

To,

The Inspector General of Forest / Scientist C,
Integrated Regional Office (IRO),
Ministry of Environment, Forest and Climate Change,
Karmayogi Bhawan,
Block-3, F-2 Wing, 5th Floor,
Near CH-3 Circle, Sector – 10A
Gandhinagar – 382010.
E-mail: eccompliance-guj@gov.in, iro.gandhingar-mefcc@gov.in

Sub : Half yearly Compliance report for Environment Clearance for the "Township and area development project" at Survey no. 141 (part), village: Mundra, Dist. Kutch, by Adani Mundra SEZ Infrastructure Pvt. Ltd."

Ref : Environment clearance granted to Adani Mundra SEZ Infrastructure Pvt. Ltd. vide letter dated 20th February 2010 bearing SEIAA letter no. SEIAA/GUJ/EC/8(b)/44 /2010.

Dear Sir,

Please refer to the above cited reference for the said subject matter. In connection to the same, it is to state that copy of the compliance report for the Environmental Clearance for the period of October 2025 to March 2026 is being duly uploaded on the Parivesh Portal.

Additionally, a soft copy of the same is being submitted through soft copy (e-mail communication).

Kindly consider the above submission and acknowledge.

Thank you,

Yours Faithfully,

For, **Adani Ports and Special Economic Zone Limited**



Bhagwat Swaroop Sharma
Head – Environment
Mundra & Tuna Port

Encl: As above

Copy to:

- 1) The Zonal Officer, Regional Office, CPCB – Western Region, Parivesh Bhawan, Opp. VMC Ward Office No. 10, Subhanpura, Vadodara – 390023.
- 2) The Member Secretary, GPCB – Head Office, Paryavaran Bhavan, Sector 10 A, Gandhi Nagar – 382010.
- 3) The Member Secretary, SEIAA, Gujarat, Paryavaran Bhavan, GPCB, Sector 10 A, Gandhi Nagar – 382010.
- 4) The Regional Officer, Regional Office GPCB (Kutch-East), Gandhidham – 370201.

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Environmental Clearance
Compliance Report
of



Township and
Area Development Project,
Village: Mundra, Dist. Kutch, Gujarat

of
Adani Mundra SEZ Infrastructure Pvt. Limited

for the period of

October 2025 to March 2026

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From: Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

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Compliance Report of Environment Clearance

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Half yearly Compliance report for Environment Clearance for the project "Township and area development project at Mundra, Dist. Kachchh, Gujarat of M/s. Adani Mundra SEZ Infrastructure Pvt. Ltd." issued vide letter no. SEIAA/GUJ/EC/8(b)/44/2010 dated 20th February 2010.

Sr. No.	Conditions	Compliance Status as on 31-03-2026
A. Specific Conditions		
A.1	Construction Phase:	
1.	Minimum Aerial distance of 100 m shall be kept between processing & non – processing areas of SEZ, as proposed.	We had complied this condition during the construction phase. It is not applicable at present. This reply covers Condition No. 1 to 27 of Construction Phase. The details of the compliances with respect to construction phase are submitted in Oct'16 to March'17 compliance report.
2.	Height of the buildings in the project shall be restricted to 42 meter (in view of the height restriction specified by the aviation authority) or the height permissible under the bylaws prescribed the SEZ authority, whichever is more stringent. This, however, shall not increase the total population envisaged under the EIA report prepared and submitted to SEAC and SEIAA and shall not increase in the resource consumption like total water usage or wastes generated.	Construction work for the project is partially completed. However, no construction activity carried out during the compliance period of Oct'25 to Mar'26. All the specific conditions provided for construction phase will be considered upon recommencement of construction activity in future.
2(a)	The requirement for	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	fire prevention, line safety in relation to fire and fire protection of the building shall be fulfilled in the project, as per the National Building Code of India so as to minimize danger to life and property from fire.	
2(b)	All high rise buildings shall have at least two staircases with a condition that the nearest staircases shall be available at every 30 meter from all places in a given building.	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
3.	The project proponent shall not obstruct the flow of river Bhukhi passing through the social infrastructure area and shall not do any encroachment on the said river, as per their undertaking dated 21/07/2009. All necessary precautions and measures shall be taken in order to ensure that natural drainage of river Bhukhi passing through the project site is not altered / affected.	Complied during the construction phase. Not applicable at present. The details of the compliances with respect to construction phase are submitted in Oct'16 to March'17 compliance report. Construction work for the project is partially completed. However, no construction activity carried out during the compliance period of Oct'25 to Mar'26. All the specific conditions provided for construction phase will be considered upon recommencement of construction activity in future.
4.	Additional bridge / walkthrough over the Bhukhi river passing through the site shall be provided between the two bridges planned to be provided so as to reduce distance to be travelled during the emergency situations.	
5.	If SEZ authority permits, adequate parapet / fencing shall be provided along the banks of river Bhukhi passing through the site for preventing fall of animals / humans.	

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
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Sr. No.	Conditions	Compliance Status as on 31-03-2026
6.	All required sanitary and hygienic measures shall be provided before starting the construction activities and to be maintained throughout the construction phase.	
7.	The construction site shall be provided with adequately barricades of at least 3 m height on its periphery with adequate signage	
8.	Adequate first aid facilities shall be provided in the project both during construction and operation of the project.	
9.	Adequate drinking water, sanitation and other amenities shall be provided for construction workers at the site. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.	Complied during the construction phase. Not applicable at present. The details of the compliances with respect to construction phase are submitted in Oct'16 to March'17 compliance report. Construction work for the project is partially completed. However, no construction activity carried out during the compliance period of Oct'25 to Mar'26. All the specific conditions provided for construction phase will be considered upon recommencement of construction activity in future.
10.	Provision should be made for the supply of fuel (Kerosene or cooking gas), utensils such as	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	pressure cookers etc. to the laborers during construction phase.	
11.	The project proponent shall ensure that the construction labours are provided with adequate amenities for lighting, drinking water, sanitation etc. to ensure that do not ruin the existing environmental condition.	
12.	Adequate personal protective equipments shall be provided to the construction workers to ensure their safety and the project proponent shall ensure its usage by the labours.	
13.	All topsoil excavated during construction activities should be stored separately for use in horticultural / landscape development within the project site.	
14.	Disposal of debris including the excavated material during construction	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	phase shall not create adverse effect on neighbouring communities and shall be disposed of only at the approved sites with the approval of the competent authority after taking the necessary precautions for general safety and health aspects.	
15.	Use of diesel generator sets during construction phase should be enclosed type and confirm to EPA rules for air and noise emission standards.	Complied during the construction phase. Not applicable at present. The details of the compliances with respect to construction phase are submitted in Oct'16 to March'17 compliance report. Construction work for the project is partially completed. However, no construction activity carried out during the compliance period of Oct'25 to Mar'26.
16.	Ready-made mix concrete should be used so far as possible	All the specific conditions provided for construction phase will be considered upon recommencement of construction activity in future.
17.	Water demand during construction should be reduced by use of curing agents, plasticizers and other best practices.	
18.	Vehicles hired for bringing construction material at site should be in good conditions and confirm to	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	applicable air and noise emission standards and should be operated only during non-peak hours.	
19.	Ambient noise levels shall conform to residential standards both during day and night. Incremental pollution load on the ambient air and noise quality should be closely monitored during construction phase.	Complied during the construction phase. Not applicable at present. The details of the compliances with respect to construction phase are submitted in Oct'16 to March'17 compliance report. Construction work for the project is partially completed. However, no construction activity carried out during the compliance period of Oct'25 to Mar'26. All the specific conditions provided for construction phase will be considered upon recommencement of construction activity in future.
20.	Fixtures for showers, toilet, flushing and drinking should be of low flow either by use of aerator or pressure reducing devices or sensor based control.	
21.	Fly ash should be used as building material in the construction as per provision of Fly Ash Notification under EPA.	
22.	Structural design aspects in accordance to the seismic zone shall be strictly adhered to.	
23.	No ground water shall be used and the water required	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	during construction phase shall be sourced from Gujarat Water Infrastructure Ltd.	
24.	The construction materials and debris shall be properly stored and handled to avoid negative impacts such as air pollution and public nuisances by blocking the roads and public passages. Appropriate barricading shall be done and signboards shall be put at such site.	
25.	Ambient Air Quality Monitoring / Noise monitoring shall be carried out during the construction. The location of ambient air quality monitoring stations and its frequency shall be decided in consultation with GPCB.	
26.	The provisions of the buildings and other construction workers rules shall be met with by the project proponent in addition to other statutory requirements under different	

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	environmental pollution control and safety related acts and rules.	
27.	Environment Management Cell shall be formed, which will supervise and monitor the environment related aspects of the project during construction and operational phases in addition to observance of Gujarat Building and other constructions workers act and rules including registration of the project under this act.	APSEZL has a well-structured Environment Management Cell, staffed with qualified manpower for implementation of the Environment Management Plan at site, who are also looking for AMSIPL as a subsidiary entity of APSEZ. Site environment team direct report to site Chief Executive Officer (CEO) and the CEO directly reports to the top management. Updated Environment Management Cell Organogram is attached as Annexure-1 .
90A.2	Operation Phase:	
28.	Fresh water requirement during the operation phase shall not exceed 9 MLD and it shall be sourced from Gujarat Water Infrastructure Ltd. Metering of the water shall be done and its records shall be maintained. No ground water shall be extracted.	Complied. No ground water is being extracted. Fresh water requirement for Samudra township and Adani Hospital is approximately average 1.03 MLD during compliance period Oct'25 to Mar'26 which has been sourced through Gujarat Water Infrastructure Ltd. (GWIL) and APSEZ desalination plant. No ground water is being extracted. Record maintained for quantity of water usage during the period Oct'25 to Mar'26 is attached as Annexure - 2.
29.	The total sewage generation from the proposed social infrastructure	Complied. During compliance period Oct'25 to Mar'26 average received quantity of sewage was 0.993 MLD from Samudra township, Adani

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	project shall not exceed 7.2 MLD.	Hospital & Mundra Village. Average quantity of treated sewage discharge was 0.829 MLD during compliance period. Generated sewage is being treated in STP of Samudra Township and treated water is being utilized for horticultural purpose within AMSIPL premises. AMSIPL has been granted Consent to Operate from Gujarat Pollution Control Board for receiving 1.0 MLD of domestic sewage from Mundra village for treatment in Samudra township STP and final disposal on land for horticulture purpose within AMSIPL as well as APSEZ premises. Details of the same were submitted along with half yearly compliance report for the period Apr'20 to Sep'20. During compliance period Oct'25 to Mar'26 an average 60.91 KLD of domestic sewage received from Mundra village to Samudra township STP for treatment. Details of sewage generated from township, received from Adani hospital & Mundra village and treated water discharge during the period Oct'25 to Mar'26 is attached as Annexure - 2.
30.	The project proponent shall install and operate adequate sewage treatment plants (STP) comprising of 3 modules of STP (each of 2.5 MLD) to achieve ultimate capacity of 7.5 MLD, for treatment of sewage. These STP modules shall be operated regularly and effectively to achieve the GPCB norms.	Complied. STP having capacity of 2.5 MLD with advance MBR technology is constructed and operated in township area. Treated sewage is being utilized for horticulture purposes after achieving discharge norms of GPCB. We have dismantled the Adani Hospital STP having 30 KLD capacity and the domestic sewage generated from hospital is being discharged into STP of Samudra Township through underground pipeline for treatment and disposal. Consent to Operate for the same has been granted from Gujarat Pollution Control Board. Details of the same were submitted along with half yearly compliance report for the period Apr'20 to Sep'20. Pre-treatment facility i.e. Disinfection treatment is being provided for domestic sewage at hospital before discharging into Samudra Township STP. During compliance period Oct'25 to Mar'26 avg. 15.53 KLD domestic sewage received from hospital for treatment. Third party analysis of the treated water is being carried out twice a month by NABL and MoEF&CC accredited agency namely M/s. Unistar Environment and Research Labs Pvt. Ltd., Vapi. Summary of

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Sr. No.	Conditions	Compliance Status as on 31-03-2026																																				
		the same for duration from Oct'25 to Mar'26 is mentioned below. Locations: STP (Township) <table><tr><th>Parameters</th><th>Unit</th><th>Min</th><th>Max</th><th>Average</th><th>Perm. Limit\$</th></tr><tr><td>pH @ 25 ° C</td><td>--</td><td>6.73</td><td>8.22</td><td>7.55</td><td>6.5 – 9.0</td></tr><tr><td>Total Suspended Solids</td><td>mg/L</td><td>10.00</td><td>28.00</td><td>17.33</td><td>100</td></tr><tr><td>Biochemical Oxygen Demand (BOD)</td><td>mg/L</td><td>14.00</td><td>18.00</td><td>15.92</td><td>30</td></tr><tr><td>Residual chlorine</td><td>mg/L</td><td>0.55</td><td>0.67</td><td>0.61</td><td>--</td></tr><tr><td>Fecal Coliform</td><td>MPN Index/100ml</td><td>21.00</td><td>64.00</td><td>42.67</td><td>< 1000</td></tr></table> as per CC&A granted by GPCB Please refer Annexure – 3 for detailed analysis reports. Approx. INR 21.38 Lakh has been incurred for all environmental monitoring activities during FY 2025-26 for overall APSEZ, Mundra. GPCB is also doing sampling and analysis of treated water during their routine visit. Last visit was carried out by GPCB on dated 16/07/2025 and collected the treated water sample.	Parameters	Unit	Min	Max	Average	Perm. Limit\$	pH @ 25 ° C	--	6.73	8.22	7.55	6.5 – 9.0	Total Suspended Solids	mg/L	10.00	28.00	17.33	100	Biochemical Oxygen Demand (BOD)	mg/L	14.00	18.00	15.92	30	Residual chlorine	mg/L	0.55	0.67	0.61	--	Fecal Coliform	MPN Index/100ml	21.00	64.00	42.67	< 1000
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Sr. No.	Conditions	Compliance Status as on 31-03-2026																								
31.	Two modules of STP of 2.5 MLD (i.e. total 5 MLD) shall be installed on one side of the Bhukhi River and one module of STP of 2.5 MLD shall be installed on the other side of the Bhukhi River passing through the social infrastructure project. Hence no any cross drainage civil work shall be carried out.	Complied. At present one STP of 2.5 MLD is installed on one side of Bhukhi river for Samudra Township. Below underground pipeline network has been laid for receiving sewage from Mundra town and Adani hospital for treatment as well as treated water discharge to Adani hospital for horticulture purpose with requisite permissions from GPCB. <table><tr><th>Sr. No.</th><th>Pipeline Connectivity</th><th>Purpose</th><th>Length</th><th>Dia.</th><th>Make</th></tr><tr><td>1</td><td>Mundra Village to Samudra Township Existing Sewage Collection Tank</td><td>For treatment of 1 MLD Domestic sewage</td><td>4.2 Km</td><td>315 mm</td><td>HDPE</td></tr><tr><td>2</td><td>Adani Hospital to Existing Mundra Village – Samudra Township Collection tank pipeline</td><td>For treatment of 25 KLD Domestic sewage</td><td>323 mtr</td><td>90mm</td><td>HDPE</td></tr><tr><td>3</td><td>Samudra Township treated water tank to Adani hospital 40m³ tank</td><td>For utilization of treated water @ 150 KLD for gardening purpose</td><td>1.56 Km</td><td>90mm</td><td>HDPE</td></tr></table>	Sr. No.	Pipeline Connectivity	Purpose	Length	Dia.	Make	1	Mundra Village to Samudra Township Existing Sewage Collection Tank	For treatment of 1 MLD Domestic sewage	4.2 Km	315 mm	HDPE	2	Adani Hospital to Existing Mundra Village – Samudra Township Collection tank pipeline	For treatment of 25 KLD Domestic sewage	323 mtr	90mm	HDPE	3	Samudra Township treated water tank to Adani hospital 40m ³ tank	For utilization of treated water @ 150 KLD for gardening purpose	1.56 Km	90mm	HDPE
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32.	Out of total 7.2 MLD of treated sewage conforming the GPCB norms, 2 MLD treated sewage shall be utilized within the project area for plantation / gardening whereas balance 5.2 MLD of treated sewage shall be utilized in the identified area of MPSEZL for plantation /	Complied. During Oct'25 to Mar'26 Avg. 0.829 MLD of treated water was used for gardening / plantation purpose within Township area / Hospital area / APSEZ area.																								

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	gardening.	
33.	In no case, the wastewater / treated sewage shall be discharged into the river Bhukhi passing through the social infrastructure project.	Complied During Oct'25 to Mar'26 avg. 0.829 MLD of treated water from STP was used for gardening / plantation purpose within township area, hospital area and other APSEZ area. Hence in no case, the wastewater / treated sewage is discharged into the river Bhukhi passing through the social infrastructure project.
34.	Best available technology shall be used for disinfection of treated sewage before reuse / discharge.	Complied. Chlorination treatment is provided for disinfection before reuse / discharge.
35.	Rain water harvesting of roof top run off of the building to be constructed as a part of social infrastructure as per the plan submitted shall be implemented. Before recharging the rain water, pre-treatment must be done to remove suspended matter.	Complied. Location of rainwater harvesting was earmarked at one of location in identified SEZ area based on direction of flow of storm water channel. However underground water is saline in nature due to sea water ingress and harvested water is likely to get contaminated in high tide. The project will be taken up upon finding out the solution for rainwater harvesting within project boundary. However, APSEZ has carried out rainwater harvesting activities in the nearby villages for the benefit of the locals. Water conservation Projects i.e. Roof Top Rainwater Harvesting, Desilting of Check dams, Bore Well Recharge and Pond deepening were taken up in past years, review and monitoring of all water harvesting structures had been taken up. Including this a big recharge operation by bunding was taken up for Zarpara village. To make connections between human actions and the level of biological diversity found within a habitat and/or ecosystem, this year Adani Foundation launch project "Sanrakshan" in coordination with GUIDE and Sahjeevan. Since 10 years considerable Water Conservation Work carried out in Mundra Taluka. Due to satisfactory rain in current year 1.11 mtr

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
		ground water table increased as per increased in coastal belt of Mundra as per Government Figures. Our water conservation work is as below. Water Conservation Work Done during Compliance Period Oct'25 to Mar'26: ❖ Renovation of Mamal Sagar created 22,500+ cubic meters of water storage. Benefiting 50+ farms and improving groundwater levels to strengthen local water security. ❖ The Adani Foundation provided timely financial support that enabled the farmer to install a drip irrigation system on two acres—his first experience with modern irrigation. This reduced the risks of rain-fed farming, lowered costs, and ensured efficient water use even during dry periods. ❖ Enhanced water resources through pond deepening, tank renovation, RRWHS setups, and river cleaning—improving water availability for households, farmers, and livestock across villages. The Water Conservation Projects completed earlier: ❖ Check Dam New/Renovation: ➤ Structures: 30 ➤ Water Capacity Increase: 1,072,332 CUM ➤ Beneficiaries: 30,870 ➤ Impact: Enhances water storage and irrigation. ❖ Rainwater Harvesting Structures (RRWHS): ➤ Structures: 355 ➤ Water Capacity Increase: 3,300,000 CUM ➤ Beneficiaries: 1760 ➤ Impact: Maximizes rainwater capture and usage. Rs. 10950 yearly saved/house ❖ Pond Deepening: ➤ Structures: 145 ➤ Water Capacity Increase: 1,028,403 CUM ➤ Beneficiaries: 18,350 ➤ Impact: Improves water retention and availability. ❖ Construction of Percolation Wells: ➤ Structures: 26

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
		➤ Ground Water Recharge: Significant ➤ Beneficiaries: 3,000 ➤ Impact: Boosts groundwater levels and availability. ❖ Bore/Well Recharge: ➤ Structures: 209 ➤ Ground Water Recharge: Significant ➤ Beneficiaries: 1,045 ➤ Impact: Enhances groundwater recharge and sustainability. ❖ Construction of New Wells: ➤ Structures: 8 ➤ Purpose: Drinking Water ➤ Beneficiaries: 9,600 ➤ Impact: Provides reliable drinking water sources ❖ WATER MANAGEMENT PROJECTS: ➤ Percolation Well, Mota Bhadiya: 80 farmers benefited. ➤ Percolation Bore Cleaning, GPVC Villages: 3150 farmers benefited. ➤ Pond Deepening & Road Cleaning, GPVC Villages: 6KM cleaned. ❖ DRIP IRRIGATION - ENHANCING LIVELIHOODS IN KUTCH: ➤ The Drip Irrigation Initiative by Adani Foundation promotes efficient water use in farming by providing financial support to farmers for installing drip systems. It helps conserve water, improve crop yield, and encourage sustainable agriculture in Kutch. With the objective of to preserve the rainwater to reduce the impact of salinity and recharge the ground water (the main source of water) to facilitate the Agricultural activities as well as for drinking water. Please refer to Annexure - 4 for full details of CSR activities carried out by Adani Foundation in the Kutch region. "The budget allocated for CSR activities for the financial year 2025-26 was INR 1131.67 lakh. Out of which, Approx. INR 958.78 lakh has spent during the year FY 2025-26.
36.	The Municipal Solid Waste (MSW) shall be properly collected and segregated at source and it shall	Complied. A well-established system for Municipal Solid Waste (MSW) management is in place. Municipal solid waste collection from AMSIPL area is being done on

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Sr. No.	Conditions	Compliance Status as on 31-03-2026
	be disposed as per the guidelines of the MSW Rules 2000, as may be amended time to time. The dried biomass from the STP will be used as manure in gardening / plantation.	daily bases. Collected dry waste is being transported to APSEZ Material Recovery Facility (MRF) where it is being sorted out in different streams e.g. paper/plastic/cardboard/glass/metal. These sorted wastes are further transported for recycling, whereas remaining non-recyclable waste is bailed and sent to cement plant (M/s. Ambuja Cement Ltd., Kodinar) for Co-processing as RDF (Refused Derived Fuel). Food / Organic Waste generated from AMSIPL premises is being diverted to Organic Waste Converter and Biogas plant installed within APSEZ premises for converting food / organic waste in to manure and / or biogas. Generated manure is being utilized by horticulture department in green belt area and biogas is being utilized in kitchen area for cooking food. Total 599.37 MT organic / food waste generated from entire APSEZ, Mundra was processed for converting in to reach manure and biogas during the compliance period i.e. Oct'25 to Mar'26 and utilized within APSEZ area. Dry waste collection drive including plastic free drive and waste segregation drive is being organised on regularly basis.
37.	The Bio-medical Waste (BMW) shall be disposed as per guidelines of BMW rules 1998 as may be amended from time to time.	Complied. Multispecialty hospital has taken the necessary approvals from GPCB for the disposal of Bio Medical Waste. Total 4.962 MT of bio medical waste was disposed from Adani hospital to Common Bio Medical Waste Treatment facility of M/s Updated Distromed Kutch Services Pvt. Ltd., Bhuj during the compliance period i.e. Oct'25 to Mar'26 at the frequency of once in two days. Logbook showing the record of Bio-medical Waste collection of Adani Hospital for the month Mar'25 is attached as Annexure – 5. Multispecialty hospital has taken BMW Authorization from the GPCB. The copy of BMW Authorization was submitted along with HYCR for the period Apr'22 to Sep'22. Bio-Medical Waste (BMW) Authorization has been amended by the Gujarat Pollution Control Board (GPCB) on 27.05.2024 for the change in the name of the healthcare facility from 'Adani Hospital Mundra Pvt. Limited' to Adani Hospital Mundra Limited'. Additionally, the authorized number of hospital beds has been revised from 110 to 100. Copy of BMW amended authorization was submitted along with HYCR for the period Oct'24 to Mar'25.

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Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
38.	Hazardous wastes, if any generated during the operation phase shall be handled as per the Hazardous Waste (Management, Handling & Transboundary Movement) Rules 2008, as may be amended from time to time.	Point Noted. No hazardous waste was generated during the compliance period of Oct'25 to Mar'26. If any hazardous waste generation in future, it will be disposed through authorised agency only as per Hazardous Waste Rules – 2016. Adani Mundra SEZ Infrastructure Pvt. Ltd, (AMSIPL) has been granted the CC&A-Renewal by GPCB vide Consent No. AWH-121264 issued dated 06/09/2022 and Valid upto: 02/09/2027. The copy of CCA – Renewal order was submitted along with HYCR for the period Apr'22 to Sep'22.
39.	54,600 sq.m. area shall be earmarked for the parking purpose as proposed. The area earmarked for the parking shall be used for parking only. No other activity shall be permitted in this area.	Complied. Construction work for the project is partially completed. Entire parking area is earmarked for parking as per National Building Code requirement within township premises. This parking is used for said purpose only.
40.	Necessary signage including continuous display of status of parking availability at entry, exit and all other appropriate places shall be provided which should have appropriate size of letters and shall be visible from the at least 50 meter distance from the adjacent road.	Complied. Parking area is earmarked as per National Building Code requirement. Trained security guards are deputed round the clock to guide/help for entry, exit and parking. Continuous display regarding status of parking availability will be installed once project is in full-fledged operation.
41.	No public space shall be used or	Complied.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
	blocked for the parking and the trained staff shall be deployed to guide the visitors for parking and helping the senior citizens and physically challenged people	Adequate parking area has been provided as per National Building Code. Trained security guards are available round the clock to guide/help for entry, exit and parking to senior citizens and physically challenged people.
42.	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided.	Complied. Separate entry and exits have been provided at main gate with architectural divider for proper traffic management. Appropriate arrangements are made for emergency situations.
43.	Common utilities like drinking water facility, toilets etc shall be provided on each floor with adequate signage thereof. Adequate distance shall be maintained between the drinking water and toilet blocks.	Complied. Common utilities like drinking water facility, toilets etc. are provided at Adani Hospital and commercial building with adequate distance between drinking water & toilet facilities.
44.	The green belt shall be developed in 50 Hectares area in terms of peripheral green belt around the project site, road side plantation and green belt on either side of the Bhukhi river. The project proponent shall plant at least 20,000 trees in green belt, as	Complied. AMSIPL has developed 58.26 ha area as green belt with plantation of 75,556 saplings in AMSIPL premises. The open spaces inside the social infrastructure project are suitably landscaped and covered with green lawn and other vegetation. So, far APSEZ has developed 458 ha. area as greenbelt with plantation more than 9.06 Lacs saplings within the APSEZ area. Details of the green belt development activity done by APSEZL, Mundra are attached as Annexure – 6 .

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
	proposed. The open spaces inside the social infrastructure project shall be suitably landscape and covered with vegetation of indigenous variety.	
45.	The area earmarked as green area shall be used only for green belt and shall not be altered for any other purpose. The fund earmarked for green belt development shall not be diverted for any other purpose.	Complied. The area earmarked as green area is used only for green belt and not altered for any other purpose. Separate budget for the horticulture department is earmarked every year. Budget for Horticulture Department for the FY 2025-26 is to the tune of INR 831 lakh Out of which, Approx. INR 570 lakh has been spent during the year FY 2025-26. Further details regarding green belt development is provided in condition no. 44 above.
46.	The project proponent shall explore the application of solar energy and shall be incorporated for the illumination of common areas, lighting of internal roads and passages in addition to solar water heating, if any.	Complied. Solar power system of 1.5 MW at roof top of residential blocks of Samudra Township and 69 KW at Adani Hospital has been installed and commissioned. Information has been already submitted to MoEF&CC along with along with HYCR for the period Apr'16 to Sep'16. Total 792.26 MWH of solar power generated and supplied to the grid energy during compliance period i.e. Oct'25 to Mar'26.
47.	The acoustic enclosures shall be installed at all noise generating equipments and the noise level shall be maintained as per the MoEF / CPCB guidelines / norms both during day and	Complied. D.G. Sets having acoustic enclosures are provided as stand-by and used in case of main power failure only. However, regular noise monitoring is being carried out. Noise (once in a month) monitoring is being carried out by NABL and MoEF&CC accredited agency namely M/s. Unistar Environment and Research Labs Pvt. Ltd., Vapi. Summary of the same for duration of Oct'25 to Mar'26 is mentioned below.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026																		
	night time.	Total Sampling Locations & Frequency: 2 Nos. (Monthly) <table><tr><th>Noise</th><th>Unit</th><th>Leq Min</th><th>Leq Max</th><th>Leq Average</th><th>Leq Perm. Limit[§]</th></tr><tr><td>Day Time</td><td>dB(A)</td><td>54.50</td><td>68.50</td><td>63.33</td><td>75</td></tr><tr><td>Night Time</td><td>dB(A)</td><td>50.60</td><td>61.20</td><td>56.99</td><td>70</td></tr></table> [§] as per CC&A granted by GPCB Please refer Annexure – 3 for detailed analysis reports. Approx. INR 21.38 Lakh has been for all environmental monitoring activities during FY 2025-26 for overall APSEZ, Mundra.	Noise	Unit	Leq Min	Leq Max	Leq Average	Leq Perm. Limit [§]	Day Time	dB(A)	54.50	68.50	63.33	75	Night Time	dB(A)	50.60	61.20	56.99	70
Noise	Unit	Leq Min	Leq Max	Leq Average	Leq Perm. Limit [§]															
Day Time	dB(A)	54.50	68.50	63.33	75															
Night Time	dB(A)	50.60	61.20	56.99	70															
48.	The project proponent shall install the electric appliances, which are energy efficient and meeting with the Bureau of Energy Efficiency norms, wherever applicable.	Complied. Energy Conservation through Installation of Motion Sensor (Occu switch) & AC Temp. Controls in buildings are provided. AMSIPL has installed the electric appliances which meets the Energy Efficiency norms.																		
49.	The energy audit shall be conducted at regular interval for the project and the recommendations of the audit report shall be implemented with spirit.	Complied. To comply with the Energy Audit study at every 3 years, recently AMSIPL has awarded the work order to M/s. ECO ENERGY SOLUTION, and Energy Audit report & with acknowledgement copy for the same is attached as Annexure - 7.																		
50.	The roof should meet regulatory requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfil requirements.	Complied. Energy Conservation Building Code is considered during the development of buildings.																		
51.	Use of glass shall be	Complied.																		

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
	minimal to reduce the electricity consumption and load on air-conditioning.	Minimal glass is used in air conditioning areas to reduce electricity consumption and load on air-conditioning.
52.	Risk estimation shall be carried out for the project and disaster management plan shall be prepared and its recommendations shall be implemented in the time bound manner.	Complied. Emergency Response Plan was prepared by Trivedi & Associates Technical Services Pvt. Ltd in August 2015 for AMSIPL which included risk estimation for medical emergency, fire emergency, natural calamities. Detail submitted to the MoEF & CC along with HYCR for the period from Apr – 2015 to Sep – 2015. Various plans as fire service plan, communication plan, mutual aid plan, and evacuation plan are implemented to combat with emergency situations.
53.	The raw water sumps will be equipped with suction differential head / partition so as to insure that minimum 500 KL water shall remain reserved as fire water as proposed.	Complied. 250 KL of fire water is reserved with fire hydrant system for Adani hospital. Approximately 400 KL water is available in 6 different water tanks at various sectors of Samudra Township. In total, more than 500 KL water is reserved as fire water at AMSIPL.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026														
54.	Necessary emergency lighting system along with emergency power back up system shall be provided. In addition, emergency public address system arrangement and signage for emergency exit route shall be provided on each floor.	Complied. Power is supplied through M/s MPSEZ Utilities Limited to the project site. Power failure is the rarest situation in the area and in case of such emergency, there is provision of 125 KVA D.G. set at Samudra Township and 500 KVA D.G. set at Adani Hospital. Public address system is available with the security staff in the vicinity. Emergency contact is display each block as below <table><tr><td>Security control</td><td>8980048877</td></tr><tr><td>Township Security control</td><td>8980015046</td></tr><tr><td>Medical Adani hospital reception</td><td>2838-619555</td></tr><tr><td>Medical Emergency Number -</td><td>2838-619667</td></tr><tr><td>Medical Emergency mobile Number</td><td>7574848413</td></tr><tr><td>Fire control room-</td><td>2838-255801</td></tr><tr><td>Fire control room mob.</td><td>9879114996</td></tr></table>	Security control	8980048877	Township Security control	8980015046	Medical Adani hospital reception	2838-619555	Medical Emergency Number -	2838-619667	Medical Emergency mobile Number	7574848413	Fire control room-	2838-255801	Fire control room mob.	9879114996
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55.	Necessary auto glow, signage at all appropriate places shall be provided to guide the people towards exits and assembly points during the unforeseen emergency and eventuality conditions.	Complied. Auto glow signage is provided at adequate locations to provide guidance to the people towards exits. Also, the township & Adani Hospital is under security guard surveillance to combat unforeseen emergency conditions. Photograph showing the auto glow signages were submitted along with compliance report submission for the duration of Oct'16 to Mar'17. Photographs showing the emergency signages were submitted along with HYCR for the period Apr'19 to Sep'19.														
56.	Training to the staff for the First Aid and Fire Fighting Alarm with regular mock drill shall be conducted regularly and shall be made in integral part of the disaster management plan of the project.	Complied. For first aid situations a First Aid centre is provided at Samudra Township. Multispecialty Hospital is part of the project activity which can be utilised for medical emergencies. Regular mock drills and fire safety training are also conducted at the project site. A "Fire Mela" was organized on 3rd May 2026 on the occasion of National Fire Service Week to promote awareness on home fire safety, kitchen safety, and firefighting training among households in the township.														

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026																																																						
57.	Ozone Depleting Substance (Regulation and Control) rules shall be followed while designing the air conditioning system of the project.	Complied. Ozone Depleting Substance inventory was produced and is maintained during the compliance period of Oct'18 to Mar'19. New gas being used in refilling of ACs is ozone friendly in nature.																																																						
58.	Environment Management Cell shall be formed by the project proponent during operation phase which will supervise and monitor the environment related aspects of the project including incremental pollution loads on the ambient air quality, noise and water quality periodically till the management of the project remains with the project proponent.	Complied. APSEZL has a well-structured Environment Management Cell, staffed with qualified manpower for implementation of the Environment Management Plan at site, who are also looking for AMSIPL as a subsidiary entity of APSEZ. Site environment head direct report to site Chief Executive Officer (CEO) and the CEO directly reports to the top management. Updated Environment Management Cell Organogram is attached as Annexure -1. Ambient Air Quality (twice in a week) and Noise (once in a month) monitoring are being carried out by NABL and MoEF&CC accredited agency namely M/s. Unistar Environment and Research Labs Pvt. Ltd., Vapi. Summary of the same for the duration from Oct'25 to Mar'26 is mentioned below. Total Sampling Locations & Frequency: 2 Nos. <table><tr><th>Parameter</th><th>Unit</th><th>Min</th><th>Max</th><th>Average</th><th>Perm. Limit[§]</th></tr><tr><td colspan="6">AAQM</td></tr><tr><td>PM₁₀</td><td>µg/m³</td><td>53.05</td><td>76.84</td><td>65.65</td><td>100</td></tr><tr><td>PM_{2.5}</td><td>µg/m³</td><td>12.78</td><td>28.65</td><td>18.05</td><td>60</td></tr><tr><td>SO₂</td><td>µg/m³</td><td>9.17</td><td>25.12</td><td>15.93</td><td>80</td></tr><tr><td>NO₂</td><td>µg/m³</td><td>12.34</td><td>30.13</td><td>19.94</td><td>80</td></tr><tr><td>Noise</td><td>Unit</td><td>Leq Min</td><td>Leq Max</td><td>Leq Average</td><td>Leq Perm. Limit*</td></tr><tr><td>Day Time</td><td>dB(A)</td><td>54.50</td><td>68.50</td><td>63.33</td><td>75</td></tr><tr><td>Night Time</td><td>dB(A)</td><td>50.60</td><td>61.20</td><td>56.99</td><td>70</td></tr></table> § as per NAAQ standards, 2009 * as per CC&A granted by GPCB Please refer Annexure – 3 for detailed analysis reports. Approx. INR	Parameter	Unit	Min	Max	Average	Perm. Limit [§]	AAQM						PM ₁₀	µg/m ³	53.05	76.84	65.65	100	PM _{2.5}	µg/m ³	12.78	28.65	18.05	60	SO ₂	µg/m ³	9.17	25.12	15.93	80	NO ₂	µg/m ³	12.34	30.13	19.94	80	Noise	Unit	Leq Min	Leq Max	Leq Average	Leq Perm. Limit*	Day Time	dB(A)	54.50	68.50	63.33	75	Night Time	dB(A)	50.60	61.20	56.99	70
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	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
		21.38 Lakh has been incurred for all environmental monitoring activities during FY 2025-26 for overall APSEZ, Mundra.
B. General Conditions		
59.	The project proponent shall permit the outside people to use the social infrastructures like hospital, schools, colleges etc. coming up in the proposed project, as per their undertaking dated 21/07/2009.	Complied. Outside people are allowed to use the social infrastructures like hospital and school. Total 1162 patients including OPD (Outpatient Department) as well IPD (In-Patient Department) from nearby villages were treated in the Hospital during this compliance period. Approx. INR 7.48 Lakh worth of free medical services given to nearby villagers during the compliance period Oct'25 to Mar'26.
60.	Various provisions of the Environment (Protection) Act, 1986 and the Rules / Notifications issued there under by the Ministry of Environment and Forest, Govt. of India, from time to time shall be strictly complied with.	Point noted.
61.	No further expansion or modification in the plant shall be carried out without prior approval of the MoEF/SEIAA as the case may be. In case of deviations or alterations in the project proposal from those submitted to MoEF / SEIAA / SEAC for	Point noted.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
	clearance, a fresh reference shall be made to the SEIAA / SEAC to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	
62.	The project authorities shall earmark adequate funds to implement the conditions stipulated by SEIAA as well as GPCB along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	Complied. Separate budget for the Environment cell is earmarked every year. All environmental and horticulture activities are considered at group level and budget allocation is also done accordingly. Budget for environmental management measures (including horticulture) for the FY 2025-26 is to the tune of INR 831 lakh. Out of which, Approx. INR 570 lakh has been spent during the year FY 2025-26. Detailed breakup of the expenditures for the past 3 years is attached as Annexure – 8.
63.	The applicant shall inform the public that the project has been accorded Environmental Clearance by the SEIAA and i.e. copies of the clearance letter are available with the GPCB and may also be seen at the website of SEIAA / SEAC / GPCB. This shall be advertised	Already complied. Not applicable at present. The advertisement was circulated in Gujarati language through local newspaper – Kutchh Mitra as well as in English language through local newspaper – Indian Express on the date of 10.03.2010. Information has been already submitted to MoEF & CC along with HYCR for the period April – 2015 to Sep – 2015.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026																					
	within seven days from the date of the clearance letter, in at least two local newspaper that are widely circulated in the region, one of which shall be in the Gujarati language and the other in English. A copy each of the same shall be forwarded to the concerned regional office of the Ministry.																						
64.	It shall be mandatory for the project management to submit half yearly compliance report in respect of the stipulated prior Environmental Clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1 st June and 1 st December of each calendar year.	Complied. Compliance report of EC conditions is uploaded regularly. A soft copy of last compliance report including results of monitoring data for the period of Apr'25 to Sep'25 was submitted through e-mail to Integrated Regional Office (IRO), MoEF&CC @ Gandhinagar, Zonal Office of CPCB @ Baroda, GPCB @ Gandhinagar & Gandhidham and SEIAA, Gandhinagar vide our letter dated 22.11.2025. The copy of the same is also available on our website https://www.adaniports.com/Downloads as well as also uploaded on MoEF&CC Parivesh Portal dated 26.11.2025. Please refer below to the details regarding past six compliance submissions. <table border="1"> <thead> <tr> <th>Sr. No.</th><th>Compliance period</th><th>Date of submission</th></tr> </thead> <tbody> <tr> <td>1</td><td>Oct'22 to Mar'23</td><td>30.05.2023</td></tr> <tr> <td>2</td><td>Apr'23 to Sep'23</td><td>29.11.2023</td></tr> <tr> <td>3</td><td>Oct'23 to Mar'24</td><td>29.05.2024</td></tr> <tr> <td>4</td><td>Apr'24 to Sep'24</td><td>29.11.2025</td></tr> <tr> <td>5</td><td>Oct'24 to Mar'25</td><td>29.05.2025</td></tr> <tr> <td>6</td><td>Apr'25 to Sep'25</td><td>26.11.2025</td></tr> </tbody> </table>	Sr. No.	Compliance period	Date of submission	1	Oct'22 to Mar'23	30.05.2023	2	Apr'23 to Sep'23	29.11.2023	3	Oct'23 to Mar'24	29.05.2024	4	Apr'24 to Sep'24	29.11.2025	5	Oct'24 to Mar'25	29.05.2025	6	Apr'25 to Sep'25	26.11.2025
Sr. No.	Compliance period	Date of submission																					
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2	Apr'23 to Sep'23	29.11.2023																					
3	Oct'23 to Mar'24	29.05.2024																					
4	Apr'24 to Sep'24	29.11.2025																					
5	Oct'24 to Mar'25	29.05.2025																					
6	Apr'25 to Sep'25	26.11.2025																					
65.	The project authorities shall also adhere to the	Point noted.																					

