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Fw: Half Yearly EC Compliance Report Submission - APSEZ, Mundra - MPT 1995 (Oct'19 to Mar'20)

Devendra Banthia <Devendra.Banthia@adani.com>

Wed 5/20/2020 12:09 PM

To: Dilip Kumar Moolchandani <Dilip.Moolchandani@adani.com>

1 attachments (14 MB)

1. EC Compliance Report_MPT-1995_Oct'19 to Mar'20.pdf;

From: Chiragsing Rajput <Chiragsing.Rajput@adani.com>
Sent: Tuesday, May 19, 2020 5:13 PM
To: rowz.bpl-mef@nic.in <rowz.bpl-mef@nic.in>
Cc: brnaidu.cpcb@nic.in <brnaidu.cpcb@nic.in>; westzonecpcb@yahoo.com <westzonecpcb@yahoo.com>; mefcc.ia3@gmail.com <mefcc.ia3@gmail.com>; monitoring-ec@nic.in <monitoring-ec@nic.in>; direnv@gujarat.gov.in <direnv@gujarat.gov.in>; ro-gpcb-kute@gujarat.gov.in <ro-gpcb-kute@gujarat.gov.in>; ms-gpcb@gujarat.gov.in <ms-gpcb@gujarat.gov.in>; Shalin Shah <Shalinm.Shah@adani.com>; Azharuddin Kazi <Azharuddin.Kazi@adani.com>; Mahendra Kumar Ghritlahre <Mahendra.Ghritlahare@adani.com>; Ashvin Kumar Patni <AshvinKumar.Patni@adani.com>; Dhanesh Tank <Dhanesh.Tank@adani.com>; Devendra Banthia <Devendra.Banthia@adani.com>; Ranjan Chaudri <Ranjan.Chaudri@adani.com>; Kaushal Singh <Kaushal.Singh@adani.com>; muruganrmudaliyar <muruganr.mudaliyar@adani.in>
Subject: Half Yearly EC Compliance Report Submission - APSEZ, Mundra - MPT 1995 (Oct'19 to Mar'20)

adani
Ports and Logistics

APSEZL/EnvCell/2020-21/018 **Date:** 19.05.2020

To
Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (WZ), E-5, Kendriya
Paryavaran Bhawan, Arera Colony,
Link Road No. – 3, Bhopal – 462 016.
E-mail: rowz.bpl-mef@nic.in

Sub : Half yearly Compliance report of Environment and CRZ Clearance for "Handling facility of General Cargo / LPG /Chemicals and their storage terminal at Navinal Island, Mundra taluka of Kutch district, Gujarat"

Ref : Environment and CRZ clearance granted to M/s Adani Ports & SEZ Limited vide letter dated 25th August, 1995 bearing no. J-16011/13/95-IA.III

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 and CRZ Clearance for the period of October – 2019 to March – 2020 is being submitted through soft copy (e-mail communication).

Kindly consider above submission and acknowledge.

Thank you,
Yours Faithfully,
For, **M/s Adani Ports and Special Economic Zone Limited**

Avinash Rai
Chief Executive Officer
Mundra & Tuna Port

Encl: As above
Copy to:

1) The Director (IA Division), Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003
2) Zonal Officer, Regional Office, CPCB – Western Region, Parivesh Bhawan, Opp. VMC Ward Office No. 10, Subhanpura, Vadodara – 390 023
3) Member Secretary, GPCB – Head Office, Paryavaran Bhavan, Sector 10 A, Gandhi Nagar – 382 010
4) The Director, Forests & Environment Department, Block – 14, 8th floor, Sachivalaya, Gandhi Nagar – 382 010
5) Regional Officer, Regional Office GPCB (Kutch-East), Gandhidham, 370201

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adani

Environmental Clearance Compliance Report

Multi-Purpose Jetty and Storage Facilities at Navinal Island, Mundra, Dist. Kutch, Gujarat

of

Adani Ports and Special Economic Zone Limited

For the Period of:

October-2019 to March-2020

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EC Compliance Report

Half yearly Compliance report of Environment and CRZ Clearance for "Handling facility of General Cargo / LPG /Chemicals and their storage terminal at Navinal Island, Mundra taluka of Kutch district, Gujarat" issued vide letter no. J-16011/13/95-IA.III dated 25th Aug., 1995.

Sr. No.	Conditions	Compliance Status as on 31-03-2020
2(i)	All construction designs / drawings relating to various project activities should have the approval of the concerned State Government departments / Agencies.	Complied All construction and operation activities are being carried out in line with the CRZ recommendation and permissions granted. All construction and operation activities are being carried out in line with the CRZ recommendation and permissions granted.
2(ii)	To prevent discharge of bilge wastes, sewage and other liquid wastes from the oil tankers / ships into marine environment, adequate system for collection, treatment and disposal of liquid wastes including shore line installation and special hose connections for ships to allow for discharge of sewage must be provided.	Complied Ships berthing at Mundra Port comply with MARPOL regulations. No discharge such as bilge wastes, sewage or any other liquid wastewater is allowed into marine environment inside port limits. APSEZL does not receive sewage/liquid waste from ship. As a general practice APSEZ provide facility for receiving slop oil from vessels through hose connection with oil tankers. These tankers divert slop oil to Oil water separator system where water and oil particles are separated. Separated oil is being sold to authorized recycler /re-processor. However, no slope oil was received during the compliance period.
2(iii)	The quality of treated effluents, solid wastes, emissions and noise levels etc. must confirm to the standards laid down by the competent authorities including the central and State Pollution Control Boards under the Environment (Protection) act, 1986 whichever are more	Complied. ETP is provided to treat the wastewater/wash water. Also the sewage generated from port is being treated in designated ETP. Treated water is used for horticultural purposes. Quality of treated water confirm to the standard laid down by Gujarat Pollution Control Board.

Location	Capacity	Quantity of Wastewater (Avg. from Oct'19 to Mar'20)	Type of ETP / STP

Sr. No.	Conditions	Compliance Status as on 31-03-2020
	stringent.	

LT	265 KLD	66 KLD	Activated Sludge

However there is some minor modification work is going on in ETP for biological treatment from Dec'19. During this time entire effluent + sewage is being sent to CETP operated by MPSEZ Utilities Pvt. Ltd. (MUPL) for treatment and final disposal on land for horticulture purpose within APSEZ premises. The same has already been informed to the state pollution control board.

Third party analysis of the treated water is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratory Pvt. Ltd. Summary of the same for duration from Oct'19 to Mar'20 is mentioned below.

Parameter	Unit	Max	Min	Perm. Limit[$]
Industrial Effluent / Sewage				
pH	--	8.05	6.91	6.5 to 8.5
TSS	mg/L	82	59	100
TDS	mg/L	2034	1681	2100
COD	mg/L	98	84	100
BOD (3 Days @ 27°C)	mg/L	26	23	30

[$] as per CC&A granted by GPCB

The quality of marine water, treated effluents, air emissions and noise levels are being regularly analyzed by NABL accredited and MoEF&CC approved agency. Please refer **Annexure – 1** for detailed analysis reports. Approx. INR 21.74 Lakh is spent for all environmental monitoring activities during the FY 2019-20.

The environmental monitoring within Adani Ports & SEZ Limited has been stopped since 23rd March, 2020 considering COVID-19 Pandemic lockdown and the same has already been intimated to the regulatory authorities vide our e-mail dated 06.04.2020. The details of the same is attached as **Annexure – 2**.

Waste Management – APSEZ has adopted 5R concept for environmentally sound management of different types of solid & liquid wastes. Please refer below details about management of each type of waste.

Sr. No.	Conditions	Compliance Status as on 31-03-2020
		Municipal Solid Waste: A well-established system for segregation of dry & wet waste is in place. All wet waste (Organic waste) is being segregated & utilized for compost manufacturing and/or biogas generation for cooking purpose. The compost is further used by in house horticulture team for greenbelt development. Whereas dry recyclable waste is being sorted in various categories. Presently manual sorting is being done for sorting of different types of solid waste. Segregated recyclable materials such as Paper, Plastic, Cardboard, PET Bottles, and Glasses, etc. are then sent to respective recycling units, whereas remaining non-recyclable waste is bailed and sent to cement plant (M/s. Sanghi Industries Ltd., Kutch and/or M/s. Ambuja Cement Ltd., Kodinar) for Co-processing as RDF (Refused Derived Fuel). **Hazardous Waste**: • E – Waste & Used Batteries are being sold to GPCB registered recyclers namely M/s. e-Processing House and Sabnam Enterprise respectively. • Solid Hazardous Waste is being disposed through co-processing through common facility i.e. M/s. Saurshtra Enviro Projects Pvt. Ltd., Bhachau and/or cement industries of Sanghi Industries Ltd., Kutch and/or Ambuja Cement Ltd., Kodinar. Used/Waste Oil is being sold to GPCB authorized recyclers / re-processors namely M/s. Western India Petrochem Industry, Bhavnagar. • Solid hazardous waste i.e. Tank bottom sludge is being disposed through co-processing through common facility i.e. M/s. Saurshtra Enviro Projects Pvt. Ltd., Bhachau and/or cement industries of Ambuja Cement Ltd., Kodinar and/or being sold to authorized recycler namely M/s. Mundra Oil, Mundra. • Downgrade chemicals generated from cleaning of storage tanks / pipelines are being sold to authorized solvent recovery facilities namely M/s. Acquire Chemicals, Ankleshwar however during the compliance period, there was no disposal of downgrade chemicals. • Slop Oil received from vessels is treated to separate water and oil particles in Oil Water Separator system. Separated oil from the same is being sold to authorized recycler / reprocessor namely M/s. Western India Petrochem Industry, Bhavnagar and water is sent to ETP for further treatment. However during the compliance

Sr. No.	Conditions	Compliance Status as on 31-03-2020

period, there was no disposal of Slope Oil.

Details of permissions / agreements of hazardous waste authorized vendors were submitted along with half yearly EC Compliance Report for the period Apr'18 to Sep'18.

The following table summarizes the waste management practice (from Oct'19 to Mar'20) for different types of wastes at APSEZ:

Type of Waste	Quantity in MT	Disposal method
Hazardous Waste		
Pig Waste	4.715	Co-processing at cement industries
Oily Cotton waste	71.585	
ETP Sludge	Nil	
Tank Bottom Sludge	72.07	Co-processing at cement industries and/or Sell to registered recycler
Used / Spent Oil	64.994	Sell to registered recycler
Discarded Containers	8.436	
Battery Waste	8.39	
Bio Medical Waste	2.966	To approved CBWTF Site
Municipal Solid Waste		
Recyclables	560.597	After recovery sent for recycling
Refuse Derived Fuel	177.1	Co-processing at Cement Industries
Wet Waste (Food waste + Organic waste)	447.255	Converted to Manure for Horticulture use / Biogas for cooking purpose

Ambient Air Quality (twice in a week) and **Noise** (once in a month) monitoring are being carried out by NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd. Quality of Ambient Air and Noise level confirm to the standard laid down by Gujarat Pollution Control Board. Summary of the same for duration from Oct'19 to Mar'20 is mentioned below.

Total Ambient Air & Noise Sampling Locations: 4 Nos.

Parameter	Unit	Max	Min	Perm. Limit$
PM_{10}	$\mu g/m^3$	96.23	50.53	100
$PM_{2.5}$	$\mu g/m^3$	54.39	18.68	60
SO_2	$\mu g/m^3$	28.47	6.41	80
NO_2	$\mu g/m^3$	45.56	14.52	80

Sr. No.	Conditions	Compliance Status as on 31-03-2020
		<table><tr><th>Noise</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit</th></tr><tr><td>Day Time</td><td>dB(A)</td><td>74.2</td><td>58.3</td><td>75</td></tr><tr><td>Night Time</td><td>dB(A)</td><td>69.8</td><td>50.2</td><td>70</td></tr></table> $ as per NAAQ standards, 2009 Values recorded confirms to the stipulated standards.
2(iv)	Adequate provision for infrastructure facilities such as water supply, roads, sanitation etc. should be ensured so as to avoid environmental degradation in the surrounding areas. These facilities should be brought into existence during the construction phase and will remain in existence thereafter as part of the infrastructure build up in the area for local developmental purposes.	Complied. Construction activity is already completed. Adequate infrastructure facility was provided to labours during construction phase and those are in existence. The facility for drinking water, toilet and rest shelter are provided for the dignity of operation labours. Photographs of the same were submitted along with the compliance report submission for the period Oct'16 to Mar'17.
2(v)	Adequate noise control measures should be ensured in various project activities and due to increase in the traffic which is likely to take place during construction and operational phases.	Complied. Construction phase is completed. For operation phase, following noise control measures are taken: • All DG sets are installed with acoustic enclosure. • Proper maintenance of equipments / plant machineries are being done on regular basis. • Green Belt has been developed at road sides. • Traffic control measures such as signage, speed regulation, traffic guides etc. are in place to reduce the unnecessary honking by cargo vehicles.
2(vi)	The water quality parameters such as dissolved oxygen, ammonical nitrogen and other nutrients etc. should be measured at regular intervals to ensure adherence to the prescribed standards of water qualities. Suitable	Complied. ETP having 265 KLD capacity is provided for treatment of wastewater. Treated water is used for horticulture purpose. The watery sludge is transferred to sludge drying bed, where the excess wastewater is recirculated to ETP. Third party analysis of the treated water is being carried out twice in a month by NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratories Pvt.

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2020</th></tr>
<tr><td></td><td>ground water monitoring should also be undertaken around the sludge lagoons and regular reports to be submitted to the Ministry for evaluation.</td><td>Ltd. Summary of the same for duration of Oct'19 to Mar'20 is mentioned in compliance condition no. 2(iii) above.

<u>Marine Monitoring:</u>
Marine monitoring is being carried out once in a month by NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratory Pvt. Ltd. Summary of the same for duration from Oct'19 to Mar'20 is mentioned below. Monitoring Reports are attached as Annexure – 1 for the same.

Total Sampling Locations: 09 Nos.
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Surface</th><th colspan="2">Bottom</th></tr>
<tr><th>Max</th><th>Min</th><th>Max</th><th>Min</th></tr>
<tr><td>pH</td><td>--</td><td>8.34</td><td>8.02</td><td>8.28</td><td>7.88</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>364</td><td>124</td><td>381</td><td>127</td></tr>
<tr><td>BOD (3 Days @ 27 °C)</td><td>mg/L</td><td>5.3</td><td>2.2</td><td>3.0</td><td>ND*</td></tr>
<tr><td>DO</td><td>mg/L</td><td>8.8</td><td>5.5</td><td>6.2</td><td>5.2</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>37.5</td><td>34.1</td><td>38.2</td><td>34.2</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>38496</td><td>35602</td><td>38796</td><td>35112</td></tr>
</table>
*ND = Not Detectable

<u>Ground Water Monitoring:</u>
There are no sludge lagoons however, to monitor the ground water quality, bore wells are provided at various location in the port and SEZ areas. Third party analysis of the ground water is being carried out twice a year by NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration of Oct'19 to Mar'20 is mentioned below.

Sampling Locations: 5 Nos.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Minimum</th><th>Maximum</th></tr>
<tr><td>pH</td><td>-</td><td>7.89</td><td>7.78</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>14</td><td>1.72</td></tr>
<tr><td>Oil & Grease</td><td>mg/L</td><td>2.83</td><td>ND*</td></tr>
<tr><td>Hydrocarbon</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Lead as Pb</td><td>mg/L</td><td>0.072</td><td>0.052</td></tr>
<tr><td>Arsenic as As</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Nickel as Ni</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Total Chromium as Cr</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Cadmium as Cd</td><td>mg/L</td><td>0.038</td><td>ND*</td></tr>
<tr><td>Mercury as Hg</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Zinc as Zn</td><td>mg/L</td><td>3.26</td><td>ND*</td></tr>
<tr><td>Copper as Cu</td><td>mg/L</td><td>ND*</td><td>ND*</td></tr>
<tr><td>Iron as Fe</td><td>mg/L</td><td>5.7</td><td>0.32</td></tr>
<tr><td>Insecticides/Pesticides</td><td>--</td><td>Absent</td><td>Absent</td></tr>
</table>
</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 31-03-2020
		Depth of Water Level from GL | meter | 2.1 | 1.8 *ND = Not Detectable Please refer **Annexure – 1** for detailed analysis reports. Approx. INR 21.74 Lakh is spent for all environmental monitoring activities during the FY 2019-20.
2(vii)	Adequate culverts should be provided for smaller creeks so that breeding grounds for crabs, mud snappers and other marine organisms are not cut off by road construction activities.	Complied. Adequate culverts are provided on prominent creek system named as (1) Kotdi (2) Baradimata (3) Navinal (4) Bocha (5) Mundra (Oldest port (Juna Bandar) leading to Bhukhi river) All above creeks are in existence allowing free flow of water and there is no filling or reclamation of any creek area. APSEZL has so far constructed 19 culverts having total length of approx. 1100 m with total cost of INR 20 Crores. Apart from that three RCC Bridges have been constructed over Kotdi creek with total length of 230 m and cost of INR 10 Crores. Photographs of the same were submitted as part of compliance report submission for the duration of Apr'17 to Sep'17.
2(viii)	A hundred meter wide mangrove belt should be created all along the west of Navinal Creek till its junction up to new road. Green belt of 50 M width should also be provided all along the periphery of the plant site and along the roads, storage tanks etc. at 1500 trees per hectare. All details regarding the Mangrove belt and other afforestation work must be worked out in consultation with the State Forest Department, and details sent to the Ministry.	Complied. 24 hectare of Mangrove afforestation was carried out with a cost of INR 25.00 Lac at west of Navinal creek. All Mangrove plantations were done in consultation with Dr. Maity, Mangrove consultant of India. Green belt was developed 56.34 ha. Total 105765 trees were planted with the density of 1877 trees per hectare within the port area. To enhance the marine biodiversity, till date APSEZ has carried out mangrove afforestation in 2890 ha. area across the coast of Gujarat. Total expenditure for the same till date is INR 832 lakh. So, far APSEZ has developed 464 ha. area as greenbelt with plantation of more than 8.7 Lacs saplings within the APSEZ area. Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as **Annexure – 3**.
2(ix)	Arrangements should be made for ensuring fresh water availability for various project related	Complied. During the project phase, GWIL was the source of water to ensure fresh water availability.

Sr. No.	Conditions	Compliance Status as on 31-03-2020
	activities. Special water harvesting programs should be undertaken in the project impact area. Details of these activities should be reported to the Ministry.	Present source of water for various project activities is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited. Average water consumption for entire APSEZ area is 4.1 MLD during compliance period i.e. Oct'19 to Mar'20. Groundwater recharge cannot be done at the project site since the entire project is in the intertidal / sub tidal areas. Rain water within project area is managed through storm water drainage. We have installed Rain water recharge bore well (4 Nos.) within our township to recharge ground water. Details of the same were submitted along with half yearly EC compliance report for the period Apr'19 to Sep'19. We have also connected roof top rain water duct of operational building (Tug berth building within MPT) with u/g water tank for utilization of collected rain water for gardening / horticulture purpose. Details of the same were submitted along with EC Compliance report for the period Oct'18 to Mar'19. However, APSEZ has carried out rainwater harvesting activities in the nearby villages for benefit of the locals. Following measures are taken for the same during the year 2011 – 13 and the same have benefited to the local farmers. 1. Pond deepening activities at villages 2. 18 check dams were constructed under the 'Sardar Patel Sahbhagi Jalsanchay Yojna' Total cost of these efforts was approx. INR 320 lakh. **<u>Sujlam Suflam project</u>** Water Conservation Work at the turn of millennium, the state watched with growing alarm the steady depletion of its ground water and launched massive drive to achieve water security in Mundra region. • A large number of water harvesting structure (18 Nos. of check dams in coordination with salinity department) and • Ground recharge activities (pond deepening work for more than 52 ponds) individually and 26 ponds under Sujlam Suflam

Sr. No.	Conditions	Compliance Status as on 31-03-2020
		Jal Abhiyan were built leading to a significant increase in water table and higher returns to the farmers. • Roof Top Rain Water Harvesting 54 Nos. and Recharge Bore well 75 Nos. • Drip Irrigation 823 Farmers benefitted in coordination with Gujrat Green Revolution Company • Participatory Ground Water Management in ten villages with holistic approach for Kankavati Sandstone Aquifer Programme. With the objective of to preserve the rain water 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. Under UTHHAN MODEL VILLAGE PROJECT, Salinity ingress issue is well taken with pond deepening, recharge bore well technique and roof top rain water harvesting. Total ground water recharged due to this project 1878 ML. For Water conservation drive APSEZ having vision for next five years that ✓ Drinking Water Sustainable Villages by Roof Top Rain Water Harvesting – at least 5 villages ✓ Agriculture water conservation by 100% Drip, Bore well Recharge ✓ Farm Bunding and Crop pattern ✓ Recycling Sewage water from STP ✓ Awareness for water conservation to community Please refer **Annexure – 4** for full details of CSR activities carried out by Adani Foundation in the Mundra region. Budget for CSR Activity for the FY 2019-20 is to the tune of INR 2043 lakh. Out of which, Approx. INR 1813 lakh are spent during the year FY 2019-20.
2(x)	While filling the storage tanks, compatibility of the chemicals should be ensured for chemical safety. Since 5000 MT capacity is proposed to be created for cryogenic conditions, necessary HAZOP study should be initiated and submitted	Complied. Risk assessment study was carried out by M/s. Comet Consultancy Services in January 1995 as a part of EIA for storage of various chemicals in tanks for chemical safety and the same was submitted to MoEF&CC while processing EC application.

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2020</th></tr>
<tr><td></td><td>to the Ministry within three months. Calculations carried out on the basis of EFFECT MODEL for this storage should be rechecked for various accident scenarios. Keeping in view the safety aspects, Horton spheres of 1250 MT capacity each should be preferred.</td><td>Risk assessment study was carried out by iFluids Engineering for handling and storage of LPG in three parts as mentioned below.
1. QRA for LPG Jetty Area
2. QRA for LPG Pipeline
3. QRA for LPG Tank farm

A copy of the same was submitted as part of compliance report for the duration of Apr'17 to Sep'17.

Recommendations of the risk assessment have been implemented as part of the construction activity and details of the same were submitted along with half yearly compliance report for the period Oct'18 to Mar'19.

Implementation report of risk assessment recommendations during operational activity is attached as Annexure – 5.</td></tr>
<tr><td>2(xi)</td><td>The measures suggested by the Gujarat State Pollution Control Board in February, 1995 while according “No Objection Certificate" should be strictly followed and authorization certificate required for converting NOC into "consent to operate" should be submitted within three months.</td><td>Complied.

Consent to operate (CC&A) has been renewed from GPCB vide consent no. AWH-88317 valid till 20th November, 2021. The same was submitted along with compliance submission for the period of Oct'16 to Mar'17.

Consent to Establish (CtE) and Consent to Operate (CtO) are obtained from GPCB and renewed/amended from time to time as per the progress of the project activity. The present in-force CtO are mentioned below.

<table>
<tr><th>Sr. No.</th><th>Permission</th><th>Project</th><th>Ref. No. / Order No.</th><th>Valid till</th></tr>
<tr><td>1</td><td>CtO – Renewal</td><td>Mundra Port Terminal</td><td>AWH-83561</td><td>20.11.2021</td></tr>
<tr><td>2</td><td>CtO - Amendment</td><td>Mundra Port Terminal</td><td>WH-88317</td><td>20.11.2021</td></tr>
<tr><td>3</td><td>CtO - Amendment</td><td>Mundra Port Terminal</td><td>GPCB/CCA-Kutch -39(5)/ ID-17739/473575</td><td>20.11.2021</td></tr>
<tr><td>4</td><td>CtO - Amendment</td><td>Mundra Port Terminal</td><td>H-98086</td><td>20.11.2021</td></tr>
<tr><td>5</td><td>CtO - Amendment</td><td>Mundra Port Terminal</td><td>H-105708</td><td>20.11.2021</td></tr>
</table>

The permissions (Sr. No. 1 to 4) were submitted along with half yearly compliance report for the period Oct'18 to Mar'19</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 31-03-2020
		and the copy of updated CtO-Amendment (Sr. No. 5) is attached as **Annexure – 6**.
2(xii)	For ensuring the acceptance of the project by the local people, a Resolution of the Official Panchayat of the Region should be obtained offering their concurrence in writing by the project proponents and submitted to the Ministry by 31st October, 1995.	Complied. Resolution from the Panchayat has been obtained and submitted to the Ministry of Environment, Forest & Climate Change on 31st July, 2012.
2(xiii)	A permanent staff structure should be created with latest R&D facilities and suitable equipments for environmental and forestry activities through creation of Environmental cell. Adequate funds should be earmarked for this cell.	Complied. APSEZL has a well structured Environment Management Cell, staffed with qualified manpower for implementation of the Environment Management Plan at site. Site team report to General Manager (Environment) at Corporate, who heads the Environment Management Cell who directly reports to the top management. Environment cell organogram is attached as **Annexure – 7**. Budget for environmental management measures (including horticulture) for the FY 2019-20 is to the tune of INR 1146 lakh. Out of which, Approx. INR 1084 lakh are spent during this year. Detailed breakup of the expenditures for the past 3 years is attached as **Annexure – 8**.
2(xiv)	Landsat imagery should be obtained on a continuous basis covering various seasons to study the change in the land use pattern due to the project and project related activities.	Complied. Project is in operation phase since many years and there is no change in the land use pattern during the period from Oct'17 to Mar'18.
2(xv)	With a view to providing adequate job opportunities to local people, facilities for technical training and development of skills should be made available	Complied. • Adani Skill Development Center (ASDC), Mundra & Bhuj is providing skill development training to the locals for Soft Skill, Technical Training and Carrier Guidance & knowledge based training. • Adani Skill Development Centre (ASDC) is playing a pivotal role in implementing sustainable development in the

Sr. No.	Conditions	Compliance Status as on 31-03-2020
	in consultation with the state Harbour Department, and to this end it must be ensured that there is allocation of adequate funds. The local people should be involved in the afforestation program proposed for the scheme to ensure public participation and success of vegetation programmes.	state. The objective of this Centre is to impart different kinds of training to the students of 10th, 12th, college or ITI from surrounding areas. • During this year Total 2664 people trained in various trainings to enhance socio economic development. • Preference is given to local people for employment based on their qualification and experience. • All Mangrove plantations are done in consultation with GUIDE and Local forest dept. • 24 hectare of mangrove afforestation at Mundra was done through active participation of local fishermen at the cost of INR 25.0 Lac. • The Foundation provided fishermen with employment equivalent to 6261 man–days. In addition to this, employment worth of 42048 man-days has been provided till date. The Foundation has also supported Pagadiya fishermen as painting laborers by providing them with employment and job in various field. Details on skill development training imparted during financial year of 2019-20 by Adani Foundation are enclosed as **Annexure – 4**.
2(xvi)	Prior clearance must be taken under the Hazardous Chemicals (manufacture, import and storage) Rules 1989, as amended up to date, from the competent authority. Such clearance will have to be taken prior to the commissioning of the project.	Complied. Permissions for storage of Hazardous Chemicals were obtained from MSIHC against the application made on 01.05.1999 through letter reference no. Kutch-HAZ/CHEM-23(2)/9713 while chemical storage permission against application made on 18.09.1999 was provided through letter reference no. Kutch-HAZ/CHEM-23(2)/9711. Approval from the PESO is taken for import of hazardous chemicals as per License No. P/HQ/GJ/15/2050 (P12369) dated 18/07/2016 which is valid up to 31/12/2024 for Class A & Class C petroleum. A copy of the same was submitted along with the compliance report submission for the period of Oct'16 to Mar'17 and there is no further change. Please refer point no. 2 (xi) regarding GPCB permissions. License under Factories Act is taken dated 07.10.1998 and last renewed vide license no. 0102 on 20.04.2017 (Sr. No. 70707) is valid up to 31.03.2020. The details were submitted

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2020</th></tr>
<tr><td></td><td></td><td>along with half yearly compliance report for the period Oct'18 to Mar'19.</td></tr>
<tr><td>2(xvii)</td><td>A detailed progress report should be submitted to the Ministry on each of the conditions stipulated above in respect of the follow-up action taken every six months. The first of these two reports should be sent in by 31.3.1996.</td><td>Complied.

Compliance report of EC conditions is uploaded regularly. Last compliance report including results of monitoring data for the period of Apr'19 to Sep'19 was submitted to Regional Office of MoEF&CC @ Bhopal, Zonal Office of CPCB @ Baroda, GPCB @ Gandhinagar & Gandhidham and Dept. of Forests & Env., Gandhinagar vide our letter dated 26.11.2019. Copy of the same is also available on our web site https://www.adaniports.com/ports-downloads. A soft copy of the same was also submitted through e-mail on 26.11.2019 to all the concern authorities. Please refer below for the details regarding past six compliance submissions.

<table>
<tr><th>Sr. no.</th><th>Compliance period</th><th>Date of submission</th></tr>
<tr><td>1</td><td>Oct'16 to Mar'17</td><td>30.05.2017</td></tr>
<tr><td>2</td><td>Apr'17 to Sep'17</td><td>01.12.2017</td></tr>
<tr><td>3</td><td>Oct'17 to Mar'18</td><td>29.05.2018</td></tr>
<tr><td>4</td><td>Apr'18 to Sep'18</td><td>30.11.2018</td></tr>
<tr><td>5</td><td>Oct'18 to Mar'19</td><td>31.05.2019</td></tr>
<tr><td>6</td><td>Apr'19 to Sep'19</td><td>28.11.2019</td></tr>
</table>
</td></tr>
<tr><td>2(xviii)</td><td>Financial requirements for implementation of the above indicated environmental mitigative measures should be worked out and included in the total cost of the project. Provision for enhancing this allocation in future should also be made.</td><td>Complied.

Separate budget for the Environment protection measures is earmarked every year. All the expenses are recorded in advanced accounting system of the organization. Details regarding environmental expenditures are as per compliance condition no. 2(xiii) above.</td></tr>
</table>

Annexure – 1

"HALF YEARLYENVIRONMENTAL MONITORING REPORT"

FOR

ADANI PORTS AND SPECIAL ECONOMIC ZONE LIMITED
TAL: MUNDRA, KUTCH, MUNDRA – 370 421

MONITORING PERIOD: OCTOBER 2019 TO MARCH 2020

PREPARED BY:

POLLUCON LABORATORIES PVT.LTD.

PLOT NO.5/6 "POLLUCON HOUSE", OPP. BALAJI INDUSTRIAL SOCIETY, OLD SHANTINATH SILK MILL LANE, NEAR GAYTRI FARSAN MART, NAVJIVAN CIRCLE, UDHANA MAGDALLA ROAD, SURAT-395007.
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E-mail: pollucon@gmail.comweb: www.polluconlab.com

TC - 5945 **ISO 9001:2015** **ISO 14001:2015** **OHSAS 18001:2007**

MARINE WATER MONITORING SUMMARY REPORT

RESULTS OF MARINE WATER [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.29	8.17	8.21	8.16	8.14	8.05	8.17	8.06	8.15	8.09	8.2	8.04	IS3025(P11)83Re.02
2	Temperature	oC	30.4	30.0	30.2	29.8	29.9	29.6	29.8	29.6	30	29.8	30.3	30.2	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	276	296	196	127	136	164	149	164	129	146	216	250	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4.8	Not Detected	5.3	Not Detected	4.2	Not Detected	3.6	Not Detected	3.8	Not Detected	4.0	2.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.9	6.0	5.9	6.1	5.5	5.9	5.7	5.9	5.6	5.4	8.8	6	IS3025(P38)89Re.99
6	Salinity	ppt	34.9	35.3	35.1	35.3	34.8	35.5	36.5	37.4	37.1	37.6	34.6	34.4	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22ndEdi)5520 D
8	Nitrate as NO_3	µmol/L	3.98	4.15	5.26	5.68	4.9	4.57	6.78	7.29	4.18	4.20	10.8	8.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.2	0.16	1.38	0.99	0.72	0.52	0.75	0.97	0.63	0.57	1.1	0.9	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	1.90	2.10	3.29	3.47	3.12	2.93	2.69	2.52	1.79	1.86	6.24	5.54	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.1	1.3	2.15	2.56	1.87	1.63	1.52	1.6	1.34	1.41	1.6	1.3	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	7.08	7.14	9.93	10.14	8.78	8.02	10.22	10.78	6.60	6.63	8.5	8.2	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	10	Not Detected	13.6	Not Detected	12	Not Detected	17.6	10.2	18	4	PLPL-TPH
14	Total Dissolved Solids	mg/L	36258	36890.0	36710	36989	35874	36526	37468	38270	37998	38456	36218	36080	IS3025(P16)84Re.02
15	COD	mg/L	18	7.5	19	Not Detected	25	Not Detected	28	20.0	25	17.6	10	8.0	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	8.77	7.6	10	9.3	13.5	10.8	18.9	15.3	19.8	16.2	2.13	0.76	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	3.57	2.45	2.93	2.72	3.25	2.83	2.93	2.67	3.15	2.83	1.11	0.929	APHA (22ndEdi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

17.2	Phaeophytin	mg/m^3	0.2	1.2	1.1	1.1	1.3	1.3	2	2.26	1.63	1.73	3.2	2.90	APHA (22nd Edi) 10200-H
17.3	Cell Count	No. x 10^3/L	180	72	196	88	204	102	182	104	166	94	228	76	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Pinnularia sp. Oscilatoria sp. Biddulphia sp. Rhizosolenia sp.*	*Navicula sp. Thallasiosira sp. Thallasionema sp.* --	*Biddulphia sp. Rhizosolenia sp. Coscinodiscus sp. Navicula sp.* --	*Cheatoceros sp. Navicula sp. Gyrosigma sp.* -- --	*Amphipora sp. Gyrosigma sp. Biddulphia sp. Nitzschia sp.* --	*Thallasiosira sp. Navicula sp. Rhizosolenia sp.* -- --	*Synedra sp. Rhizosolenia sp. Biddulphia sp. Skeletonema sp.* --	*Navicula sp. Pleurosigma sp. Thalassiothrix sp.* -- --	*Melosira sp. Cheatoceros sp. peridiniu m sp Rhizosolenia sp. Thallasionema sp.*	*Fragillaria sp. Biddulphia sp. Pleurosigma sp.*	*Biddulphia sp. Melosira sp. Navicula sp. Nitzschia sp. Skeletonema sp.*	*Melosira sp. Navicula sp. Nitzschia sp. Fragillaria sp.* --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	56		53		59		39		44		20		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Mysids Gastropods Copepods Polychaetes		Bivalves Crustaceans Mysids		Decapods Crustaceans Bivalves Polychaetes		Ostracods Decapods Ctenophores Gastropods		Decapods Polychaetes Mysids		Copepods Decapods Foraminiferans Ostracodes		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	3.9		3.8		4.1		2.1		3.45		4.58		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2480		1720		2320		2450		2460		1770		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22nd Edi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4 (2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.76	0.82	0.65	0.7	0.83	0.82	FCO:2007
2	Phosphorus as P	µg/g	504	576	612	743	712	170	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.2	4.86	5.2	4.96	4.72	5.6	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	118	214	170	136	191	218	AAS 3111B
5.3	Manganese as Mn	µg/g	1236	969	934	905	938	1680	AAS APHA 3111 B
5.4	Iron as Fe	%	5.25	5.1	4.98	5.01	4.82	5.2	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	21.4	37.4	43	37	27	80.6	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	34.7	58.6	39	28	35	70.8	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	175	224	120	139	158	240	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.13	3.76	2.49	2.12	1.73	8.2	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	0.07	Not Detected	Not Detected	Not Detected	Not Detected	0.12	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	amphipods Polychaetes --	Polychaetes Copepods amphipods	Polychaetes Echinoderms Crustaceans	Crustaceans Polychaetes Bivalves	Crustaceans Polychaetes	Decapods Amphipods --	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Turbellarians	Foraminiferans	--	Foraminiferans	Nematodes	Copepods Hydrozoa	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	618	559	706	765	676	370	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF MARINE WATER [M2 MOUTH OF BOCHA & NAVINAL CREEK - N 22°44'239" E 069°43'757"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.26	8.17	8.13	8.08	8.10	8.01	8.02	7.95	8.16	8.07	8.24	8.06	IS3025(P11)83 Re.02
2	Temperature	oC	30.5	30.1	30.1	29.7	29.9	29.4	29.9	29.7	30	29.9	30.3	30.1	IS3025(P9)84R e.02
3	Total Suspended Solids	mg/L	290	312	231	267	134	152	124	149	154	168	260	280	IS3025(P17)84 Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4.3	Not Detected	3.3	Not Detected	3.6	Not Detected	3.0	Not Detected	3.2	Not Detected	4.0	3.0	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	6.0	6.1	5.8	6.0	5.6	5.9	5.7	5.9	5.7	5.4	6.6	6	IS3025(P38)89 Re.99
6	Salinity	ppt	35.1	35.3	35.5	35.9	34.7	36.4	36.9	37.6	36.8	37.5	34.9	34.6	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22ndEdi)5 520D
8	Nitrate as NO_3	µmol/L	4.18	4.85	5.3	5.41	4.8	4.3	7.12	7.6	6.14	6.30	14.2	10.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.3	1.14	1.37	0.92	0.68	0.5	0.376	0.79	0.43	0.59	1.5	1.1	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	1.50	2.10	3.26	3.51	3.14	2.91	2.74	2.68	1.90	1.82	5.9	5.5	IS3025(P34)88 Cla.2.3
11	Phosphates as PO_4	µmol/L	1.9	1.5	2.4	2.58	1.98	1.73	1.63	1.42	1.38	1.53	1.5	1.3	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	4.50	5.30	9.92	9.84	8.60	7.71	10.23	11.07	8.47	8.71	7.6	7.4	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	9.3	Not Detected	11.4	Not Detected	15	Not Detected	14.9	13.2	17	7.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36610	37394	36890	37014	36186	37894	37812	38450	37616	38370	37128	36726	IS3025(P16)84 Re.02
15	COD	mg/L	16.2	7.0	24.0	Not Detected	23.0	Not Detected	25.0	19.0	28	21	12.0	10.0	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/ L/day	8.73	7.29	9.72	9.36	14.4	11.7	20.7	17.1	21.6	18	1.35	0.67	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/ m^3	3.04	2.34	2.83	2.4	2.99	2.72	3.2	3.04	3.25	2.93	2.2	0.97	APHA (22ndEdi) 10200-H
17.2	Phaeophytin	mg/ m^3	1.0	1.3	1.1	1.6	1.2	0.9	1.4	0.99	1.34	1.17	3.5	4.4	APHA (22ndEdi) 10200-H

