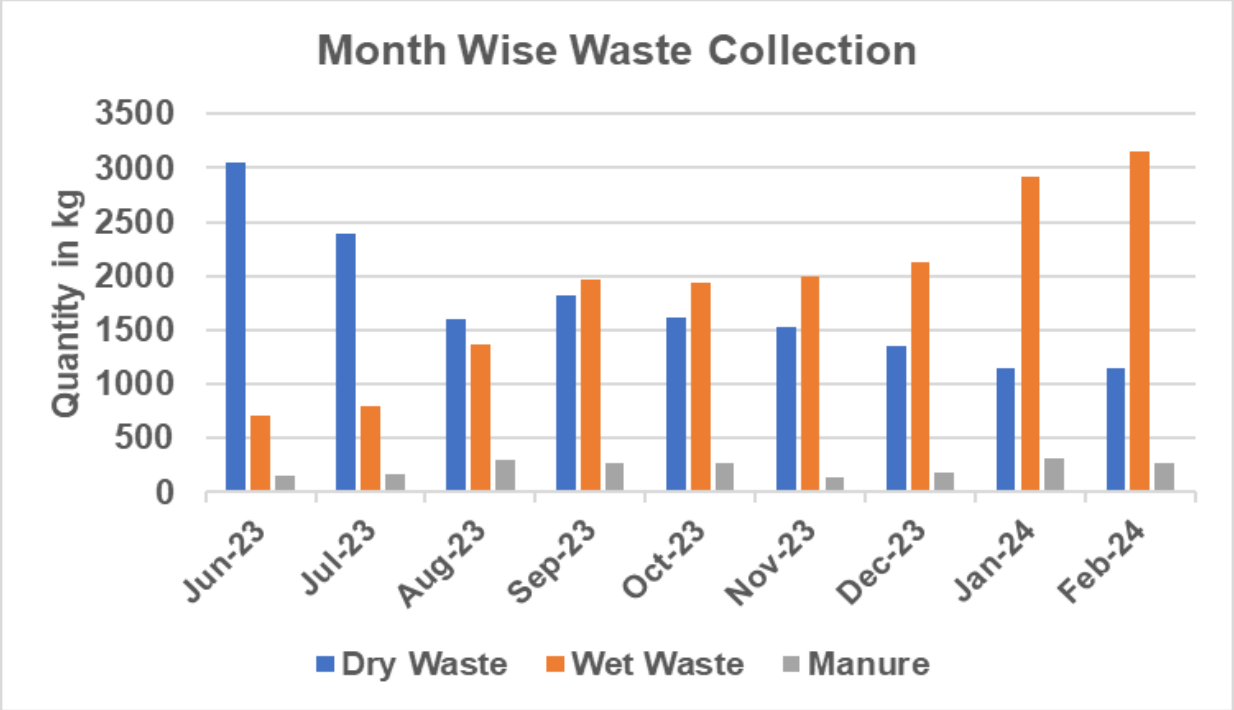


Figure 7: Month Wise Waste Collection Oct 2023 – Mar 2024

3.3 Other Activities

During the period from October 2023 to March 2024, our activities at the Adani Vizhinjam Port were marked by a good approach to environmental conservation and community engagement. The schedule was aimed at the port's cleanliness and promoting environmental awareness.
The activities are described as follows.

3.3.1 Drainage Cleaning Near Karimpallikara

Our commitment to maintaining a pollution-free environment extends to regular drainage cleaning activities. We encountered a drainage blockage issue resulting from the accumulation of plastic waste from the nearby local community at Karimpllikara. Our response and proactive approach ensured the swift removal of the blockage, allowing for unimpeded water flow and preventing potential health hazards.

Figure 8: Drainage Cleaning near Karimpallikara

During the cleaning process, trained personnel equipped with the necessary tools and equipment diligently remove debris, silt, and other potential obstructions from the drainage channels. By doing so, the flow of water was restored, minimizing the chances of flooding during heavy rainfall and reducing the likelihood of waterborne illnesses.

3.3.2 Port Environment Cleaning

Maintaining a pristine port environment is integral to our commitment to maritime sustainability. Our port environment cleaning program encompasses a range of practices designed to uphold the integrity of marine ecosystems, ensure operational excellence, and promote a safe and attractive port facility for all stakeholders. Our daily activities include street cleaning, drain cleaning, and the identification and mitigation of unauthorized disposal sites.

Figure 9: Daily Port Environment Cleaning Activities

Our cleaning teams conduct daily rounds to remove litter, debris, and waste from designated areas within the port. This routine prevents accumulation, enhances visual appeal, and minimizes the risk of pollution.

3.3.3 First Ship Berthing Event: Cleaning Activities

First ship berthing event (15 October 2023) cleaning activities conducted by AVPPL were a resounding success. During the clean-up, a substantial amount of waste was responsibly collected and managed, reflecting the port's proactive approach towards environmental stewardship.

Figure 10: First Ship Berthing Event: Cleaning Activities

3.3.4 Awareness Campaign in Port Operations Building's Canteen

In October 2023 - March 2024, an awareness campaign was initiated within the port operation building's canteen, targeting the establishment of efficient waste management practices. Through the sessions, employees and visitors were educated on the critical importance of segregating dry and wet waste for proper disposal.

Figure 11: Awareness Campaign in Port Operations Building's Canteen

As a result of the awareness campaign, a notable transformation was observed in waste disposal habits within the port operation building's canteen. Both employees and visitors showed a stronger commitment to segregating waste properly, thereby significantly reducing the mixing of dry and wet waste. We have installed a board for tracking daily dry and wet waste at the Port Operation Building. This initiative aims to identify and monitor the quantity of waste generated in Port Operation Building.

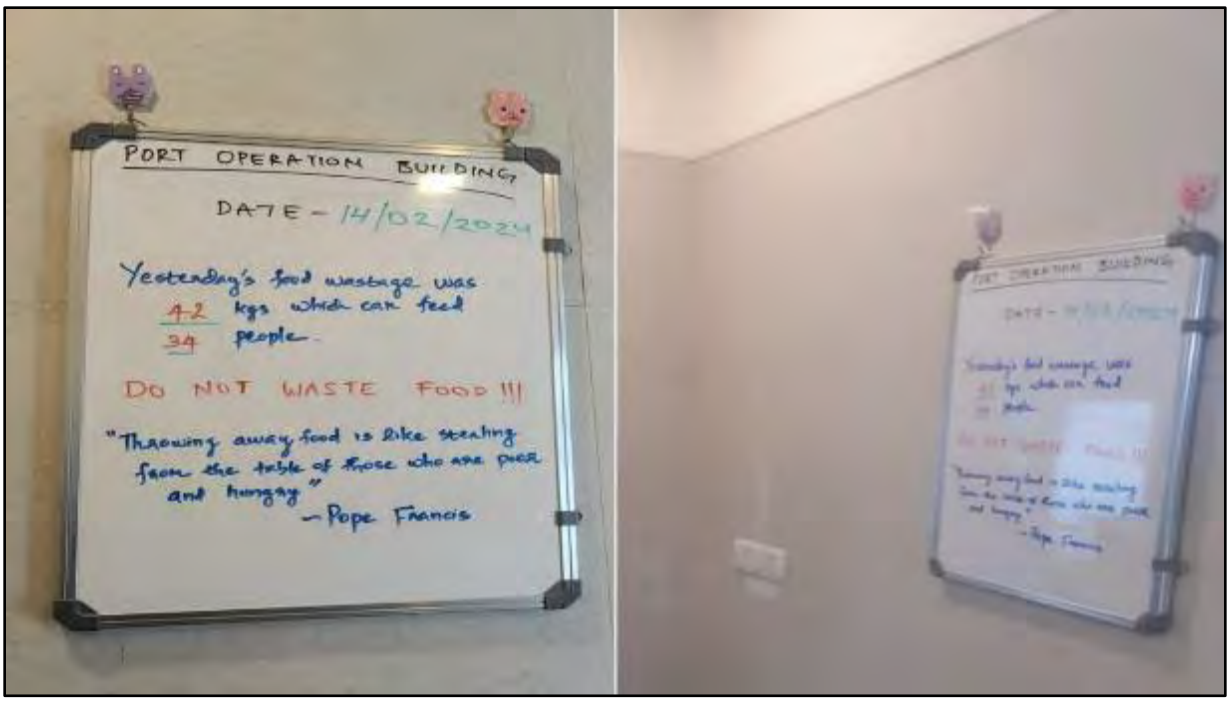


Figure 12: Board for tracking daily dry and wet waste at POB

We distributed cloth bags to the port workers, highlighting the benefits of using reusable bags over single-use plastic ones. The cloth bags, which are durable and environmentally friendly, serve as a practical solution for daily needs while reducing plastic waste.

Figure 13: Distribution of Cloth Bags

4 Waste Recycling and Decomposition

Waste Recycling and Decomposition activities are detailed in the following Sections.

4.1 Recycling and Treatment of Various Waste Types

Wet Waste:

Each day, we treat and compost 40 kg of wet waste using an Organic Waste Converter (OWC). This waste is carefully processed within the converter to facilitate rapid decomposition. The end result of process is a high-quality, nutrient-rich compost that serves as a valuable resource for agricultural initiatives, landscaping, and horticulture.

