OLC

Half Yearly EC Compliance Report Submission - APSEZ, Mundra - Multi Purpose Terminal T2 2007 (Apr'20 to Sep'20)

Chiragsing Rajput <Chiragsing.Rajput@adani.com>

Wed 11/25/2020 12:12 PM

To: rowz.bpl-mef@nic.in <rowz.bpl-mef@nic.in>; eccompliance-guj@gov.in <eccompliance-guj@gov.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>; Bhagwat Sharma <Bhagwat.Sharma1@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>; Dilip Kumar Moolchandani <Dilip.Moolchandani@adani.com>; Ramesh Pant <ramesh.pant@adani.in>; Haresh Bhatt <Haresh.Bhatt@adani.com>

1 attachments (13 MB)

4. EC Compliance Report_MPT T2-2007_Apr'20 to Sep'20.pdf;

adani

Ports and Logistics

APSEZL/EnvCell/2020-21/094 **Date:** 25.11.2020

To
Deputy Director General of Forest (Central),
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, eccomplinace-guj@gov.in

Sub : Half yearly Compliance report of Environment Clearance for the project namely "Development of Multipurpose berth (Terminal- 2) at Mundra Port, Dist. Kutch"

Ref : Environment clearance under CRZ notification granted to M/s Adani Ports & SEZ Limited vide letter dated 5th February, 2007 bearing no. 11-84/2006- 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 April-2020 to September-2020 is being submitted through soft copy (e-mail communication).

Kindly consider above submission and acknowledge.

एकीकृत क्षेत्रीय कार्यालय
Integrated Regional Office
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,
Ministry of Environment, Forest & Climate Change,
भारत सरकार, भोपाल/Govt. of India, Bhopal.
26-11-20

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

Douglas Charles Smith
Chief Executive Officer
Mundra & Tuna Port

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Ports and Logistics

APSEZL/EnvCell/2020-21/094 **Date:** 25.11.2020

To
Deputy Director General of Forest (Central),
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Thank you,
Yours Faithfully,
For, **M/s Adani Ports and Special Economic Zone Limited**

Douglas Charles Smith
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

Adani Ports and Special Economic Zone Ltd
Adani House,
PO Box No. 1
Mundra, Kutch 370 421
Gujarat, India
CIN: L63090GJ1998PLC034182

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Registered Office: Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382421, Gujarat, India

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Ports and Logistics

Environmental Clearance Compliance Report

of

Multipurpose Berth (Terminal -2) at Mundra Port, Dist. Kutch, Gujarat

of

Adani Ports and SEZ Limited

Period:

April – 2020 to September – 2020

Index

EC & CRZ Clearance Compliance Report

adani Ports and Logistics	Adani Ports and Special Economic Zone Limited, Mundra.	From : Apr'20 To : Sep'20
Status of the conditions stipulated in Environment Clearance		

Half yearly Compliance report of Environment and CRZ Clearance for the project namely "Development of Multipurpose berth (Terminal – 2) at Mundra Port, Dist. Kutch" issued vide MoEF letter no. 11-84/2006-IA.III dated 5th February 2007.

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td colspan="3">A. Specific Condition</td></tr>
<tr><td>(i)</td><td>All the conditions stipulated by Forests Environment Department, Government of Gujarat vide their letter no. ENV-10-2005-222-P dated 12/10/2006 should be strictly implemented.</td><td>Complied.
Point wise compliance report of CRZ recommendations issued vide letter No. ENV-10-2005-222-P dated 12/10/2006 is enclosed as Annexure – A.</td></tr>
<tr><td>(ii)</td><td>No Objection Certificate from Gujarat State Pollution Control Board should be obtained before initiating the project.</td><td>Complied.

APSEZL had obtained No Objection Certificate vide GPCB letter No. GPCB/Unit-1/FT-139/11944 dated 27th April 2005.

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 Apr'17 to Sep'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 CtE / 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>
<tr><td>6</td><td>CtE – Amendment</td><td>WFDP</td><td>17739 / 15618</td><td>18.05.2027</td></tr>
</table>
</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		The permissions (Sr. No. 1 to 5) were submitted along with half yearly compliance report for the period Oct'18 to Mar'19 & Oct'19 to Mar'20 and the copy of updated CtE-Amendment (Sr. No. 6) is attached as **Annexure – 1**.
(iii)	The proposed project should not handle any hazardous goods and cargo.	Complied. During the compliance period, no hazardous cargo / goods are handled at the Multi-Purpose Berth (Terminal – 2).
(iv)	Quarantine condition should be provided for keeping the hazardous containers if they are accidentally received.	Complied. During the compliance period, no hazardous cargo / goods are handled at the Multi-Purpose Berth (Terminal – 2).
(v)	Green belt area should be developed along the project and budget earmarked.	Complied. During the course of development of the project, green belt was developed in 78.87 Hectares of land. Total 159197 trees were planted with the density of 1993 trees per hectare. In addition to this, various activities on green belt development and mangrove plantation activities are being carried out on regular basis by our horticulture department. 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 469 ha. area as greenbelt with plantation of more than 8.82 Lacs saplings within the APSEZ area. Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as **Annexure – 2**. Total expenditures of the horticulture dept. for the financial year of 2020-21 (Till Sep'20) have been INR 490 lakh.
(vi)	A disaster management plan covering emergency evacuation mechanisms etc. to deal with natural disaster event should be prepared and furnished to the ministry.	Complied. Disaster Management plan is in place and implemented to deal with natural disasters such as cyclone, earthquake, flood/heavy rain and tsunami. Updated DMP was submitted to the MoEF & CC along with half yearly compliance report for the period from Apr – 2016 to Sep – 2016 and there is no further change in that.

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td>(vii)</td><td>The company must take up and earmark adequate funds for the socio-economic development and for welfare measures in the area including drinking water supply, vocational training, fishery related development programmes (like cold storages)</td><td>Complied.

Budget for CSR Activity for the FY 2020-21 is to the tune of INR 1429.3 lakh. Out of which, Approx. INR 416.7 lakh are spent during the year FY 2020-21 (Till Sep'20). RO Plants are provided at Samaghogha, Siracha village & Vallabh Vidyalaya at Mundra village.

APSEZ is actively working with local community around the project area and provides required support for their livelihood and other concerns through the CSR arm Adani Foundation. Brief information about activities in the main five persuasions are mentioned below. Adani Foundation has also worked for fight against COVID – 19 pandemic situation during this compliance period Activities carried out for the same are summarized as below.

<table>
<tr><th>Area</th><th>Activity</th></tr>
<tr><td>Fight Against COVID-19</td><td>• 24 villages of Mundra block Sanitized.
• 45000+ Mask prepared by SHG group.
• 1800+ food packet per day two time for the workers, drivers and labours of APSEZ and AWL Cost free Fresh Food Support (Breakfast, Lunch and Dinner)
• 9000+ ration kit support Ration Kit support to Daily Wedge Labours and Needy people
• Mobile health care unit is providing primary treatment to community at door step and also creating awareness to fight against Corona virus - 150+ beneficiaries covered
• 12500 people connected By Awaz De software creating awareness in people in local kutchhi language.
• 1400+ patient covered - AHMPL is providing all services IPD and OPD during lockdown period.
• Important of handwashing & hygiene by Sangini
• 57 senior citizens of old age home - During lockdown period our team providing medical facility to senior citizens at old age home in Mandvi and Gundala</td></tr>
<tr><td>Community Health</td><td><u>Community Health – Mundra</u>
• 11 Rural Clinic – 8 from Mundra & 3 from Anjar block treated; 8196 patients.
• 31 villages covered, with 109 types of general and lifesaving medicines through Mobile healthcare unit 6879 patients benefited during six month.
• Provided dialysis treatment to 6 patients of kidney failure 236 times.
• Citizen project - 8672 Card holders of 68 villages get benefit under this project.
• 2921 sr. citizen patients benefited during six month - 8000 limit for three year per patients</td></tr>
</table>
</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020	
			• **470** Needy patients had been facilitated with Medical Support OPD & IPD treatment with token charges during this six month. • **1150** health calendar were distributed to various PHC, CHC and ICDS department of Mundra, Mandvi, Nakhtrana, Lakhpat, Abadasa, Anjar & Gandidham block. • **594 Protein Powder packet** distributed to ANC woman of Utthan villages and TB patient of Mundra block. • Total **18698 & 10380** IPD / OPD facilities provided project wise and AHMPL subsequently during six months.
		Sustainable Livelihood – Fisher folk	• Average **70** KL of water was supplied to **717** households at 4 fisherman vasahat on a daily basis under Machhimar Shudhh Jal Yojana. • **55 Higher secondary Fishermen students** of Sekhadiya, Navinal, Zarpara & Junabandar benefitted with book support. Mother meeting and telephone Discussion for their wards discussion. • **4830 Man-days** work was provided over **236 Fishermen family** during this six months. • To avail Fishermen Government scheme (Fishermen Credit card) one day program was arranged with social distancing and all precaution. **30 KCC** form fill-up at Navinal. Created awareness with Telephonic about same. • To create option livelihood over fishermen with co-ordination of VRTI. Pilot phase – **3500 Kg sea weed** was harvested • Total **85 Acre Gauchar Land** was approved by GP for Development by decision taken in Gram Sabha. Among them **72 Acre** land Has been Sowed and Remaining land would be Grow with Wild Grass. • Government Scheme Facilitation - Facilitate widows, senior Citizens and Divyang to various schemes of government like widow pension, free bus pass, Senior citizen pension scheme sankat mocha sahay etc. support for process and documentation – Total **66 Nos.** of beneficiaries. • **60,000+** three layer mask has been prepared and sold by Umang SHG group @ **Rs.10.00** per mask. • **5-SHG** had been facilitated for **Rs 1.0 lac** bank loan through DRDA to start-up new business for women empowerment. • Fodder support in **20 villages** of Mundra and Anjar block. Dry fodder **6.70 lacs kg** & Green fodder **11.60 lacs kg**. • To Doubling the farmer income by aviling "Barahi Varities Tissue plant" has good productivity **850 plants** have been distributed **to 34 farmers 25 plants / Farmers** cost of a plants is **Rs. 3500**. • Installation of **53 Home Bio-gas** with SOP Awareness and trouble shoot of problem as well. • **10,000 dragon food sapling**, Pole and wire have been supported to 5 farmers.
		Education	• Apart from CPD Utthan Sahayks attended **30+ educational webinar** during lockdown. • Arrange various competition and celebration for Priya VidyarthiSchool Visit and Home Visit by Utthan Sahayak.