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Lab Manager

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Dr. ArunBajpai
Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	136	61	141	64	160	89	184	90	172	84	285	140	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*ceratiums p Coscinodi scus sp. Pinnularia sp.* --	*Nitzschia sp. Surirella sp. Biddulphi a sp.* --	*Thallasion ema sp. Coscinodi scus sp. Biddulphi a sp. ceratium sp.* --	*Navicula sp. Rhizosole nia sp.* -- -- --	*Surirella sp. Biddulphi a sp. Coscinodi scus sp. Thallasion ema sp. Navicula sp.*	*Melosira sp. Nitzschia sp. Cyclotella sp.* -- --	*Nitzschia sp. Coscinodi scus sp. Pleurosig ma sp. Rhizosole nia sp.* --	*Navicula sp. Stauronei s sp. Synedra sp.* -- --	*Skeletone ma sp. Cyclotella sp. Biddulphi a sp. Melosira sp. Rhizosole nia sp.*	*Fragillaria sp. Nitzschia sp. Ceratium sp.*	*Biddulphi a sp. Cyclotella sp. Nitzschia sp. Peridiniu m Coscinodi scus sp.*	*Thallasio nema sp. Skeletone ma sp. Navicula sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10 ^{3}/ 100 m^3	44		47		42		52		45		32		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Ostracods lamellibranchs Chaetognathes		molluscan Crustaceans Bivalves		Chaetognathes Polychaetes Foraminiferans		Gastropods Decapods Amphipods Chaetognaths		Foraminiferans Chaetognathes Polychaetes		Gastrotriches Copepods Polychaete worms Bivalves		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/10 0 m^3	2.25		2.55		3.1		2.9		3.75		4.2		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2200		1840		2350		2210		2280		1640		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9 221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Ed i.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M2 MOUTH OF BOCHA & NAVINAL CREEK – N 22°44'239" E 069°43'757"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.69	0.7	0.54	0.73	0.65	0.72	FCO:2007
2	Phosphorus as P	µg/g	470	554	590	714	632	206	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.1	4.36	4.92	4.83	4.85	5.2	AAS APHA 3111 B
5.2	Total Chromium as Cr+3	µg/g	141	270	158	140	203	130	AAS 3111B
5.3	Manganese as Mn	µg/g	903	963	910	932	924	1940	AAS APHA 3111 B
5.4	Iron as Fe	%	5.22	4.9	4.86	4.98	4.98	5.1	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	37.8	53.2	40	48	32	94.6	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	39.1	28.4	35	32	27	62.8	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	183	170	154	156	143	256	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2	3.16	2.68	2.36	1.69	10.7	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaetes Gastropods --	Polychaetes Crustaceans --	Polychaetes Gastropods Branchayrans	Polychaetes Gastropods Crustaceans	Polychaetes Crustaceans Bivalves	Polychaete worms Amphipods Gastropods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	Nematodes	--	Nematodes	_	Hydrozoa	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	706	647	676	733	616	296	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M3 EAST OF BOCHAISLAND - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.23	8.15	8.20	8.12	8.15	8.03	8.24	8.16	8.19	8.10	8.3	8.15	IS3025(P11)83Re.02
2	Temperature	oC	30.4	30.0	30.1	29.9	29.9	29.5	29.9	29.7	30	29.9	30.2	30.3	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	283	326	192	211	208	216	183	174	144	152	248	224	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	4.5	Not Detected	4.0	Not Detected	4.2	Not Detected	3.3	Not Detected	3.7	Not Detected	4.0	3.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.9	6.0	5.8	5.9	5.7	5.9	5.6	5.9	5.6	5.4	6.2	5.8	IS3025(P38)89Re.99
6	Salinity	ppt	34.6	34.9	35.6	35.8	35.9	36.6	37.1	37.6	37.5	37.8	35	34.6	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	3.91	4.28	5.1	5.29	5.36	5.57	6.28	6	5.18	5.0	13.8	8.0	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.16	0.11	1.36	1.14	1.1	1	0.65	0.75	0.61	0.48	1.2	0.6	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.27	3.90	3.57	3.81	3.40	3.62	2.42	2.16	1.92	1.73	2.7	2.2	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	2.83	3.16	3.7	3.21	3.12	3.26	1.64	1.39	1.50	1.29	1.6	1.40	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	7.34	8.3	10.03	10.2	9.86	10.2	9.35	8.91	7.71	7.21	3.8	2.7	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	12.0	Not Detected	11.3	Not Detected	15.0	Not Detected	12	Not Detected	19	Not Detected	18	12	PLPL-TPH
14	Total Dissolved Solids	mg/L	36024	36184	37010	37554	36410	37116	37810	38450	38370	38694	36210	35714	IS3025(P16)84Re.02
15	COD	mg/L	15.6	8.2	24.0	Not Detected	27.0	Not Detected	25.0	19.0	23	17	10	8.0	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	8.5	6.97	9.18	8.28	15.12	12.24	18.9	15.3	21.42	18	1.71	0.47	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	3.2	2.24	2.83	2.72	2.93	2.88	3.09	2.67	3.31	3.09	2.5	0.65	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	1.0	1.9	1.3	1.1	2.7	0.9	1.91	2.3	1.47	1.54	2.4	1.8	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	146	70	184	78	196	86	178	94	164	84	264	96	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Amphipro ra sp. Nitzschia sp. Thallasios ira sp. Ceratium sp.*	*Navicula sp. Coscinodi scus sp. Biddulphi a sp.* --	*Navicula sp. Coscinodi scus sp. Cheatocer ous sp. Rhizosole nia sp.*	*Nitzschia sp. Biddulphi a sp. Pleurosig ma sp.* --	*Navicula sp. Fragillaria sp. Thallasion ema sp. Coscinodi scus sp.*	*Nitzschia sp. Biddulphi a sp. Amphipro ra sp.* --	*Cheatocer ous sp. Navicula sp. Biddulphi a sp. Skeletone ma sp.* --	*Thalassio nema sp. Nitzschia sp. Navicula sp.* -- --	*Cyclotella sp. Rhizosole nia sp. Coscinodi scus sp. Ceratium sp.*	*Biddulphi a sp. Fragillaria sp. Cheatocer ous sp.*	*Nitzschia sp. Navicula sp. Coscinodi scus sp. Rhizosole nia sp. Biddulphi a sp.*	*Fragillari a sp. Navicula sp. Melosira sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	41		46		44		47		42		20		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Foraminiferans Polychaetes Gastropods --		Gastropods Crustaceans Polychaetes		Copepods Mysids Decapods Chaetognathes		Lamellibranches Gastropods Decapods Polychaetes		Polychaetes Ostracods Gastropods		Copepods Nematodes Polychaete worms --		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	2.3		2.6		2.95		2.9		3.15		5.28		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2310		1780		2150		2240		2210		1690		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M3 RIGHT SIDE OF BOCHA CREEK - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.7	0.74	0.73	0.65	0.55	0.63	FCO:2007
2	Phosphorus as P	µg/g	461	560	658	698	672	150	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.07	4.46	5.12	4.76	4.89	5.43	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	163	276	172	152	169	150	AAS 3111B
5.3	Manganese as Mn	µg/g	970	1010	953	917	960	1570	AAS APHA 3111 B
5.4	Iron as Fe	%	5.18	4.69	4.6	4.86	4.9	5.12	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	41.3	59.4	37	30	39	50.2	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	35.7	47.3	43	28	32	40.6	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	201	251	165	198	183	218	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.84	2.6	1.9	2	1.78	11.6	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaetes Gastropods --	Crustaceans Gastropods --	Branchayrans amphipods Gastropods	Polychaetes Ostracods amphipods	Polychaetes Crustaceans	Polychaete worms Isopods Decapods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	Foraminiferans	--	Nematodes	Nematodes	Nematodes	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	676	588	704	735	618	340	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF MARINE WATER [M4 JUNA BANDAR N 22°47'577" E 069°43'620"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.17	8.18	8.12	8.17	8.03	8.21	8.15	8.27	8.21	8.11	8.07	IS3025(P11)83Re.02
2	Temperature	oC	30.6	30.2	30.1	29.8	29.9	29.5	29.9	29.7	30	29.9	30.2	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	264	289	237	249	210	226	236	252	184	201	285	219	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4.9	Not Detected	3.2	Not Detected	3.8	Not Detected	3.5	Not Detected	4.1	Not Detected	2.5	1.8	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	6.0	6.2	5.7	5.9	5.6	5.7	5.7	5.9	5.6	5.4	5.8	5.2	IS3025(P38)89Re.99
6	Salinity	ppt	35.2	35.7	37	37.3	35.8	36.5	37.0	37.7	37.3	37.9	35	34.2	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	3.57	3.81	4.98	5.16	5.2	5.36	6.40	5.97	4.79	4.58	20.6	17.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.23	0.17	1.3	1.18	1.19	0.9	0.85	0.68	0.72	0.60	1.2	0.8	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	2.91	3.24	3.68	3.34	3.76	3.52	1.92	1.76	1.83	2.14	2.2	1.8	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	2.16	2.39	3.49	2.56	3.64	3.13	1.84	1.45	1.56	1.83	1.7	1.4	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	6.71	7.22	9.96	9.68	10.15	9.78	9.17	8.41	7.34	7.32	7	6	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	15	Not Detected	17	Not Detected	13	Not Detected	15.2	Not Detected	19	Not Detected	14	8.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36818	37260	37162	37428	36280	37771	37910	38540	38185	38726	36840	36320	IS3025(P16)84Re.02
15	COD	mg/L	21.0	8.6	25	Not Detected	28	Not Detected	29	17	25	16.3	8.0	6.0	APHA(22nd Edi) 5520-D Open Reflux
A	Flora and Fauna														
16	Primary productivity	mgC/L/day	8.07	6.16	9.45	8.46	13.95	12.15	19.8	16.2	21.5	17.82	2.56	0.67	APHA (22nd Edi) 10200-J
B	Phytoplankton														
17.1	Chlorophyll	mg/m^3	2.93	2.67	2.88	2.72	3.2	2.93	3.04	2.72	3.09	2.88	3.1	0.7	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	1.7	1.1	2.1	1.9	2.6	1.7	1.78	2.32	1.54	1.6	2.4	1.7	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7

Dr. ArunBajpai

Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	156	76	178	90	204	98	180	107	164	90	310	80	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Oscillatoria Navicula sp. Gyrosigma sp.* --	*Navicula sp. Fragillaria sp. Ditylium sp.* --	*Coscinodiscus sp. Cyclotella sp. Nitzschia sp. Thallasionema sp.*	*Navicula sp. Rhizosolenia sp. Biddulphia sp.* --	*Thallasionema sp. Pleurosigma sp. Biddulphia sp. Ceratium sp.*	*Amphipora sp. Navicula sp. Cyclotella sp.* --	*Nitzschia sp. Rhizosolenia sp. Cheatoceros sp. Pleurosigma sp.* --	*Navicula sp. Biddulphia sp. Synedra sp.* -- --	*Melosira sp. Coscinodiscus sp. Thallasiosira sp. Pleurosigma sp. Nitzschia sp.*	*Ceratium sp. Cheatoceros sp. Navicula sp. Nitzschia sp.*	*Fragillaria sp. Melosira sp. Pinnularia sp. Rhizosolenia sp. Skeletonema sp.*	*Nitzschia sp. Amphora sp. Biddulphia sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	45		50		47		53		43		17		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Ctenophores Polychaetes Crustaceans --		Polychaetes Gastropods Nematodes		Polychaetes Copepods Ostracods Chaetognathes		Amphipods Decapods Lamellibranches Polychaetes		Polychaetes Chaetognathes Ctenophores		Copepods Ostracodes Molluscans Ostracods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	2.6		3.2		3		3.25		3.35		10.2		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2540		1540		2230		2180		2320		1540		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22nd Edi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M4 JUNA BANDAR N 22°47'577" E 069°43'620"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.71	0.78	0.65	0.69	0.69	0.96	FCO:2007
2	Phosphorus as P	µg/g	503	546	624	684	658	190	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	4.85	4.28	5.23	4.8	4.79	5.5	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	195	253	163	176	181	190	AAS 3111B
5.3	Manganese as Mn	µg/g	987	1034	926	902	956	1940	AAS APHA 3111 B
5.4	Iron as Fe	%	5.11	4.86	4.5	5.12	4.83	5.35	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	48.3	50.8	39	18	28	38.6	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	54.8	33.2	54	26	32	72.2	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	211	180	116	175	192	222	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.73	2.14	1.9	2.1	1.86	10.2	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Crustaceans Gastropods --	Copepods Polychaetes --	Gastropods Polychaetes Crustaceans	Polychaetes Gastropods Mysids	Copepods Polychaetes Crustaceans	Polychaete worms Isopods Decapods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes Foraminiferans	Nematodes	Foraminiferans	Nematodes	_	Bryozoans	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	706	618	645	794	676	296	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.21	8.21	8.17	8.15	8.06	8.21	8.10	8.26	8.20	8.16	8.12	IS3025(P11)83Re .02
2	Temperature	oC	30.4	30.1	30.0	29.8	29.9	29.6	29.9	29.7	30.1	29.9	30.6	30.2	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	279	296	172	190	184	201	198	185	181	203	209	170	IS3025(P17)84Re .02
4	BOD (3 Days @ 27 °C)	mg/L	4.5	Not Detected	3.2	Not Detected	4.0	Not Detected	3.6	Not Detected	4.2	Not Detected	4.0	3.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.8	6.0	5.7	5.9	5.6	5.9	5.7	5.9	5.7	5.3	6.2	5.8	IS3025(P38)89Re .99
6	Salinity	ppt	34.1	38.2	36.3	37.2	35.8	36.6	37	37.8	375	37.7	34.8	34.5	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	3.7	3.9	4.72	5.16	4.95	5.12	6.79	7.30	4.96	4.70	14.2	12.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.26	0.3	1.13	1.38	1	0.9	0.92	1.26	0.84	0.67	1.3	1.1	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.57	4.00	3.16	3.47	3.54	3.18	2.74	2.58	1.96	1.72	1.9	1.5	IS3025(P34)88Cl a.2.3
11	Phosphates as PO_4	µmol/L	2.17	2.35	2.48	3.12	2.69	2.8	1.90	1.73	1.70	1.56	1.7	1.4	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	7.53	8.20	9.01	10.01	9.49	9.20	10.45	11.14	7.76	7.09	2.8	2.4	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	14.0	Not Detected	12.0	Not Detected	15.3	Not Detected	12.6	Not Detected	15.8	Not Detected	18	7	PLPL-TPH
14	Total Dissolved Solids	mg/L	36898	36920	37242	37671	36310	37612	37912	38634	38496	38630	35720	35230	IS3025(P16)84Re .02
15	COD	mg/L	17.4	7.2	21.0	Not Detected	20.0	Not Detected	23	16	24.8	17.4	12.0	10.0	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	7.96	6.41	9	8.46	13.68	11.97	19.35	16.2	19.62	16.56	1.84	0.83	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	2.93	2.34	2.88	2.5	3.25	3.04	3.20	2.72	3.31	2.93	1.16	0.97	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	1.3	2.0	1.9	1.8	1.8	1.9	0.98	1.69	2.0	1.96	2.2	1.6	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	138	50	168	82	190	102	204	102	172	94	340	90	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Cheatoceros sp. Cyclotella sp. Rhizosolenia sp. Skeletonema sp.*	*Rhizosolenia sp. Melosira sp. Gyrosigma sp.* --	*Rhizosolenia sp. Cyclotella sp. Cheatoceros sp. Skeletonema sp.*	*Biddulphia sp. Rhizosolenia sp. Pleurosigma sp.* --	*Navicula sp. Rhizosolenia sp. Thallasionema sp. Biddulphia sp.*	*Nitzschia sp. Melosira sp. Rhizosolenia sp.* --	*Synedra sp. Biddulphia sp. Coscinodiscus sp. Navicula sp.* --	*Nitzschia sp. Pleurosigma sp. Rhizosolenia sp.* -- --	*Navicula sp. Melosira sp. Thallasiosira sp. Coscinodiscus sp. Ceratium sp.*	*Ceratium sp. Nitzschia sp. Biddulphia sp. Skeletonema sp.*	*Amphora sp. Fragillaria sp. Melosira sp. Rhizosolenia sp. Coscinodiscus sp.*	*Fragillaria sp. Melosira sp. Nitzschia sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	53		60		55		46		50		15		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Polychaetes Gastropods Crustaceans		Crustaceans Copepods --		Copepods Polychaetes Gastropods		Polychaetes Ostracods Ctenophores Amphipods		Chaetognathes Polychaetes Decapods		Polychaete worms Amphipods Gastrotriches Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	2.8		4.45		3.7		2.45		3.4		5.69		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2380		2120		2180		2250		2240		1820		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.75	0.71	0.53	0.7	0.75	0.8	FCO:2007
2	Phosphorus as P	µg/g	469	518	590	638	672	270	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	4.63	4.23	4.98	4.7	4.82	5.33	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	189	263	156	168	153	170	AAS 3111B
5.3	Manganese as Mn	µg/g	1137	974	928	940	968	1380	AAS APHA 3111 B
5.4	Iron as Fe	%	3.83	4.65	5.1	4.82	4.9	5.4	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	39.5	23.9	31	42	32	21.8	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	47.3	41.4	35	30	28	60.6	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	187	237	174	158	162	172	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.64	2.19	1.96	2.14	1.76	17.2	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	0.18	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaetes amphipods --	Copepods Isopods Crustaceans	Polychaetes Crustaceans amphipods	Hydrozoans Polychaetes Isopods Crustaceans	Polychaetes Gastropods	Polychaete worms Isopods Mysids	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Turbellarians Nematodes	--	--	--	Foraminiferans	Hydrozoa	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	765	676	735	762	645	364	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M7 EAST PORT N 22°47'120" E 069°47'110"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.21	8.13	8.19	8.10	8.17	8.09	8.21	8.14	8.24	8.19	8.05	8.09	IS3025(P11)83Re.02
2	Temperature	oC	30.3	30.1	30.0	29.8	29.9	29.7	29.9	29.6	30	29.5	30.1	29.6	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	298	312	239	261	206	218	170	182	168	187	186	156	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	4.5	Not Detected	3.6	Not Detected	4.1	Not Detected	4.2	Not Detected	4.0	Not Detected	2.2	1.6	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.9	6.1	5.8	6.0	5.6	5.9	5.7	5.9	5.6	5.3	6.2	5.8	IS3025(P38)89Re.99
6	Salinity	ppt	35.2	35.7	36.4	37.3	35.9	36.6	36.7	37.5	37.1	37.8	34.8	34.5	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/L	3.64	3.83	4.7	4.97	4.98	5.12	6.24	6.47	4.76	4.56	7.8	5.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.31	0.24	1.23	1.42	1.14	1.28	0.93	1.40	0.57	0.69	1.1	0.8	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.69	3.81	3.83	4.10	3.26	3.17	2.50	2.37	1.92	1.72	3.1	1.9	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	2.41	2.62	1.76	2	1.89	2.3	1.62	1.48	1.36	1.58	1.43	2.24	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	7.64	7.88	9.76	10.49	9.38	9.57	9.67	10.24	7.25	6.97	4.3	2.8	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	15.0	Not Detected	13.0	Not Detected	15.0	Not Detected	17	Not Detected	19.8	Not Detected	15	10.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36624	37260	36928	37742	36371	37123	37638	38634	37994	38696	35602	35112	IS3025(P16)84Re.02
15	COD	mg/L	16.3	7.9	25	Not Detected	21	Not Detected	27	18	25.2	19	7	6.0	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	7.31	6.25	9.18	8.46	12.96	10	19.62	15.48	20.25	16.47	1.6	1.3	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	2.67	2.45	2.83	2.5	3.04	2.77	3.20	2.9	3.36	2.7	1.15	0.97	APHA (22ndEdi) 10200-H
17.2	Phaeophytin	mg/m^3	1.1	1.9	1.5	1.3	1.8	1.8	1.21	1.12	1.16	2.11	2.4	1.9	APHA (22ndEdi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	156	62	172	64	192	84	204	106	164	90	270	65	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Coscinodiscus sp. Rhizosolenia sp. Biddulphia sp. Thallasiosira sp.*	*Ceratium sp. Nitzschia sp. Fragillaria sp.* --	*Navicula sp. Coscinodiscus sp. Biddulphia sp. ceratium sp.* --	*Navicula sp. Rhizosolenia sp. Fragillaria sp.* -- --	*Navicula sp. Pleurosigma sp. Coscinodiscus sp. Fragillaria sp. Thallasionema sp.*	*Nitzschia sp. Melosira sp. Rhizosolenia sp. Biddulphia sp.* --	*Biddulphia sp. Coscinodiscus sp. Rhizosolenia sp. Cheatoceros sp.* --	*Nitzschia sp. Pleurosigma sp. Biddulphia sp.* -- --	*Melosira sp. cymbella sp Thallasiosira sp. Coscinodiscus sp.*	*Nitzschia sp. Rhizosolenia sp. Biddulphia sp. cymbella sp*	*Amphora sp. Cyclotella sp. Rhizosolenia sp. Navicula sp. Thallasionema sp. Coscinodiscus sp.*	*Biddulphia sp. Melosira sp. Rhizosolenia sp.* -- -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	55		59		53		43		47		18		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Polychaetes Copepods Mysids Decapods		Gastropods Copepods Crustaceans		Foraminiferans Copepods Polychaetes --		Foraminiferans Amphipods Decapods Gastropods		Polychaetes Decapods Chaetognathes		Polychaete worms Amphipods Gastrotriches Ostracods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	2.8		3.4		3		3.1		3.75		8.2		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2420		1740		2280		2140		2250		1940		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M8 RIGHT SIDE OF BOCHA CREEK N 22°45'987" E 069°43'119"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.28	8.20	8.23	8.16	8.17	8.09	8.20	8.15	8.26	8.10	8.34	8.28	IS3025(P11)83Re .02
2	Temperature	oC	30.3	30.9	30.0	29.8	29.8	29.3	29.9	29.6	30	29.7	29.8	29.4	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	272	312	182	203	190	212	246	271	201	219	206	178	IS3025(P17)84Re .02
4	BOD (3 Days @ 27 °C)	mg/L	4	Not Detected	3.6	Not Detected	4.2	Not Detected	4.5	Not Detected	4.2	Not Detected	3.4	2.8	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	5.8	6.0	5.7	6.0	5.7	5.9	5.7	5.8	5.6	5.4	6	5.6	IS3025(P38)89Re .99
6	Salinity	ppt	35.3	35.7	36.4	37.3	35.3	36.5	36.8	37.6	37.2	37.9	35.1	34.8	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22nd Edi)552 0D
8	Nitrate as NO_3	µmol/L	3.24	3.6	4.73	4.9	4.58	4.24	6.57	6.72	4.83	4.70	9.6	7.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.19	0.11	1.64	1.37	1.32	1.1	1.28	0.96	1.56	1.31	1.5	0.7	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.74	3.98	3.90	4.18	3.85	4.00	2.50	2.74	1.94	1.72	3.8	3.2	IS3025(P34)88Cla .2.3
11	Phosphates as PO_4	µmol/L	2.89	3.1	2.2	3.87	2.9	3.12	2.0	1.93	1.80	1.56	2.1	0.612	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	7.17	7.69	10.27	10.45	9.75	9.34	10.35	10.42	8.33	7.73	4.9	3.7	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	10.0	Not Detected	9.6	Not Detected	14	Not Detected	17	Not Detected	16	11.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36170	36902	37920	38756	36316	37908	37720	38450	38170	38724	35710	35470	IS3025(P16)84Re .02
15	COD	mg/L	18.0	7.6	24.0	Not Detected	21.0	Not Detected	25	17	27.2	18	14	10	APHA(22nd Edi) 5520-D Open Reflux
A	Flora and Fauna														
16	Primary productivity	mgC/L /day	8.43	6.4	9.72	8.5	13.68	12.0	18.90	15.75	19.89	16.38	2.43	0.74	APHA (22nd Edi) 10200-J
B	Phytoplankton														
17.1	Chlorophyll	mg/m^3	2.83	2.61	2.67	2.5	3	2.67	3.25	2.88	3.20	2.93	1.2	0.93	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	1.7	1.2	1.6	1.3	2.0	2.0	1.0	1.49	1.09	1.40	1.5	0.4	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	174	68	190	78	204	84	198	102	172	86	290	90	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Melosira sp. Coscinodiscus sp. Biddulphia sp. Thallasiosira sp.*	*Nitzschia sp. Rhizosolenia sp. Cyclotella sp.* --	*Navicula sp. Biddulphia sp. Cyclotella sp. Fragillaria sp.*	*Nitzschia sp. Rhizosolenia sp. Thallasionema sp.* --	*Nitzschia sp. Thallasionema sp. Coscinodiscus sp. Melosira sp.*	*Navicula sp. Pleurosigma sp. Rhizosolenia sp.* --	*Rhizosolenia sp. Cheatoceros sp. Coscinodiscus sp. Nitzschia sp.* --	*Nitzschia sp. Navicula sp. Thallasiosira sp.* -- --	*Melosira sp. Thallasiosira sp. Pleurosigma sp. Rhizosolenia sp. Ceratium sp.*	*Nitzschia sp. Biddulphia sp. Coscinodiscus sp.*	*Synedra sp. Skeletonema sp. Biddulphia sp. Navicula sp. Nitzschia sp.*	*Fragillaria sp. Nitzschia sp. Thallasiosira sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	61		59		53		42		47		21		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Chaetognathes Gastropods Polychaetes		Gastropods Crustaceans Copepods		Polychaetes Mysids Gastropods		Gastropods Polychaetes Amphipods Foraminiferans		Polychaetes Mysids Gastropods		Gastropods Polychaetes worms Bivalves Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	3.7		3.35		3.1		3.0		3.9		7.5		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2500		1920		2480		2320		2350		1650		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M8 RIGHT SIDE OF BOCHA CREEK – N 22°45'987" E 069°43'119"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019	NOVEMBER 2019	DECEMBER 2019	JANUARY 2020	FEBRUARY 2020	MARCH 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.73	0.76	0.69	0.71	0.57	0.7	FCO:2007
2	Phosphorus as P	µg/g	497	534	648	620	672	408	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	4.81	4.92	4.98	4.72	4.87	5.4	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	167	253	163	158	172	240	AAS 3111B
5.3	Manganese as Mn	µg/g	953	1026	916	930	963	1890	AAS APHA 3111 B
5.4	Iron as Fe	%	5.2	5.08	5.14	4.9	5.02	5.3	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	43.6	19.9	28	38	31	56.1	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	57.5	46.2	30	47	28	78.8	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	191	224	152	195	164	282	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	3.27	2.9	1.83	1.98	1.7	14.8	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaetes Sipunculids	Crustaceans Gastropods	Polychaetes Gastropods	Polychaetes Ostracods Branchyurans	Polychaetes Gastropods Crustaceans	Bivalves Mysids	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes Foraminiferans	Nematodes	Ostracods	Nematodes	–	Nematodes Copepods	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	762	733	645	794	676	294	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M11 MPT T1 JETTY N 22°42'278" E 069°43'450"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.22	8.16	8.17	8.10	8.14	8.02	8.26	8.16	8.25	8.21	8.15	8.1	IS3025(P11)83Re.02
2	Temperature	oC	30.3	30.7	30.1	29.9	29.8	29.2	29.9	29.5	30.1	29.8	30.3	29.8	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	364	381	210	248	224	239	182	170	194	216	310	238	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4.7	Not Detected	3.6	Not Detected	4.8	Not Detected	4.2	Not Detected	4.6	Not Detected	3.4	3.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.9	6.1	5.7	5.9	5.7	5.9	5.6	5.9	5.6	5.3	6.2	5.8	IS3025(P38)89Re.99
6	Salinity	ppt	35.4	35.8	36.8	37.3	35.4	36.1	36.9	37.8	37.3	37.9	35.7	35.2	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/L	3.57	3.85	4.29	4.56	4.64	4.3	6.27	6.48	5.16	4.87	15.7	10.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.23	0.31	1.12	1.9	1.29	1.1	0.84	0.72	0.69	0.60	2.2	1.6	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.70	3.91	3.84	3.97	3.90	3.85	2.57	2.40	1.98	1.74	1.7	1.4	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	2.23	2.64	2.72	3.81	2.83	3.12	1.83	1.71	1.67	1.48	1.2	0.9	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	7.50	8.07	9.25	10.43	9.83	9.25	9.68	9.60	7.83	7.21	2.38	2.25	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	15.0	Not Detected	11.0	Not Detected	15.0	Not Detected	13.2	Not Detected	15.2	Not Detected	20	8.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36916	37390	38280	38742	36151	36744	37820	38630	38184	38796	36792	36168	IS3025(P16)84Re.02
15	COD	mg/L	19.0	Not Detected	27	Not Detected	23	Not Detected	25	17	24	18	11	8.0	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	8.64	6.36	9.18	8.28	14.58	12.42	19.62	14.85	19.98	15.48	1.93	1.01	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	3	2.72	2.67	2.45	3.26	3.04	3.15	2.88	3.20	2.99	2.1	0.50	APHA (22ndEdi) 10200-H
17.2	Phaeophytin	mg/m^3	1.5	1.7	1.7	1.4	3.0	1.1	2.49	2.16	2.10	1.83	2.5	2.1	APHA (22ndEdi) 10200-H

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Lab Manager

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17.3	Cell Count	No. x 10^3/L	157	64	182	97	198	101	210	104	178	86	290	86	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Navicula sp. Nitzschia sp. Rhizosolenia sp. Coscinodiscus sp.*	*Nitzschia sp. Thallasiosira sp. Skeletonema sp. --*	*Nitzschia sp. Rhizosolenia sp. ceratium sp. Cheatoceros sp. Gyrosigma sp.*	*Fragillaria sp. Navicula sp. Synedra sp. Cyclotella sp. --*	*Skeletonema sp. Thallasionema sp. Coscinodiscus sp. Biddulphia sp. Navicula sp.*	*Navicula sp. Melosira sp. Amphipora sp. -- --*	*Skeletonema sp. Nitzschia sp. Rhizosolenia sp. Cheatoceros sp. --*	*Biddulphia sp. Pleurosigma sp. Nitzschia sp. -- --*	*Nitzschia sp. Skeletonema sp. cymbella sp Biddulphia sp. Fragillaria sp.*	*Nitzschia sp. Thallasiosira sp. Coscinodiscus sp. Cheatoceros sp.*	*Navicula sp. Rhizosolenia sp. Thallasiosira sp. Coscinodiscus sp. Skeletonema sp.*	*Navicula sp. Thallasiosira sp. Biddulphia sp. -- --*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	62		58		54		50		47		22		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Gastropods Polychaetes Ostracods		Crustaceans Gastropods Polychaetes		Gastropods Polychaetes Ctenophores		Polychaetes Foraminiferans Amphipods Gastropods		Ostracods Gastropods Polychaetes		Copepods Foraminiferans Ostracods Gastropods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	3.1		3.45		3.10		2.85		3.6		8.8		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2640		2140		2480		2320		2370		1760		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22nd Edi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M12 SPM N 22°40'938" E 069°39'191"]

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2019		NOVEMBER 2019		DECEMBER 2019		JANUARY 2020		FEBRUARY 2020		MARCH 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.18	8.19	8.12	8.20	8.13	8.25	8.12	8.24	8.2	8.02	7.88	IS3025(P11)83Re .02
2	Temperature	oC	30.3	30.7	30.2	29.9	29.9	29.5	29.9	29.7	30	29.7	29.4	29.1	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	348	365	268	287	216	240	172	197	183	209	290	256	IS3025(P17)84Re .02
4	BOD (3 Days @ 27°C)	mg/L	4	Not Detected	3.5	Not Detected	4.0	Not Detected	4.3	Not Detected	4.0	Not Detected	4.0	3.0	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	5.9	6.1	5.7	5.9	5.7	5.9	5.6	5.9	5.6	5.4	5.8	5.4	IS3025(P38)89Re .99
6	Salinity	ppt	35.5	35.6	36.7	37.2	36.5	36.9	36.9	37.8	37.2	37.9	36.1	35.7	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	APHA(22nd Edi)552 0D
8	Nitrate as NO_3	µmol/L	3.81	4.12	4.1	4.32	3.68	3.42	6.12	6.35	5.26	5.13	21.8	14.6	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.2	0.28	1.59	1.93	1.3	1.16	0.89	0.82	0.65	0.52	1.7	1.2	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.59	3.72	3.42	3.67	3.32	3.70	2.41	2.68	2.14	2.36	3.4	2.8	IS3025(P34)88Cla .2.3
11	Phosphates as PO_4	µmol/L	2.17	2.36	2.39	2.73	2.16	2.4	1.87	1.70	1.63	1.52	1.5	1.4	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	7.60	8.12	9.11	9.92	8.30	8.28	9.42	9.85	8.05	8.01	5.1	3.8	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	16.0	Not Detected	12.0	Not Detected	13.0	Not Detected	16	Not Detected	19	Not Detected	12	7	PLPL-TPH
14	Total Dissolved Solids	mg/L	36718	37098	38184	38654	37119	38132	37824	38647	37980	38728	36772	35986	IS3025(P16)84Re .02
15	COD	mg/L	18.0	Not Detected	23	Not Detected	26	Not Detected	25	19	27	18.3	12	10	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	8	6.79	9.72	8.28	14.85	13.59	18.72	16.02	19.35	15.30	2.47	0.74	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	2.99	2.50	2.61	2.56	3.09	2.93	3.20	2.99	3.25	3.09	2.2	1.02	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	2.2	2.0	1.1	2.0	1.5	1.1	1.84	1.91	1.27	1.72	1.6	1.2	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7