Figure 14: Composting Process using OWC

During this period, 15278.3 kg wet waste was collected and the OWC efficiently transformed the 5499.0 kg of wet waste into 1453.15 kg of high-quality organic manure. The remaining quantity of 9779.3 kg of wet waste is treated in Qrex's composting unit due to the limited capacity of the Vizhinjam Port OWC, which can process only around 40 kg per day. Currently manure is kept in the storage for handing over to Adani Foundation for use in the Farm School and Greenbelt/Landscape Development.

Figure 15: Manure Handover to Adani CSR Team for Agricultural/Farming Initiatives

Plastic:

Total of 2487.5 kg of plastic was collected. Embracing a responsible approach to recycling, we handed over 584.0 kg of recyclable plastic to scrap plastic buyers (annexure enclosed), ensuring these materials find new life in the production cycle, the remaining 1903.5 kg of plastic has been thoughtfully allocated to an authorized cement company for use in their process.

Paper:

3509.5 kg of paper has been collected and handed over to an authorized cement company.

Cardboard:

1284.0 kg of cardboard was collected from the port premises. Following the collection process, these recyclable materials are handed over to recycling unit (annexure enclosed).

Others:

During this period, we collected 2.9 kg of metal scrap,59.9 kg of thermocol,72.1 kg of wood,19.1 kg of tin and 16 kg of glass. Following the collection process, these recyclable materials are handed over to recycling unit (annexure attached).

5 Machinery Details

We operate in coordination with a range of machinery, including an Organic Waste Converter (OWC), Collection Vehicle, Waste Collection Bins, and various tools that aid our operations.

Table 11: Machinery Details

S. No.	Item	Qty	Owned by
1	Organic Waste Converter (OWC)	1	AVPPL
2	Collection Vehicle	1	Qrex
3	Waste Collection Bins	22	Qrex
4	Sprayers, Hand Tools, etc.	-	Qrex

6 Employee Details

Our dedicated team, consisting of a Manager, Driver Cum Supervisor, Workers, and Drivers, actively contributes to the success of our waste management initiatives.

Table 12: Employee Details

S. No.	Designation	Number
1	Manager	1
2	Driver Cum Supervisor	1
3	Worker	4
4	Driver	1

7 Initiatives and Future Plans

Our initiatives and future plans in waste management exemplify our dedication to a more sustainable future. By implementing innovative practices, engaging the community, and fostering responsible waste management habits, we are working towards creating a greener, cleaner, and more resilient port environment.

1. Enhanced Waste Sorting and Segregation:

Invest in advanced waste sorting technologies to improve the efficiency of separating recyclables, organic waste and general waste at source.

2.Introduction of New Recycling Programs:

We are actively working on introducing new recycling programs to enhance waste management practices at Vizhinjam Port.

3. Zero-Waste Port:

Our ultimate goal is to transform the port into a zero-waste facility, where waste generation is minimized, and the majority of waste is recycled.

4. Environmental Audits:

Conduct regular environmental audits to assess the environmental impact of waste management operations and identify areas for improvement.

8 Conclusion

Collection of 2487.5 kg of plastic have implemented recycling, redirecting 584.0 kg of recyclable plastic to scrap buyers and allocating the remaining quantity to an authorized cement company. Similarly, the collection of 3509.5 kg of paper has been handed over to an authorized cement company. Additionally, the collection of 1284.0 kg cardboard handed over to the authorized recycling unit. We collected 2.9 kg of metal scrap, 59.9 kg of thermocol, 72.1 kg of wood, 19.1 kg of tin and 16.0 kg of glass. These recyclable materials are handed over to recycling unit. By employing advanced processes, we ensure these materials contribute to a circular economy.

Table 13: Waste Collection Summary October 2023 to March 2024

S.No.	Waste Category	Quantity (kg)
1	Dry Waste (Plastic,Paper,Cardboard, etc..)	7943.50
2	Wet Waste (Food Waste,Vegetable Peels,Fruits,Leftovers,,etc..)	15278.30
Total Quantity		**23,221.80**

9 Annexure A

Annexure attached as follows:

Agreement 1

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

കേരളം केरल KERALA

DH 213223

Agreement for collection, transportation, segregation and disposal of non-recyclable wasteincludingmixednon-combustible,inertwasteasspecifiedintheSolidWasteManagementRules2015 for landfill sand combustible waste for furnace-based industries

Agreement from 01-01-2023 to 31-12-2025

This Agreement for collection, transportation, segregation and disposal of non-recyclable waste including mixed non-combustible, inert waste as specified in the Solid Waste Management Rules2016forlandfillsandcombustiblewasteforfurnace-basedindustries (hereinafter referred to as the "Agreement"),is made and entered into this 1st day of January 2023

By and between

12 MAY 2022

ForQrexbiosolutionsPrivateLtd

ForTiffotPrivateLtd

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

കേരളം केरल KERALA

DH 213222

Qrex bio solutions Private Ltd, a Company operated in Kerala represented by Sri Mohankumar, Managing Director and having its registered office at **26/391(1) Sathabdhi Smaraka Building, Municipal Market, Market Road ,Attingal, Tiruvananthapuram , Kerala** (Hereinafter referred to as the **"First Party/Qrex"**, which expression shall, unless repugnant to the context, mean and include its successors and assigns) of the One Part.

And

Tiffot Pvt Ltd, represented by Sri Rishad T N, Director having its Registered Office at **400/C, Ground Floor ,Kunnukara P O, Kunnukara, Ernakulam 683578**(Hereinafter referred to as the **"Tiffot "**which expression shall, unless repugnant to the context, mean and include its successors and assigns)of the Other Part.

ForQrexbiosolutionsPrivateLtd

ForTiffotPrivateLtd

2

Agreement 2

भारतीय गैर-न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

भारत INDIA

INDIA NON JUDICIAL

കേരളം केरल KERALA

DV 500130

SERVICE AGREEMENT FOR CO-PROCESSING OF NON –HAZARDOUS SOLID WASTE

This Service Agreement for Co-Processing of MUNCIPAL SOLID WASTE , (hereinafter referred to as "Agreement") is made and executed at Chennai on this 10th Jan 2023

BY AND BETWEEN

TIFFOT PRIVATE LIMITED (CIN :U37100KL2021PTC068732), a Company registered under the provisions of Companies Act -2013 and having its Registered Office at 400/C KUNNUKARA P O KUNNUKARA ,COCHIN , represented by its authorized signatory Mr. RISHAD T N, (PAN: AAICT5856E) hereinafter referred to as "TIFFOT", (which expression shall, unless repugnant to the context or contrary to the meaning thereof be deemed to mean and include its successors-in-title and permitted assigns) of the First Part;

AND

CHETTINAD CEMENT CORPORATION PRIVATE LIMITED (CIN: U93090TN1962PTC004947), a Company incorporated under the provisions of the Companies Act-1956 (Since repealed and consolidated

Director

For Chettinad Cement Corporation Private Limited

Authorised Signatory

18057 04/01/2023 100

Sold to TIFFOT PVT LTD

KUNNUKARA-

A. A. REVI

STA[illegible]PALANGAD

under the provisions of Companies Act-2013) and having its Registered Office at 4th Floor, Chettinad Towers, No.603, Anna Salai, Chennai, Tamil Nadu 600006 and Corporate office at Sigapi Achi Building, 18/3, Rukmani Lakshmipathy Road, Egmore, Chennai 600008, represented herein by its authorized signatory Mr.S.P.Meyyappan, (PAN :AAIPM5090K) hereinafter referred to as "CCCPL", (which expression shall unless it be repugnant to the context or contrary to the meaning thereof be deemed to mean and include its successors-in-title and permitted assigns)of the Second Part;

TIFFOT and CCCPL are hereinafter individually referred to as a "**Party**", and collectively referred to as the "**Parties**"

WHEREAS:

A. The TIFFOT is a Private Limited company incorporated in India and is involved in the business Management of municipal solid waste and it is recognized by Muncipal Corporation. Tiffot is involved in the business of collection, transportation, segregation and disposal of municipal waste have entered in agreement with Clean Kerala company limited is in search for a destination for disposal of plastic waste, footwear & bags which is generated during the Segregation process of Municipal Solid Waste (All Districts in Kerala through Clean Kerala Company Limited) in a manner compliant with applicable regulatios

II. CCCPL is involved in the business of producing, grinding, manufacturing, finishing, packing, repacking, mixing, grading, supplying, wholesaling, retailing of ordinary portland cement and portland pozzolana cement under its brand name "CHETTINAD CEMENT" and has plants located the following places

1. Puliyur Works,
Kumara Rajah Muthiah Nagar,
Puliyur CF Post, Karur District- 639 114
Tamil Nadu

2. Karikkali Works,
Rani Meyyammai Nagar,Vedasandur Taluk,
Karikkali Post, Dindigul District 624 703
Tamil Nadu

3. Ariyalur Works
Trichy-Ariyalur Road, Keelpaluvur
Ariyalur 621 707
Tamilnadu

4. Kallur Works
Survey No.5, Sangem.K Village, Bhaktampalli (Post), Chandapur S.O,
Chincholi, Gulbarga -585 305
Karnataka

5. Dachepalli Works
Sy.No 184, 185 etc., of Pedagarlapadu (V),
Sy.No 642 & 643 of Kesanupalli (V),
Dachepalli (M), Guntur – 522 414
Andhra Pradesh

and are desirous to foster and advance environmentally safe production practices.