Sr. No.	Conditions	Compliance Status as on 30-09-2020	
			• Conduct meeting with Principal / Teacher of Utthan schools, TPEO, BRC, CSR Head, Education Coordinator, Project Officer and Utthan Sahayaks through Microsoft Team. • Adani Vidya Mandir Bhadreshwar provide "cost-free" education to meritorious students coming from challenging economic background, who have priceless treasures but have been under achievers due to situation. In year 2020-21 **490 students** are studying. 82.60% - Result SSC Board Exam • Tablet provide to students of std. 10th for online study through Employee Volunteering Programme • Admission process of std 1 students through draw system. 80 students selected out of 91. remain 11 students in waiting list • Online Class through WhatsApp and you tube video
		Rural Infrastructure	**WORK COMPLETED** • Development of Prisha Park at Mundra. • Pond Bund strengthening at Zarpara Village **WORK IN PROGRESS** • Drainage Line and Chamber work at Bhopavandh. • Drainage Maintenance & JCB Hiring & Other Mis. Work. • Road Repairing at Kutdi Bandar. • Road Repairing at Zarapra Fisherman Vashat. • Road Repairing at Luni Pagadiya Fisherman **WATER CONSERVATION PROJECTS** • A large number of water harvesting structure (**18 Nos. of check dams** in coordination with salinity department) • Ground recharge activities (**pond deepening work for more than 52 ponds**) individually and 26 ponds under Sujlam Suflam Jal Abhiyan leading to a significant increase in water table and higher returns to the farmers • **Roof Top Rain Water Harvesting 54 Nos.** which is having **10,000 litre** storage which is sufficient for one year drinking water purpose for 5 people family. • Recharge Bore well **75 Nos** which is best ever option to conserve ground water 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 • As per Average Calculation more than **450 hac. area** benefitted with increased in **109 MCFT** water Quantity. **Bio Diversity Park – Mundra** • Adani Foundation, Mundra-Kutchh proposed a biodiversity park at 5 acres Nandi Sarovar area and approached to Sahjeevan, Bhuj for technical support for same. • Sahjeevan team visited this proposed site for development of greenbelt to support biodiversity and enhancement of overall ecological food web existing in and around the landscape in first phase.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		<table><tr><td>Skill Development</td><td>• Adani Skill Development Centre (ASDC) is playing a pivotal role in implementing sustainable development in the 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 440 people trained in various trainings to enhance socio economic development. • 324 students Enrolled in Online Training. • The students of DDU-GKY (GDA) creating awareness regarding COVID-19 in their own village through various activity. 27students get placement in GAIMS (sodexo), Alilance Hospital, Shreeji Hospital, Bhuj Fire Academy, Divine Hospital etc. 3 students are working in COVID-19 Hospital.</td></tr></table> Details of CSR activities carried out by Adani Foundation for Mundra and surrounding area for the FY 2020-21 (Till Sep'20) is attached as **Annexure – 3**.
(viii)	The fishing activities by the fishermen living in the settlement along the creek should not be hindered and a mechanism may be evolved for the movement of fishing boats vis-a-vis shipping activities.	Complied. No commercial fisheries are prevailing in this area except Pagadia and fishermen with small boats. Unhindered access is provided to the fishing boats. During project proposal, APSEZ proposed to provide four (4) dedicated accesses at Juna Bandar, Luni, Bavdi Bandar and Zarpara for the fishermen to approach the sea for fishing activity. However, during construction as well as operation, through fishermen consultative process, APSEZ has provided seven (7) access roads. Total length of all the approach roads is approx. 23 Kms and expenditure involved is Rs. 637 Lacs. There is no hindrance to the movement of fisherman boats. Details of the same were submitted along with EC Compliance report for the period Apr'18 to Sep'18. Communication mechanisms have been developed for the smooth movement of fishing boats vis-à-vis shipping activities. Please refer point no. vii above for further details regarding CSR activities being carried out by Adani Foundation.
(ix)	The relocation of the fishermen and local community if any, in the area should be done strictly in accordance with the norms	Complied. The project was conceptualized in such a way that there are no fishermen or local community settlements in the project proposal. APSEZ performs a large scale socio-economic upliftment

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	prescribed by the State Government. The relocated communities should be provided with all facilities including health care, education, sanitation and livelihood.	program in consultation with FOKIA (Federation of Kutch Industries Association) chaired by District Collector quarterly. APSEZL have provided necessary facilities including health care, education, sanitation, livelihood, drinking water & other infrastructural support to fisher folk community in the region. Please refer point no. vii above for further details regarding CSR activities being carried out by Adani Foundation.
(x)	The project proponent should not undertake any destruction of mangroves during construction and operation of the project.	Complied. Construction phase is already completed and the project is in operation phase. All developments are carried out as per permissions granted. Conservation of mangroves: • In and around APSEZ, approx. 1800 ha. mangrove area was identified by NIO in an EIA report prepared the year 1998. • Out of this 1800 ha area, 1254 ha area was further demarcated as potential mangrove conservation by NIO in the year 2008 (as part of the EIA report of WFDP). • It may be noted that the entire area of 1254 ha is not covered with mangroves. • Entire area is being conserved and there is no disturbance to the mangroves in this area. Measures such as restricted entry and regular surveillance have resulted in overall growth of mangroves within this area. • As per MoEF&CC directive, APSEZ entrusted NCSCM to demarcate mangroves in and around APSEZ area. As per their study, presently, mangrove cover in and around APSEZ is over 2340 ha. The analysis of the comparison between 2011 and 2016-17 has shown an overall growth of 246 ha. Details regarding NCSCM final report on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around were submitted along with half yearly EC Compliance report for the period Apr'19 to Sep'19. The action plan for conservation of creeks and mangrove areas is prepared by NCSCM and the same was submitted to GCZMA and MoEF&CC for their

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		examination and recommendation. Presentation on the findings of the report was made to GCZMA committee on 4th October 2019 and the recommendation for the same has been received vide email dtd 22nd Sept 2020 from GCZMA with following conditions: ✓ The APSEZL shall carry out annual compliance monitoring of the mangrove conservation area. ✓ The APSEZL shall explore the possibility for taking necessary adequate measures to reduce the erosion near Bocha Island. ✓ The approval of mangrove conservation plan shall not be considered as any permission under CRZ Notification for dredging activity. ✓ There should not be blockage of any drainage line and free flow of water is to be maintained, as flushing of mangrove areas is very essential. ✓ The APSEZL shall carry out mangrove monitoring every two years and submit the data to Forest Department/GCZMA and MOEF&CC, GOI. APSEZ is under the process of complying above recommendations – Inline to the compliance of the action plan "Monitoring of mangrove cover in Jan/Mar, 2020 using latest satellite images and validation with field observations", Work has already been already been assigned to NSCSM, for amount of INR. 23,56,000/- vide PO no 4800050718, dtd. 31st December 2019 and same is under progress.
(xi)	Sewage arising in the port area should be disposed off through septic tank – soak pit system or should be treated along with the industrial effluent to conform to the standards stipulated by Gujarat Pollution Control Board and should be utilized / recycled for gardening, plantation and	Complied. Sewage generated from port is being treated in designated ETP and treated sewage is used for horticulture purposes. **Location** | **Capacity** | **Quantity of Wastewater (Avg. from Apr'20 to Sep'20)** | **Type of ETP / STP** LT | 265 KLD | 82 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

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td>irrigation.</td><td>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. The details of the same is attached as Annexure – 4.

The treated water from CETP is being utilized on land for horticulture purpose within APSEZ premises after achieving permissible norms prescribed in Consent order.

Summary of CETP treated water analysis results during compliance period as mentioned below.

<table>
<tr><th>Parameter</th><th>Unit</th><th>Min</th><th>Max</th><th>Perm. Limit$</th></tr>
<tr><td>pH</td><td>--</td><td>7.68</td><td>7.88</td><td>6.0 – 9.0</td></tr>
<tr><td>SS</td><td>mg/L</td><td>41</td><td>59</td><td>100</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>1730</td><td>2078</td><td>2100</td></tr>
<tr><td>COD</td><td>mg/L</td><td>165</td><td>249</td><td>250</td></tr>
<tr><td>BOD</td><td>mg/L</td><td>32</td><td>68</td><td>100</td></tr>
<tr><td>Ammonical Nitrogen</td><td>mg/L</td><td>23.1</td><td>45.18</td><td>50</td></tr>
</table>
$ as per CC&A granted by GPCB

Please refer Annexure – 5 for detailed analysis reports. Approx. INR 8.46 Lakh is spent for all environmental monitoring activities during the FY 2020-21 (Till Sep'20).

The environmental monitoring within Adani Ports & SEZ Limited has been stopped considering COVID-19 Pandemic lockdown from 23rd March, 2020 and restarted on 12th May, 2020 and the same has already been intimated to the regulatory authorities vide our e-mail dated 06.04.2020 & 13.05.2020 respectively. The details of the same is attached as Annexure – 6.</td></tr>
<tr><td>(xii)</td><td>Project proponent should prepare and regularly update the disaster management plan from time to time.</td><td>Complied.

Disaster Management plan to deal with natural disasters such as cyclone, earthquake, flood/heavy rain and tsunami is in place and implemented. Copy of the same was submitted to MoEF & CC along with half yearly compliance report for the period from Apr – 2016 to Sep – 2016.</td></tr>
<tr><td>(xiii)</td><td>There should be no</td><td>Complied.</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td>withdrawal of ground water in CRZ area, for this project. The proponent should ensure that as a result of the proposed constructions, ingress of saline water into ground water does not take place. Piezometers should be installed for regular monitoring for this purpose at appropriate locations on the project site.</td><td>There is no withdrawal of ground water in CRZ area, for this project. Entire water requirement is sourced from Narmada water and desalination plant of APSEZ. Average water consumption for entire APSEZ area is 4.3 MLD during compliance period i.e. Apr'20 to Sep'20.

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 and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Apr'20 to Sep'20 is mentioned below. Monitoring Reports are attached as Annexure – 5.

No of sampling locations: 5
<table>
<tr><th>Parameter</th><th>Unit</th><th>Minimum</th><th>Maximum</th></tr>
<tr><td>pH</td><td>-</td><td>8.31</td><td>7.10</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>21.00</td><td>2.10</td></tr>
<tr><td>Oil & Grease</td><td>mg/L</td><td>ND*</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>0.36</td><td>ND*</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>0.06</td><td>ND*</td></tr>
<tr><td>Cadmium as Cd</td><td>mg/L</td><td>0.03</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>0.65</td><td>0.09</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>4.85</td><td>0.11</td></tr>
<tr><td>Insecticides/Pesticides</td><td>--</td><td>Absent</td><td>Absent</td></tr>
<tr><td>Depth of Water Level from GL</td><td>meter</td><td>2.50</td><td>1.75</td></tr>
</table>
*ND = Not Detectable</td></tr>
<tr><td>(xiv)</td><td>The project should not be commissioned till the requisite water supply and electricity to the project are provided by PWD/ Electricity Department.</td><td>Complied.
Construction activity is already completed and the project is in operation phase. Necessary agreement for supply of Electricity is done through MPSEZ Utilities Ltd. (MUL). Copies of agreements were submitted to MoEF&CC along with half yearly compliance report for the period from Apr – 2016 to Sep – 2016.</td></tr>
<tr><td>(xv)</td><td>Specific arrangements for rainwater harvesting should be made in the</td><td>Complied.</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	project design and the rain water so harvested should be optimally utilized. Details in this regard should be furnished to this Ministry's Regional Office at Bhopal within 3 months.	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. During last compliance period Approx. 6.5 ML of rain water has been recharged to increase the ground water table. 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. Since 10 years considerable Water Conservation Work carried out in Mundra Taluka. Due to satisfactory rain in current year 1.11 mtr ground water table increased as per Government Figures. **Our water conservation work is as Below.** • A large number of water harvesting structure (18 Nos. of check dams in coordination with salinity department) • 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