Dr. ArunBajpai

Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	196	78	190	82	206	94	210	116	172	98	224	75	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	*Navicula sp. Pleurosigma sp. Amphipora sp. Rhizosolenia sp.*	*Cyclotella sp. Cheatoceros sp. Nitzschia sp.* --	*Rhizosolenia sp. ceratium sp. Coscinodiscus sp. Pleurosigma sp.* --	*Navicula sp. Biddulphia sp. Synedra sp. Bacteriastum sp.* --	*Navicula sp. Rhizosolenia sp. Thallasionema sp. Pleurosigma sp. Ceratium sp.*	*Nitzschia sp. Melosira sp. Thallasiosira sp.* -- --	*Closteriu m sp. Skeletonema sp. Melosira sp. Biddulphia sp. Rhizosolenia sp.*	*Navicula sp. Thallasiosira sp. Fragillaria sp.* -- --	*Melosira sp. Biddulphia sp. Thallasiosira sp. Rhizosolenia sp. Coscinodiscus sp.*	*Nitzschia sp. Pleurosigma sp. Cheatoceros sp. Navicula sp.*	*Fragillaria sp. Peridiniu m Melosira sp. Thallasiosira sp. Skeletonema sp.*	*Melosira sp. Navicula sp. Nitzschia sp.* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	57		62		58		47		51		12		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Polychaetes Gastropods Mysids		Gastropods Nematodes Crustaceans		Copepods Chaetognathes Polychaetes		Amphipods Polychaetes Gastropods --		Ostracods Polychaetes Copepods		Foraminiferans Ctenophores Polychaetes Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	2.9		3.5		3.15		2.75		3.75		10.0		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	2350		1950		2180		2250		2250		1420		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22nd Edi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai

Lab Manager (Q)

RESULTS OF ETP WATER OUTLET

SR. NO.	PARAMETERS	UNIT	RESULTS OF ETP WATER OUTLET						GPCB Limit	TEST METHOD
			08/10/2019	11/05/2019	06/12/2019	--	--	--		
1	Colour	Co-pt	40	30	40	--	--	--	**100**	IS3025(P4)83Re.02
2	pH	--	6.91	8.05	7.21	--	--	--	**6.5 TO 8.5**	IS3025(P11)83Re.02
3	Temperature	°C	31.2	30.8	30.1	--	--	--	**40**	IS3025(P9)84Re.02
4	Total Suspended Solids	mg/L	59	82	68	--	--	--	**100**	IS3025(P17)84Re.02
5	Total Dissolved Solids	mg/L	1960	1681	2034	--	--	--	**2100**	IS3025(P16)84Re.02
6	COD	mg/L	98	88	84	--	--	--	**100**	APHA(22nd Edi) 5520-D Open Reflux
7	BOD (3 Days @ 27 °C)	mg/L	25	23	26	--	--	--	**30**	IS 3025 (P44)1993Re.03Edition2.1
8	Chloride as Cl	mg/L	579	419	570	--	--	--	**600**	IS3025(P32)88Re.99
9	Oil & Grease	mg/L	2.8	2.2	3.1	--	--	--	**10**	APHA(22nd Edi)5520D
10	Sulphate as SO_4	mg/L	448	411	536	--	--	--	**1000**	APHA(22nd Edi)4500 SO_4 E
11	Ammonical Nitrogen as NH_3	mg/L	6.24	7.5	5.18	--	--	--	**50**	IS3025(P34)88Cla.2.3
12	Phenolic Compound	mg/L	Not Detected	Not Detected	Not Detected	--	--	--	**1**	IS3025(P43)92Re.03
13	Copper as Cu	mg/L	Not Detected	Not Detected	Not Detected	--	--	--	**3**	AAS APHA(22nd Edi)3111 B
14	Lead as Pb	mg/L	Not Detected	Not Detected	Not Detected	--	--	--	**0.1**	AAS APHA(22nd Edi)3111 B
15	Sulphide as S	mg/L	1.3	1.28	1.2	--	--	--	**2**	APHA(22nd Edi) 4500-S
16	Cadmium as Cd	mg/L	Not Detected	Not Detected	Not Detected	--	--	--	**2**	AAS APHA(22nd Edi)3111 B
17	Fluoride as F	mg/L	0.6	0.52	0.46	--	--	--	**2**	APHA(22nd Edi) 4500 F D SPANDS

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI PORT – TUG BERTH 600 KL PUMP HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	02/10/2019	63.44	38.64	15.38	35.28	0.55	BDL*	BDL*
2	07/10/2019	82.62	50.26	22.45	30.36	0.72	BDL*	BDL*
3	09/10/2019	79.45	35.84	20.50	33.54	0.44	BDL*	BDL*
4	14/10/2019	84.30	33.41	16.56	36.51	0.66	BDL*	BDL*
5	16/10/2019	75.41	39.47	13.52	26.88	0.74	BDL*	BDL*
6	21/10/2019	61.44	34.65	17.56	23.46	0.42	BDL*	BDL*
7	23/10/2019	87.72	48.37	9.37	37.59	0.57	BDL*	BDL*
8	30/10/2019	71.55	43.55	21.45	40.26	0.33	BDL*	BDL*
9	31/10/2019	89.28	51.25	12.69	34.52	0.85	BDL*	BDL*
10	04/11/2019	90.58	48.37	14.34	29.57	0.74	BDL*	BDL*
11	06/11/2019	65.67	34.59	19.33	39.26	0.44	BDL*	BDL*
12	11/11/2019	82.37	43.29	16.16	36.21	0.77	BDL*	BDL*
13	13/11/2019	68.23	41.58	25.14	32.51	0.57	BDL*	BDL*
14	18/11/2019	79.34	38.50	20.22	24.62	0.81	BDL*	BDL*
15	20/11/2019	84.35	45.37	15.66	38.30	0.53	BDL*	BDL*
16	25/11/2019	76.31	36.26	17.55	42.62	0.36	BDL*	BDL*
17	27/11/2019	95.37	53.24	10.34	33.44	0.64	BDL*	BDL*
18	02/12/2019	88.61	46.58	16.55	35.68	0.52	BDL*	BDL*
19	04/12/2019	67.29	35.42	28.47	42.68	0.64	BDL*	BDL*
20	09/12/2019	71.53	31.22	19.36	39.48	0.39	BDL*	BDL*
21	11/12/2019	90.27	47.33	11.57	36.42	0.87	BDL*	BDL*
22	16/12/2019	76.64	36.34	13.49	32.47	0.68	BDL*	BDL*
23	18/12/2019	80.36	44.25	17.52	34.50	0.74	BDL*	BDL*
24	23/12/2019	75.49	39.25	20.53	43.57	0.48	BDL*	BDL*
25	25/12/2019	69.42	32.43	22.37	26.57	0.92	BDL*	BDL*
26	30/12/2019	82.32	42.33	18.56	37.51	0.78	BDL*	BDL*
27	01/01/2020	79.53	45.37	22.45	29.55	0.87	BDL*	BDL*
28	06/01/2020	90.55	53.49	18.62	34.61	1.01	BDL*	BDL*
29	08/01/2020	83.63	49.24	13.58	31.51	0.66	BDL*	BDL*
30	13/01/2020	73.47	40.25	17.37	42.31	0.53	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI PORT – TUG BERTH 600 KL PUMP HOUSE								
Sr.No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	15/01/2020	67.25	37.55	25.42	38.22	0.72	BDL*	BDL*
32	20/01/2020	92.44	52.70	10.26	32.44	0.94	BDL*	BDL*
33	22/01/2020	86.69	46.37	19.58	21.53	1.02	BDL*	BDL*
34	27/01/2020	78.37	41.33	23.50	27.21	0.76	BDL*	BDL*
35	29/01/2020	69.49	36.21	21.58	35.66	0.42	BDL*	BDL*
36	03/02/2020	63.54	28.47	20.23	37.57	0.93	BDL*	BDL*
37	05/02/2020	78.63	32.55	11.25	27.55	0.72	BDL*	BDL*
38	10/02/2020	86.50	47.58	23.51	38.35	0.44	BDL*	BDL*
39	12/02/2020	71.22	35.46	18.25	31.26	0.46	BDL*	BDL*
40	17/02/2020	90.36	41.87	21.24	34.56	0.84	BDL*	BDL*
41	19/02/2020	82.41	44.50	16.24	23.32	0.76	BDL*	BDL*
42	24/02/2020	75.36	39.59	8.45	29.34	0.62	BDL*	BDL*
43	26/02/2020	66.39	34.30	15.37	32.45	0.66	BDL*	BDL*
44	02/03/2020	90.29	48.66	23.49	41.32	0.52	BDL*	BDL*
45	04/03/2020	70.66	29.30	17.55	43.52	1.01	BDL*	BDL*
46	09/03/2020	83.62	43.54	22.29	29.36	0.82	BDL*	BDL*
47	11/03/2020	68.51	34.22	25.33	42.56	0.77	BDL*	BDL*
48	16/03/2020	80.65	44.33	18.30	28.57	0.96	BDL*	BDL*
49	18/03/2020	79.56	40.25	14.53	36.58	0.55	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob &Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR FIRE STATION								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	02/10/2019	89.36	42.82	10.36	20.86	0.47	BDL*	BDL*
2	07/10/2019	58.49	23.47	8.64	26.38	0.64	BDL*	BDL*
3	09/10/2019	69.29	46.24	17.44	29.39	0.31	BDL*	BDL*
4	14/10/2019	74.38	36.86	20.55	33.58	0.41	BDL*	BDL*
5	16/10/2019	60.55	24.30	9.51	18.91	0.19	BDL*	BDL*
6	21/10/2019	71.61	38.51	14.65	35.68	0.25	BDL*	BDL*
7	23/10/2019	64.31	20.25	11.69	23.43	0.44	BDL*	BDL*
8	30/10/2019	53.81	27.77	6.53	30.56	0.53	BDL*	BDL*
9	31/10/2019	62.48	40.08	15.40	28.48	0.62	BDL*	BDL*
10	04/11/2019	80.31	43.52	8.23	22.46	0.54	BDL*	BDL*
11	06/11/2019	91.56	50.36	22.78	36.46	0.27	BDL*	BDL*
12	11/11/2019	62.56	24.55	19.51	24.52	0.70	BDL*	BDL*
13	13/11/2019	81.23	44.61	9.42	28.42	0.50	BDL*	BDL*
14	18/11/2019	65.69	26.64	15.40	38.46	0.41	BDL*	BDL*
15	20/11/2019	73.59	39.39	11.22	21.96	0.65	BDL*	BDL*
16	25/11/2019	83.40	29.43	7.63	32.33	0.52	BDL*	BDL*
17	27/11/2019	67.32	21.68	14.53	25.70	0.48	BDL*	BDL*
18	02/12/2019	76.56	32.68	12.69	24.50	0.72	BDL*	BDL*
19	04/12/2019	61.36	28.39	10.64	37.27	0.55	BDL*	BDL*
20	09/12/2019	54.26	25.64	8.66	33.54	0.22	BDL*	BDL*
21	11/12/2019	83.44	38.48	15.61	30.53	0.49	BDL*	BDL*
22	16/12/2019	57.70	21.51	21.21	27.57	0.77	BDL*	BDL*
23	18/12/2019	75.24	37.52	9.54	24.21	0.47	BDL*	BDL*
24	23/12/2019	68.59	34.60	6.58	36.58	0.32	BDL*	BDL*
25	25/12/2019	59.35	23.64	16.63	42.13	0.61	BDL*	BDL*
26	30/12/2019	64.26	39.27	13.30	32.40	0.66	BDL*	BDL*
27	01/01/2020	74.31	39.23	8.61	20.56	0.63	BDL*	BDL*
28	06/01/2020	86.39	46.40	15.70	27.31	0.86	BDL*	BDL*
29	08/01/2020	71.53	34.23	11.62	22.41	0.80	BDL*	BDL*
30	13/01/2020	65.43	30.43	6.49	36.27	0.36	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR FIRE STATION								
Sr.No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
31	15/01/2020	59.35	25.47	10.21	31.54	0.61	BDL*	BDL*
32	20/01/2020	80.40	33.48	12.36	25.73	0.56	BDL*	BDL*
33	22/01/2020	78.35	42.31	17.50	35.69	0.71	BDL*	BDL*
34	27/01/2020	68.63	24.35	19.31	23.65	0.85	BDL*	BDL*
35	29/01/2020	53.63	27.64	7.50	17.37	0.24	BDL*	BDL*
36	03/02/2020	50.53	21.55	6.86	32.50	0.73	BDL*	BDL*
37	05/02/2020	63.47	27.51	9.66	19.59	0.53	BDL*	BDL*
38	10/02/2020	75.64	33.43	12.66	35.69	0.29	BDL*	BDL*
39	12/02/2020	62.48	29.26	7.65	15.50	0.68	BDL*	BDL*
40	17/02/2020	73.62	38.06	11.23	27.59	0.57	BDL*	BDL*
41	19/02/2020	65.88	41.23	14.19	20.37	0.39	BDL*	BDL*
42	24/02/2020	59.34	28.47	10.41	23.58	0.50	BDL*	BDL*
43	26/02/2020	71.59	25.47	13.52	26.52	0.70	BDL*	BDL*
44	02/03/2020	78.50	35.68	16.52	30.58	0.32	BDL*	BDL*
45	04/03/2020	65.54	21.34	13.57	24.42	0.85	BDL*	BDL*
46	09/03/2020	72.52	28.68	10.53	19.36	0.61	BDL*	BDL*
47	11/03/2020	84.36	45.65	12.69	17.56	0.80	BDL*	BDL*
48	16/03/2020	74.96	39.27	21.59	23.72	0.66	BDL*	BDL*
49	18/03/2020	66.04	36.56	6.59	32.57	0.76	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob &Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	02/10/2019	70.65	51.38	16.51	30.48	0.48	BDL*	BDL*
2	07/10/2019	51.32	18.68	13.59	17.51	0.45	BDL*	BDL*
3	09/10/2019	62.61	24.52	15.37	27.52	0.52	BDL*	BDL*
4	14/10/2019	58.72	30.28	10.69	21.54	0.27	BDL*	BDL*
5	16/10/2019	71.38	32.43	17.40	33.42	0.40	BDL*	BDL*
6	21/10/2019	67.70	26.42	7.65	26.37	0.22	BDL*	BDL*
7	23/10/2019	74.41	37.65	19.34	32.46	0.34	BDL*	BDL*
8	30/10/2019	59.47	33.48	8.61	24.60	0.39	BDL*	BDL*
9	31/10/2019	68.58	23.68	11.23	31.55	0.37	BDL*	BDL*
10	04/11/2019	60.78	33.61	19.22	37.54	0.32	BDL*	BDL*
11	06/11/2019	71.22	29.95	11.27	23.58	0.23	BDL*	BDL*
12	11/11/2019	54.61	25.66	13.39	32.47	0.49	BDL*	BDL*
13	13/11/2019	75.36	31.57	16.27	20.22	0.61	BDL*	BDL*
14	18/11/2019	86.32	35.44	8.59	16.65	0.37	BDL*	BDL*
15	20/11/2019	65.61	30.24	18.43	34.30	0.58	BDL*	BDL*
16	25/11/2019	70.67	34.57	9.60	26.50	0.42	BDL*	BDL*
17	27/11/2019	82.60	40.23	20.54	36.35	0.71	BDL*	BDL*
18	02/12/2019	81.66	42.61	21.29	38.32	0.63	BDL*	BDL*
19	04/12/2019	78.20	39.61	19.44	22.40	0.71	BDL*	BDL*
20	09/12/2019	68.46	29.32	12.69	28.43	0.57	BDL*	BDL*
21	11/12/2019	77.36	34.57	7.87	24.37	0.80	BDL*	BDL*
22	16/12/2019	64.51	26.41	15.69	35.45	0.54	BDL*	BDL*
23	18/12/2019	55.78	32.53	22.57	41.51	0.37	BDL*	BDL*
24	23/12/2019	62.47	28.49	14.52	23.54	0.25	BDL*	BDL*
25	25/12/2019	83.41	38.48	9.64	18.62	0.41	BDL*	BDL*
26	30/12/2019	70.69	31.57	11.52	30.45	0.50	BDL*	BDL*
27	01/01/2020	58.22	35.61	20.22	35.67	0.41	BDL*	BDL*
28	06/01/2020	60.54	38.53	10.66	31.69	0.57	BDL*	BDL*
29	08/01/2020	77.53	45.32	18.48	33.51	0.71	BDL*	BDL*
30	13/01/2020	61.55	27.66	13.58	20.55	0.27	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI HOUSE								
Sr. No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	15/01/2020	53.46	31.53	16.63	19.60	0.81	BDL*	BDL*
32	20/01/2020	72.61	34.53	7.61	23.42	0.88	BDL*	BDL*
33	22/01/2020	69.35	37.49	9.58	15.30	0.46	BDL*	BDL*
34	27/01/2020	56.40	28.53	15.65	30.36	0.60	BDL*	BDL*
35	29/01/2020	64.20	32.53	12.41	21.55	0.64	BDL*	BDL*
36	03/02/2020	57.64	25.41	15.67	25.30	0.33	BDL*	BDL*
37	05/02/2020	71.68	24.53	18.22	30.39	0.48	BDL*	BDL*
38	10/02/2020	64.31	30.28	8.68	15.62	0.24	BDL*	BDL*
39	12/02/2020	56.27	26.41	10.36	18.32	0.61	BDL*	BDL*
40	17/02/2020	61.57	33.57	14.16	23.41	0.40	BDL*	BDL*
41	19/02/2020	58.48	35.36	11.61	31.60	0.55	BDL*	BDL*
42	24/02/2020	70.27	31.53	6.86	20.43	0.71	BDL*	BDL*
43	26/02/2020	52.65	22.57	9.49	28.36	0.42	BDL*	BDL*
44	02/03/2020	70.22	32.20	21.22	26.44	0.47	BDL*	BDL*
45	04/03/2020	57.63	26.82	8.64	17.47	0.39	BDL*	BDL*
46	09/03/2020	77.00	35.69	19.32	38.32	0.56	BDL*	BDL*
47	11/03/2020	54.24	24.16	17.48	31.64	0.50	BDL*	BDL*
48	16/03/2020	66.18	31.53	12.67	35.63	0.34	BDL*	BDL*
49	18/03/2020	59.37	27.57	10.30	28.73	0.62	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob &Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

CT-3 RMU-2								
Sr.No.	Date of Sampling	Particulate Matter (PM10) $\mu g/m^3$	Particulate Matter (PM 2.5) $\mu g/m^3$	Sulphur Dioxide (SO2) $\mu g/m^3$	Oxides of Nitrogen (NO2) $\mu g/m^3$	Carbon Monoxide as CO mg/m^3	Hydrocarbon as CH_4 mg/m^3	Benzene as C_6H_6 $\mu g/m^3$
1	02/10/2019	76.32	45.31	19.40	27.69	0.36	BDL*	BDL*
2	07/10/2019	69.38	36.29	14.57	33.47	0.61	BDL*	BDL*
3	09/10/2019	74.38	39.27	6.41	36.56	0.71	BDL*	BDL*
4	14/10/2019	87.56	42.66	12.61	26.22	0.54	BDL*	BDL*
5	16/10/2019	91.33	50.32	15.66	21.69	0.29	BDL*	BDL*
6	21/10/2019	77.86	24.66	10.34	30.66	0.82	BDL*	BDL*
7	23/10/2019	82.40	44.65	17.61	39.58	0.48	BDL*	BDL*
8	30/10/2019	78.35	40.26	13.57	29.36	0.21	BDL*	BDL*
9	31/10/2019	92.49	47.22	22.42	40.22	0.73	BDL*	BDL*
10	04/11/2019	95.37	53.65	17.55	25.63	0.62	BDL*	BDL*
11	06/11/2019	83.66	46.19	13.52	28.58	0.93	BDL*	BDL*
12	11/11/2019	76.33	38.23	24.34	44.58	0.66	BDL*	BDL*
13	13/11/2019	86.27	49.23	18.73	36.45	0.40	BDL*	BDL*
14	18/11/2019	96.23	54.31	11.21	33.54	0.31	BDL*	BDL*
15	20/11/2019	79.31	41.28	21.28	40.28	0.78	BDL*	BDL*
16	25/11/2019	87.67	45.36	14.39	31.59	0.24	BDL*	BDL*
17	27/11/2019	93.29	48.61	16.56	43.49	0.55	BDL*	BDL*
18	02/12/2019	90.33	54.31	24.34	45.56	0.86	BDL*	BDL*
19	04/12/2019	82.33	44.52	21.26	40.60	0.44	BDL*	BDL*
20	09/12/2019	77.67	40.28	16.36	36.49	0.26	BDL*	BDL*
21	11/12/2019	95.44	50.27	20.59	39.58	0.60	BDL*	BDL*
22	16/12/2019	79.63	32.45	25.38	41.50	0.94	BDL*	BDL*
23	18/12/2019	86.93	47.27	19.60	28.62	0.69	BDL*	BDL*
24	23/12/2019	92.40	51.56	15.26	32.43	1.01	BDL*	BDL*
25	25/12/2019	88.42	45.36	12.52	37.51	0.34	BDL*	BDL*
26	30/12/2019	75.61	35.32	9.54	24.56	0.65	BDL*	BDL*
27	01/01/2020	85.62	48.36	17.60	24.70	0.77	BDL*	BDL*
28	06/01/2020	76.39	42.65	8.67	19.21	0.70	BDL*	BDL*
29	08/01/2020	90.30	54.39	21.54	39.27	0.97	BDL*	BDL*
30	13/01/2020	86.24	46.31	16.39	27.46	0.90	BDL*	BDL*

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

CT-3 RMU-2								
Sr.No.	Date of Sampling	Particulate Matter (PM10) µg/m^3	Particulate Matter (PM 2.5) µg/m^3	Sulphur Dioxide (SO2) µg/m^3	Oxides of Nitrogen (NO2) µg/m^3	Carbon Monoxide as CO mg/m^3	Hydrocarbon as CH_4 mg/m^3	Benzene as C_6H_6 µg/m^3
31	15/01/2020	77.85	41.53	19.50	34.54	0.49	BDL*	BDL*
32	20/01/2020	87.67	49.56	14.58	38.50	0.58	BDL*	BDL*
33	22/01/2020	91.54	52.35	12.37	31.22	0.38	BDL*	BDL*
34	27/01/2020	73.68	35.32	22.33	35.36	0.52	BDL*	BDL*
35	29/01/2020	80.63	44.65	15.29	29.63	0.29	BDL*	BDL*
36	03/02/2020	74.52	36.53	14.55	23.70	0.58	BDL*	BDL*
37	05/02/2020	91.53	52.52	20.17	33.64	0.81	BDL*	BDL*
38	10/02/2020	80.37	42.52	10.33	27.56	0.63	BDL*	BDL*
39	12/02/2020	77.64	39.53	12.40	25.41	0.78	BDL*	BDL*
40	17/02/2020	83.49	45.36	16.32	30.32	0.32	BDL*	BDL*
41	19/02/2020	70.36	37.49	18.44	28.44	0.25	BDL*	BDL*
42	24/02/2020	82.46	49.27	11.99	34.50	0.45	BDL*	BDL*
43	26/02/2020	76.30	38.23	7.63	17.58	0.64	BDL*	BDL*
44	02/03/2020	85.34	43.52	19.52	33.74	0.73	BDL*	BDL*
45	04/03/2020	76.27	38.61	11.25	28.32	0.63	BDL*	BDL*
46	09/03/2020	69.57	32.65	13.54	21.31	0.95	BDL*	BDL*
47	11/03/2020	79.44	42.57	16.46	26.36	0.69	BDL*	BDL*
48	16/03/2020	88.68	47.19	20.35	31.60	0.53	BDL*	BDL*
49	18/03/2020	72.68	31.53	8.61	14.52	0.86	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob &Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	ADANI PORT – TUG BERTH 600 KL PUPM HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	24/10/2019	25/11/2019	06/12/2019	17/01/2020	24/02/2020	13/03/2020
1	6:00-7:00	67.2	65.9	66.4	60.8	63.2	62.1
2	7:00-8:00	73.2	68.3	62.2	67.3	67.2	68.4
3	8:00-9:00	70.2	62.7	61.3	64.2	69.3	72.1
4	9:00-10:00	68.9	67.0	64.3	61.2	66.1	74.1
5	10:00-11:00	66.4	72.2	67.2	67.3	69.8	68.4
6	11:00-12:00	70.1	71.6	63.1	70.3	65.3	65.4
7	12:00-13:00	65.5	68.3	65.6	68.4	67.4	68.3
8	13:00-14:00	62.1	63.5	63.2	67.3	62.9	63.1
9	14:00-15:00	67.7	65.8	67.3	63.2	64.1	61.3
10	15:00-16:00	63.3	68.8	63.2	66.6	61.6	67.3
11	16:00-17:00	60.3	62.1	66.1	68.3	66.5	65.3
12	17:00-18:00	68.2	62.9	69.4	65.3	69.5	68.1
13	18:00-19:00	62.1	69.3	66.2	61.9	65.2	65.5
14	19:00-20:00	66.2	63.2	65.9	65.3	62.4	63.2
15	20:00-21:00	62.5	67.5	65.3	68.9	66.3	67.7
16	21:00-22:00	67.3	65.5	62.1	65.3	63.2	64.2
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	ADANI PORT – TUG BERTH 600 KL PUPM HOUSE					
		Result [Leq dB(A)]					
1	Sampling Date & Time	24/10/2019	25/11/2019	06/12/2019	17/01/2020	24/02/2020	13/03/2020
2	22:00-23:00	68.2	64.2	63.9	65.5	60.5	66.3
3	23:00-00:00	65.3	62.1	68.4	66.5	66.3	64.2
4	00:00-01:00	62.4	67.7	64.2	64.1	63.4	60.2
5	01:00-02:00	69.3	69.4	62.8	63.4	67.5	60.7
6	02:00-03:00	66.3	68.4	67.8	65.1	67.0	64.2
7	03:00-04:00	67.5	66.8	64.8	61.8	66.3	62.1
8	04:00-05:00	69.3	64.7	67.4	62.4	62.3	65.3
9	05:00-06:00	68.4	67.3	65.3	61.4	67.4	62.5
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	NEAR FIRE STATION					
		Result [Leq dB(A)]					
	Sampling Date & Time	18/10/2019	20/11/2019	18/12/2019	10/01/2020	12/02/2020	--
1	6:00-7:00	67.4	67.3	63.2	63.2	65.3	--
2	7:00-8:00	68.1	64.2	67.3	68.5	68.3	--
3	8:00-9:00	62.3	62.1	69.5	70.3	71.2	--
4	9:00-10:00	66.1	65.9	71.5	64.2	63.2	--
5	10:00-11:00	61.3	73.2	65.6	63.9	62.1	--
6	11:00-12:00	66.8	70.4	67.3	69.5	66.5	--
7	12:00-13:00	64.4	66.4	63.7	67.3	69.3	--
8	13:00-14:00	69.4	69.4	67.4	64.2	65.3	--
9	14:00-15:00	67.2	64.1	72.9	63.8	71.4	--
10	15:00-16:00	68.4	69.7	71.3	69.4	67.5	--
11	16:00-17:00	65.5	65.3	64.8	67.3	66.3	--
12	17:00-18:00	62.1	63.8	69.5	63.5	65.1	--
13	18:00-19:00	68.3	67.4	65.6	65.5	68.5	--
14	19:00-20:00	65.2	66.9	67.3	69.4	66.2	--
15	20:00-21:00	68.1	69.4	63.2	65.3	62.4	--
16	21:00-22:00	69.3	64.9	62.3	64.2	65.7	--
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	NEAR FIRE STATION					
		Result [Leq dB(A)]					
1	Sampling Date & Time	18/10/2019	20/11/2019	18/12/2019	13/01/2020	12/02/2020	--
2	22:00-23:00	66.3	66.8	68.3	53.4	65.3	--
3	23:00-00:00	62.2	62.1	66.4	56.1	62.8	--
4	00:00-01:00	65.9	68.4	62.9	50.2	60.4	--
5	01:00-02:00	69.4	64.2	68.4	52.7	66.4	--
6	02:00-03:00	69.8	62.5	68.9	57.4	68.4	--
7	03:00-04:00	66.1	65.5	69.2	60.4	64.2	--
8	04:00-05:00	61.5	68.8	61.9	60.8	68.6	--
9	05:00-06:00	65.3	62.2	66.9	61.8	65.4	--
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	ADANI HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	02/10/2019	22/11/2019	02/12/2019	22/01/2020	05/02/2020	04/03/2020
1	6:00-7:00	64.2	64.2	65.3	66.3	65.3	64.8
2	7:00-8:00	68.4	67.9	64.8	68.3	67.8	67.4
3	8:00-9:00	74.2	70.3	68.2	69.2	62.1	70.2
4	9:00-10:00	67.3	64.1	70.2	65.2	68.3	68.2
5	10:00-11:00	70.2	66.8	69.5	63.6	65.3	65.2
6	11:00-12:00	71.3	69.4	67.3	66.2	68.3	62.3
7	12:00-13:00	65.3	71.3	63.2	61.3	67.6	67.4
8	13:00-14:00	68.2	65.3	66.7	67.4	70.4	63.2
9	14:00-15:00	63.1	63.8	67.2	64.6	65.3	61.3
10	15:00-16:00	61.4	68.5	71.2	70.3	64.1	67.3
11	16:00-17:00	64.2	68.8	69.2	65.3	62.9	69.4
12	17:00-18:00	68.4	64.3	64.2	63.5	66.3	72.2
13	18:00-19:00	68.1	63.2	62.4	68.3	64.2	67.3
14	19:00-20:00	66.4	62.7	65.3	70.2	67.4	65.3
15	20:00-21:00	69.8	65.5	68.3	67.5	64.3	63.1
16	21:00-22:00	63.2	67.5	64.2	66.9	65.7	65.3
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	ADANI HOUSE					
		Result [Leq dB(A)]					
1	Sampling Date & Time	02/10/2019	22/11/2019	02/12/2019	22/01/2020	05/02/2020	04/03/2020
2	22:00-23:00	69.4	67.4	65.3	66.2	68.3	67.4
3	23:00-00:00	64.2	64.3	68.3	63.4	65.3	64.2
4	00:00-01:00	62.1	65.4	63.9	63.2	67.2	60.3
5	01:00-02:00	60.4	64.1	68.5	62.2	60.3	65.3
6	02:00-03:00	65.5	61.6	64.3	65.3	62.6	66.1
7	03:00-04:00	68.5	66.9	62.1	60.3	58.4	63.2
8	04:00-05:00	67.4	64.7	64.3	58.3	60.3	61.5
9	05:00-06:00	63.2	65.1	62.6	60.2	63.1	64.3
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	CT-3 RMU-2					
		Result [Leq dB(A)]					
	Sampling Date & Time	14/10/2019	27/11/2019	20/12/2019	22/01/2020	07/02/2020	20/03/2020
1	6:00-7:00	64.2	67.4	60.4	58.3	62.4	61.2
2	7:00-8:00	68.4	64.3	67.3	60.4	67.4	65.2
3	8:00-9:00	73.2	71.7	63.2	64.2	60.3	67.4
4	9:00-10:00	69.3	67.9	62.3	68.3	63.4	69.6
5	10:00-11:00	66.2	69.4	69.5	64.4	68.2	66.4
6	11:00-12:00	62.9	63.5	65.2	69.5	66.3	63.1
7	12:00-13:00	69.5	65.3	63.7	66.2	63.2	61.8
8	13:00-14:00	65.5	63.2	70.2	62.4	65.2	68.4
9	14:00-15:00	62.2	61.8	68.3	69.4	68.5	64.2
10	15:00-16:00	65.8	67.4	67.1	65.3	64.2	66.9
11	16:00-17:00	68.2	64.3	62.8	64.5	67.3	68.5
12	17:00-18:00	68.9	66.7	67.7	68.4	62.1	63.2
13	18:00-19:00	64.2	65.4	63.3	65.2	65.7	69.5
14	19:00-20:00	62.1	69.8	64.2	62.5	69.3	65.2
15	20:00-21:00	67.1	65.1	62.8	67.4	67.7	62.1
16	21:00-22:00	69.3	62.4	67.8	64.5	62.3	65.8
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	CT-3 RMU-2					
		Result [Leq dB(A)]					
1	Sampling Date & Time	14/10/2019	27/11/2019	20/12/2019	22/01/2020	07/02/2020	20/03/2020
2	22:00-23:00	62.1	67.2	65.9	65.2	64.3	65.3
3	23:00-00:00	65.3	62.1	68.4	60.4	68.6	63.1
4	00:00-01:00	68.3	68.3	64.7	61.4	60.3	60.4
5	01:00-02:00	68.3	63.2	67.5	60.8	58.8	58.2
6	02:00-03:00	60.2	66.9	62.9	60.7	59.3	62.3
7	03:00-04:00	62.2	62.3	69.5	58.4	62.4	60.3
8	04:00-05:00	65.1	68.9	65.7	62.4	61.7	62.2
9	05:00-06:00	61.3	62.9	62.8	60.3	64.4	60.4
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF STACK MONITORING

SR. NO.	TEST PARAMETERS	UNIT	STD. LIMIT	THERMIC FLUID HEATER (BITUMEN-01)	THERMIC FLUID HEATER (BITUMEN-02)	HOT WATER SYSTEM-1	HOT WATER SYSTEM-2	TEST METHOD
					OCTOBER 2019			
1	Particulate Matter	mg/Nm^3	**150**	15.51	--	--	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	5.63	--	--	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	30.65	--	--	--	IS:11255 (Part-VII):2005
					NOVEMBER 2019			
1	Particulate Matter	mg/Nm^3	**150**	21.53	--	--	25.75	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	4.09	--	--	5.64	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	32.41	--	--	37.46	IS:11255 (Part-VII):2005
					DECEMBER 2019			
1	Particulate Matter	mg/Nm^3	**150**	--	14.80	--	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	--	3.62	--	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	--	31.70	--	--	IS:11255 (Part-VII):2005
					JANUARY 2020			
1	Particulate Matter	mg/Nm^3	**150**	23.74	--	25.61	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	3.57	--	5.82	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	35.33	--	36.72	--	IS:11255 (Part-VII):2005
					FEBRUARY 2020			
1	Particulate Matter	mg/Nm^3	**150**	--	18.72	--	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	--	2.64	--	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	--	28.33	--	--	IS:11255 (Part-VII):2005
					MARCH 2020			
1	Particulate Matter	mg/Nm^3	**150**	--	24.34	--	18.61	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	--	2.89	--	5.47	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	--	23.64	--	30.63	IS:11255 (Part-VII):2005

*Below detection limit
Results on 11 % O_2 Correction when Oxygen is greater than 11 %. And 12% CO_2correction when $CO_2$is less thsn 12%

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF D.G. STACK MONITORING

			07/10/2019	07/10/2019	07/10/2019		
SR. NO.	TEST PARAMETERS	Unit	Adani Port			GPCB Limit	Test Method
			D.G. Set-1 (500 KVA)	D.G. Set-2 (500 KVA)	D.G. Set-3 (500 KVA)		
1	Particulate Matter	mg/Nm^3	16.82	14.38	12.56	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	5.49	3.92	7.44	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	34.34	31.84	35.74	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	8.7	8.6	6.3	Not Specified	Digital Gas Analyzer
5	Hydro Carbon NMHC	ppm	Not Detected	Not Detected	Not Detected	Not Specified	Gas Chromatography

*DG sets are used as standby, so stack monitoring is done on quarterly basis. Results on 15 % O2 Correction when Oxygen is greater than 15 %

			07/10/2019	07/10/2019	11/02/2020		
SR. NO.	TEST PARAMETERS	Unit	Adani Port			GPCB Limit	Test Method
			D.G. Set-4 (500 KVA)	D.G. Set-5 (500 KVA)	D.G. Set -6, 7 & 8 (1250 KVA, each)		
1	Particulate Matter	mg/Nm^3	10.51	13.84	14.25	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	4.41	5.51	6.41	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	36.81	30.52	35.86	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	5.2	5.1	--	Not Specified	Digital Gas Analyzer
5	Hydro Carbon NMHC	ppm	Not Detected	Not Detected	--	Not Specified	Gas Chromatography

*DG sets are used as standby, so stack monitoring is done on quarterly basis. Results on 15 % O2 Correction when Oxygen is greater than 15 %

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

			26/02/2020	26/02/2020	26/02/2020		
SR. NO.	TEST PARAMETERS	Unit	CT-4			GPCB Limit	Test Method
			D.G. Set-1 (1500 KVA)	D.G. Set-2 (1500 KVA)	D.G. Set-3 (1500 KVA)		
1	Particulate Matter	mg/Nm^3	28.41	19.82	23.27	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	6.55	5.36	7.69	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	32.88	30.78	36.72	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	--	--	--	Not Specified	Digital Gas Analyzer
5	Hydro Carbon NMHC	ppm	--	--	--	Not Specified	Gas Chromatography

*DG sets are used as standby, so stack monitoring is done on quarterly basis. Results on 15 % O2 Correction when Oxygen is greater than 15 %

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

Minimum Detection Limit [MDL]

Ambient Air Parameters		
Sr. No.	**Test Parameter**	**MDL**
1	Particulate Matter (PM10) (µg/m^3)	10
2	Particulate Matter (PM 2.5) (µg/m^3)	10
3	Sulphur Dioxide (SO_2) (µg/m^3)	5
4	Oxides of Nitrogen (µg/m^3)	5
5	Hydrogen Sulphide as H_2S (µg/m^3)	6

Stack Parameters		
Sr.No.	**Test Parameter**	**MDL**
1	Particulate Matter (mg/Nm^3)	10
2	Sulphur Dioxide (ppm)	1.52
3	Oxides of Nitrogen (ppm)	2.65
4	Carbon Monoxide (mg/Nm^3)	0.1
5	Haydro Carbon NMHC (ppm)	1.0

Sea Water Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	pH	--	2
2	Temperature	°C	2
3	Total Suspended Solids	mg/L	2
4	BOD (3 Days @ 27 °C)	mg/L	1
5	Dissolved Oxygen	mg/L	0.1
6	Salinity	ppt	1
7	Oil & Grease	mg/L	2
8	Nitrate as NO_3	µmol/L	0.5
9	Nitrite as NO_2	µmol/L	0.01
10	Ammonical Nitrogen as NH_3	µmol/L	0.2
11	Phosphates as PO_4	µmol/L	0.5
12	Petroleum Hydrocarbon	µg/L	1
13	Total Dissolved Solids	mg/L	10
14	COD	mg/L	3
15	Primary productivity	mgC/L/day	0.1
16	Chlorophyll	mg/m^3	0.1
17	Phaeophytin	mg/m^3	0.1
18	Cell Count	No. x 10^3/L	1

Sea Sediment Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	Organic Matter	%	0.1
2	Phosphorus as P	µg/g	1
3	Petroleum Hydrocarbon	µg/g	1
4	Aluminum as Al	%	0.1
5	Manganese as Mn	µg/g	1
6	Mercury as Hg	µg/g	0.1

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

STP Water parameter(mg/L)		
Sr. No.	**Test parameter**	**MDL**
1	pH	2
2	Total Suspended Solids (mg/L)	2
3	BOD (3 days @ 270 C) (mg/L)	1
4	Residual Chlorine (mg/L)	0.2
5	Fecal Coliform (MPN INDEX/100 mL)	1.8

ETP Water Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	Colour	Co-pt	2
2	pH	--	2
3	Temperature	^{o}C	2
4	Total Suspended Solids	mg/L	2
5	Total Dissolved Solids	mg/L	10
6	COD	mg/L	3
7	BOD (3 Days @ 27 ^{o}C)	mg/L	1
8	Chloride as Cl	mg/L	1
9	Oil & Grease	mg/L	2
10	Sulphate as SO_4	mg/L	1
11	Ammonical Nitrogen as NH_3	mg/L	0.2
12	Phenolic Compound	mg/L	0.005
13	Copper as Cu	mg/L	0.01
14	Lead as Pb	mg/L	0.01
15	Sulphide as S	mg/L	0.1
16	Cadmium as Cd	mg/L	0.002
17	Fluoride as F	mg/L	0.05

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"

FOR

BORE HOLE WATER
ADANI PORTS AND SPECIAL ECONOMIC ZONE LIMITED
TAL: MUNDRA, KUTCH, MUNDRA – 370 421

MONITORING PERIOD:
OCTOBER 2019 TO MARCH 2020

PREPARED BY:

POLLUCON LABORATORIES PVT.LTD.