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

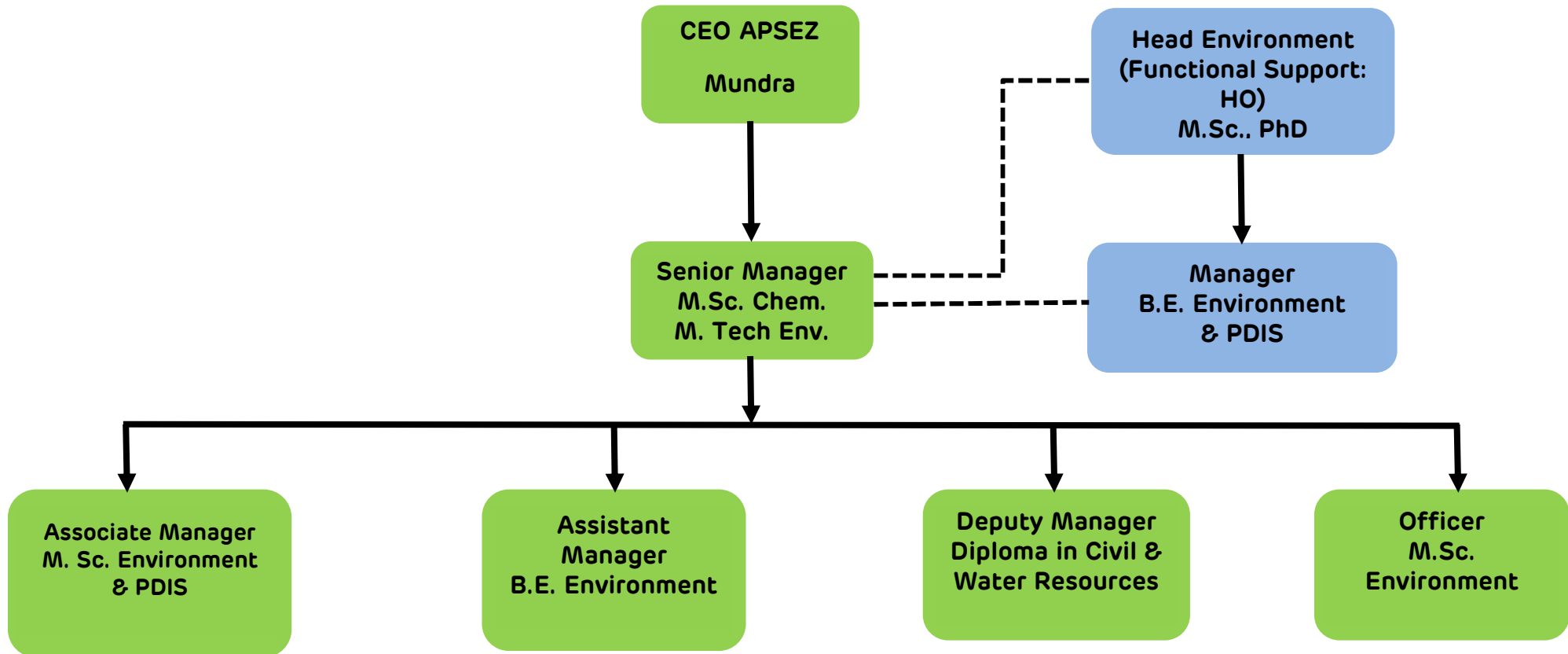
Sr. No.	Conditions	Compliance Status as on 31-03-2026
	stipulations made by the Gujarat Pollution Control Board.	
66.	The project authorities shall inform the GPCB, regional office of MoEF and SEIAA about the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Complied
67.	The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.	Point noted.
68.	The company in a time bound manner shall implement these conditions. The SEIAA reserves the right to stipulate additional conditions, if the same is found necessary. The above conditions will be enforced inter-alia under the provisions of the water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution)	Complied. The company has implemented the conditions provided, and the compliance report is being submitted regularly. Please refer to Condition No. 64 for further details.

	Adani Mundra SEZ Infrastructure Pvt. Ltd., Mundra.	From : Oct'25 To : Mar'26
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 31-03-2026
	Act, 1981, the environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	
69.	This environmental clearance is valid for five years from the date of issue.	Point noted.
	Additional condition - (amendment to Environment Clearance Order No. SEIAA/GUJ/EC/8(b)/44/2010 dated 20 February 2010	
--	The applicant shall carry out comparative carbon footprint study of low rise building with large ground coverage v/s high rise building with low ground coverage through reputed institute like CEPT or GIDR and submitted to SEIAA within one year from the issuance of EC.	Complied. Comparative carbon footprint study report submitted to the MoEF & CC along with HYCR for the period Oct – 2014 to March – 2015.

Annexure – 1

Updated Organogram of Environment Management Cell, APSEZ, Mundra



Annexure – 2

Water Consumption and Wastewater Generation Details for AMSIPL (Oct'25 to Mar'26)

Month	Fresh Water Consumption (Samudra Township), KL	Fresh Water Consumption (Adani Hospital), KL	Total STP Inlet Water (Samudra Township + Adani Hospital + Mundra Town), KL	Total STP Outlet Water, KL
Oct-25	38664	823	34699	30351
Nov-25	32144	906	31176	23807
Dec-25	29389	912	36276	30529
Jan-26	28146	991	26531	20544
Feb-26	26130	1055	23730	19859
Mar-26	32994	797	28297	25879
Total	187467	5484	180709	150969
Avg. Per Day	1030.04	30.13	992.91	829.50

Sewage Received at Samudra Township STP (Oct'25 to Mar'26)

Month	Samudra Township, KL	Adani Hospital, KL	Mundra Town, KL
Oct-25	32017	492	2190
Nov-25	28510	425	2241
Dec-25	31167	366	4743
Jan-26	24615	401	1515
Feb-26	21876	366	1488
Mar-26	27885	412	0
Total	166070	2462	12177
Avg. Per Day	912.47	13.53	60.91

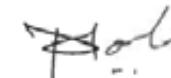
Annexure – 3

RESULTS OF STP OUTLET WATER

SR.NO.	TEST PARAMETERS	UNIT	SAMUNDRA TOWNSHIP STP OUTLET						GPCB Permissible Limit	TEST METHOD
			Oct-25		Nov-25		Dec-25			
			08-10-2025	29-10-2025	04-11-2025	18-11-2025	01-12-2025	16-12-2025		
1	pH @ 25 ° C	--	7.64	7.68	8.22	7.69	7.22	7.61	6.5 to 9	IS 3025 (Part-11):2022
2	Total Suspended Solids	mg/L	22	10	12	14	12	28	100	APHA 24th Ed.2023,2540 - D
3	Biochemical Oxygen Demand (BOD) (5 days at 20 ° C)	mg/L	15	18	14	17	15	18	30	APHA 24th Ed.2023,5210-B
4	Residual chlorine	mg/L	0.66	0.62	0.55	0.64	0.66	0.62	0.5 Min.	APHA 24th Ed.2023,4500-Cl-G
5	Fecal Coliform	MPN Index/100ml	27	60	30	64	27	60	1000	IS 1622: 1981



Mr. Nilesh Patel
Sr. Chemist

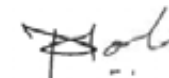
Mr. Nitin Tandel
Technical Manager

RESULTS OF STP OUTLET WATER

SR.NO	TEST PARAMETERS	UNIT	SAMUNDRA TOWNSHIP STP OUTLET						GPCB Permissible Limit	TEST METHOD
			Jan-26		Feb-26		Mar-26			
			12-01-2026	19-01-2026	02-02-2026	16-02-2026	03-03-2026	23-03-2026		
1	pH @ 25 ° C	--	8.12	7.96	7.38	7.11	6.73	7.21	6.5 to 9	IS 3025 (Part-11):2022
2	Total Suspended Solids	mg/L	10	14	26	22	26	12	100	APHA 24th Ed.2023,2540 - D
3	Biochemical Oxygen Demand (BOD) (5 days at 20 ° C)	mg/L	15	16	15	14	18	16	30	APHA 24th Ed.2023,5210- B
4	Residual chlorine	mg/L	0.56	0.58	0.62	0.58	0.67	0.56	0.5 Min.	APHA 24th Ed.2023,4500- CI-G
5	Fecal Coliform	MPN Index/100ml	32	40	27	64	21	60	1000	IS 1622: 1981



Mr. Nilesh Patel
Sr. Chemist

Mr. Nitin Tandel
Technical Manager

Results of Ambient Air Quality Monitoring

Name of Location		SAMUDRA TOWNSHIP – STP											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³	NH ₃ µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
1.	02-10-2025	67.31	16.20	15.37	18.83	NOT DETECTE D	NOT DETECTE D	<5.0	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D
2.	06-10-2025	71.47	18.25	16.54	20.31	--	--	--	--	--	--	--	--
3.	09-10-2025	73.25	19.74	17.39	22.54	--	--	--	--	--	--	--	--
4.	13-10-2025	68.64	18.42	15.26	19.74	--	--	--	--	--	--	--	--
5.	16-10-2025	64.93	16.47	13.75	16.52	--	--	--	--	--	--	--	--
6.	20-10-2025	66.39	17.11	14.02	18.69	--	--	--	--	--	--	--	--
7.	23-10-2025	61.29	15.43	12.63	15.58	--	--	--	--	--	--	--	--
8.	27-10-2025	55.49	12.78	9.17	12.34	--	--	--	--	--	--	--	--
9.	30-10-2025	59.49	14.27	10.53	14.91	--	--	--	--	--	--	--	--
10.	03-11-2025	61.37	15.82	12.74	16.82	--	--	--	--	--	--	--	--
11.	06-11-2025	64.58	17.83	13.48	18.42	--	--	--	--	--	--	--	--
12.	10-11-2025	68.58	20.35	15.67	20.11	--	--	--	--	--	--	--	--
13.	13-11-2025	65.39	18.31	15.25	19.83	--	--	--	--	--	--	--	--
14.	17-11-2025	71.27	23.14	17.58	19.13	--	--	--	--	--	--	--	--
15.	20-11-2025	68.54	21.58	15.46	20.36	--	--	--	--	--	--	--	--
16.	24-11-2025	74.36	23.72	17.91	21.35	--	--	--	--	--	--	--	--

Continue...

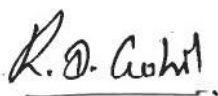
Name of Location		SAMUDRA TOWNSHIP – STP												
Sr. No.	Date of Monitoring	Parameter with Results												
		PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NO2 µg/m3	CO mg/m3	NH3 µg/m³	Ozone µg/m³	Pb µg/m³	Ni ng/m³	As ng/m³	Benzene µg/m³	B(a)P ng/m³	
17.	27-11-2025	70.91	20.63	16.47	20.84	--	--	--	--	--	--	--	--	
18.	01-12-2025	68.43	18.62	15.84	20.15	--	--	--	--	--	--	--	--	
19.	04-12-2025	72.38	21.45	17.23	21.63	--	--	--	--	--	--	--	--	
20.	08-12-2025	75.69	24.57	21.63	25.72	--	--	--	--	--	--	--	--	
21.	11-12-2025	69.11	20.94	18.68	23.49	--	--	--	--	--	--	--	--	
22.	15-12-2025	65.48	16.54	15.62	20.82	--	--	--	--	--	--	--	--	
23.	18-12-2025	61.24	13.79	11.24	15.63	--	--	--	--	--	--	--	--	
24.	22-12-2025	64.39	17.68	15.49	19.37	--	--	--	--	--	--	--	--	
25.	25-12-2025	67.93	19.72	18.76	23.32	--	--	--	--	--	--	--	--	
26.	29-12-2025	63.48	17.14	16.52	19.68	--	--	--	--	--	--	--	--	
27.	01-01-2026	60.38	14.25	13.02	17.44	NOT DETECTE D	<5.0	<5.0	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	
28.	05-01-2026	64.58	16.85	14.68	18.45	--	--	--	--	--	--	--	--	
29.	08-01-2026	69.56	19.13	17.64	21.35	--	--	--	--	--	--	--	--	
30.	12-01-2026	66.24	17.85	15.24	20.12	--	--	--	--	--	--	--	--	
31.	15-01-2026	72.49	19.32	17.69	21.73	--	--	--	--	--	--	--	--	
32.	19-01-2026	74.31	23.46	25.12	29.46	--	--	--	--	--	--	--	--	
33.	22-01-2026	68.83	20.15	17.74	22.15	--	--	--	--	--	--	--	--	

Continue...

Name of Location		SAMUDRA TOWNSHIP – STP											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM10 µg/m ³	PM2.5 µg/m ³	SO2 µg/m ³	NO2 µg/m ³	CO mg/m ³	NH3 µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
34.	26-01-2026	64.39	15.67	14.52	28.64	--	--	--	--	--	--	--	--
35.	29-01-2026	68.72	18.97	17.85	21.26	--	--	--	--	--	--	--	--
36.	02-02-2026	65.36	15.82	16.13	20.64	--	--	--	--	--	--	--	--
37.	05-02-2026	69.1	16.57	14.38	18.64	--	--	--	--	--	--	--	--
38.	09-02-2026	67.53	13.25	10.97	14.26	--	--	--	--	--	--	--	--
39.	12-02-2026	74.38	19.65	16.42	21.11	--	--	--	--	--	--	--	--
40.	16-02-2026	64.32	15.29	12.57	16.93	--	--	--	--	--	--	--	--
41.	19-02-2026	66.14	16.38	15.44	18.79	--	--	--	--	--	--	--	--
42.	23-02-2026	76.73	19.35	16.28	20.63	--	--	--	--	--	--	--	--
43.	26-02-2026	70.79	17.63	15.03	18.75	--	--	--	--	--	--	--	--
44.	02-03-2026	72.46	22.27	18.63	22.16	--	--	--	--	--	--	--	--
45.	05-03-2026	75.13	26.41	22.59	26.68	--	--	--	--	--	--	--	--
46.	09-03-2026	76.84	28.65	25.11	30.13	--	--	--	--	--	--	--	--
47.	12-03-2026	73.21	24.74	21.84	26.42	--	--	--	--	--	--	--	--
48.	16-03-2026	70.68	21.14	19.47	23.19	--	--	--	--	--	--	--	--
49.	19-03-2026	66.43	17.14	15.89	19.46	--	--	--	--	--	--	--	--
50.	23-03-2026	69.95	19.38	17.32	22.45	--	--	--	--	--	--	--	--

Continue...

Name of Location		SAMUDRA TOWNSHIP – STP											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM10 µg/m ³	PM2.5 µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	CO mg/m ³	NH ₃ µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
51.	26-03-2026	73.13	22.51	19.47	23.15	--	--	--	--	--	--	--	--
52.	30-03-2026	68.74	21.12	19.85	24.81	--	--	--	--	--	--	--	--
Permissible Value as per NAAQMS		100.0	60.0	80.0	80.0	2.0	400	100	1	20	6	5	1
Test Method		IS - 5182, Part- 23	UERL/AI R/SOP/1 1	IS - 5182, Part - 2	IS - 5182, Part - 6	IS - 5182, Part - 10	UERL/AI R/SOP/0 5	IS – 5182, Part – 9	IS – 5182, Part – 22	IS – 5182, Part – 22	IS – 5182, Part – 22	IS – 5182, Part – 11	IS – 5182, Part – 12



Rajnish D. Gohil
(Chemist)




Jaivik S. Tandel
(Manager - Operations)

Results of Ambient Air Quality Monitoring

Name of Location		SAMUDRA TOWNSHIP CUSTOMER CARE											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM10 µg/m ³	PM2.5 µg/m ³	SO2 µg/m ³	NO2 µg/m ³	CO mg/m ³	NH3 µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
1.	02-10-2025	55.48	16.52	12.42	15.91	NOT DETECTE D	<5.0	<5.0	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D
2.	06-10-2025	57.82	17.59	13.65	16.27	--	--	--	--	--	--	--	--
3.	09-10-2025	60.13	18.64	14.87	18.42	--	--	--	--	--	--	--	--
4.	13-10-2025	55.48	15.37	11.25	14.26	--	--	--	--	--	--	--	--
5.	16-10-2025	58.63	16.82	14.38	17.59	--	--	--	--	--	--	--	--
6.	20-10-2025	63.46	17.58	15.64	18.13	--	--	--	--	--	--	--	--
7.	23-10-2025	67.14	20.11	17.68	21.36	--	--	--	--	--	--	--	--
8.	27-10-2025	65.48	17.58	15.42	18.58	--	--	--	--	--	--	--	--
9.	30-10-2025	60.42	16.33	13.69	16.42	--	--	--	--	--	--	--	--
10.	03-11-2025	62.39	17.42	14.68	17.13	--	--	--	--	--	--	--	--
11.	06-11-2025	58.64	15.35	12.64	14.39	--	--	--	--	--	--	--	--
12.	10-11-2025	56.49	14.26	14.37	17.65	--	--	--	--	--	--	--	--
13.	13-11-2025	60.83	16.51	16.42	19.24	--	--	--	--	--	--	--	--
14.	17-11-2025	65.47	18.32	17.65	20.33	--	--	--	--	--	--	--	--
15.	20-11-2025	68.57	19.79	18.14	22.62	--	--	--	--	--	--	--	--
16.	24-11-2025	64.36	17.13	15.47	18.64	--	--	--	--	--	--	--	--

Continue...

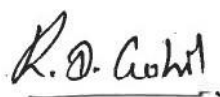
Name of Location		SAMUDRA TOWNSHIP CUSTOMER CARE												
Sr. No.	Date of Monitoring	Parameter with Results												
		PM10 µg/m3	PM2.5 µg/m3	SO2 µg/m3	NO2 µg/m3	CO mg/m3	NH3 µg/m³	Ozone µg/m³	Pb µg/m³	Ni ng/m³	As ng/m³	Benzene µg/m³	B(a)P ng/m³	
17.	27-11-2025	66.18	20.53	18.88	21.46	--	--	--	--	--	--	--	--	
18.	01-12-2025	65.48	19.34	17.83	21.26	--	--	--	--	--	--	--	--	
19.	04-12-2025	67.94	20.38	20.13	24.27	--	--	--	--	--	--	--	--	
20.	08-12-2025	63.18	17.73	16.54	20.19	--	--	--	--	--	--	--	--	
21.	11-12-2025	60.59	15.39	13.28	16.73	--	--	--	--	--	--	--	--	
22.	15-12-2025	58.49	14.83	14.37	17.48	--	--	--	--	--	--	--	--	
23.	18-12-2025	62.37	15.28	16.13	19.78	--	--	--	--	--	--	--	--	
24.	22-12-2025	67.49	19.73	18.86	23.13	--	--	--	--	--	--	--	--	
25.	25-12-2025	64.3	16.58	15.37	18.52	--	--	--	--	--	--	--	--	
26.	29-12-2025	57.69	15.91	16.48	19.24	--	--	--	--	--	--	--	--	
27.	01-01-2026	56.84	14.16	12.47	16.82	NOT DETECTE D	<5.0	<5.0	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	NOT DETECTE D	
28.	05-01-2026	53.05	13.82	10.91	13.45	--	--	--	--	--	--	--	--	
29.	08-01-2026	58.84	16.75	15.33	19.16	--	--	--	--	--	--	--	--	
30.	12-01-2026	62.49	18.13	16.84	20.92	--	--	--	--	--	--	--	--	
31.	15-01-2026	67.95	20.83	19.62	23.45	--	--	--	--	--	--	--	--	
32.	19-01-2026	64.93	19.14	17.37	20.14	--	--	--	--	--	--	--	--	
33.	22-01-2026	61.93	17.62	15.16	18.75	--	--	--	--	--	--	--	--	

Continue...

Name of Location		SAMUDRA TOWNSHIP CUSTOMER CARE											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM10 µg/m ³	PM2.5 µg/m ³	SO2 µg/m ³	NO2 µg/m ³	CO mg/m ³	NH3 µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
34.	26-01-2026	58.04	13.14	12.83	15.19	--	--	--	--	--	--	--	--
35.	29-01-2026	64.39	15.84	13.65	16.72	--	--	--	--	--	--	--	--
36.	02-02-2026	62.73	16.13	14.86	20.11	--	--	--	--	--	--	--	--
37.	05-02-2026	65.94	17.55	16.34	21.48	--	--	--	--	--	--	--	--
38.	09-02-2026	68.35	20.15	18.56	23.24	--	--	--	--	--	--	--	--
39.	12-02-2026	66.5	18.42	17.38	21.65	--	--	--	--	--	--	--	--
40.	16-02-2026	63.18	15.23	13.48	17.59	--	--	--	--	--	--	--	--
41.	19-02-2026	60.95	13.47	14.29	18.67	--	--	--	--	--	--	--	--
42.	23-02-2026	64.93	16.47	15.96	21.31	--	--	--	--	--	--	--	--
43.	26-02-2026	67.95	18.82	17.52	22.47	--	--	--	--	--	--	--	--
44.	02-03-2026	66.28	17.19	15.47	19.37	--	--	--	--	--	--	--	--
45.	05-03-2026	69.13	18.64	16.39	21.14	--	--	--	--	--	--	--	--
46.	09-03-2026	72.93	21.14	18.73	22.68	--	--	--	--	--	--	--	--
47.	12-03-2026	66.49	17.53	15.42	20.36	--	--	--	--	--	--	--	--
48.	16-03-2026	60.18	14.23	12.37	16.59	--	--	--	--	--	--	--	--
49.	19-03-2026	61.15	15.48	13.83	18.11	--	--	--	--	--	--	--	--
50.	23-03-2026	65.49	17.54	15.46	20.87	--	--	--	--	--	--	--	--

Continue...

Name of Location		SAMUDRA TOWNSHIP CUSTOMER CARE											
Sr. No.	Date of Monitoring	Parameter with Results											
		PM10 µg/m ³	PM2.5 µg/m ³	SO2 µg/m ³	NO2 µg/m ³	CO mg/m ³	NH3 µg/m ³	Ozone µg/m ³	Pb µg/m ³	Ni ng/m ³	As ng/m ³	Benzene µg/m ³	B(a)P ng/m ³
51.	26-03-2026	63.49	16.31	14.11	19.61	--	--	--	--	--	--	--	--
52.	30-03-2026	67.13	18.79	15.47	20.32	--	--	--	--	--	--	--	--
Permissible Value as per NAAQMS		100.0	60.0	80.0	80.0	2.0	400	100	1	20	6	5	1
Test Method		IS - 5182, Part- 23	UERL/AI R/SOP/1 1	IS - 5182, Part - 2	IS - 5182, Part - 6	IS - 5182, Part - 10	UERL/AI R/SOP/0 5	IS – 5182, Part – 9	IS – 5182, Part – 22	IS – 5182, Part – 22	IS – 5182, Part – 22	IS – 5182, Part – 11	IS – 5182, Part – 12


Rajnish D. Gohil
(Chemist)




Jaivik S. Tandel
(Manager - Operations)

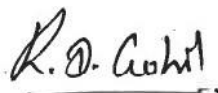
Results of Noise Level Monitoring

Location Name		SAMUDRA TOWNSHIP – STP					
Sr. No.	Sampling Date and Time	Noise Level Leq. dB(A) - Day Time					
		07-10-2025	07-11-2025	05-12-2025	06-01-2026	07-02-2026	06-03-2026
1	06:00 to 07:00	60.7	61.4	63.5	62.5	62.8	60.5
2	07:00 to 08:00	61.4	61.9	63.2	64.9	65.1	62.8
3	08:00 to 09:00	62.7	62.7	65.7	65.7	65.7	66.1
4	09:00 to 10:00	64.5	64.5	64.8	64.8	64.8	65.5
5	10:00 to 11:00	64.3	65.7	65.8	65.8	65.8	68.3
6	11:00 to 12:00	65.8	65.8	66.2	66.2	66.5	66.4
7	12:00 to 13:00	65.4	65.4	66.7	66.5	65.8	64.6
8	13:00 to 14:00	65.1	65.1	66.3	66.3	64.7	66.3
9	14:00 to 15:00	64.7	62.4	64.5	64.5	65.2	68.5
10	15:00 to 16:00	65.2	65.2	64.7	65.8	66.4	64.5
11	16:00 to 17:00	65.6	66.8	65.3	65.3	66.8	63.5
12	17:00 to 18:00	66.1	66.1	66.9	64.3	65.4	65.6
13	18:00 to 19:00	64.3	64.3	65.6	65.9	66.1	61.5
14	19:00 to 20:00	65.4	65.4	65.3	65.3	65.3	63.5
15	20:00 to 21:00	62.7	60.3	64.7	64.7	64.7	60.5
16	21:00 to 22:00	57.2	57.5	61.8	61.2	61.5	58.5
Day Time		<75 dB (A)					

Continue...

Location Name		SAMUDRA TOWNSHIP – STP					
Sr. No.	Sampling Date and Time	Noise Level Leq. dB(A) – Night Time					
		07-10-2025	07-11-2025	05-12-2025	06-01-2026	07-02-2026	06-03-2026
1	22:00 to 23:00	57.4	58.5	57.8	56.4	58.7	57.1
2	23:00 to 24:00	57.3	56.7	57.5	56.8	57.5	56.2
3	24:00 to 01:00	58.5	55.4	56.4	54.5	56.8	54.2
4	01:00 to 02:00	56.1	55.5	56.1	55.7	56.3	57.8
5	02:00 to 03:00	56.8	55.2	55.7	56.1	56.2	51.5
6	03:00 to 04:00	59.3	56.2	55.4	55.4	57.8	50.6
7	04:00 to 05:00	60.5	57.7	56.2	55.9	57.4	55.3
8	05:00 to 06:00	60.4	58.3	58.1	58.3	58.7	56.9
Night Time		<70 dB (A)					

Test Method	IS: 9989 : 1981
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Rajnish D. Gohil
(Chemist)



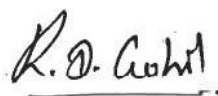

Jaivik S. Tandel
(Manager - Operations)

Results of Noise Level Monitoring

Location Name		SAMUDRA TOWNSHIP CUSTOMER CARE					
Sr. No.	Sampling Date and Time	Noise Level Leq. dB(A) - Day Time					
		10-10-2025	12-11-2025	09-12-2025	09-01-2026	10-02-2026	11-03-2026
1	06:00 to 07:00	56.4	55.9	55.7	55.2	54.5	59.3
2	07:00 to 08:00	58.6	58.4	57.3	56.9	56.2	58.4
3	08:00 to 09:00	59.4	59.4	58.6	57.4	56.9	62.5
4	09:00 to 10:00	61.3	61.3	59.8	58.6	57.4	68.4
5	10:00 to 11:00	63.4	63.4	62.4	63.4	60.2	65.4
6	11:00 to 12:00	63.4	63.4	65.4	64.8	62.4	66.3
7	12:00 to 13:00	64.2	64.2	65.9	65.7	64.5	66.7
8	13:00 to 14:00	64.8	64.8	65.3	64.6	65.9	64.9
9	14:00 to 15:00	63.1	63.1	62.7	63.9	64.1	66.8
10	15:00 to 16:00	64.8	64.8	63.5	62.4	63.8	63.6
11	16:00 to 17:00	64.9	65.3	64.8	64.1	64.5	64.8
12	17:00 to 18:00	65.7	64.7	63.6	63.6	63.4	62.2
13	18:00 to 19:00	65.2	63.2	62.9	62.9	62.8	68.4
14	19:00 to 20:00	63.2	63.2	60.8	60.8	62.1	67.1
15	20:00 to 21:00	60.5	63.2	58.4	58.4	60.5	60.2
16	21:00 to 22:00	58.7	59.1	58.2	59.3	57.6	63.4
Day Time		<75 dB (A)					

Location Name		SAMUDRA TOWNSHIP CUSTOMER CARE					
Sr. No.	Sampling Date and Time	Noise Level Leq. dB(A) - Night Time					
		10-10-2025	12-11-2025	09-12-2025	09-01-2026	10-02-2026	11-03-2026
1	22:00 to 23:00	58.5	58.2	58.6	58.3	57.3	59.6
2	23:00 to 24:00	59.5	57.5	56.9	56.7	56.9	60.3
3	24:00 to 01:00	60.3	55.2	57.3	57.2	56.5	59.7
4	01:00 to 02:00	57.4	56.5	55.7	56.3	56.1	61.2
5	02:00 to 03:00	58.3	54.2	55.3	55.8	55.9	57.8
6	03:00 to 04:00	58.6	54.5	54.8	56.2	56.7	53.5
7	04:00 to 05:00	58.3	57.2	57.5	56.7	57.8	58.2
8	05:00 to 06:00	57.2	57.5	56.7	56.5	57.3	59.3
Night Time		<70 dB (A)					

Test Method	IS: 9989 : 1981
-------------	-----------------



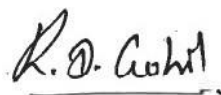
Rajnish D. Gohil
(Chemist)




Jaivik S. Tandel
(Manager - Operations)

Results of Stack Monitoring

Sr. No.	Parameter	Unit	Feb - 2026	GPCB LIMIT	Method of Test
			Adani Hospital DG Set		
			20-02-2026		
1.	Particulate Matter	mg/Nm ³	23.75	150	IS 11255 (Part - 1)
2.	Sulphur Dioxide	ppm	9.10	100	IS 11255 (Part - 2)
3.	Oxide of Nitrogen	ppm	28.53	50	IS 11255 (Part - 7)
4.	Carbon Monoxide	mg/Nm ³	3.5	--	UERL/AIR/SOP/18
5.	Non Methyl Hydro Carbon	ppm	Not Detected	--	UERL/AIR/SOP/27


Rajnish D. Gohil
(Chemist)




Jaivik S. Tandel
(Manager - Operations)

Minimum Detection Limit			
Ambient Air Quality Monitoring			
Sr. No.	Test Parameter	Unit	MDL
1	Particulate Matter (PM10)	µg/m ³	5 µg/m ³
2	Particulate Matter (PM2.5)	µg/m ³	5 µg/m ³
3	Sulphur Dioxide (SO ₂)	µg/m ³	4 µg/m ³
4	Nitrogen Dioxide (NO ₂)	µg/m ³	5 µg/m ³
5	Carbon Monoxide (CO)	mg/m ³	0.01 mg/m ³
6	Ammonia (NH ₃)	µg/m ³	5 µg/m ³
7	Ozone (O ₃)	µg/m ³	5 µg/m ³
8	Lead (Pb)	µg/m ³	0.5 µg/m ³
9	Nickle (Ni)	ng/m ³	1 ng/m ³
10	Arsenic (As)	ng/m ³	1 ng/m ³
11	Benzene	µg/m ³	1µg/m ³
12	Benzo(o)Pyrene	ng/m ³	0.1 ng/m ³
13	Hydro Carbon	µg/m ³	1 µg/m ³
Stack Emission Monitoring			
Sr. No.	Test Parameter	Unit	MDL
1	Suspended particulate matter	mg/Nm ³	2 mg/Nm ³
2	Sulphur Dioxide SOX	mg/Nm ³	4 mg/Nm ³
3	Oxides of Nitrogen NOX	mg/Nm ³	5 mg/Nm ³

STP Water			
Sr. No.	Test Parameter	Unit	MDL
1	pH @ 25 ° C	--	2
2	Total Suspended Solids	mg/L	4
3	Biochemical Oxygen Demand (BOD) (5 days at 20 ° C)	mg/L	1
4	Residual chlorine	mg/L	0.1
5	Fecal Coliform	MPN Index/100ml	<2

Annexure – 4

CSR Mundra Annual Report 2025-26





Mr. Rakshit Shah,
Executive Director
APSEZ

Leadership Message: Driving Community Growth

From Commitment to Collective Growth

Dear Stakeholders,

At the Adani Foundation, we firmly believe that true and enduring progress is rooted in empowered, self-reliant communities. Our CSR initiatives this year have been directed toward holistic village development, with a strong emphasis on enhancing access to essential services, strengthening livelihoods, and fostering sustainable self-sufficiency through deep and meaningful partnerships with local stakeholders and communities.

Central to our efforts has been a continued priority on **water conservation** and the promotion of sustainable resource management practices, ensuring long-term environmental resilience alongside community well-being. Complementing this, our youth development programs have focused on skill enhancement, confidence-building, and equipping young individuals with the capabilities needed to access improved opportunities and make positive contributions to society.

A highlight of the year was the organization of a spiritually enriching **Bhagwat Katha**, which reached and benefited over 1,00,000 participants. This initiative not only created an uplifting environment but also reinforced shared cultural and ethical values, further strengthening the bond between the Foundation and the communities we serve.

These endeavors reflect our unwavering dedication to inclusive growth that unites people, uplifts lives, and creates lasting, transformative impact. Guided by the ethos of sustainable development and nation-building, we remain committed to collaborating closely with communities to build a more equitable and prosperous future.

With deep gratitude for the trust placed in us and renewed resolve to drive meaningful change,

Rakshit Shah

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Success Story

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Adani Vidya Mandir, Bhadreshwar

EMPOWERING FUTURES THROUGH HOLISTIC EDUCATION



Adani Vidya Mandir, Bhadreshwar (AVMB), is a reputed Gujarati Medium school affiliated with GSEB and managed by the Adani Foundation. The institution is committed to offering cost-free, quality education to children from underprivileged families, empowering them to realize their potential and build a dignified future.

The school provides education from Sr. KG to Class X and currently serves 685 learners. With 18 well-equipped classrooms limited to 40 students each, AVMB ensures focused learning and strong student-teacher engagement. The academic team comprises 27 qualified teachers and one professional librarian who collectively support a robust and enriching learning environment.

Institutional Day Celebrations



International Yoga Day

Students and staff participated in a yoga session highlighting focus, discipline, and a healthy lifestyle.



National Mathematics Day

Celebrated as "Mathfinity," students participated in logic puzzles, geometric art, and math games honoring Srinivasa Ramanujan.



Matru-Pitru Pujan Diwas

The event celebrated the parent-child bond, with students performing traditional rituals to honor their parents.



National Sports Day

The school conducted athletic and traditional games to foster stamina, teamwork, and healthy competition.



Hindi Diwas & Week

"Hindi Week" included recitations, essays, and debates to enhance linguistic skills and cultural pride.



Teachers' Day

Students hosted a Teachers' Day program with a National Virtual Meeting to honor educators' dedication.



World Nature Conservation Day

Students participated in activities promoting natural resource conservation and sustainable living.



Independence Day

The flag-hoisting ceremony highlighted patriotic spirit through student performances celebrating India's freedom.



International Mother Language Day

Students participated in multilingual activities emphasizing linguistic diversity and the importance of the mother tongue.



AVMB: A Year of Outstanding Achievements

100%
Result
in SSC



India School Merit Awards (Dec 15, 2025)

AVMB was officially recognized as the "No. 1 School in Kutch" by Education Today..



Khel Mahakumbh District Honors (Dec 03, 2025)

Vivan Hethwadiya secured 1st at the Taluka level and 2nd at the District level in the 50m race and Broad Jump.

National Level Arts Achievement (Aug 2025)

The school's choir group won 1st Place in the Sanskrit Division at the 'Bharat Ko Jaano' regional competition.



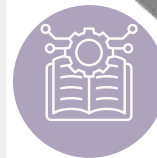
National Shiksha Award 2025

AVMB received this award for its innovative teaching approach and contribution to social upliftment.



SSCE Excellence (2024-25)

The school achieved 100% results in Class X, with two students scoring above 90%, reflecting strong academic monitoring and support.



State-Level Athletics Success (Jan 12, 2026)

Vivaan Vala Hethwadiya (Class V) secured 7th place in the Under-11 State-Level 60m race, proudly representing the district.



Institutional Media Visibility (June 2025)

The school received 19 media coverages (6 online, 13 offline) in a month, highlighting strong community engagement.

Literary Publication (Oct 18, 2025)

Laksharajsinh Jadeja's (Class VIII) piece 'Friendship with a Diya' was featured in Kutch Mitra Junior, highlighting students' growing literary skills.

SSC Examination Centre Status

AVMB has been designated as an SSC Board Examination Centre, recognizing its strong infrastructure, integrity, and organizational capability

Empowering Minds & Building Futures at AVMB



Holistic Training Framework for Educators

- **NABET Accreditation** : AVMB is the region's only State Board school with NABET Accreditation, ensuring quality education.
- **Faculty Empowerment** : A two-day training with Jeevan Bharati, Surat, strengthened classroom management and TLM-based teaching.
- **ICT Training for Educators** : Teachers attended a workshop on Canva and Adobe AI tools to create digital lesson plans, posters, and videos.
- **STEM for Bharat** : Teachers joined a STEM session to enhance hands-on, 21st-century teaching.



Major Co-Curricular Activities

- **Regional Science Fair** : Students showcased Mangrove and Eco-brick projects at the Taluka and SVS Science Fair.
- **Parent-Teacher Meeting (PTM)** : The session encouraged parent-teacher interaction and featured a Live Abacus Demonstration.
- **Project Udaan Visit** : Students visited Mundra Port and the Power Plant for hands-on exposure to industrial operations.
- **Kala Utsav Celebrations** The event showcased students' creativity through storytelling, painting, and traditional crafts.
- **Sanskrit Gaurav Examination** : Students took the Sanskrit Gaurav Exam to enhance their Sanskrit proficiency.