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		• Roof Top Rain Water Harvesting 54 Nos. which is having 10,000 litre storage which is sufficient for one year drinking water purpose for 5 people family. • Recharge Bore well 75 Nos which is best ever option to conserve ground water • 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 • As per Average Calculation more than 450 hac. area benefitted with increased in 109 MCFT water Quantity. 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. Please refer **Annexure – 3** for full details of CSR activities carried out by Adani Foundation in the Mundra region. Budget for CSR Activity for the FY 2020-21 is to the tune of INR 1429.3 lakh. Out of which, Approx. INR 416.7 lakh are spent during the year FY 2020-21 (Till Sep'20).
(xvi)	The facilities to be constructed in the CRZ area as part of this project should be strictly in conformity with the provisions of the CRZ Notification, 1991 as amended subsequently.	Complied. Construction activities are completed in accordance with the prevailing laws.
(xvii)	No product other than those permissible in the coastal Regulation Zone Notification, 1991 should be stored in the	Complied. APSEZ store only those product / cargo within CRZ area, which are permissible as per Coastal Regulation Zone Notification, 1991.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	Coastal Regulation Zone area.	
B. General Condition		
(i)	Construction of the proposed structures should be undertaken meticulously confirming to the existing Central / local rules and regulations including Coastal Regulation Zone Notification 1991 and its amendments. All the construction designs / drawings relating to the proposed construction activities must have approvals of the concerned State Government Department / Agencies.	Complied. All construction activities are carried out confirming to the existing rules and regulation and as per the CRZ notification. Required details on No Objection Certificate from Gujarat State Pollution Control Board and applicable consent are as provided in Specific Condition No. 2 above.
(ii)	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation, etc. should be ensured for construction workers during the construction phase of the project so as to avoid felling of trees / mangroves and pollution of water and the surroundings.	Complied. Construction activity is completed and the project is in operation phase. No construction camps were located in CRZ area. Most workers came from nearby villages however, for others; construction camps were located outside CRZ area. All necessary infrastructure and facilities like mobile toilets, safe drinking water, medical health care etc. were provided.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
(iii)	The project authorities must make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper waste water treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise levels etc. must conform to the standards laid down by the competent authorities including the Central / State Pollution Control Board and the Union Ministry of Environment and Forest under The Environment Protection Act, 1986, whichever are more stringent.	Complied. **Liquid Effluent & Sewage** - It is being treated at ETP/STP plants outside the CRZ area, treated water from ETP/STP is being used for horticultural purposes. Please refer point no xi of the specific conditions above for further details. All attributes of environment viz. air; water; soil and noise are being regularly analyzed by NABL and MoEF&CC accredited agency M/s Pollucon Laboratory Pvt. Ltd. Please refer **Annexure – 5** for detailed analysis report. **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. **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, Glass etc. are then sent to respective recycling units, whereas remaining non-recyclable waste is bailed and sent to cement plants 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.
(iv)	The proponents should provide for a regular monitoring mechanism so as to ensure that the treated effluents conform to the prescribed standards. The records of analysis reports must be properly maintained and made available for inspection to the concerned state	

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td>/central officials during their visits.</td><td>

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 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 Apr'20 to Sep'20) for different types of wastes at APSEZ:
<table>
<tr><th>Type of Waste</th><th>Quantity in MT</th><th>Disposal method</th></tr>
<tr><td colspan="3">Hazardous Waste</td></tr>
<tr><td>Pig Waste</td><td>3.90</td><td rowspan="3">Co-processing at cement industries</td></tr>
<tr><td>Oily Cotton waste</td><td>24.82</td></tr>
<tr><td>ETP Sludge</td><td>Nil</td></tr>
<tr><td>Tank Bottom Sludge</td><td>Nil</td><td>Co-processing at cement industries and/or Sell to registered recycler</td></tr>
<tr><td>Used / Spent Oil</td><td>30.935</td><td rowspan="3">Sell to registered recycler</td></tr>
<tr><td>Discarded Containers</td><td>3.135</td></tr>
<tr><td>Battery Waste</td><td>Nil</td></tr>
<tr><td>Bio Medical Waste</td><td>2.224</td><td>To approved CBWTF Site</td></tr>
<tr><td colspan="3">Municipal Solid Waste</td></tr>
<tr><td>Recyclables</td><td>487.642</td><td>After recovery sent for recycling / Reuse within premises</td></tr>
<tr><td>Refuse Derived Fuel</td><td>61.86</td><td>Co-processing at Cement Industries</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Wet Waste (Food waste + Organic waste)</td><td>458.565</td><td>Converted to Manure for Horticulture use / Biogas for cooking purpose</td></tr>
</table>
</td></tr>
<tr><td>(v)</td><td>In order to carry out the environmental monitoring during the operational phase of the project, the project authorities should provide an environmental laboratory well equipped with standard equipment and facilities and qualified manpower to carry out the testing of various environmental parameters.</td><td>Complied.

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

Total Sampling Locations: 04 Nos.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit$</th></tr>
<tr><td>PM_{10}</td><td>µg/m^3</td><td>92.46</td><td>43.54</td><td>100</td></tr>
<tr><td>$PM_{2.5}$</td><td>µg/m^3</td><td>53.6</td><td>16.7</td><td>60</td></tr>
<tr><td>SO_2</td><td>µg/m^3</td><td>32.54</td><td>6.18</td><td>80</td></tr>
<tr><td>NO_2</td><td>µg/m^3</td><td>42.67</td><td>13.47</td><td>80</td></tr>
<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>74.1</td><td>58.3</td><td>75</td></tr>
<tr><td>Night Time</td><td>dB(A)</td><td>69.8</td><td>58.7</td><td>70</td></tr>
</table>
$ as per NAAQ standards, 2009
Values recorded confirms to the stipulated standards

Please refer Annexure – 5 for detailed analysis reports. M/s. Pollucon Laboratories Pvt. Ltd. has an environmental laboratory well equipped with standard equipment and facilities and qualified manpower to carry out the testing of various environmental parameters.

Approx. INR 8.46 Lakh is spent for all environmental monitoring activities during the FY 2020-21 (Till Sep'20).</td></tr>
<tr><td>(vi)</td><td>The sand dunes and mangroves, if any, on the site should not be disturbed in any way.</td><td>Complied.
There are no sand dunes and mangroves within the project area. However mangrove conservation plan has been developed by NSCSM and same has been submitted.

Please refer Condition No. x of specific conditions for further details.</td></tr>
<tr><td>(vii)</td><td>A copy of the clearance letter will be marked to</td><td>Not applicable at present</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	the concerned Panchayat / local NGO, if any, from whom any suggestion / representation has been received while processing the proposal.	
(viii)	The Gujarat Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industries center and Collector's Office / Tehsildar's Office for 30 days.	Not Applicable This condition does not belong to project proponent.
(ix)	The funds earmarked for environment protection measures should be maintained in a separate account and there should be no diversion of these funds for any other purpose. A year wise expenditure on environmental safeguards should be reported to this Ministry's Regional Office at Bhopal and the State Pollution Control Board.	Complied. Separate budget for the Environment protection measures is earmarked every year. All environment and horticulture activities are considered at corporate level and budget allocation is done accordingly. No separate bank account is maintained for the same however, all the expenses are recorded in advanced accounting system of the organization. Budget for environmental management measures (including horticulture) for the FY 2020-21 is to the tune of INR 1401 lakh. Out of which, Approx. INR 679 lakh are spent during this compliance period. Detailed breakup of the expenditures for the past 3 years is attached as **Annexure – 7**.
(x)	Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and State Pollution Control Board by the project proponents during their inspection for	Complied. APSEZL is always extending full support to the regulatory authorities during their visit to the project site. Last visit of Regional Office, GPCB was done on 25.09.2020 for Main port. APSEZL has submitted the reply to the site visit report vide letter dated 26.09.2020 incorporating details of action taken in respect of the observations of the GPCB representative. Details of the same are attached as **Annexure – 8**.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	Inline to the compliance certification process of Environment Clearance condition of Waterfront Development Plan, RO, MoEF&CC Bhopal had visited the site on 27th & 28th January, 2020 for compliance verification. APSEZ provided all requisite information and documents required by the Regional Officer MoEF&CC). During the said compliance verification visit and as per the compliance certification received, there was no major non-compliance observed.
(xi)	In case of deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new one for ensuring environmental protection.	Complied. Construction phase is completed and the project is in operation phase. There is no deviation or alteration in project including implementing agency.
(xii)	This Ministry reserves the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Point noted.
(xiii)	This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which should be complied with.	Point noted.
(xiv)	The project proponent should advertise in at least in two local	Complied

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests at http://www.envfor.nic.in. The advertisement should be made within seven days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.	
(xv)	The projects proponents should inform regional Office at Bhopal as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied. The construction phase is complete and the project is in operation phase.

CRZ Recommendations Compliance Report

Half yearly Compliance report of CRZ recommendation for the project namely "Development of Multipurpose berth (Terminal – 2) at Mundra Port, Dist. Kutch" issued by DoEF, GOG vide letter no. ENV-10-2005-222-P dated 12th October, 2006

Sr. No.	Conditions	Compliance Status as on 30-09-2020
Specific Condition		
1	The provision of the CRZ notification of 1991 and subsequent amendments issued from time to time shall be strictly adhered to by the GAPL. No activity in contradiction to the provision of the CRZ Notification shall be carried out by the GAPL.	Complied. Construction activities are completed and the project is in operation phase. All stipulations with respect to the CRZ notification and its subsequent amendments are complied with.
2	All permissions from different Government Departments / agencies shall be obtained by the GAPL before commencing the expansion activities.	Complied. Please refer to specific condition no. 2 of the EC and CRZ clearance above for details upon NOC & CC&A obtained from GPCB. Construction activity is already completed and the project is in operation phase. APSEZ had obtained No Objection Certificate vide GPCB letter No. GPCB/Unit-1/FT-139/11944 dated 27th April 2005.
3	No Dredging and /or reclamation activity shall be carried out in the CRZ area categorized as CRZ (i) and it shall have to be ensured that the mangrove habitats and other ecologically important and significant areas are not affected due to any of the project activities.	Complied. No dredging or reclamation is carried out in CRZ -1 (A) area. Capital dredging is completed and only maintenance dredging is being carried out, A study for conservation and monitoring for natural mangrove stands at Mundra was carried out by M/s. Gujarat Institute of Desert Ecology (GUIDE). The report of the same was submitted as part of compliance report for the duration of Apr'17 to Sep'17. Please refer to specific condition no. x of the EC and CRZ clearance for mangrove conservation.
4	The dredge material shall be disposed of into pre-designated areas duly	Complied. Construction and capital dredging activities are completed and the project is in operation phase. Impact

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	identified and got approved through the Gujarat Coastal Zone Management Authority for which the company shall have to make separate application along with proper EIA indicating the exact location of the dredge material disposal area on the CRZ map of the region prepared by the Space Application Center, Ahmedabad, as there exists best mangrove area in and around Bocha and Navinal islands, which requires to be protected.	assessment was done for the same and EIA report was submitted to GCZMA and MoEF&CC based on which the final Environmental and CRZ clearance was granted. Detail on study for conservation and monitoring for natural mangrove stands at mundra is as provided in condition no. 3 above. Apr'16 to Sep'16.
5	Massive mangrove plantation activity in at least 1200 ha. Area shall be carried out within a time frame of 5 years commencing from July, 2006 without any delay whatsoever.	Complied. It may be noted that 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. Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as **Annexure – 2**. Please refer condition no. v of specific conditions (EC & CRZ Clearance) for further details.
6	No effluent or sewage shall be discharged into the sea / creek or in the CRZ area and shall be treated to conform the norms prescribed by the Gujarat Pollution Control Board and would be reused/ recycled within the plant premises.	Complied. Entire quantity of sewage generated is being treated in designated STPs and treated sewage is used for gardening. Please refer to specific condition no. xi of the EC and CRZ clearance above for more details.
7	All the recommendation and suggestions given by the NIO in its Comprehensive Environment Impact	Complied. All the recommendation and suggestions for conservation / protection and betterment of

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td>Assessment report for conservation / protection and betterment of environment shall be implemented strictly by the GAPL.</td><td>environment given by the NIO in its comprehensive EIA have been implemented. Few examples are provided below.