**PLOT NO.5/6 "POLLUCON HOUSE", OPP. BALAJI INDUSTRIAL SOCIETY,
OLD SHANTINATH SILK MILL LANE, NEAR GAYTRI FARSAN MART,
NAVJIVAN CIRCLE, UDHANA MAGDALLA ROAD, SURAT-395007.
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E-mail: pollucon@gmail.com Web: www.polluconlab.com**

TC - 5945 ISO 9001:2015 ISO 14001:2015 OHSAS 18001:2007

RESULTS OF BORE HOLE WATER

SR. NO	TEST PARAMETERS	UNIT	RESULTS			TEST METHOD
			PUMP HOUSE-1	PUMP HOUSE-2	PUMP HOUSE-3	
	Sampling Date		06/12/2019	06/12/2019	06/12/2019	
1	pH	--	7.84	7.78	7.87	IS3025(P11)83Re.02
2	Salinity	ppt	5.60	1.72	1.8	APHA 2520B
3	Oil & Grease	mg/L	Not Detected	Not Detected	1.8	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	Not Detected	Not Detected	Not Detected	GC/GC-MS
5	Lead as Pb	mg/L	0.058	0.062	0.072	AAS APHA(22ndEdi)3111 B
6	Arsenic as As	mg/L	Not Detected	Not Detected	Not Detected	AAS APHA 3114 B
7	Nickel as Ni	mg/L	Not Detected	Not Detected	Not Detected	AAS APHA(22ndEdi)3111 B
8	Total Chromium as Cr	mg/L	Not Detected	Not Detected	Not Detected	AAS 3111B
9	Cadmium as Cd	mg/L	Not Detected	0.036	0.038	AAS APHA(22ndEdi)3111 B
10	Mercury as Hg	mg/L	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
11	Zinc as Zn	mg/L	Not Detected	2.31	0.42	AAS APHA(22ndEdi)3111 B
12	Copper as Cu	mg/L	Not Detected	Not Detected	Not Detected	AAS APHA(22ndEdi)3111 B
13	Iron as Fe	mg/L	4.28	5.44	2.70	AAS APHA(22ndEdi)3111 B
14	Insecticides/Pesticides	mg/L	Absent	Absent	Absent	GC/GC-MS
15	Depth of Water Level from Ground Level	meter	1.9	2.05	1.8	--

*BDL: Below Detection Limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

SR. NO	TEST PARAMETERS	UNIT	RESULTS		TEST METHOD
			NEAR ETP OFFICE	NEAR CONTROL ROOM	
	Sampling Date		06/12/2019	06/12/2019	
1	pH	--	7.89	7.81	IS3025(P11)83Re.02
2	Salinity	ppt	14	6.4	APHA 2520B
3	Oil & Grease	mg/L	2.83	Not Detected	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	Not Detected	Not Detected	GC/GC-MS
5	Lead as Pb	mg/L	0.052	0.062	AAS APHA(22ndEdi)3111 B
6	Arsenic as As	mg/L	Not Detected	Not Detected	AAS APHA 3114 B
7	Nickel as Ni	mg/L	Not Detected	Not Detected	AAS APHA(22ndEdi)3111 B
8	Total Chromium as Cr	mg/L	Not Detected	Not Detected	AAS 3111B
9	Cadmium as Cd	mg/L	Not Detected	Not Detected	AAS APHA(22ndEdi)3111 B
10	Mercury as Hg	mg/L	Not Detected	Not Detected	AAS APHA- 3112 B
11	Zinc as Zn	mg/L	0.087	3.26	AAS APHA(22ndEdi)3111 B
12	Copper as Cu	mg/L	Not Detected	Not Detected	AAS APHA(22ndEdi)3111 B
13	Iron as Fe	mg/L	0.32	5.7	AAS APHA(22ndEdi)3111 B
14	Insecticides/Pesticides	mg/L	Absent	Absent	GC/GC-MS
15	Depth of Water Level from Ground Level	meter	2.1	2.1	--

*BDL: Below Detection Limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7

Dr. Arun Bajpai
Lab Manager (Q)

Borehole Water Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	pH	--	2
2	Salinity	mg/L	0.5
3	Oil & Grease	mg/L	2
4	Hydrocarbon	mg/L	0.01
5	Lead as Pb	mg/L	0.01
6	Arsenic as As	mg/L	0.001
7	Nickel as Ni	mg/L	0.02
8	Total Chromium as Cr	mg/L	0.025
9	Cadmium as Cd	mg/L	0.002
10	Mercury as Hg	mg/L	0.005
11	Zinc as Zn	mg/L	0.06
12	Copper as Cu	mg/L	0.01
13	Iron as Fe	mg/L	0.1
14	Insecticides/Pesticides	mg/L	0.1

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

Annexure – 2

Chiragsing Rajput

From: Chiragsing Rajput
Sent: Monday, April 6, 2020 6:14 PM
To: 'ro-gpcb-kute@gujarat.gov.in'; rowz.bpl-mef@nic.in; mefcc.ia3@gmail.com; monitoring-ec@nic.in; 'ms-gpcb@gujarat.gov.in'
Cc: Shalin Shah; Azharuddin Kazi; Vivek Gundraniya; Kripa Shah; Mahendra Kumar Ghritlahre (Mahendra.Ghritlahare@adani.com); Ashvin Kumar Patni; Dhanesh Tank
Subject: Intimation Letter_Stoppage of Environment Monitoring due to COVID-19_APSEZ, Mundra
Attachments: Letter_Stoppage of Envionmental Monitoring due to COVID-19.pdf

Dear Sir,

Please find attached intimation letter w.r.t. stoppage of environmental monitoring within Adani Ports & SEZ Limited, Mundra, Kutch (Gujarat) since 23rd March, 2020 considering COVID-19 Pandemic lockdown.

So kindly consider this submission and oblige.

Thanks & Regards,
Chiragsing Rajput
Environment Cell | Adani Ports & Special Economic Zone Ltd.
Mob +91 96876 78443 | Ext: 52132 | chiragsing.rajput@adani.com | www.adani.com
Adani House, 1st Floor, P.O. Box 1, Mundra 370 421, Gujarat, India.

APSEZL/EnvCell/2020-21/001 Date: 06.04.2020

To,

Regional Officer,

Regional Office – East Kutch

Gujarat Pollution Control Board,

Gandhidham – 370201.

Subject: Intimation for stoppage of environmental monitoring within APSEZ, Mundra (Kutch, Gujarat) during COVID – 19 Pandemic lockdown.

Ref.: Regulatory Permission obtained by APSEZ, Mundra (Kutch, Gujarat) as per attached **Annexure – 1**.

Dear Sir,

With reference to above stated subject, we would like intimate you that, in compliance to various regulatory permissions granted by MoEF&CC / SEIAA as well as SPCB for various project, M/s. Adani Ports and SEZ Limited, Mundra (Kutch, Gujarat) has been regularly carrying out post environment clearance, monitoring (environmental attributes viz. Air, Water, Noise, Soil, Marine etc.) through NABL accredited / MoEF recognized laboratory and same is being reported/submitted to regulatory body periodically.

However, considering the current scenario of COVID – 19 Pandemic lockdown, we were forced to stop the Environmental Monitoring from 23rd March, 2020 and same shall be restarted after completion of this lockdown period and/or when the condition is normalized (as directed by district administration/State/Central Govt.). The date of restart of Environment Monitoring, shall be communicated to your good office.

Kindly consider our above submission and oblige.

Thanks & Regards

For, Adani Ports and Special Economic Zone Limited

Shalin Shah

(Head – Environment)

CC To:

1. Member Secretary, GPCB – Head Office, Paryavaran Bhavan, Sector 10 A, Gandhi Nagar – 382 010
2. APCCF, Regional Office (WZ), MoEF&CC, Regional Office (WZ), E-5, Kendriya Paryavaran Bhawan, Arera Colony, Link Road No. – 3, Bhopal – 462 016
3. The Director (IA Division), Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003

Adani Ports and Special Economic Zone Ltd
Adani House,
PO Box No. 1
Mundra, Kutch 370 421
Gujarat, India

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
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ANNEXURE – 1

REGULATORY PERMISSIONS

Sr. No.	Permission for	Ref. No. & Dated
Environmental / CRZ clearance from MoEF&CC / SEIAA		
1.	Handling facility of General Cargo / LPG /Chemicals and their storage terminal	F. No. J-16011/13/95-IA.III, 25th August, 1995
2.	Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities	F. No. J-16011/40/99-IA.III, 20th September, 2000
3.	Single Point Mooring (SPM), Crude Oil Terminal (COT) and connecting pipes	F. No. J-16011/30/2003-IA-III, 21st July, 2004
4.	Development of Multipurpose berth (Terminal- 2)	F. No. 11-84/2006- IA.III, 5th February, 2007
5.	Water Front Development Project	F. No. 10-47/2008- IA.III, 12th & 19th January, 2009, 7th October, 2015
6.	Township and area development project	Letter No. SEIAA/GUJ/EC/8(b)/44 /2010, 20th February, 2010
7.	Establishment of Common Effluent Treatment Plant (CETP) of 17 MLD	Letter no. SEIAA/GUJ/EC/7(h)/43/2010, 20th February, 2010
8.	Multi Product SEZ, Desalination, Sea Water Intake, Outfall Facility and Pipeline	F. No. 10-138/2008-IA.III, 15th July, 2014
Consent to Operate from SPCB		
1.	Mundra Port Terminal **(PCB ID: 17739)** for handling, storage and distribution of Dry, Liquid and Containerized Cargo	Order No. AWH-83561, Dated 09.02.2017
2.	WFDP – West Port **(PCB ID: 35427)** for Dry cargo handling	Order No. AWH-79241, Dated 28.07.2016
3.	SPM and Pipeline for Crude Oil Terminal **(PCB ID: 37436)**	Order No. WH-86980, Dated 30.08.2017
4.	Multi Product SEZ **(PCB ID: 31463)**	Order No. AWH-88998, Dated 23.11.2017
5.	MUPL – CETP **(PCB ID: 10605)** for 2.5 MLD Capacity	Order No. AWH-79311, Dated 29.07.2016
6.	AMSIPL **(PCB ID: 10602)** for township and area development	Order No. AWH-89533, Dated 05.12.2017
7.	APSEZ, Residential colony **(PCB ID: 17738)** for STPs (350 + 250 KLD) & RO Plant (10 KLPH)	Order No. AWH-81075, Dated 12.09.2016
8.	MLPTPL **(PCB ID: 53331)** for handling, storage and distribution of LPG	Order No. AWH-103906, Dated 09.11.2019

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PO Box No. 1
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Gujarat, India

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www.adani.com

Annexure – 3

Details of Greenbelt Development at APSEZ, Mundra

LOCATION	Total Green Zone Detail Till Up to March - 2020				
	Area (In Ha.)	Trees (Nos.)	Palm (Nos.)	Shrubs (SQM)	Lawn (SQM)
SV COLONY	66.40	29592	7072	67187.00	92019.00
PORT & NON SEZ	81.38	146692	19220	75061.78	61982.38
SEZ	116.60	227120	20489	220583.60	28162.03
MITAP	2.48	8168	33	3340.00	4036.00
WEST PORT	94.35	206772	63331	24112.00	22854.15
AGRI PARK	8.94	17244	1332	5400.00	2121.44
SOUTH PORT	14.45	27530	3470	3882.00	3327.26
Samudra Township	56.03	53922	11834	20908.89	47520.07
Productive Farming (Vadala Farm)	23.79	27976	--	--	--
TOTAL (APSEZL)	**464.40**	**745016**	**126781.00**	**420475.27**	**262022.33**
	Total Saplings	***871797***			

Details of Mangrove Afforstation done by APSEZ

Sl. no.	Location	Area (ha)	Duration	Species	Implementation agency
1	Mundra Port	24.0	-	Avicennia marina	Dr. Maity, Mangrove consultant of India
2	Mundra Port	25.0	-	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)	298.0	2011 - 2013	Avicennia marina	-
6	Jangi Village (Bhachau, Kutch)	50.0	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)	255.0	2014-15 & 2016-17	Avicennia marina & Bio diversity	GUIDE, Bhuj
9	Dandi Village (Navsari)	800.0	2006 - 2011	Avicennia marina, Rhizophora mucronata, Ceriops tagal	SAVE, Ahmedabad
10	Talaza Village (Bhavnagar)	50.0	2011-12	Avicennia marina	SAVE, Ahmedabad
11	Narmada Village (Bhavnagar)	250.0	2014 - 2015	Avicennia marina	SAVE, Ahmedabad
12	Malpur Village (Bharuch)	200.0	2012-14	Avicennia marina	SAVE, Ahmedabad
13	Kantiyajal Village (Bharuch)	50.0	2014-15	Avicennia marina	SAVE, Ahmedabad
14	Devla Village (Bharuch)	150.0	210-16	Avicennia marina	SAVE, Ahmedabad
15	Village Tala Talav (Khambhat, Anand)	100.0	2015 - 2016	Avicennia marina	SAVE, Ahmedabad
16	Village Tala Talav (Khambhat, Anand)	38.0	2015 - 2016	Avicennia marina	GEC, Gandhinagar
17	Aliya Bet, Village Katpor (Hansot, Bharuch)	62.0	2017-18	Avicennia marina & Rhizophora spp.	GEC, Gandhinagar
Total Mangrove Plantation:		**2889.90 Ha**			

Annexure – 4

adani
Foundation

Sustainable Growth

With Goodness

Adani Foundation
Adani House, Port Road, Mundra – Kutch 370 421
[info@adanifoundation.com] [www.adanifoundation.com]

Our Journey

The year 2019-20 has passed off with motivation through recognition by Ministry of Corporate Affairs and courage to work for the commitment given to the community. It is necessary that sustained growth is achieved at rural level along with the industrial development. This can be made possible by involving more and more people in the rural development programme.

Since beginning, The Adani Foundation Mundra is committed to the cause of the deprived and underprivileged. It has been working relentlessly across 6 Talukas, covering 92 villages, to uplift the lives of more than 60,000 families with a multi-faceted approach.

This year conceded with more streamline projects of Education i.e. Utthan – to enhance primary education of 17 schools of Mundra and 8 Schools of Nakhatrana, milestone achievement in Fisherman Livelihood project, Launched Gram Utthan in seven villages of Mundra , considerable impact created by Mangroves Biodiversity projects and new era defined in agriculture projects i.e. Home biogas and Dragon Fruit Cultivation

Adani Hospital Mundra is come out as a true blessings for the community due to reframed rate structure with more than 90% discount. Current year G K General Hospital recognized by Government for best implementation of Ayushman Yojana and for the best health service provider as well. Two Health Weeks were Celebrated to increase outreach of GKGH.

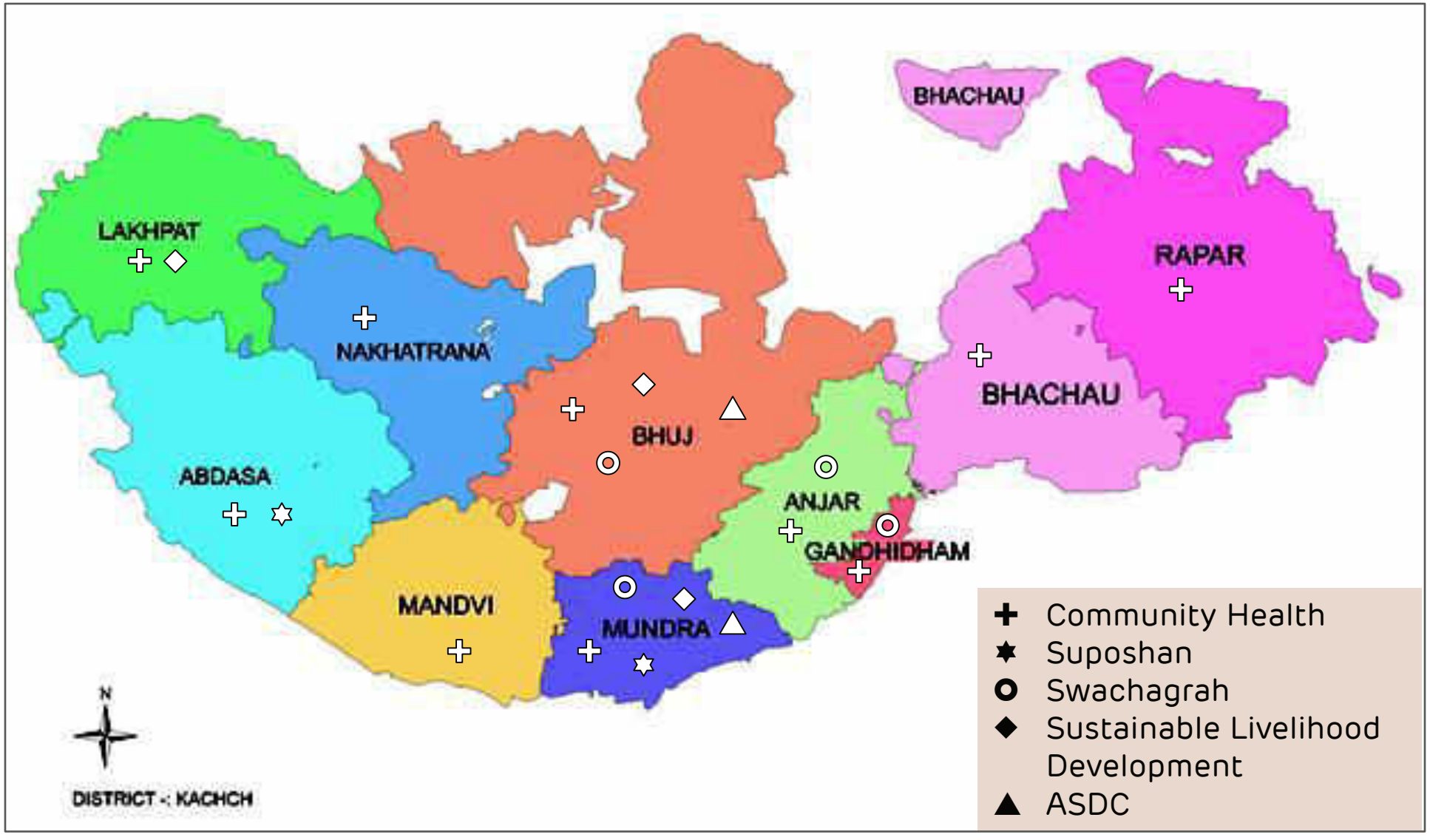
Namda Artisan Karim mansoori was awarded with "Best State Artisan Award" by CM, Gujrat. Live exhibition of different mangroves spices in District Level Krishi Mela by Adani Foundation. " Speaker of Kutchh" organized to motivate and identify youth speaker at District Level.

The people of Kutch have generously supported the activities carried out by the Adani Group or else this wouldn't have been possible. Their determination, understanding and commitment have strengthened the development even more.

Thanks to Mr. Rakshit Shah – Executive Director APSEZ and Mr. Avinash Rai – CEO APSEZ for being mentor of the team Always !

Our Achievement would not be possible without the ultimate support by Mr. P N Roy Chaudhry, Executive Director - AF and generous faith and passionate support by Dr. (Mrs.) Priti G Adani, Chairperson– Adani Foundation

Our Presence in Kutch



INDEX

Education

- 3417 Students : 25 Schools Utthan
- 502 Students : Khel Mahakumbh
- 3100 Enrollment Kit : 118 Schools
- 997 Students : Dignity of Workforce
- 3110 Mothers : Mother's meet touch
- 33030 Students : Udaan Project
- 443 Students : Adani Vidya Mandir
- 552 Teachers : Guruvandana- I,II

उत्थान

The future of India depends upon the quality of education imparted to our children in primary schools. Primary education is the basic foundation on which a nation builds its future.

In this context with an aim to enhance the quality of primary education in Kutch district, Adani foundation adopted 25 government school located at Mundra and Nakhtrana Taluka under the project 'UTTHAN' a drive of quality education.

Large-scale efforts have been made by the government and non-government sectors, especially in rural government primary schools, but coverage and quality of education are still not satisfactory.

Adani Foundation leveraging their experience, to intervene in Government Schools. These interventions will aim to enhance the quality of primary education in Government schools.

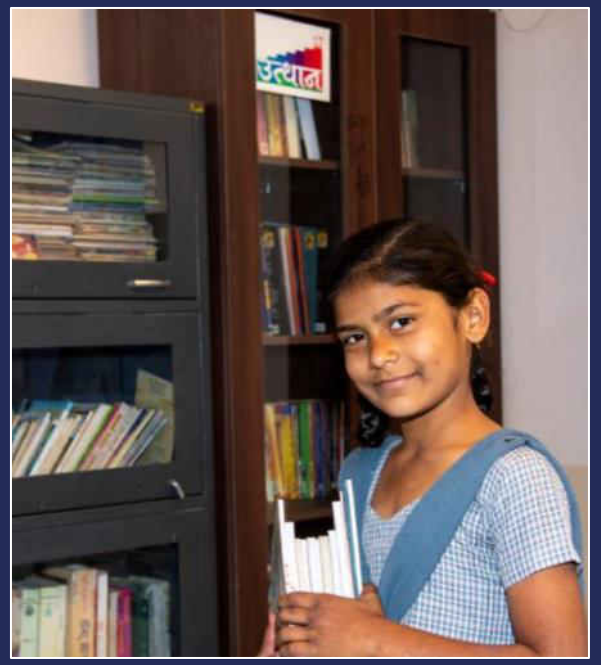
Under Project UTTHAN 25 primary government schools of Mundra and Nakhtrana Taluka of Kutch district have been adopted to take up various initiatives aimed at improving quality in these schools.

3417 children are benefiting from a meaningful education in these schools.

Academic — Co -curricular — Extra curricular

Academic

- One teacher – One school + Sports teacher + IT teacher
- 'IT on Wheel' Van with 35 laptops and computer instructor make students more tech savvy and spreading the digital and technology knowledge amongst the younger generation
- To achieve academic excellence of Priya Vidyarthi, Utthan Shikshak implies various alternative method to make their classroom more friendly and interesting.
- English is to be taught to the students from the early classes so that they will be equipped with ample resources during their further studies.
- Training cum Induction Program on various topic like teaching methodology of progressive learner, assessment pattern of slow learnr, multiple intelligence etc.



Library activities

Use of Reading Corner by students of Std. 3 to 8 of Utthan School Every Saturday Library activity with the Book issue were planned and executed in a meaningful manner

7113 Book issued in academic year 2019-20

Book mark exchange program

Through book mark exchange program Received

32 Partner schools from

11 different countries

Other Activities

Sports

Sports are a crucial part of a student's growth and development. Through participation in sports and games, a student gains various skills, experience and confidence. With the intervene of our Sports teacher in all Utthan Schools successfully enrolled 500+ students in Khel Mahakumbh

All 17 Utthan school has received FIT INDIA certificate from Government of Gujrat.

36 Students (24 girls, 12 boys) reached on District level in Khelmakakumbh

500+ students enrolled in Khel Mahakumbh

Achievements

Utthan Sahayaks with the help of customize

table meet huge success to achieve the main objective of the program

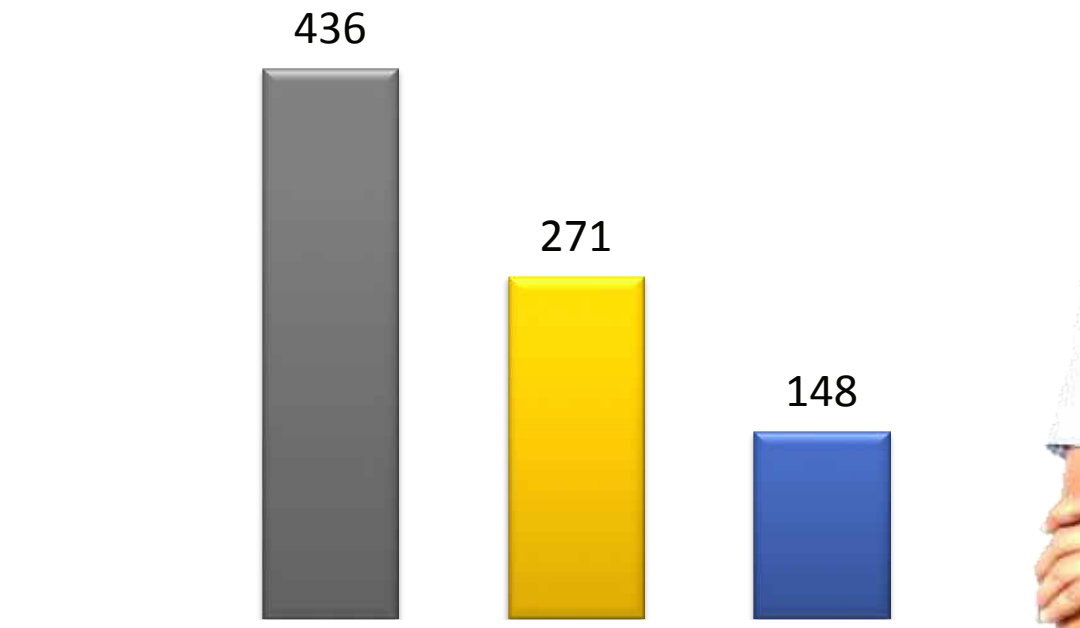
The No's of priya vidhyarthi in 2019 was 271 which is reduced to 148 in 2020

Third party assessment by KSKV University Department of Master of Social Work

Smart Classroom:

One of the major element of project Utthan is to convert traditional teaching method into technological based learning After the installation of Software classroom become more Interactive and Interesting – Stated in the Impact Assessment report done by KSKV University

Gradually Reduction in no's of Priya Vidhyarthi



Extra - Curricular

- Utthan Sahayak + 1222 students from High school & Higher secondary of 6 villages celebrate Fifth International Yoga Day
- On International Plastic Bag Free Day, Awareness were spread through Effective speech, Soft board decoration, Video and Newspaper clipping in all Utthan school.
- Celebration of Gurupurnima in all Utthan Schools during morning special.
- 363 students from 17 schools got an opportunity to visit Adani West port. Main port , Willmar, power & power through project Udaan.
- Tree plantation in all the Utthan School. Adani Foundation align with the circular passed by the Government of Gujarat "Ek baal Ek Jhhad" distributed 100 trees in each school. Students not only planted the trees in fact they adopt each tree with giving their own names.

Adani foundation has make out four major criteria for peripheral Development work amongst them “EDUCATION PROGRAMME” is the one of the major area where we work on following objectives.

Sr. No.	Activities	Beneficiaries
1	Mothers Meeting	3110
2	Chintan Shibir	1155
3	Praveshotsav	3100
4	Celebrations	3295
5	Other Activities	734
	Total	11394

Adani foundation is supporting for improving quality of education To motivate children for schooling as well as inspire peers with create conducive Environment by various activities like Mothers Meeting, Chintan Shibir etc.

Adani Vidya Mandir Bhadreshwar

In Bhadreshwar, Mundra, the Adani Vidyamandir has completely revolutionized the education scenario. Only the children of families with an income of less than 1.5 lakh are admitted to this school. Along with quality education, the school also focuses on providing nutritious food, uniforms and other services to the children for free.

In year 2019-20 Total strength of students are 443 in Adani Vidya Mandir

Adani Vidya Mandir Bhadreshwar

Annual Day Celebration

Annual Day was celebrated in Adani Vidya Mandir on 13th December 2019 on theme "Mera Bharat Mahan". Chief Guest of the Event was Wing Commander BSF and Mr. Rakshit Shah Executive Director, APSEZ was the chief guest of the Event.
All the students participated with great Enthusiasm and Zeal.

AVMB STD - 10 SECOND BATCH RESULT

Year 2019-2020

SR NO	GRADE	STUDENTS
1	Above 80 %	1
2	Above 70 %	3
3	Above 60 %	5
4	Above 50 %	9
5	Above 40 %	7
6	Fail	2
	TOTAL	27

AVMB Std.-10 Second Batch Result 2018-19

Adani Vidya Mandir Bhadreshwar achievement in Gujrat Board Standard 10th Examination Result 92% (25 students have passed the examination out of 27). Adani Foundation will take all responsibility of further study of students with respect to their interest.

Project Udaan

With a vision to familiarize, educate and inspire the future generations, Adani Foundation organizes Education Exposure visits to Mundra for High schools and educational institutes in Various parts of Gujrat.

568 institutes and 33,030 beneficiaries have made inspirational visit up to March 2020

Objective of the program:

The main objective of the project is to encourage and motivate young school students to develop their entrepreneurial skills. The main idea behind this project goes back a long way when Mr. Gautam Adani himself had a life changing experience. Young Mr. Adani had the chance to go and visit Kandla port, Gujarat. Looking at the expanse, the large scale activities being carried out at the port he got extremely inspired and encouraged. From that day onwards he nurtured his entrepreneurial skills only to later become the proud owner of one of the most successful ports in the world. Mr. Adani believes that if that one visit could have such an impact on his life, it could similarly do wonders for hundreds of other young minds if given a chance to dream big.

Other activities

Follow up Mechanism:

There is a structured feedback mechanism for the project where the visiting students along with their teachers send back a feedback form to the organization sharing their experience and inputs to better the overall program. Entering in its 10th year, there are concentrated efforts in the organization to conduct a full-fledged impact study of the program to measure its short term and long terms effects.

Community Health Mundra

Project	Total OPD & IPD
Senior citizen	9860
Medical Supports	2129
Dialysis Supports	6
Medical Mobile van	20399
Rural Clinic	25142
Ayushman Bharat yojna	364
General Health camp	3137
Utthan Health camp	837
Brest & Cervical Cancer Camp	370
Forthnight health celebration	712
Total	**62956**

"ॐ सर्वे भवन्तु सुखिनः सर्वे ưन्तु निरामयाः" is the Arogya Mantra of India – Adani Foundation Mundra is always following this mantra in case of health and well being of the community. Health is the basic need for development of community. Adani Foundation understands this fact and its committed to improve health care facilities in every corner of region.


AMBULANCE

Rural Clinic & Mobile healthcare unit

To solve the health issue in interior villages and to cover the marginalized as well as poor people Mobile Van and rural clinic service is being executed by adani foundation is to reduce travel time, hardships and expenses. The mobile health care unit cover 25 villages and 07 fishermen settlements. Around 90 types of general life saving medicines are available in these units. It has turned out to be a boon for women and children as the service is availed at their door - step.

The Adani Foundation operates Rural Dispensaries in 7 villages of Mundra block, 03 villages of Anjar block and 1 clinics in Mandvi Block. Mobile dispensary and rural clinics provide health services with token charge of 10/- rupees per patient daily by a doctor and a volunteer.

11 Rural Clinic

8 from mundra 3 from Anjar block treated ;
25142 patients.