Health, Safety & Awareness Initiatives

- **TD Vaccination**: A TD vaccination and medical screening drive was conducted for Classes V and X to ensure student health and safety.
- **Anti-drug Awareness session**: Students created "No Drugs" artworks to spread awareness about substance abuse and encourage healthy choices.
- **Health Awareness Seminar** : A parent session on student well-being covered nutrition, mental health and hygiene.
- **108 Emergency Training** : Students received hands-on CPR and first-aid training from the 108 Emergency Team.



Skill-Based & Cognitive Development Programs

- **Mental Mathematics & Abacus**: Specialized Abacus training provided to enhance speed, logical reasoning, and mathematical accuracy.
- **Activity-Based Learning (ABL)**: ABL uses subject-specific TLMs, from KG tools to senior science models, supporting experiential learning.
- **Digital Literacy Initiative**: Consistent ICT training has enabled the use of AI-based tools in teaching, strengthening readiness for a tech-driven future.



Udaan

About Project

Udaan is a special project inspired by the life-changing story of Mr. Gautam Adani. As a child, he had visited the Kandla port in Gujarat, and after looking at the expanse of the port, he dreamt of having his own port one day. The rest is history. Under this project, exposure tours are organized wherein school, college students, faculties, employees from corporates are given a chance to visit the Adani Group facilities. Under this project, services are absolutely-free of cost for government schools.

Vision

To create a pool of inspired young minds for nation building at a global scale.

Mission

To motivate young students to dream big by exposing them to world-class industrial facilities.

Total number of
schools/colleges/in
stitutions

582

Total number of
participants

37,819

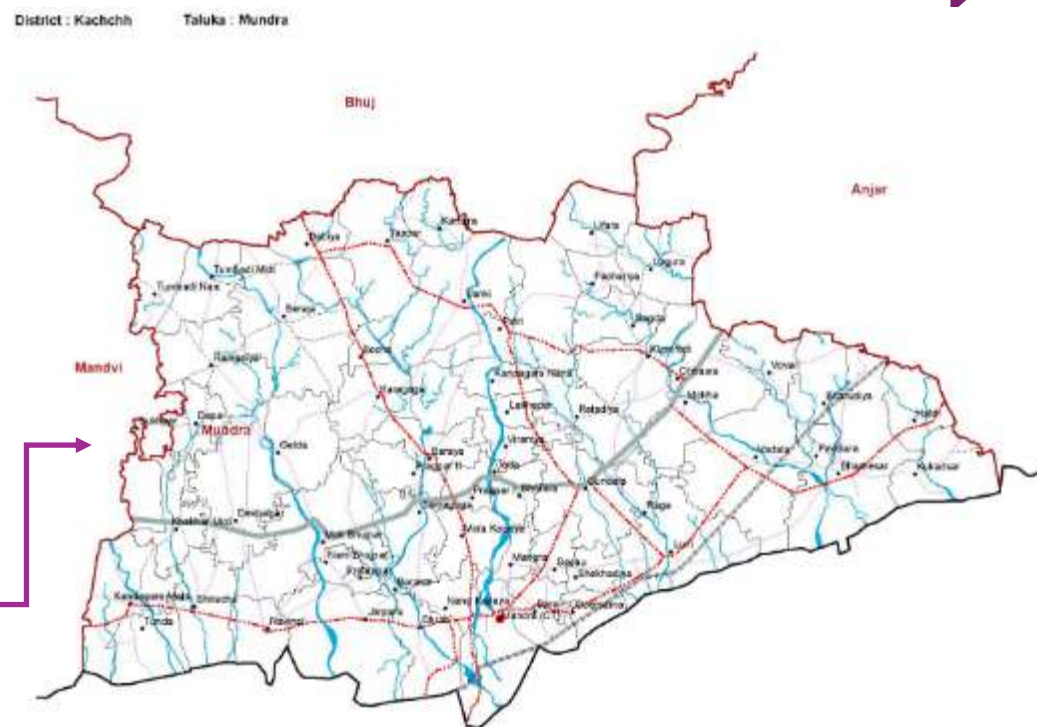


CSR KUTCH



Demographic Details

Block	Villages	No. of HHs	Population
Mundra	61 Village	35,192	1,53,179





Environmental Sustainability

"Sustain the earth,
sustain life"





Adani Foundation's Commitment Towards A Greener Future

Through diverse environmental projects, the Adani Foundation continues to drive meaningful action toward a resilient and sustainable future.



Climate Action

In a time when environmental responsibility is essential, our commitment to protecting and strengthening the natural ecosystem is demonstrated through a wide range of focused initiatives. These efforts address pressing environmental concerns while aligning with the United Nations Sustainable Development Goals (SDGs), ensuring an integrated and long-term approach to sustainability.





Terrestrial Biodiversity Conservation:

Adani Foundation is committed to conserving terrestrial biodiversity through wide-ranging environmental initiatives. These efforts focus on increasing green cover, rejuvenating ecosystems, and encouraging active community participation in environmental responsibility.

Through large-scale afforestation drives and community-driven green programs, the Foundation has made a meaningful contribution to strengthening ecological balance and promoting long-term sustainability across multiple regions.

Sr.No	Year	Village	Acre	Total Plants	Budget
1	2021-22	Nana Kapaya	2.5	5,880	AF Mundra
2	2023-24	Dhrab	3	5,350	AF Mundra
3	2024-25	Pipari	3	10,005	AF Mundra
4	2025-26	Vira Anjar	2	4,500	AF Mundra
5	2025-26	Viraniya	4	6,000	AF Mundra
6	2025-26	Moti khakhar	2	4,000	AF Mundra
		Total	16.5	35,735	

Green Cover Expansion

Adani Van – Harit Paryavaran ki Ek Pahel

A large-scale plantation initiative transforming barren land into thriving green spaces and promoting sustainability.

Biodiversity Enrichment

The presence of 78 bird species, 4 mammal species, and 12 insect and reptile species demonstrates strengthened biodiversity and healthier habitats.

Total:
35,735 Trees
Across 16.5
acres





CSR Mundra

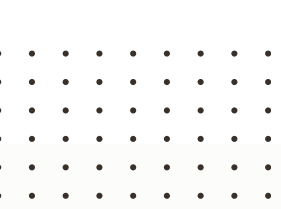


Education

"Empowering minds today,
for a brighter Tomorrow"



उत्थान
by
adani | Foundation



PROJECT UTTHAN :

A FLAGSHIP PROJECT BY ADANI FOUNDATION

The Adani Foundation launched Project Utthan in 2018–19 through an MoU with GoG to strengthen grassroots education. The initiative enhances learning outcomes with support from Utthan Sahayaks. It adopts government schools and tutors Priya Vidyarthi. English is introduced as a third language. Parents—especially mothers—are engaged to improve FLN skills.

- Adopted government primary schools to improve learning environments, reduce dropout ratio, and support progressive learners through targeted tutoring.
- Implemented academic and co-curricular activities, including introducing English as a Third Language and building staff capacity.
- Strengthened foundational literacy and numeracy by engaging teachers, educators, and mothers in the learning process.



Education | Project Utthan

Utthan is transforming government primary schools into vibrant learning hubs through modern teaching methods, improved infrastructure, and engaging co-curricular activities. By involving parents—especially mothers—it strengthens community participation and learning outcomes. Aligned with NEP 2020 and the SDGs, Utthan promotes inclusive, equitable, and quality education while fostering lifelong learning.

11,532
Students
benefitted



69
Primary Schools
12
Secondary & Higher
Secondary Schools



Objectives

- Mainstreaming Progressive Learners
- Character Building by Co-curriculum activity
- Creating Joyful learning spaces
- Mothers as catalyst in transformation

Reimagining Rural Education: Utthan Project in Action



Student Development & Educational Initiatives

- ❑ The Green School Project reduced plastic waste through eco-bricks, earning a WorldWide Book of Records achievement and community impact.
- ❑ **81 Schools 8,200 Students**

Environment Education Project



- ❑ Conducted STEM and competitive exam trainings, implemented special Abacus support programs, and encouraged government teacher participation.
- ❑ **76 Teachers 13,680 Hours**

Training Programs



- ❑ Supported competitive exam coaching with study materials, practice tests, and expert guidance.
- ❑ **52 Schools 2,726 Students**

Adani Competitive Coaching Center



- ❑ Utthan Sahayaks trained and conducted reading workshops to build students' reading habits through engaging activities.
- ❑ **650 Workshop 18,000 Students**

Reading workshop



- ❑ Distribution of sports kits, music kits, TLM kits, and stationery kits.
- ❑ **11,532 Students**

Material kit distribution



- ❑ Engages students in fun and educational activities, promoting their holistic development.
- ❑ **7,500 Students**

Summer camp & Diwali Mela



- ❑ Supports Class 10 students in making informed decisions about their future.
- ❑ **448 Students**

Career counselling (12 High schools)



- ❑ Initiatives to strengthen co-curricular activities and foster a joyful learning environment.
- ❑ **11,532 Students**

Day Celebration



- ❑ To enhance the school environment and encourage creativity, the Adani Foundation completed wall painting work across multiple schools, contributing to students' holistic growth.

Bala paintings



- ❑ Parent-Teacher Meetings were conducted for high School students twice during the year to provide academic guidance.
- ❑ **1,150 Students**

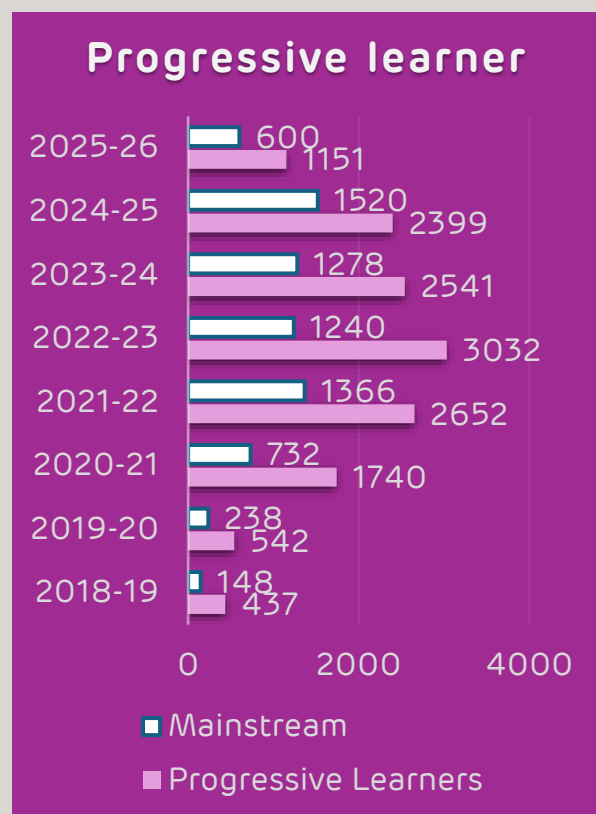
Parent's meeting





Progressive learner

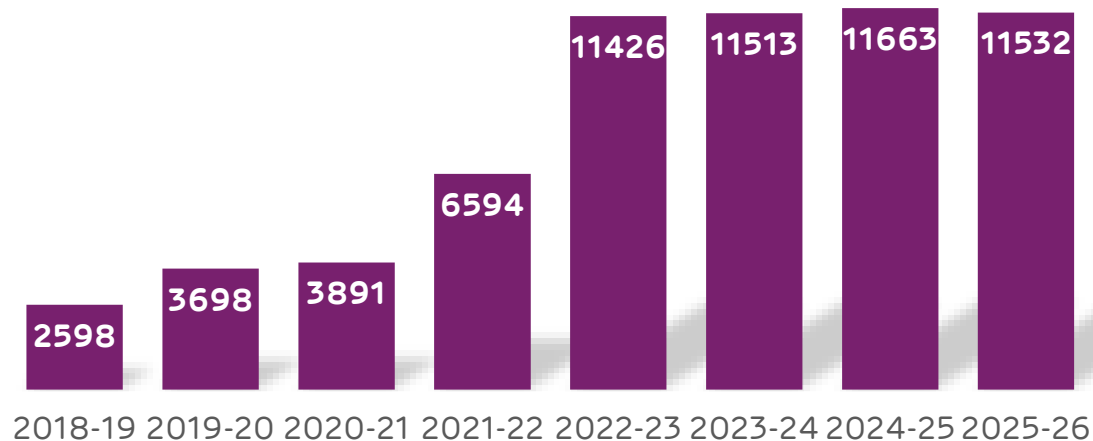
Teaching progressive learners involves using innovative approaches and activity-based learning to mainstream all students, focusing on foundational literacy and numeracy (FLN).



Progressive Students : Strengthening foundational literacy, numeracy and skills

Student Strength Analysis by Year

■ Students





Some glimps
of Utthan
Students



Community Health

"A healthy community is a strong community"



Community Health

Good health forms the foundation of a strong and progressive community. Through its health interventions, Adani Foundation works to improve access to quality healthcare in rural and remote areas, with a strong focus on reaching underserved populations in Kutch.

The Foundation adopts a comprehensive approach that integrates preventive, promotive, and curative care. Mobile medical services, rural clinics, and specialized health camps ensure timely medical attention, while health awareness initiatives encourage early diagnosis and healthy practices, with special emphasis on women, children, and eye care.

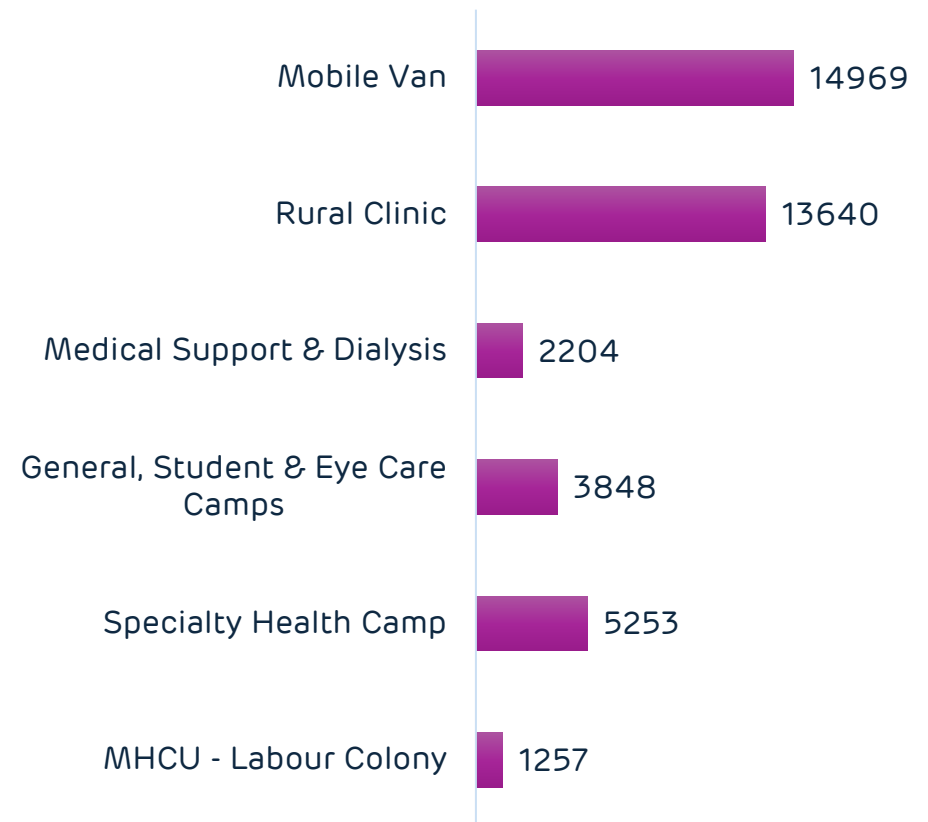
By partnering with Adani G.K. General Hospital in Bhuj and Adani Hospital in Mundra, medical professionals, and community institutions, the Adani Foundation continues to strengthen the local healthcare ecosystem. These sustained efforts support long-term well-being and contribute to healthier, more secure communities





Healthcare Outreach

Beneficiaries:



Our Services

13,640

Patients
benefitted

Rural Clinics

Established across 6 villages in Mundra and 1 village in Mandvi, delivering essential healthcare.

16,226

Patients
benefitted

MHCU

Mobile Health Units served 28 villages, including 7 fishing settlements, across 29 stoppages including MHCU labor colony

2,204

Patients
benefitted

Financial assistance

Providing life-saving hospital care for economically vulnerable patients.

General Health Camp

Free healthcare access through consultations, check-ups, and medicines.

1,768

Patients
benefitted

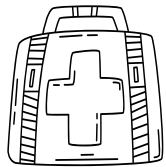
Specialty Health Camp

Focused specialist care for women, children, and outbreak response.

5,253

Patients
benefitted

39,091
Consultations



Healthcare Interventions

Medical Equipment Support

The Adani Foundation supplied essential medical equipment to 7 PHCs and 42 Sub-Centers in Mundra Taluka (Average cumulative OPD is 45000 per month) , strengthening primary healthcare delivery in remote villages. This support enables timely diagnosis, improves treatment quality, and reduces the need for patients to travel for basic medical service.

A total of 1,093 beneficiaries were covered under the health screening program.



OPD and IPD Services at Adani Hospital

OPD : 42,825
IPD : 2,391
TOTAL : 45,216

Student Health Awareness Sessions

This year, health and hygiene awareness sessions were conducted across primary schools in Mundra Block to promote essential cleanliness habits and preventive care.

Total of 711 students and teachers participated in the awareness sessions. Additionally, 1,093 students underwent basic health screening to identify early health concerns and encourage timely follow-up. This initiative helped strengthen students' understanding of healthy habits and supported overall well-being across the schools.





Sustainable Livelihood Development

“Empowering hands,
transforming lives”

SLD- Women Empowerment

The Adani Foundation prioritizes women's empowerment through skill development, entrepreneurship, and self-reliance initiatives. By providing training, resources, and market linkages, it enhances livelihood opportunities for women.

In collaboration with government programs, it strengthens Self-Help Groups (SHGs) to promote savings and sustainable enterprises. The foundation also advances women's health and hygiene through focused awareness efforts, fostering economic independence, social inclusion, and overall well-being in its project areas.



"Self Help Group – A Mile Stone !



Over the past decade, Adani Foundation has been actively driving women empowerment in the Mundra region by promoting Self-Help Groups (SHGs) and enabling sustainable livelihood opportunities. The initiative focuses on transforming women from low-income backgrounds into confident, self-reliant entrepreneurs through structured training, financial inclusion, and continuous handholding support. The program has delivered strong, measurable impact. Currently, 15 high-performing SHGs are operating as successful micro-enterprises with a combined annual turnover exceeding ₹3.5 crore and total profits of over ₹1 crore, directly benefiting 150+ women. In addition, several other SHGs are in different stages of growth, steadily

progressing towards financial independence.

Adani Foundation's approach integrates capacity building and enterprise development, including training in financial literacy, digital skills, business management, and operational efficiency. Continuous mentorship ensures that women not only start businesses but also sustain and scale them effectively.

The impact is best reflected through key success stories:

- Shri Saheli SHG (Tunda Village): A group of 10 women, with limited formal education, successfully built a service enterprise and expanded operations by employing 30 additional women, achieving an annual turnover of ₹84 lakh.
- Shraddha Saheli SHG (Mota Kapaya Village): Starting with basic roti-making in 2017, this group evolved into a structured food business, reaching an annual turnover of ₹54 lakh, despite minimal educational background.
- Food Sisters SHG (Nanakpaya Village): Beginning in 2020 with a small food

setup, this group scaled into a thriving enterprise with an annual turnover of ₹44 lakh, where each member now earns ₹25,000–₹30,000 per month.

These examples highlight a clear transformation—from zero or minimal income to sustainable enterprises, and from low confidence to independent decision-making.

Overall, Adani Foundation has successfully created a replicable and scalable model of women-led economic empowerment.

The initiative demonstrates that with the right ecosystem of training, resources, and mentorship, women can achieve significant financial growth and become key contributors to their households and communities



SHGs Income Details F.Y.2025-26

Sr. No.	Name of Group	Village	Expertise	Establish	Strength	Turnover 2025-26)	Profit
1	Shree Saheli Swa Sahay Group	Tunda	Labour Cleaning Contract	2023	11	85,00,000	17,00,000
2	Shraddha Saheli Swa Sahay Group	Mota-Kapaya	All Types of Food items	2018	10	54,00,575	18,00,000
3	Food Sister Saheli Swa Sahay Group	Nana-Kapaya	All Types of Food items	2021	10	44,40,250	14,00,000
4	Sonal Saheli Swa Sahay Group	Shekhadiya	Washing Powder & Phinial	2016	10	40,78,700	6,11,805
5	Pantjanpir Saheli Group	Patjanpir	Cow Support	2021	15	26,82,750	13,50,000
6	Radhe Saheli Swa Sahay Group	Zarpara	Expert in Dhadki	2019	12	9,46,564	3,40,000
7	Meghadhanush Saheli Swa Sahay Group	Mundra	Various Mud Art Work	2018	12	9,20,000	4,00,000
8	Jay Momai Saheli Swa Sahay Group	Mota Kandagra	Bandhana Work	2018	10	8,89,000	3,50,000
9	Tejashvi Saheli Swa Sahay Group	Mundra	All types of Stitching related work	2018	16	8,50,000	3,00,000
10	Sundar Saheli Swa Sahay Group	Mundra	Beauti Parlour Group	2021	14	6,80,000	3,40,000
11	Madhav Saheli Swa Sahay Group	Deshalpar	Various Snacks & Millet item	2022	10	5,49,200	2,80,000
12	Soof Handicraft Items	Pragpar-2	Soof,Kharek Various Handicraft Work	2021	15	5,00,000	2,50,000
13	Umang Saheli Group	Mundra	Doori work & Soft toys	2020	10	3,10,000	2,00,000
14	Jyot Saheli Swa Sahay Group	Mundra	Bid Items	2022	10	1,75,000	1,00,000
15	Gopal Gir Gaushala	Patri	Natural Ghee & Buttermilk	2023	1	18,00,000	6,30,000
					166	3,27,22,039	1,00,51,805

- Total Turnover - Three Crore twenty-seven lacs Twenty two thousand thirty nine rupees only (3.27 Crore)
- Total Profit - One Crore Fifty one thousand eight hundred five rupees only (1.05 Crore) between 148 Women



Women Empowerment



Anganwadi Outreach

Child-mother sessions on health, hygiene, nutrition & safety



Mothers' Meetings

Structured sessions on hygiene, nutrition, mental health & parenting

325 women



Fisher Folk Community Programs

Sessions on menstrual health, anemia, mental health & adult education



Artisan Card Support

Artisan cards were provided to women to support livelihoods and recognize their skills.

63 women



Training & Skill Development

Training in beauty, mehendi, and handicrafts promoted women's skills and self-reliance.

477 mothers



Job Sourcing

Adani Foundation facilitated interview opportunities for community members, supporting access to employment.

305 candidates



522 Women Employed at Solar till date

Digital Literacy Training

- Adani Foundation, with the support of ICICI Bank, conducted digital literacy training to strengthen rural women's financial and digital awareness.
- Covered key topics such as savings, KYC, CIBIL score, ATM usage, fixed & recurring deposits, pension schemes, insurance types, Ponzi schemes, and protection from financial fraud.
- 16 villages covered through 19 awareness meetings, expanding outreach in rural communities.
- Enabled women to make informed financial decisions in the digital economy.

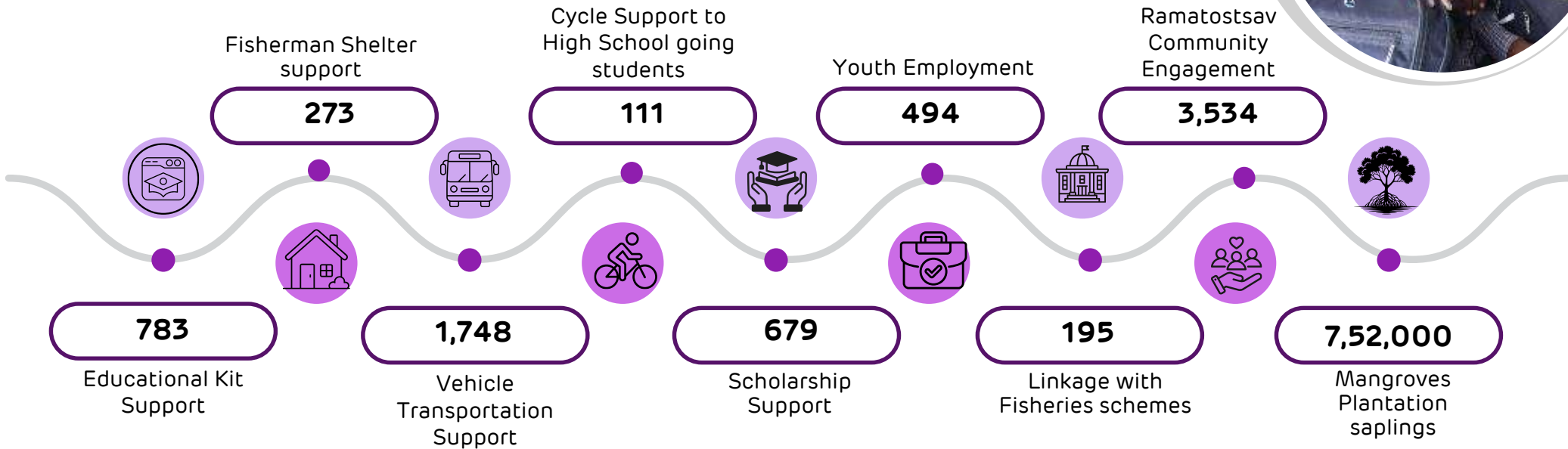


1,000+

Rural women trained



Fisherfolk Community



Fisherfolk Community

Education Kit Support



Providing essential study materials to 95 fisherfolk students this year in HSC and graduation helps reduce financial barriers and enables them to pursue their education with confidence.

Vehicle Transportation Facilities



Facilitated safe school transportation for 101 children this year from Luni, Shekadiya and Tragadi Bandar, ensuring regular attendance without barriers.

Planatation



Completed 10,000 mangrove plantations through gap filling and developed 15,000 nursery saplings this year at the Luni and Hamari Mora sites, strengthening coastal biodiversity, and supporting sustainable livelihoods for local communities

Scholarship Support



Scholarships worth ₹3,70,052 were provided to 31 students this year to support their higher secondary and technical education, helping create better future opportunities for them and their families.



SLD- Animal Husbandry

Declining rainfall and increasing groundwater salinity have posed significant challenges to traditional farming. In response, the Adani Foundation has taken proactive measures to strengthen agriculture and support livestock owners in nearby villages.]

PASHUDHAN INITATIVE : This initiative focuses on two key areas:

Preventive Healthcare

- Regular cattle health camps conducted across 7 villages in partnership with the Animal Husbandry Department.
- Veterinary check-ups, vaccinations, and treatment for common livestock diseases.
- Administration of life-saving vaccines for Foot-and-Mouth Disease (FMD) and Clostridial infections.
- Supply of essential medicines and vaccines by the Foundation.
- Strengthening livestock health, improving farmer livelihoods, and building community resilience.



5949

Cattles Vaccinated



21

Cattle owner benefitted



200

Deworming Tablet distributed

691,730 kg
Dry Fodder
24,27,443 kg
Green Fodder



16,239
Cattle Benefitted

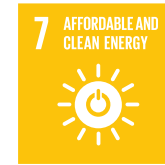
1930
Cattle Owner Benefitted



Fodder Support

- Provides high-quality dry and green fodder to 24 nearby villages.
- Supports communities during harsh summers, droughts, and crop failures.
- Benefiting over 1,900 cattle owners and covering 16,239 cattle.
- Ensures livestock health and strengthens rural livelihoods during critical periods.





Community Development



"Infrastructure that connects, empowers, and sustains"





Community Development

Strengthening Water Security

Adani Foundation enhanced water resources through pond deepening, tank renovation, RRWHS setups, and river cleaning—improving water availability for households, farmers, and livestock across villages.

Enhancing Connectivity & Public Utilities

Development of CC roads, pipe culverts, approach roads, open sheds, gaushala facilities, and fishermen settlement infrastructure improved mobility, supported livelihoods, and created more functional community spaces.

Upgrading Social Infrastructure

Renovation of schools, community halls, crematoriums, sports areas, and health facilities strengthened access to education, healthcare, sanitation, and recreation—helping build more resilient rural communities.



CID - Key Community Developments



Luni and Sadau open shed

The open shed development in Luni and Sadau will provide a safe and accessible space for community meetings and events, strengthening social interaction and long-term community well-being.



Bhadresar and Vovar common gathering shed

The development of common gathering shed in Bhadresar and Vovar will create a safe and inclusive space for community meetings and events, promoting social connection and community well-being.



Construction of CC road Nana Kapaya

The construction of the CC road in Nana Kapaya will improve safe access, ease daily movement, and support better connectivity for the community.





Swavlamban

“JOURNEYS OF DIGNITY AND HOPE.”



The Adani Mangal Seva:

Adani Foundation launched Mangal Seva, a meaningful initiative aimed at empowering differently-abled married women. This transformative program is a reflection of the Foundation's commitment to inclusive and sustainable development.



financial assistance of
₹10,00,000/-
to **500**
married female divyangs.

Objective

Enables women to plan their futures with assurance, exercise independent decision-making, and participate fully in family and community life. Under this initiative, the Adani foundation has pledged annual financial assistance of ₹10 Lakh to 500 married female divyangs.

"Service is the highest form of devotion."

**Seva Saadhna Hai, Seva Prarthana
Aur Seva Hi Parmatma Hai .**

-Mr. Jeet Adani

Impact

01

Ensuring a future of dignity, security, and stability for beneficiaries. & Strengthening inclusivity and social upliftment through impactful support

02

Divyang individuals gained access to entitlements, boosting confidence & community participation and Improved Livelihood Opportunities.

03

Strengthened rural outreach village level engagement ensured that even remote beneficiaries received timely support and recognition.



Swavlamban :



- **Government Scheme Facilitation:** Divyang individuals supported with medical certificates, bus passes, Sant Surdas benefits, and marriage assistance through documentation and enrollment help.
- **Empowerment & Inclusion:** Provided competitive exam kits, assistive equipment, and job placement support, fostering self reliance and social dignity under the Swavlamban Project



Support by Adani Foundation

Sr. No.	Activity	Beneficiaries
1	Job Fair	105
2	Sawavlaban IG Support	92
3	AF Equipment Support	252
4	AF Neo motion EV	48
5	Talent Hunt	675
6	Exam Kit Support	62
7	Adani Mangal Seva	500
8	Musical & Education Kit Support	40
	Total	1774



Promote Educational & Career Readiness
Enhance Mobility & Daily Living



Enhance Mobility &
Daily Living



Beneficiaries Count

Government Scheme Facilitation

Sr. No.	Scheme Details	Govt. Support (Rs./Month / One Time)	Total Beneficiaries	Total Amount per Month (INR) – Last Year
1	Widow Pension	1,250 / Month	683	1,02,45,000
2	Divyang Pension	1,000 / Month	128	1,536,000
3	Niradhar Pension	1,000 / Month	126	1,512,000
4	Palak Mata Pita	3,000 / Month	5	1,80,000
5	Bus Pass	300 / Month	615	22,14,000
6	Divyang Govt Sadhan Sahay	One Time – 10,000	195	1,95,00,000
7	Artisan Card	One Time	62	—
8	Divyang Sadhan Sahay	One Time – 75,000	4	3,00,000
9	Divyang Certificate	—	666	—
	Total		2,484	1,34,73,000



48

Advancing
Sustainable
Mobility: Electric
Vehicle Initiative

Till date endeavor

AF livelihood support to 1774
Divyangs.

2484 in availing Government
services



adani

Ports and
Logistics



श्रीमद् भागवत
कथा

सर्वजनहिताय, सर्वजनसुखाय

adani | Ports and
Logistics

RECAP/RECAP (RECAP) 1000
अदानी पोर्ट्स एंड लॉजिस्टिक्स लिमिटेड
ADANI PORTS AND LOGISTICS LIMITED

श्रीमद् भागवत
कथा

Objective: Creating a platform that:

- Leverages a common interest
- Invokes positive sentiment
- Brings all factions of community together

Focus: Engage such that everyone in community feels connected & participates





Key Outcomes

- **Unity & Social Harmony:** People from diverse backgrounds came together, strengthening communal bonds and mutual respect.
- **Spirit of Volunteerism:** Community groups actively contributed through voluntary services throughout the event.
- **Spiritual & Positive Environment:** The Katha fostered a serene, value-driven and uplifting atmosphere for all attendees.
- **Community–Business Connect:** Strong goodwill and engagement between the community and Adani team.
- **Economic Encouragement:** Local vendors and small businesses benefitted from increased activity during the event.
- **Food & Medical Support:** Devotees received prasad and free medical facilities during the program.



1,00,000
beneficiaries
attended the 7-
day spiritual
event.



Alignment with Core Thematic Activities

- The event provided a platform to gather people for health examination & medicine dispensation
- Marketplace alongside the venue offered the opportunity for the local economy to bloom
- Blending cultural-spiritual engagement with initiatives that support community welfare and empowerment.

Protection of national heritage, art & culture

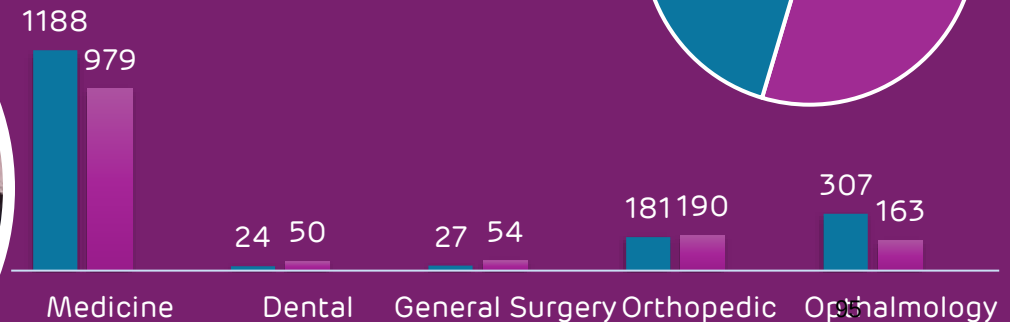
The event served to preserve cultural beliefs

- Promotion of traditional art and handicrafts



Medical Camp

■ Female ■ Male



Events



Child Health Care Program – Bidada Sarvodaya Trust

Supported by Adani Foundation (18–24 December 2025), 7,500 government school students received health check-ups with transportation support. The program focused on early detection and preventive healthcare for children from remote areas.



Swavalamban

Enabled 50 differently-abled individuals with self-employment support and electric wheelchairs, fostering independence, dignity, and inclusive development.



Improving Rural Connectivity

2 km road stretch cleaned and treated with GSB, improving school access for children and enabling smoother market connectivity for farmers and orchard residents.



Pilgrim Medical Support Camp:

During Navratri, Adani Foundation organized a medical camp for pilgrims walking to Mata no Madh, providing doctors, medicines, and emergency transport



Balvatika Inauguration

Adani Foundation inaugurated a Balvatika at Zarpara School, benefiting 38 girl students by creating a nurturing early learning environment and strengthening access to quality education.

Events



Employee Volunteering

Adani Foundation employees supported community well-being through the distribution of nutrition kits at GK General Hospital, reinforcing their commitment to health and social impact.



International Coastal Cleanup Day Celebration at Salaya Beach, Mandvi

Adani Foundation organized beach clean-up with 150+ participants promoting marine biodiversity awareness, graced by MLA Shri Anirudhbhai Dave.



Education Support for Fishing Communities

80+ students from Mundra and Mandvi talukas supported through annual education kit distribution, with transportation assistance ensuring continued access to higher education.



Water Conservation

Renovation of Mamal Sagar enabled storage of 22,500+ CUM of water, benefiting 50+ farms and improving groundwater levels to strengthen local water security.



Women Entrepreneur Support:

Adani Foundation provided resource support to 50 women entrepreneurs from 5 SHGs, strengthening their journey toward sustainable livelihoods.

Events



Foundation Day at JNV Dumra

Program engaged 50+ employees and 560 students at JNV Dumra through tree plantation, safety training, and health check-ups, strengthening health and environmental awareness.



Community Infrastructure for Fishing Villages

A community shed was constructed in Tragadi and Modhva, providing a shared space for social gatherings, events, and collective activities to support the local fishing community.



Sangeet Prathibha Shodh- Program

104 students from across Kutch participated in singing and instrumental categories. All participants were awarded trophies, promoting cultural heritage and boosting confidence among rural talent.



World Disability Day Celebration at Nana- Kapaya

About 70 differently-abled individuals from Mundra and nearby areas took part in the event, receiving cabins, handcarts, sewing machines, and household-industry tools to support self-employment.



World Disability Day Celebration at Madhapar

The program honored and empowered over 300 persons with disabilities, offering digital training on tools like Sugamya Bharat and the Aadithi Chatbot. Educational kits were distributed to all participants.

Events



Tree Plantation Held on Hon'ble Chairman's Birthday at Zarpara Village

Village leaders and the Adani Foundation team attended, and a pledge was made to plant 5,000 trees.



Tree Plantation Held on Hon'ble Chairman's Birthday at Dhrab Village

Adani Vidya Mandir students and staff pledged to plant 5,000 trees, joined by village leaders and the Adani Foundation team.



Experiential Learning under Training Program

Teams from Mundra, Hazira and Dahej visited Aamba Pada village and Ambika Bagayat Cooperative in Dang to observe BAIF's bamboo livelihood and Wadi project initiatives. The exposure enhanced participants' understanding of sustainable livelihood models and value addition.



International Women's Day Celebration at Adani House

Women from the Kutch gathered to watch the live Swabhimaan – The Rise of She event, where Dr. Priti Adani announced the expansion of the Swabhimaan programme to empower 10 lakh women entrepreneurs across India.



Healthcare support

Adani extended healthcare support to Mundra by providing an ambulance to Gauraksha Seva trust to improve emergency care and community wellbeing.



AWARD & RECOGNITION

Best Performing
Organization For
Divyang



On the occasion of the World Divyang Day, Adani Foundation was honoured with an award in recognition of its exemplary contributions, undertaken in collaboration with Navchetan Sanstha, toward the welfare and empowerment of persons with disabilities.

Best Performing
Organization For
Adani Van



An award was conferred upon the Adani Foundation in recognition of the exemplary performance of the Adani Van initiative implemented in Beraja village.



APPRECIATION LETTERS



Book Publication



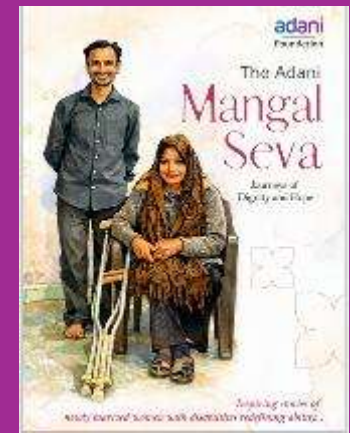
"Mangal Seva" Journeys of Dignity and Hope

The Adani Mangal Seva initiative builds on the Adani Foundation's wide development footprint across 7,000+ villages and urban centres in 22 states, impacting 9.6 million+ lives through programs in education, healthcare, and livelihoods. The initiative focuses on empowering newly married women with disabilities by providing financial security and promoting dignity, independence, and social inclusion.