Few Marine EIA recommendations:

<table>
<tr><td>Operational protocols and safety procedure should be printed and freely available to concerned staff. The employees must be adequately trained to inculcate a high level of competence not only in day to day operations but also during emergency situations. Periodic refresher courses must also be organized to maintain the level of their competence.</td><td>The company has written the operational protocols and safety procedures as a part of ISO 14001:2015, ISO 45001:2018 and ISO 9001:2015 certifications.

APSEZ has established training department to impart training to its employees.

IMO module course organized by Maritime Training Institute is conducted & 36 personnel have achieved IMO level 1 & 4 personnel have achieved IMO Level 2. Different training modules as Oil Spill, Oil Spill Equipment, Notification exercise, Incident are conducted at different frequency.</td></tr>
<tr><td>Temporary colonies of workforce should be located sufficiently away from the HTL with proper sanitation. Adequate arrangement of fuel supply to the workers should be made to discourage them from using mangroves for firewood.</td><td>Construction activity is already completed.
Most of the construction labours were residing in the nearby villages where all basic facilities are easily available. However, for those residing near the construction site, infrastructure facilities such as water supply, fuel, sanitation, first aid, ambulance etc. were provided by APSEZ.</td></tr>
<tr><td>Adequate vigilance is required to adherence of ships to Marpol protocol and related regulations.</td><td>During the vessel declaration compliances with respect to Air Pollution and Oil are monitored by the Port Authority. The ships are certified with international certification bodies only after complying with the Marpol protocol.</td></tr>
<tr><td>Manual Listing Procedure for conducting ship movement operations in the port area must be available to the concerned staff.</td><td>Berthing Policy & Tariff Structure is made available for conducting ship movement to the concerned staff and made available on web link www.adaniports.com/pdfs/PIB_06122013.pdf
Port Information Booklet is also</td></tr>
</table>
</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		made available on web link www.adaniports.com/Port_Operations_Port_Tariffs.aspx
8	The construction and operational activities shall be carried out in such a way that there is no negative impact on mangroves and other coastal / marine habitat. The construction activities and dredging shall be carried out only under the constant supervision of the NIO.	Complied. Construction and capital dredging activity is already completed. All operational activities are being carried out in such a way that there are no impacts on the nearby mangroves. Details on mangrove conservation and afforestation are provided against Specific Condition No. 5 above.
9	The GAPL shall strictly ensure that no creeks are blocked due to any activity at Mundra Port and the mangrove habitats are neither disturbed nor destroyed due to any activity.	Complied. As per Marine EIA carried out by NIO in 2008, prominent creek system (main creeks and small branches of creeks) in the study region are: (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. 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 have already been submitted as part of the compliance for the period of Apr'17 to Sep'17.
10	The GAPL shall contribute financially for any common study or project proposed that may be proposed by this Department for environmental management / conservation / improvement for the Gulf of Kutch.	Complied As part of the directions given by MoEF&CC vides order dated 18th Sep, 2015, following studies were conducted. 1. NCSCM study on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around APSEZ and the same was submitted to the GCZMA on 04.06.2018. Details of the same were submitted along with half yearly EC Compliance report for the period Apr'19 to Sep'19.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		The action plan for conservation of creeks and mangrove was submitted to GCZMA and MoEF&CC for their final examination and recommendation. Presentation on the findings of the report was made to GCZMA committee on 4th October 2019 and the recommendation for the same has been received vide email dtd 22nd Sept 2020 from GCZMA with following conditions: ✓ The APSEZL shall carry out annual compliance monitoring of the mangrove conservation area. ✓ The APSEZL shall explore the possibility for taking necessary adequate measures to reduce the erosion near Bocha Island. ✓ The approval of mangrove conservation plan shall not be considered as any permission under CRZ Notification for dredging activity. ✓ There should not be blockage of any drainage line and free flow of water is to be maintained, as flushing of mangrove areas is very essential. ✓ The APSEZL shall carry out mangrove monitoring every two years and submit the data to Forest Department/GCZMA and MOEF&CC, GOI. APSEZ is under the process of complying above recommendations - • Inline to the compliance of the action plan "Monitoring of mangrove cover in Jan/Mar, 2020 using latest satellite images and validation with field observations", Work has already been already been assigned to NSCSM, for amount of INR. 23,56,000/- vide PO no 4800050718, dtd. 31st December 2019 and same is under progress. 2. A Regional Impact Assessment study to identify impacts of all the existing as well as proposed project activities in Mundra region inline to ToR issued by GCZMA. CIA Report was prepared inline to the ToR by Chola MS and the same was submitted to the GCZMA on 30.04.2018. Details of the same were submitted along with half yearly EC Compliance report for the period Apr'19 to Sep'19. • Presentation on the findings of the report was made to GCZMA committee on 4th October 2019 and after detailed discussion, authority has decided to

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		constitute committee to discuss the details of the report further. However, APSEZ is already complying with the Environment Management Plan (applicable to APSEZ) suggested in Cumulative Impact Assessment report. The detailed compliance, applicable to APSEZ is attached as **Annexure – 9**.
11	The construction debris and/or any other type of waste shall not be disposed of into the sea, creek or in the CRZ areas. The debris shall be removed from the construction site immediately after the construction is over.	Complied. Construction activity is already completed. Project is in operation phase.
12	The construction camp shall be located outside the CRZ area and the construction labour shall be provided the necessary amenities, including sanitation, water supply & fuel and it shall be ensured that the environmental conditions are not deterioted by the construction labours.	Complied. The construction activity of said project is already completed. Project is in operation phase. No construction camps were located in CRZ area. Most workers came from nearby villages however, for others; construction camps were located outside CRZ area. All necessary infrastructure and facilities like mobile toilets, safe drinking water, medical health care etc. were provided.
13	The GAPL shall prepare and regularly update their local Oil Spill Contingency and Disaster Management Plan in for their all activities in Mundra Port consonance with the National Oil Spill and Disaster Contingency Plan and shall submit the same to this department after having it vetted through Indian Coast Guard.	Complied. Oil spill contingency response plan updated on 01.10.2019 is in place and implemented. Details of the same were submitted along with last half yearly compliance report for the period Oct'19 to Mar'20. And there is no further change. Regional Level Pollution Response exercise **"SWACHCHH SAMUDRA-NW 2019"** was carried out by Indian Coast Guard on 18th Dec, 2019. All participants from various Oil Handling Agencies and Stakeholders (ICG, GMB Port, DPT Vadinar, IOCL, RIL, NAYARA Energy, BORL, ESBTL Salaya, APSEZL, HMEL, GSFC, PCB, Forest Dept., Customs, Fisheries & DPT Kandla) were

Sr. No.	Conditions	Compliance Status as on 30-09-2020
		participated in this exercise. Details of the same were submitted along with last half yearly compliance report for the period Oct'19 to Mar'20. Disaster Management Plan is updated regularly and the updated DMP was submitted to the MoEF & CC along with half yearly compliance report Apr – 2016 to Sep – 2016. For responding to oil spill, the Indian Coast Guard has developed the National Oil Spill Disaster Contingency Plan NOSDCP which has the approval of the Committee of Secretaries and has been in operation since 1996. Oil Spill Contingency Response Plan (OSCRP) prepared by APSEZ is in accordance with the NOSDCP.
14	The Gujarat Maritime Board shall expedite for the Vessel Traffic Management System for the Gulf of Kutch and would work out the modus operandi for cost sharing by the different players in the Gulf indicating the GAPL. The GAPL shall contribute for the same as may be decided by the Gujarat Marine Board or any other competent authority for this purpose.	Point noted. APSEZ is practicing well defined traffic control procedure. A VTS service for Gulf of Kutch is operated by Directorate General of Lighthouses and Lightships (DGLL), Govt. of India. Marine Control of APSEZ provides traffic update to vessels in Mundra Port Limit on VHF Channel- 77. Arrival and departure information before arrival and departure respectively in Gulf of Kutch is provided to VTS information cell through agent or by directly sending mail to vtsmanagergulfofkutch@yahoo.com and vtsgok@yahoo.com
15	The GAPL shall bear the cost of the external agency that may be appointed by this Department for supervision / monitoring of proposed activities and the environmental impacts of the proposed activities.	Complied Please refer to condition no. 10 of the CRZ recommendations above for details upon cost incurred for various proposed studies and activities.
General Condition		
16	The ground water shall not be tapped by the GAPL to	Complied.

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	meet with the water requirement in any case.	APSEZ does not draw any ground water for the water requirement. 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 4.3 MLD during this compliance period i.e. Apr'20 to Sep'20.
17	The GAPL shall take up massive greenbelt development activities in consultation with Forest and Environment Department.	Complied. APSEZ has consulted Gujarat Institute of Desert Ecology (GUIDE) as they are one of the authorized agencies of Dept. of Forest & Env., Govt. of Gujarat for carrying out mangrove afforestation. Please refer condition no. v of specific conditions (EC & CRZ Clearance) for further details.
18	The GAPL shall have to contribute financially for taking up the socio-economic upliftment activities in this region in consultation with the Forests and Environment Department and the District Collector / District Development officer.	Complied. APSEZ performs a large scale socio-economic upliftment program and shares with FOKIA (Federation of Kutch Industries Association) chaired by District Collector quarterly. APSEZL have provided necessary facilities including health care, education, sanitation, livelihood, drinking water & other infrastructural support to Local community in the region. For further information related to the CRS activities being carried out by Adani Foundation in mundra region, please refer to specific condition no. 7 of the EC and CRZ clearance above.
19	A separate budget shall be earmarked for the purpose of socio-economic upliftment activities and details thereof shall be furnished to this department as well as the MoEF&CC, GOI from time to time. The details with respect to the expenditure from this budget head shall also be furnished on annual basis.	
20	A separate environment management cell with qualified personnel shall be created for environmental monitoring and	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

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2020</th></tr>
<tr><td></td><td>management during construction and operational phases of the project.</td><td>(Environment) at Corporate, who heads the Environment Management Cell who directly reports to the top management.