31 villages covered through Mobile healthcare unit
20399 patients benefited during the year

Health Cards to Senior Citizens

In the Fourth part of life is there is need special care for health and warmth hence Adani foundation has started senior citizen project in Mundra Block since 9 years.

The project is being implemented in three phase vise with key point of Blue and green card according to beneficiaries criteria.

The amount strategy per phase vise – Three year is as below

- **First phase** **75000 INR**
- **Second phase** **50000 INR**
- **Third Phase** **30000 INR**

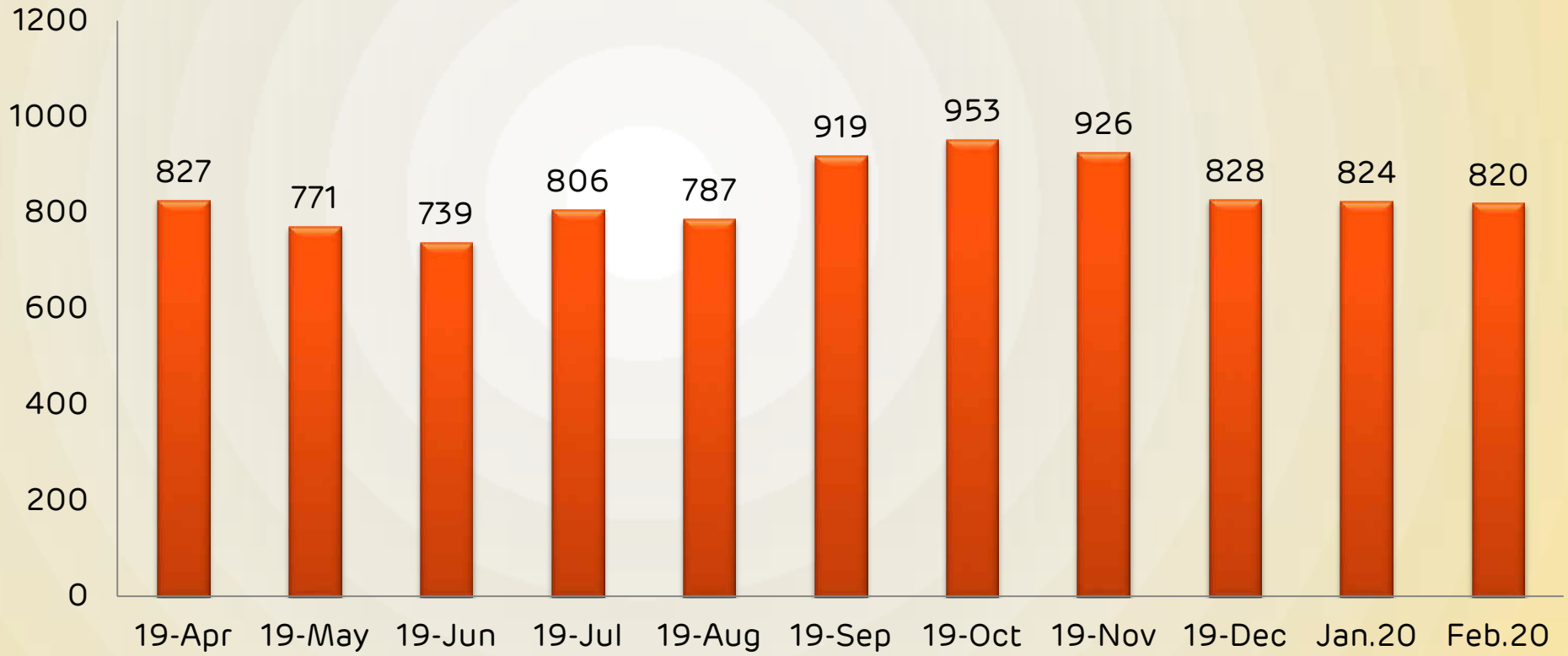
During the year 2019-20, total 9860 transactions were done by 8672 card holders of 68 villages of Mundra Taluka. They received cash less medical services under this project.

The third phase of this scheme was started in last year. The limit for the beneficiary was set to 30000/- within a period of 3 years. the senior citizens get emergency medical care at Adani Hospital, Mundra and refer to GKGH, Hospital ,Bhuj in Emergency.

Sr.Citizen Project – Total village wise Card transection for April-19 to March-20

Sr.Citizen status Year-2011 to 2020											
Number of Villages	Total Cards	Total Survey	Pending Renew Cards	EXP	Green cards	Blue Cards	BPL Cards	APL Cards	No Resnig Cards	RSBY Cards	MA Cards
68	8672	7056	901	715	6289	767	2493	4516	47	77	222

Month	OPD
19-Apr	827
19-May	771
19-Jun	739
19-Jul	806
19-Aug	787
19-Sep	919
19-Oct	953
19-Nov	926
19-Dec	828
Jan.20	824
Feb.20	820
Mar 20	660
Total	**9860**



General health camps, Pediatric Camp, breast and cervical cancer screening camp and surgical health camps was organized at frequently to meet the specific requirements of the community and in disease outbreak season.

In the year of 2020-2021 Total 3137 people had been benefitted by various kind of camp and needy and screened patients are treated in **Adani Hospital**.

As well as linkages and facilitated them with government health Yojna like Ayushman Bharat, RSBY, Maa Amrutam and Maa Vatsalya yojna ,Bal sakha yojna.

Health camp

Sr. no.	Place	Villages Name	Total Patients
1	Ganesh Mandir Mela_ Health Camp	Luni	40
2	Hajipir Mela provide Medicine	Hajipir mela	100
3	Salimbhai Labour colony Health camp	Dhrub	71
4	Shri Ram Katha Nandi Sarovar Ahinsadham	Pragpar	491
5	Aslambhai Labour colony health camp	Dhrub	175
6	Tatwamsi Keraliyan Samaj	Mundra	64
7	Labour Colony Health camp - AWL	Dhrub	154
8	Labour Colony Health camp - AWL	Dhrub	117
9	Khoja Jamat khana Mundra	Mundra	125
10	Multi Speciality Camp Ramvadi Gundala	Gundala	105
11	Health camp at Uras Darga Sarif Luni	Luni	824
12	Labour Colony Health camp - AWL	Dhrub	161
13	Pra.School Sukhpar Vaas _mundra	Mundra	108
14	Samaj vadi Sukhpar vaas - Mundra	Mundra	160
15	Luni Samuha Sadi	Luni	290
16	Labour Colony Health camp - AWL	Dhrub	152
Total...			3137

Medical support

While Health emergency create its takes limitless rupees to recover it and it is not possible to economically poor though Adani Foundation provides primary health care and financial assistance for ailments such as kidney related problems, paralysis, cancerous and tumor surgeries, neurological and heart problems, blood pressure, diabetes etc.

Medical Support had been given to 2129 benefitted from Mundra, Mandavi and Anjar Block at adani hospital, Mundra where as In the Critical cases after stable them we refer them to GKGH, BHUJ for further treatment.

Dialysis support

As the kutchh is arid region and higher saline Drinking water in Mundra, there is urinary stone and kidney failure case is more prominent in Block. A dialysis support project to providing dialysis treatment to help the extremely needy patients to live a healthy life.

Total 6 Patients are being supported for regular dialysis (twice in a week) during this year.

Community Health Bhuj

- 5398 Patients taken Care and Coordination
- 52 Health Camps 4779 beneficiaries
- 609 Dead body referred by carry van
- 3557 Ayushman Gold Card facilitation through Enrollment camp and Mahiti Setu
- 549 support for Implants and Needy Patients
- 9896 People helped through Mahiti Setu for various government schemes
- 816 people benefitted in 6 health awareness camps

Gujarat Adani Institute of Medical Science (GAIMS) - Bhuj

Gujarat Adani Institute of Medical Science is the first Medical College of Kutch region. It started in partnership with Adani Group and Government of Gujrat in the year 2009. This college was affiliated by the Medical council of India in the year 2014 for the MBBS with 150 seats per year. Gujarat Adani Institute of Medical Science is affiliate with the first digital university "Krantiguru Shyamji Krishna Verma Kutch University". In GAIMS, currently 750 students are studying, The GAIMS Medical College is situated in heart of Bhuj city on a large plot of 27 acres.

A teaching hospital (G K General Hospital) with 750 beds is established with GAIMS in which patients of Kutch are getting subsidized medical facilities. The Hostel facility is also available for the students in the campus only. The accommodation facility is given to the staff of GAIMS.

Adani Foundation - Bhuj

- Adani Foundation Team has initiated coordination with GKGH hospital since 2014 and established a reception area for the smooth patient coordination and preparation for the social networking program.
- Adani Foundation organized **52 General Health Camps and Speciality Camps in various interior villages of Kutch in coordination with GKGH which created magical impact and benefitted 4779 patients. Adani Foundation Bhuj Health team** has also organized more than six awareness camps.
- Dead body medical van – Dignity to death is one of the noble initiatives taken up by the Adani Foundation. If any death occurs in GKGH, dead bodies are shifted to the native village of the concerned in the Kutch District free of cost. Total 609 dead bodies privileged till now to different locations in Kutch.

Patent Care and coordination

Sr. No.	Month	Total Patient Special Care in OPD and IPD level
1	April to June	1350
2	July to September	1474
3	October to December	1419
4	January to March	1155

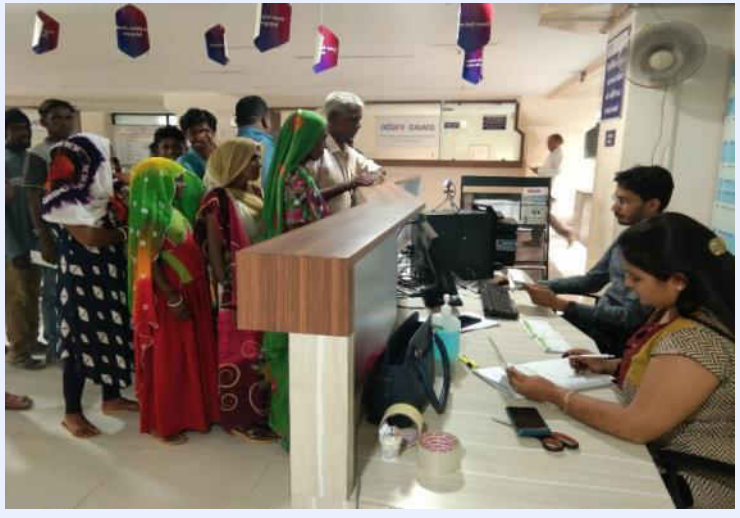
In the financial year 2019-20 G K General Hospital Adani Foundation team has coordinated with 5398 patients for proper IPD care from admission stage to up to discharge level.

Mahiti Setu

Mahiti Setu has created trust and easy access to various government schemes – outreach will increase with time and awareness.

9686 people helped through Mahiti setu for various govt scheme

Sr. No.	Month	Total Beneficiaries
1	April to June	2249
2	July to September	1993
3	October to December	1951
4	January to March	3493

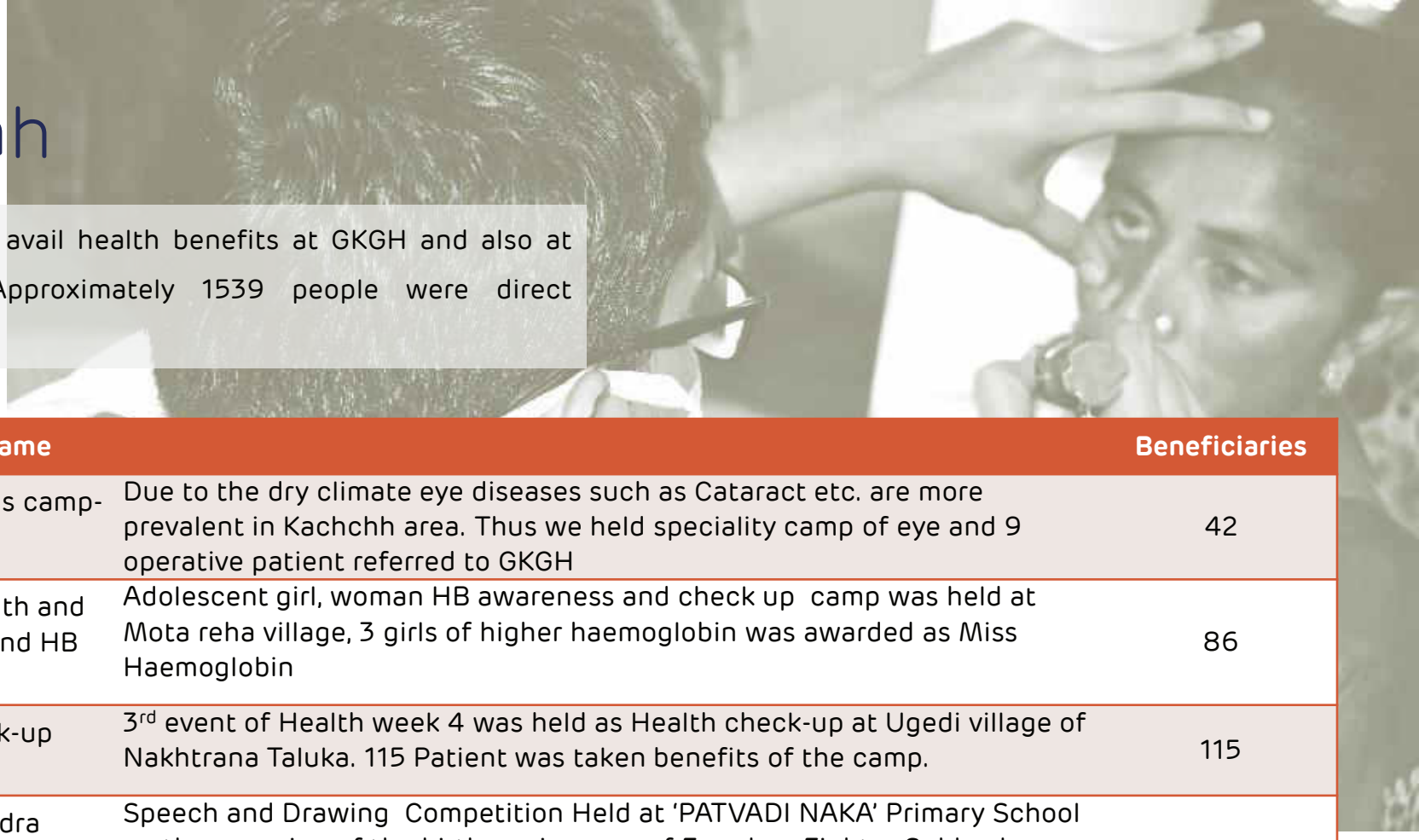


Arogya Saptah

Adani foundation, Adani Hospital and GAIMS have Jointly Celebrated "Arogya Saptah" 8th to 14th August & 20th to 26th January in Respect of Independence and Republic of our country. Celebration included multi specialty camps, Workshops, truckers health check up, surgical camp on foundation day and adolescent fair at different part of district. Collector,

7th to 14th August 2019

Day	Date	Event Name	Details about the event	Beneficiaries
1	07/08/2019	Health check up at Orphan age, Bhuj	Orphan children's of Yatimkhana ahlesunat primary schools 101 students health checked and referred 24 students for further treatment	101
2	08/08/2019	Blood Donation Camp, Nakhatrana	Blood donation of 16,500 Ml was taken from blood donation camp at Nakhtrana.	55
3	09/08/2019	Pregnant Women health check up, Madhapar	ANC mothers HB and health checked by gynaecologist and advised for care and diet during the pregnancy	50
4	10/08/2019	Surgical Mega Camp, Khavda	Mega Surgical Health camp held in Khavda region 223 patient had been treated and more than 35 patients referred for further treatment	223
5	11/08/2019	General Health Camp, Palara Jail	Due to constant complaints about the health of the examiners of the Palara Jail, the camp was organized in the Palara jail and there were an 35 patients referred to gkgh of skin patient.	139
6	12/08/2019	Ayushman Health Card Enrolment, Gorevali	Aushyman bharat golden card enrolment camp was held at Gorevali PHC there was 39 family covered under the the skim and 52 card was given to beneficiary.	52
7	13/08/2019	Awareness on women health, mukt jivan college, Bhuj	Woman awareness for hostel girl of Muktjivan Swamibapa mahila collage was held 250 Student got aware about Menstrual, HIV, Breast and cervical cancer.	250
8	14/08/2019	Blood Donor Appreciation	More than 50 and 100 times blood donor was appreciated with certificate by Adani foundation and GAIMS.	36



Arogya Saptah

Objective of the program was to avail health benefits at GKGH and also at Adani Hospital Mundra and Approximately 1539 people were direct beneficiaries of the program.

20th – 26th January 2020

Day	Date	Event Name		Beneficiaries
1	20/01/2020	Eye diagnosis camp-Khavda	Due to the dry climate eye diseases such as Cataract etc. are more prevalent in Kachchh area. Thus we held speciality camp of eye and 9 operative patient referred to GKGH	42
2	21/01/2020	Woman Health and awareness and HB camp	Adolescent girl, woman HB awareness and check up camp was held at Mota reha village, 3 girls of higher haemoglobin was awarded as Miss Haemoglobin	86
3	22/01/2020	Health check-up camp ugedi	3rd event of Health week 4 was held as Health check-up at Ugedi village of Nakhtrana Taluka. 115 Patient was taken benefits of the camp.	115
4	23/01/2020	Subhaschandra boss Jaynti celebration	Speech and Drawing Competition Held at 'PATVADI NAKA' Primary School on the occasion of the birth anniversary of Freedom Fighter Subhash Chandra Bose	150
5	24/01/2020	Ayushyman Bharat camp-Bhadreshwar	Golden card of central Government's PM-JAY scheme enrolled at Bhadreshvar PHC 32 family and 45 beneficiary taken benefits of this camp.	45
6	25/01/2020	World leprosy day celebration	Organized an awareness program to celebrate World Leprosy Day 160 PCA and Nursing staff got advice about leprosy	160
7	26/01/2020	Appreciation to housekeeping staff	PCA and Security staff who has done excellent work for Public Health was appreciated by adani foundation as part of 4th Health week on the occasion of Republic Day celebrations	35

Sustainable Livelihood Development

In the villages at Mundra Taluka, several communities are economically side-lined and weaker that depend on a sole income source or are unemployed. Sustainable livelihood projects have been launched to cater financial independence through building local partnerships, providing diverse livelihood avenues, inculcate the attitude to establish savings, equipping to earn and updating local skills by making use of existing resources to encourage self-reliant lifestyles. Participation Is encouraged by launching specific projects for fishermen communities, farmers and cattle owners, youth and women.

Fisherman Amenities work

- 939 Students : Education Support
- 137 Students : Adani Vidya Mandir *
- 28 Fisherman : Alternate livelihood
- 11 Fisherwomen : Linkages for schemes
- 1295 Fisherman : Community Engagement
- 4340 Members : Potable water provision
- 6261 Mandays : Mangroves Plantation *
- 12 Members : Sea Weed Culture
- 6970 Direct Beneficiaries

28 Fisherman are engaged in various contract related jobs and 37 Fisherman are doing job after taken training from Adani Skill Development Center.

Vidya Deep Yojana

To strengthen the standard of pri-primary education, Adani Foundation has constructed 4 BALWADI at different fishermen helmet

Which focuses on the development of basic age-appropriate learning concepts, discipline, regularity, awareness of health & hygiene, cleanliness and also provides nutritious food. 140 children are benefiting from this scheme

Balwadi		
Sr.	Village & Bandar	children
1	Juna Bandar	45
2	Luni Bandar	25
3	Bavdi Bandar	40
4	Zarapra	30
	Total	**140**

Learning with Joy

Adani foundation came to know that fishermen children are being suffered to continue their study due to migration of their family at different Vasahat so foundation has started vehicle support for transportation from different Bandar to village total 120 students were benefitted.

Scholarship Support

The Adani Foundation provided scholarship support to motivation and encouragement of fishermen boys and girls for higher education under this program we provide 100% fees support to girls and 80% fees support to boys as a scholarship. this year total 78 students are being facilitated by Adani foundation.

Book support:

49 Fisherman Students from Higher Secondary Standard (9 to 12) has been benefitted from various of Juna Bandar, Zarpara, Navinal, Bhadreshwar.

Cycle support:

Fishermen who are at fishermen hamlets are migrated with whole family for 8 month fishing season. During that time to continue higher education of their children at Mundra, Adani foundation provide cycle support every year to 9th standard students
This year cycle support has been given to 7 students

Awareness Program

To create awareness about health, personal hygiene, child education and nutritional diet in fishermen community, various awareness programs have been organized.

Facilitation of Government's fishermen welfare scheme "Sarkar Apane Dwar" program organize. More than 150 Beneficiaries participated in this events.

Machhimar Ajivika Uparjan Yojana

Providing fishing materials support like fishing nets, ropes, buoys, anchor, etc. according to fishermen need.

Before these Fishermen had to buy this borrowed materials from traders which were very expensive for them

28 fishermen has been facilitated by fishing materials

Potable Water to Fisher Folk at vasahat-2019-20

Sr.	Vasahat	family	Requirement Per day	Remarks
1	Luni Bandar	116	15000	9 Month
2	Bavdi Bandar	88	15000	9 Month
3	Kutdi Bandar	140	15000	Provide by Adani Solar
4	Virabandar	58	10000	Provide by Tuna port
5	Randh Bandar	350	25000	9 Month
6	Ghavarvaro Banadar	58	7500	Provide by Tuna port
7	Junabandar	134	30000	Connection with Mundra Gram Panchayat
8	Zarapra Vasahat	72		12 Months
9	Chhachh vadi Zarapra	69		12 Months
	Total	1085	117500	

Machhimar Shudhh Jal Yojana

Pure water play important role for good health hence reduce water scarcity and ultimately reduce load over women , potable water was provided to the fishermen communities at different vasahat through water tanker **A total of 1,17,500 litres of water per day was supplied to 1085 households from different settlements on a daily basis..**

Cricket Tournament

Adani Foundation, Mundra organized Cricket Tournament, **"Adani Premiere League"** among fishermen community to promote healthy sportsmanship ,and harmonically transparent community relationship among fisher folk of Mundra ,Anjar and Mandvi Taluka.

Total 65 Teams were participated from 13 villages i.e 750 Fisherman youth from various Villages Zarpara, Navinal, Shekhadia, Modhava, Salaya, Mundra, Tragadi, Luni, Gundiyali, Bhadreshwar ,Vandi (Tuna),layja and kathada with great enthusiasm.

Ramotsav Programme

To Development of physical and mental Development of youth Ramotsav week Program has been organized at various Vasahat. (i.e. Junabandar, Luni, Zarapara, Bavdi Bandar and Navinal & Vira Bandar)

This year Total 545 children of 1st to 10th standerds were participated.

Environment Sustainability

The Environment Impact Assessment (EIA) Notification, 2006, issued under the Environment (Protection) Act, 1986, as amended from time to time, prescribes the process for granting prior environment clearance (EC) in respect of cevoain development projects/activities listed out in the Schedule to the Notification.

Sustainable development has many important facets/components like social, economic, environmental, etc. these components are closely interrelated and mutually re-enforcing. Under Corporate Environmental responsibility 10 km radious villages from SEZ Boundaries.

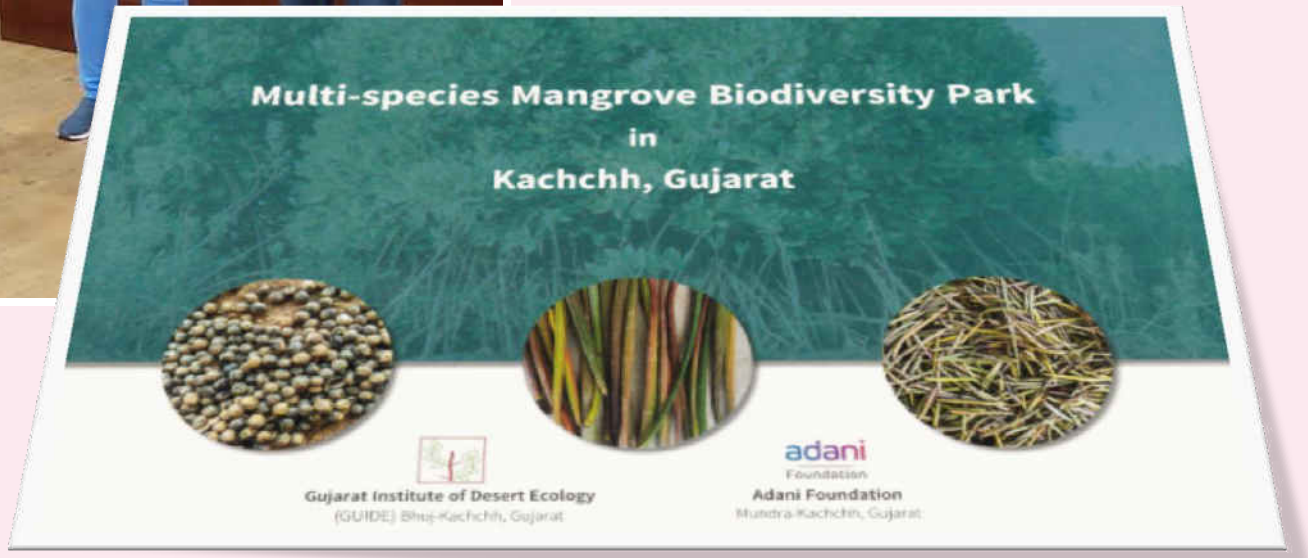
To make connections between human actions and the level of biological diversity found within a habitat and/or ecosystem, this year we launch project "Sanrakshan" in coordination with GUIDE. MOU has been signed with Dr. Thivakaran – GUIDE for conservation of five spices of mangroves.

Bio diversity Project

Bio diversity Project has been Continue with three spices Rhizophora Mucronata ,Ceripos Tagal, Ceriops Decandra with good growth at Luni Bandar.
The mangrove biodiversity enrichment project in and around Adani ports special economic zone limited (APSEZL) aims to introduce select true mangrove species on a pilot scale in suitable coastal belts and assess their survival. Because this project is the first of its kind, the expected survival rate is between 20-30%.

The project is currently in its initial stages of establishing nurseries and sowing seeds of several different species brought in from multiple locations in and outside of Gujarat state. These nurseries have been developed in tidal flats near the village of Luni, Kutchh, Gujarat.
The mangrove seeds/propagules) for the establishment of the nursery were brought in from various locations in India, namely, Machilipatnam (Andhra Pradesh), Pondicherry (Tamil Nadu), Parangipettai (Pichavaram Mangroves, Tamil Nadu), Kandla (Gujarat) and Jamnagar (Gujarat).
In most of these locations, there is adequate fresh water supply available due to high/substantial rainfall and/or presence of major rivers (also important river confluences and deltas that give rise to a thriving estuarine environment). Consequently, the mangrove species that successfully grow in those regions are adapted to a low-salinity environment (where salinity is approximately 20 ppt) against that of 37-44 ppt prevailing in Kutchh coastal waters. Furthermore, the species selected to establish the biodiversity enrichment project also belong to this group of mangrove species. This subsequently creates a challenge for the team heading this project because the Kachchh region does not provide adequate salinity ranges for survival of most of these species. In fact, it provides an extremely harsh saline environment (salinity can range up to as high as 44 ppt during summer).
Considering the above-mentioned scenario, the site selection criteria, need for species of high salinity tolerance and studying their natural occurrence in Kutchh becomes critical in ensuring a substantial survival rate of the mangrove species selected to potentially successfully establish a diverse and resilient mangrove community in the Kutchh region.
Furthermore, a highly diverse set of mangrove species will ensure resilience in the face of changing climate and could probably provide as a thriving gene pool and seed bank in the future for the Kutchh region.

Book Launch : Multi- species Mangroves Biodiversity Park by Chairperson, Adani Foundation



SUJLAM SUFLAM JAL ABHIYAN

Global Problem-Local Solution

Water Conservation Work At the turn of millennium, the state watched with growing alarm the steady depletion of its ground water and launched massive drive to achieve water security in Mundra region.

- A large number of water harvesting structure (18 Nos. of check dams in coordination with salinity department) and
- Ground recharge activities (pond deepening work for more than 52 ponds) individually and 26 ponds under Sujlam Suflam Jal Abhiyan were built leading to a significant increase in water table and higher returns to the farmers.
- Roof Top Rain Water Harvesting 54 Nos. and Recharge Bore well 75 Nos.
- Drip Irrigation 823 Farmers benefitted in coordination with Gujrat Green Revolution Company
- Participatory Ground Water Management in ten villages with holistic approach for Kankavati Sandstone Aquifer Programme

Water Harvesting Structures

Dhrub- pond deepening work – work completed

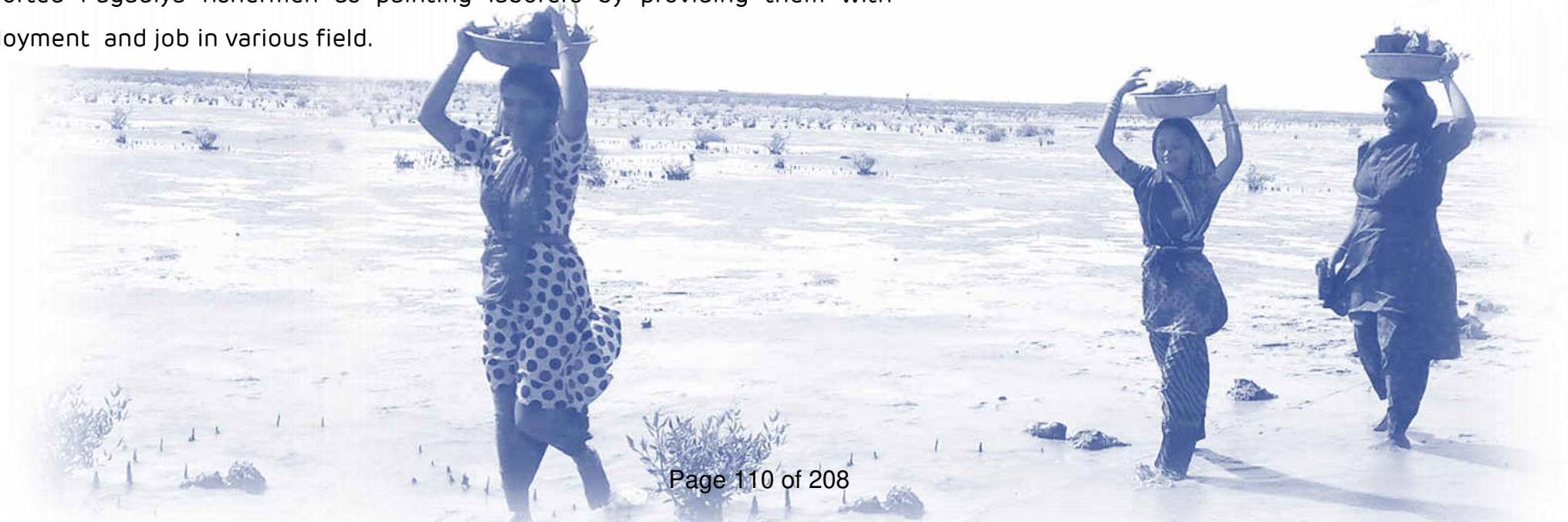
Zarpara – Roof Top Rain Water Harvesting

For Water conservation drive we are having vision for next five years that

- **Drinking Water Sustainable Villages by Roof Top Rain Water Harvesting – at least 5 villages**
- **Agriculture water conservation by 100% Drip, Bore well Recharge**
- **Farm Bunding and Crop pattern**
- **Recycling Sewage water from STP**
- **Awareness for water conservation to community**

Machhimar Ajivika Uparjan Yojana

The 'Ajivika Uparjan Yojana' was implemented to promote and support alternative livelihoods among the Fisher folk communities during the non-fishing months. The Foundation introduced 'Mangrove Nursery Development and Plantation' in the area as an alternate income generating activity for the people of the region. Both men and women received training on Mangrove plantation, moss cleaning, etc. as per requirements. The Foundation provided them with employment equivalent to 6261 man–days. In addition to this, employment worth of 42048 man-days has been provided till date. The Foundation has also supported Pagadiya fishermen as painting laborers by providing them with employment and job in various field.



Sea Weed Project

The cultivation of seaweed have significant potential for the sequestration of carbon dioxide (CO2) and will very fulfill in mitigating the climate change. Seaweeds are macrophysics algae, a primitive type of plants lacking true roots, stems and leaves. They provides valuable source of raw material for industries like health food, medicines, pharmaceuticals, textiles, fertilizers, animal feed etc.

As per study of government of Gujarat, Seaweed culture can be best developed along the coast lines of Amreli and Kutchh districts in Gujarat. Juna bandar has good potential for seaweed farming as it has Calm and less wind action. We started this project as Pilot base at Junabadar with 50Kg Quantity. though there was good growth but due to cyclone it was damaged at present it 600Kg.

PROJECT "DRIP IRRIGATION"

- **Basis of Requirements of Drip Irrigation**

The main source of livelihood being agriculture, the cultivators tend to use more and more underground water for irrigation. Underground waters have gone very highly saline. The use of such water for irrigation has made the soil also saline and the crop yields have dwindled.

- **Process of Drip Support**

Farmer have to applied in the prescribed form of Adani foundation with photograph.

Inspection and verification will be by AF representative.

Ration card, work order of G.G.R.C, 7/12 certificate and all bills must be attached.

Farmer will be informed by telephonic to have form query.

Primary information about farmer land will be received by telephone.

Farm visit within 10 days of after received of application and verified the installation of system as per map and material as per bill will be checked and get farmer feed back.

Verification report submitted to account office.

Payment within 20 days if all document is complete through net banking.

Farmer economic study after our support. – Follow up

- **We have covered 164 farmers and 755 acre drip irrigation area last year. Curret year We have covered 131 farmers and 667 acre drip irrigation which is remarkable for water conservation.**

Home Biogas

Home biogas is the Israel based company was founded in 2012 manufactures dynamic biogas unit not only for farm waste but for kitchen waste too.

Under Gram Utthan Project, Adani Foundation is supporting home biogas to farmers to Uthhan Villages phase wise. Current year supported 95 home biogas in Dhrub, Zarpara and Navinal Villages.

- Reducing organic waste,
- Transitioning to renewable energy
- Motivation for reduction in use for fertilizer

And Improving the health and living conditions for the millions of families that are still cooking on charcoal and wood. Adani Foundation is not only supporting but creating awareness to save environment and health of the community who regularly cooking on Chula. It is proven that one hour cooking on Chula is as dangerous as smoking 40 cigrates.

Objective of the Project :

As a Main Process, Bacteria break down organic waste in a naturally occurring process, and Home Biogas stores and harnesses the energy created so that it can be used for gas.

Earlier we had proceeded for capacity 2 cum but after visit and series of meetings with farmer group – we need to take up plant capacity 6 cum

Participation by Community :

For acceptance of this new biogas - We did awareness programmes, given information about usages of home biogas to farmers. Demonstration and training for smooth operation and also maintenance. Community has given 10 percent participation means 3000 INR per Home biogas.

SLD
Agriculture Initiatives

- The organization has carried out remarkable activities in the agricultural and animal husbandry sectors. We have initiated Programme for Awareness of Farmers in collaboration with KVK. The outreach is approximate 200 farmers of seven villages under Gram Uthhan.
- The purpose of this project is to initiate village wise integrated agricultural & allied development for sustaining agriculture and socio economic situation of farming community of Mundra block.