Under the program, each eligible beneficiary receives ₹10 lakh as financial assistance through a fixed deposit, ensuring long-term financial stability and enabling women to pursue livelihoods, education, or entrepreneurship. With a vision to support 500 newly married women with disabilities, the initiative aims to create sustainable impact for families and communities.

Aligned with frameworks like the RPwD Act, 2016 and UNCRPD, the program goes beyond financial aid to promote dignity, equal opportunity, and inclusive community development.



Book Publication



“Roots of Revival”

Reclaiming the Earth Through afforestation

The Adani Foundation's Roots of Revival initiative reflects our sustained commitment to environmental conservation and climate resilience. Through scientifically planned and community-led afforestation efforts across Kutch, Gujarat, the program focuses on restoring degraded landscapes, enhancing biodiversity, and strengthening ecosystems. The Adani Foundation's green initiative, Harit Paryavaran ki Ek Pahal, outlining its systematic approach to environmental restoration.

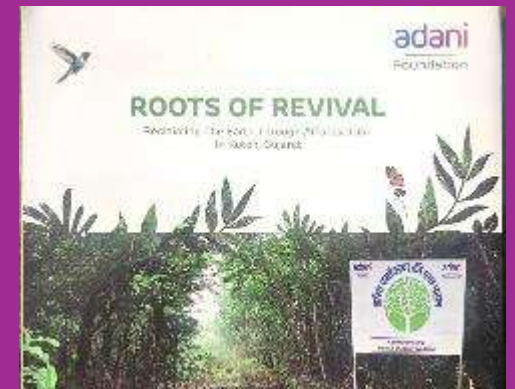


During the reporting period, the program achieved the following outcomes:

- 89,400+ saplings planted, contributing to long-term ecological regeneration.
- 12 villages covered, ensuring broad community participation and strengthened ownership.
- 35 acres of land brought under green cover, biodiversity enhancement, and climate resilience.

The rejuvenated green space has emerged as a vital habitat for diverse species. Monitoring during the reporting period recorded:

- 77 avian species
- 4 mammalian species
- 4 insect species
- 8 reptile species



When Courage Finds a Classroom



“Madam believed in me—even when I didn’t believe in myself.”

Meghvad Lalit, a student of Dhrub Primary School, arrived from Rajasthan carrying more challenges than most children his age. Unfamiliar with the Kutchi language and weakened by illness, he remained silent in class—rarely writing, rarely participating, and often falling asleep after recess. During breaks, he sat alone, too tired and too shy to join others.

The truth surfaced during a mother’s meet. Lalit was battling a lump in his neck, complete kidney failure, heavy medication, and frequent dialysis. His health had kept him away from school for nearly two months. His silence was not disinterest—it was exhaustion and pain.

Understanding his struggle, Aziz Fatima Ma’am stepped in with patience and care. She spoke to him in Hindi to build comfort and used TLMs and Bala painting to teach matras creatively. For the first time, Lalit connected with the lessons—he understood, remembered, and began believing in his abilities. Little by little, Lalit responded—he understood, he remembered, and for the first time, he believed he could learn. That small spark became the turning point of his journey.

From hesitant steps to confident strides, Lalit began reading and writing Gujarati. His notebooks filled with neat handwriting, his answers grew stronger, and he started participating eagerly in class. The boy who once sat alone during recess now laughs and plays with friends. Today, Lalit stands proudly among the progressive learners as one of the brightest, most hardworking students—his success shining even brighter because of the challenges he has overcome.



Restoring Vision, Renewing Life: A Journey Through Cataract Care



“Restoring sight restores self-belief—one clear vision, one transformed life at a time.”

Jaimalji Noghanji Jadeja, a resident of Navinal Village, presented with a gradual, painless decrease in vision that was interfering with his daily activities, with no history of ocular trauma, prior eye surgery, infection, or systemic illness. Initial screening at the Adani Foundation Rural Clinic, Navinal, suggested an age-related cataract, and he was referred to Adani Hospital, Mundra, for further evaluation and management.

A detailed ophthalmic examination conducted by Dr. Sachin Firke under the “Cataract Free Mundra” initiative confirmed a mature age-related cataract with reduced visual acuity, while pupillary reactions, intraocular pressure, and posterior segment findings were normal. After appropriate counseling, the patient consented to surgical intervention.

Cataract extraction with foldable intraocular lens implantation was successfully performed on 05 February 2026 using a standard phacoemulsification technique under local topical anesthesia, without complications. Postoperatively, he demonstrated rapid visual improvement with no adverse events and, with good compliance to prescribed medications and postoperative instructions, achieved full functional visual recovery within four weeks. This case highlights the effectiveness of timely rural referral, modern surgical management, and structured postoperative care under the Cataract Free Mundra initiative.



From Hardship to Hope: The Shree Saheli Journey



“We started with uncertainty, but today we work with confidence and pride.”

In Tunda village near Adani Power, limited livelihood options left many widowed and less-educated women without stable income opportunities. Recognizing their need for economic empowerment, the Adani Foundation facilitated the formation of the Shree Saheli Self-Help Group (SHG).

The group initially started a small canteen with Foundation support, but due to low patronage, the venture closed. Undeterred, the women reassessed their approach and took up a cleaning contract within the Adani Power residential colony. With continuous guidance, training, and teamwork, they gradually built confidence and professionalism.

Today, the SHG provides stable employment to over 40 community members, with nearly 50 individuals earning ₹17,000–₹20,000 per month with annual turnover of Rs. 85 lacs. Beyond financial stability, the initiative has strengthened women's confidence, leadership, and dignity. Shree Saheli SHG stands as a powerful example of resilience, collective action, and sustainable community empowerment.



A New Beginning for Barren Fields: Sustainable Farming Transforms a Farmer's Life



"With drip irrigation, my land finally came to life. For the first time, I feel hopeful about the future of my farm."

A farmer from Bagda village in Mundra Taluka faced long-standing agricultural challenges due to rocky, uneven, and rain-fed land. With no access to reliable irrigation, he depended entirely on the monsoon, leaving a portion of his land uncultivated each year. The low and uncertain productivity severely limited his income, making farming a difficult and unpredictable livelihood.

The Adani Foundation provided timely financial support that enabled the farmer to install a drip irrigation system on two acres—his first experience with modern irrigation. This reduced the risks of rain-fed farming, lowered costs, and ensured efficient water use even during dry periods.

With drip irrigation, previously barren land became fully cultivable. The farmer successfully grew coriander (dhana) with healthier crops and better yields. This support significantly improved his productivity and strengthened his income, demonstrating how modern techniques and targeted assistance can transform rural livelihoods.



From Date Palm Fields to the University Gate: Gopal's Inspiring Journey



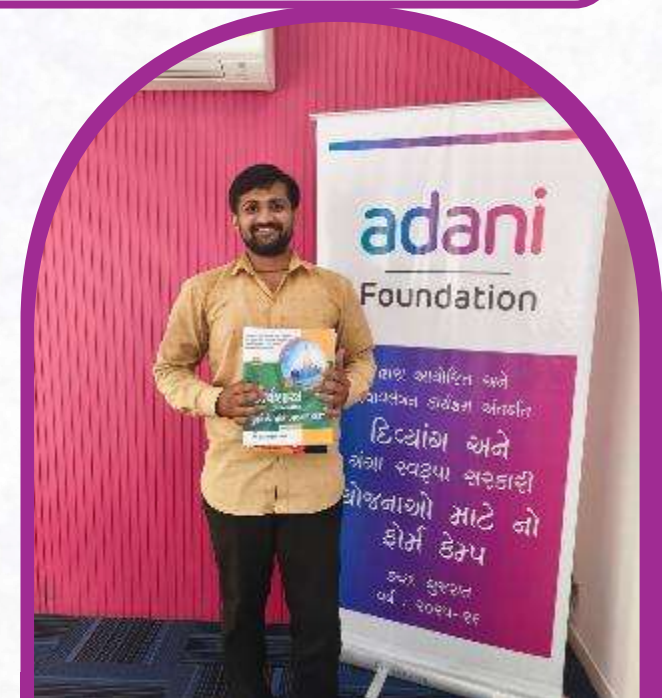
"The opportunity I received through the Adani Foundation gave me the confidence to continue chasing my dream of research and higher education."

Gopal Samra Mindhani from Zarpra Wadi in Kutch spent his early years working in his family's date palm (Kharek) orchard. Despite the demanding farm work, he remained passionate about education and successfully completed his Master's degree in Economics while continuing to help his family.

Gopal always dreamed of pursuing a PhD and researching Kutch's iconic Kharek cultivation. In 2023–24, while searching for employment to support his family, he participated in the Divyang Employment Fair organized by the Adani Foundation.

Recognizing his dedication, the Adani Foundation appointed him as an Utthan Sahayak Teacher. Along with his teaching responsibilities, Gopal continued preparing for the UGC examination with determination.

His hard work paid off when he cleared the UGC exam and secured admission to Gujarat University to pursue a PhD on Kharek research. His journey shows how determination and the right support from the Adani Foundation can transform dreams into reality.



A Hand of Hope: Malshreeben's Journey Toward Dignity



"Strength is not in the hands we have, but in the hope we hold."

In Moti Bhujpur village, Malshreeben was born without both hands, yet she grew with remarkable resilience and a quiet dream — to one day own a small piece of land where she could live close to nature. After marriage, financial constraints and fragmented family land kept that dream out of reach.

Everything changed when she received an unexpected call from the Adani Foundation's Mangal Seva initiative, informing her of a ₹10 lakh fixed deposit created in her name. Unsure it could be true, she sought confirmation twice, overwhelmed when the news was reaffirmed.

This support has transformed her life, replacing uncertainty with stability and restoring a deep sense of self-worth. Today, her long-held dream feels within reach, strengthened by dignity, confidence, and hope.

She proved that when resilience meets opportunity, even silent dreams find a voice.



Journey of Healing and Resilience



“When care is given with compassion, healing becomes a journey of strength and renewed hope.”

Tirthavandan Maharaj Saheb, a 50-year-old ascetic recognized for his disciplined and spiritual way of life, resided within a family comprising four brothers and two sisters. Notably, his younger brother, aged 19, had also committed to an ascetic lifestyle. Despite his dedication, Maharaj Saheb encountered significant health challenges that tested his resilience.

Approximately one year ago, Maharaj Saheb underwent a routine hernia repair in Mumbai. Unexpectedly, he experienced severe postoperative pain at the surgical site, which resulted in six months of immobility and substantial limitations in walking and daily activities.

Seeking further evaluation, he traveled to Surat, where an MRI identified post-operative neuritis of the inguinal nerves, considered responsible for his persistent symptoms.

Upon arriving at Adani Hospital, Mundra, Maharaj Saheb was welcomed by a compassionate medical team that provided attentive, personalized care. With advanced pain management, physiotherapy, and consistent support, he gradually regained strength and mobility, marking a significant recovery from his earlier immobility.

With the hospital's support, Maharaj Saheb recovered well, regained mobility, and expressed sincere gratitude to the Adani Foundation.



A Silent Courage - The story of Kajal & Savan



"Strength isn't measured by words, but by the dreams you protect and the hope you refuse to give up."

In Nandgam village, Kajal and Savan—a couple with hearing and speech impairments—struggled to secure a stable future for their children despite Savan's modest income of ₹15,000 per month.

Their primary concerns centered around ensuring quality education for their children and managing potential medical emergencies. Under the Adani Mangal Seva Yojana, the Adani Foundation identified the family for financial support and invited them to an announcement event, where they were provided a ₹10,00,000 fixed deposit to strengthen their long-term financial resilience.

This support created a dependable safety net, offering assured interest income to meet education and health-related needs. The couple expressed profound gratitude, with Kajal committing the interest earnings specifically toward her children's education. The intervention highlights the Foundation's commitment to inclusive development and its targeted efforts to uplift differently abled families.



From Darkness to Dawn: Sadiya's Inspiring Journey



"Even though my eyes cannot see clearly, my teacher helped me see my dreams more clearly. Now I believe I can achieve anything."

Born with severe vision impairment, Halepotra Sadiya, a student of Dhrub Primary School, faced significant challenges in learning. Even after four operations, her vision remained limited, making it difficult for her to read Gujarati, write clearly, and solve basic mathematics. Despite these difficulties, Sadiya was an intelligent and curious child, and with strong support from her parents, she continued attending school regularly.

A turning point came when Aziz Fatima, an Utthan Sahayak from the Adani Foundation's Project Utthan, recognized Sadiya's struggles and potential. With patience and dedication, she spent extra time guiding Sadiya and encouraged her to write in large letters to help her see and understand better. With continuous support, Sadiya gradually began overcoming her learning difficulties.

Within a year, Sadiya showed remarkable progress. She learned to read and write Gujarati, solve basic math problems, and confidently introduce herself in English during the morning assembly. Her quick responses in general knowledge sessions, storytelling, and her creative drawings reflected her growing confidence and abilities.

Today, Sadiya dreams of becoming a teacher herself. Her journey shows how the right guidance, dedication, and support from initiatives like Project Utthan and committed educators like Aziz Fatima can turn challenges into opportunities and create a brighter future.



Media Coverage

અદાણી ગ્રુપ દ્વારા દિવ્યાંગોને સ્વરોજગારી સાધન અને ઇલેક્ટ્રિક વીલચેર કરાઈ અર્પણ આત્મગૌરવ ભર્યા જીવન માટે દિવ્યાંગોમાં અનેરો ઉત્સાહ



અદાણી ગ્રુપ દ્વારા દિવ્યાંગોને સ્વરોજગારી સાધન અને ઇલેક્ટ્રિક વીલચેર કરાઈ અર્પણ આત્મગૌરવ ભર્યા જીવન માટે દિવ્યાંગોમાં અનેરો ઉત્સાહ

અદાણી ફાઉન્ડેશનનું શિક્ષણ ક્ષેત્રે અનેક યોગદાન

અદાણી ફાઉન્ડેશનને ઉચ્ચત પ્રોજેક્ટ મુદ્દા અને માંડવી તાલુકાની ૬૬ પ્રાથમિક શાળાઓ અને ૧૨ હાઈસ્કૂલોમાં વિદ્યાર્થીઓને ગુણવત્તાપૂર્ણ શિક્ષણ અને શિક્ષણીય તરો પૂરી પાડે છે



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અદાણી ફાઉન્ડેશન દ્વારા વિરાણીયામાં વનીકરણ પ્રોજેક્ટનો શુભારંભ ૪૦ પ્રકારના સ્વદેશી રોપાઓથી લીલુછમ જંગલ ઉભુ થશે

Adani Foundation
@AdaniFoundation

The #AdaniFoundation, as part of its Utthan project, is making Mathematics both engaging & enjoyable for students. Through interactive learning elements like Abacus, Vedic Ganit and Mental Maths programs, we are nurturing their Math skills. #NationalMathematicsDay2025

અદાણી ફાઉન્ડેશન દ્વારા માછીમાર સમુદાયના વિદ્યાર્થીઓ માટે શૈક્ષણિક કીટ વિતરણ અને માર્ગદર્શન કાર્યક્રમનું આયોજન



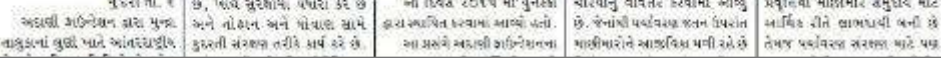
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અદાણી ફાઉન્ડેશન દ્વારા આંતરરાષ્ટ્રીય મેન્થોવ દિવસની ઉજવણી



અદાણી ફાઉન્ડેશન દ્વારા મુંદ્રાના મોટા કાંડગરામાં વનીકરણનો શુભારંભ

મિયાવાકી યત્નથી 'નંદનવન' અને ઓકિસજન પાર્કનું નિર્માણ





Thank You!

adani

Growth
with
Goodness

Annexure – 5

March 2026

DISTROMED KUTCHH SERVICES PRIVATE LIMITED

MONTH :

Date	Challan No.	BMW WASTE CATEGORIES				Total Kg.	Sign.
		Category Yellow	Category Red	Category Blue	Category White		
		Yellow Bag	Red Bag	Blue Bag *C.B.	*PPC		
1	36702	18.00	13.00	8.500	500gm	40 kg	hl
2							
3	8-1-67890	24.800	18.100	12.100	1.050	56.050 kg	hl
4							
5	8-1-68091	25.00	20.000	0.00	0.00	45.000	hl
6							
7	8-1-68283	42.120	23.350	22.000	1.650	89.120	hl
8							
9	8-1-68470	18.200	15.650	4.000	1.00	38.850	hl
10							
11	8-1-68633	18.000	16.200	20.000	5.200	59.400	hl
12							
13	8-1-68881	34.970	25.000	15.650	1.200	76.820	hl
14							
15	8-1-69024	40.000	25.000	15.800	5.000	85.800	hl
16							
17	8-1-69230	20.000	20.000	12.000	0.000	52.000	hl
18							
19	8-1-69329	33.200	30.200	17.000	0.00	80.400	hl
20							
21	8-1-69543	30.000	30.700	10.050	4.000	74.750	hl
22							
23	8-3-9759	25.000	24.700	17.000	0.000	66.700	hl
24							
25	8-1-69820	23.000	18.700	17.000	5.000	63.700	hl
26							
27							
28	Total	352.290	234.400	167.300	24.600	828.590	hl
29							

Annexure – 6

Details of Greenbelt Development at APSEZ, Mundra

	Total Green Zone Detail till Up to March 2026				
LOCATION	Area (In Ha.)	Trees (Nos.)	Palm (Nos.)	Shrubs (SQM)	Lawn (SQM)
SV COLONY	72.29	34920.00	7962.00	69696.00	100646.00
PORT & NON SEZ	81.61	149359.00	19220.00	75061.78	62966.38
SEZ	115.70	226120.00	20489.00	220583.60	28162.03
MITAP	2.47	8113.00	33.00	3340.00	4036.00
WEST PORT	104.29	248074.00	66816.00	24112.00	16369.00
AGRI PARK	8.94	17244.00	1332.00	5400.00	2121.44
SOUTH PORT	14.45	27530.00	3470.00	3882.00	3327.26
Samundra Township	58.26	63722.00	11834.00	23908.89	47520.07
Productive Farming (Vadala Farm)	0.00	0.00	0.00	0.00	0.00
TOTAL (APSEZL)	457.99	775082	131156	425984.27	265148.18
		906238.00			

Details of Mangrove Afforestation done by APSEZ

Sl. no.	Location	District	Area (Ha)	Duration	Species	Implementation agency
1	Mundra Port	Kutch	24	-	Avicennia marina	Dr. Maity, Mangrove consultant of India
2	Mundra Port	Kutch	25	-	Avicennia marina	Dr. Maity, Mangrove consultant of India
3	Luni/Hamirmora (Mundra)	Kutch	160.8	2007 - 2015	Avicennia marina, Rhizophora mucronata, Ceriops tagal	GUIDE, Bhuj
4	Kukadsar (Mundra)	Kutch	66.5	2012 - 2014	Avicennia marina	GUIDE, Bhuj
5	Forest Area (Mundra)	Kutch	298	2011 - 2013	Avicennia marina	Forest Dept, Bhuj
6	Jangi Village (Bhachau)	Kutch	50	2012 - 2014	Avicennia marina	GUIDE, Bhuj
7	Jakhau Village (Abdasa)	Kutch	310.6	2007-08 & 2011-13	Avicennia marina, Rhizophora mucronata, Ceriops tagal	GUIDE, Bhuj
8	Sat Saida Bet	Kutch	255	2014-15 & 2016-17	Avicennia marina & Biodiversity	GUIDE, Bhuj
9	Dandi Village	Navsari	800	2006 - 2011	Avicennia marina, Rhizophora mucronata, Ceriops tagal	GEC, Gandhinagar
10	Talaja Village	Bhavnagar	50	2011-12	Avicennia marina	Forest Dept, Talaja
11	Narmada Village	Bhavnagar	250	2014 - 2015	Avicennia marina	GEC, Gandhinagar
12	Malpur Village	Bharuch	200	2012-14	Avicennia marina	SAVE, Ahmedabad
13	Kantiyajal Village	Bharuch	50	2014-15	Avicennia marina	SAVE, Ahmedabad
14	Devla Village	Bharuch	150	210-16	Avicennia marina	SAVE, Ahmedabad
15	Village Tala Talav (Khambhat)	Anand	100	2015 - 2016	Avicennia marina	SAVE, Ahmedabad
16	Village Tala Talav (Khambhat)	Anand	38	2015 - 2016	Avicennia marina	GEC, Gandhinagar
17	Aliya Bet, Village Katpor (Hansot)	Bharuch	62	2017-18	Avicennia marina & Rhizophora spp.	GEC, Gandhinagar
18	Kukadsar- (Bhadeswar- Mundra)	Kutch	250	2021-22	Avicennia marina	Shreeji Enterprise, Amreli
19	Kukadsar- (Bhadeswar- Mundra)	Kutch	750	2022-23	Avicennia marina	Shreeji Enterprise, Amreli
20	Kukadsar- (Bhadeswar- Mundra)	Kutch	250	2023-24	Avicennia marina	Shreeji Enterprise, Amreli
Total			4140			

Annexure – 7

Engineers & Consultants for : PAT Consultancy, Energy Audits, Power Quality, Safety Audits, Green Building, ISO 50001:2011, TEV/DPR/LIE, Pharmaceutical Projects, Sugar Projects, Power Plant Consultancy, Renewable Energy Consultancy, MEP Design Work, Due Diligence

REF: EES/DEA/ADANI/2026/21

Dated: 05.06.2026

To,
The Office of the Deputy Chief Electrical Inspector
Block No-1, 3rd Floor, M.S. Building, Rajmahal Road,
Mehsana, Gujarat

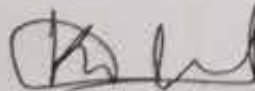
Sub: Submission of Energy Audit Report for M/s, Adani Ports and Special Economic Zone Limited,
Mundra, Kutch, Gujarat

Dear Sir,

This has reference to above subject M/s, Eco Energy Solution; Ahmedabad has carried out Energy Audit
M/s, Adani Ports and Special Economic Zone Limited, Service Provider- MPSEZ Utilities Limited/PGVCL as
per Govt. Order No. GHU/99/31/1196/9018/K1 dated 5th October, 1999.

The consumer details are furnished in the table below for your kind reference

Sr. No.	Location Name as per Site	Site Name & Address As per Electricity Bill Copy	Contract Demand	Type of Electricity Supplier	Type of Consumer	Consumer No.
1	M/S Adani Ports and Special Economic Zone Ltd (Adani Hospital)	M/S Adani Ports and Special Economic Zone Limited_(AHMPL) Near Samundra Township, APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	175	MPSEZ UTILITIES LIMITED	HTMD-1	200005
2	M/S Adani Ports and Special Economic Zone Ltd (APSEZ) Adani House	M/S Adani Ports and Special Economic Zone Limited (ADANI HOUSE) 2nd Floor, Adani House APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	450	MPSEZ UTILITIES LIMITED	HTMD-1	200033




GSTIN: 24AAHFE1124G1Z0

J. R. Patel
Head Clerk to
Jy. C.E.I. (N.Z.)
Mehsana.

Registered Office Address

ECO HOUSE, 49/2, Samrat Nagar,
Isanpur, Ahmedabad - 382443 Gujarat - India.
M-9429519778

Corporate Office Address :

702, Purva, Kores Nakshatra - C, Thane (W),
Mumbai, Maharashtra, 400606, India.
M-9869272102

Correspondence Address :

9th 5, Ratnanjali Square, Nr. Gloria Restaurant,
100ft. Road to Prernatirth Jain Derasar Road, Satellite,
Ahmedabad - 380015 Gujarat - India. M-7069091401

Email: ho@ecoenergysolution.in; kcalwh@ecoenergysolution.in

Engineers & Consultants for : PAT Consultancy, Energy Audits, Power Quality, Safety Audits, Green Building, ISO 50001:2011, TEV/DPR/LIE, Pharmaceutical Projects, Sugar Projects, Power Plant Consultancy, Renewable Energy Consultancy, MEP Design Work, Due Diligence

Sr. No.	Location Name as per Site	Site Name & Address As per Electricity Bill Copy	Contract Demand	Type of Electricity Supplier	Type of Consumer	Consumer No.
3	M/S Adani Ports and Special Economic Zone Ltd (CETP)	MUL-CETP Survey No/Plot No-141(part) APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	130	MPSEZ UTILITIES LIMITED	HTMD-1	100003
4	M/S Adani Ports and Special Economic Zone Ltd (PUB Building)	M/S Adani Ports and Special Economic Zone Limited_(PUB) 2nd Floor, Adani House APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	300	MPSEZ UTILITIES LIMITED	HTMD-1	200008
5	M/S Adani Ports and Special Economic Zone Ltd (Samundra TownShip)	M/S Adani Ports and Special Economic Zone Limited_S. TOWNSHIP 2nd Floor, Adani House APSEZL, Ta:Mundra, Dist: Kutch, Gujarat Mundra-370421	1100	MPSEZ UTILITIES LIMITED	HTMD-1	200009
6	M/S Adani Ports and Special Economic Zone Ltd (Shantivan Colony)	M/S Adani Ports and Special Economic Zone LTD Nana Kapaya Post Bag No-1, 370421 Nana Kapaya	480	PGVCL	HTP-I	31059
7	M/S Adani Ports and Special Economic Zone Ltd (APSEZ) A4 MLD Pump House	M/S Adani Ports and Special Economic Zone Limited_4MLD Near MRSS 220 KV Substation, APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	160	MPSEZ UTILITIES LIMITED	HTMD-4	100017

[Signature]



GSTIN: 24AAHFE1124G1Z0

Registered Office Address
ECO HOUSE, 49/2, Samrat Nagar,
Isanpur, Ahmedabad - 382443 Gujarat - India.
M-9429519778

Corporate Office Address :
702, Purva, Kores Nakshatra - C, Thane (W),
Mumbai, Maharashtra, 400606, India.
M-9669272102

Correspondence Address :
915, Ratnanjali Square, Nr. Gloria Restaurant,
100ft. Road to Prernathirth Jain Derasar Road, Satellite,
Ahmedabad - 380015. Gujarat - India. M-7069091401

[Signature]
H/M 022
Head Clerk to
Jy. C.E.I. (N.Z.)
Mehsana.

Sr. No.	Location Name as per Site	Site Name & Address As per Electricity Bill Copy	Contract Demand	Type of Electricity Supplier	Type of Consumer	Consumer No.
8	M/S Adani Ports and Special Economic Zone Ltd (WTP)	M/S Adani Ports and Special Economic Zone Limited_(WTP) 2nd Floor, Adani House APSEZL, Ta: Mundra, Dist: Kutch, Gujarat Mundra-370421	250	MPSEZ UTILITIES LIMITED	HTMD-4	200002

Kindly Issue the Audit Report Acceptance Certificate for this report earliest.

Thanks,

With Warm Regards,



Krunal Shah
Eco Energy Solution
Eco House, 49/2, Samrat Nagar,
Isanpur, Ahmedabad-382443
Gujarat



Encl:-

- Energy Audit Report Hard Copy
- Energy Audit Report Soft Copy (CD)
- Consumer Details, Executive Summary and Implementation Status

Copy:

- Office Copy
- Office of the Deputy Chief Electrical Inspector, Mehsana
- M/s, Adani Ports and Special Economic Zone Limited – 8 Consumer

GSTIN: 24AAHFE1124G1Z0

Handwritten signature
Head Clerk to
Jy. C.E.I. (N.Z.)
Mehsana.

DETAILED ENERGY AUDIT REPORT

AT



Adani Ports & Special Economic Zone Ltd (Samudra Township)
Mundra, Gujarat-392130, India

Prepared by



Eco Energy Solution

49, Sector 2, Sarika Society, Samrat Nagar, Isanpur,
Ahmedabad – 382443, Gujarat, INDIA

Oct -2025

ACKNOWLEDEMENT

We are grateful to the management of Adani Ports & Special Economic Zone Ltd for giving us an opportunity to contribute in their efforts towards efficient energy management by undertaking this Energy Audit study exercise.

Eco Energy Solution acknowledges with thanks the co-operation and support extended by management and operating personnel at APSEZ Samudra township during the audit exercise. Detailed discussions and interaction were held with plant personnel throughout the course of the audit and awareness of energy conservation was noted as exemplary. We would also like to place on record our sincere thanks and appreciation for all plant executives. Our special thanks are to,

- Mr. Kuldeep Modi
- Mr. Jigar Patel

We are also thankful to the other staff members who were actively involved while collecting the data and conducting the field studies. We take this opportunity to also thank all the team members at various departments associated with this study of energy audit for extending cooperation during collection of on-site data.

We trust that the findings of this study will help plant management in improving the equipment performance thereby giving optimum energy consumption at APSEZ, Samudra township.

We have prepared this Energy Audit report document for APSEZ Samudra township, on a best judgment basis.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information provided and measurements undertaken at the facility.

For ECO ENERGY SOLUTION

Krunal Shah (Partner)

Pushkar Khanna AEA-0260 (Partner)

Adani Ports and Special Economic Zone Limited (APSEZ) is the largest commercial ports operator in India accounting for nearly one-fourth of the cargo movement in the country. Its presence across 13 domestic ports in seven maritime states of Gujarat, Maharashtra, Goa, Kerala, Andhra Pradesh, Tamil Nadu and Odisha presents the most widespread national footprint with deepened hinterland connectivity. The port facilities are equipped with the latest cargo-handling infrastructure which is not only best-in-class, but also capable of handling the largest vessels calling at Indian shores. Our ports are equipped to handle diverse cargos, from dry cargo, liquid cargo, and crude to containers.

Through its subsidiary Adani Logistics Ltd., APSEZ operates three logistics parks located at Patli in Haryana, Kila-Raipur in Punjab and Kishangarh in Rajasthan. With the ability to handle 500,000 twenty foot equivalent units (TEUs) annually, the Adani logistics business is growing at a rapid pace.

Over the years, APSEZ has evolved into a provider of integrated port infrastructure services, of which the Mundra SEZ in Gujarat is a landmark validation. Spanning over 8,000 hectares, the Mundra Economic Hub offers investment options as the largest multi-product SEZ, Free Trade and Warehousing Zone (FTWZ) and Domestic Industrial Zone.

The Company's integrated services across three verticals, i.e. Ports, Logistics and SEZ, has enabled it to forge alliances with leading Indian businesses making APSEZ an undisputed leader in the Indian port sector.

Along with its expertise in providing end-to-end logistics solutions, operational excellence, low-cost operations and synergies through acquisitions, APSEZ was also certified as a Great Place to Work in FY 2025-26. The Company is backed by a young and dynamic workforce that propels it to greater heights.

In order to reduce increasing energy costs, APSEZ approached ECO ENERGY SOLUTION for conduct of energy audit for their Samudra township at Mundra, Gujarat. This proposal was approved by plant vide its purchase order no 5702029244 dated 15.10.2025.

This energy audit report for APSEZ Samudra township presents the analysis of the data collected, observations made and field trials undertaken from 3rd November to 4th Nov 2025. It is governed by the objectives, scope of work, and methodology discussed in ensuing report sections.

Detailed Energy Audit Report

Key Result Areas for Energy Savings & Estimated Potential along with Broad Cost Benefit Analysis

Sr. No.	Energy Saving Area	Saving Potential in kWh p.a.	Saving Potential in Rs. Lakh p.a.	Investment in Rs. Lakh	Payback Period in Months
1	Optimize AC ODU 3 SEC by cleaning and servicing	2188	0.13	0.1	9.5
	Grand total	2188	0.13	0.10	9.5

Intangible Savings**1. Electricity Bill Analysis**

- Optimize TOU usage: Shift non-critical loads away from high TOU periods to reduce energy rate (₹/kWh) and overall monthly bills.

2. Transformer

- CSS A-32 Transformer (6% loading): Shift additional nearby load to this transformer to operate in the 30–60% efficient zone.
- CSS B-15 (16.6% loading, high current unbalance 6.9%): Perform phase load balancing to reduce current unbalance and losses.
- CSS C-1 (4.7% loading, high THD 16.2%): Shift additional nearby load to this transformer to operate in the 30–60% efficient zone. Potential exists for harmonic filter installation at this transformer.
- CSS B-67 (10.7% loading, current unbalance 14.25%): Re-distribute load across phases to reduce current unbalance.
- CSS C-35 (8.8% loading): Shift additional nearby load to this transformer to operate in the 30–60% efficient zone.
- Port Hostel Transformer (2.5% loading, lowest efficiency 89.8%): Either shut down this transformer when load is low or transfer load to a nearby transformer

3. Pumping System**Instrumentation Improvement –**

- Provide discharge pressure gauge at raw water transfer pump, permeate pump and treated water transfer pump to accurately evaluate head and pump efficiency.

4. Compressed Air System

- Fix leaks in piping, valves, and tools.
- Proper sequencing → run only when needed; avoid idling.
- Regular maintenance → filters, valves, lubricants, and coolers.

5. Air Conditioners

- Low Δ enthalpy in some units suggests reduced cooling; check airflow and clean coils/filters.
- Regular maintenance and monitoring of kW/TR will sustain efficiency and reduce energy use

Detailed Energy Audit Report

Energy Saving Measures ECM's Calculation Summary

ECM 1: Optimize AC ODU 3 SEC by cleaning and servicing

Sr. No	Particulars	Unit	AC ODU 3
	Optimize AC ODU 3 SEC by cleaning and servicing		Club House
1	Present SPC of AC	kW/TR	1.4
2	Rated / Expected SPC of AC	kW/TR	1.0
3	Potential to improve SPC	kW/TR	0.4
4	TR generation	TR	1.44
5	Power savings potential	kW	0.55
10	Annual operating hrs	hrs	4000
11	Annual energy savings	kWh	2188
12	Power cost considered	Rs/kWh	5.79
13	Annual power cost savings	Rs Lakh	0.13
14	Investment	Rs Lakh	0.10
15	Simple Payback Period	months	9.5

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Detailed Energy Audit Report

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Chapter – 1

Introduction

General Information

Name of the Industry	: Adani Ports and Special Economic Zone Ltd (APSEZ) Samudra Township
Address	: PO Box No.1, Mundra, Kutch, 370 421, Gujarat
Contact Person	: Mr. Jigar Patel Contact No: 9662627070
Industry Sector	: Township
Business Activity	Samudra Township is a residential area developed by Adani for providing housing and basic facilities to support employees working in Adani's port and SEZ industrial operations.
Year of Establishment	: 2010
Type of Work	: Detailed Energy Audit
Annual Electricity consumption	: 53,55,330 kWh (Oct-24 to Sep-25)
Address of the Auditors	: M/s Eco Energy Solution ECO HOUSE 49/2, Sarika Society, Samrat Nagar, Isanpur, Ahmedabad 382443 Gujarat, India
Energy Audit Team Members	: 1) Mr. Pushkar Khanna, AEA-0260 2) Mr. Krunal Shah, Lead Auditor 3) Mr. Akshay Chavan, Energy Engineer 4) Mr. Pranav Sinde, Energy Engineer 5) Mr. Piyush Khorwal, Energy Engineer 6) Mr. Vraj Bhavsar, Energy Engineer 7) Mr. Shiv Patel, Energy Engineer

1 Introduction

1.1 Preamble

- Adani Ports and Special Economic Zone Limited (APSEZ) is the largest commercial ports operator in India accounting for nearly one-fourth of the cargo movement in the country. Its presence across 13 domestic ports in seven maritime states of Gujarat, Maharashtra, Goa, Kerala, Andhra Pradesh, Tamil Nadu and Odisha presents the most widespread national footprint with deepened hinterland connectivity. The port facilities are equipped with the latest cargo-handling infrastructure which is not only best-in-class, but also capable of handling the largest vessels calling at Indian shores. Our ports are equipped to handle diverse cargos, from dry cargo, liquid cargo and crude to containers.
- Through its subsidiary Adani Logistics Ltd., APSEZ operates three logistics parks located at Patli in Haryana, Kila-Raipur in Punjab and Kishangarh in Rajasthan. With the ability to handle 500,000 twenty-foot equivalent units (TEUs) annually, the Adani logistics business is growing at a rapid pace.
- Over the years, APSEZ has evolved into a provider of integrated port infrastructure services, of which the Mundra SEZ in Gujarat is a landmark validation. Spanning over 8,000 hectares, the Mundra Economic Hub offers investment options as the largest multi-product SEZ, Free Trade and Warehousing Zone (FTWZ) and Domestic Industrial Zone.
- The Company's integrated services across three verticals, i.e. Ports, Logistics and SEZ, has enabled it to forge alliances with leading Indian businesses making APSEZ an undisputed leader in the Indian port sector.
- Annual Electricity bill is in the range of Rs. 3.07 Cr. (Oct-24 to Sep-25) for APSEZ Samundra Township.
- In order to reduce increasing energy costs, APSEZ approached Eco Energy Solution for conduct of energy audit. Eco Energy Solution has submitted proposal. This proposal was accepted by APSEZ vide its Purchase order no. 5702029244 dated 15-10-2025. This energy audit report for APSEZ Samudra township presents the analysis of the data collected, observations made and field trials undertaken by EES. It is governed by the objectives, scope of work, and methodology discussed in ensuing paragraphs.

1.2 Objectives

- To undertake an energy audit so as to identify areas for energy saving, both without and with investment.
- To prioritize distinct areas identified for energy savings depending upon saving potential, skills, and time frame for execution, investment cost, paybacks etc.

Detailed Energy Audit Report

1.3 Scope of Work

- To correlate monthly data of production with electricity, fuels & water consumption, for a period of 12 months of normal operation to establish benchmark values for energy consumption.
- To study electrical energy metering, monitoring and control system existing at the plant and to recommend a suitable system for future monitoring.
- To study monthly power factor, maximum demand, working hours, load factor etc. for the reference period along with monthly electricity consumption and establish scope for MD control through possible optimization of load factor and through detailed load management study.
- To undertake a detailed motor load study on major continuously operating motors equal to and above 10 HP with the help of a clamp on multi-meter to identify instantaneous motor parameters like kW, KVA, P.F., A, V, frequency etc.
- Based on above, to evaluate the possibility of replacing major motors with energy efficient motors. To provide cost benefit analysis for the replacement policy.
- To study compressed air distribution system in the plant, in terms of compressor type, make, capacity, loading, motor type / size / loading etc. and to undertake output efficiency test for the operating compressors.
- To study existing requirements of energy provisions at present locations and to identify distinct possibilities of rationalization / savings.
- To study operation of utilities with the help of operating records kept and spot measurements taken during the field study and identify specific energy consumption of equipment in usage and identify scope for optimization through improved operating / maintenance practices.
- To study existing maintenance practices for utility systems and recommend areas for improvement in energy efficiency / savings.
- To identify, evaluate and prioritise energy saving opportunities into short, mid and long-term time spans depending upon investments, quantum of savings, skills and time required for implementation, etc.
- To recommend a time-bound action plan for implementation of accepted measures.
- To prepare draft energy audit report, present to management, undertake necessary modifications based on presentation meeting and submit the final report.