The details of the same were submitted along with last half yearly compliance report for the period Oct'19 to Mar'19. And there is no further change.</td></tr>
<tr><td>21</td><td>Environmental Post Project Monitoring report indicating the changes, if any, with respect to the baseline environmental quality in the coastal and marine environment shall be submitted every year by the GAPL to this department as well as to the MoEF&CC, GOI.</td><td>Complied.

The quality of treated effluent, emission and noise level is being monitored regularly by a MoEF&CC/NABL accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Monitoring results are confirming to the applicable norms.

Marine monitoring is being carried out once in a month. Summary of the same for duration from Apr'20 to Sep'20 is mentioned below.

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>8.29</td><td>8.25</td><td>8.25</td><td>8.19</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>245</td><td>212</td><td>270</td><td>216</td></tr>
<tr><td>BOD (3 Days @ 27 °C)</td><td>mg/L</td><td>4.1</td><td>3.2</td><td>ND*</td><td>ND*</td></tr>
<tr><td>DO</td><td>mg/L</td><td>6.1</td><td>5.9</td><td>5.9</td><td>5.7</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>36.8</td><td>35.5</td><td>37.1</td><td>35.7</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>38280</td><td>36570</td><td>38554</td><td>36724</td></tr>
</table>
*ND = Not Detectable

The results depict that there is no damage to the marine ecology.

Please refer Annexure – 5 for detailed analysis reports. Approx. INR 8.46 Lakh is spent for all environmental monitoring activities during the FY 2020-21 (Till Sep'20).</td></tr>
<tr><td>22</td><td>The GAPL shall have to contribute financially to support the National Green Corps Scheme being implemented in Gujarat by</td><td>Complied.
Necessary support will be provided on hearing from GEER foundation to support NGC scheme.</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2020
	the GEER foundation, Gandhinagar in consultation with Forests and Environment Department.	
23	A six monthly report of compliance of the conditions mentioned in this letter shall have to be furnished by the GAPL on a regular basis to this department without fail.	Complied. Six Monthly environment clearance compliance report is being submitted regularly to the concerned authorities. Compliance report of EC conditions is uploaded regularly. Last compliance report including results of monitoring data for the period of Oct'19 to Mar'20 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 19.05.2020. 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 19.05.2020 to all the concern authorities. Please refer below for the details regarding past six compliance submissions. **Sr. no. / Compliance period / Date of submission** 1 / Apr'17 to Sep'17 / 01.12.2017 2 / Oct'17 to Mar'18 / 29.05.2018 3 / Apr'18 to Sep'18 / 30.11.2018 4 / Oct'18 to Mar'19 / 31.05.2019 5 / Apr'19 to Sep'19 / 28.11.2019 6 / Oct'19 to Mar'20 / 20.05.2020
24	Any other condition that may be stipulated by this department from time to time for environment protection / management purpose shall also have to be complied with by the GAPL.	Complied. Any other condition stipulated for environment protection / management purpose will be complied by APSEZ.

Annexure – 1

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382010
Phone : (079) 23222425
(079) 23222152
Fax : (079) 23232156
Website : www.gpcb.gov.in

Application For CTE After TOR

File No : GPCB/ **(PCB ID. - 17739)**

To,
M/s. Adani Ports & Special Economic Zone Ltd.,
169/P, AT-NAVINAL ISLAND, MUNDRA, KUTCH,
City :Mundra ,
Dist : Kutch East ,
Taluka : Mundra

Sub: Consent to Establish (After obtaining Terms Of Rrference For Environment Clearance) under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.

Ref: (1) Your online application No. 175853 dated 27/04/2020

(2) TOR issued by Central Authority vide their letter no. 10-24/2019-IA-III Dated 17/05/2019

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (After obtaining Terms Of Rrference For Environment Clearance) under Section 25 of Water Act 1974 and Section 21 of Air Act 1981** for manufacturing of products as mentioned into the application of Environment Clearance (EC) for which TOR is granted vide letter under reference no (2) above.

Consent To Establish Is Granted Subject To The Following Conditions: -

1) The validity period of this CTE shall be Seven Years from the issue of this order.
2) Applicant shall strictly comply with all conditions stipulated by competent authority in the order of Environment Clearance to be issued in reference to TOR issued vide letter under reference No. : 2 above.
3) The applicant shall however , not without the prior concern of the Board. Bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the water Act – 1974, the Air – 1981 and the Environment (Protection) Act – 1986.

Outward No:15618, 19/05/2020

For and on behalf of
Gujarat Pollution Control Board

K. B. Chaudhary
ROH - Kutch East

- This order is issued to 169/P, AT-NAVINAL ISLAND, MUNDRA, KUTCH, City :Mundra, Dist : Kutch East, Taluka : Mundra (17739) for CTE amendment after obtaining EC.

Annexure – 2

Details of Greenbelt Development at APSEZ, Mundra

LOCATION	Total Green Zone Detail Till Up to Sep - 2020				
	Area (In Ha.)	Trees (Nos.)	Palm (Nos.)	Shrubs (SQM)	Lawn (SQM)
SV COLONY	70.81	33920.00	7962.00	69426.00	92791.00
PORT & NON SEZ	81.51	149192.00	19220.00	75061.78	61982.38
SEZ	116.60	227120.00	20489.00	220583.60	28162.03
MITAP	2.48	8168.00	33.00	3340.00	4036.00
WEST PORT	94.47	210022.00	63331.00	24112.00	22854.15
AGRI PARK	8.94	17244.00	1332.00	5400.00	2121.44
SOUTH PORT	14.45	27530.00	3470.00	3882.00	3327.26
Samudra Township	56.03	53922.00	11834.00	20908.89	47520.07
Productive Farming (Vadala Farm)	23.79	27976.00	--	--	--
TOTAL (APSEZL)	**469.05**	**755094.00**	**127671.00**	**422714.27**	**262794.33**
		882765.00			

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 – 3

CSR KUTCH

Six Monthly Report 2020-21

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

INDEX

Fight Against COVID-19

While most of the nation is locked in the safe confines of home, Adani foundation is doing various activity in villages during lock-down period to fight against COVID-19.

24

villages of Mundra block Sanitized

Adani Foundation had done sanitization work with coordination of Fire Department APSEZ in 22 Villages in Mundra.

45000+

Mask prepared by SHG group

Adani Foundation has supported SHG Groups of Mundra, Mota Kapaya, Navinal, Nakhtrana and Lakhpat for mask preparation.

1800+

food packet per day two time

For The workers, drivers and labors of APSEZ and AWL Cost free Fresh Food Support (Breakfast, Lunch and Dinner) in AWL premises , Port premises and SEZ Premises.

9000+ ration kit support

Ration Kit support to Daily Wedge Labors and Needy people

150+ beneficiaries covered

Mobile health care unit is providing primary treatment to community at door step and also creating awareness to fight against Corona virus.

12500 people connected

By Awaz De software creating awareness in people in local kutchi language.

1400+ patient covered

AHMPL is providing all services IPD and OPD during lockdown period. social distance maintained during Pharmacy and queue for consultancy.

Important of handwashing & hygiene

Creating awareness of handwashing and hygiene by Sangini

57 senior citizens of old age home

During lockdown period our team providing medical facility to senior citizens at old age home in Mandvi and Gundala

Environmental Sustainability

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 radius 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 and Sahjeevan.

Environmental Sustainability

Water Conservation Projects

Since 10 years considerable Water Conservation Work carried out in Mundra Taluka. Due to satisfactory rain in current year 1.11 mtr ground water table increased as per Government Figures. Our water conservation work is as Below.

- A large number of water harvesting structure (18 Nos. of check dams in coordination with salinity department)
- 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. which is having 10,000 litre storage which is sufficient for one year drinking water purpose for 5 people family.
- Recharge Bore well 75 Nos which is best ever option to conserve ground water

Environmental Sustainability

Water Conservation Projects

- 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
- **As per Average Calculation more than 450 hac. area benefitted with increased in 109 MCFT water Quantity.**

Environmental Sustainability

Bio Diversity Park – Mundra

Ecological greenbelt development plan expects to attracts and provide habitats for many species of major faunal groups such as amphibians, reptiles, birds (terrestrial and aquatic), butterflies and mammals. Further this developed area can act as recreational, educational and interpretation center for the community of the corporate sector to understand and enhance their knowledge base on local environmental and ecological scenario.

Adani Foundation, Mundra-Kutchh proposed a biodiversity park at 5 acres Nandi Sarovar area and approached to Sahjeevan, Bhuj for technical support for same. Sahjeevan team visited this proposed site for development of greenbelt to support biodiversity and enhancement of overall ecological food web existing in and around the landscape in first phase.

In addition, senior team of Adani Foundation and Sahjeevan also discussed in details for this program and suggested to initiate an interpretation center for awareness to various stakeholders on very unique biodiversity of Kutchh region in second phase.

Environmental Sustainability

Bio Diversity Park – Mundra

Zone wise different habitats identified by technical team, i.e. Outside Plot Area, Along Waterlogged Area, Climber/Twiner Area, New Plantation Area, Entry Gap Filing Area, Gate Area, and Wetland Area within the proposed project area, technical team will develop a list of species that are representative of mature, undisturbed local forests, grasslands and wetlands. The chosen species will be typical of the species composition of local habitats. Main objectives are :-

Develop a list of plant species that can be chosen on the basis of aesthetic characteristics, in particular for the beauty/abundance of their flowers, eventually of their fruits/foliage.

Define information on different types activities involved under this ecological greenbelt development project (i.e. butterflies areas, medicinal plants areas, birds areas etc.).

Develop a manual that will give guidelines for habitats based on local practices, for short term and long-term management.

Till date more than 2500 medicinal plants and 1000 native plants are planted, due to good rain growth is considerable

Environmental Sustainability

Environmental Sustainability

Coastal Bio Diversity Park – Luni

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).

Environmental Sustainability

Coastal Bio Diversity Park – Luni

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.

Environmental Sustainability

Tree Plantation

4110 Tree have been planted at various Public places , Schools, GP and crematorium with their responsibility to nurture and maintain regularly.

Environmental Sustainability

Drip Irrigation Projects

- **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 295 farmers and 1422 acre drip irrigation area in last two years which is remarkable for water conservation – in this six months we have covered 51 farmers and 310 Acre land for the same.**

Environmental Sustainability

Sea Weed Projects

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.

In July 2020, We have done MOU with VRTI who is expert in Sea weed cultivation for supporting 20 fisherman in first phase for tank based sea weed farming. Dr. CVR Reddy (Ex- Director CSMSRI) is our Guide for the Project.