C. The Management of CCCPL, as a responsible corporate citizen is very much keen on carrying out

For Chettinad Cement Corporation Private Limited

Authorised Signatory

Annexure VIII

EMP Expenditure

Annexure VIII

S. No.	Environmental Management Plan	Commitment in EIA	Oct 2023 to Mar 2024	Total Till Date
		(in Rs. Crores)		
1	Cost of Contractors EMP for all planned EMP implementation measures (Action plan report)	1	-	1.07
2	Cost of Capacity building- Training and Institutional strengthening (Training workshop)	0.2	-	0.05
3	Compensatory afforestation for the green cover lost for the port and its associated facilities (2500 plants per Ha for 25 Ha area)	1.25	-	2.54
4	Air quality monitoring at sensitive locations	0.252	0.08	3.812
5	Water quality monitoring at major water bodies	0.054		
6	Noise monitoring at sensitive locations	0.009		
7	Soil quality monitoring at sensitive locations	0.002		
8	Marine water quality and sediment and marine biology	1.08		
9	Shoreline changes	0.3	0.63	17.778
10	Cost of Median planting with a suitable species of creepers and metallic wire mesh fencing along the road (2000 m long median planting)	0.83	-	0.972
11	Solid waste management (sector wise)- Collection disposal system	2.5	0.18	0.595
12	Storm water Management	5	-	0.3
13	Marine Life Protection out of Oil Spill (Provision for scavenger boat) One tugboat with booms and skimmer and dust exhausting equipment	20	-	0
14	Cost of scavenger boat including manpower (Cost of boat)	0.2	0.02	0.03
15	Dust Sweeper (2 Nos.)	0.6	-	0
16	Air Pollution Control (Four water tankers for wetting of road surface and sprinkling system)	1	0.12	1.05
17	Water and wastewater treatment plants	4	-	0.025
18	Battery of toilets with bimonthly maintenance provision	1	-	0.53
19	Desilting and strengthen of Streams	0.5	-	0.6
20	Enhancement of water bodies (ponds along road & rail)	0.1	-	0.25
21	Enhancement of religious structures (Temple)	0.05	-	0.067
22	Cultural property rehabilitation cost for sacred grove	0.01	-	0
TOTAL		**39.937**	**1.03**	**29.669**

Annexure IX

Environment Health, Safety & CSR Organizational Structure

Annexure IX

Environment Health & Safety Organizational Structure:

S. No.	Name	Designation	Experience (Years)	Qualification	Organization
1.	Prasad Kurien	GM-Environment	30	B-Tech Civil Engg., M-Tech Env Engg., PMP	Vizhinjam International Seaport Ltd.
2.	Dr. Nehru Kumar Vaithilingam	Environmental Expert (Independent Engineer)	27	BE Civil Engg., ME Env Engg., PhD Env	Indian Institute of Technology Madras
3.	Dr. Anil Kumar Trivedi	AVP & Head Environment	23	Ph. D. in Environment (EIA), M.Tech. in Environment Management, Diploma in Industrial Safety, Certified professional in Ergonomics from BOSH (UK)	Adani Ports & Special Economic Zone Ltd. (APSEZ)
4.	Hebin C	Head – Environment	17	MS, Oceanography & Coastal Area Studies	Adani Vizhinjam Port Pvt. Ltd. (AVPPL)
5.	Anshul Sanduja	Manager - Environment	13	B. Tech – Chemical Engineering, M. Tech – Environment Engineering & Science, Post Graduate Diploma in Environment Law & Policy, Post Graduate Diploma in Environment Sustainability	APSEZ
6.	Jesse Benjamin Fullonton	Assistant Manager - Environment	13	BSc. Chemical Tech; Msc. Env. Tech	AVPPL

S. No.	Name	Designation	Experience (Years)	Qualification	Organization
7.	Arumugam S	Deputy Manager - Safety, Environment and Health	5	M.Tech – Industrial Safety Engineering	AVPPL
8.	Radha S	Engineer	9	MTech	AVPPL
9.	Limna B	Senior Assistant	16	Pre-degree, ITI	AVPPL
10.	Sreekutty SR	Horticulture Assistant	1	BSc Botany	AVPPL
11.	Shaji Joseph	Assistant Manager - HSE	16	Diploma in mechanical & Diploma in fire and safety, NEBOSH IGC, IOSH MS	HOWE
12.	Daison Jayanth E	Assistant Manager - HSE	13	B.E Mechanical Engineering, Advanced Diploma in Industrial Safety, NEBOSH IGC, IOSH MS, Lead Auditor	HOWE

CSR Organizational Structure:

S. No.	Name	Designation	Experience (Years)	Qualification	Organization
1.	Anil Balakrishnan	Southern Regional head for CSR and Chief Project Officer- Community Skill Park, Adani Skill Development Centre	26	MSW, Phd.	Adani Foundation (AF)
2.	Sebastian Britto. A. G	Programme Manager	27	MA, Economics	AF
3.	Rakesh R. S	Sr. Project Officer	26	MBA, Bsc Agriculture	AF

S. No.	Name	Designation	Experience (Years)	Qualification	Organization
4.	Stephen Vinod	Project Officer	23	BA, Economics	AF
5.	George Zen	Consultant – Livelihood	38	BA, Sociology	AF
6.	Maya G	Project Officer Community Health	14	BA, IT-TTC	AF
7.	Preji P	SuPoshan Officer	1	MSW	AF
8.	Dr. T.M George	Technical Advisor	30	M Tech, PHD	Adani Skill Development (ASDC)
9.	Anurag MJ	Centre Head	10	MSc. Computer Science	ASDC
10.	Sreejith	Placement Manager	10	MBA (Marketing)	ASDC
11.	Kavitha TR	Trainer – Language & Soft Skill	15	MA, B.Ed. (Eng.), SET, CTET, MA Sociology	ASDC
12.	Neethu V Nath	Trainer – Domestic Data Entry Operator	5	MTech (Computer Science)	ASDC
13.	Mini Jose	Trainer – Beauty Therapist & Hair Stylist	13	S.S.L.C, Diploma in Fashion Technology, Diploma in Beauty Therapy,	ASDC
14.	Sheeja. M	Trainer – General Duty Assistant	10	BSc Nursing	ASDC
15.	Anilkumar BS	Trainer - IOT	22	BTech (ECE)	ASDC
16.	Vipin S	Trainer – Lasher	8	MBA (Business)	ASDC
17.	Nidhin S Raj	Trainer – Warehouse Management	7	MBA (Business Admn.)	ASDC

Annexure X

PESO Licence for Storage of Petroleum

भारत सरकार
Government of India
वाणि और उ ोग मं ालय
Ministry of Commerce & Industry
पेटोलियम तथा वि ोटक सुर ा संगठन (पैसो)
Petroleum & Explosives Safety Organisation (PESO)
A और D - विंग, ॉक 1-8, दूसरा तल, शा ी भवन, 26 ह ोउस रोड, नुंग म
चे ै - 600006
A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan, 26 Haddous Road, Nungambakkam,
Chennai - 600006

E-mail : **jtccechennai@explosives.gov.in**
Phone/Fax No : **044 - 28287118,28281023,28281041,28287119/28284848**

सं. या /No. : **P/SC/KL/14/3732 (P499906)** दिनांक /Dated : **05/10/2023**

सेवा म./To,

M/s. Adani Vizhinjam Port Private Limited,
Mulloor P.O, Vizhinjam,
Thiruvananthapuram, Kerala,
Mulloor,
Thiruvananthapuram,
Taluka: Thiruvananthapuram,
District: THIRUVANANTHAPURAM,
State: Kerala
PIN: 695521

विषय /Sub : **Plot No, Reclaimed land, Vizhinjam International Seaport, Mulloor PO,Vizhinjam, Thiruvananthapuram Kerala Pin 695521, Vizhinjam, Taluka: Neyyattinkara, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521** म.पेट्रोलियम वर्ग **B Consumer Pump** ।
Petroleum Class **B Consumer Pump** at **Plot No, Reclaimed land, Vizhinjam International Seaport, Mulloor PO,Vizhinjam, Thiruvananthapuram Kerala Pin 695521, Vizhinjam, Taluka: Neyyattinkara, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521**

महोदय
/Sir(s),

कृपया आपके प □ मांक **x** दिनांक **27/09/2023** का अवलोकन करें ।

Please refer to your letter No. **x** dated **27/09/2023**

विषया गत पेट्रोल पम्प में निम्नलिखित पेट्रोलियम पदाथ के वर्ग तथा मा ा के भंडारण के लिए पेट्रोलियम नियम, 2002 के अधीन □□ प - XIV में □ ीकृत तथा दिनांक **31/12/2025** तक वैध अनु□ि सं□ । **P/SC/KL/14/3732 (P499906)** दिनांक **05/10/2023** भेजी जा रही है ।

Licence No. **P/SC/KL/14/3732 (P499906)** dated **05/10/2023** granted in Form XIV under the Petroleum Rules, 2002 and valid till **31/12/2025** for the storage of the following kind and quantities of Petroleum at the subject petrol pump is forwarded herewith.