1.4 Methodology

- Eco Energy Solution deputed following team of experts for conducting the study and worked in close association with unit personnel.
 - Mr. Pushkar Khanna, Accredited Energy Auditor from BEE
 - Mr. Krunal Shah, Lead Auditor- Energy Management System
 - Mr. Akshay Chavan, Energy Engineer

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- Mr. Piyush Khorwal, Energy Engineer
 - Mr. Pranav Sinde, Energy Engineer
 - Mr. Vraj Bhavsar, Energy Engineer
 - Mr. Shiv Patel, Energy Engineer
-
- Eco Energy Solution submitted an execution work plan for the assignment for which APSEZ personnel provided relevant data support.
 - APSEZ Unit personnel nominated specific persons from engg. / Maintenance sections along with a coordinator of senior managerial level for this audit.
 - Eco Energy Solution undertook an “Orientation Meeting” with management / engg. / Maintenance personnel prior to start of the audit.
 - EES’s team conducted all necessary field trials and measurements.
 - EES provided all the instruments necessary for conducting the field trials.
 - Following instruments were used by EES team.

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Table 1 : Instrument Used by Audit Team

Sr. No.	Instrument Name	Specification
1.	Demand Analyzer	Suitable for 1 ϕ , 3 ϕ . 156 electrical parameters like voltage, current, frequency, harmonics, active & reactive power, power factor etc.
2.	Clamp-on Power Meter	0 - 1200 kW 0 - 600 Voltage, AC 0 - 800 Voltage, DC 0 - 2000 A, Current, AC / DC
3.	Power Quality Analyzer	3 Ph 4 Wire Recording Parameters: Voltage, Current, Frequency, Harmonics/ Inter harmonics up to 50 th , THD of V, I and KW with K Factor, Transients, Voltage Sag- Swells, All Power Parameters, Inrush current, Load Unbalance, Flicker Recording etc. enabling graphical, vectorial, numerical representation, trending of data, monitoring of events etc.
4.	Lux Meter	0 - 50,000 lux level Non Contact Type
5.	Digital Thermo Anemometer	0 - 45 m / sec. $\pm$ 3%
6.	Relative Humidity and Temperature Indicator	RH – 10% to 95% Temp. – 0 – 100 °C Handheld unit
7.	Infrared Thermometers	40 °C to 500 °C
8.	Portable Temperature Indicator	50 °C to 1200 °C
9.	Ultrasonic Water Flow Meter	0 – 15 m/sec 25 – 5000 mm homogeneous liquids without gas bubbles +/- 0.5 %
10.	Stop Watch	--

Chapter 2

Energy Scene of the Plant

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2 Energy Flow

2.1 Energy Scene

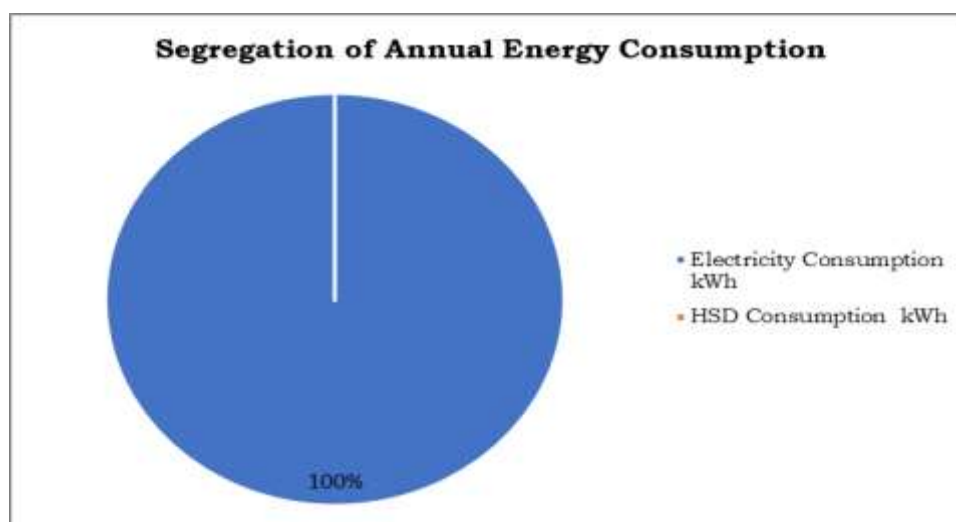
- Primary energy sources for the plant are Electricity. HSD is used at standby DG sets during grid power outages. The primary energy sources are consumed for running of utilities and production equipment. Electricity is used for Operation of all Crain Motor, Conveyers Motor, Utility Compressor, Pump Station and lighting system etc.

Table 2 : Overall Annual Consumption of Primary Sources

Energy Consumption by Fuel Medium	Units
Electricity Consumption (kWh)	5355330
HSD Consumption (kWh)	-

- All Sources of energy Consumption Conversion in kWh.
- Segregation of annual energy consumption is presented in the following figures. Electricity has a major energy source.

Figure 1 : Annual Energy Consumption as Per Energy Media



Water Consumption Scenario

- Month wise water consumption details at Samudra Township are presented in the table below.

Table 3 : Month wise Water Consumption Details at Samudra Township

Month	Water Consumption (KL)
Oct-24	40952
Nov-24	35400
Dec-24	36619
Jan-25	34844
Feb-25	31258
Mar-25	38675
Apr-25	39605
May-25	37600

Detailed Energy Audit Report

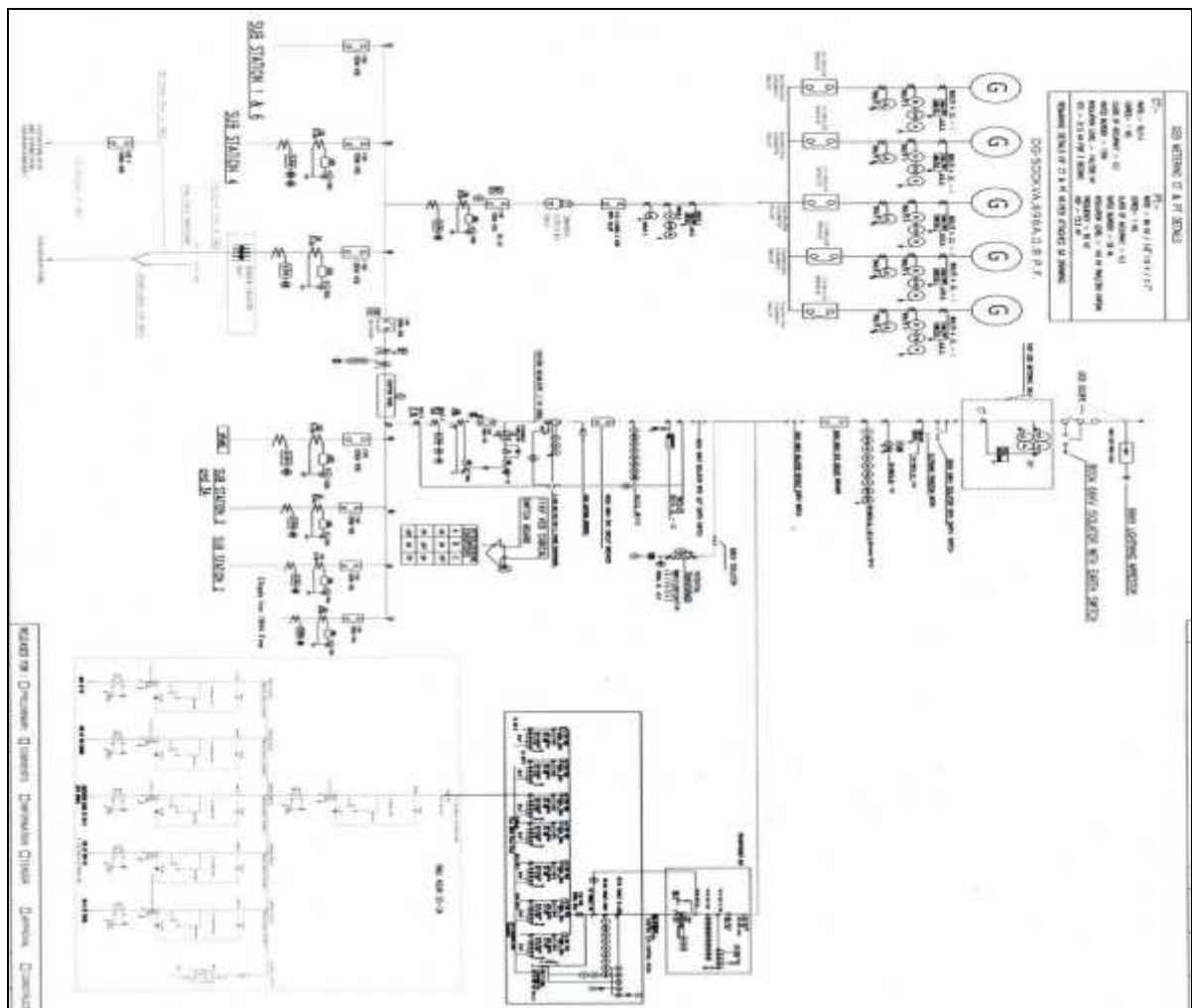
Month	Water Consumption (KL)
Jun-25	42101
Jul-25	41938
Aug-25	37574
Sep-25	40819
Total	457385

2.2 Energy: Sources & Utilization

Electricity

- The source of outside power for the township is from MPSEZ grid at 11 KV. The power received is further stepped down to 11000 V/433 V through 6 transformers and is distributed to all power distribution buses.
- Additionally, there is one DG set of 125 KVA to ensure back up power supply to the township. D.G. set is used as power back up when power is not receiving from electricity grid.

Figure 2 : Single Line Diagram of 66 KV Sub Station



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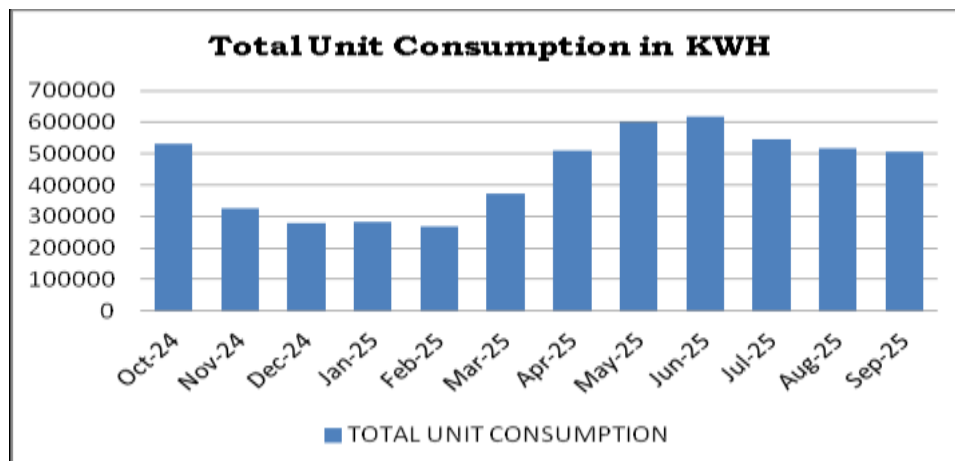
Electricity Bill Analysis

- Average monthly unit consumption and billed demand registered are 446277.5 kWh and 1032 kVA, respectively.
- After fixed department deducted Average unit cost of power is Rs 5.79/kWh. For review of payback period of energy saving measures report has considered electricity energy costs at Rs 5.79/kWh.
- Average Power factor is 0.998 and is maintained satisfactorily.

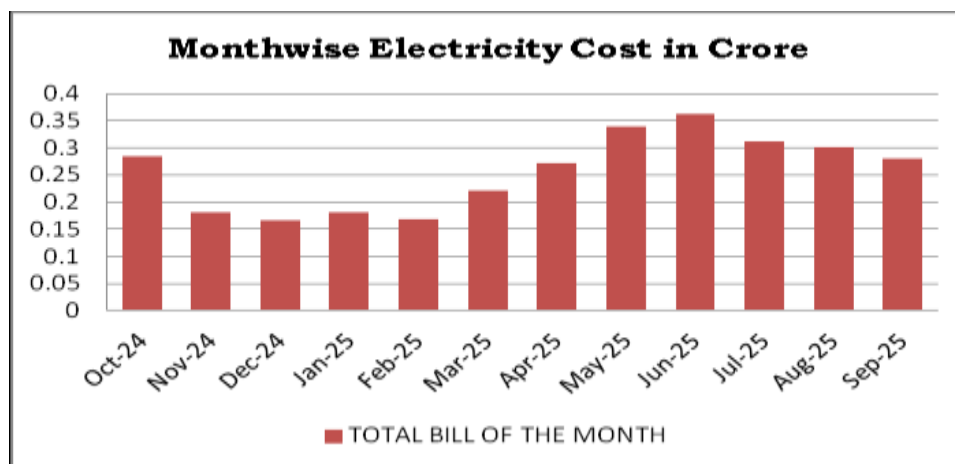
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Table 4 : Electricity Bill Analysis

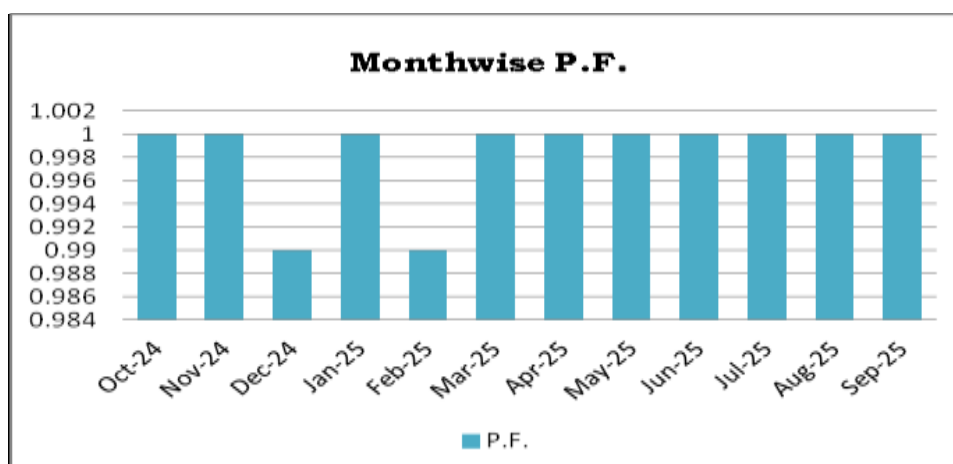
Sr No.	Months	Contract Demand	Actual Demand	Billing Demand	Total Unit Consumption	Fixed Charge	Total Unit Consumption	Total Bill Of The Month	Total Bill Of The Month	P.F.	P.F. Rebate	Overall Rate	Excess Demand	Excess	Excess charges paid
		KVA	KVA	KW	KWH	Rs.	KWH	Rs.	Cr.		Rs.	Rs/kWh	KVA	KWH	Rs.
1	Oct-24	1100	1214	1100	531463	613800	177150	2837972	0.283797	1.00	11160.7	5.34	114	84816	106020
2	Nov-24	1100	795	935	325888	504900	108625	1813257	0.181326	1.00	6843.7	5.56	0	0	0
3	Dec-24	1100	896	935	279200	521730	93075	1656889	0.165689	0.99	5109.4	5.93	0	0	0
4	Jan-25	1100	942.5	942.5	283713	525915	94575	1821463	0.182146	1.00	5958.0	6.42	0	0	0
5	Feb-25	1100	869	935	267238	471240	89075	1688766	0.168877	0.99	4890.5	6.32	0	0	0
6	Mar-25	1100	781.5	935	374113	521730	124700	2204317	0.220432	1.00	7856.4	5.89	0	0	0
7	Apr-25	1100	1182.5	1100	509138	594000	169700	2717646	0.271765	1.00	10691.9	5.34	82.5	59400	74250
8	May-25	1100	1463.5	1100	598538	613800	199525	3386046	0.338605	1.00	12569.3	5.66	363.5	270444	338055
9	Jun-25	1100	1655	1100	616613	594000	205525	3618135	0.361814	1.00	12948.9	5.87	555	399600	499500
10	Jul-25	1100	1356	1100	546150	613800	182050	3126432	0.312643	1.00	11469.2	5.72	256	190464	238080
11	Aug-25	1100	1357.5	1100	518238	613800	172750	3016370	0.301637	1.00	10883.0	5.82	257.50	191580	239475
12	Sep-25	1100	1236.5	1100	505038	594000	168350	2807904	0.28079	1.00	10605.8	5.56	136.5	98280	122850
Total					5355330	6782715	1785100	30695197	3.06952		110986.6		1765	1294584	1618230
Average		1100	1146	1032	446277.5	565226.3	148758.3	2557933		0.998	9248.9	5.79	147.1	107882	134852.5

Figure 3 : Month wise Energy Consumption at Samudra Township (kWh)

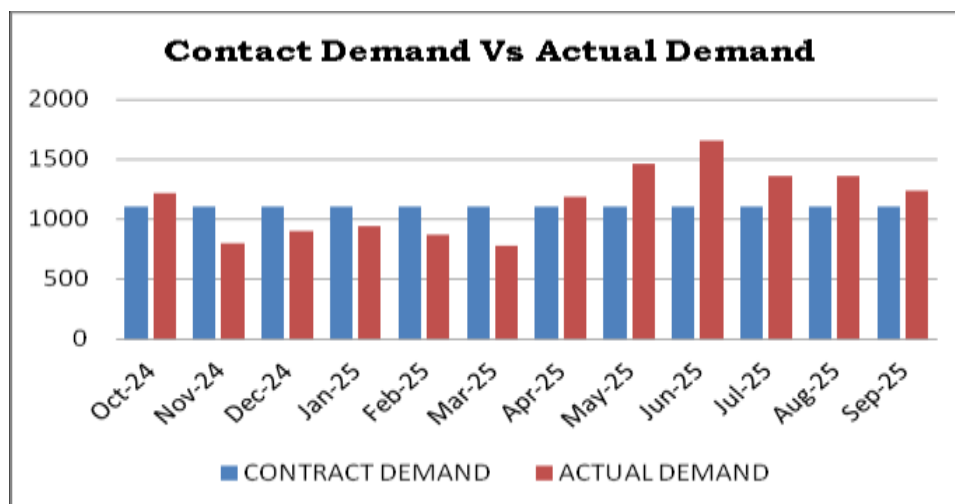
Total unit consumption noted higher in the month of June-25.

Figure 4 : Month Wise Electricity Cost at Samudra Township (KWh)

Total electricity cost noted higher in the month of June-2025.

Figure 5 : Month Wise Power Factor at Samudra Township

PF varies from 0.99 to 1 throughout the year.

Figure 6 : Month Wise Contract Demand Vs Actual Demand at Samudra Township


Actual demand crosses the contract demand 7 times a year

2.3 Energy Metering, Monitoring & Control System - Existing Status

Electricity

- Electrical energy consumption at the plant is measured on the main tri-vector meter provided at plant MCC & PCC on daily basis. Plant wise energy monitoring system is recorded in excel format for easy analysis.
- Adequate instrumentation was observed for voltage, current, power, power factor.
- Demand controller is not installed with alarm system.
- Adequate instrumentation observed for HVAC parameters monitoring and recording.
- Data management and analysis are appreciable of the working staff.

Water

- Water supply mainly incoming source is Borewell. Analog flow meter installed in the system.
- Water flow measurement is done by plant at various areas like Harvesting Pump, STP Pump, and Bore well Pumps.
- Water is available from Narmada canal through water supply authority of MUPL and it is utilized for two major purposes. 1. Residential purpose, 2. Horticulture.
- Proper metering and tantalizers are installed at the pump line.
- Daily record of water consumption is maintained by Samudra Township.

Level of Awareness

- Housekeeping is observed in line & maintenance is also observed in good condition.

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- Using of natural lighting whenever possible during day time for office use was seen at some places.
- Air conditioners with inverters are not installed in Samudra Township.
- Streetlight with LED fixtures has been fitted for reduction of lighting power.
- Based on geographical time zone, timers for turning on/off streetlights have been installed in street lighting.

Chapter – 3

Performance Assessment of utilities (Observations, Field Trials, Analysis, Energy Savings)

3 Performance Assessment of Utilities

- The study of plant operations, data collection, observations, field trials and analysis of various areas was undertaken, keeping in view the energy scene at the unit, focus areas elaborated in the previous chapter and with a view to identify energy conservation opportunities in the same. The basis for this is the orientation visit, discussions with the plant personnel and the agreed plan for data collection and field trials. All these trials were undertaken at normal operating conditions.

3.1 Electrical Energy

- As described earlier, the source of electric power for the township is from MPSEZ grid at incoming at 11 KV. The power received is further stepped down to 433V through 8 nos. transformers at and is further distributed in Samudra township.
- During audit period performance is tested by measuring electrical parameters for each Transformer under operation. Following are the details.
- Performances of transformers are as under.

Table 5 : Transformer Installation Details

Rated Specifications	CSS A-32 Transformer	CSS B-15 Transformer	CSS C-1 Transformer	CSS B-67 Transformer
Rated kVA	1000	1000	1000	1000
Voltage (HV/LV) V	11000/433	11000/433	11000/433	11000/433
Current Amp (HV/LV)	52.5/1333	52.5/1333	52.5/1333	52.5/1333
Make				
Cooling	ONAN	ONAN	ONAN	ONAN
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Location	Township Area			
Serial No.	2359		2237	322
Manufacturing Year				
Transformer Rating in KVA	1000	1000	1000	1000
%Z	NA	NA	NA	NA

Rated Specifications	CSS B-24 Transformer	CSS 103 Transformer	CSS C-35 Transformer	Port Hostel Transformer
Rated kVA	1000	1000	1000	750
Voltage (HV/LV) V	11000/433	11000/433	11000/433	11000/433
Current Amp (HV/LV)	52.5/1333	52.5/1333	52.5/1333	
Make				
Cooling	ONAN	ONAN	ONAN	ONAN
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Location	Township Area			
Serial No.			323	SPL-3254
Manufacturing Year				Nov-24

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Rated Specifications	CSS B-24 Transformer	CSS 103 Transformer	CSS C-35 Transformer	Port Hostel Transformer
Transformer Rating in KVA	1000	1000	1000	750
%Z	NA	NA	NA	NA

3.1.1 Main Incomer 11/0.433 kV CSS A-32 TR 1000 KVA, 3rd Nov 2025 Logging

- Power measurement at the CSS A-32, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF values are within satisfactory limits while current harmonics values are exceeding the permissible limits.

Table 6 : Main Incomer 11/0.433 kV 1000 KVA TR CSS A-32, 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS A 32			
Date: 03-11-2025		Time: 04:44 Pm to 07:03 Pm	
Parameters	Minimum	Average	Maximum
Voltage (V)			
U12 rms	421.8	424.8	427.7
U23 rms	421.7	425.2	428
U31 rms	425	425.1	427.5
Voltage (V)			
V1 rms	243.8	245.5	247.2
V2 rms	243.8	245.8	247.4
V3 rms	245.7	245.7	247.1
Current			
L1 (A)	57.28	82.58	117.44
L2 (A)	60.16	81.43	124.8
L3 (A)	61.44	82.58	103.04
Active Power			
Total (kW)	44.99	59.94	76.7
Reactive Power			
Total (kVAR)	-3.5	-1.5	1.7
Apparent Power			
Total (kVA)	45.75	60.64	77.4
Voltage & Current Unbalance			
Total Uunb (IEEE 112)	0	0.19	0.6
Total Aunb (IEEE 112)	0.5	16.28	39.25
Power Factor			

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Location - Samudra Township			
Total	0.98	0.988	0.992
Harmonics			
Voltage THD %	1.9	2.35	2.8
Current THD%	9.1	15.52	26.4

Remarks

- Current unbalance is observed up to 16.28%.
- Current THD are noted higher up to 15.52%.

3.1.2 Load Profile of 1000 KVA CSS A-32 Transformer

Figure 7 : Voltage Profile of CSS A-32 Transformer Main Incomer (Logging on 3rd Nov 2025)

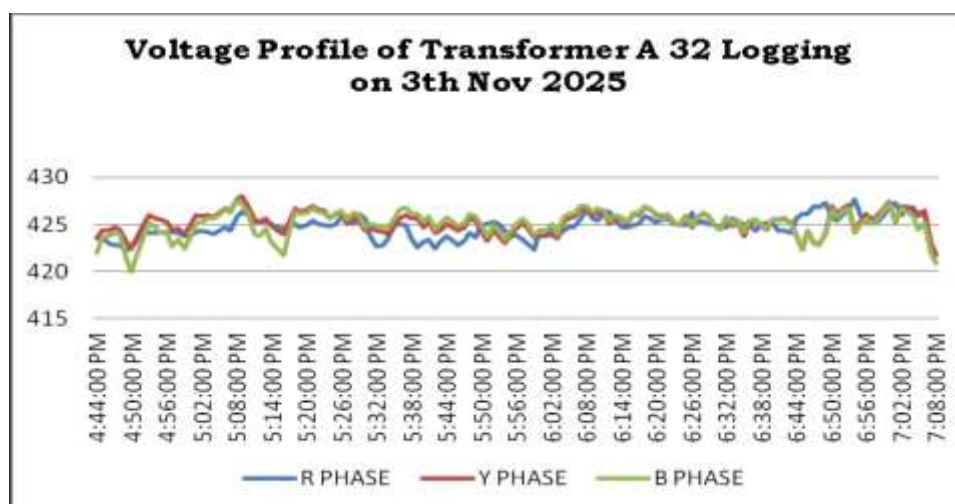
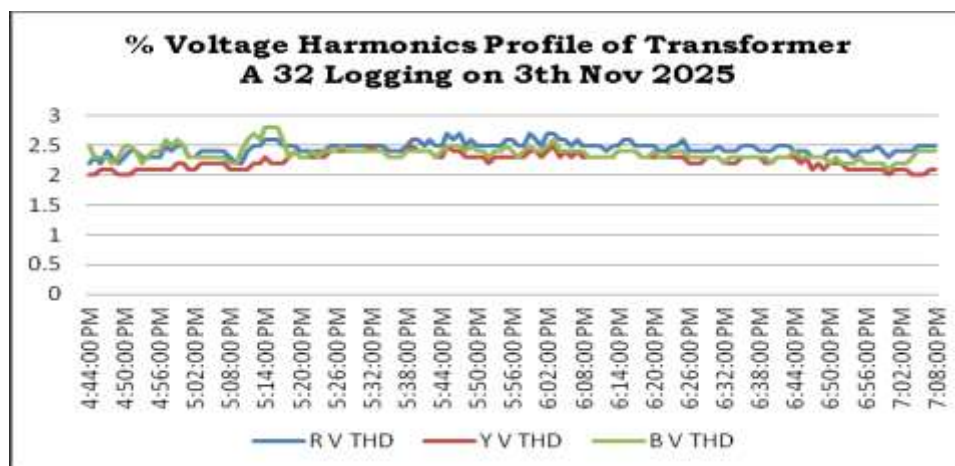


Figure 8 : %Voltage Harmonics Phase wise Profile of CSS A-32 Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 9 : Ampere Profile of CSS A-32 Transformer Main Incomer (Logging on 3rd Nov 2025)

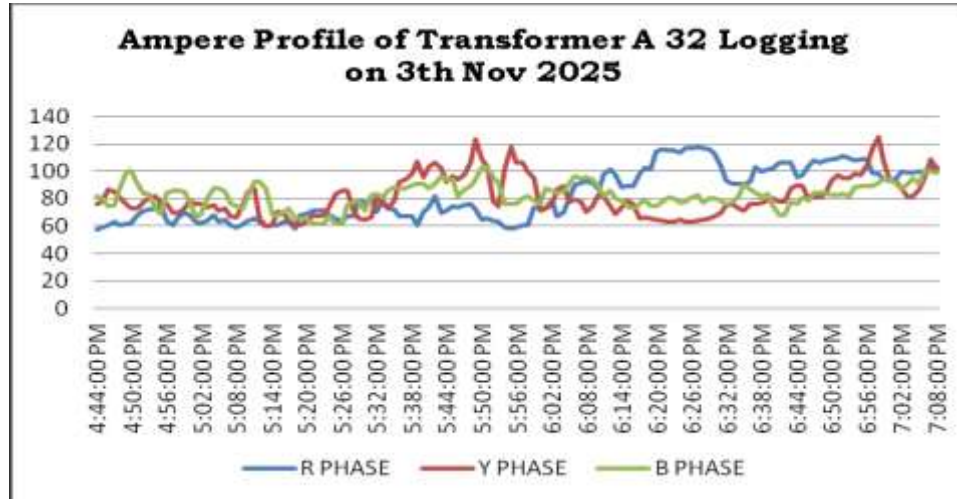


Figure 10 : %Ampere Harmonics Phase wise Profile of CSS A-32 Transformer Main Incomer (Logging on 3rd Nov 2025)

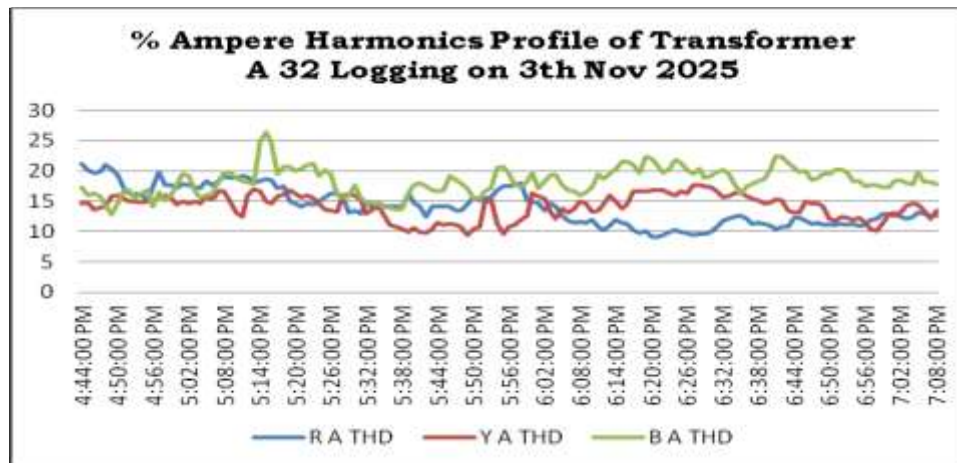
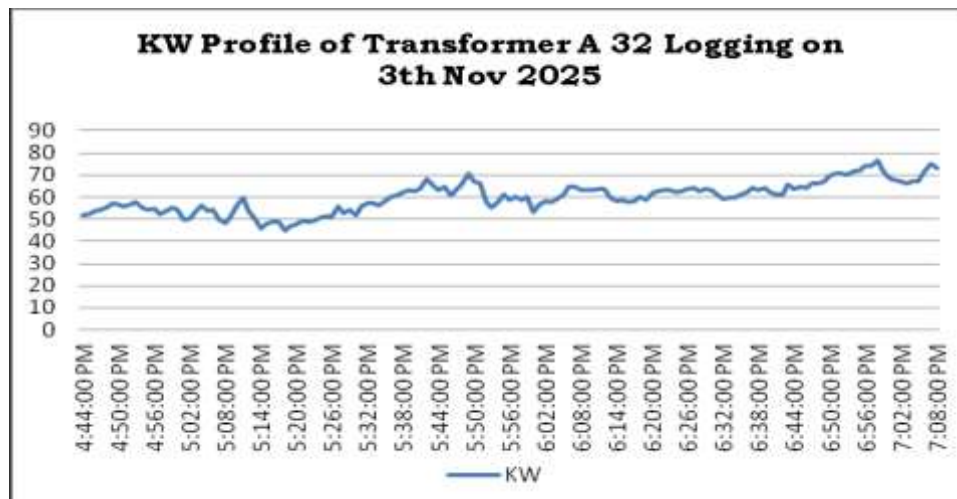


Figure 11 : KW Profile of CSS A-32 Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 12 : PF Profile of CSS A-32 Transformer Main Incomer (Logging on 03rd Nov 2025)

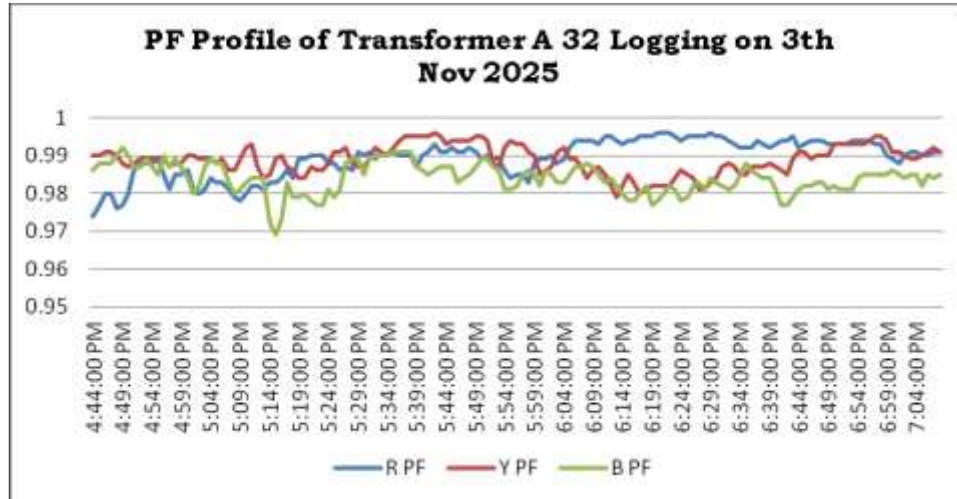
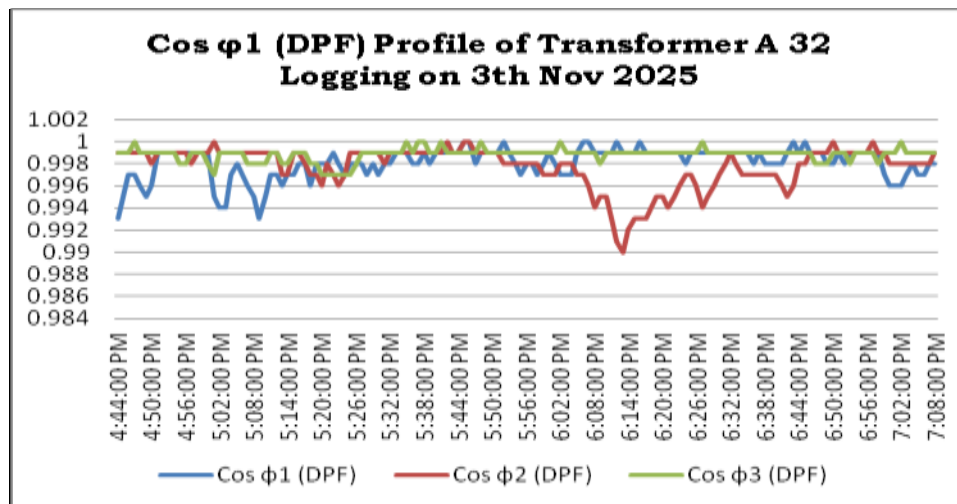


Figure 13 : Cos ϕ T (DPF) Profile of CSS A-32 Transformer Main Incomer (Logging on 03rd Nov 2025)



3.1.3 Main Incomer 11/0.433 kV CSS B-15 TR 1000 KVA, 3rd Nov 2025 Logging

- Power measurement at the CSS B-15, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF & current harmonics values are within satisfactory limits.

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Table 7 : Main Incomer 11/0.433 kV CSS B-15 TR 1000 KVA, 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS B 15			
Date: 03-11-2025		Time: 11:34 Am to 01:28 Pm	
Parameters	Minimum	Average	Maximum
Voltage (V)			
U12 rms	421.8	425.8	433.1
U23 rms	415.2	424.6	430.6
U31 rms	416.9	424.9	431.1
Voltage (V)			
V1 rms	243.8	246.1	250.3
V2 rms	240.0	245.4	248.9
V3 rms	241.0	245.6	249.2
Current			
L1 (A)	164.1	227.37	287.4
L2 (A)	145.2	218.54	274.3
L3 (A)	160.3	230.24	281.1
Active Power			
Total (kW)	117.17	164.42	189.6
Reactive Power			
Total (kVAR)	-4.5	14.7	21.6
Apparent Power			
Total (kVA)	118.14	165.98	191.3
Voltage & Current Unbalance			
Total Uunb (IEEE 112)	0	0.28	1.3
Total Aunb (IEEE 112)	0.6	6.9	18.5
Power Factor			
Total	0.986	0.990	0.994
Harmonics			
Voltage THD %	1.43	1.7	2
Current THD%	7.13	10.18	14.9

Remarks

- Current unbalance is observed up to 16.28%.
- Current THD are noted higher up to 15.52%.