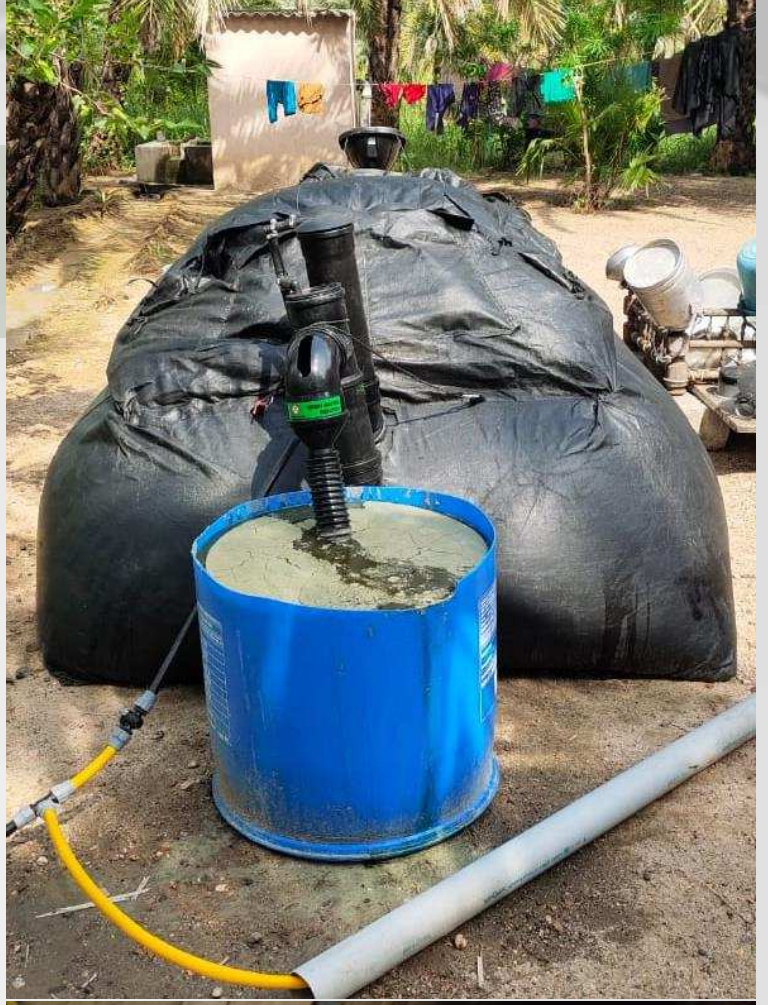
Environmental Sustainability

Homebiogas Project

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.
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.
Till date 54 farmers are utilizing it with satisfaction and considerable outcome by saving Average Rs. 1250 for gas and fertilizer as well.

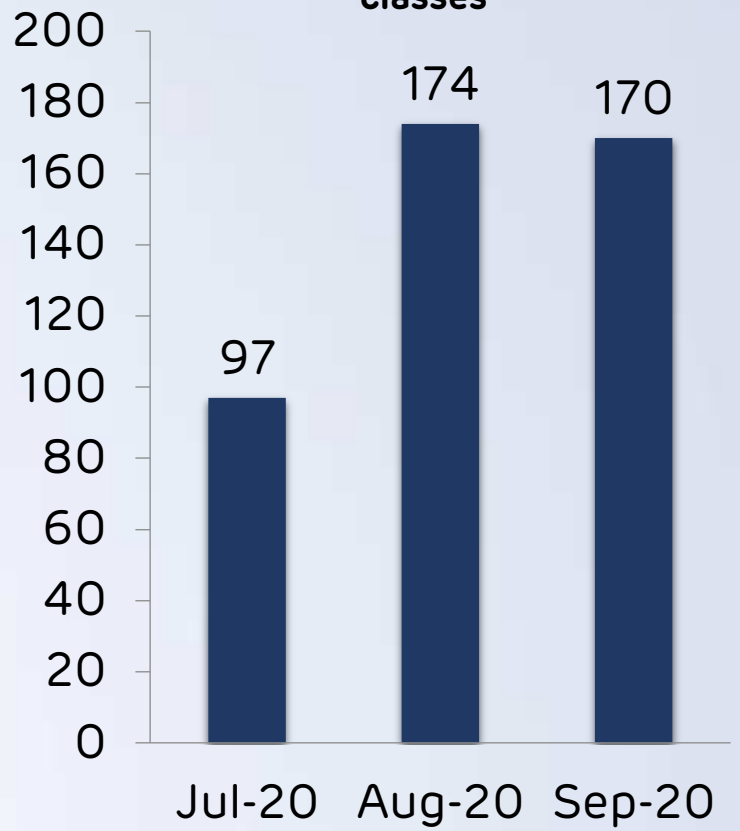


Utthan

Academic

- ✓ Utthan Sahayaks connected through WhatSapp and phone calls with the progressive learners from April – July
- ✓ July onwards structured 'Online classes' were started for Utthan Schools focusing Progressive learner on Google meet platform
- ✓ Utthan Shayaks made Annual syllabus, customized worksheets and TLM
- ✓ Weekly IT and Sports material were circulated in all Utthan Schools

Priya Vidyarthi in 17 Government Primary School : 259 (2020-21)
No. of Priya Vidyarthi attending online classes



Mother's meet

3 Mothers' meet conducted

148 Mothers' were addressed

Topic covered –

- Precaution during heavy rainfall and covid
- Active participation in online classes
- Spend quality time with your child
- Focus to develop creative skills amongst your kids

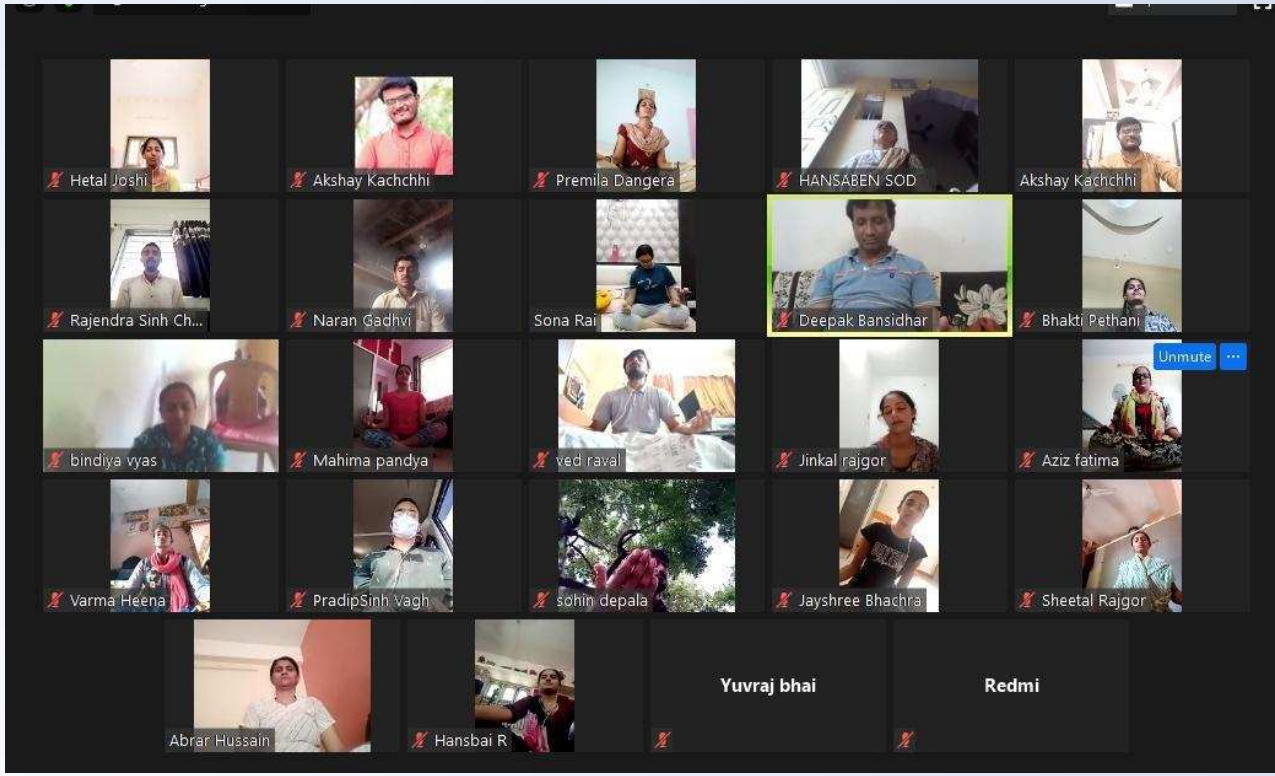
Utthan

06 Virtual Capacity Building Program on various topic through Microsoft team

Apart from CPD Utthan Sahayks attended 30+ educational webinar during lockdown.

Topics covers -

- We’re all at home-but you’re not alone,
- Think big! Boost your learning
- Project for teen
- Teaching CLIL
- Building up confidence in writing skills
- An introduction to positive psychology well being for your classroom



Utthan

Arrange various competition and celebration for Priya Vidyarthi

School Visit and Home Visit by Utthan Sahayak

Meeting with School principals and Utthan Sahayaks

Conduct meeting with Principal / Teacher of Utthan schools, TPEO, BRC, CSR Head, Education Coordinator, Project Officer and Utthan Sahayaks through Microsoft Team

Agenda:

- Utthan Sahayaks strengthen themselves by attending 30 + webinar
- Online courses conducted by Cambridge University
- Prepare worksheets especially for *Priya Vidyarthi* Annual curriculum for Reading, Writing, Maths, English, Library, IT, Sports
- Prepared Teaching Learning material Connect with *Priya Vidyarthi* by Online class + WhatsApp + Text messages + Home Visit
- Meeting with government officials

Adani Vidya Mandir Bhadreshwar

Adani Vidya Mandir Bhadreshwar **provide "cost-free"** education to meritorious students coming from challenging economic background, who have priceless treasures but have been under achievers due to situation. In year **2020-21 490 students are studying.**

82.60% - Result SSC Board Exam

Tab Distribution

Tablet provide to students of std 10th for online study through Employee Volunteering Programme and we distributed the tablets to students of Std 10.
HOD's and HOS's of Adani Ports, Adani Power, Solar and Adani Wilmar and Adani Tuna had supported for online studies of Standard 10th Students of AVMB for smooth studies.

Adani Vidya Mandir Bhadreshwar

Activities Covered

- Admission process of std 1 students through draw system. 80 students selected out of 91. remain 11 students in waiting list
- Online Class through WhatsApp and you tube video
- Teachers are regularly visiting students house for checking homework and lessons with PPE's.
- supported Text-books to the students of all classes.
- Tab distribution to Std 10th students
- House Visit by Principal Madam & Vice Principal to irregular students.
- Hindi Day celebration
- Unit test conducted as per GSEB circular for the students. Paper received from CRC & Board for std 9th and 10th.

Health

During this panic situation health is the basic need for development of community. Adani Foundation focuses on ensuring good health for batter contribution to growth and progress.