Fodder Cultivation

After periodic discussions with Village Development Committee, Gram Panchayat and Gau Seva Samiti of Siracha – Adani Foundation had coordinated for Village Gauchar Development. Total 85 Acre Gauchar Land was approved by GP for Development by decision taken in Gram sabha . Among them 22 Acre land Has been Sowed with Sorghum and Remaining land would be Grow with Wild Grass

Siracha

22 Acre – 88000Kg Sorghum

63 Acre- 63000Kg Wild Grass

Total 85 Acre= 151000KG

Bhadreshwar @ 7 Acre= 28000Kg

Kukadsar @ 15 Acre= 60000Kg

Implementation Process includes

- Meeting with Village Development Committee
- Meeting with SDM for Gauchar Land Details

Tissue Culture : Date Palm

Brief Description

Make availability of 4000 tissue cultured plants of Barahi varieties to the farmers of project area. For this, we have selected best offshoots of Barahi plants from Well known Laboratory in coordination with farmers groups, Vice Chancellor (Anand Krishi University), Dr Murlidharan (Scientist, Date Research Center) and Krishi Vigyan Kendra Mundra.
The selected tissues from laboratory will take 3 years period for development and fruit. Hence, whole program is coordinating farmers participation basis having four party i.e. Tissue culture laboratory, Adani Foundation, KVK and farmers committee of project area. Major functions of all parties are as under;
TC Lab: Develop TC plantlets of Yellow varieties
Adani foundation: Financial support
KVK : Technical support to the program
Farmers committee: Provide their support for selection of Tissue plants & contribution in distribution & provide 50% cost of plants.

Objective:
To provide tissue culture plants of local elite varieties of Datepalm to the farmers of project area at affordable price.

Expected Outcome
We have registered Farmer's Producer Company first (Kutchh Kalptaru Farme's Producer Company) in which 140 farmers are registered members of project area. Adani Foundation will support for 25 plants/farmers phase wise. In first phase during Financial Year 2019-20 we will provide support to 70 Farmers.
Financial Outcome
If we will assume 100 kg production of fresh fruits of Datepalm of best varieties per plant. Then total production is 4 lakh Kg. and price Rs. 80 / Kg. Then total gross income will be generated Rs. 3.20 crore. Consultant Fees will be Rs. 60,000 including FPO Registration Charges

Strategy: For 4000 Date tissue plant in 2 phase (per plant cost 3300 INR)
Farmers : 70 Farmers will be supported 25 Plants (1750 Plants in current year)

(50 percent contribution from Farmers (they will get 35% from Government in a form of subsidy after plantation.)

Tissue Culture : Date Palm

Women Empowerment Projects

- In Kutch, the situation of women is miserable. Women are totally dependent on male members of family for their needs. Consumption of liquor is one of the main culprits in Kutch. Due to this evil prevalent among men many women are suffering.
- Considering this situation, We have started our training program with two major women's group of Villages near Adani Power and Adani Ports. Both the groups of women (**123 women in total)** successfully completed their training for preparing washing powder, phenyl, liquid for cleaning utensils and hand wash etc.
- We have selected 10 women groups having 123 members total, as per their ability for different work i.e. accounting, banking, leadership, marketing, administration etc.
- As a further step to bring sustainability, we thought to start a shop "Saheli Mahila Gruh Udyog" at Shantivan Colony.

Women Empowerment Projects Step towards socio economic development

No	Name	Members	Work	Avg Income
1	Sonal Saheli Group	11	Washing Powder and Phynayle making	3000
2	Tejasvi Saheli Group	10	Stitching Unit / Bag Making	5000
3	Pragpar Saheli Group	29	Handicraft Suf, Pakko and Jat	7500
4	Shradhha Saheli Group	11	Dry and Fresh Nasta Making Unit	3200
5	Meghdhanush Saheli Group	10	Mud Mirror Work	6000
6	Umang Saheli Group	11	Soft Toys and Dori work	1400
7	Asha Saheli Group	10	Sanitary Pad Making Unit	2500
8	Anjali Saheli Group	10	Paper Bag and Paper Cup Making Unit	-
9	Vishwas Saheli Group	10	Dry Nasta – Chiki, Potato Waffer, Papad	2200
10	Radhe Saheli Group	11	Non Women Bags	1150
		123		

Women Empowerment Projects
Step towards socio economic development

Apart from Self help Group, Adani Foundation is motivating and supporting Rural women for apprearing SSC/HSC board exams, completing graduations and joining course under Skill Development Center or RSETI.

Also coordinating for Bank Sakhi, Vima Sakhi, Gram Rakshak Dal and Private Companies for full time job. For the same we coordinate with district administration, DRDA and HR Department of Private Company. This Coorination became very fruitful in case of Britannia Company. We have coordinated with approximately 300 women for apprearing for interview and filling forms for Britania. As on date 271 women are doing job in Britannia and getting Rs. 9700 plus PF per Month.

No	Name	Members	Work	Avg Income
1	Bank Sakhi Yojana	9	By State Government – agent work	3000
2	Gram Rakshak Dal	7	Secured job by Government	6000
3	Laundry work at Samudra Township	2	Commercial Complex Samudra	2500
4	Britannia Company	270	By Capacity Building and confidence building	9800
5	Bima Sakhi Yojana	6	By State Government	3000
6	Aggarbatti making Unit	2	Widow Women	1700
		296		

7 women of village Sadau, Mangra and Baroi Selected in Gram Rakshak Dal by our Coordination

Women Empowerment

Adani Foundation Mundra has received Order of supplying 10,000 sanitary pad per Month to Seven Public Health Centers of Mundra Taluka and 9 KGBV hostels at Kutchh District.

Feminism isn't about making women strong. Women are already strong. It's about changing the way the world perceives that strength.

Right now 8 Females are working for the same. In second phase after starting one more unit our capacity will increase approx. 700 pad per day – which will enhance income of them up to 4000 per month.

8 Females

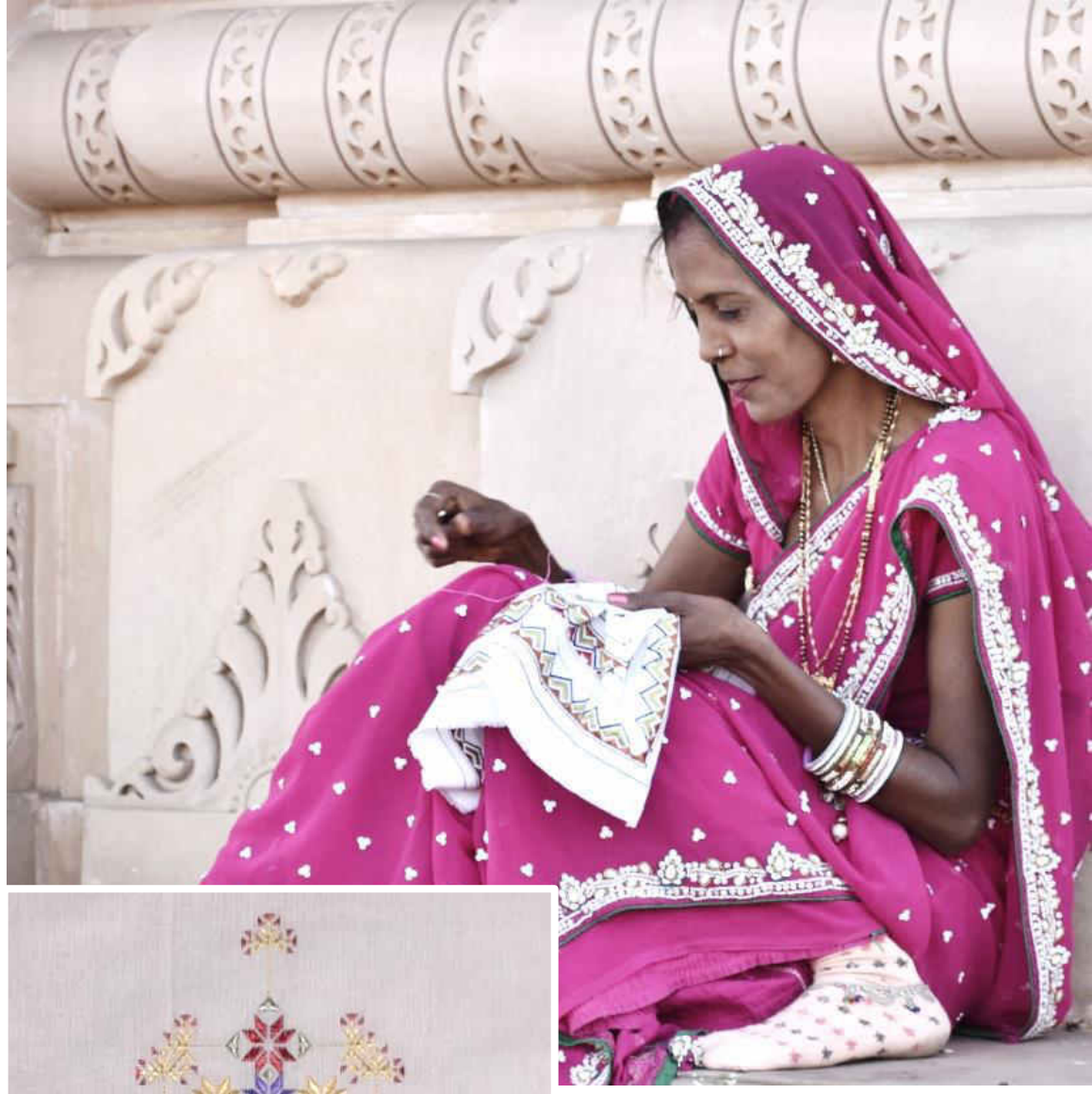
1.50 lac

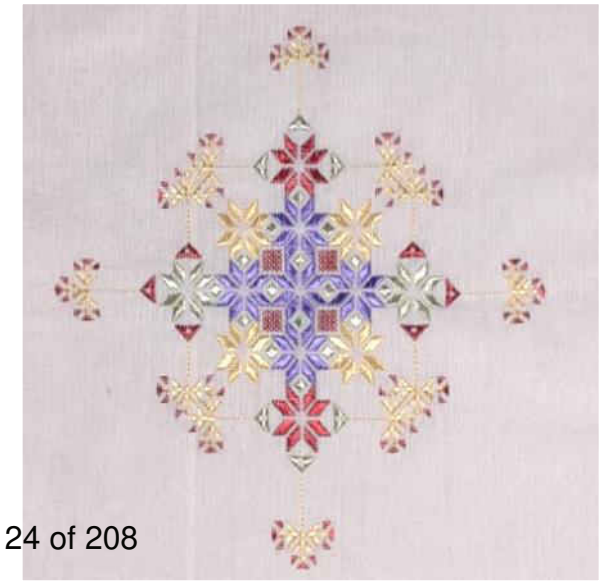
Women Empowerment

An initiative under the Sustainable Livelihoods Development Program to encourage women, take control of their own lives and increase their confidence whether they are single, married or widowed.

Total Sale more than Rs.4.50 Lacs and women are getting approximately Rs.8500 per month.

14 Women of Pragpar village are traditionally doing Suf Embroidery. We are on the verge of completion to development of Sahkari Mandali. After getting formal structure we could be able to sale products online with GST.





Community Infrastructure Development

Community infrastructure primarily refers to small scale basic structures, technical facilities and systems built at the community level that are critical for sustenance of lives and livelihoods of the population living in a community. Adani foundation has designed, planned and built a infrastructure community health, agriculture and living standards, all initiatives were fulfilled according to the needs of people of community.

Adani Foundation supports for infrastructure development on request basis. Adani foundation carries out the construction of prayer shade name "PRATHNA SHADHNA" at AVMB.

Construction of Prayer Shed at AVMB

Painting & Branding Old Strcture at Old Bandar and Luni Bandar

Upgradation of Balwadi at Zarpara

Waiting place for Pgadiya at Navinal

Garden Development work

Road Side Beautification at Mundra.

S & F Benches In Various Location in Various Village

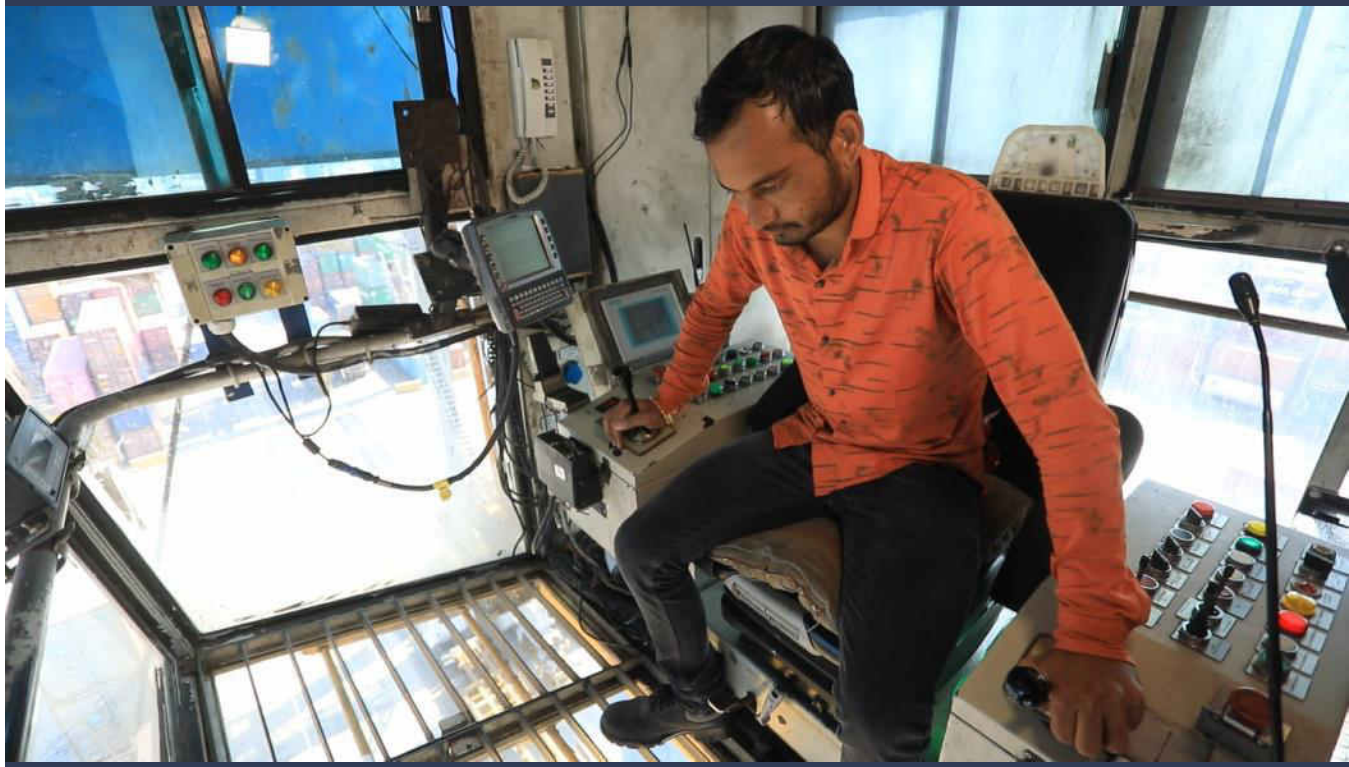
Construction of R.O. Plant Room at Primary School sadau Village

Construction of Shed at BRC Bhavan

Renovation Balwadi at Bavdi Banadar

Fixing of LED street light at Bhopawandh, Mundra & Bhorara)

Adani Skill Development Centre



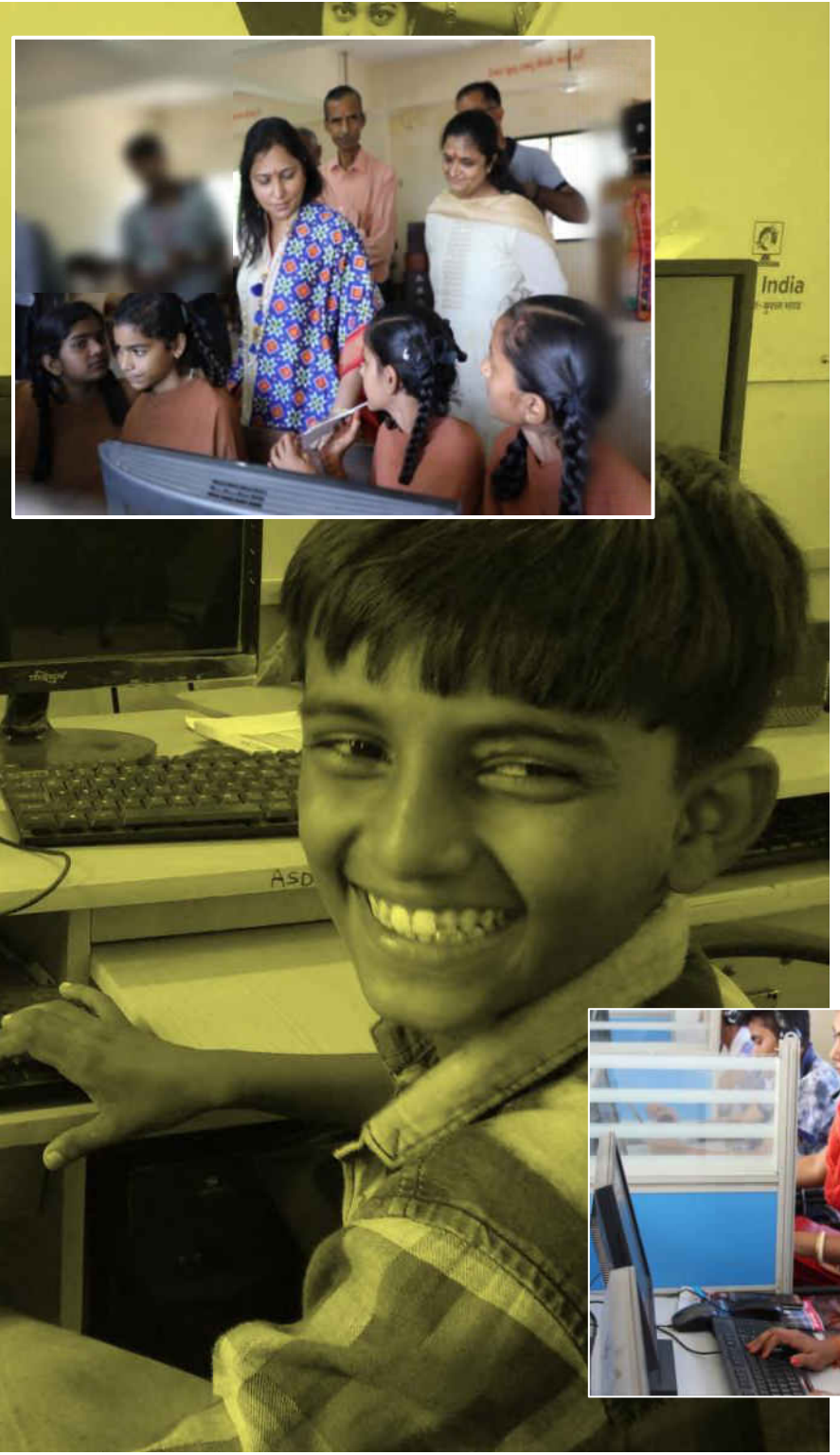
Adani Skill Development Centre (ASDC) is playing a pivotal role in implementing sustainable development in the state.

Several miscellaneous industries exist in Kutch district. Adani Skill Development Centre has started a center in Mundra block so that the needs of these industries are fulfilled, the local youth is enrolled in various training / skill courses and the distance between the both is minimized.

The objective of this Centre is to impart different kinds of training to the students of 10th, 12th, college or ITI from surrounding areas. Thus, various employment-oriented trainings are organized to optimize the skills, art and knowledge through proper guidance and direction.

During this year Total 2664 people trained in various trainings to enhance socio economic development.

Out of which more than 60% people are getting employment or Self Employment and average income up to Rs. 5200 per month. Digital literacy training is very helpful in coordinating with today's Digital world....



Adani Skill Development Centre Kutchh

Digital Literacy
1119

Unarmed Security Guard
60

General Duty Assistant
188

Beauty Therapist
465

Self Employee Tailor
262

JOC
60

Tally with GST
34

RTG
24

MS Office & Excel Training
26

Hand Embroidery
197

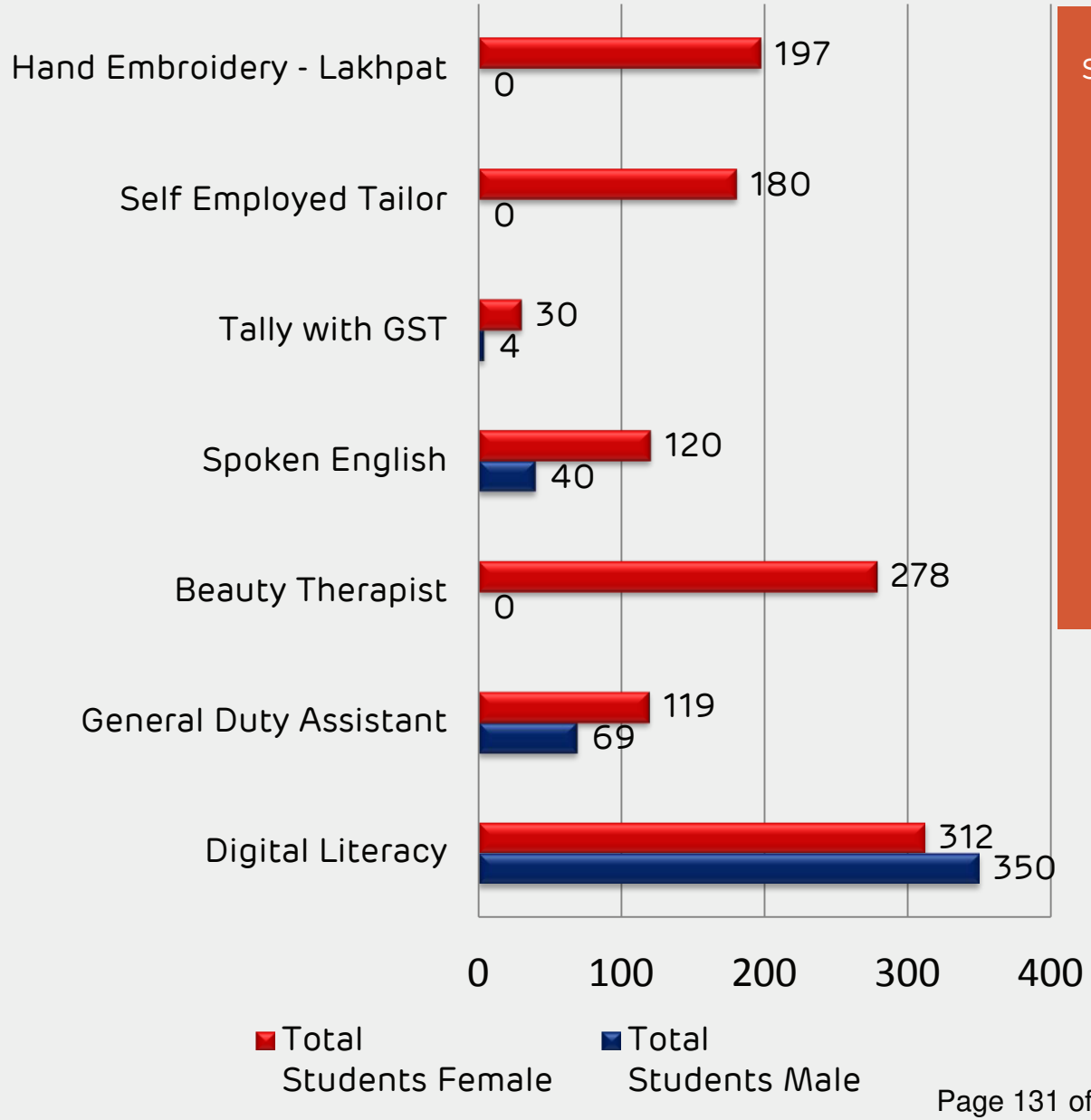
Spoken English
229

Achievement : 2664

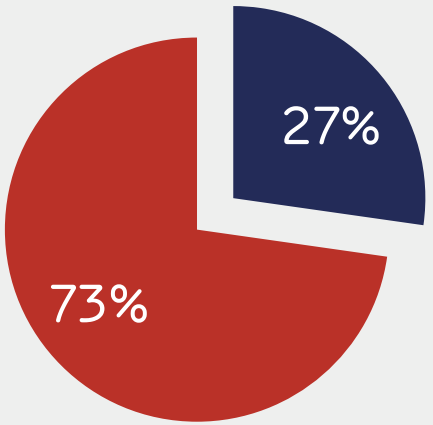
Total Batches: 126


પર્વતો
નદીઓ

In the year 2019-20,ASDC-Bhuj trained 1699 candidates.



Sr. No.	Name of Trade	Total Students	
		Male	Female
1	Digital Literacy	350	312
2	General Duty Assistant	69	119
3	Beauty Therapist	0	278
4	Spoken English	40	120
5	Tally with GST	4	30
6	Self Employed Tailor	0	180
7	Hand Embroidery - Lakhpat	0	197
Total	(1699)	463	1236

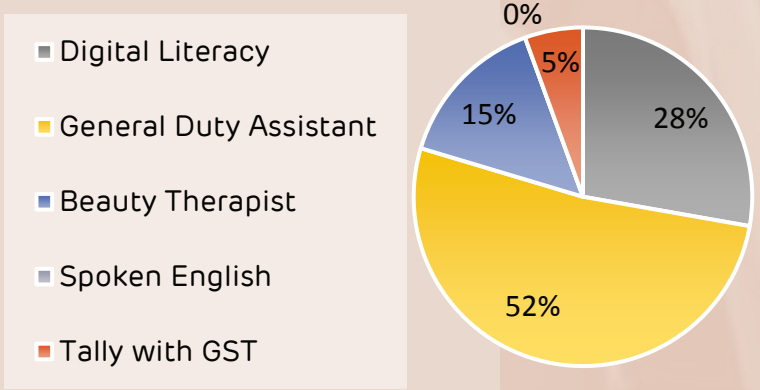


Adani Skill Development Centre - Bhuj

ADANI SKILL DEVELOPMENT CENTRE - BHUJ						
Quarter & Training wise Candidate Detail F.Y.: 2019-20						
Sr. No.	Name of Trade	Q-1_Total	Q-2_Total	Q-3_Total	Q-4_Total	**Total**
1	Digital Literacy	278	163	138	83	**662**
2	General Duty Assistant	60	0	68	60	**188**
3	Beauty Therapist	38	0	0	240	**278**
4	Spoken English	144	16	0	0	**160**
5	Tally with GST	12	22	0	0	**34**
6	SET	0	0	0	180	**180**
7	HE	0	0	0	197	**197**
Total		**532**	**201**	**206**	**760**	**1699**

- Certificate Oriented Training Program: On Successful completion of the course and completion of Assessment organized by the Centre.
- The training methodology ensures a balance between theoretical concept delivery and emphasis on application of concepts through latest training pedagogical processes.

Placement F.Y. 2019-'20



- 52% students got the job in PMKVY GDA training.
- 28% students got job in Digital Literacy Course.
- 8 women self employed in Beauty Therapist Course.

Special Training for Widows

MOU signed between Govt. of Gujarat and Adani Skill Development Centre with an aim to provide quality skill training to widow women to become self -reliant and generate their livelihood.

Total 25 widow women has enrolled for GDA course training.

Special Training for Divyang

Digital Literacy, Beauty And Wellness And Spoken English Training for Physically Challenged Students under Social Welfare Justice Department at Navchetan Andhjan Mandal, Bhuj.

The trainings conducted by Adani Skill Development Centre, Bhuj for Differently Abled Students - Madhapar. Navchetan Andhjan Mandal has dedicated Computer Lab which consists of 15 computers with NVDA software to facilitate disabled students to learn efficiently.

124 students trained for Digital Literacy, Beauty And Wellness And Spoken English Training.

(Digital Literacy = 62, Spoken English= 40, Beauty & wellness= 22)

5 of them placed during the year.

Adani Skill Development Centre – Bhuj

One more feather added in cap of ASDC Bhuj Centre is PMKVY GDA Training Project Saksham – Adani Skill Development Centre completed Four PMKVY GDA Batches in Bhuj received with Four Star Rating in PMKVY certification.

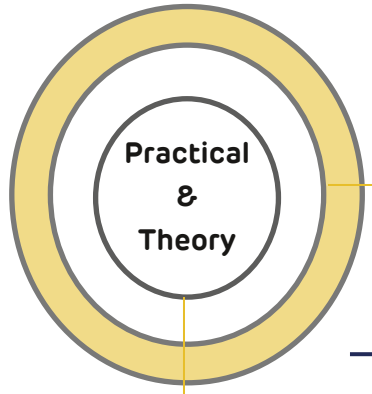
Total 120 Candidates trained till the date (F.Y. 2018-20).

In a year 2019-'20, 28 out of 60 (52%) candidates got the job in various medical departments. 55 candidates passed out of 60 people of PMKVY General Duty Assistant training.

ASDC Bhuj first ever Centre to implement successfully DDU GKY Project for GDA Training.

Total Hours	Domain (GDA)	Non-Domain (Soft-skill)	Non-Domain (IT)	Non-Domain (English)
1081	780	38	150	113

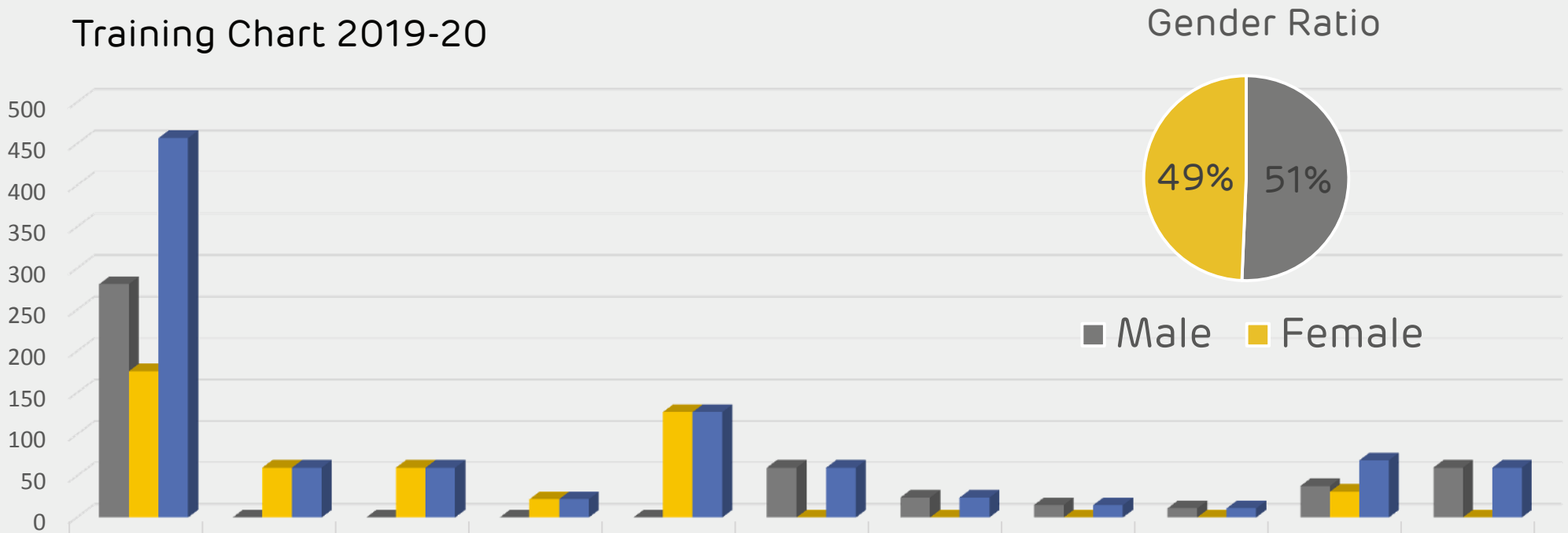
DDU-GKY is placement linked skill development initiative by ministry of rural development, government if India (MoRD).



Course Duration 1081 hours

Total 60 Students have to attended 8 hours class per day.

In the year 2019-20,ASDC-Mundra trained 965 candidates.



	Digital Literacy	Beauty Therapist(SC)	Self Employee Tailoring(SC)	Self Employee Tailoring	Beauty Therapist	Junior Operator Crain	RTG	Microsoft office Training	Excel Training	Spoken English	Unarmed Security Guard
Male	281	0	0	0	0	60	24	15	11	38	60
Female	176	60	60	22	127	0	0	0	0	31	0
Total	457	60	60	22	127	60	24	15	11	69	60

Adani Skill Development Centre – Mundra

RPL recognizes the value of learning acquired a formal setting and provides a government certificate for an individuals skill.

Candidates received an accidental insurance coverage for three years at free of cost.

Certified 27 assessor, 19 Trainer and 08 Assessor.

Started first loader-Unloader job role in Port.

Total Candidates registration 2500

- 42 candidates cleared PMKVY Junior Operator Crane exam out of 43.
- 21 candidates working in various company with 8000-15000 PM.
- 26 students got job in various company
- More then 30 women working as self employed.
- Mobilization activities for SC batches in various village and collage

Adani Skill Development Centre - Mundra

SC Project

Skill Development trainings to various weaker sections of Community

To deliver and promote employability

In collaboration with Department of social justice & empowerment, Gujarat

More than 100 trainees benefited under Self employed tailor training course at Mundra.

More than 300 candidates have been trained in various courses.

Swachhagraha

Adani Foundation has launched project "Swachhagraha" Swachhata ka Satyagraha in the year 2015, to support the 'Swachh Bharat Abhiyan'. Falling in line with our Honorable Prime Minister's call for a Clean India, we launched this mass movement towards making our Nation litter free.

On 9th October 2019 the Project handed over to all institute with a gentle promise to keep swachhagraha flame lighting. In this ceremony with the blessings of Shilin Adani mam Best Swachhagraha Schools awarded by District Education Officer, Kutchh

Swachhagraha at Kutchh

4 City / town

266 Schools

266 Prerak trained

5000+ Dal members

Swachhagraha Outreach

Swachhagraha
Wall

Safai
Ke Sitare

Toilet
Etiquettes

Personal
Hygiene

Large Scale
community events

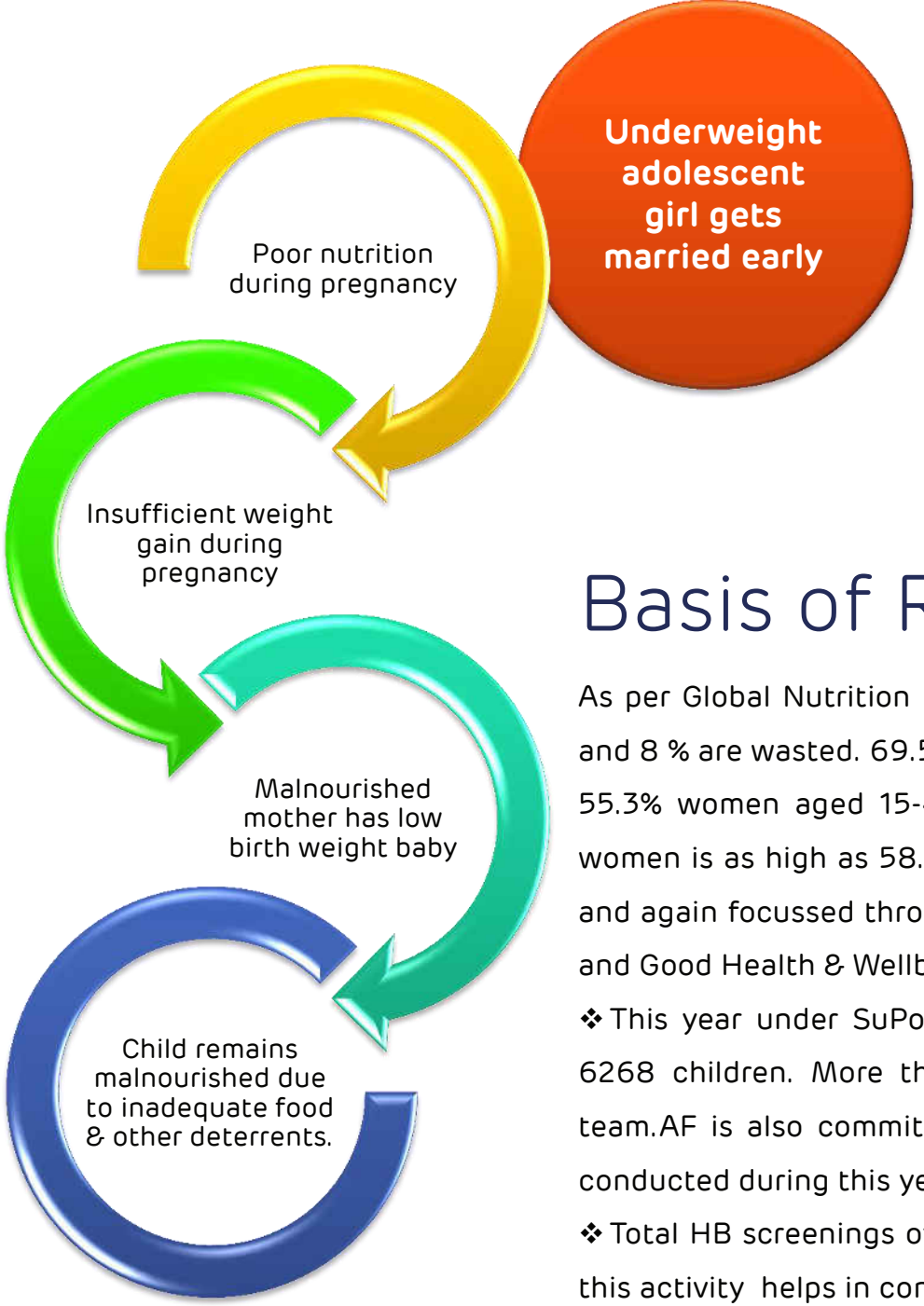
Suposhan

The objective of the Project is to reduce occurrence of malnutrition and anemia.

create awareness about malnutrition and anemia and related factors amongst all stakeholders and role they may play in curbing the issue.