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3.1.4 Load Profile of 1000 KVA CSS B-15 Transformer

Figure 14 : Voltage Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)

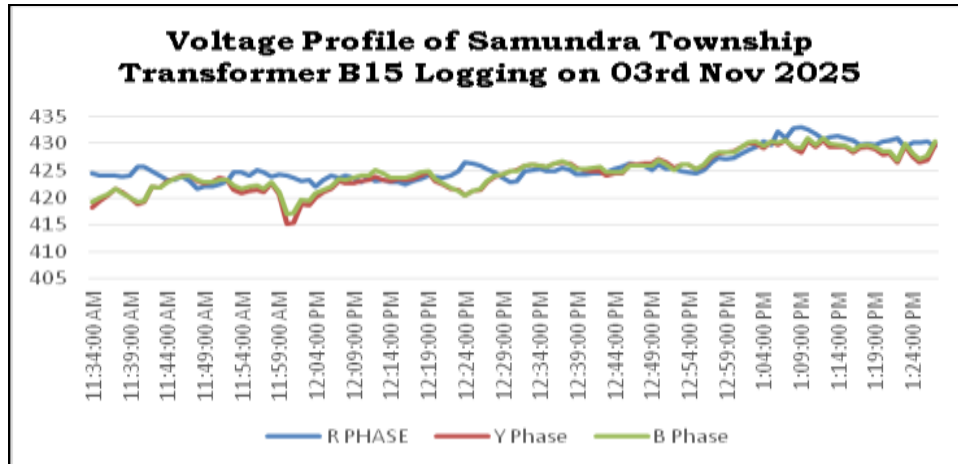


Figure 15 : %Voltage Harmonics Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)

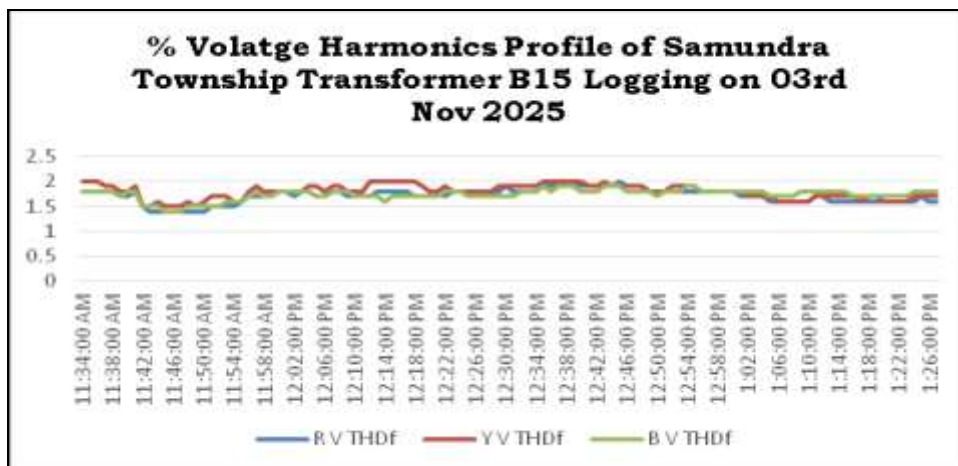
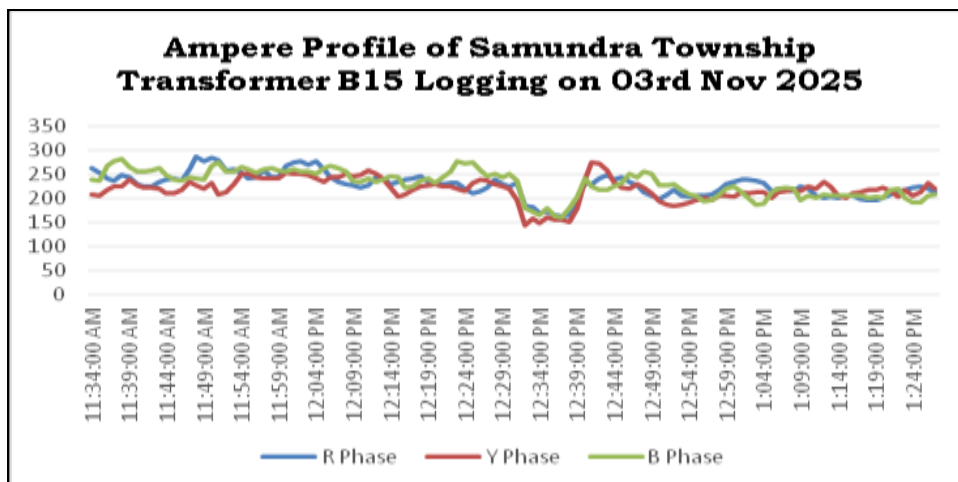


Figure 16 : Ampere of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 17 : %Ampere Harmonics Phase wise Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)

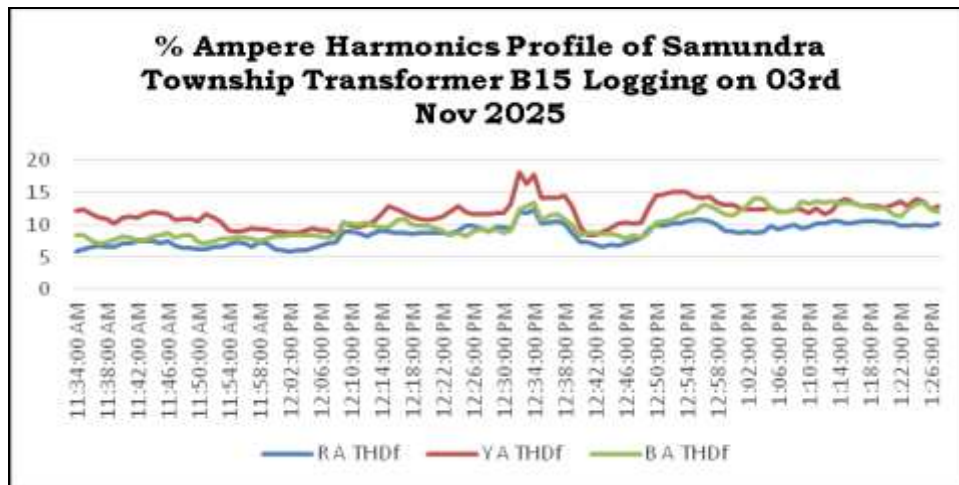


Figure 18 : KW Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)

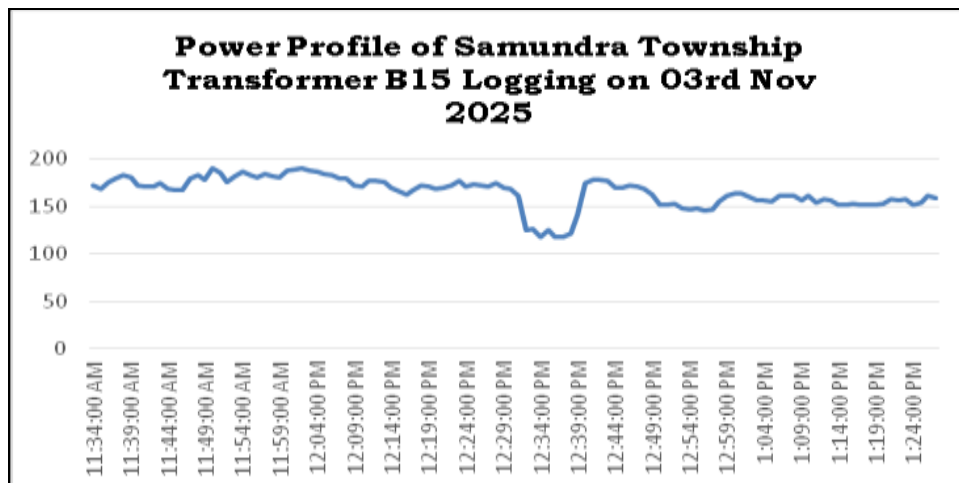
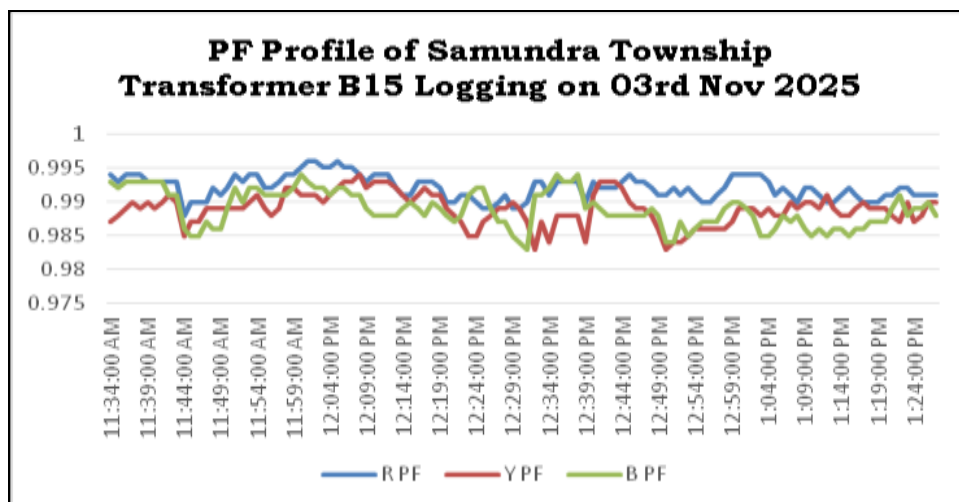
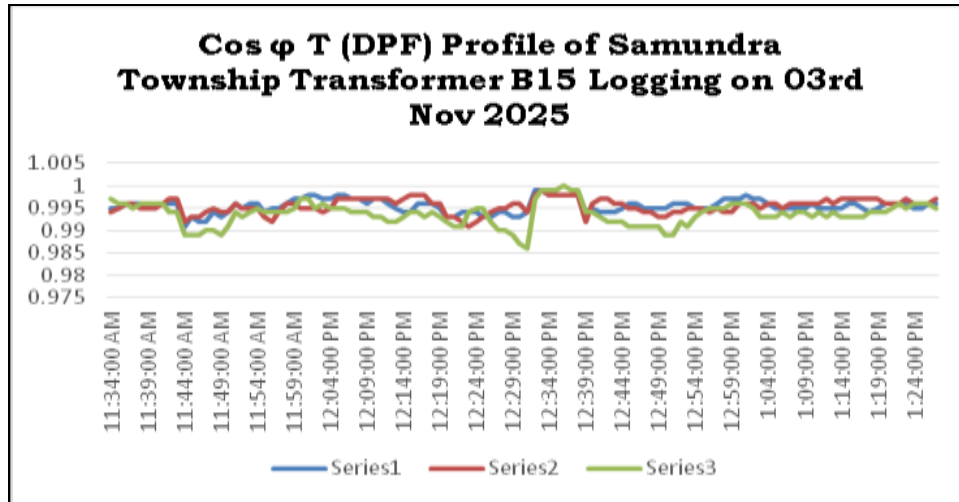


Figure 19 : PF Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 20 : Cos ϕ T (DPF) Profile of CSS B-15 Transformer Main Incomer (Logging on 3rd Nov 2025)



3.1.5 Main Incomer 11/0.433 kV CSS C1 TR 1000 KVA, 3rd Nov 2025 Logging

- Power measurement at the CSS C1, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF values are satisfactory while current harmonic levels are exceeding the permissible limits.

Table 8 : Main Incomer 11/0.433 kV 1000 KVA TR CSS A-32, 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS C-1			
Date: 03-11-2025		Time: 11:56 Am to 01:13 Pm	
Parameters	Minimum	Average	Maximum
Voltage (V)			
U12 rms	410.5	414.0	420.8
U23 rms	404.6	414.1	419
U31 rms	403.8	413.2	418.3
Voltage (V)			
V1 rms	237.3	239.3	243.2
V2 rms	233.9	239.4	242.2
V3 rms	233.4	238.8	241.8
Current			
L1 (A)	59.3	66.9	93.9
L2 (A)	52.1	66.81	99
L3 (A)	48.4	63.98	74
Active Power			
Total (kW)	39.18	46.51	55.4

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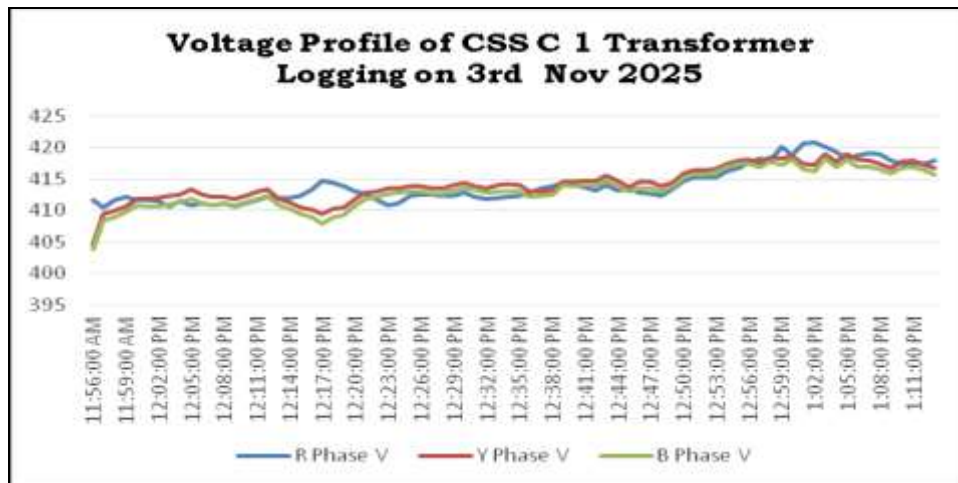
Location - Samudra Township			
Reactive Power			
Total (kVAR)	1.6	3.3	4.3
Apparent Power			
Total (kVA)	40.05	47.3	56.1
Voltage & Current Unbalance			
Total Uunb (IEEE 112)	0.1	0.24	1
Total Aunb (IEEE 112)	0.7	9.51	28.4
Power Factor			
Total	0.977	0.983	0.988
Harmonics			
Voltage THD %	1.43	1.58	1.73
Current THD%	11.93	16.18	20

Remarks

- Current unbalance is observed up to 9.51%.
- Current THD are noted higher up to 16.18%.

3.1.6 Load Profile of 1000 KVA CSS C1 Transformer

Figure 21 : Voltage Profile of CSS C1 1000 KVA Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 22 : %Voltage Harmonics Phase wise Profile of CSS C1 1000 KVA Transformer Main Incomer (Logging on 3rd Nov 2025)

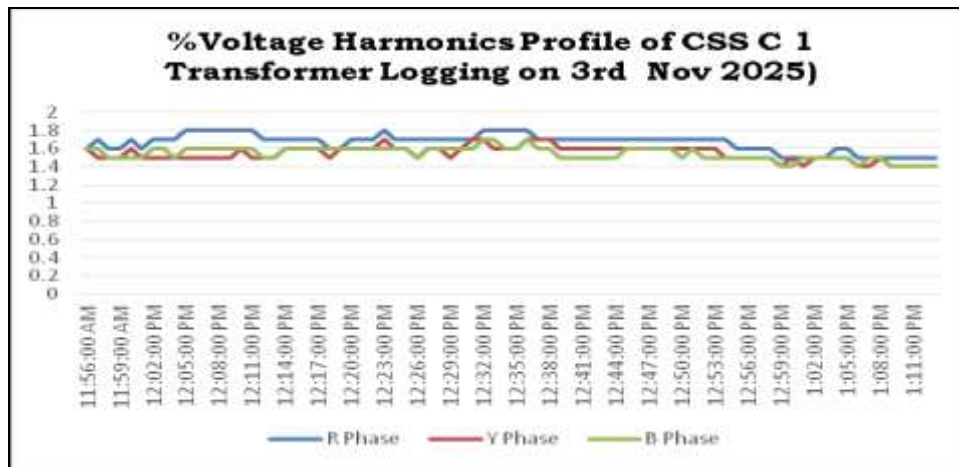


Figure 23 : Ampere Profile of CSS C1 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

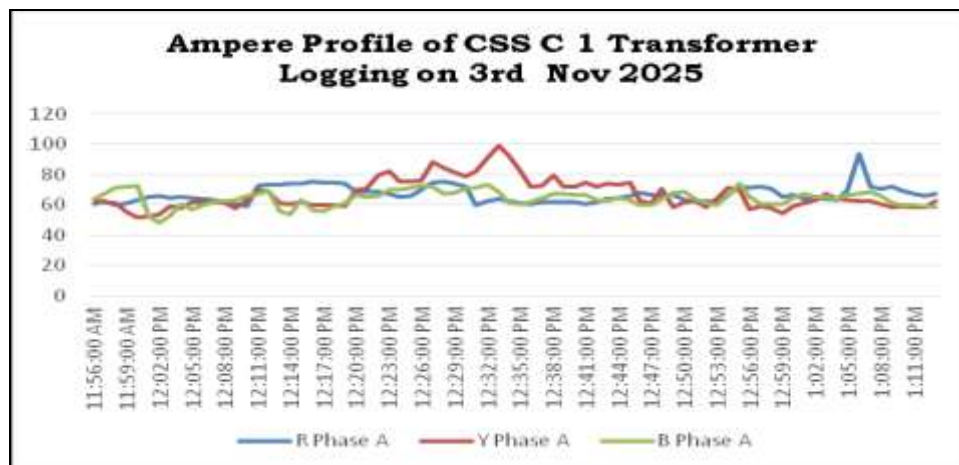
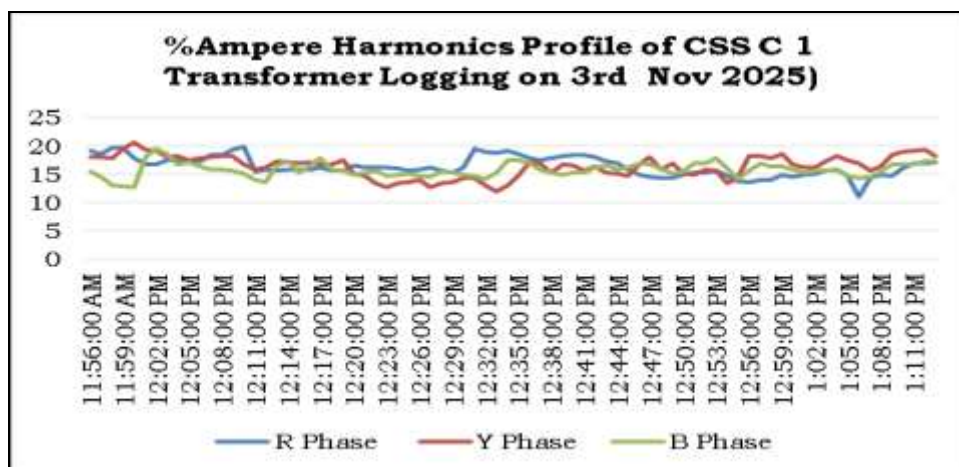


Figure 24 : % Ampere Harmonics Profile of CSS C1 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



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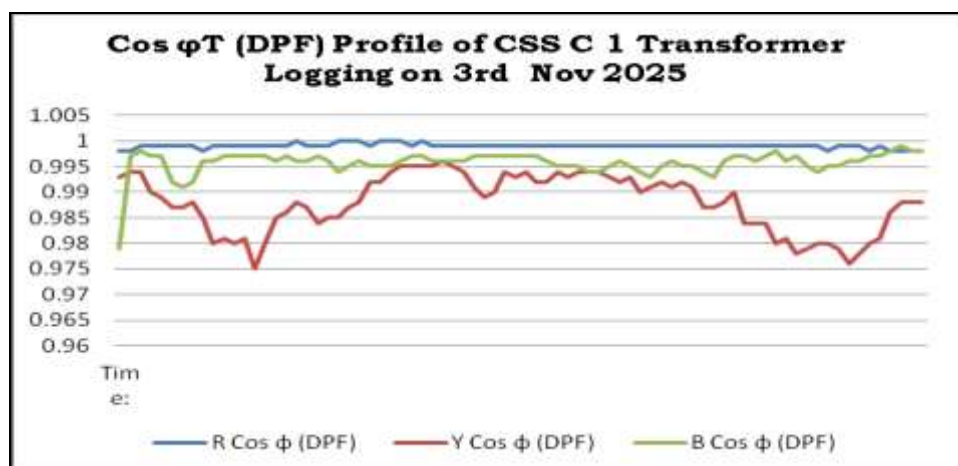
Figure 25 : KW Profile of CSS C1 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



Figure 26 : PF Profile of CSS C1 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



Figure 27 : Cos ϕ T (DPF) Profile of CSS C1 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



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3.1.7 Main Incomer 11/0.433 kV CSS B-67 TR 1000 KVA, 3rd Nov 2025 Logging

- Power measurement at the CSS B-67, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF values are satisfactory while current harmonic levels are exceeding the permissible limits.

Table 9 : Main Incomer 11/0.433 kV CSS B-67 TR 1000 KVA, 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS B 67			
Date: 03-11-2025		Time: 03:32 Pm to 04:27 Pm	
Parameters	Minimum	Average	Maximum
Voltage (V)			
U12 rms	409.7	412.4	414.1
U23 rms	412	413.8	415.1
U31 rms	410.5	412.7	414.6
Voltage (V)			
V1 rms	236.8	238.4	239.4
V2 rms	238.2	239.2	239.9
V3 rms	237.3	238.6	239.7
Current			
L1 (A)	130.5	154.44	167.3
L2 (A)	104.6	131.05	154.6
L3 (A)	109.7	164.82	192.7
Active Power			
Total (kW)	79.34	104.29	114.2
Reactive Power			
Total (kVAR)	-21.5	-18.0	-16.5
Apparent Power			
Total (kVA)	83.42	107.44	117.2
Voltage & Current Unbalance			
Total Uunb (IEEE 112)	0.1	0.23	0.4
Total Aunb (IEEE 112)	2.1	14.25	28.1
Power Factor			
Total	0.95	0.970	0.975
Harmonics			
Voltage THD %	1.7	1.88	2.13
Current THD%	14.3	17.68	21.6

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Remarks

- Current unbalance is observed up to 14.25%.
- Current THD are noted higher up to 17.68%.

3.1.8 Load Profile of 1000 KVA CSS B-67 Transformer

Figure 28 : Voltage Profile of CSS B-67 1000KVA Transformer Main Incomer (Logging on 3rd Nov 2025)

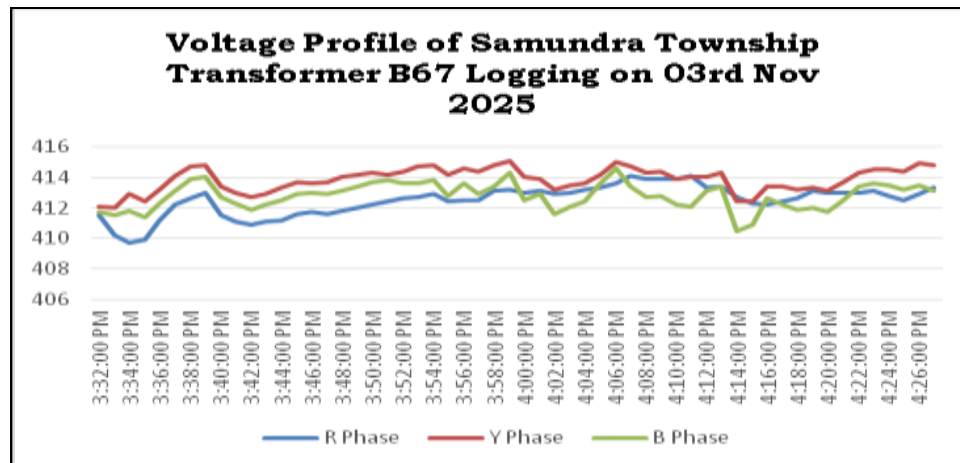
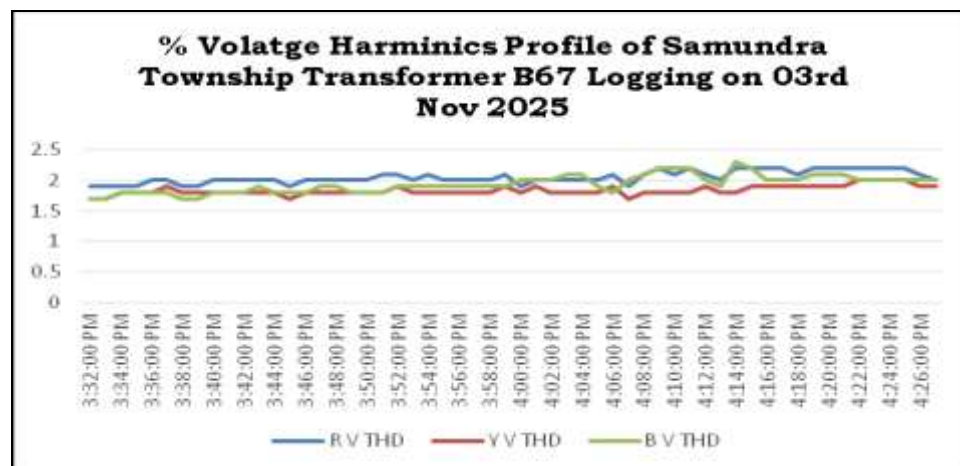


Figure 29 : %Ampere Harmonics Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 3rd Nov 2025)



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Figure 30 : Ampere Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 3rd Nov 2025)

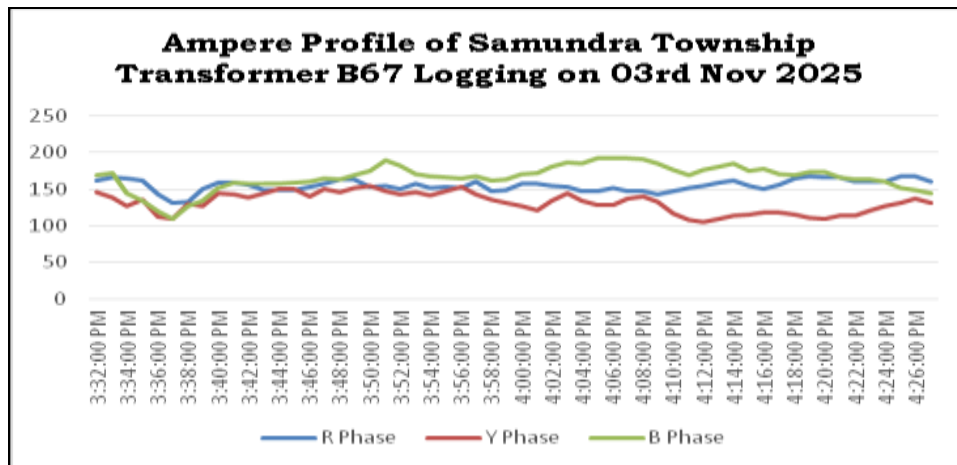


Figure 31 : %Ampere Harmonics Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

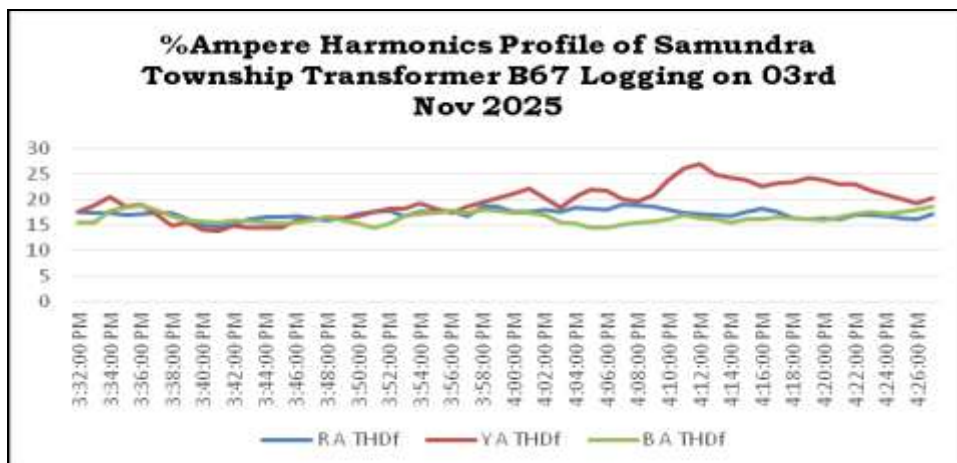
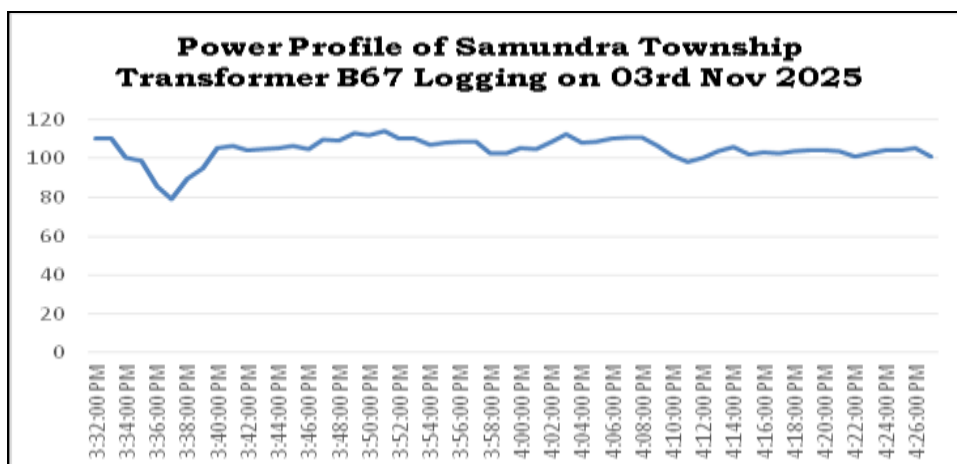


Figure 32 : KW Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



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Figure 33 : PF Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

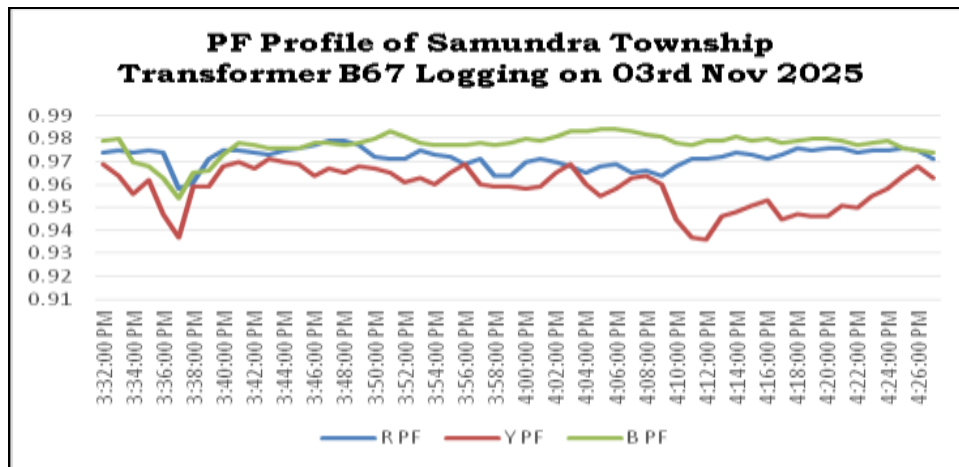
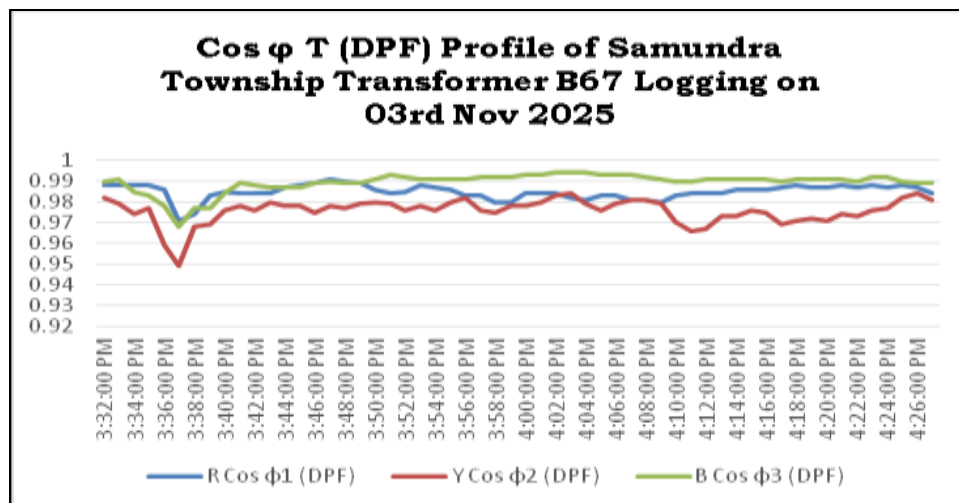


Figure 34 : Cos ϕ T (DPF) Profile of CSS B-67 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



3.1.9 Main Incomer 11/0.433 kV CSS B-24 TR 1000 KVA, 3rd Nov 2025 Logging

- Power measurement at the CSS B-67, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF & current harmonic values are satisfactory.

Table 10 : Main Incomer 11/0.433 kV CSS B-24 TR 1000 KVA, 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS B-24			
Date: 03-11-2025		Time: 02:02 Pm to 3:17 Pm	
Parameters	Minimum	Average	Maximum

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Location - Samudra Township			
Voltage (V)			
U12 rms	416.6	421.4	427
U23 rms	417.6	421.0	425.5
U31 rms	414	419.6	423.8
Voltage (V)			
V1 rms	240.8	243.6	246.8
V2 rms	241.4	243.4	246.0
V3 rms	239.3	242.5	245.0
Current			
L1 (A)	396.1	532.82	648.5
L2 (A)	399.3	536.26	653.2
L3 (A)	397.8	534	650.4
Active Power			
Total (kW)	288.0	388.9	477.1
Reactive Power			
Total (kVAR)	-15.9	-9.3	5.1
Apparent Power			
Total (kVA)	288.7	389.55	477.7
Voltage & Current Unbalance			
Total Uunb (IEEE 112)	0.1	0.36	1.6
Total Aunb (IEEE 112)	0.1	0.38	1
Power Factor			
Total	0.997	0.998	0.999
Harmonics			
Voltage THD %	1.63	1.85	1.96
Current THD%	2.66	3.65	4.86

Remarks

- Current unbalance is observed up to 0.38% and is within acceptable limits.
- Current THD are noted higher up to 3.65% and is within acceptable limits.

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3.1.10 Load Profile of 1000 KVA CSS B-24 Transformer

Figure 35 : Voltage Profile of CSS B-24 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

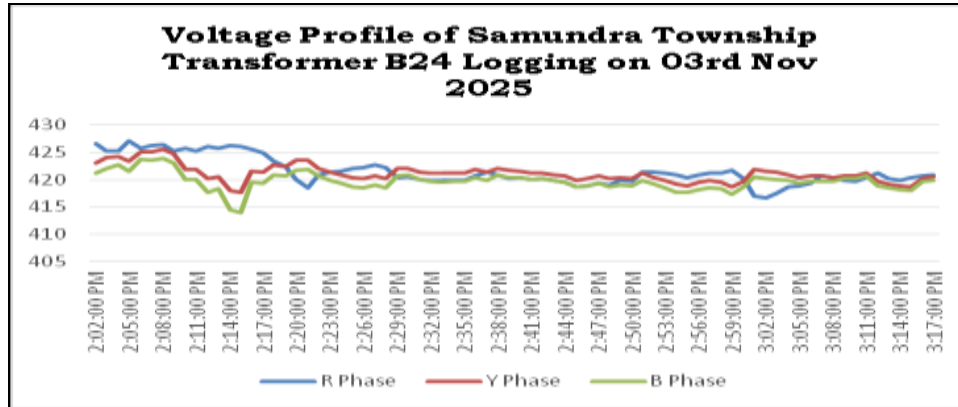


Figure 36 : %Voltage Harmonics Phase wise Profile of CSS B-24 1000 KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

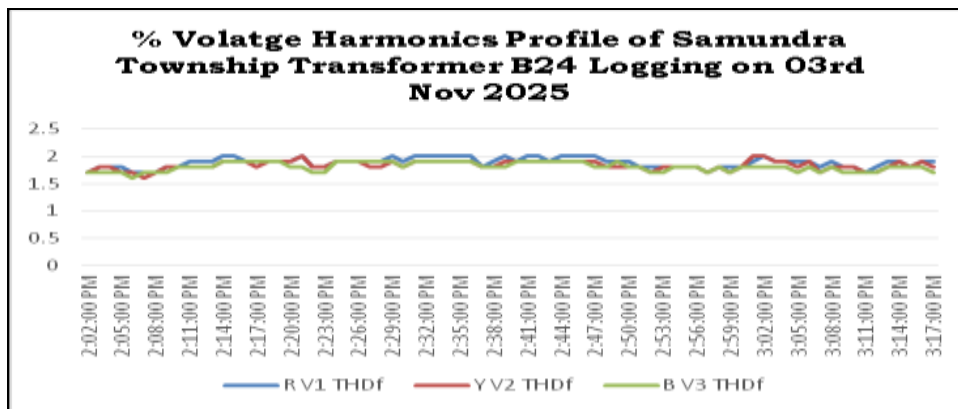
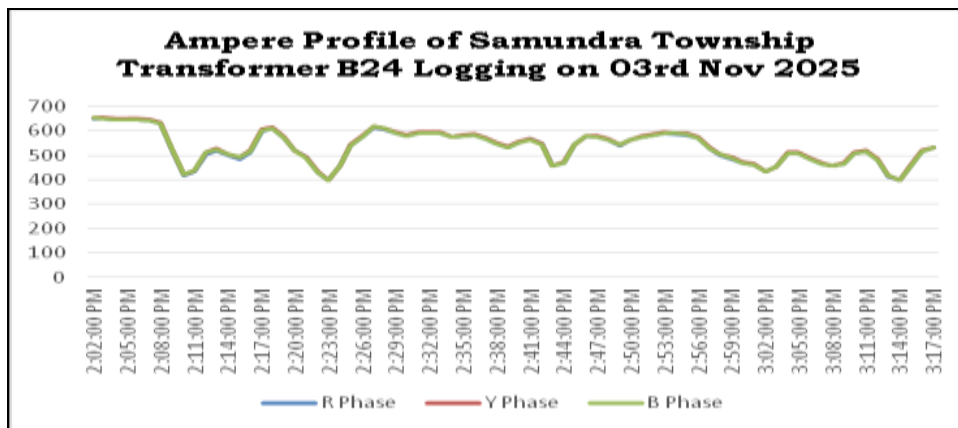


Figure 37 : Ampere Profile of B-24 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



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Figure 38 : %Ampere Harmonics Profile of B-24 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

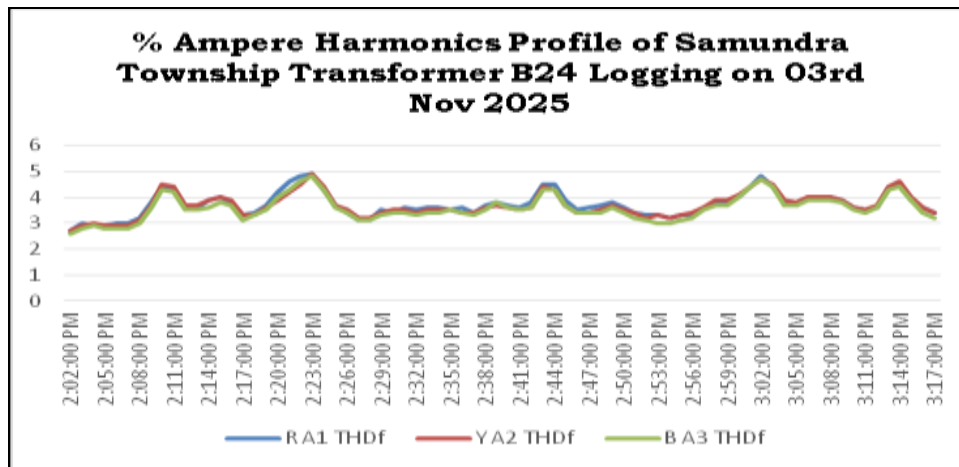


Figure 39 : KW Profile of B-24 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)

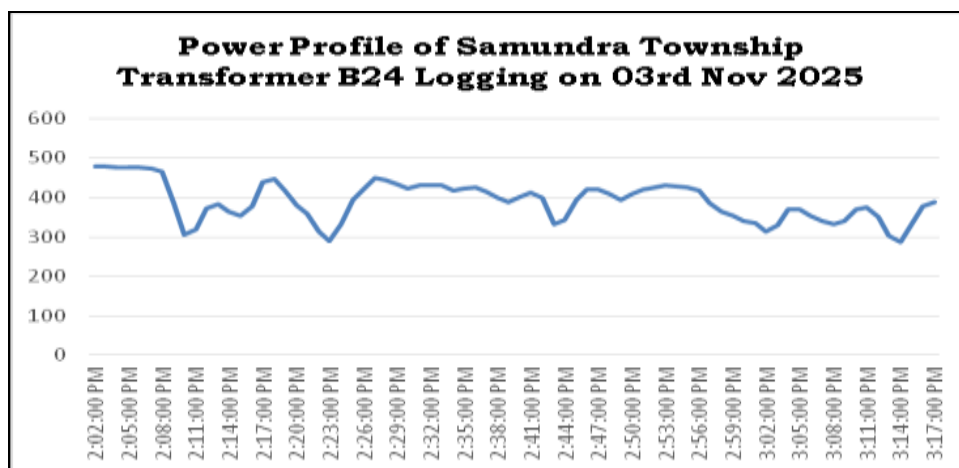
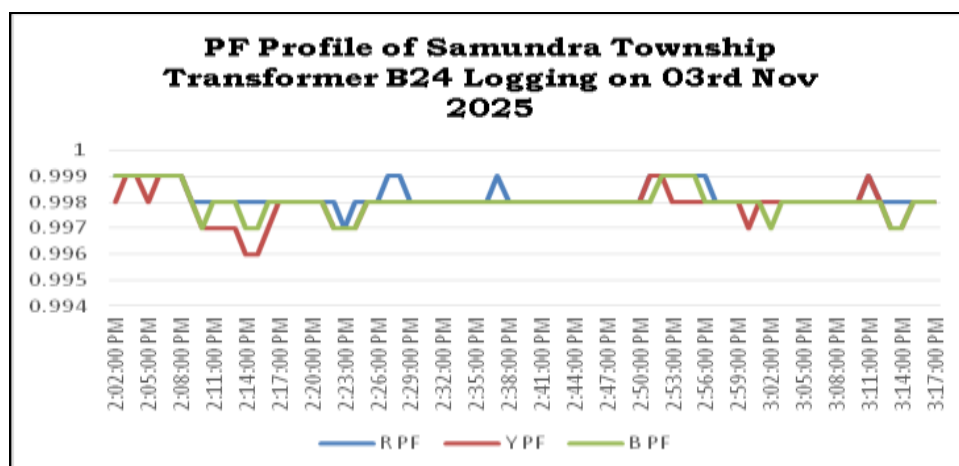
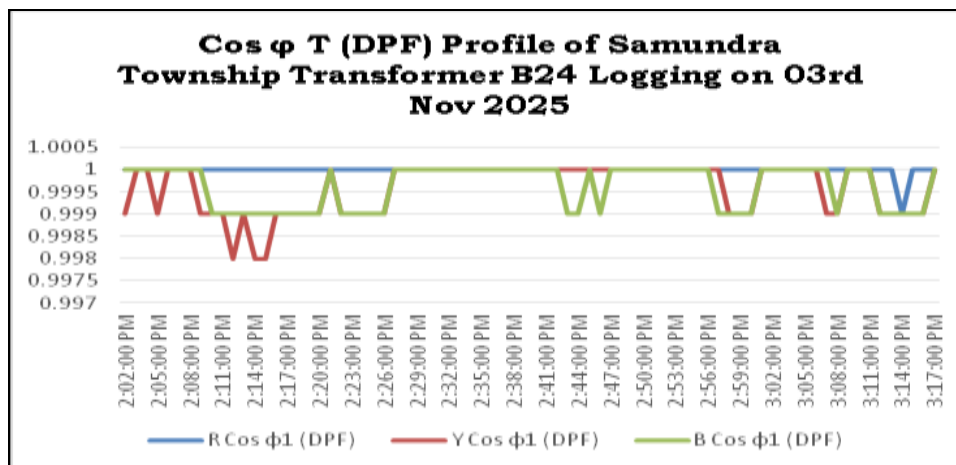


Figure 40 : PF Profile of B-24 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



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Figure 41 : Cos ϕ T (DPF) Profile of B 24 1000KVA Transformer Main Incomer (Logging on 03rd Nov 2025)



3.1.11 Main Incomer 11/0.433 kV CSS 103 (TR 1000 KVA), 3rd Nov 2025 Logging

- Power measurement at the CSS 103, 1000 KVA Transformer was conducted which included monitoring of variation in voltage, load, power factor, Current, harmonics and other incidental parameters. The detailed 1-minute interval data logging is available separately in chart and Load cycle in below.
- The brief summary charts for variation in voltage, Current, Demand & P.F. is presented below.
- Power quality data as recorded at Transformer incomer is presented in table below. Overall PF & current harmonic values are satisfactory.