11 Rural Clinic

8 from Mundra 3 from Anjar block treated ;

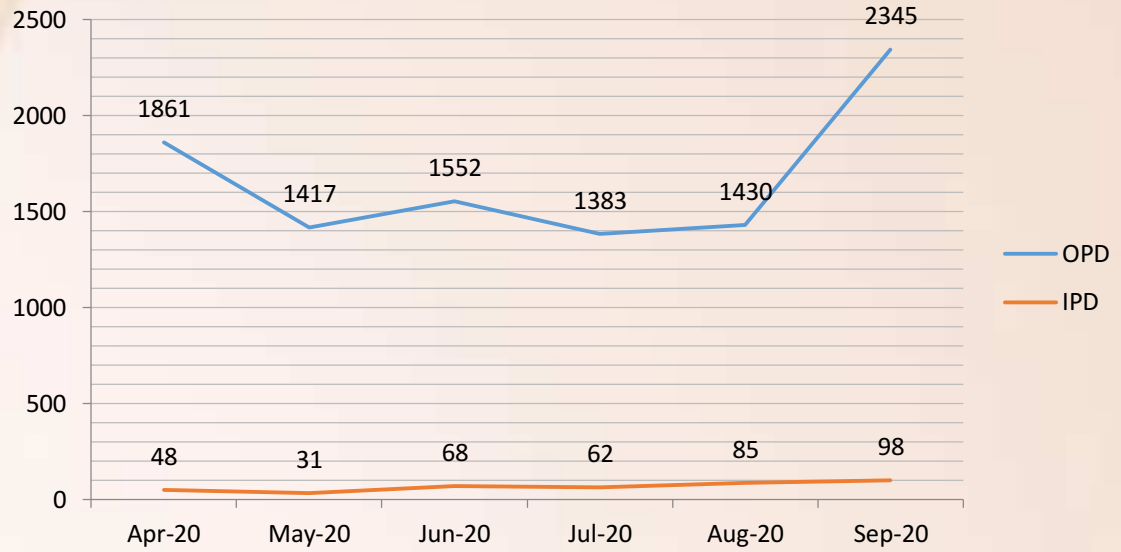
8196 patients.

31 villages covered, with 109 types of general and life saving medicines through Mobile healthcare unit

6879 patients benefited during six month

Health

AHMPL OPD & IPD detail



AHMPL	Month						
	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Total
OPD	1861	1417	1552	1383	1430	2345	9988
IPD	48	31	68	62	85	98	392
Total	1909	1448	1620	1445	1515	2443	10380

Project wise detail

Project`	OPD/IPD						
	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	Total
Senior citizen	471	537	694	504	313	402	2921
Medical Supports	106	89	70	41	60	100	466
Dialysis Supports	43	51	41	36	35	30	236
Medical Mobile van	50	1470	1107	1234	1445	1573	6879
Rural Clinic	0	1653	1557	1705	1591	1690	8196
Total	670	3800	3469	3520	3444	3795	18698

Health

Dialysis Support

Due to high salinity, in Kutch cases of kidney failures are comparatively more. At Adani Hospital we are providing dialysis treatment with token charges. We have provided treatment to 6 patients of kidney failure 236 times.

Sr. Citizen project

8672 Card holders of 68 villages get benefit under this project .

2921 sr. citizen patients benefited during six month 8000 limit for three year per patients

Medical Support

470 Needy patients had been facilitated with Medical Support OPD & IPD treatment with token charges during this six month

Health

Abhimanyu Project

Having pregnancy is the precious for women as well as her family. But sometimes some complication may arise which can be fatal for mother and child due to incomplete knowledge and irregular health check-up.
To resolve its at some extent we design Abhimanyu health calendar with all details about diet, vaccination, symptoms and precautionary measures in Gujarati language with pictures so the pregnant women can be align with it's regularly.

1150 health calendar were distributed to various PHC,CHC and ICDS department of Mundra, Mandvi, Nakhtrana, Lakhpat, Abadasa, Anjar & Gandidham block.

594 Protein Powder packet distributed to ANC woman of Utthan villages and TB patient of Mundra block.

Sustainable Livelihood Development

Fisher folk

Education:-

Education play significant role for any individual as well as community transformation.
Covid pandemic has severely impacted on education system. Hence to keep them connected and motivated various intervention have been made.

55 Higher secondary Fishermen students of Sekhadiya, Navinal, Zarpara &Junabandar benefitted with book support.
Mother meeting and telephone Discussion for their wards discussion.

Alternative livelihood

Providing Option livelihood to Fishermen during Fishing Off season by Mangroves plantation and Maintenance. It also creating environment sustenance.

4830 Man-days work was provided over 236 Fishermen family during this six months

Sustainable Livelihood Development

Government Scheme Facilitation.

To avail Fishermen Government scheme **(Fishermen Credit card)** one day program was arranged with social distancing and all precaution.

30 KCC form fill-up at Navinal.

Created awareness with Telephonic about same.

Sea Weed Culture

To create option livelihood over fishermen with co-ordination of VRTI.

Pilot phase -3500Kg seaweed was harvested

Based on that MOU with **ICCSIR** (Brach of VRTI) to expand sea weed Culture by Offshore and inshore Method

We have to support for Community Mobilization and land for inshore Seaweed Culture.

Potable Water at Fishermen Vasahat

Potable Water to Fisher Folk at vasahat-2020-21			
Sr.	Vasahat	family	Requirement Per day
1	Luni Bandar	110	15000
2	Bavdi Bandar	117	15000
3	Kutdi Bandar	140	15000
4	Randh Bandar	350	25000
	Total	717	70000

Availing pure drinking water to fishermen vasahat.

To mitigate born disease and women drudgery to get water

1113 fishermen are getting benefit of its

Juna Bandar Fishermen vasahat been water sustain with linking to Mundra Gram Panchayat

Sustainable Livelihood Development

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.

Adani Foundation had coordinated with Village Development Committee, Gram Panchayat and Gau Seva Samiti of Siracha Village Gauchar Development.

Total 85 Acre Gauchar Land was approved by GP for Development by decision taken in Gram Sabha . Among them 72 Acre land Has been Sowed and Remaining land would be Grow with Wild Grass.

Fodder cultivation

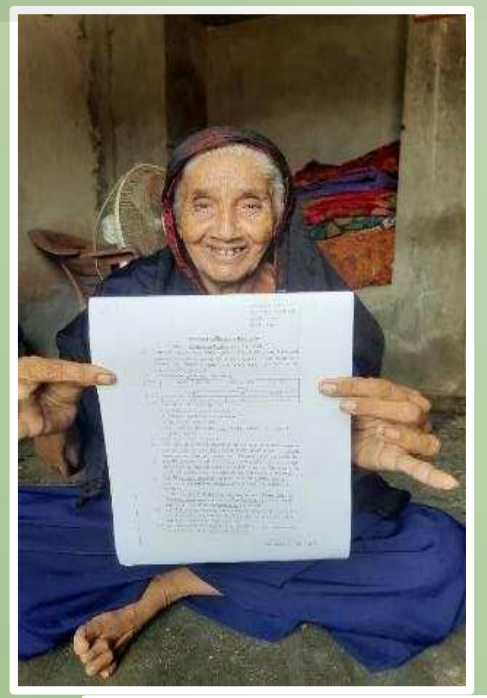
- To Increase production and availability of green and dry Fodder.
- Village driven fodder sustainability through cultivation in village Gauchar land..
- Zarpara -25 Acre & Siracha- 85 Acre Gauchar land development is in progress – We got very good support from Village Development Committee in post care.

Sustainable Livelihood Development

Government Scheme Facilitation

Facilitate widows, senior Citizens and Divyang to various schemes of government like widow pension, free bus pass, Senior citizen pension scheme sankat mocha sahay etc. support for process and documentation

66 people are getting benefits of various government scheme



Sr.	Name of Scheme	Nos of beneficiaries	Supports amount
1	Widow pension	51	Rs.1250 per month
2	Divyang Buss	8	Free of cost traveling
3	Senior Citizen pension scheme	3	Rs.750 per month
4	Sankatmochan sahay	2	Rs.20,000 once in life for BPL
5	Cabin support to widow	2	by foundation

Sustainable Livelihood Development

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.

5-SHG had been Facilitated for Rs1.0 lac bank loan through DRDA to start-up new business for women empowerment.

facilitated artisan for artisan support by District collector Kutch Rs.1000/- per month for four month

₹ 6,00,000+

income has been earned

60,000+ three layer mask has been prepared and sold by Umang SHG group @ Rs.10.00 per mask

11 members Shradha saheli SHG of Motakapaya village is prepared snacks and meals for catering.

The group's catering tender has been sanction to providing snacks and meals service for Government program in mundra block.

Sustainable Livelihood Development

Registration of "Kutchh Kalptaru Farmer's Producer Company and meeting with Director, DRDA for Equipment and Agri mall Grant is done.

Tissue Culture

Our periphery villages are famous for the dates farming as having appropriate weather and soil condition.

To Doubling the farmer income by aviling "Barahi Varities Tissue plant" has good productivity

850 plants have been distributed to 34 farmers

25 plants / Farmers cost of a plants is Rs.3500.

50% Contribution have been collected from Farmers which will further utilized to purchase more tissue plants to availed more farmers.

Fodder support

Fodder support in 20 villages of Mundra and Anjar block.

Dry fodder 6.70 lacs kg
Green fodder 11.60 lacs kg

Sustainable Livelihood Development

Home Bio Gas

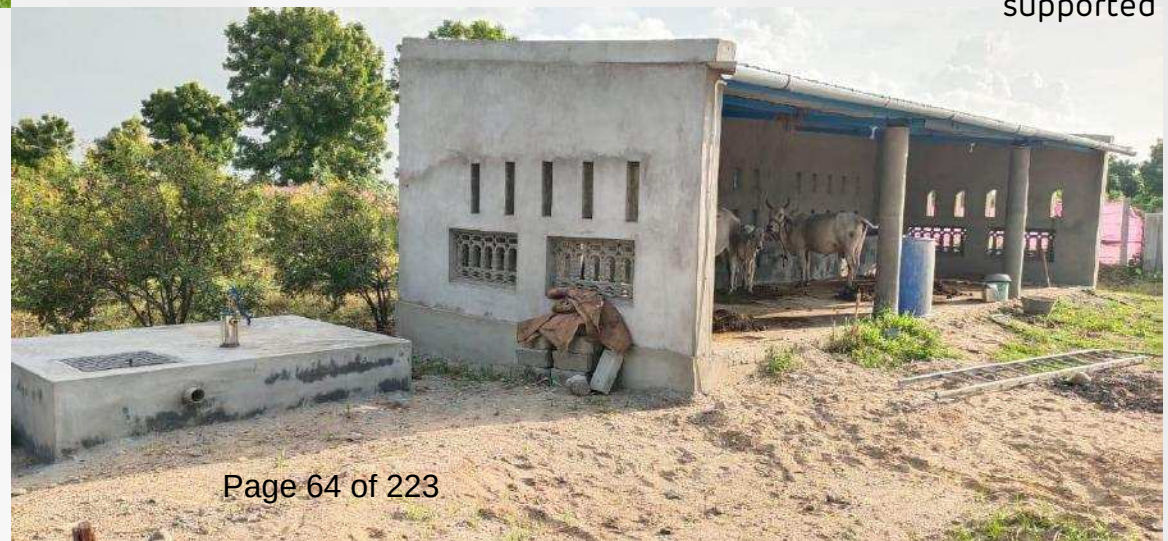
Installation of 53 Home Bio-gas with SOP Awareness and trouble shoot of problem as well.