<%----%> <%----%><%----%>

पेट्रोलियम का विवरण /Description of Petroleum	किलोलीटरों में अनु□□ □मता /Quantity licenced in KL
वर्ग क □पुंज पेट्रोलियम /Petroleum Class A in bulk	**NIL**
Petroleum Class A, otherwise than in bulk	**NIL**
वर्ग ख □पुंज पेट्रोलियम /Petroleum Class B in bulk	**40.00 KL**
Petroleum Class B, otherwise than in bulk	**NIL**
Petroleum Class C in bulk	**NIL**
Petroleum Class C,otherwise than in bulk	**NIL**
कुल □मता /Total Capacity	**40.00 KL**

कृपया पेट्रोलियम नियम 2002 के अधीन बनाए गए नियम 148 में दी गई □ ि या का कडाई से पालन करें तथा अनु□ि के नवीकरण हेतु सम□ □प ों को अनु□ि की वैधता समा ी की तारीख या उससे पूर्व to **Dy. Chief Controller of Explosives, Ernakulam**, so as to reach his कार्यालय को □षित करें । Please follow the procedure strictly as laid down in rule 148 of the Petroleum Rules, 2002 and submit complete documents for the Renewal of the licence to **Dy. Chief Controller of Explosives, Ernakulam**, so as to reach his office on or before the date on which Licence expires.

यह अनुमोदन/ अनुमति अन्य □ ाधिकारियोंसे आव क अनुमति/□ ीयरन्स □ा करने से या यथा लागू अन्य् विधियों से छूट नही देती है । This approval/permission, however, does not absolve from obtaining necessary permission/clearance from other authorities or under other statutes as applicable.

भवदीय /Yours faithfully,

((पी.सीनीराज)
(P. SEENIRAJ))
उप मु वि ोटक नियं क
Dy. Chief Controller of Explosives
कृते संयु मु वि ोटक नियं क
For Jt. Chief Controller of Explosives
चे ै /Chennai

Copy forwarded to :-
1. The Additional District Magistrate, THIRUVANANTHAPURAM(Kerala) with reference to his NOC No DCTVM/1556/2021-A17 Dated 23/12/2022
2. The Dy. Chief Controller of Explosives, Kochi. A Copy of the licence along with approved plan is enclosed.

For Jt. Chief Controller of Explosives
Chennai

(अधिक जानकारी जैसे आवेदन की ि ति, शु□ तथा अन्य विवरण के लिए हमारी वेबसाइट: http://peso.gov.in देखें)
(For more information regarding status,fees and other details please visit our website: http://peso.gov.in)

Note:-This is system generated document does not require physical signature.

प XIV
(थम अनुसूची का अनु ेद 5 दे.खए)
FORM XIV
(see Article 5 of the First Schedule)

मोटर वाहनों म.ईंधन डालने के लिए प आउटफिट के संबंध में टैंक या टैंकों में पेट्रोलियम भंडारकरण के लिए अनु ि
LICENCE TO STORE PETROLEUM IN TANK/S IN CONNECTION WITH PUMP OUTFIT FOR FUELING MOTOR CONVEYANCES

अनु . सं. (Licence No.) : **P/SC/KL/14/3732(P499906)** फीस रूपए (Fee Rs.) **5000**/- per year

पेट्रोलियम अधिनियम, 1934 के उपबंधों और उसके अधीन बनाए गए नियमों तथा इस अनु ि की अतिरि शत के अधीन रहते हुए **40.00 KL of Petroleum class B** को टैंक/टैंको में भ ारकरण मा के लिए **M/s. Adani Vizhinjam Port Private Limited, Mulloor P.O, Vizhinjam, Thiruvananthapuram, Kerala, Mulloor, Thiruvananthapuram, Taluka: Thiruvananthapuram, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521** को नीचे वर्णित अनु परिसरों में जो कि इससे उपब द नक्शा सं ां **P/SC/KL/14/3732(P499906)** तारीख **05/10/2023** में दिखाया गया है, के लिए विधिमान्य अनु ि अनुद ं की जाती हैं ।

Licence is hereby granted to **M/s. Adani Vizhinjam Port Private Limited, Mulloor P.O, Vizhinjam, Thiruvananthapuram, Kerala, Mulloor, Thiruvananthapuram, Taluka: Thiruvananthapuram, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521** valid only for the storage of **40.00 KL of Petroleum class B** in tank/s in the licensed premises described below and shown on the plan no: **P/SC/KL/14/3732(P499906)** dated **05/10/2023** attached hereto subject to the provisions of the Petroleum Act, 1934 and the rule made thereunder and to the further conditions of this Licence.

यह अनु ि **31st day of December 2025** तक विधिमान्य रहेगी ।
The Licence shall remain in force till the **31st day of December 2025**

October 5, 2023

For Jt. Chief Controller of Explosives
SC, Chennai

अनु परिसरों का विवरण और अव थान
DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

अनु परिसर जिसकी सीमाएं संल नक्शे में दिखाई गई हैं **Plot No: Reclaimed land, Vizhinjam International Seaport, Mulloor PO,Vizhinjam, Thiruvananthapuram Kerala Pin 695521, Vizhinjam, Taluka: Neyyattinkara, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521** में ि थत ह.और उसमें निम्नलिखित स लित हैं**:**

The licensed premises, the boundaries of which are shown in the attached plan, are situated at **Plot No: Reclaimed land, Vizhinjam International Seaport, Mulloor PO,Vizhinjam, Thiruvananthapuram Kerala Pin 695521, Vizhinjam, Taluka: Neyyattinkara, District: THIRUVANANTHAPURAM, State: Kerala, PIN: 695521** and consist of**:**

क पेट्रोलियम वर्ग क परिसर के लिए **NIL** किलोलिटर क्षमता के/क्रमशः **NIL** क्षमता के भूमिगत गैस टाईट टैंक, जो विद्युतचालित/ह चालित **NIL** डि ेन्सिंग पम्पो से जुडे हुए हैं ।

a **NIL** number(s) underground gas tight tanks of capacity **NIL** kilolitres respectively of petroleum Class A connected with **NIL** number(s) electrically/manually operated dispensing pump(s)

ख पेट्रोलियम वर्ग ख/ग परिसर के लिए **20.00+ 20.00** किलोलिटर क्षमता के/क्रमशः **2** क्षमता के भूमिगत गैस टाईट टैंक, जो विद्युतचालित/ह चालित **2** डि ेन्सिंग पम्पो से जुडे हुए हैं ।

b **2** number(s) underground gas tight tanks of capacity **20.00+ 20.00** kilolitres respectively of petroleum Class B connected with **2** number(s) electrically/manually operated dispensing pump(s).

ग एक विक्रय कक्ष/कियो

c A sales room/kiosk

घ सर्विस स ी सुविधाएं जिनमें **Sales Room** स लित हैं ।

d Servicing facilities consisting of Sales Room **As per attached plan**

Note:-This is system generated document does not require physical signature.

Annexure XI

MoEF Certified Compliance Inspection Report

सत्यमेव जयते

भारत सरकार / GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय / MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
क्षेत्रीय कार्यालय, बेंगलुरु / REGIONAL OFFICE, BANGALORE

4th Floor, E & F- Wings, Kendriya Sadan, 17th Main Road,
II Block, Koramangala, Bangalore- 560 034

E-File No. 12.1/2013-14/07/KER/ 895 12.03.2024

To
The Member Secretary,
IA-I (Infrastructure)—Ports and Harbours
Indira Paryavaran Bhawan,
Ministry of Environment, Forest and Climate Change
Jorbagh, Aliganj, New Delhi-110 003
(E-Mail: ad.raju@nic.in)

Sub: Inspection Report of Vizhinjam International Seaport Ltd (Thiruvananthapuram District)

Sir/Madam,

Please find attached Inspection Report of Vizhinjam International Seaport (VISL) located in Thiruvananthapuram District, Kerala and obtained Environmental Clearance (EC) from the Ministry of Environment, Forest and Climate Change vide EC No. 11-122/2011-IA.III dated 03.01.2024 and subsequent extension vide EC No. 11-122/2011-IA.III dated 29.12.2020.

2. This project was inspected by the undersigned jointly with Chief Environmental Engineer (CEE), Kerala State Pollution Control Board (KSPCB) on 05.03.2024 and on the day of inspection, it was noted that the **Project was in Construction Phase.**

3. This issues with the approval of the Competent Authority.

Yours faithfully,

Dr. Murali Krishna
Dr. Murali Krishna
Additional Director (S)/ Scientist-E

Copy for Information and Further Necessary Action:

1. **The Member Secretary**, Kerala State Pollution Control Board (KSPCB), Pattom P.O., Thiruvananthapuram-695 004. (E-mail: ms.kspcb@gov.in)
2. **The Director,** Monitoring Division (IA), Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jorbagh, New Delhi-110 003 (E-mail: moefcc-monitoring@gov.in)
3. **The District Collector,** 2nd Floor, Civil Station Building, Thiruvananthapuram, Kerala-695 043 (dctvm.ker@nic.in)
4. **Regional Director**, CPCB, Nisarga Bhawan, Thimmaiah Road, 2nd Main Rd, Shivanagar, Basaveshwar Nagar, Bengaluru 560 079 (E-mail: zobangalore.cpcb@nic.in)
5. **The General Manager (Environment),** M/s. Vizhinjam International Seaport Pvt. Ltd, 1st Floor, Vipanchika Towers, Thycaud, Thiruvananthapuram- 695 001.