Table 11 : Main Incomer 11/0.433 kV CSS 103 (TR 1000 KVA), 3rd Nov 2025 Logging

Location - Samudra Township			
1000 KVA TR Incomer - CSS 103			
Date: 04-11-2025		Time: 02:42 Pm to 03:44 Pm	
Parameters	Minimum	Average	Maximum
Voltage (V)			
U12 rms	427.4	430.6	432.9
U23 rms	427.9	430.1	431.8
U31 rms	425.6	429.9	432.5
Voltage (V)			
V1 rms	247.1	248.9	250.2
V2 rms	247.3	248.6	249.6
V3 rms	246.0	248.5	250.0
Current			
L1 (A)	226.8	284.67	340.4
L2 (A)	228	285.79	341
L3 (A)	223.6	279.33	331.9
Active Power			
Total (kW)	168.51	210.39	250.5
Reactive Power			

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Location - Samudra Township			
Total (kVAR)	6.0	11.2	13.5
Apparent Power			
Total (kVA)	169.29	211.12	251.1
Voltage & Current Unbalance			
Total Unb (IEEE 112)	0.1	0.17	0.5
Total Aunb (IEEE 112)	0.9	1.36	1.9
Power Factor			
Total	0.994	0.996	0.998
Harmonics			
Voltage THD %	1.4	1.53	1.7
Current THD%	3.76	4.93	6.93

3.1.12 Load Profile of 1000 KVA CSS 103 Transformer

Figure 42 : Voltage Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)

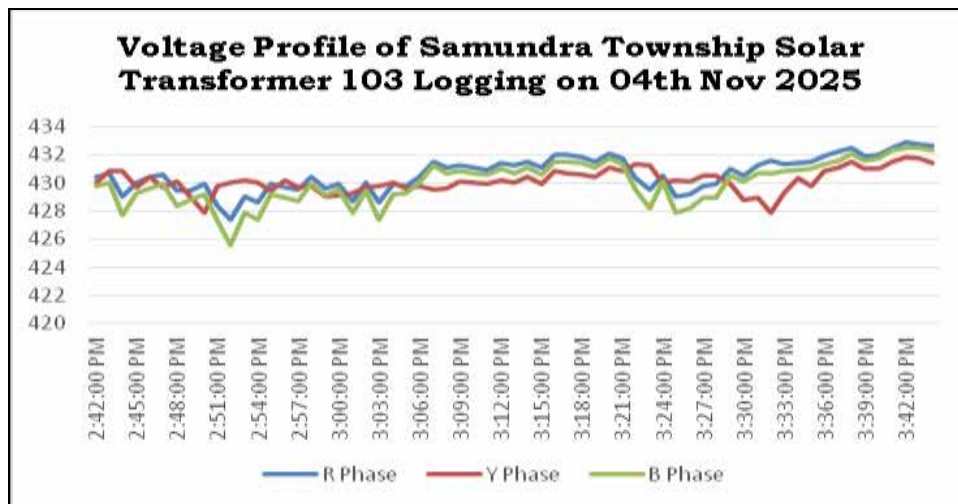
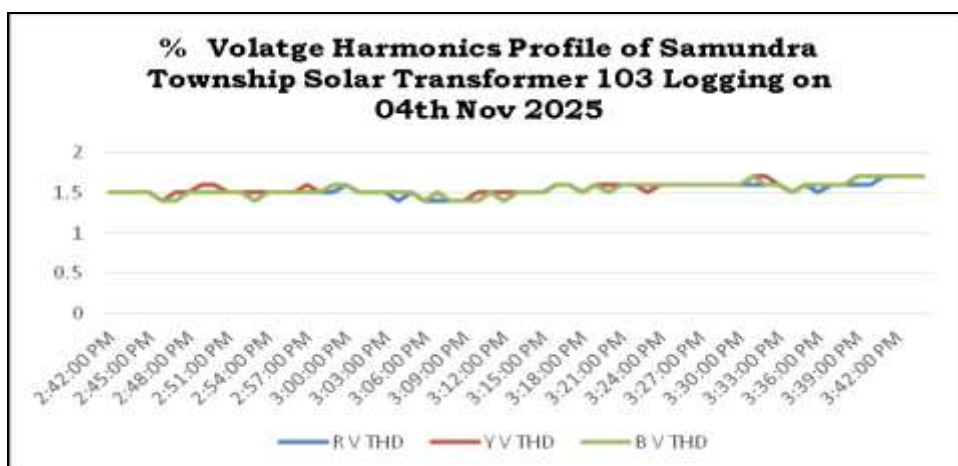


Figure 43 : %Voltage Harmonics Phase wise Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)



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Figure 44 : Ampere Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)

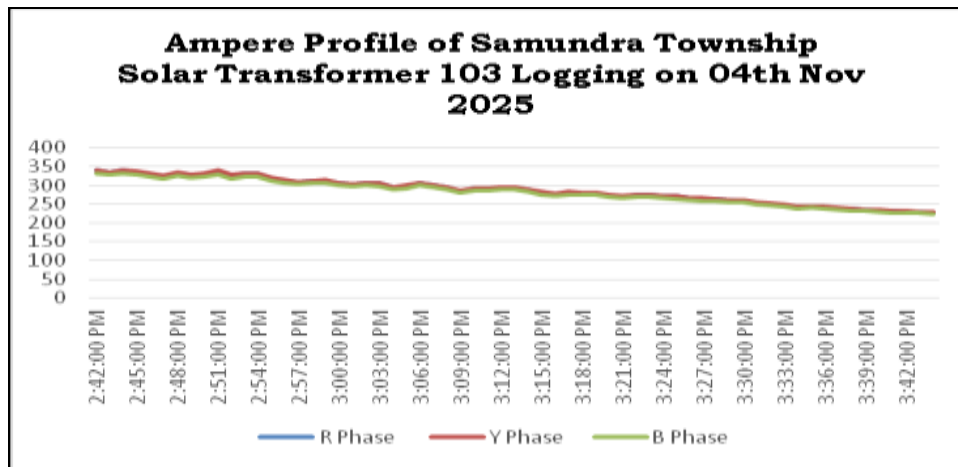


Figure 45 : %Ampere Harmonics Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)

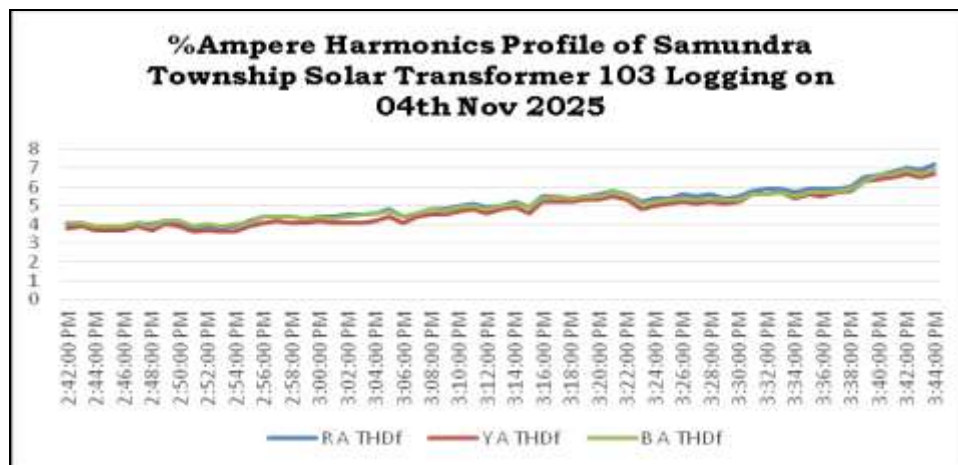
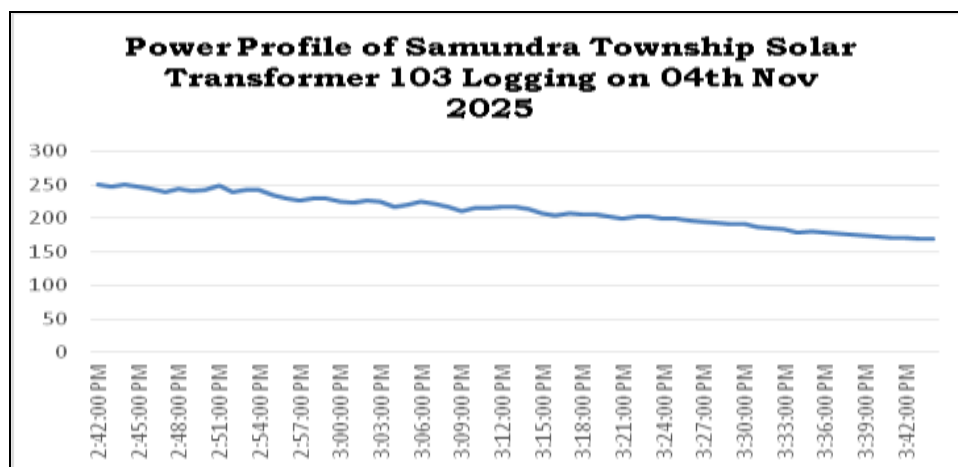


Figure 46 : KW Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)



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Figure 47 : PF Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)

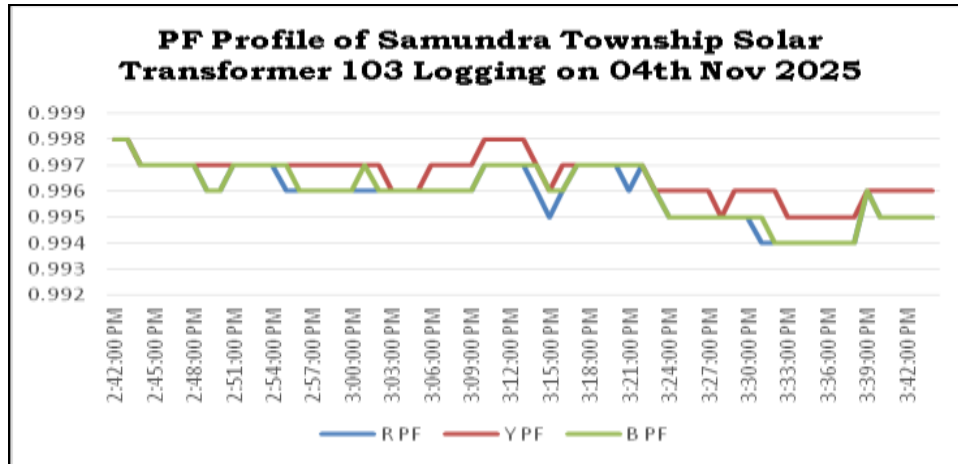
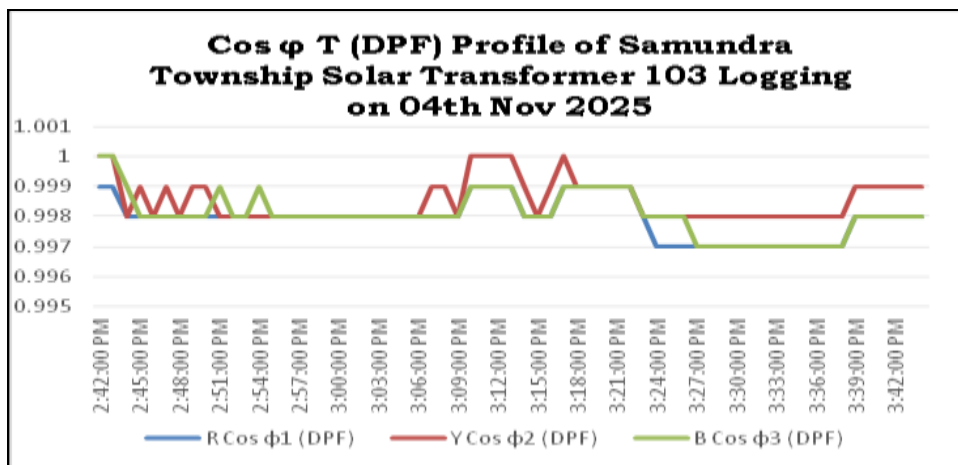


Figure 48 : Cos ϕ T (DPF) Profile of CSS 103 1000 KVA Transformer Main Incomer (Logging on 04th Nov 2025)



3.1.13 Performance Evaluation of Transformer Efficiency

- As per EES companies Energy meter reading, we have calculated transformer efficiency by taking reading on 3rd & 4th Nov 2025, which is satisfactory.
- The Efficiency of CSS A-32, CSS B-15, CSS C-1, CSS B-67, CSS B-24, CSS 103, CSS C-35 and Port hostel transformer is observed at **96%, 97.96%, 95.18%, 97.33%, 98.59%, 98.20%, 96.99% & 89.81%**. Overall efficiency of all transformer is satisfactory except port hostel transformer.

Table 12 : Performance Evaluation of Transformer Efficiency

Rated Specifications	CSS A-32 Transformer	CSS B-15 Transformer	CSS C-1 Transformer	CSS B-67 Transformer
Rated kVA	1000	1000	1000	1000
Voltage (HV/LV) V	11000/433	11000/433	11000/433	11000/433
Current Amp (HV/LV)	52.5/1333	52.5/1333	52.5/1333	52.5/1333
Cooling	ONAN	ONAN	ONAN	ONAN
Frequency	50 Hz	50 Hz	50 Hz	50 Hz

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Rated Specifications	CSS A-32 Transformer	CSS B-15 Transformer	CSS C-1 Transformer	CSS B-67 Transformer
Location	Township Area	Township Area	Township Area	Township Area
Serial No.	2359		2237	322
Transformer Rating in KVA	1000	1000	1000	1000
%Z	NA	NA	NA	NA
Avg.Load in KVA	60.64	165.98	47.30	107.44
Present % Loading	6.06	16.60	4.73	10.74
Rated Full Load Losses of Transformer (kW)	13.30	13.30	13.30	13.30
Total Losses of Transformer(kW)	1.80	1.80	1.80	1.80
Operating Power Factor	0.988	0.990	0.983	0.970
No Load Loss (KVA)	1.82	1.82	1.83	1.86
Total Losses= Load Losses+N.L. Losses	2.39	3.39	2.28	2.87
Transformer Efficiency, %	96.05	97.96	95.18	97.33
Avg.Load in KW	59.94	164.42	46.51	104.29
Max load, kW	76.74	189.61	55.44	114.20
Min load, kW	44.99	117.17	39.18	79.34
Voltage Unbalance %	0.19	0.28	0.24	0.23
Current Unbalance %	0.66	6.90	9.51	14.25
Voltage THD Avg.	2.4	1.7	1.6	1.9
Current THD Avg.	15.5	10.2	16.2	21.6

Table 13 : Performance Evaluation of Transformer Efficiency

Rated Specifications	CSS B-24 Transformer	CSS 103 Transformer	CSS C-35 Transformer	Port Hostel Transformer
Rated kVA	1000	1000	1000	750
Voltage (HV/LV) V	11000/433	11000/433	11000/433	11000/433
Current Amp (HV/LV)	52.5/1333	52.5/1333	52.5/1333	
Cooling	ONAN	ONAN	ONAN	ONAN
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Location	Township Area	Township Area	Township Area	Township Area
Serial No.			323	SPL-3254
Manufacturing Year				Nov-24
Transformer Rating in KVA	1000	1000	1000	750
%Z	NA	NA	NA	NA
Avg.Load in KVA	389.55	211.12	88.10	19.39
Present % Loading	38.96	21.11	8.81	2.58
Rated Full Load Losses of Transformer (kW)	13.30	13.30	13.30	11.30
Total Losses of Transformer(kW)	1.80	1.80	1.80	1.53
Operating Power	0.998	0.996	0.987	0.865

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Rated Specifications	CSS B-24 Transformer	CSS 103 Transformer	CSS C-35 Transformer	Port Hostel Transformer
Factor				
No Load Loss (KVA)	1.80	1.81	1.82	1.77
Total Losses= Load Losses+N.L. Losses	5.48	3.80	2.66	1.98
Transformer Efficiency, %	98.59	98.20	96.99	89.81
Avg.Load in KW	388.90	210.39	86.95	16.77
Max load, kW	477.12	250.51		
Min load, kW	287.99	168.51		
Voltage Unbalance %	0.36	0.17		
Current Unbalance %	0.38	1.36		
Voltage THD Avg.	1.8	1.5		
Current THD Avg.	3.7	4.9		

3.2 Harmonics study

- Harmonics are one of the most well-known power quality phenomena and are the result of the distortion of sinusoidal signal of the voltage and / or current. Distorted waveforms can be broken down into sum of components at the fundamental frequency and at the frequencies multiple of the fundamental one. Harmonics are signal components with frequencies that are integer multiples of the fundamental operating frequency of the system.
 - The distortion of the sinusoidal waveform and the presence of harmonics are originated by the nonlinear characteristics typical of several devices like UPS and other electronic equipment etc. It is common to use general indexes of harmonics distortion such as Total Harmonic Distortion (THD), a parameter that briefly quantifies the harmonic distortion of a signal.
 - The presence of harmonics in a network with capacitors causes a current overload on the capacitor itself and results in increase in temperature and reduces the life of capacitors. Further, the problems that may originate from the presence of harmonics are overload in the PF correction capacitor banks, overload of the neutral conductor, additional losses in transformers and in rotating electrical machines, measurement errors in the counters and untimely triggering of safety relays, disturbance and faults in electronic equipment and computers.
- Effect of Harmonics: The presence of harmonics in a network would result in:
- Current overload on the capacitor and increase in temperature which reduces the life of capacitors.
 - Overload in the PF correction capacitor banks.
 - Increased resistance of conductors thereby increased losses and thermal failures.
 - Additional losses in transformers and in rotating electrical machines.
 - Measurement errors in the counters and untimely triggering of safety relays.
 - Disturbance and faults in electronic equipment and computers.
 - Study of harmonics was carried out for approximately for pick hours at an interval of 1 minutes and the summary of observations are presented below.

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- Voltage harmonics (% total harmonic distortion) recorded at the transformer side is within the limits specified by ANSI Standard IEEE 519 - 1992 which is 3% of Voltage Harmonics and 5% whereas current harmonics. It is suggested to carry out a detailed harmonics study over a period of time such that THD is maintained within safe limits. A typical study would record 3rd, 5th, and 7th and higher currents Harmonics to detect the source and suggest suitable Active or Passive filters to suppress it.

Table 14 : IEEE standard for voltage harmonics as per IEEE 519

Low-voltage system classification and distortion limits			
	Special Applications ¹	General System	Dedicated system ²
Notch Depth	10%	20%	50%
THD (voltage)	3%	5%	10%
Notch Area ³ (AN)	16400	22800	36500
Note: The value AN for other than 480 V systems should be multiplied by V/480			
1. Special applications include hospitals and airports			
2. A dedicated system is exclusively dedicated to the converter load			
3. In volt-microseconds at rated voltage and current			

Table 15 : IEEE standard for current harmonics as per IEEE 519

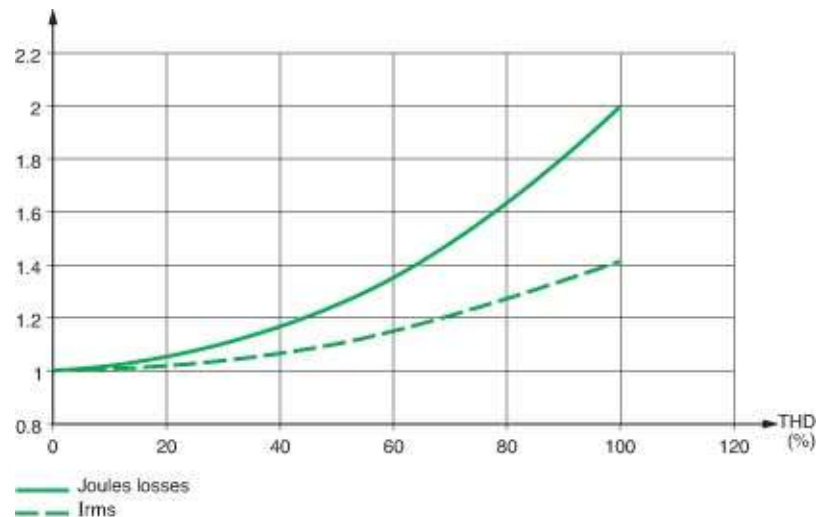
Current Distortion Limits for General Distribution System (120 V through 69000V)				
Maximum Harmonic Current Distortion in Percent of IL				
Individual Harmonic Order (Odd Harmonics)				
ISC/ IL	≤ 11	$11 \leq h \leq 17$	$17 \leq h \leq 23$	TDD
<20*	4	2	1.5	5
20<50	7	3.5	2.5	8
50<100	10	4.5	4	12
100<1000	12	5.5	5	15
>1000	15	7	6	20
Where:				
ISC= maximum short circuit current at PCC				
IL= maximum demand load current (fundamental frequency component) at PCC				

- As per described in above measurement and standard it is suggested to put harmonics filter for better quality of power. We had suggested vender for harmonics filter. Plant person called them for site visit and detail discussion. Initially plant person put harmonics filter only for transformer 13. It is suggested by vender that to eliminate harmonics losses install harmonic filter at load end and reduce harmonic generation in line, also put one harmonic filter at a transformer to reduce harmonic generation in grid. As above it is suggested that install Adv. Passive filters at distribution side. And put one active filter at transformer side.

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- $I_{rms} = I_1 (1 + THD^2)^{0.5}$, where: I_1 = Fundamental current, above equation shows that reduction in harmonics is reduction in losses ($I_{rms} = I_1$, where: $THD = 0$). Harmonics increase rms current for a load drawn a fundamental current, also its increase in joule losses, not taking in the account but skin effect.

Figure 49 : Harmonics Losses



- (The reference point in graph is 1 for I_{rms} and joules losses, the case when there are no harmonics).
- Following charts shows current & voltage harmonics present in the system at the Transformer main incomer.

Table 16 : Harmonics study summary at Samudra Township Transformer

Sr No.	Area/ Location	%Voltage Harmonics			%Ampere Harmonics		
		Min	Avg	Max	Min	Avg	Max
1	1000 KVA TR Incomer – CSS A 32	1.9	2.35	2.8	9.1	15.52	26.4
2	1000 KVA TR Incomer – CSS B 15	1.43	1.7	2	7.13	10.18	14.9
3	1000 KVA TR Incomer – CSS C-1	1.43	1.58	1.73	11.93	16.18	20
4	1000 KVA TR Incomer – CSS B 67	1.7	1.88	2.13	14.3	17.68	21.6
5	1000 KVA TR Incomer – CSS B-24	1.63	1.85	1.96	2.66	3.65	4.86
6	1000 KVA TR Incomer – CSS 103	1.4	1.53	1.7	3.76	4.93	6.93
7	1000 KVA TR Incomer – CSS C35						
8	750 KVA TR Incomer – Port Hostel						

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3.3 Pumping System

- At Samudra township 9 nos. of pumps are assessed for field study. All pumps field operating details are provided in the table below.
- The design details and pressure gauges of some pumps are not available with maintenance department due to performance of these pumps cannot be evaluated, however flow, power and other parameters are measured during audit period.
- Performance for RAS pump is presented in below table. Plant operates 3 nos. RAS pump with 2 working & 1 standby. Rated capacity of pump is 90 m³/hr at 18.5 m head with 7.5 kW motor. Actual flow measured at RAS pump 1 & 2 is 105 m³/hr & 96 m³/hr 1.03 m head with 5.73 kW & 5.30 kW thus giving a much lower pump efficiency of **5.48% & 5.42%**.
- Performance for Horticulture irrigation pump 1 & 3 is presented in below table. Plant operates 2 nos. Horticulture irrigation pump with 2 working & 1 standby. Rated capacity of pump is (30-85) m³/hr at 72 m head with 30 kW motor. Actual flow measured at horticulture pump 1 & 3 is 40 m³/hr 48.74 m head with 28.8 kW thus giving a lower pump efficiency of **18.09%**.

Figure 50 : Flow Diagram of Pump House



Table 17 : Pump Performance Assessment for Raw Water Transfer & Permeate Pump

Description		Raw Water Transfer Pump 1	Raw Water Transfer Pump 2	Permeate Pump 1	Permeate Pump 2
Plant Name		STP Plant			
Sub Plant Name/Equipment Name/Other ID		Raw Water Transfer Pump 1	Raw Water Transfer Pump 2	Permeate Pump 1	Permeate Pump 2
ID No					
Date of Measurements		04-11-2025			

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Description		Raw Water Transfer Pump 1	Raw Water Transfer Pump 2	Permeate Pump 1	Permeate Pump 2
Application		Raw Sludge Transfer To process			
Design Data					
Make		NA	NA	Grundfos	Grundfos
Type-Centrifugal/Submersible/others		Submersible	Submersible	Centrifugal	Centrifugal
Head, m	m	NA	NA	12.5	12.5
Flow, m ³ /hr	m ³ /h	NA	NA	45	45
Speed, rpm	rpm	NA	NA	NA	NA
Motor Rating, kW	kW	NA	NA	3.7	3.7
Voltage, V	V	415	415	415	415
Site Measurements					
Suction pressure, kg/cm ² g	kg/cm ² g	NA	NA	0.25	0.25
Discharge pressure, kg/cm ² g	kg/cm ² g	NA	NA	NA	NA
Volume flow, m ³ /h	m ³ /h	20	2	40	50
Power input to motor, kW	kW	3.10	3.12	1.90	2.40
Motor efficiency, %	%	85.0%	85.0%	85.0%	85.0%
Mechanical efficiency of coupling	%	100%	100%	100%	100%
Workings for pump efficiency					
Specific gravity	kg/m ³	0.993	0.993	0.993	0.993
Discharge head, m	m				
Suction head, m	m			2.57	2.57
Differential head, m	m				
Total Volume flow, m ³ /hr	m ³ /h	20.1	1.9	40.0	49.5
Corrected Volume	TPH	20.0	1.9	39.7	49.2
Hydraulic Power developed, kW	kW				
Pump shaft power, kW	kW	2.64	2.65	1.62	2.04
Overall pumpset efficiency, %	%				
Pump efficiency, %	%				
Motor Loading	%			43.65%	55.14%
Design Flow Vs Actual Flow Ratio	%			88.89%	110.00%
Design Head Vs Actual Head Ratio	%				
VFD Installation- Yes or No with Hz	Hz			45.7	44.5
Condition- Single/Parallel pumps Running, Seasonal or plant load effect		Single	Single	Single	Single
Suction/Discharge Valve % Opening		100% Open	100% Open	100% Open	100% Open
Field Valves Operation % Opening		100% Open	100% Open	100% Open	100% Open
Remark- Any or fluid type, temp., lining, gravity			Pump Is Choked		

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Description		Raw Water Transfer Pump 1	Raw Water Transfer Pump 2	Permeate Pump 1	Permeate Pump 2
Standby Installations		(1W+1S)		(2W+0S)	

Table 18 : Pump Performance Assessment for RAS, Horticulture and Treated Water Pumps

Description		RAS Pump 1	RAS Pump 2	Horticulture Irrigation Pump 1 + Pump 3	Treated Water Transfer Pump
Plant Name		STP Plant		Township Area	
Sub Plant Name/Equipment Name/Other ID		RAS Pump 1	RAS Pump 2	Horticulture Irrigation Pump 1 + Pump 3	Treated Water Transfer Pump
ID No					
Date of Measurements		04-11-2025			
Application		Transfer From a tank to aeration tank.		Send Water To Township	Samudra Township To Adani Hospital and Mitab
Design Data					
Make		Kirloskar	Kirloskar	Lowra	NA
Type-Centrifugal/Submersible/others		Centrifugal	Centrifugal		Submersible
Head, m	m	18.5	18.5	72	NA
Flow, m ³ /hr	m ³ /h	90	90	(30-85)+(30-85)	NA
Speed, rpm	rpm	NA	NA	NA	NA
Motor Rating, kW	kW	7.5	7.5	30+30	NA
Voltage, V	V	415	415	415	415
Site Measurements					
Suction pressure, kg/cm ² g	kg/cm ² g	0.2	0.2	0.1	NA
Discharge pressure, kg/cm ² g	kg/cm ² g	0.3	0.3	4.45	NA
Volume flow, m ³ /h	m ³ /h	105	96	40	11
Power input to motor, kW	kW	5.73	5.30	28.80	8.91
Motor efficiency, %	%	93.0%	93.0%	93.0%	91.0%
Mechanical efficiency of coupling	%	100%	100%	100%	100%
Workings for pump efficiency					
Specific gravity	kg/m ³	0.993	0.993	0.993	0.993
Discharge head, m	m	3.09	3.09	45.80	
Suction head, m	m	2.06	2.06	1.03	
Differential head, m	m	1.03	1.03	44.78	
Total Volume flow, m ³ /hr	m ³ /h	105.0	96.0	40.0	10.7

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Description		RAS Pump 1	RAS Pump 2	Horticulture Irrigation Pump 1 + Pump 3	Treated Water Transfer Pump
Corrected Volume	TPH	104.3	95.3	39.7	10.6
Hydraulic Power developed, kW	kW	0.29	0.27	4.85	
Pump shaft power, kW	kW	5.33	4.93	26.78	8.11
Overall pumpset efficiency, %	%	5.10%	5.04%	16.83%	
Pump efficiency, %	%	5.48%	5.42%	18.09%	
Motor Loading	%	71.05%	65.72%		
Design Flow Vs Actual Flow Ratio	%	116.67%	106.67%		
Design Head Vs Actual Head Ratio	%	5.56%	5.56%	62.19%	
VFD Installation- Yes or No with Hz	Hz			27.5	
Condition- Single/Parallel pumps Running, Seasonal or plant load effect		Parallel		Single	Single
Suction/Discharge Valve % Opening		100% Open	100% Open	100% Open	100% Open
Field Valves Operation % Opening		100% Open	100% Open	100% Open	100% Open
Remark- Any or fluid type, temp., lining, gravity					
Standby Installations		(2W+1S)		(2W+1S)	(1W+0S)

3.4 Compressed Air System

- Samudra township STP has 1 no. reciprocating type air compressor for aeration. Rated capacity of air compressor is not available.
- Free air delivery test could be undertaken to evaluate the performance of transformer. Performance of STP air comp is estimated in the table below.
- Overall specific power consumption of STP plant air comp is higher at 0.250 kw/cfm.

Table 19 : Performance Assessment for STP Plant Air Compressor

Particulars	Air Compressor
Make	ELGI
Type	Reciprocating
Operating pressure max. kg/cm ² g	12
Capacity, m ³ /hr	NA
Rated CFM	NA
Motor power, kW	7.5
Initial Pressure (kg/cm ² a)	1
Final Pressure (kg/cm ² a)	10.0
Compressor Output (m ³ /sec)	0.015
Compressor Output (m ³ /hr)	55

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Particulars	Air Compressor
Compressor Output (cfm)	32.4
Air Inlet Temperature (i.e.Ambient), °C	32
Receiver temp (After cooler temp), °C	35
Temperature correction	0.99
Corrected Actual Capacity Of the Compressor, m ³ /hr	55
Volumetric Efficiency, %	
Compressor Ratio	11.00
Isothermal Power, kW	4
Compressor Shaft power, kW	8.10
Isothermal efficiency, %	44.4%
Specific Power Consumption (SPC) kW/cmh	0.147
Specific Power Consumption (SPC) kW/cfm	0.250
Rated kWh/cfm	
Remarks	Non VFD

3.5 Blowers Study

- Air blowers are installed at ETP for water aeration. Three types of blowers are available according to their application.
- Equalization blowers consist of two units, each having a capacity of 550 m³/h. Aeration blowers include two units with a higher capacity of 2200 m³/h each. Additionally, MBR blowers are provided in three units, each with a capacity of 400 m³/h.
- Overall SEC of blowers is satisfactory. Low % output (55–72%) in aeration and MBR blowers suggests partial loading, indicating potential for optimization through blower staging or VFD fine-tuning.

Table 20 : Performance Assessment for Blowers

Description	Unit	Equalization Blower-1	Equalization Blower-2	Aeration Blower-1	Aeration Blower-2
Make		Everest	Everest	Everest	Everest
Model					
Type		Root Blower	Root Blower	Root Blower	Root Blower
Capacity	m ³ /h	550	550	2200	2200
Motor	KW	NA	NA	45	45
Speed	RPM	1365	1365	NA	NA
Rated CFM	CFM	325	325	1298	1298
Rated Power	KW	NA	NA	50	50
Suction Velocity	m/s	1.12	1.11	0.74	0.82
Suction Area	m ²	0.1320	0.1320	0.5400	0.5400
Calculated Flow	m ³ /hr	530.6	529.5	1435.3	1585.7
Calculated CFM	f3/min	313.08	312.41	846.84	935.59
Actual Power Consumption	KW	9.30	10.43	29.80	33.70

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Description	Unit	Equalization Blower-1	Equalization Blower-2	Aeration Blower-1	Aeration Blower-2
Rated SEC (KW/CFM)	KW/CFM			0.039	0.039
Actual SEC (KW/CFM)	KW/CFM	0.030	0.033	0.035	0.036
% Output		96.48	96.27	65.24	72.08
Condition		(2W+1S)	(2W+1S)	(1W+1S)	(1W+1S)
Remarks				VFD-25.1 Hz	VFD-24.9 Hz
Suction Pressure	mmwc	NA	NA	NA	NA
Discharge Pressure	Bar	NA	NA	0.6	0.6

Description	Unit	MBR Blower-1	MBR Blower-2	MBR Blower-3
Make		Everest	Everest	Everest
Model				
Type		Root Blower	Root Blower	Root Blower
Capacity	m ³ /h	400	400	400
Motor	KW	15	15	15
Speed	RPM	NA	NA	NA
Rated CFM	CFM	236	236	236
Rated Power	KW	15	15	15
Suction Velocity	m/s	0.91	1.09	0.91
Suction Area	m ²	0.0675	0.0675	0.0675
Calculated Flow	m ³ /hr	221.9	264.9	220.3
Calculated CFM	f3/min	130.94	156.27	129.99
Actual Power Consumption	KW	8.16	7.51	8.10
Rated SEC (KW/CFM)	KW/CFM	0.064	0.064	0.064
Actual SEC (KW/CFM)	KW/CFM	0.062	0.048	0.062
% Output		55.49	66.22	55.08
Condition		(2W+1S)	(2W+1S)	(2W+1S)
Remarks				
Suction Pressure	mmwc	NA	NA	NA
Discharge Pressure	Bar	0.55	0.55	0.55

3.6 Air Conditioners

3.6.1 Installation, Operation and Performance Details of AC Conditioners

- Various nos. of air-conditioning units are installed across the facility. Among these, 4 nos. units with the highest cumulative operating hours were selected for detailed energy efficiency assessment. The evaluation covers installation details, operational performance, and energy performance parameters of the selected air-conditioning units, as summarized in the table below.
- The number of air-conditioning connections varies depending on the type of residential scheme. Performance assessment measurements were conducted

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on the condenser (outdoor) units, specifically Daikin AC Outdoor Units 1, 2 and 3 and Toshiba AC Outdoor unit 1 at township club house.

- Overall SPC of AC Outdoor units is between 0.8 and 1.4 kW/TR. Daikin AC outdoor unit 3 needs to be reviewed for SPC optimization.