To successful implementation of the project, "Sangini – Village Health Volunteer" plays major role in the Project.

Suposhan



Basis of Requirement

As per Global Nutrition Report released recently, Children below five years- 23 % Stunted and 8 % are wasted. 69.5 % children 6-59 months old, 55.8% adolescent girls aged 15-18 years, 55.3% women aged 15-49 years have Anaemia. Moreover anaemia prevalence in pregnant women is as high as 58.7 %) Curbing Malnutrition was part of Millennium Development Goals and again focussed through second and third Sustainable Development Goals on Zero hunger and Good Health & Wellbeing respectively.

❖ This year under SuPoshan project AF has conducted anthropometry study of more than 6268 children. More than 98 children became free of malnutrition due to efforts of AF team.AF is also committed to spread awareness in this regard. More than 2023 FGD were conducted during this year.

❖ Total HB screenings of RPA woman- 6598no and adolescent girls -10645no was this year. this activity helps in controlling anaemia in women and indirectly malnutrition.

Community Engagement and other Activities 19-20		
Sr No	Activity	Progress
1	Total Sangini	25
2	Total Village	45
3	Total Anganwadi Cover	72
4	Total Families	9178
5	Total Children	5736
6	Total Adolescent Girl	5067
7	Total Women (RPA)	9762
8	Focus Group Discussion	2023
9	Family Counselling	431
10	Village level Events	117
11	No of SAM children referred to CMTC	75
12	No of SAM children provided with Energy Dense Food (Only New children)	112
13	No of total HB & BMI screening - Women in reproductive age	6598
14	No of total HB & BMI screening - Adolescent girls	10645
15	Stunting Category (Changing)	18
16	Wasting Category (Changing)	25
17	Underweight Category (Changing)	55
18	Adolescent Girls with Anaemia (10-19 yr.) (Changing)	249
19	Women with Anaemia in reproductive age (14-50 yr.) (Changing)	272
22	Women in RPA provided with IFA Tablets	201
23	Adolescent girls provided with IFA Tablets	102
20	Sangini Meeting	17
21	Sangini Training	5
22	Total Anthropometric screening	6268

Implementation Strategy

Base line data was provided for Mundra Taluka in initial phase of Project.

•Total Number Aanganwadis in the selected area
•Information on Sub- canters / Primary Health Centres/ Community Health centres/ Referral Hospitals
•Availability of Healthy worker- male & female both, ANMs, LHVs, Doctors, specialists such as Gynaecologist, Paediatricians, Pharmacist, Dietician Lab. Technician, Nursing Staff etc. at above centres (Number & names with contact details)
•Selected areas' Birth rate, Death rate, Infant Mortality Rate, Mother Mortality Rate, Sex ratio, Child Sex ratio against district, state and national average
•Total number of beneficiaries and against that enrolled beneficiaries at Anganwadi/ICDS: 0-6 year children, Adolescent girls, pregnant women and lactating mothers
•Identified malnourished and anaemic children/ adolescent girls and women (numbers, DOB & name as well as current level of malnutrition & anaemia with dates- Base Line data)
•Current Inputs provided through the Government machineries
•Other services available through CBOs, NGOs etc.- Details of inputs and contact details of those organizations
•Understanding & Listing of area specific cultural and behavioural barriers

Expected Outputs

Community Health vertical at each location would focus on project on "Curbing Malnutrition amongst Children, Adolescent girls and Women "with combined approach of community management of Malnutrition and Anaemia and necessary medical treatment components.

- Each child and especially malnourished will be mapped with growth chart
- Regular inputs of RUTF treatment when necessary.
- FDGs with mothers and adolescent girls.
- Village meeting one in a month at every village
- Health camp every month
- Awareness campaigns.

Expected Outcomes

To reduce the occurrence of malnutrition amongst Children by 95 % in three years
•To reduce malnutrition and anaemia amongst adolescent girls and pregnant & lactating women by 70% in three years
•To create awareness about the issue of malnutrition and anaemia and related factors amongst all stakeholders and role they may play in curbing the issue
•To create a pool of resources to be utilised for combating the issue of Malnutrition and Anaemia
•To support efforts in reducing IMR and MMR

Project Swavlamban

Project Swavlamban Launched with blessings of differently abled people of MUNDRA TALUKA.

Our objective is

- To increase awareness about Government schemes for Divyang people, widows and senior citizens and coordinate them with Social Welfare Department, GoG
- After getting income generation equipment support - Proper training provision to make them self-reliant in true sense!!
- Adani Foundation is playing the role of facilitator in case of tie up with Government Scheme for Widows, Senior Citizens and Handicapped people. The identity cards are issued for the handicapped in coordination with Bhuj Samaj Suraksha Khata which is beneficial for them to get specific kit for their disability type. Uoto date 1094 beneficiaries linked up with pension scheme.
- The financial benefit of the senior citizen Yojana is Rs. 500 per month and the widow scheme is of Rs. 1250 per month. Jilla Samaj Suraksha Officer and team remain present every time.

No	Type	Beneficiaries	Financial benefit
1	Palak Mata Pita	6 x 3000	18,000
2	Widow	74 x 1250	92,500
3	Senior Citizen	79 x 750	59,250
	Total	533	1,69,750

Project Swavlamban

Government and Adani Foundation both have supported Total 1094 Beneficiaries of Amount Rs. 15,44,100.00

Govt. shemes Mundra Taluka		Rate	Total Amount
Artificially foots	14	15000	210000
Artificially Hand	1	5000	5000
Blind satick	7	200	1400
Bycycle	9	4500	40500
Crutches	4	200	800
Hand cart	4	5000	20000
Hearing Aid	13	3000	39000
M.R kit	20	500	10000
music	1	500	500
Pension	4		0
RTE Admission	1		0
Sewing Machine	30	5000	150000
Tricycle	33	6500	214500
Walker	3	1000	3000
walking satick	12	200	2400
Wheelchair	26	4000	104000
Bus pass	392		0
Medical certi	401		0
Total	975		801100

AF Support Mundra Taluka		Rate	Total Amount
wheelchair	30	4000	120000
Cabin	5	15000	75000
Fridge	1	18000	18000
Fruit Shop	2	8000	16000
Grocery Shop Item	4	5000	20000
Hand Cart	2	9000	18000
Harmonium	1	10000	10000
Rikshaw	1	80000	80000
Sewing Machine	16	5500	88000
Tricycle	25	6800	170000
Wheelchair	32	4000	128000
Total	119		743000

CSR Tuna

Adani Kandla Bulk Terminal Pvt. Ltd. is joint venture of Adani Ports and SEZ Limited as well as Kandla Port. We are going to implement drainage pipeline for Tuna and Wandi with participation of Kandla Port in current year. Survey is done and work will be started soon..

Adani Kandla Bulk Terminal Pvt. Ltd.

CSR Tuna

- In Rampar and Tuna Village We are providing Fodder in summer season. Also guiding farmers for modern farming techniques for Organic Farming and sustainable Agriculture
- Praveshotsav Kit is distributed in 8 schools covering 180 Students in Tuna and Surrounding seven villages.. Our efforts were appreciated by community.
- Adani Foundation is bridging the gap between Government Schemes and Beneficiaries. This year we could able to support 5 widows and 4 differently abled to avail benefits of Government. Tree Plantation and 4 health camp was organized in Tuna and Rampar Village.

CSR Nakhtrana

Adani Green Energy Limited (Nakhtrana)

CSR Nakhtrana

Adani Green Energy(MP) Limited (AGEMPL) proposes to setup an integrated wind energy project as Green Energy Works which includes Limestone 750 Mw, Through approx. 1250 windmill at Dayapar to Nakhtrana in District Kutch (Gujarat).

Foundation, in cooperation with respective Block Agriculture Departments during the PRAs, regularly conducts various training programmes for the farmers. They have been introduced to various innovative and cost-saving practices in farm cultivation.

Community Health - In Coordination with GKGH 2 Specialty Camp, Eye Camp and 3 General Health Camp was organized. Total beneficiaries is 572.

Adani Foundation has initiated **Project Utthan** – at 8 Schools at Nakhatrana by signing MOU with District Education Department. Frame work of the Utthan Project is as per Utthan Mundra.

Project Svavlamban – Started Swavlamban Center at Nakhatrana Town to make widow and Divyang Women Sustainable though Stitching work. We have supported 5 stitching machine and material for fund rotation.

In Community Infrastructure Development work we have taken up work of Road Levelling and Culvert Construction at Gadani Village. Main reason to initiate the project is - During Monsoon Period difficult to use road for farmers and School Going Children of Vadi Vistar and Due to water logging excess water enters into farms which affect development of crop. Approximately 80 farmers and 70 School going children will be beneficiaries of the Project.

The work will be resulted into Construction of Pipe Culvert and Road Levelling work at Vadi Vistar at Gadani Village with Outcome to Easy Approach for Farmers and Students of Vadi Vistar School during monsoon Period.

Adani Cementation Private Limited (Lakhpat)

Adani Cementation Limited (ACL) proposes to setup an integrated cement project as Lakhpat Cement Works which includes Limestone Mine in 251.9 ha area, Cement Plant of rated production capacity of 10MMTPA Clinker and 3MMTPA of OPC/ PPC/ PSC/ COMPOSITE CEMENT in three phases, and a berthing jetty of 15MMTPA traffic capacity in phase wise manner in Taluka Lakhpat of District Kutch (Gujarat).

Project Public hearing held in month of May 2019. For Smooth Execution of the Project we have done Participatory Rural Appraisal and Village Development Committee formation at three nearest villages (Koriyani, Kapurashi and Mundhvay) of our upcoming cement plant.

Linkages with Govt. Scheme

Wheelchair support – 2

Tri cycle support - 3

Divyang Form – 2

Education Support

Music Kit – 4

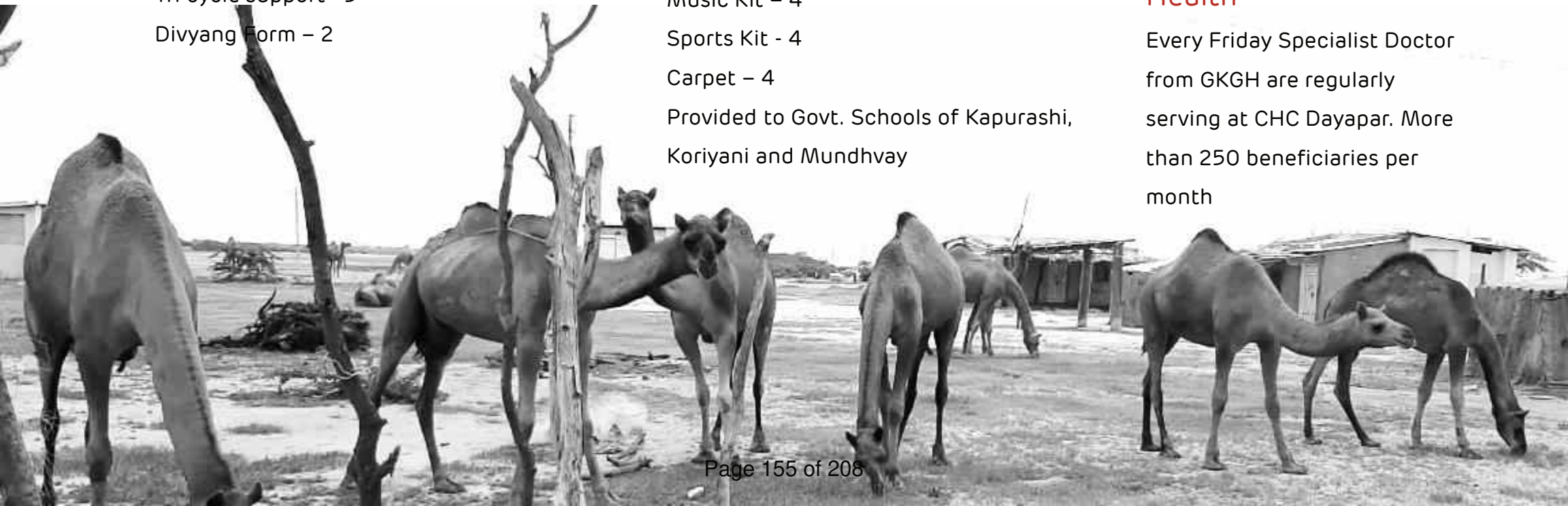
Sports Kit - 4

Carpet – 4

Provided to Govt. Schools of Kapurashi, Koriyani and Mundhvay

Health

Every Friday Specialist Doctor from GKGH are regularly serving at CHC Dayapar. More than 250 beneficiaries per month



Fodder Cultivation

Most of the population of Lakhpat Depends upon Livestock for their livelihood. Fodder is the prime requirement of them. Adani Foundation had distributed Jovar seeds after considerable rain to 260 Farmers to motivate them for sustainable Livestock development.

299 acres
under fodder cultivation

Expected Yield:
747.5 tonnes

The Problem

- Scanty rainfall
- Deficit of fodder availability
- Fodder only available on high rates.

The Solution

Encourage farmers

- To grow grass as fodder
- To cultivate jowar as fodder harvest
- Village level grassland development

World Disable Day celebration

Celebrated World Disability Day - Swavlamban center opened

at Dayapar for disable and widow women.

Support 10 tricycles and 2 wheelchairs and 9 artificial limps to disables.

Adani Solar Energy Private Limited (Bitta)

CSR Bitta

Under Adani Solar Limited – 40 MW Solar Panel Power Unit is Situated at Bitta Village in Abdasa Taluka. We are providing Fodder Support and Health Camp Facilities at Bitta. Our Suposhan Project is running successfully at Bitta.. .

Adani Foundation has taken Eco Friendly initiative for whole village. Village street lights, School and GP is provided Solar Panel to save electricity. The unit was conceptualized and implemented by Solar Team.

As Abdasa is water scared region and very less rain in past years , as per humble request of villagers Adani Foundation has provided 1,13,750 Kg Fodder to Bitta, Dhrufi and Moti Dhrufi village.

Under “Sujlam Suflam Jal Abhiyan” Two Pond Deepening was carried out and got appreciation letter from District Magistrate.

Praveshotsav Kit is distributed in 8 schools covering 47 Students in Bitta and Surrounding seven villages.. Our efforts were appreciated by community.

Employee Volunteering Program

704 children in the school are from families of migrant labourers working in various industries in and around Mundra. Children from migrant labourer families in addition to resource constraints at home also bear the disadvantage of unfamiliarity with local language and culture inhibiting participation in school.

Current year 997 students have been adopted – which is matter of proud. To make employees connected with children Vallabh Vidyalaya regularly send progress report twice in a year. Process of cheque handing over ceremony is delayed due to corona virus issues.

Employee Volunteering Program

International Yoga Day Celebrated at Shantivan Colony ground where 2100 students have participated from different Government School.

More than 500 Employees participated and HR Department has coordinated whole event. Chief Guest of the Event was Mr. Sunil Singhi Chairman, Labour welfare board, GOG

We distributed 250 hooks to employees residing at Shantivan colony. Hook is the thin rod of steel. In this hook all will collect plastic bags. After three months we will collect all bags and give to Suzlon for recycle will made PVC Horse Pipe. **I.e "Waste to Best".** Employee's family members became determined for not using Plastic bags.

For motivation purpose facilitation of employee was done by Mrs. Vinita Rai (President, Ladies Group –Shantivan Colony)

Employee Volunteering Program

Periodic Support to Old age home at Gundala where total 105 Senior citizens are living.

Till Date 36 Adani Employee have celebrated Birthdays or any memorable day with senior citizen by sponsoring and servicing for lunch/dinner facility

Dignity of workforce day was organized jointly of APSEZ (Adani ports n SEZ Limited), AWL(Adani Wilmar Limited), MSPVL (Mundra Solar Pvt Limited) Adani Hospital and Adani foundation at labour colony with medical camp and handing over of sanitation. more than 32 employees have volunteered in this event.

1. Total OPD by Medical camp at Labour colony- 760 (5 Camps)

2. Joy of Giving Week Cloth Distribution to 800 workers

In this event Mr. Sharad Sharna Head-AWL with staff, Bhaktbandhu DGM HR and Admin staff (APSEZ), Mr. Ganesh Sharma Head HR, President - Kutch Labour Union and Adani foundation team remained.

“I have a Disability yes that’s true, but all that really means is I may have to take a slightly different path than you.”

We always complain to God, for life, for appearance, and for so many others. But today I am talking about Rubina, a young girl from Deshalpar village. Rubina has a unique personality, who, despite being unable to speak or listen, always she faces these physical shortcomings with a smile.

somehow Rubina found about Adani skill development beauty therapist course and she decided to join this course. when she joined the there was question in everyone's mind, is she enabled to do this course, how she will manage, how will learn, ask questions, listen etc. but she proved wrong to everyone. like miracle happens, she completed her training very smoothly. not just completed but she was very active and enthusiastic during training.

today she has started her mahendi studio, the amount of earning is not so much high, but the satisfaction is up to sky.

At the end she smiled and said

“Don't compare your struggles to anyone else's. Don't get discouraged by the success of others. Make your own path and never give up”

Suf Handicraft : Conserving "VIRASAT" of Decades

Parvati Ben's earliest memory of stitching delicate handicrafts is from when she was as little as 5-years-old. Since then, she has followed this art with an immense dedication that shows through her intricate and precise handiwork.

Parvati is a resident of Pragpar-2 village. She lives in a house with 5 other people and is the sole breadwinner. Even so, Parvati is a humble, loving and welcoming individual.

Parvati Ben had been practising her intricate Suf handicraft all along, making scarves, table cloths, garments and more for her fellow villagers and the occasional visitors. Her artwork had consistently been worth more than what she sold it for- her only desire being that her art finds an expression, a space in the world, however small it may be.

One day, Adani Foundation discovered this diligent, rigorous woman. Parvati Ben now works on projects brought to her by Adani Foundation and is hence able to sustain her entire family on her own. She has risen to be an aspirational figure, looked upon as a role model by her fellow village women. Parvati Ben is playing a major role in now setting up a federation for the village women across Mundra district to practise their handicraft work and earn a livelihood.

But more than all the titles and positions, what Parvati Ben deems sacred is the sheer recognition of her art. All she ever wanted was to be known as an artist and now she is the voice of this very own art, inspiring dozens of women like her to become independent.

When Miracle happened !!

One mentally disabled boy named Gyan was residing in one small village Bihar. During makarsankranti festival Ganga Snan he was going with his family. By mistake he entered in different train n reached to Bhuj.

As for any Train coming in western India Bhuj is last station and that's why many mentally disabled people found out in Bhuj.

27 years old Gyan was alone in Bhuj - he used to beg and eat, too tough life !!

After passing two months anyhow, One day due to small accident he was brought to Adani GKGH.

During treatment, one smart para medical staff found out mobile number in tattoo drawn on his hand.

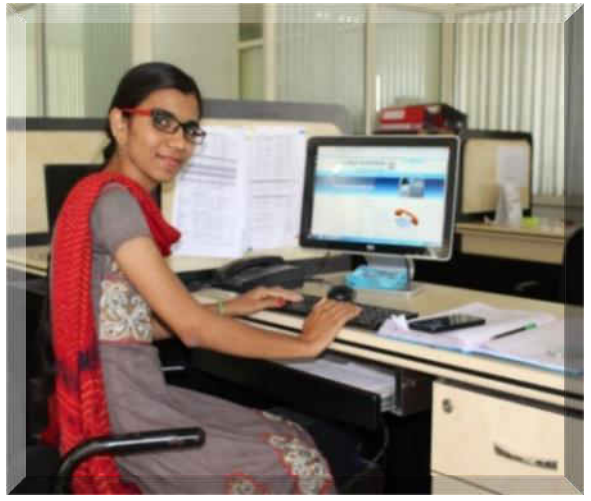
Staff members of GKGH called on this number and ask his family to come Bhuj.

Finally Gyan meet his family n back to his home.

Healthy Children Become Happy Children

Under the initiative of Balwadi at Vasahat (doorstep Early age Education for less Fisher folk), special awareness camps are organized for kids in school in order to imbibe health seeking behavior in the next generation. Various awareness activities based on healthy living are taught to them such as hand-washing steps and healthy eating habits so that they actively participate in adopting methods for personal hygiene in their daily routine.

Yamina is one of the student of Balwadi. She is five years old. Earlier she used to come to Balwadi without taking bath or hair combing. But after regular awareness camps for mother and students now she is coming well dressed and clean – due to maintaining personnel hygiene she remains healthy too..



Every Dark Cloud has Silver Lining

Ms. Ramila Maheswari belongs to village Dhrub. Her father's occupation is farming. She has completed graduation and was searching job but lacking in computer operation skill.

Ramila says one of my friends suggested me to join digital literacy training at Adani Skill Development Centre, Mundra. I visited the center with my friend and joined class. I sincerely attended all classes of the course and learnt basics of computer operation viz; Typing, Paint, MS Office (word, Excel, power point), shortcut Keys and using internet for web browsing like; Gmail, Paytm, amazon, net banking etc.

She is saying with smiling on face that

"Today, I am working with firm "YASH ENTERPRISE" in Nana Kapaya, Mundra as a customer care executive and earning Rs. 7000 per month. I am really thankful to Adani Skill development Center to make 'SAKSHAM'.

Pathways towards bright future !!

Kripalsinh Jadeja comes from Hatadi, Mundra with a family of 5 people, four elder brothers and parents. His father is a farmer and mother help him in farming. The brother is working as truck driver. The economic condition of the family was very poor.

Kripalsinh has completed 12th and was searching job. The team of ASDC Mundra had mobilized in the area where he stays and through which he got to know that Adani Skill Development Centre (ASDC) is providing training for checker-cum- RTG crane operator and this was his dream job.

He performed well during the training and understood how this training would help him to grow in future in the field he desires. He was regular to the classes and always eager to know the process well and he performed well during all the activities.

Kripalsinh says he gained back his confidence after starting the training and was motivated by the trainer to participate in all activities and grab any opportunity where he can showcase his skills.

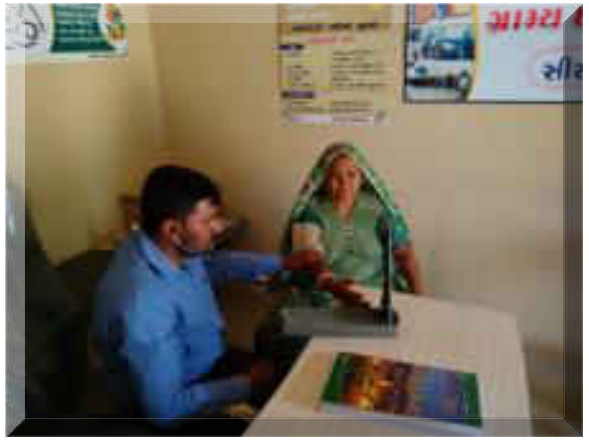
He says that he got more support by getting additional training of soft skills, public speaking, professional manners and facing interviews with confidence.

While undergoing the ASDC training Kripalsinh never imagined that this additional knowledge and skill up gradation would bring him a bright future.

My Emotional Support

Adani Foundations' Senior Citizen Health Card is like a cure to our emotional, physical and psychological problem; in the times when we are completely lonely and handicap at age."....Says both of them while weeping.

Every human being has specific periods of the life wherein the childhood is for fun and the adulthood is spent for the family; remains old age to take care of health Adani Foundation is holded hands of the senior citizens of Mundra Rajendrasinh and his wife stay alone. Their son and daughters stay separately. They earn their living by grazing cattle. he is having severe arthritis and respiratory disorder. The source of income is very meager and that to dependent on rain. He had to borrow money from family friends or at times take on interest for taking basic treatment. His wife Shantaba also has blood sugar and hence she also requires medical assistance at times. The couple took Adani Foundations' Senior Citizen Health Card in 2015 by which they are able to save good amount, which was their medical expense every month.



Can any other relationship be as beautiful?”

When you grow old, loneliness is sometimes more painful than physical sickness. During routine visits of Dr Deven Goswami – Medical Officer of Rural clinic in Siracha the community as a health volunteer, he met Parma Ba (grandmother in Gujrati) who initially appeared as an introvert. She lives in Siracha Village. According to her neighbors, she confined herself within the four walls after her husband’s demise. Despite living with her children, she is often seen sitting alone in the corridor of her house, as the family members are apparently busy with their own lives. Financially strained, she refrained from visiting a doctor due to fear of their exorbitant fee.

Dr. Deven was determined to not only get her to Rural Clinic, but also cultivate a health seeking behavior in her. He would keep on standing outside her house till the time she didn’t agree to listen to his request. Do you know something? Ba is his best friend today. They not only share our secrets with each other, but also counsel each other as a mother and a son. Can any other relationship be as beautiful?”

Good Human Beings are Gods Incarnate

While many people talk about water crisis and drought in Kutchh, Rambhai Gadhavi of Zarpara has practically found and tried a solution to it and that is water conservation. Born into a poor farmer's family, he faced water problems in childhood and used to wake up at wee hours to fetch water, which inspired him to find ways of water conservation. Under Guidance and Support of Adani Foundation He practiced non-irrigation agricultural methods as solutions to water crisis which causes drought, thereby leading to Indian farmer suicides every year.

He did Bore well recharge and Farm Bunding to increase capacity of ground water though rain and to prevent run off. Not only that, he gave guidance to other farmers to accept water conservation practices.

Rambhai and his wife Veerbai's enthusiasm is remarkable in micro irrigation, fodder cultivation and Recharge activities. They are real change makers of "Sustainable Agriculture Projects" of Adani Foundation

Every drop that matters!

Kutchh district is a dry temperate zone and rainfall is negligible. Water requirement is met through the reservoirs in which the water decreases during summer months when crop is standing in the field. Whatever irrigation was provided resulted in soil erosion leading to loss of huge quantity of soil every year thereby increasing the farmer's problem in producing good quality crop. Therefore, usage of water and land is to be done sensibly by the farmer. Muljibhai The farmer of Navinal Village attended awareness programme of micro irrigation and organic farming organized by the Adani Foundation and showed interest in adopting the same. He was given every suitable help in subsidy and was persuaded into adopting drip irrigation for field crops.

Not only this, with support of DRDA and Adani Foundation he had adopted Bio gas which is utilized for cooking and organic fertilizer as well.

With the help of drip system, the Muljibhai was able to diversify towards different Horticulture crops like Pomegranate, Jamfal, chikoo etc. in addition to traditionally grown crops like Cotton and Caster.

As a result, he is able to get 40-45% higher yield as compared to flood irrigated crops. Diversification has helped in improving returns from the same area.

Reenaben is making patients smile with compassionate care

Reena Amal has literally put his wise words into practice. An ambitious and determined girl, she was pursuing B.A. when tragedy struck. Her husband died of a heart attack leaving her widowed at the age of 24 with two young boys to raise. Unable to get support from her in-laws, she had to move back into her parents' home. In spite of being unsure about the future, her love for her children gives her new hope every single day. Her desire to provide them with a good education and a stable life fuels her to aspire for more. So, she joined ASDC's General Duty Assistant course and hasn't looked back since then.

Reena proved to be a dedicated student throughout the course. She impressed her trainers with her zeal to learn. She soon completed the course and became a successful patient care assistant. Currently, she is working at the G.K. General Hospital and earning salary of Rs. 9900/- pm in the OPD under the guidance of a dietician. She is learning how to prepare diet charts according to the needs of various patients. She is most grateful to ASDC in Bhuj for giving her this opportunity to become self-reliant and care for her children. Reena has truly risen above tragedies and obstacles in life by immersing herself in a life of serving and caring for others!

Dilipbhai says " Digital Literacy training has given a boost in my life."

"Change occurs at every turn of the page of life."

I am providing outsourcing services of Administration in G.K General Hospital, Bhuj. I am 40 plus and I have observed the IT wave and Artificial Intelligence has proved as boon in healthcare industry. Young colleagues at work are using their IT skills to make ease at work but growing Digitalization also brought many challenges for middle aged people like me. I enquired about Digital literacy course to many places but couldn't found the quality training centre. In Adani Skill Development Centre, I have not only improved my Ms office and typing skills but also found effective and time saving techsavy solutions for day to day time consuming activities. Dilip Joshi

Adani helped me to live with dignity !

Bhadreshwar is a well known village due to Suradas family, the generous donor Jagdusha and Jain temple Vasai Tirth ! Here we want to introduce a couple of this village who are blind ! Yes, Khetshi Chande and his wife Manglaben who live in this village with their daughter Trupti. His only source of income was the government pension. Once when Khetshibhai was with Karshanbhai from Adani at Mundra bus station, he sung few lines describing his own life. "Nach nachavya che ghana ne, aaj hu khud nachi rahyo chu, didha nathi pan devdavya chhe daan ghana ne, aaj khud yaachi rahyo chu; prabhu tari aa lilaa, jem tu ramade em rami rahyo chu !" which means once he was helping others and today he is asking others for help.

When Karshanbhai visited his home, he came to know that once upon a time Khetshibhai was having a small shop but due to less sell he stopped it. At this moment instantly Karshanbhai proposed Khetshibhai that he should start once again his shop and for that Adani would support him. This proposal made Khetshibhai very happy but than he asked if he could get any help from someone who could support him to buy grocery worth 10 thousand. Karshanbhai told him that he would put it in "Self reliance program" by Adani foundation for sure. After few days on the birthday of honorable Mr. Gautambhai Adani, there was a celebration at the school in Bhadreshwar on 24th May, 2018. In this celebration Khetshibhai was handed over a grocery kit which he was in need by Panktiben from Adani foundation in presence of Sarpanch and citizens.

Today Khetshibhai is running his shop at Maheshwarivas of Bhadreshwar village with all dignity ! He is happily earning around 2000 per month and is able to send his daughter to Adani vidhya mandir where she is studying in 7th ! This happy family is always blessing Adani foundation for helping needy people !

Pathways towards self Dependency!!

Tunda is a small village of Mundra block. Gorighar Goswami is pujari of Lord Shiva temple and he lives with his wife Anitaaben, three children and his mother. Gorighar was doing need based works in various companies for earning purpose and with that income he was fulfilling his family needs ! Ones when Gorighar was returning from other village an accident occurred with him and he died on the spot. When this news came to his family, it was unbelievable to them.

Adani foundation respects all the invitation from the village but whenever there is any incident of sad demise, Adani foundation is there for sure to consulate. A staff member of Adani foundation went to their home and gave consolation to Anitaben and promised her to help her .

In the next visit Devalben recognize the economical condition of the family as after him no one earning member was there in the family

We always believe that if something is there in your luck, no one can take it away from you. Llife teaches us that you will get whatever is there in your luck but not without your own efforts ! Anitaben is a person who was ready for every efforts to help her family ! This keen interest of this woman was noted by Adani foundation ! Anitaben was allotted a stitching machine in presence of CSR head of Adani Panktiben and Sarpanch of village Abdremanbhai Kumbhar.

As she was having knowledge of stitching, this stitching machine gave her a lift and she started her work with more force ! Today Anitaben is well known for her traditional cloths stitching and she is getting more and more orders from her village ! When she came to know that TATA power company is in need of lots of cloth bags, she grabbed the opportunity which helped her to earn good amount ! Today she is earning around 8 to 9 thousand which is enough to run her family very well ! She said, "Due to Adani foundation I have started not only earning very well but it has changed my life thoroughly ! On behalf of all women like me I would like to thank Adani Foundation !

World Environment Day

555+ Tree plantation in Bhuj, Mundra & Nakhtrana Taluka on world Environment day

9000+ cum Augmentation and deepening work of check dam in Mandvi & Lakhpat Taluka

World Environment Day was celebrated in Five Talukas by different activities related to conservation of Environment. These Events were organized in coordination with DDO, TDO, SDM and Village Leaders of all Five Talukas. The activities Tree Plantation, Check dam Augmentation work, Inauguration work of Godhatal Dam Deepening work.

11000+ Tree plantation during year in Bhuj, Mundra, Nakhtrana, Anjar, Lakhpat, and Mandvi Taluka

International Coastal Clean up Day

Mundra Adani foundation MUNDRA has celebrated swachhagraha related International Coastal Clean up Day celebrated with Coast Guard" with theme swachhagraha.. School students, Coast Guard staff and Adani foundation staff had cleaned Mandvi beach and give a message of swachhagraha.. At the end information given about swachhagraha project

Teacher's Day : Guru Vandana

Teachers day celebration in coordination with District Education Office and District Development Office with Adani Foundation - District Level Best teacher Award on this auspicious day.

13 teachers is selected after screening by DEO Office and tofay award will be given in presence of DEO, DPEO and Vasan bhai Ahir Minister Gujarat .

Rethinking about future of plastics

National conference on current status n Rethinking about future of plastics was organized at GUIDE – Adani Foundation was partner of the Event.

We have presented our efforts for changing mindset for No plastic awareness campaign..

Plus We also shared mangroves biodiversity project with GUIDE and given book to all present dignitaries

International Volunteer Day (IVD)

International Volunteer Day (IVD) on 5 December was designated by the United Nations in 1985 as an international observance day to

celebrate the power and potential of volunteerism.

It is an opportunity for volunteers, and volunteer organisations, to raise awareness of, and gain understanding for, the contribution they make to their communities. On 3rd July – Occasion of" International No plastic Day" - AF Team has distributed 250 hooks to employees residing at Shantivan colony.

Hook is the thin rod of steel. In this hook all have collected plastic bag wrapper i.e. Waffer, Buiscuit, milk etc @ 8.5 Kg. This Plastic will be given for recycle for making Hose Pipe. I.e "Waste to Best". Employee's family members became determined for not using Plastic bags.

Today On 5th December – We have felicitated the five volunteers who collected highest quantity of plastic bags. Chief Guest of the Event was Ms. Vinita Rai (Head, SVC Ladies Club) and Mr. Avinash Rai (CEO, APSEZ).

Respected Ganesh Sharma Sir (VP – HR, APSEZ) and Respected Patiyal Sir (Head –Admin, APSEZ) had nicely coordinated for the Event.

This will be regular and sustainable event for AF.