Dr. Murali Krishna
Dr. Murali Krishna
Additional Director (S)/ Scientist-E

GOVERNMENT OF INDIA
Ministry of Environment, Forest & Climate Change
(Regional Office, Southern Zone)
Bangalore-560 034

INSPECTION REPORT

E-File No. 12.1/2013-14/07/KER/

1	Name of the project	Environmental and CRZ Clearance for Development of Vizhinjam International Deepwater Multipurpose Seaport at Vizhinjam in Thiruvananthapuram District, Kerala by M/s. Vizhijam International Seaport Ltd (VISL)
2	Environmental Clearance Details	EC No. 11-122/2011-IA.III dated 03.01.2014. EC No. 11-122/2011-IA.III dated 29.12.2020—Extension of EC
3	Location: District & State / UT	Vizhinjam, Thiruvananthapuram District, Kerala
4	Address for correspondence:	To **The General Manager (Environment),** M/s. Vizhinjam International Seaport Ltd, 1st Floor, Vipanchika Towers, Thycaud, Thiruvananthapuram- 695 001, Kerala
5	Date of site visit for this report	05.03.2024

BRIEF ON THE PROJECT ALONG WITH THE PRESENT STATUS:

Vizhinjam International Seaport Limited (VISL) is the Implementing Agency of Government of Kerala (GoK) for development of International Deepwater Multipurpose Seaport at Vizhinjam (Vizhinjam Port). The Port Project is developed and operated on Public Private Partnership (PPP) mode by the selected private partner M/s. Adani Vizhinjam Port Private Limited (AVPPL) (Concessionaire). As per the Concession Agreement signed between GoK and AVPPL, AVPPL is responsible for development and operation of the port on design, built, finance, operate and transfer (DBFOT) basis. VISL being the Implementing Agency is the Project Proponent for obtaining Environment & CRZ Clearance (EC) for the port project. This project has initially obtained Environmental Clearance from the Ministry on 03.01.2014 and further obtained an extension for 3 years on 29.12.2020 valid till 02.01.2024. Further, it was also noted that the PP has availed one-year Covid-19 extension as per Ministry's Notification No. 221 dated 18.01.2022 and accordingly, on the day of inspection (05.03.2024), the project was in operational phase.

Based on perusal of EC, it is inter-alia noted that, this the proposal involves the development of an all-weather, multi-purpose, deep-water, mechanized, greenfield port at Vizhinjam (Latitude 08022'20" N and Longitude 77000'00"E) in Thiruvananthapuram district. The Port having a natural deep draft of (-) 18m, located hardly 18 Km from the international shipping route is primarily intended to attract the largest container vessels (18000 TEU/165,000 DWT) to tap the lionshare of the Indian transhipment cargo now being handled by the nearby foreign ports and is envisioned as the future transshipment hub of the Country. The dedicated cruise terminal has been designed to become the Country's tourism gateway. Considering the strategic importance of the Port located at the tip of Indian peninsula, berths for Indian Navy and Coast Guard are also planned under the National & Coastal security perspectives, as required by the Ministry of Defence, Government of India. Berths for multipurpose cargo like timber and raw cashew and fishery berth are also planned.

The project is proposed to be developed in three phases: Phase I, Phase II and Phase III. Phase I consists of 800 M Container Terminal, 300M Cruise cum Multipurpose Terminal, 500M Navy berth, 120M Coast Guard berth,100M Port craft berth and 500M Fish landing berth. Phase II consists of additional 400M Container Terminal, Phase III consists of additional 800M Container Terminal, additional 200M Cruise cum Multipurpose Terminal and 250M Liquid Terminal. The length of breakwater in Phase I is 3180 M, to be extended by 200 M in Phase II (making the overall length to 3380 m) and to be extended further by 700M in Phase III (making the overall length to 4080M). The total area to be developed for all three phases is estimated at 450.59 Ha. This includes the harbour area within breakwater including water spread area (167 Ha), port infrastructures & ancillaries in land including road & railways (140.42 Ha) and port infrastructure in reclaimed land (143.17 Ha). The other port infrastructure include container yards, cargo handling equipment, port crafts, navigational aids, operations building, workshops, fire station, weigh bridge, gate

houses, water, power, sub-station, lighting, road/rail connectivity, truck terminal, ware house, IT system, security system, administration building, staff colony, facilities for Cruise, Navy, Coast Guard, Fishing berth, levelling of backup yards, dispensary, Guest house, canteen, storm water drainage system, pond for water harvesting, pollution control system, dust suppression system, greenbelt etc.

Based on perusal of EC, it was noted that this project was planned to be completed in three phases and accordingly PP has completed all the relevant studies and data collection as detailed in Environmental Impact Assessment (EIA) for the whole project considering the master plan, but EC was granted/ obtained only for Phase-I in 2014. PP now intends to take up development of complete Master Plan (i.e., Phase-II and Phase-III) components and accordingly have obtained Terms of Reference (ToR) from the Ministry vide No. 10/56/2023-IA-III dated 09.10.2023. Accordingly, PP vide their request letter dated 15.02.2024 have requested for a Certified Compliance Report (CCR) as per Ministry's OM dated 08.06.2022.

This project was jointly inspected along with Mrs. Bindu Radhakrishnan, Chief Environmental Engineer, Kerala State Pollution Control Board (KSPCB) on 05.03.2024 and during inspection, it was observed that, progress of the project is as follows:

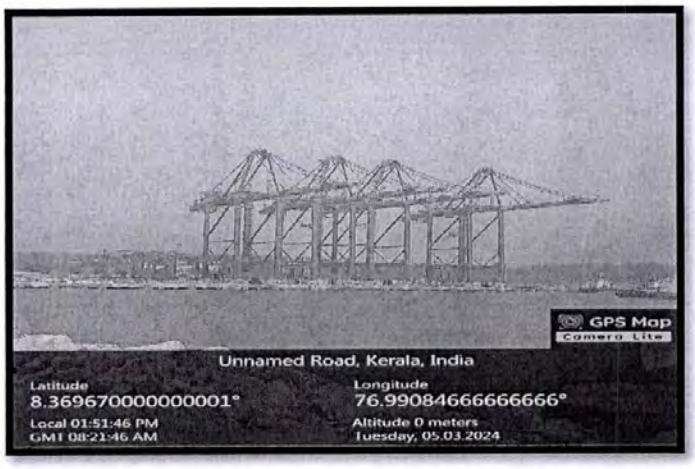
- Construction of breakwater of about 2.9 KM length is completed *(in some patches protection work needs to be completed)* out of 3.180 KM as proposed in Phase-I.
- Out of 800 meters berth, structure work of 800 meters completed and deck work of about 500 meters completed and the remaining is under progress.
- The reclamation required in Phase-I is 66.0 hectares out of which PP has completed about 60.0 hectares.
- Utility buildings like fire station, workshop, operational building, gate house, sub-station, administrative building etc. have been completed and operational.
- Cargo handling equipment's like 11 number of Cantilever Rail Mounted Gantry (CRMG) cranes and 4 No's of Ship-to-Shore (STS) cranes have been procured and are in installation and testing stage.

Further, it is also to note that the responsibility for ensuring compliances especially regarding the accuracy of the breakwater, berth, CRZ norms and other specific/ department related compliances needs to be ascertained by concerned enforcement agencies like District Collector, Grama Panchayat, KCZMA, KSPCB, DG Shipping, Fire, Customs etc. under various Acts like Environment (Protection) Act, 1986, Air Act, 1981, Water Act, 1974 etc. as per allocation of their Business Rules. Based on the documents made available during and after the inspection for establishing compliance to EC conditions by the project authorities and as verified during the physical inspection of the project site, an inspection report is prepared detailing point wise compliance to EC conditions as below:

Fig-1: Status of Project as of Feb 2015

Fig-2: Status of Project as on Mar 2023

Fig-3: Current Status of Project/ Progress Made till date



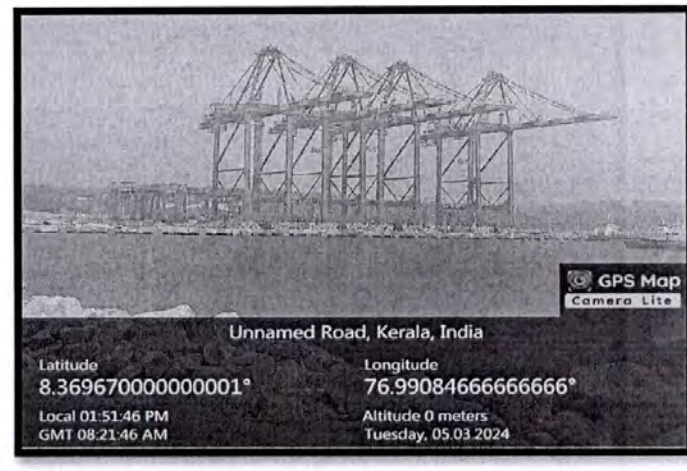


Fig 4-5: Front View of 500 Mtrs Completed Berth

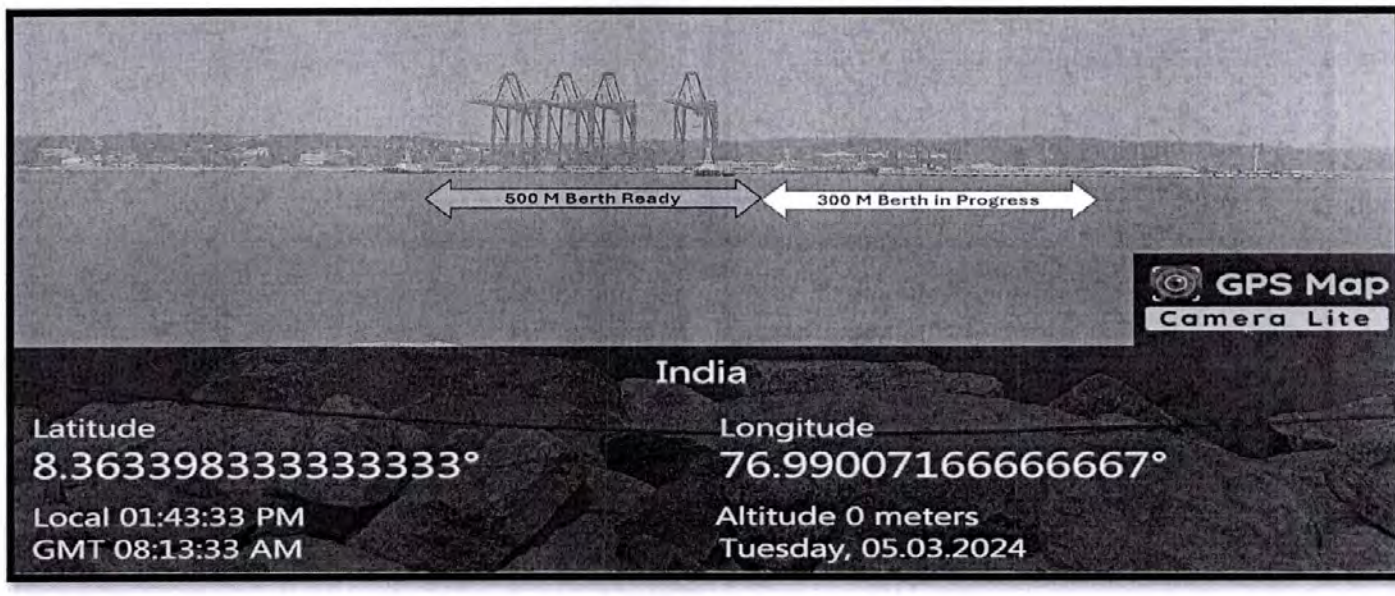


Fig 6: Status of Berth Completion and to be Completed

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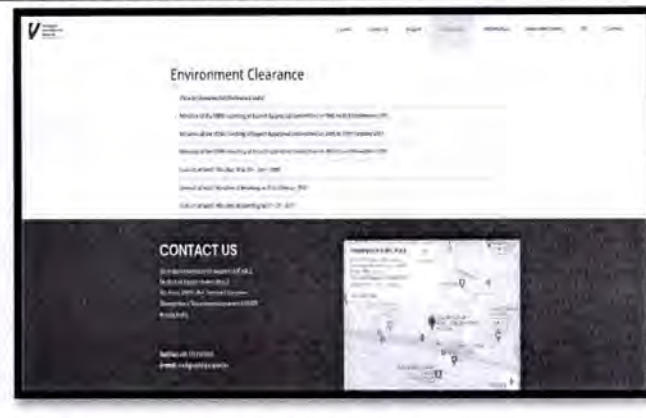
POINTWISE COMPLIANCE TO EC CONDITIONS

S. No	EC Condition	Status of Compliance
SPECIFIC CONDITIONS		
1	"Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site	Based on perusal of records, it has been noted that PP has obtained renewed CTE from Kerala State Pollution Control Board vide KSPCB/TV/ICE/10029484/2023 dated 30.07.2023 and the same is valid up to 31.07.2028.
2	Project Proponent shall carry out intensive monitoring with regulatory reporting six monthly on shoreline changes to the Regional Office, MoEF&CC.	Based on perusal of records, it has been gathered that An Expert Committee has been constituted as per the directions of Hon'ble NGT in OA No. 7/2014, Appeal No.'s 14/2014, 71/2014 and 88/2014 vide its Order dated 02.09.2016 for monitoring of each and every condition of EC and CRZ granted by MoEF&CC and also for regular monitoring of the shoreline changes in the project area, and within 10 km on either side, at the cost of the project proponent with Member Secretary, KCZMA as member Secretary of this Expert Committee. In compliance to the above directions of Hon'ble NGT, this Expert Committee is regularly monitoring the shoreline changes and submitting its report directly to Hon'ble NGT and the copy of the same are also shared with the Regional Office along with their half yearly compliance reports. Further, the copies of these reports are also made available for public review in their project website at https://vizhinjamport.in .
	  **Fig 7-8: Website of VISL and Copies of EC and Compliance Reports in the Website**	
3	The capital dredged material (7.6 Mm^3) shall be utilized for reclamation of berths.	Based on perusal of records made available for verification by Ms. Adani Concessionaire, vide their letter No. AVPPL/MISC/2023-24/2892 dated 06.03.2024 it is noted that PP has completed reclamation of 60 hectares of land out of 66 hectares and have dredged about 6.65 MM^3. However, the adequacy and accuracy of the above information needs to be ascertained by concerned enforcement agency and Expert Committee duly constituted by Hon'ble NGT.
4	Additional fish landing centre shall be developed as part of the proposed Vizhinjam port for upliftment of fisheries sector.	During inspection, it was noted that due to some operational/technical issues, PP has not constructed this additional fish landing centre and is exploring alternatives.

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5	The project shall be executed in such a manner that there is minimum disturbance to fishing activity.	This EC condition specifically relates to Ministry/ Department of Shipping and needs to be ensured by them only. During inspection, no fishing boats were seen within the project breakwater area. Further, PP produced a White Paper (for the study period May 2021-June 2022) from Central Marine Fisheries Research Institute (CMFRI), Vizhinjam dated Nil stating that *the analysis on the estimation of fish landings from the potential impact zone of VISL depicted negligible effects on the fish landing and stated that the current phase of the port has insignificant impacts on the fish availability and landings along the 10 KM zone.*

Fig 9-10: Construction of Breakwater and Construction of Wave Wall for Protection for Waves

6	Steps would be taken to safeguard the interests of the fisheries sector as detailed in the Resettlement Action Plan (RAP), Corporate Social Responsibility (CSR) and in the Integrated Fishing Community Management (IFCMP), namely a component of Rs.7.1 crores as part of the compensation package for the fisheries sector, as livelihood restoration measures for mussel collectors, shore seine fishermen and others. Rs.41.30 crores as part of CSR activities in the fisheries sector under (i) water supply scheme (7.3crores) (ii) new fishing landing centre (16crores) (iii) adoption of existing fishing harbor (5crores) (iv) sea food park (4crores) (iii) skill development centre (4crores) (iv) environmental sanitation (3crores) and (v) solid waste management (2crores).	Based on discussions held with project officials and considering the records made available, it is noted that PP has undertaken certain steps and safeguard measures in the interest of the fisheries sector as detailed in the Resettlement Action Plan (RAP), Corporate Social Responsibility (CSR) and in the Integrated Fishing Community Management (IFCMP) some of which inter-alia includes setting up of a skill development centre for providing domain course trainings for women aged between 18 to 35; alternative livelihood programs for women of age group above 35; mobile healthcare unit covering about 2000 patients per month in and around 2km radius; Special Palliative care centre for Cancer Patients in and around 10 kms; provided 5 purified water plant of 2000 Litres per hour; constructed 3 MLD water treatment plant etc. Further, based on the CSR Report 2016-2023 submitted by PP, it is noted that PP has spent an amount of Rs. 60.35 crores out of which 27.85 crores have been spent for activities in and around Vizhinjam and Rs. 32.5 crores for various state level initiatives like food and covid support to the State Government and on average about 50,000 people are benefitted by the actions of PP and the complete report is also made available for review in public domain at https://www.adanifoundation.org .