Table 21 : Performance Assessment for AC's ODU

Description	Unit	AC ODU 1	AC ODU 2	AC ODU 3	AC ODU 1
Rated Data		Samudra Township Club House			
Make		DAIKIN	DAIKIN	DAIKIN	Toshiba
Sr. No		957	1357	1282	
Capacity	kW	Half Load - 7 KW	Half Load - 7 KW	Half Load - 7 KW	
	kW	Half Load - 14 KW	Half Load - 14 KW	Half Load - 14 KW	
	TR	4.41	4.41	4.41	
	Btu/hr				
Rated Input	kW	5.80	5.80	5.80	
Site Measurements					
Room Set Temp.	°C				
Suction air DBT	°C	31	29.5	28	30
Suction air WBT	°C	25.5	25	24	25
Suction air RH	%	65	70	72	67
Suction air enthalpy	kJ/kg/°C	78.27	76.19	72.12	76.17
Suction air density	kg/m ³	1.15	1.15	1.16	1.15
Discharge air DBT	°C	36.5	34	32	34.5
Discharge air WBT	°C	27	26	25	26
Discharge air RH	%	48	53	57	53
Discharge air enthalpy	kJ/kg/°C	84.7	80.31	76.08	80.31
Δ Enthalpy	kJ/kg/°C	6.43	4.12	3.96	4.14
Air velocity	m/s	4.6	5.8	5.2	4.6
Area	m ²	0.21	0.21	0.21	0.21
Actual air flow	m ³ /s	0.98	1.23	1.10	0.97
	m ³ /hr	3528	4443	3961	3482
	kg/hr	4057	5109	4595	4005
	CFM	2076	2615	2331	2050
Input motor power	kW	2.10	1.79	1.99	1.09
Heat load	TR	2.1	1.7	1.4	1.3
Specific Power Consumption	KW/TR	1.0	1.1	1.4	0.8
Suction Line Temp	°C	17.1	18.8	16.2	13.1
Liquid Line Temp	°C	25.1	21.8	23.2	17.8

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3.7 Lighting Survey

- Lux meter is used in order to measure the luminance at various sections. Facility has implemented several energy saving projects in lighting systems. Facility has installed LED lighting system at most locations and Port areas.
- Different variety of lighting schemes has been installed in Samudra Township. LED light fittings with wattages of 12 W, 16 W, 18 W, 20 W, 48 W, 60 W, and 120 W are installed across Samudra Township based on specific application and illumination requirements. These luminaries are available in various form factors, including round, square, and tubular (LED tube) designs, to suit different functional and architectural needs. Samudra Township has installed geographical timers in streetlight which automatically switch lights as per light conditions. 11 hrs in a day for annual average working hours is taken for calculations.
- Overall lux level at the township areas is lower and needs improvement. Also lux level at street lights is poor and needs improvement.

Table 22 : Lighting Installation Details

Sr. No.	Description	Connected Load in kW	Luminary	Totals Qty	Total Load in kW
1	Sports Courts lighting	0.065	LED	24	1.56
2	Street Lights SON	0.065	LED	122	7.93
3	Street Lights SON	0.065	LED	110	7.15
4	Common Area Passage	0.018	LED	912	16.42
5	Parking Lights & Garden	0.02	LED	160	3.20
6	Parking Lights	0.02	LED	200	4.00
Total Connected Load in kW					40.26

Table 23 : Summary of Lux Level Survey at Samudra Township

Sr. No	Location	Watt age (W)	Insta lled Nos	L1	L2	L3	L4	L5	Avg Lux	Remarks
	Club House									
1	Indoor Games-1	48	7	257	132	283	148	118	188	Needs Improvement
2	Indoor Games-2	48	4	108	184	267	233	132	185	Needs Improvement
3	Gymnastics	48	10	130	143	175	184	154	157	Needs Improvement
4	Library	48+12	5+5	175	253	283	213	141	213	Needs Improvement
5	Badminton Court-1		16	410	396	235	159	249	290	Satisfactory
6	Badminton Court-2		16	117	130	127	334	253	192	Needs Improvement
7	Badminton Area Passage	12	10	64	54	45	62	73	60	Low
8	Player Lounge	12	1	116	111	103	75	83	98	Low
9	Reception Area	12	4	85	127	132	136	193	135	Low
10	Outside Club House	12	4	51	64	89	50	40	59	Low
	1st Floor									
11	Kids Zone	12+12	7+6	132	155	235	313	110	189	Needs Improvement
12	Kids Zone Passage Area	12	5	247	155	220	180	112	183	Needs Improvement

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Sr. No	Location	Watt age (W)	Insta lled Nos	L1	L2	L3	L4	L5	Avg Lux	Remarks
13	Basketball Court		8	73	65	79	52	63	66	Low
	Customer Care									
14	Electric Office	12	2	415	503	404	432	511	453	Satisfactory
15	HT Panel Room	12	4	67	51	65	70	37	58	Low
16	Hall Area	12	3	85	78	102	97	88	90	Low
17	Outside Office Area	12	2	29	30	20	22	25	25	Low
18	Customer Care Office	12	3	92	102	156	160	146	131	Low
19	Admin Office	12	3	180	160	140	170	158	162	Needs Improvement

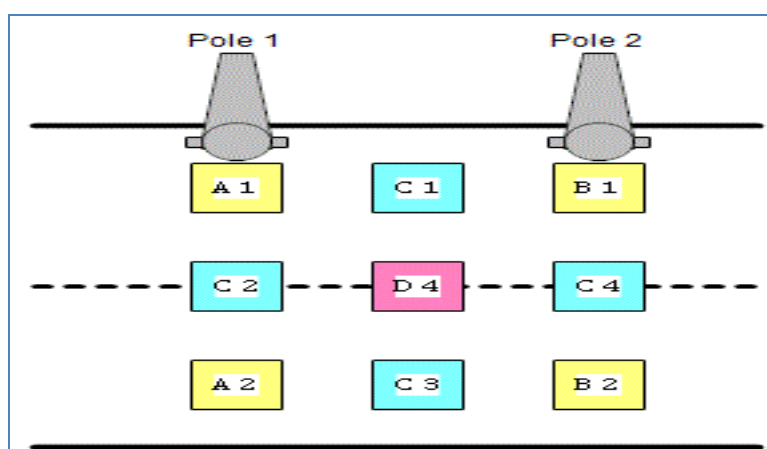
Lux measurement and observation of street lighting

- Streetlights and parking lights at Samudra Township were anonymous during the time of audit. Energy audit team has marked tags on the light poles for the reference.
- Explanation of the marked tags is explained in the figure below. Some restricted and non-permissible areas have not been included in the part of lighting study.
- 9-point method was adopted for measuring pole to pole lighting intensity. Below Figure depicts the methodology. Two equations are primarily used for pole to pole and single pole respectively. They are:
 - Pole to Pole measurement

$$\text{Average Lux} = \frac{(A_1 + A_2 + B_1 + B_2)}{16} + \frac{(C_1 + C_2 + C_3 + C_4)}{8} + \frac{D_4}{4}$$
 - Single Pole measurement

$$\text{Average Lux} = \frac{A_1 + A_2 + B_1 + B_2 + C_1 + C_2 + C_3 + C_4 + D_4}{9}$$
- Parking lights have relatively less span compared to streetlights and so lux is measured at 6 points from pole to pole.

Figure 51 : Nine-Point Method for Streetlight Measurement



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Table 24 : Summary of Street Light Lux Level Survey

Sr. No	Location	Wattage (W)	Installed Nos	A1	A2	B1	B2	C1	Avg Lux	Remarks
1	Block No C28 to C29 Pole 1	18	1	22	16	19	15		18	Poor
2	Block No C28 to C29 Pole 2	18	1	20	18	21	13		18	Poor
3	Block No C28 to C29 Pole 3	18	1	16	14	22	16		17	Poor
4	Block No C28 to C29 Pole 4	18	1	21	13	18	15		17	Poor
5	C 29	60	1	8	11	7	25		13	Poor
6	C 28 RHS & LHS	60	3	69	81	59	58		67	Satisfactory
7	STMR 20	60 & 120	1	34	40	26	43		36	Poor
8	STMR 19	60	2	59	43	38	16		39	Poor
9	STMR 18	60	2	48	32	23	46		37	Poor
10	STMR 17	60	2	25	34	33	38		33	Poor
11	STMR 16	60	2	46	53	42	32		43	Needs Improvement
12	STMR 15	60	2	37	47	46	38		42	Needs Improvement
13	STMR 14	60	2	36	30	48	56		43	Needs Improvement
14	STMR 13	60	2	51	36	27	67		45	Needs Improvement
15	STMR 12	60	2	14	20	36	45		29	Poor
16	STMR 11	60	2	26	36	41	42		36	Poor
17	STMR 10	60	2	35	27	21	17		25	Poor
18	STMR 9	60	2	31	28	16	24		25	Poor
19	STMR 8	60	2	21	26	18	31		24	Poor
20	STMR 7	60	2	33	28	27	16		26	Poor
21	STMR 6	60	2	26	34	17	21		25	Poor
22	STMR 5	60	2	21	20	37	24		26	Poor
23	STMR 4	60	2	25	26	19	21		23	Poor
24	STMR 3	60	2	35	27	22	28		28	Poor

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Sr. No	Location	Wattage (W)	Installed Nos	A1	A2	B1	B2	C1	Avg Lux	Remarks
25	STMR 2	60	2	33	25	17	31		27	Poor
26	STMR 1	60	2	37	33	29	36		34	Poor
27	Main Gate Entry High Mast			32	55	118	46		63	Satisfactory
28	Main Road Infront of Block C-26			21	28	30	35	40	31	Poor
29	Main Road Infront of Block C-27			35	40	25	27	32	32	Poor
30	Main Road Infront of Block C-23			24	15	18	27	34	24	Poor
31	Main Road Near Temaple Circle			20	18	32	27	25	24	Poor
32	Main Road Infront of Block B-75			17	25	22	30	14	22	Poor
33	2-Lane way Infront of Block C-11			24	15	45	25	39	30	Poor
34	Main Road Infront of Shopping Complex			37	40	42	28	32	36	Poor
35	Main Road Near Customer Care Circle			25	32	37	40	38	34	Poor
36	Street Infront of Customer care Office			18	17	22	24	21	20	Poor
37	Passage Area of Block B-13 to B-18	20	15	14	15	32	30	25	23	Poor
38	Passage Area of Block B-7 to B-12			20	25	24	30	26	25	Poor
39	Passage Area of Block B-1 to B-6			18	15	17	20	16	17	Poor
40	Back Side of Shopping Complex			23	24	30	35	22	27	Poor
41	Passage Area of Block C-1 to C-6	9	14	10	30	40	20	15	23	Poor
42	Main Road Infront of Block C-1	20	25	20	30	35	32	45	32	Poor
43	Main Road Infront of Block A-27	20	24	30	33	35	40	25	33	Poor
44	2-Lane way Infront of Block B-18			38	40	33	27	45	37	Poor

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3.8 Ceiling Fans & Water Geysers

- **Installation details**
- Two major connected loads in Samudra Township are ceiling fan and water geyser.
- Installation details of these household utilities are mentioned in below table.
- Ceiling fan rated power is 65 W whereas, 1.5 kW geysers are installed.

Table 25 : Ceiling Fan and Water Geyser Installation Details

Block Type	No. of Flats	Ceiling Fan Qty.	Water geyser Qty (1.5 kW)
1 BHK	316	632	316
2 BHK	660	1980	660
3 BHK	192	768	384
Bachelor	294	588	294
Total	1462	3968	1654
Total Power in kW		257.92	2481

- Ceiling fans Installed at Samudra Township are AC 1-phase and commercially available that deliver equal or higher air flow rate at nearly 50% of power consumed by conventional 60 W fan.

Table 26 : Ceiling Fan Installation Details

Parameter	Detail (Gorilla Energy Efficient Fan)
Span(mm/inch)	1200/48
Service Value/Air Delivery	>7
Input Voltage(V)	140-285
Power Consumption(W)	28
Frequency (Hz)	48-52
Air Delivery (CMM)	220
Power Factor	0.95
No. of Blades	3
Bearing	Deep Groove Double Sided Steel Shielding
Remote Control (10 Keys)	Speed Control, Timer and Sleep Mode
Guarantee	3 Years

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3.9 Annexure

3.9.1 Motor Load Survey

- Motor load survey for all major and continuously operating equipment's is undertaken. Table below gives motor load survey at Samudra township.
- Overall voltage levels and PF values are satisfactory. No major voltage drops are noted. Total current harmonic distortion levels are noted higher at few feeders.

Table 27 : Motor Load Survey at Samudra Township

Sr No	Equipment	Rated KW	% Eff	Volt	Amp	PF	KW	VFD (Yes/ No)	%V Thd	%i Thd	F (Hz)	% Loading
1	Raw Transfer Pump 1		85	415.7	6.1	0.72	3.2		3.3	4.7		
2	Raw Transfer Pump 2		85	414.7	4.7	0.94	3.2		3.2	7.2		
3	Permeate Pump 1	3.7	85	419.4	2.7	0.99	1.9	Yes	2.9	52.9	45.7	44.6
4	Permeate Pump 2	3.7	85	417.6	3.2	0.99	2.3	Yes	2.9	44.2	44.5	52.6
5	RAS Pump 1	7.5	93	419.6	10.3	0.73	5.5		3.2	4.1		67.8
6	RAS Pump 2	7.5	93	423.7	9.8	0.72	5.2		3	4		64.2
7	Drip Irrigation Pump		90	423.5	12.1	0.86	7.6		2.9	5.9		
8	Horticulture Irrigation Pump 1	30	93	424.0	19.6	0.99	14.2	Yes	3.1	127	27.5	44.2
9	Horticulture Irrigation Pump 3	30	93	425.6	19.8	0.99	14.4	Yes	3	120	27.5	44.8
10	Treated Water Transfer Pump		91	420.2	14.9	0.83	9.0		3.1	6.4		
11	Sewage Transfer Pump 50 HP	37	94	417.0	59.6	0.89	38.3		2.8	5		97.3
12	Sewage Transfer Pump 60 HP	45	94	416.8	55.8	0.77	31.0		3	3.2		64.8
13	Equalization Blower-1			416.5	16.6	0.74	8.9		3	5.3		
14	Equalization Blower-2			415.8	17.5	0.82	10.3		3.2	4.3		
15	Aeration Blower-1	45	94	419.0	41.5	0.98	29.5	Yes	2.9	50.7	25.1	61.7
16	Aeration Blower-2	45	94	416.9	47.0	0.97	32.9	Yes	3.0	46.3	24.9	68.8
17	MBR Blower-1	15	92	418.8	14.8	0.7	7.5		3.0	3.3		46.2
18	MBR Blower-2	15	92	417.9	14.8	0.68	7.3		2.9	4.4		44.8
19	MBR Blower-3	15	92	418.1	15.5	0.71	8.0		3.0	4.0		48.8

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Sr No	Equipment	Rated KW	% Eff	Volt	Amp	PF	KW	VFD (Yes/No)	%V Thd	%i Thd	F (Hz)	% Loading
20	Club House Daikin AC ODU 1			228.9	9.6	0.956	3.6					
21	Club House Daikin AC ODU 2			232.1	8.3	0.934	3.1					
22	Club House Daikin AC ODU 3			237.0	9.2	0.916	3.4					
23	Club House Toshiba AC ODU 1			231.4	4.8	0.986	1.9					#DIV/0!

3.9.2 Main Incomer PF & Harmonics Study

- Main Incomer PF & harmonics at various panels in electric panel room is noted and reviewed. Table below gives the location wise main incomer PF & harmonics study.
- Overall voltage levels and PF values are satisfactory. No major voltage drops are noted. Total current harmonic distortion levels are noted higher at most of the feeders.

Table 28 : Main Incomer PF & Harmonics Study

Sr. No.	Equipment	Volt	Amp	PF	KW	%V Thd	%i Thd
1	CSS B15 TR	423.4	242.3	0.99	175.9	1.5	8.7
2	O/G B10,B15 F.P	421.9	19.4	0.981	13.9	1.9	17.4
3	O/G B15 LTP	423.3	106.0	0.982	76.3	1.9	8.4
4	O/G B15 IRR	421.4	33.5	0.807	19.7	1.9	48.9
5	CSS C1 TR	411.6	56.8	0.980	39.7	1.6	42.3
6	CSS C35 TR	417.9	120	0.987	85.7	1.9	13.1
7	C32 Feeder	417.5	15.4	0.966	10.8	2.0	15.4
8	Event Ground LTP	420.9	16.5	0.966	11.6	1.8	0.0
9	Clubhouse LTP	423.3	7.89	0.980	5.7	1.7	0.0
10	C28 Feeder	423.2	2.85	0.975	2.0	1.6	0.0
11	C35 Feeder	423	19.9	0.904	13.2	0.9	18.0
12	New Building Panel	419.5	9.72	0.918	6.5	1.9	0.0
13	CSS B67 TR	411.5	160	0.976	111.3	1.9	17.7
14	B55 LTP	414.2	36.8	0.949	25.1	1.9	13.1
15	B24 LTP	410.4	43.5	0.976	30.2	2.4	12.9
16	B67 F	411.4	28.5	0.997	20.2	2.1	0.0
17	B75 F	414.2	7.58	0.918	5.0	1.9	0.0
18	B68 F	414.8	18.6	0.966	12.9	2.0	10.1
19	B72 F	415	9.55	0.991	6.8	2.0	0.0
20	Port Hostel TR Incomer	424.6	32.1	0.865	20.4	2.3	19.5

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Sr. No.	Equipment	Volt	Amp	PF	KW	%V Thd	%I Thd
21	CSS A32 Incomer	424.6	74.3	0.987	54.0	2.3	16.7
22	Port HLTP	424.4	33.8	0.902	22.4	2.3	16.1
23	MCCB 4P O/G 4 (F5)	424.4	17.1	0.988	12.4	2.2	31.5
24	A28 to A31	427.2	7.1	0.743	3.9	2.3	39.7
25	CSS C35 TR	416.7	71.9	0.958	49.7	2.5	19.5

3.9.3 Thermal Image Survey

- The report of infrared inspection provides complete documentation of thermal patterns detected in thermal & electrical section of the plant scanned during the thermography survey.

Table 29 : Summary of Thermal Image Survey at Samudra Township

Sr. No.	Image No	Description	Temp (°C)	Remarks
		CSS B-15 TR		
1	IR001580	B-15 LTP	51	Y Ph' end terminations to be reviewed. Check for current unbalance, if found distribute load equally and retight the connections.
2	IR001581	B-15 IRR	37.7	Temperature measurement noted ok.
		CSS C-35 TR		
3	IR001582		41.7	Temperature measurement noted ok.
		CSS B-67 TR		
4	IR001583	B-75-F	39.6	Temperature measurement noted ok.
5	IR001584	B-68-F	54.4	Neutral' end terminations to be reviewed. Temp is high, recrimp the lug and retight the connections.
6	IR001585	B-72-F		Temperature measurement noted ok.
7	IR001586	B-55 LTP	53	B' Ph end terminations to be reviewed. Temp is high, recrimp the lug and retight the connections.
8	IR001587	B-24 LTP	49.8	Y' Ph end terminations to be reviewed. Temp measurement noted ok.
		CSS A-35 TR		
9	IR001590	Port H-LTP	39.4	Temperature measurement noted ok.
10	IR001591	MCCB 4P O/G-4	38.1	R Ph' end terminations to be reviewed. Temp measurement noted ok.

3.9.4 Lighting Section Energy Savings Opportunities

- Summary of lighting section energy savings opportunities is presented in the table below.

Table 30 : Lighting Section Energy Saving Opportunities

Sr. No.	Description	Action from Adani Side/Auditor comment
1	Replacement with LED	Already taken care by facility, However good quality purchase will important like driver, dimming factor, harmonics etc.
2	Supply Voltage Reduction	Not Feasible due to LED installations
3	Illumination Reduction by switching OFF or Dimming fixtures	Feasible as per requirement of GMP and actual lux
4	Day Light Areas Fixture OFF, In some rooms few lights are close to window and rest lights are away from window	Individual switches are required for any zigzag switching, timer ckt., day light side
5	Motion Sensors	Plant to review same in low movement areas where lights are continuous ON
6	Light Pipe	Can be Installed
7	Street Light- GPS based control, timer control	Done
8	Conventional and other type of fixture	Not in place, so no comment
9	ECBC, design related points	Essential to conduct dedicated audit
10	Wall to Window Ratio	Not to increase as cost of HVAC is high than Illumination

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4 Last Audit Energy Saving Measures and Intangible Savings

Key Result Areas for Energy Savings & Estimated Potential along with Broad Cost Benefit Analysis

Sr. No	Key Savings Areas	Remarks	Savings in power or Fuel kWh or MT	Annual Savings potential Rs Lakh	Approx Investment cost Rs Lakh	Simple payback period Months
Short Term Areas						
1.	<u>Power Factor Improvements to Main to improve PF Rebate</u>	Present PF is 0.971 as per bill analysis	-	0.076	Nil	Immediate
2.	<u>Savings Potential at Cooling Tower Pump for Air compressor</u>	LT C.T Efficient Pump to improve performance	8508	0.51	0.20	4.70
3.	<u>Savings Potential at to optimized Pressure</u>	FCC A/C and LT A/C Generating Pressure reduction	12079	0.84	Nil	Immediate
4.	<u>Energy Savings Calculations for Performance Improvement Air Compressor</u>	FCC A/C, SS-3 A/C, LT A/C Needs to servicing	102580	8.20	4.0	6
	Total Electricity Savings	kWh	123167	9.62	4.20	5.23

Intangible Savings

AC'S:

➤ **Replacement with Inverter ACs**

1. Digital Inverter technology maintains precise control of room temperature and creates a comfortable environment. In conventional split Air Conditioners, the compressor switches off once the set temperature is reached, and switches on again after temperature drops. The time it takes for the Split Air Conditioner to switch on and off causes the room temperature to greatly fluctuate. With Digital Inverter, the inverter control reduces the compressor power once the desired temperature has been reached, but continues operating at a reduced state to maintain a stable room temperature with minimal fluctuations. By putting an end to on/off compressor operation, the inverter technology also allows Digital Inverter to significantly reduce noise levels; Superior reliability has been achieved, due to the reduction of the compressor ON/OFF cycles. Digital DC Inverter Air Conditioners provide this benefit to consumers, helping them to achieve various benefits such as saving of at least 25% of their energy costs. These air conditioners are much quieter and offer higher levels of efficiency as their noisier counterparts. The average AC power consumption as recorded during winter (present time) is about 55 KW. This is likely to be 30 to 35% higher during hot season. The average consumption could be put at 60 KW/month over year. The power savings with digital inverter type AC units would at 20% would be 12 KW/month. The annual energy conservation potential of this intervention is: 94,000 kWh/year.

➤ **Overhaul of Refrigerant Piping Insulation & Filter Maintenance**

2. The Gas pipe insulation was found to be damaged at various points on the AC units. Mending / replacement of insulation would improve the performance of AC units. Cleaning of filters of all indoor units and cleaning of condenser fins by jet pumps. Average life of typical Split Units is considered to be 10 years in dry climates without corrosive pollutants.

3. Using all Units at Specific Set Points can greatly reduce HVAC energy consumption. It was observed that the set-point for ACs was generally at 19 Deg C in the offices. All AC units may be set at 23/24 °C for optimum power consumption. The annual energy conservation potential of this intervention is: 28,500 kWh/year

➤ **Building-Envelope & Air-Conditioned Space Insulation**

4. Weather-Stripping of All Doors, especially the main entrance doors into all building cavities. Use of Air curtain on Ground Floor Entrance to curtail infiltration losses: Frequenting clients on Ground Floor through main entrance incurs losses due to infiltration. These could be curtailed using Air Curtains. The advantage would be more prominent during summer

➤ **Enhanced Use of Natural Lighting**

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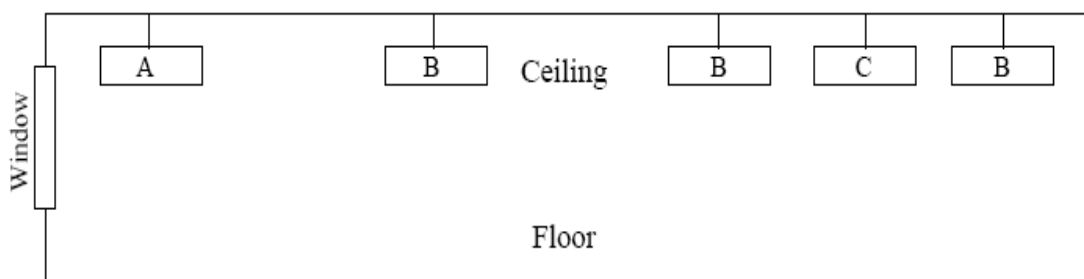
5. Natural lighting available at the premises through the existing glass facades needs to be exploited to reduce the lighting load exerted. Currently, most of the glass facades are shielded using vertical-blinds and artificial lighting is used even in areas in the vicinity of glass panes. This intervention has the twin beneficial impact of reducing manufacturing related LCA impacts of lighting fixtures as well as reduced energy consumption. Some green architecture guidelines specify design lighting loads in the vicinity of 7.5 W/sq.m. For building occupancy of 10 hours/day, the average annual electricity conservation and GHG emissions mitigation per sq. m of naturally lit space relative to conventionally lit space is estimated to be 27 kWh/sq.m and 24 kgCO₂e/sq. m.

➤ **Intangible Areas of Energy conservation Opportunity at Samudra Township :**

➤ **Lighting placement and controls.**

- An example of energy efficient lighting control is illustrated by Figure, which depicts five rows of overhead lights in a workspace. During the brightest part of the day, ample daylight is provided by the window and thus only row C would need to be turned on. At times when daylight levels drop, all B rows would be turned on and row C would be turned off. Only at night or on very dark days would it be necessary to have both rows A and B turned on.

Lighting Placement & Control



- Retrofit by adapting the luminaries already present. (For example, turning on the lighting in the rows away from the windows during the brightest parts of the day and turning on supplemental rows as needed later.)

➤ **Daylighting.**

- Daylighting involves the efficient use of natural light in order to minimize the need for artificial lighting in buildings. Increasing levels of daylight within rooms can reduce electrical lighting loads by up to 70% Unlike conventional skylights, an efficient daylighting system may provide evenly dispersed light without creating heat gains. The reduced heat gains will reduce the need for cooling compared to skylights. Daylighting differs from other energy efficiency measures because its features are integral to the architecture of a building; therefore, it is applied primarily to new buildings and incorporated at the design stage. However, existing buildings can often be costeffectively refitted with daylighting systems. Various daylighting systems are available on the market, some of which can be supplied as kits to retrofit an existing building.

➤ **High-efficiency Motors, Pumps and Drives.**

- High-efficiency motors reduce energy losses through improved design, better materials, tighter tolerances, and improved manufacturing techniques.
- With proper installation, high-efficiency motors can run cooler than standard motors and can consequently have higher service factors, longer bearing life, longer insulation life, and less vibration.
- Replacing a motor with a high-efficiency motor is often a better choice than rewinding a motor. The practice of rewinding motors currently has no quality or efficiency standards. The efficiency of a motor decreases after rewinding; typically by anywhere from 2-25%. Recent case study data show that new motors are not only more energy efficient, but also reduce overall operation costs. When considering whether to rewind a motor or to replace it with a higher-efficiency model,

➤ **Turning off lights in unoccupied areas.**

- An easy and effective measure is to encourage personnel to turn off lights in unoccupied building spaces. An energy management program that aims to improve the awareness of personnel with regard to energy use can help staff get in the habit of switching off lights and other equipment when not in use.

➤ **Replacement of Existing ACs with “7-Star” Natural Refrigerant Rated ACs (R290 Based)**

➤ **Replacement with Inverter ACs**

Digital Inverter technology maintains precise control of room temperature and creates a comfortable environment. In conventional split Air Conditioners, the compressor switches off once the set temperature is reached, and switches on again after temperature drops. The time it takes for the Split Air Conditioner to switch on and off causes the room temperature to greatly fluctuate. With Digital Inverter, the inverter control reduces the compressor power once the desired temperature has been reached, but continues operating at a reduced state to maintain a stable room temperature with minimal fluctuations. By putting an end to on/off compressor operation, the inverter technology also allows Digital Inverter to significantly reduce noise levels; Superior reliability has been achieved, due to the reduction of the compressor ON/OFF cycles. Digital DC Inverter Air Conditioners provide this benefit to consumers, helping them to achieve various benefits such as saving of at least 25% of their energy costs. These air conditioners are much quieter and offer higher levels of efficiency as their noisier counterparts. The average AC power consumption as recorded during winter (present time) is about 54.71 KW. This is likely to be 30 to 35% higher during hot season. The average consumption could be put at 60 KW/month over year. The power savings with digital inverter type AC units would at 20% would be 12 KW/month. The annual energy conservation potential of this intervention is: 94,000 kWh/year.

➤ **Overhaul of Refrigerant Piping Insulation & Filter Maintenance**

The Gas pipe insulation was found to be damaged at various points on the AC units. Mending / replacement of insulation would improve the performance of AC units. Cleaning of filters of all indoor units and cleaning of condenser fins

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by jet pumps. Average life of typical Split Units is considered to be 10 years in dry climates without corrosive pollutants.

➤ **Optimal AC Temperature Setting**

Using all Units at Specific Set Points can greatly reduce HVAC energy consumption. It was observed that the set-point for ACs was generally at 19° C. All AC units may be set at 23/24 °C for optimum power consumption. The annual energy conservation potential of this intervention is: 28,500 kWh/year

➤ **Enhanced Use of Natural Lighting**

- Natural lighting available at the premises through the existing glass facades needs to be exploited to reduce the lighting load exerted. Currently, most of the glass facades are shielded using vertical-blinds and artificial lighting is used even in areas in the vicinity of glass panes. This intervention has the twin beneficial impact of reducing manufacturing related LCA impacts of lighting fixtures as well as reduced energy consumption. Some green architecture guidelines specify design lighting loads in the vicinity of 7.5 W/sq.m. For building occupancy of 10 hours/day, the average annual electricity conservation and GHG emissions mitigation per sq. m of naturally lit space relative to conventionally lit space is estimated to be 27 kWh/sq.m and 24 kgCO₂e/sq. m.

➤ **Building-Envelope & Air-Conditioned Space Insulation**

- Weather-Stripping of All Doors, especially the main entrance doors into all building cavities.
- Use of Air curtain on Ground Floor Entrance to curtail infiltration losses: Frequenting clients on Ground Floor through main entrance incurs losses due to infiltration. These could be curtailed using Air Curtains. The advantage would be more prominent during summer.

➤ **Heat Gain Reducing Paint**

- The Heat Gain Reducing Paint technology has the ability to reflect heat causing infrared rays from solar radiation. This intervention was designed to help reduce the internal temperature of the building i.e. reduce heat gain. Certification conducted by the Centre for Energy Studies and Research (CESR, India) indicates that Weather Shield Paints (i.e. solar reflective paints) can reduce the temperatures of walls by upto 50C and that reflectivity rate for solar radiation through these paints is 0.40 relative to ordinary.
- Currently, the MAIN DOOR of the entrance to the Branch has a significant air-gap between the frame and the door while all back-office doors meant to separate Air Conditioned Spaces from non-conditioned spaces are either missing or kept ajar at all times.
- Exterior wall paint which exhibit a reflectivity rate of 0.21. i.e. these paints are approximately twice as effective in curbing building wall temperature rise due to solar radiation.

➤ **Renewable Power Feasibility at Adani House :**

- Plant first can install LED lights and then can install solar PV system so that requirement of project kW will be reduce.



Figure 52 Solar Panel Installation on Parking Shed

- Plant can use the parking space or another non utilize space with feasibility study of solar PV panel installation.

➤ **Advantages of Water Percolation and Water Harvesting:**

- Rainwater harvesting is collecting the run-off from a structure or other impervious surface in order to store it for later use. Traditionally, this involves harvesting the rain from a roof. The rain will collect in gutters that channel the water into downspouts and then into some sort of storage vessel. Rainwater collection systems can be as simple as collecting rain in a rain barrel or as elaborate as harvesting rainwater into large cisterns to supply your entire household demand.
- The idea of rainwater harvesting usually conjures up images of an old farm cistern or thoughts of developing countries. The reality is that rainwater harvesting is becoming a viable alternative for supplying our households and businesses with water. It's not just for the farm anymore! There are many countries such as Germany and Australia where rainwater harvesting is a norm. Due to the green building movement, you will be seeing rainwater harvesting systems become more popular here in America.
- The collection of rainwater is known by many names throughout the world. It ranges from rainwater collection to rainwater harvesting to rainwater catchment. In addition, terms such as roof water collection or rooftop water collection is also used in other countries.
- We believe that rainwater harvesting is a viable technology in an urban setting. All that is necessary to take advantage of this resource is to capture the free water falling on your roof and direct it to a rainwater storage tank. By doing this, you can take control of your water supply and replace all or at least a

substantial portion of your water needs. Rainwater harvesting systems can be configured to supply your whole house and/or your landscape needs.

What are the benefits of rainwater collection?

- Rainwater is a relatively clean and absolutely free source of water
- You have total control over your water supply (ideal for cities with water restrictions)
- It is socially acceptable and environmentally responsible
- It promotes self-sufficiency and helps conserve water
- Rainwater is better for landscape plants and gardens because it is not chlorinated
- It reduces storm water runoff from homes and businesses
- It can solve the drainage problems on your property while providing you with free water
- It uses simple technologies that are inexpensive and easy to maintain
- It can be used as a main source of water or as a backup source to wells and municipal water
- The system can be easily retrofitted to an existing structure or built during new home construction
- Systems are very flexible and can be modular in nature, allowing expansion, reconfiguration, or relocation, if necessary
- It can provide an excellent back-up source of water for emergencies

What Are the Uses Of Collected Rainwater

- You can essentially use rainwater anywhere you use tap water. The idea of using drinking water to flush our toilets and water our lawns is wasteful and irresponsible, especially in light of population growth and water shortages across the country. Rainwater collection is a technique to green your home and to lessen your environmental footprint.

There are basically three areas where rainwater can be used:

- Irrigation use
- Indoor, non-potable use
- Whole house, potable use

Here are some ideas for specific uses of rainwater:

- Hand water your lawn and garden
- Connect rainwater collection system to irrigation/sprinkler system
- Wash your vehicles
- Wash your pets
- Refill your fountains and fish ponds
- Refill your swimming pool
- Replace the use of tap water with rainwater to wash your driveways and sidewalks (if you don't use a broom)
- Use it for all indoor non-potable fixtures (toilets and clothes washer)
- Use it for all potable needs when properly filtered and disinfected
- Use it for industrial processes instead of municipally treated water

How Much Rain Can be Collected?

The amount of rainfall that you can collect is governed by the following formula:

1" of rain x 1 sq. ft. = 0.623 gallons

Or put in an easy form to remember:

1" of rain from 1,000 sq. ft. will provide 623 gallons

To calculate the amount of rainwater you can collect, you need to know your annual average precipitation for your area.

Water Percolation:

In this method rain water collected from the roof of the building is diverted to a storage tank. The storage tank has to be designed according to the water requirements, rainfall and catchment availability. Each drainpipe should have mesh filter at mouth and first flush device followed by filtration system before connecting to the storage tank. It is advisable that each tank should have excess water over flow system.

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Ground water aquifers can be recharged by various kinds of structures to ensure percolation of rainwater in the ground instead of draining away from the surface. Commonly used recharging methods are:-

- a) Recharging of bore wells
- b) Recharging of dug wells.
- c) Recharge pits
- d) Recharge Trenches
- e) Soak ways or Recharge Shafts
- f) Percolation Tanks

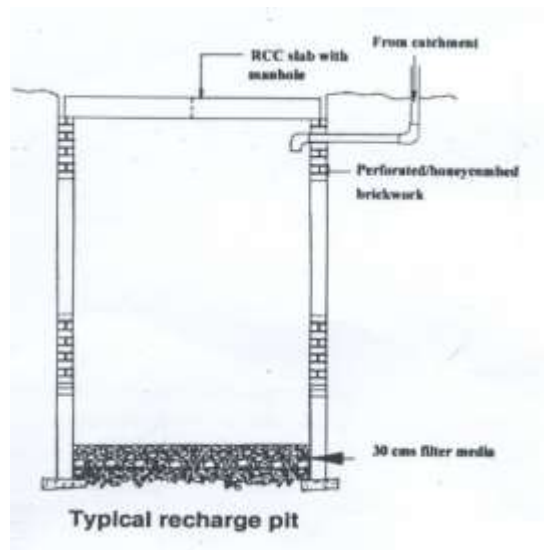
Recharging of bore wells

Rainwater collected from rooftop of the building is diverted through drainpipes to settlement or filtration tank. After settlement filtered water is diverted to bore wells to recharge deep aquifers. Abandoned bore wells can also be used for recharge.

Optimum capacity of settlement tank/filtration tank can be designed on the basis of area of catchment, intensity of rainfall and recharge rate as discussed in design parameters. While recharging, entry of floating matter and silt should be restricted because it may clog the recharge structure. "first one or two shower should be

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flushed out through rain separator to avoid contamination. This is very important, and all care should be taken to ensure that this has been done."



- Roof or terraces uses for harvesting should be clean, free from dust, algal plants etc.
- Roof should not be painted since most paints contain toxic substances and may peel off.
- Do not store chemicals, rusting iron, manure or detergent on the roof.
- Nesting of birds on the roof should be prevented.
- Terraces should not be used for toilets either by human beings or by pets.
- Provide gratings at mouth of each drainpipe on terraces to trap leaves debris and floating materials.
- Provision of first rain separator should be made to flush off first rains.
- Do not use polluted water to recharge ground water.
- Ground water should only be recharged by rainwater.
- Before recharging, suitable arrangements of filtering should be provided.
- Filter media should be cleaned before every monsoon season.
- During rainy season, the whole system (roof catchment, pipes, screens, first flush, filters, and tanks) should be checked before and after each rain and preferably cleaned after every dry period exceeding a month.
- At the end of the dry season and just before the first shower of rain is anticipated, the storage tank should be scrubbed and flushed off all sediments and debris

Annexure – 8

Cost of Environmental Protection Measures

Sr. No.	Activity	Cost incurred (INR in Lacs)			Budgeted Cost (INR in Lacs)
		2023 – 24	2024 – 25	2025 – 26	2025 – 26
1.	Environmental Study / Audit and Consultancy	22.67	40.46	37.39	45.2
2.	Legal & Statutory Expenses	8.60	17.37	10.55	13
3.	Environmental Monitoring Services	13.37	17.27	21.38	20.46
4.	Hazardous / Non-Hazardous Waste Management & Disposal	130.11	122.46	150.67	156.13
5.	Environment Days Celebration and Advertisement / Business development	3.42	1.85	1.83	4.5
6.	Treatment and Disposal of Bio-Medical Waste	2.28	2.39	2.51	2.4
7.	Mangrove Plantation, Monitoring & Conservation	15	0	---	---
8.	Other Horticulture Expenses	904	570	570	831
9.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	186.94	164.31	216.44	227.69
10.	Expenditure of Environment Dept. (Apart from above head)	80.39	93.40	32.18	49.41
Total		1366.78	1029.51	1042.95	1108.1