Divine Feelings Towards Mata no Madh

People used to go by foot to Mata no madh in Navaratri. Total 8 camps at different locations is inaugurated today in way towards Mata no Madh by Adani Foundation Bhuj and GKGH Hospital.

Total 34537 Patients were benefitted in this Camp

Mata no Madh is a village in Lakhpat Taluka of Kutch district, Gujarat, India. The village lies surrounded by hills on both banks of a small stream and has a temple dedicated to Ashapura Mata. She is considered patron deity of Kutch. The village is located about 105 km from Bhuj, the headquarters of Kutch district.

"Ayushman Bharat – Celebrating First Birthday !!"

On the first birth anniversary of "AYUSHMAN ENROLMENT CARD" Adani Foundation Bhuj and Mundra had successfully completed 11 Ayushman card enrollment camps in a single Day.

Skill Development Training Program for Schedule Cast Beneficiaries

We could able to fulfil target of training 1440 SC beneficiaries from Eight Talukas from Kutchh for different courses.

Mr Vinod Chavda (MP, Kutchh and Morabi) Mrs Lata Solanki (Pramukh, Nagar Palika,Bhuj) Mr Rohit (District Social Justice and Empowerment), Mr Jatin Trivedi (Head, ASDC)and Mr solanki (Chairman, social justice commitee Kutchh) we're present.

courses

1. Hand embroidery
2. Self employed stitching
3. Mobile Repairing
4. Beauty parlor
5. Crane operator

udaan get inspired

completed 10 years of udaan

Education Minister Mr. Bhupendrasinh Chudasama visited Udaan Project and Utthan Project of Adani Foundation. He Appreciated Udaan Project which is truly inspirational and impactful Project. He got information though power pint presentation about Utthan Project – Enhancing Primary Education of Government School. He motivated and appreciated joint effort of AF Team and District Primary Education office

Events

Adani Foundation have arranged a program "**Celebrating The Health Of Women**" at Mundra. The motive was awareness in women about their health and issues. Around 250 women were participated in this event. Doctors were gave information about women health, periods cycle, breast cancer etc. Doctor discussed about breast cancer, its symptoms, precautions, does and don'ts etc., and advised women to go for regular check up after forties. At the end of program health kit distributed to women.

Republic Day Celebration at ASDC Centre

Bhuj Adani Skill Development Centre witnessed the celebration of the Republic Day on the 25th January, 2020.

Students, Staff and Faculty members filled with a feeling of patriotism and dedication gathered in front of the Guest & Director- Adani Foundation, Vasant Gadhavi. In his speech, the director highlighted the importance of the Constitution and its unique features in the preamble of the constitution. He also gave an insight on the various accomplishments achieved by Centre and motivated the crowd for bringing more laurels for the Centre through their accomplishments.

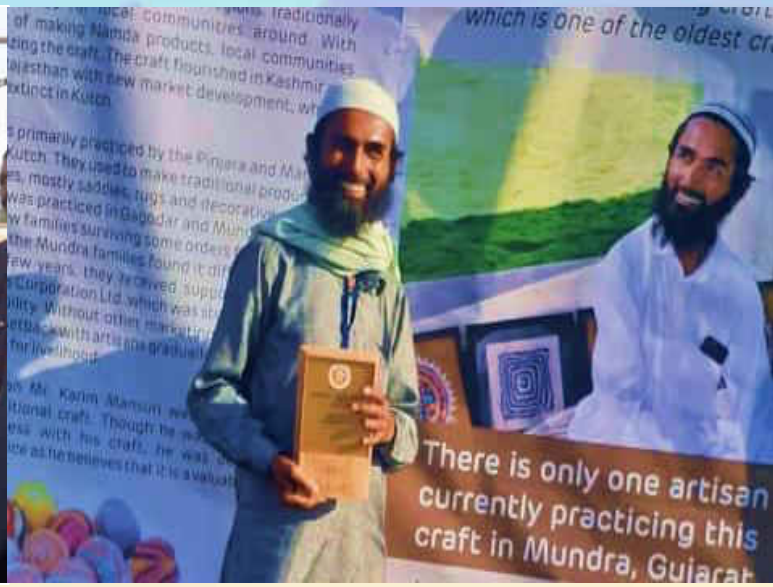
International disability day

Celebration of international disability day - Adani foundations Lakhpat celebrated three different programmes in coordination with District social welfare department and Lokseva trust.

1. Seva setu programme in which information and form fill up for various Govt schemes for Divyang I.e. bus pass, sadhan sahay and pension

2. Sadhan sahay - If beneficiary can not fulfill Govt criteria then of disability percentage or age bar - Adani foundation has supported beneficiaries.

3. Opening of swavlamban center in coordination of merchant association - widow women will stitch non woven bags and merchant association will purchase regularly and mamlatdar saheb will monitor the system.



Mr. Karim Mansoori – Namda Artist was felicitated at National Artisan Expo Rajkot by Mr. Vijay Rupani along with 13 other artisans from all over Gujarat. the motive of felicitation was, their work towards community and their efforts for revising their art. Karim Mansoori was the only artisan of this art called "NAMDA" in Gujarat state. he was also part of this six-day National Artisan expo, for one week.

Awards and Accolades

With a great pleasure to share that APSEZ - CSR received such a big recognition as a honourable mention in western recognition under category Challenging circumstances under first National corporate social responsibility 2019.

Chief guest of the ceremony was our President Honble. Ramnath kovind. Ceremony was presided over by smt Nirmala sitaraman - Minister Finance and Guest of honour was Mr Anurag sinh Thakur Minsitry of state for finance and corporate affairs ..

Award received by Respected Dr Malay Mahadeviya and accompanied by Mr Rakshit shah and Mr Avinash Rai.

Awards and Accolades

Apex India CSR Innovation Award 2019

Adani Foundation Mundra received **"Gold Award"** under Apex India CSR Innovation Award 2019 Today at Goa.

Cheif Guest of the event was Shri Prasad (Union Minister Goa,GOI) and Guest of Honour Mr Suri (Former Governer Goa).

From Adani Foundation Mundra - Mr Vijay Gosai (Coordinator SLD Projects) and Mr. Karsan Gadhvi (Sr PO SLD Projects) received the Award.

Awards and Accolades

QCFI Best Case Study (State Award)2019

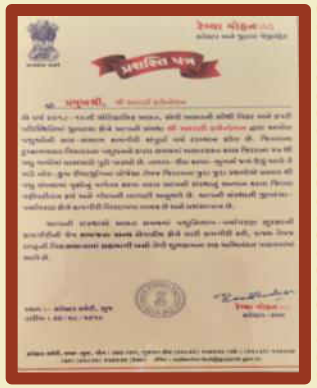
It was an honour for our Mundra team to be presented with the Diamond Category award at the Stae Case Study Presentation Competition by Quality Circle Forum, for their 'Mangroves afforestation and alternate livelihood' case study. We hope to continue our efforts to #empower people and preserve the #environment for the betterment of all

Awards and Accolades

QCFI Best Case Study (National Award)2019

It was an honour for our Mundra team to be presented with the 'Far Excellence' category award at the National Case Study Presentation Competition by Quality Circle Forum, for their 'Mangroves afforestation and alternate livelihood' case study. We hope to continue our efforts to #empower people and preserve the #environment for the betterment of all.

Awards and Accolades



Sharing with Proud that Adani Foundation got felicitation from Mr Vijay Rupani Honrable Cheif Minister Gujarat for

1. Water Conservation works
2. More than 7000 Tree Plantation in Mundra, Anjar, Lakhpat and Mandvi Taluka

Felicitation of 3 CSR from Kutchh district for remarkable scarcity related work.

From Adani Foundation - Mr Karsanbhai Gadhvi received Award.

Awards and Accolades

Quality education is all about providing students with the resources & opportunities that open a new window to the outside world. At our Adani Vidya Mandir schools, we're dedicatedly working to facilitate our children and make them future-ready. It's an immensely proud moment for us as Adani Vidya Mandir schools Bhadreshwar was recognised at the Samagra Shiksha Empowering India 2020 Awards, by Ministry of Human Resource Development, Government of India, for empowering children with education, ensuring a Brighter Tomorrow for India's future generations. The awards were presented by Dr.Ramesh Pokhriyal Nishank.

Ms. Pankti Shah was invited as a guest of honour for Mission Eco Next "Eco Eureka Training" by ministry of science and technology - Government of India at KSKV Bhuj.
Initiatives of Adani Foundation for Biodiversity and water conservation was shared on this platform.

Mr. Mavajibhai Baraiya was invited as a guest of honor for "Creating Sustainable Farming Villages" by Krushi Research and Development Association by Vagad Visa Oswal Samaj. Initiatives of Adani Foundation for Fodder Sustainability and water conservation was shared by him.

Awards and Accolades

adani
Foundation

Adani Foundation Parivar

No	Core Area	Beneficiaries	Remarks
1	Education	7514	Uthhan, Praveshotsav, Labour School Support
2	Adani Vidya Mandir	443	School Students
3	UDAAN	33030	568 Institutes Visited
4	Adani Skill Dev. Center	2664	Mundra and Bhuj
5	Community health Mundra	62956	MHCU, Medical Camps, Senior Citizen
6	Community health Bhuj	25604	Health Camps, Mahiti Setu, patient care
7	SLD Fisherman	6970	Water, Education, Mangroves etc.
8	SLD Agriculture	2907	Drip Irrigation, Bio gas, tissue
9	SLD Women Empowerment	419	Saheli mahila gruh udyog – 12 SHG
10	Community Infra. Development	94206	Pond deepening, AKBTPL, Labours work
11	Suposhan Mundra	20565	Adolescent, Children and RPA
12	Nakhatrana	610	Community Health, Biodiversity and CID
13	Tuna	445	Cattle Owner, Praveshotsav, Svavlamban
14	Lakhpat	765	Cattle owner for fodder, Divyang and School Support
	Total Beneficiaries	**259098**	

Financial Overview

Adani Foundation -Mundra				
Executive Summary-Budget Utilization 2019-20				
				F.Y. 2019-20 (Rs. In Lacs)
Sr. No.	**Budget Line Item**	**Budget 2019-20**	**Budget Utilization**	**% of utilization**
A.	Admin Expense	71.50	64.47	90.17%
B.	Education	57.75	55.46	96.04%
C.	Community Health	220.66	244.89	110.98%
D.	Sustainable Livelihood Development	487.80	451.41	92.54%
E.	Rural Infrastructure Development	321.53	249.36	77.56%
Total AF CSR Budget :		**1159.24**	**1065.60**	**91.92%**
F.	Utthan - Education	108.93	81.21	74.55%
G.	Model Village	197.26	173.65	88.03%
Total Project Utthan Budget		**306.19**	**254.86**	**83.24%**
H.	Adani Vidya Mandir - Bhadreshwar	204.35	184.93	90.50%
Total AVMB Budget		**204.35**	**184.93**	**90.50%**
I.	Project Udaan_Mundra	373.14	307.69	82.46%
Total Project Udaan Budget		**373.14**	**307.69**	**82.46%**
Grand Total :		**2042.92**	**1813.08**	**88.75%**

भारत सरकार
Government of India
कारपोरेट कार्य मंत्रालय
Ministry of Corporate Affairs
राष्ट्रीय कारपोरेट सामाजिक दायित्व (सीएसआर) पुरस्कार 2019
National Corporate Social Responsibility (CSR) Awards 2019

प्रमाण पत्र
Certificate of

सम्माननीय उल्लेख
Honourable Mention

चुनौतीपूर्ण परिस्थितियों में सीएसआर
CSR in Challenging Circumstances

(पश्चिम भारत)
(West India)

"अडानी पोर्ट्स एंड स्पेशल इकोनॉमिक ज़ोन लिमिटेड"
" Adani Ports and Special Economic Zone Limited "

नई दिल्ली / New Delhi
दिनांक / Date : 29-10-2019

सचिव / Secretary
कारपोरेट कार्य मंत्रालय
Ministry of Corporate Affairs

Annexure – 5

QRA STUDY RECOMMENDATIONS COMPLIANCE REPORT_JEETY AREA			
S. No.	**Recommendations**	**Remarks**	**Document Number**
1	Selection of the loading arms and commissioning checks to ensure proper operation of the PERC in the event of ESD actuation (maximum time shall not exceed more than 2min for complete isolation, loading arm release and ship pumps stop in case of hydrocarbon leak)	Complied as per MLA Specification and C&E	
2	Provide trip interlocks (ESD) in berth 2 to ensure isolation/tripping of the ship unloading pumps based on suitable leak detection system (LFL) in berth 2. Ensure unloading hose are designed for hydraulic surges in the event of ESD actuation.	Not considered as Berth-2 is not integrated in MLTPL	
3	Mechanical interlocking systems to ensure complete closure of the valves before releasing of coupling (PERC)	Complied as per MLA Specification and C&E	
4	Two independent level indicators. High level alarms (1oo2) shall be set at not more than 85% level of the volumetric capacity of the drain vessel. Audio visual indication shall be at local panel & control room.	ALARM & TRIP SET POINT LIST 2321-E-BOP-GEN-DP-D-E-006	2321-E-BOP-GEN-DP-D-E-006
5	Provision for stopping the transfer operation on high level of the drain system and low level permissive for unloading operation	ALARM & TRIP SET POINT LIST 2321-E-BOP-GEN-DP-D-E-006	2321-E-BOP-GEN-DP-D-E-006
6	Drain drum shall have at least two safety relief valves with isolation arrangement, set at different values and at not more than 110% operating pressure of the vessel and each having 100 % relieving capacity adequate for limiting the pressure build up in the vessel not more than 120% of operating pressure	GENARAL ARRANGEMENT DRAWING FOR JETTY DRAIN POT (2000-FA-13) 2321-E-BOP-SDS-DM-G-E-007	2321-E-BOP-SDS-DM-G-E-007
7	Drain system to be designed to accommodate the capacity of the drain contents of both un loading arms	DRAINAGE PHILOSOPHY 2321-E-BOP-GEN-DP-N-E-010	2321-E-BOP-GEN-DP-N-E-010
8	Surge analysis for the unloading arm and unloading line to be done to ensure proper design considerations in the event of ESD actuation Bypassing of hydraulic surge protection systems to be done only after satisfactory protection measures implemented and with management clearance only	SURGE ANALYSIS REPORT FOR PROPANE / PROPYLENE UNLOADING LINE A 2321-E-BOP-GEN-DP-R-E-028	2321-E-BOP-GEN-DP-R-E-028
9	Selection of electrical and other instruments based on hazardous area classification (IS 5572: 2008)	Already complied and PESO approval of jetty operation is available, which is based on this only.	
10	All flanges shall be connected for bonding for electrical continuity	Already complied and PESO approval of jetty operation is available, which is based on this only.	
11	Lightning protection shall be provided as per the requirements of IS:2309. (high mast towers)	Complied	
12	Periodical maintenance schedule should be implemented and meticulously follow	Implemented SAP PM Module	
13	F&G systems management to be inspected periodically and availability ensured	Complied.F&G DETECTOR AND JB LOCATION LAYOUT DRAWINGS 2321-E-BOP-FDS-DI-L-E-001	2321-E-BOP-FDS-DI-L-E-001
14	Periodical inspection of pipeline and drain systems	Implemented SAP PM Module	
15	SOP for critical operations to be developed and displayed at critical locations in local/English languages	Complied	
16	SIL verification of the SIFs selected	Complied.SIL VERIFICATION REPORT 2321-E-BOP-GEN-DI-R-E-001	2321-E-BOP-GEN-DI-R-E-001
17	Tower mounted water cum Foam monitors shall be provided for protection to unloading arms/first aid to tankers	Complied.	
18	Water curtains shall be provided for segregation of unloading arms/piping manifold and ship tanker in the event of fire on either of these facilities.	Complied.	

19	Kerb wall shall be provided around all sides of the unloading arm with concrete flooring of the ground under and extending up to minimum distance of at least 5 M (min.) from the edge of the unloading arm with a slope of 1:100 (min.). Grading of the ground underneath should be levelled and directed to an area connected with water seal away	As a contingency plan, sufficient no. of sand buckets has been provided for taking care of lube oil spillage. However possibility of provision of kerb wall is being explored as the space constraint is there.	
20	Kerb wall height shall be minimum 30 cm but shall not exceed 60 cm.	Do as above	
21	During ship berthing/de berthing conditions in berth 2, unloading operations in berth 1 to be stopped	Observations being maintained.	
22	Ship power generation systems and other electrical systems should be verified for possible ignition source, if safety measures are in place which eliminates ignition source (for all the ships), unloading activity in berth 1,2,3,4 can be done simultaneously after stabilization of LPG unloading operation	Being complied	
23	If Motor spirit/SKO/HSD/ethanol/methanol unloading operations are in progress in berth 2/3, unloading operations to be stopped until LPG tanker secured and ignition sources eliminated	Being complied	
24	Hot works jobs for Berth 1 to be avoided during unloading in Berth 2	Complied as per HSE Policy PTW procedure implemented. Done with Approval from LPG and Liquid Head during berth is vacant.	
25	Berth 3/4 can be used for unloading operation during construction and commissioning activities in Berth 1	Complied as per HSE Policy PTW procedure implemented	
26	Any Hot work in the pipe corridor to be covered under PTW systems with continuous monitoring of LFL, running fire water hose (to avoid sparks), area barrication, proper hood to avoid spark spillage	Complied as per HSE Policy PTW procedure implemented	
27	Continuous LFL monitors with audible alarms near the vessel being unloaded to identify any hydrocarbon leak	Complied. Total 7 nos. gas detectors and 3 nos. Flame detectors installed at jetty which are integrated with unloading system through DCS	

QRA STUDY RECOMMENDATIONS COMPLIANCE REPORT_PIPELINE			
S. No.	**Recommendations**	**Remarks**	**Document Number**
1	Periodical inspection of pipelines	Done as per OISD guidelinse	Maintenance Check list
2	Leak detection systems based on pressure, temperature and flow	LEAK DETECTION SOFTWARE PACKAGE installed.	2321-E-BOP-BTH-DI-S-E-004
3	CCTV monitoring of the pipeline corridor/jetty, in control room	CCTVinstalled and monitored through control room as well as security.	2321-E-BOP-CCT-DI-I-E-002
4	Surge Analysis shall be performed to ensure adequate time lag between closure of ROVs at jetty end and at the tank end. The time lag shall be engineered so that surge pressure does not increase beyond the design limit. While engineering the closure time of each ROV, a consideration shall be given so that the pressure due to surge does not exceed the design pressure.	Complied. A SURGE ANALYSIS REPORT FOR PROPANE / PROPYLENE UNLOADING LINE A - - FROM JETTY is available.	2321-E-BOP-GEN-DP-R-E-028
5	A suitable continuous back-up power supply shall be provided for the control system and operation of ROVs both at jetty end and tank end	CCR and MCR is provided with UPS as back power.	2321-E-BOP-GEN-DP-R-E-029
6	Electrical equipment including for lighting system shall conform to hazardous area classification and be selected in accordance with IS:5571. These shall be tested by agencies such as CMRI, ERTL, CPRI or independent test laboratory of country of origin for such equipment. Indigenous Flameproof equipment shall comply with relevant BIS standard as per requirements of statutory authorities	Complied as per Haz. Area Classification. HAZARDOUS AREA LAYOUT (SH 1 OF 03)	2321-E-BOP-HAZ-DE-L-E-001
7	Pressure testing/ Low pressure leak check (with N2) of the piping / flanged joints completed for entire pipeline and associated station piping before commissioning of the pipelines after any maintenance activity In case of displacement of Nitrogen with LPG, it should be done to flare	Complied as per PRE-COMMISSIONING PROCEDURE	2321-E-BOP-GEN-DP-N-E-011 2321-E-BOP-GEN-DP-N-E-014

QRA STUDY RECOMMENDATIONS COMPLIANCE REPORT_TANK FARM AREA			
S. No.	**Recommendations**	**Remarks**	**Document Number**
1	F&G mapping study to be carried to identify the location of the detectors and voting logic to be used to ensure tripping of the unit, in case of any hydrocarbon leak	Complied.	2321-E-BOP-FDS-DI-L-E-001
2	Hydraulic analysis and simulation study to be carried out, to operate heating trains at the minimum pressure possible to reduce the effects of LFL and jet fire scenarios	Complied.	2321-E-BOP-GEN-DP-R-E-011
3	Consider converting level indications on Propane BOG / Flash Condensate Receiver (2000-FA-05) and Butane BOG / Flash Condensate Receiver (2000-FA-06) as 2oo3 voting logic for tripping on low level and MID point selection control philosophy for controlling the level to improve the reliability	Complied and possibilty of further improvement is being explored. ALARM & TRIP SET POINT LIST	2321-E-BOP-GEN-DP-D-E-006
4	Consider shifting the PSV on the inlet of the CW supply header of Propane BOG / Flash Condenser (2000-EA-03) and Butane BOG / Flash Condenser (2000-EA-04) to return header with reduced set point and LFL sensors at the outlet of the PSV	Being explored.	
5	Consider providing discharge PT on 2000-GA-05/06 discharge common header with alarm provision	Complied. API PUMP - P&ID FOR PROPANE BOG/FLASH CONDENSATE PUMP (2000-GA-05 AB)	2321-Q-BOP-API-DE-I-E-001
6	Revisit fail safe conditions of ROV-063/64 (considered as fail open) by HAZOP study	Yes.	
7	Consider additional PSV on Propane BOG / Flash Condensate Receiver (2000-FA-05) and Butane BOG / Flash Condensate Receiver (2000-FA-06) to increase the reliability and standby condition in case of maintenance of other PSV (same nozzle with separate isolation valves)	One no. provided. Refer to FFS layout for MVWS & HVWS of BOG,TLF,Heating train, Transfor PIPING LAYOUT & ISOMETRIC DRAWING FOR HVWS SYSTEM FOR TRANSFOMER # 1 LAYOUT FOR FIREWATER NETWORK	2321-E-BOP-FFS-DP-L-E-003 2321-E-BOP-FFS-DP-L-E-002
8	Consider providing remote operated sprinklers systems based on LFL sensors covering Propane BOG / Flash Condensate Receiver (2000-FA-05) and Butane BOG / Flash Condensate Receiver (2000-FA-06) and propane and butane handling pumps.	Complied. Refer to FFS layout for MVWS & HVWS of BOG,TLF,Heating train, Transfor PIPING LAYOUT & ISOMETRIC DRAWING FOR HVWS SYSTEM FOR TRANSFOMER # 1 LAYOUT FOR FIREWATER NETWORK	2321-E-BOP-FFS-DP-L-E-003 2321-E-BOP-FFS-DP-L-E-002
9	Consider trip logic for the steam boilers based LFL sensors on the tank farm	Complied. ALARM & TRIP SET POINT LIST	2321-E-BOP-GEN-DP-D-E-006
10	Consider shifting the PSV-063/PSV-034 provided downstream ROV-063 and ROV-064 relocated to Propane BOG / Flash Condensate Pumps (2000-GA-05) and Butane BOG / Flash Condensate Pumps (2000-GA-06) common discharge headers.	Being eplored.API PUMP - P&ID FOR PROPANE BOG/FLASH CONDENSATE PUMP (2000-GA-05 AB)	2321-Q-BOP-API-DE-I-E-001
11	Consider voting logic between PT-016/017/018 for tripping on high and low pressure interlocks of the propane and butane tanks and MID point selection control philosophy for controlling the tank pressure to improve the reliability	Complied as per logic. ALARM & TRIP SET POINT LIST	2321-E-BOP-GEN-DP-D-E-006
12	Provide flow meters in N2 line to PSV headers to ensure continuous flow of N2	Complied.	

13	Ensure SOP developed and followed on all critical activities, interlocks checking before unloading operations	Compied.OPERATION AND MAINTENANCE MANUAL- IOM	2321-E-BOP-CMP-DM-S-E-001
14	SOP and work instructions on display in local and English near the critical activity locations	Compied.OPERATION AND MAINTENANCE MANUAL- IOM	2321-E-BOP-CMP-DM-S-E-001
15	Consider HAZOP and SIL study before commissioning the facility and concerns addressed	Complied.HAZOP STUDY REPORT	2321-E-BOP-GEN-DP-R-E-005
16	Ensure CCTV coverage of critical locations and remote monitoring is done continuously	Complied.	2321-E-BOP-GEN-DP-R-E-006
17	Ensure all portable electrical equipment used in the location are Ex rated and covered under PTW systems, and certified	Complied.	2321-E-BOP-CCT-DI-I-E-002
18	Selection of electrical and other instruments based on hazardous area classification (IS 5572: 2008)	Complied as per HAZARDOUS AREA LAYOUT (SH 1 OF 03)	2321-E-BOP-HAZ-DE-L-E-001
19	All flanges shall be connected for bonding for electrical continuity and earthing of the equipment's to be ensured as per IS-3043	Complied and Quarterly checklist available for inspection of bonding for electrical continuty.	
20	Lightning protection shall be provided as per the requirements of IS: 2309.	Complied.Lightning protection available.	
21	Periodical maintenance schedule should be implemented and meticulously followed	Complied.SAP PM module is implemented	
22	F&G systems management to be inspected periodically and availability ensured	Complied.SAP PM module is implemented	
23	Periodical inspection of pipeline and drain systems	Complied.SAP PM module is implemented	

Annexure – 6

GUJARAT POLLUTION CONTROL BOARD
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GPCB

By R.P.A.D.

CCA-Amendment
(H- 105708)

GPCB/CCA-KUTCH-39(6) /GPCB ID 17739/

To
Adani Ports & Special Economic Zone Ltd,
At-Navinal Island, Mundra, Kutch,
Mundra - 370421, Dist.: Kutch

Subject : Amendment to Consolidated Consent and Authorisation (CC&A).

Reference :
1) CCA order No **AWH-83561**,vide letter no. PC/ CCA- KUTCH-39(4)/ ID 17739, date 09/01/2017.
2) Your CCA Amendment Application **inward ID No. 163528, dated 26/08/2019.**

Sir,

In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution)-1981 and Authorization under Rule 6(2) of the Hazardous and Other Waste (Management and Transboundary) Rules, 2016 & framed under Environment (Protection) Act-1986, The Board has granted CCA vide order No. AWH-**83561**issued vide this office letter no. CCA-Kutch-39(4)/ ID-17739on 09/01/2017, which is validupto to 20/11/2021.

The Board has right to review and amend the conditions of the said CCA order. The said CCA order is further amended as below:

1. This order shall be read as CCA-Amendment Order No. **H-105708, Date of Issue:** valid up to**20/11/2021**.

2. Condition No. 2 of the said CCA order is amended as below:
   2. The Consent shall be valid up to **20/11/2021** for the use of outlet for the dischargeoftreated effluent and emission due to operation of industrial plant for storage of following items/products.

Sr. No	Product name	Capacity as per CCA dated 09/01/2017	Proposed capacity	Total Capacity after CCA (Amendment)
1	General Cargo	4.0 Lac MT/Month	NIL	112.8 MMTPA
2.	Dry Cargo Handling	9 MMT/Month	NIL	
3.	Liquid Cargo (Chemical/POC Products)	2.65 Lac MT/Month (3.18 MMTPA)	1.82 MMTPA	5.00 MMTPA
4.	Import, Storage And Distribution of Edible Oil	1.25 Lac MT/Month (2.2 MMTPA)	NIL	2.20 MMTPA
5.	Storage And Distribution of Bitumen	6,400 MT/Month (0.3 MMTPA)	NIL	0.30 MMTPA

6	Container Terminal Handling operation	5.7 Million TEUs/Annum	NIL	5.7 Million TEUs/Annum
7	Waste destruction system for decomposition/destruction of municipal solid waste	3.5 Cubic Meter (MSW Destruction Capacity @ 500 Kg/day)	NIL	3.5 Cubic Meter (MSW Destruction Capacity @ 500 Kg/day)
8	Oil water separate (Flame Proof) to remove -Oil portion from slope oil received from Vessels/Ships	25 M^3/Hr	NIL	25 M^3/Hr

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. There shall be no change in existing infrastructure facility due to CCA Amendment.
2. Industry shall not carry out any activities which attracts provision of EIA Notification & CRZ notification.
3. There shall be no further construction/developmentdue to CCA Amendment.
4. There shall be no change in water consumption, wastewater generation, fuel consumption and flue gas emission due to the proposed amendment.
5. Industry shall comply with all rules and regulations of Hazardous chemicals.

5. Condition No- 5.2of the said CCA order is amended as below.

5.2 Adani Ports & Special Economic Zone Ltdis hereby granted an authorization to operate facility for following hazardous wastes after expansion on the premises.

Sr. No	Waste	Quantity as per CCA dated 09/01/2017	Total Quantity after CCA Amendment	Schedule - I/Category	Facility
1	Used/Spent Oil	300 MT	300 MT	I – 5.1	Collection, Storage, Transportation & disposal by reuse within premises and/or selling out to registered recycler/re-processors
2.	ETP Sludge	1.095 MT	1.095 MT	1-35.3	Collection, Storage, Transportation & disposal by co-processing at cement industries and/or CHWIF site.
3.	Sludge & filters contaminated with oil	5 MT	5 MT	I/3.3	Collection, Storage, Transportation & disposal by co-processing at cement industries and/or CHWIF site.
4.	Waste residue containing oil/ Oily rags	131 MT	150 MT	I - 33.2	Collection, Storage at designated place, Transportation, Disposal at TSDF
5.	Pig waste	24 MT	24 MT	I-3.1	Collection, Storage,

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					Transportation & disposal by co-processing at cement industries and/or CHWIF site.
6.	Tank bottom sludge	Whatever quantity generated	Whatever quantity generated	I-3.2	Collection, Storage, Transportation & disposal by co-processing at cement industries and/or CHWIF site/ or recycling to register recycler
7.	Discarded containers/barrels	16 MT	25 MT	I-33-3	Collection, Storage, Transportation & disposal by reuse within premises and/or selling out to register recycler/reprocessor
8.	Asbestoses waste	Whatever quantity generated	Whatever quantity generated	I-15.1	Collection, Storage, Transportation & disposal at CHWIF site.
9.	Glass Wool Waste (Thermal Insulation Material)	Whatever quantity generated	Whatever quantity generated	II -9	Collection, Storage, Transportation & disposal by co-processing at cement industries and/or incineration at CHWIF site and/ or recycling through registered recycler
10.	Downgrade Chemicals	Whatever quantity generated	Whatever quantity generated	I-20.2	Collection, Storage, Transportation & disposal by selling to authorized Solvent Recover
11.	Waste Oil	0.18 MT	0.18 MT	I-5.2	Collection, Storage, Transportation & disposal by selling out to registered recycler/reprocessor
12.	Expired Paint Material	--	10 MT	I-21.1	Collection, Storage, Transportation & disposal by co-processing at cement industries and/ or incineration at CHWIF site.

6. **Rest of conditions of all the CCA order no.** CCA order No **AWH- 83561**,vide letter no. PC/ CCA- KUTCH-39(4)/ ID 17739, date 09/01/2017 shall remain unchanged & industry shall comply with the same judiciously.

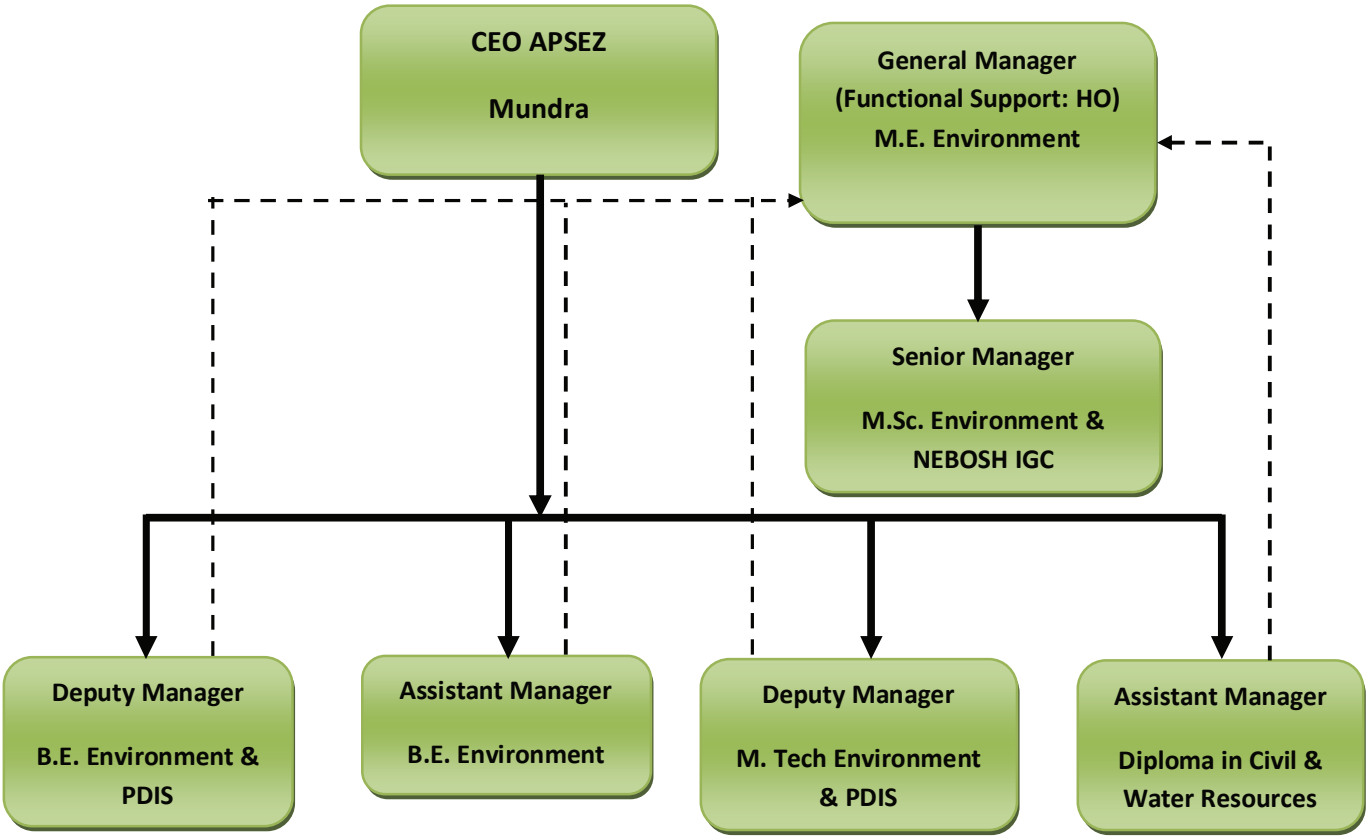
For and on behalf of
Gujarat Pollution Control Board

28/1/2020

(Smt U.K. Upadhyay)
Environment Engineer

Annexure – 7

Organogram of Environment Management Cell, APSEZ, Mundra



Annexure – 8

Cost of Environmental Protection Measures

Sr. No.	Activity	Cost incurred (INR in Lacs)			Budgeted Cost (INR in Lacs)
		2017 – 18	2018 – 19	2019 – 20	2019 – 20
1.	Environmental Study / Audit and Consultancy	9.0	6.7	0.33	6.0
2.	Legal & Statutory Expenses	5.07	4.42	0.84	3.0
3.	Environmental Monitoring Services	27.02	20.36	21.74	24.0
4.	Hazardous / Non Hazardous Waste Management & Disposal	65.62	95.72	108.43	120.57
5.	Environment Days Celebration and Advertisement / Business development	2.85	0.28	1.5	10.0
6.	Treatment and Disposal of Bio-Medical Waste	1.13	1.21	1.62	1.56
7.	Mangrove Plantation, Monitoring & Conservation	60.0	47.0	Nil	Nil
8.	Other Horticulture Expenses	547.0	579.32	734.18	727.80
9.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	70.02	144.29	110.18	128.52
10.	Expenditure of Environment Dept. (Apart from above head)	102.15	109.28	105.13	124.38
	Total	**889.86**	**1008.58**	**1083.95**	**1145.83**