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Fig 11-12: Adani Foundation Website and CSR Documents Uploaded on the Website

7	Rail connectivity shall be parallel to the harbour road on elevated structures at +4/5.00 m level without affecting the entry to the existing harbour.	During inspection, no rail connectivity line parallel to the harbour noticed. Further, based on discussions held with PP, it was gathered that this EC condition is yet to be complied.
8	Compensation packages in accordance with the Central/State Government norms shall be given to all the authorized-cum-affected (having valid clearances as applicable) resort owners.	PP has not provided any specific data pertaining to compensation provided to resort owners and hence, the compliance to the same cannot be ascertained.
9	The port shall ensure that all ships under operation follow the MARPOL convention regarding discharge or spillage of any toxic, hazardous or polluting material like ballast water, oily water or sludge, sewage, garbage etc. The emission of NOx & SOx shall remain within permissible limits.	During inspection, it was noted that this project is still in Phase-I of construction phase and compliance to this EC condition can be verified only during operational phase of the project.
10	CSR activities shall cover villages within 10 km radius of the project.	Same as detailed in Point No. 6 of Specific Condition.
11	Oil Contingency Management Plan shall be put in place.	Based on perusal of records made available for verification, it is noted that PP has submitted the Oil Contingency Management Plan to Indian Coast Guard vide Letter No. AVPPL/ICG/2019-20/872 dated 02.09.2019 and the same has been acknowledged by Indian Coast Guard Department on 05.09.2020 and further, vide their letter No. 737/4 dated 05.09.2020, sought certain additional information/ clarification and PP is in the process of submission of the same as the Port is still in Phase-I of construction.
12	All the recommendations /conditions stipulated by Kerala Coastal Zone Management Authority (KCZMA) shall be complied with.	This EC condition is specifically relating to KCZMA. Further, based on records made available for inspection, it has been noted that NGT constituted Expert Committee and Shoreline Monitoring Committee for which Member Secretary, KCZMA is a Nodal Officer who keeps monitoring the compliance of all EC and CRZ conditions on a regular basis. As per records, The Expert Committee inspected the project site and discussed the compliance in their last meeting held on 13th to 14th September 2023. However, the Expert Committee has not raised any specific observations/ violations/ non-compliances regarding CRZ conditions to this office.

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13	The responses/ commitments made during public hearing shall be complied with in letter and spirit.	Based on verification of Public Hearing Commitments Compliance status being submitted along with half yearly compliance reports, it is noted that since the project is still in Phase-I of Construction, most of the commitments are yet to be complied and PP assured to comply with the same, prior to operationalization of the project.
14	All the recommendation of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	Based on verification of half yearly compliance reports, it is noted that against an amount of Rs. 40 Crores budget allocated for EMP implementation, PP has spent an amount of Rs. 28.64 Crores for various activities like capacity building; air, water, noise, soil quality monitoring; shoreline changes; solid waste management, dust suppression etc. till 30.09.2023. However, accuracy of the amount spent needs to be verified by a third-party auditor or a Chartered Accountant or by a Certified Environmental Auditor.
15	The project proponent shall bring out a special tourism promotion package for the area in consultation with the State Government and implement the same along with the project.	During inspection, it is noted that no special promotion package has been developed yet. Further, PP produced a letter dated 20.12.2023 addressed to Director Tourism requesting to make a detailed presentation relating to measure taken for promotion of tourism in the NGT Expert Committee Meeting held on 13-14 September 2023. However, no additional details provided by PP regarding the same.
16	The project proponent shall place on its website its response to the Public Hearing, and representations as presented to the EAC in the 128th meeting held on 23rd November 2013, for information of the general public.	Based on verification of PP website, it is noted that all the relevant details pertaining to EIA, ToR, EAC meetings, Public Hearing, etc. related to the project have been uploaded on VISL website http://www.vizhinjamport.in/eia-30-5-13.php
17	There shall be no withdrawal of groundwater in Coastal Regulation Zone Area, for this project. In case any groundwater is proposed to be withdrawn from outside the CRZ area, specific prior permission from the concerned State/Central Groundwater Board shall be obtained in this regard.	Reportedly, PP is not drawing any groundwater and accordingly have not obtained any permission from Kerala Groundwater Authority (KWA). PP has submitted a letter dated 02.02.2024 from Kerala Water Authority regarding water adequacy certificate stating that 1 MLD of water to be provided for VISL from Vellayani Lake by KWA.
18	The Hazardous waste generated shall be properly collected and handled as per the provision of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008.	Based on verification of records made available, it is noted that PP has signed an Agreement with M/s. Sri Balaji Industries Unit, Mettupalayam, Coimbatore District, Tamil Nadu for collection and safe disposal of Hazardous Waste Oil, who is an authorised vendor of Tamil Nadu State Pollution Control Board (TNSPCB) and have obtained hazardous Waste Authorization Vide No.22HFC36907538 dated 09.02.2022 and the same is valid till 31.03.2026.
19	No hazardous chemicals shall be stored in the Coastal Regulation Zone area.	Reportedly, PP is not storing any hazardous chemicals in CRZ area but storing the same within port premises at an identified and designated location for which PP has obtained approval from PESO vide No. P/SE/KL/14/3732 (P499906) dated 05.10.2023 and the same is valid till 31.12.2025.

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20	The wastewater generated from the activity shall be collected, treated and reused properly.	During inspection, it is noted that PP has not commissioned the STP and is in the process of installation of 50 KLD STP using MBBR technology for which negotiations are being finalized. Currently, the wastewater that is being generated from the office building is sent to Municipal Corporation for treatment and further disposal/ re-use.
21	Sewage Treatment facility should be provided in accordance with the CRZ Notification.	
22	No solid waste will be disposed of in the Coastal Regulation Zone area. The solid waste shall be properly collected, segregated and disposed as per the provision of Solid Waste (Management and Handling) Rules, 2000.	Reportedly, PP is not disposing any solid waste in the CRZ area and have entered into an Agreement with M/s. Qrex Bio Solutions Pvt. Ltd (QBSPL), Thiruvananthapuram vide Service Order No. 5702011963 dated 11.07.2023 and the same is valid ill 10.07.2024 for safe collection, segregation and disposal of solid waste generated from the project site. Further, QBSPL has certified vide their letter dated 31.01.2024 that they have a state-of-the-art facility in an area of 4.2 acres for treatment and disposal of solid waste in a scientific manner.
23	Installation and operation of DG set if any shall comply with the guidelines of CPCB. Oil spills if any shall be properly collected and disposed as per the Rules. Project proponent shall install necessary oil spill mitigation measures.	Based on the inputs provided by the officials of KSPCB present during inspection, it is noted that PP has been permitted to use 16 number of DG sets and PP informed that the same number of DG sets are being used as a backup on emergency and needful precautions and Oil Spill Contingency Plan is also prepared for addressing any oil spill issues.
24	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Reportedly, PP is complying with this EC condition and the same is being periodically ensured by the Expert Committee constituted by Hon'ble NGT on a periodical basis and as per records, this Committee has not communicated any instances of CRZ violations.
25	The approach channel shall be properly demarcated with lighted buoys for safe navigation and adequate traffic control guidelines shall be framed.	During inspection, it was noted that the approach channel has been properly demarcated with 7 number of navigation buoys (red and green colour) and 5 number of demarcation buoys (yellow colour).

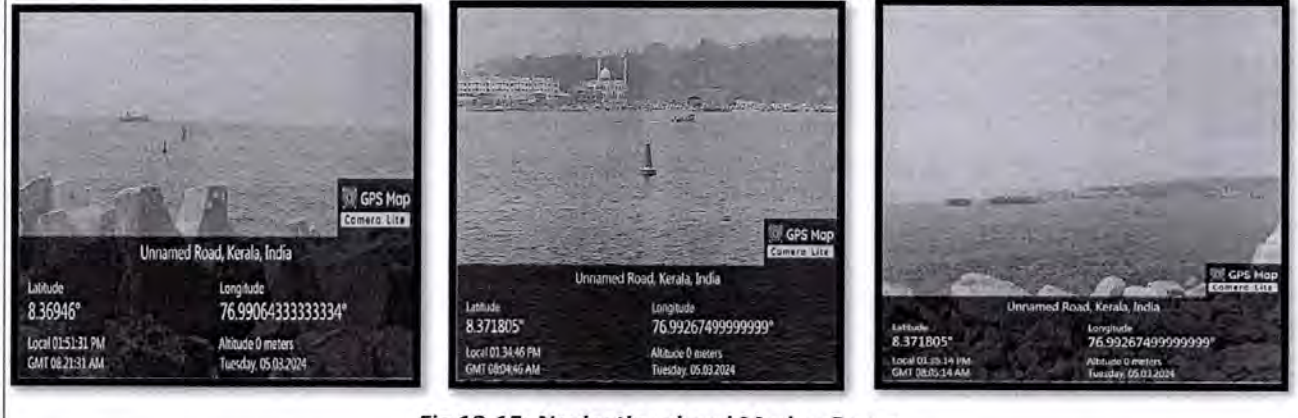

Fig 13-15: Navigational and Marker Buoys

26	The project proponent shall take up development of green belt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management Plan for such development.	During inspection, it was noted that project was in construction phase and only few plantations done within the project premises. Further, PP has developed a total of 29.65 ha of plantations in 3 different locations namely near Sainik

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		School, Kazhakootam; Kerala University Campus, Karyavattom and near STP, Muttathara with support of Social Forest Department, Government of Kerala. PP have planted about 40,000 tree saplings with an estimated budget of 254.00 lakhs paid through DD No. 242056 for an amount of Rs. 80.50 lakhs on 14.06.2018 and vide another DD No. 601547 dated 12.08.2021 for an amount of 1.74 Crores) that was being paid to Social Forest Department. Random inspection of plantations in Kerala University indicated good growth of fruit bearing trees in an area of 12.60 hectares in two patches.

Fig 16-21: Compensatory Afforestation in Kerala University and at the Port Entrance

27	The fund earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	As per reports furnished it was noted that PP has been including dedicated budget for EMP and have spent about 28.64 crores towards implementation of the same as detailed in Specific Condition No. 14 above.

Fig 22-25: 500 Mtrs Berth Constructed with CRMG and STS Cranes

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28	The project proponent shall set up an organizational mechanism/institutional structure for Environment, Health & Safety & CSR under the supervision of a General Manager as outlined in the EIA Report for effective implementation of the stipulated EHS safeguards & CSR activities.	Based on records furnished, it is noted that PP has a well-established organizational mechanism/ institutional structure for overseeing the implementation of EH&S, CSR, Project Progress etc. on a periodical. Verification of records indicated that the latest meeting was convened on 28.02.2024.
29	Staff Colony should be located beyond CRZ area.	During inspection no staff colony noticed within the project premises.
GENERAL CONDITIONS		
i	Construction of the proposed structures shall be undertaken meticulously conforming to the existing Central/local rules and regulations including Coastal Regulation Zone Notification, 2011 & its amendments. All the construction designs/drawings relating to the proposed construction activities must have approvals of the concerned Statutory Departments / Agencies.	Reportedly, PP has been undertaking construction activities as per relevant regulations from time to time. Verification of records indicated that PP has obtained approvals from MoEF&CC, KSPCB, KCZMA, AAI, Fire and Emergency Rescue Services, NSPC Clearance, PFSA Clearance, Customs Clearance, NOC from Fisheries Department, NOC from Kerala Water Authority, Kerala Electricity Facility etc. Further, it is the responsibility of the concerned local enforcement agencies and Expert Committee appointed by Hon'ble NGT to ensure the compliance of the same.
ii	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	Based on verification of records made available for scrutiny, it is noted that PP has engaged Ms. ITD Cementation India Limited and other agencies for construction activities who have been providing manpower for the VISL. Based on letter dated 05.03.2024 provided by ITD Cementation India Limited, it is noted that they have been providing facilities like accommodation, food, drinking water, toilets, transport, medical facilities etc. to the workers.
		
Fig 26-27: First Aid Room and Ambulance		
iii	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Based on verification of periodic water quality report conducted by M/s. Standard Environmental and Analytical Laboratories (MoEFCC and NABL Recognized Laboratory) dated 14.10.2023, indicated all the measured parameters to be within stipulated standards.
iv	Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following: (a) No excavation or dumping on private property is carried out without written consent of the owner.	Reportedly, PP is complying with this EC condition. However, the compliance needs to be verified on a day-to-day basis by concerned local enforcement agencies.

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	(b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations. (c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.	
v	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	Based on records furnished for examination, it is noted that all the construction materials are being sourced through authorized quarries namely Kadavila-1,2 and 3 Stone Quarries; Manickal Stone Quarry; Koodal Stone Quarry; Aryanad Stone Quarry; Kummil Stone Quarry and Tasna Quarry which have obtained valid Environmental Clearances (EC's) from SEIAA, Kerala.
vi	The project authorities shall make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc. must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests under the Environment (Protection) Act, 1986, whichever are more stringent.	Same as detailed in Specific Condition No.22
vii	The proponent shall obtain the requisite consents for discharge of effluents and emissions under the Water (Prevention and control of Pollution) Act, 1974 and the Air (Prevention and control of Pollution) Act, 1981 from the Kerala State Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.	During inspection, no Effluent Treatment Plant (ETP) observed in the project premises and PP also confirmed the same.
viii	Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.	During inspection, it was noticed that the vehicles that were carrying construction materials were covered with tarpaulin/ green mesh and were following speed limitation and were having valid PUC certificates and water sprinkling was also observed for dust suppression.

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Fig 28-30: 2.5 M^3/Batch capacity CBM Plant

ix	Full support shall be extended to the officers of this Ministry/Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	PP is aware of this EC condition and agreed to comply with the same.
x	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary, in the interest of environment and the same shall be complied with.	PP is aware of this EC condition and agreed to comply with the same.
xi	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied to the satisfaction of the Ministry.	PP is aware of this EC condition and agreed to comply with the same.
xii	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment & Forests.	PP is aware of this EC condition and agreed to comply with the same.
xiii	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	During inspection, it was noted that the project is still in Phase-I of construction stage and PP agreed to comply with the same at the end of the completion of the project.
xiv	Kerala State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.	This EC condition is specific to KSPCB and the officials of the KSPCB, who were present during inspection, informed that this condition was complied after issue of EC in 2014.
13	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.	PP is aware of this EC condition and agreed to comply with the same.

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14	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Based on verification of records, it is noted that PP has obtained permission from Chief Controller of Explosives, NOC from Fire Department and NOC from AAI. However, it was noted that PP has not obtained any Forest/ Wildlife Clearance as they have not obtained any Forest Land for this project. However, the same needs to be ensured by officials of Kerala State Forest/ Wildlife Department.
15	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environment Clearance and copies of the clearance letters are available with the Kerala State Pollution Control Board and may also be seen on the website of the Ministry of Environment & Forest at http://www.envfor.nic.in. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.	Based on verification of records, it is noted that PP has advertised regarding the grant of EC in three leading newspapers namely The New Indian Express (English) and Malayala Manorama (Malayalam) and Mathrubhumi (Malayalam) on 11.01.2014. Further, PP has uploaded copies of EC, HYCR, Monitoring reports, CSR details etc. in their websites at www.adanifoundation.org and https://vizhinjamport.in
16	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	PP is aware of this EC condition and agreed to comply with the same.
17	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Based on verification of records, it was noted that three appeals challenging the EC granted to the project (two appeals filed at NGT, Southern Bench, Chennai and one at NGT, Principal Bench, New Delhi) and one original application (OA No. 74/2014 was filed at NGT, Principal Bench New Delhi). Verification of records indicated that all these Appeals and OA has been disposed vide NGT Order dated 02.09.2016.
18	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the Local NGO, if any from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Reportedly, PP has submitted copy of EC to all concerned local panchayats namely Kottukal Panchayat and Vizhinjam Panchayat vide letter No. VISL/EC/MoEF/2013 dated 29.01.2014.
19	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO_2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a	It was noted that PP has uploaded copies of EC, HYCR, Monitoring reports, CSR details etc. in their websites at www.adanifoundation.org and https://vizhinjamport.in. During inspection, it was observed that PP has installed Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in a temporary location near the Port entrance gate and due to construction activities display board was not seen and when enquired PP informed that due to construction activities the same has been dismantled. However, PP has been directed to install the same as per EC condition.

Sh. Murali Krishna

	convenient location near the main gate of the company in the public domain.	

Fig 31-33: CAAQMS Station and Group Photo with PP and AWS Monitoring Station

20	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Based on verification of records, it is noted that PP has been regularly submitting the half yearly compliance reports to the regional office of the Ministry.
21	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned Kerala State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	During inspection, it was noted that PP has not been submitting the Form-V statement as they are yet to receive Consent to Operate (CTO) from KSPCB.

Dr. Murali Krishna
Dr. Murali Krishna
Additional Director (S)/ Scientist-E

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Annexure XII

Email Submission of HYCR for the Period April 2023 to September 2023

From:	PRASAD KURIEN
To:	rosz.bng-mef@nic.in; rosz.bng-mefcc@gov.in; Ssuresh.cpcb@nic.in; Kushal.vashist@gov.in; MS KCZMA; zobangalore.cpcb@nic.in; pamidisuneel; Rajesh Kumar Jha; Hebin Chenthamarakshan; Jesse Benjamin Fullonton; ceo@vizhinjamport.in; MD VISL
Subject:	EC_F. No. 11-1222011-IA.III dated 03.01.2014-HYCR-Apr2023-Sep2023_25.11.2023 - Half Yearly EC Compliance Report (HYCR) - Apr 2023 to Sep 2023 reg
Date:	Tuesday, November 28, 2023 3:01:23 PM

Dear Sir/Madam,

MoEF&CC had issued Environmental Clearance and CRZ Clearance (EC) on 3rd January 2014 to the proposed Vizhinjam International Multipurpose Deepwater Seaport at Vizhinjam in Thiruvananthapuram District of Kerala State. (EC No. F.No.11 - 122/20 11 - IA. III) and subsequently extended the EC validity up to 2nd January 2024 (excluding Covid 2019 additional validity) with the same terms and conditions.

Kindly find enclosed the Half Yearly Compliance Report (HYCR) for the period from April 2023 to September 2023 for records and reference in the following link: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:61e90213-7b42-4a48-87e8-77143c6e6e78

Acknowledgement on receipt of the email with contents is highly appreciated.

With Best Regards,

EC_F. No. 11-1222011-IA.III dated 03.01.2014-HY...

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Prasad Kurien
General Manager-Environment
Vizhinjam International Seaport Limited
Thiruvananthapuram

VIZHINJAM INTERNATIONAL SEAPORT LIMITED

(A Government of Kerala Undertaking)

Vizhinjam International Seaport Thiruvananthapuram

Vizhinjam International Deepwater Multipurpose Seaport

Half Yearly Compliance Report (HYCR) of Conditions of Environmental and CRZ Clearance for the Period October 2023 to March 2024

May 2024