Dragon Fruit Farming

To promote dragon food farming to doubling farmer income as having good economic value. 10,000 dragon food sapling , Pole and wire have been supported to 5 farmers.

Model Farming

To promote cow-based farming two model farm have been developed with 25 type innovative activities. This will be utilized for demonstration and replication at other farms.



Sustainable Livelihood Development

95 Farmers benefitted with NB -20 Off suite to bring fodder sustainability.

Kitchen garden Kits (Seeds, Fertilizer and Pesticides) were facilitated to 48 SC family with the help of horticulture department and aware about its importance in diet.

Organic farmer hat at shantivan colony
To avail pure organic vegetables ,Milk, ghee, buttermilk as well as webinar was also organized to aware about the importance of healthy food for healthy life.

Community Infrastructure Development

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.

Development of Prisha Park at Mundra.

Pond Bund strengthening at Zarpara Village

Community Infrastructure Development

Work In Progress:-

1. Drainage Line and Chamber work at Bhopavandh.
2. Drainage Maintenance & JCB Hiring & Other Mis. Work.
3. Road Repairing at Kutdi Bandar.
4. Road Repairing at Zarapra Fisherman Vashat.
5. Road Repairing at Luni Pagadiya Fisherman

SuPoshan

The purpose 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

Covid-19 awareness in village & Slum Area

100 beneficiaries covered in Menstrual Hygiene Day - with slogan called "RED-ACHHA HAI"

204 beneficiaries covered in Breastfeeding Week

320 beneficiaries covered in National Deworming Day

20 villages covered in celebration of NATIONAL NUTRITION MONTH

42 FAMILY COUNSELLING

Participate in Umbre Anganwadi episode

SuPoshan

Community Engagement and other Activities		
Sr.No	Activity	Total
1	No of Sangini	24
2	Total Village Cover	41
3	Total Anganwadi Cover	70
4	SAM to MAM Monitoring Progress	03
5	MAM to Normal Monitoring Progress	15
6	Focus Group Discussion	85
7	Family Based Counselling	42
8	Village level Events	05
9	No of SAM children referred to CMTC	06
10	Total Anthropometric screening	140
11	Total Family Cover through video & Audio Calling	20
12	Total House Hold Family Visit	130
13	No. of Severe Acute Malnourished children (SAM) Telephonic Counselling	08
14	No. of Severe Underweight children (SUW) Telephonic Counselling	03
15	No. of adolescent girls-Telephonic Counselling	190
16	No. of pregnant women-Telephonic Counselling	100
17	No. of lactating mothers-Telephonic Counselling	230
18	No IFA Tablet Distribution to adolescent girls	200
19	Total Family Cover	9178
20	No of Sangini completed online POSHAN Abhiyan E- Learning module	15

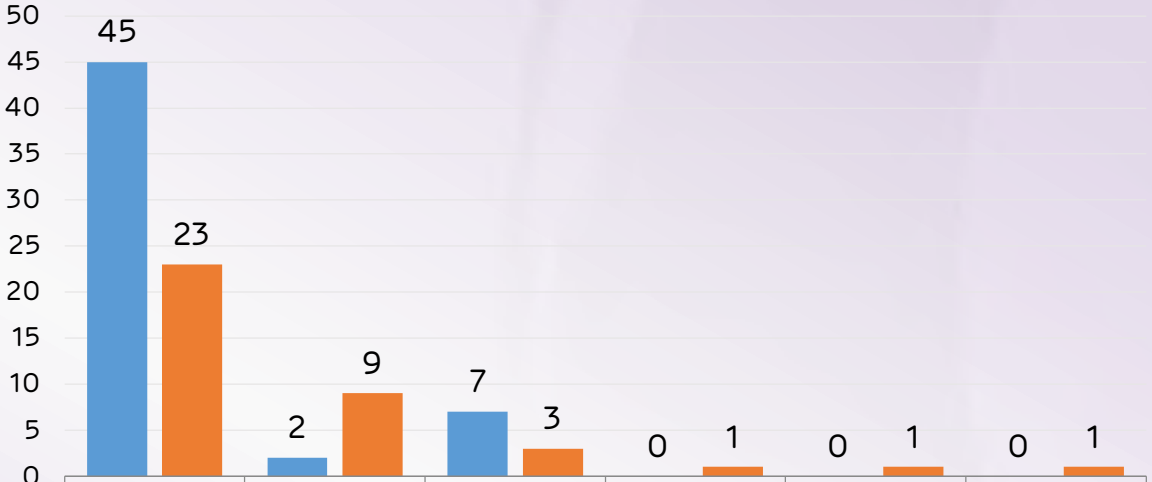
THANKS GIVING PROGRAMME" MUNDRA & BITTA Site

SuPoshan Thanksgiving program was organized. In this webinar DDO, CDPO Mundra and other dignitiaries remained present and appreciated the efforts to overcome malnourishment in Mundra and Bitta.

Adani Skill Development Centre

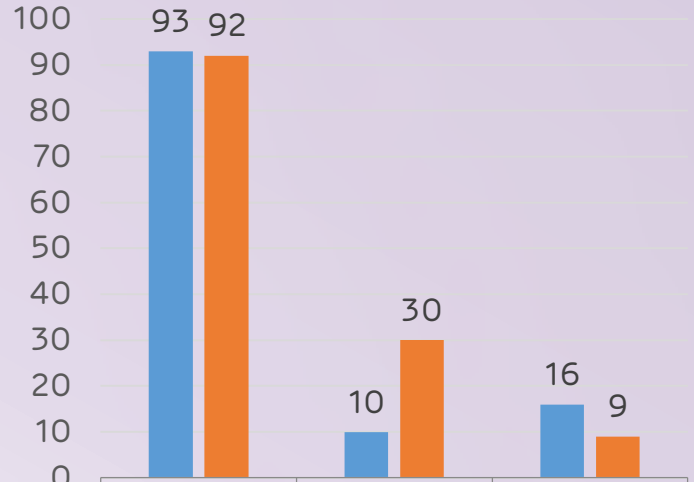
Admissions From April to September, 2020

OHO Model (Subsidized)



	GDA	GST with Tally	Digital Literacy	Basic Functional English	EDP	Mud Work
Female	45	2	7	0	0	0
Male	23	9	3	1	1	1

Free Training Model

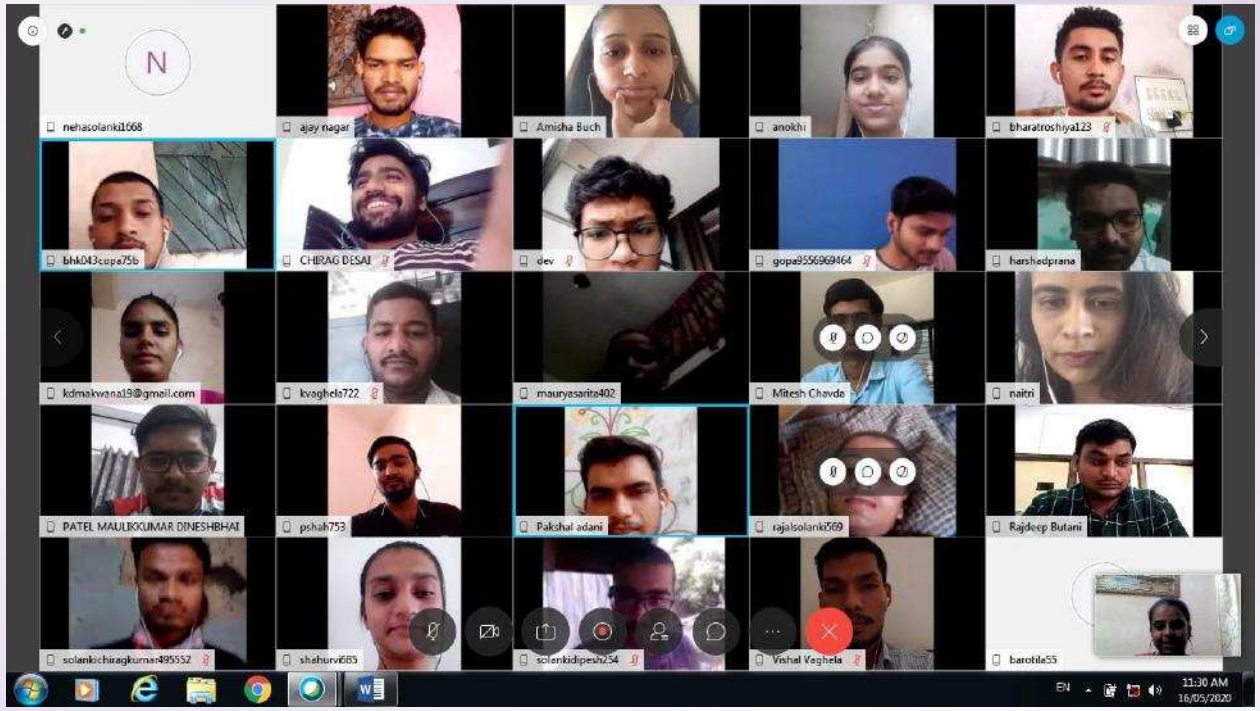


	Basic Funcional English	GST With Tally	Digital Literacy
Female	93	10	16
Male	92	30	9

Adani Skill Development Centre

E-Learning

324 students Enrolled in Online Training



Various Activity

The students of DDU-GKY (GDA) creating awareness regarding Covid-19 in their own village through various activity

Adani Skill Development Centre

Interview and Placement

Arranged interview of DDU-GKY GDA students at Sterling Hospital – Gandhidham, GAIMS (Sodexo), Chanakya College, Accord Hospital, Fire Academy.

27 students get placement in GAIMS (sodexo), Alilance Hospital, Shreeji Hospital, Bhuj Fire Academy, Divine Hospital etc.
3 students are working in COVID-19 Hospital

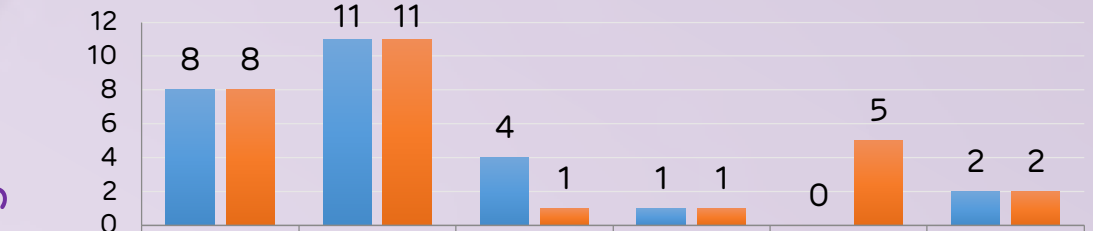
Adani Skill Development Centre

E-Learning & Activity

- Online E- Learning training of Interview skill course
- Online training of Mud work – Theory and practical

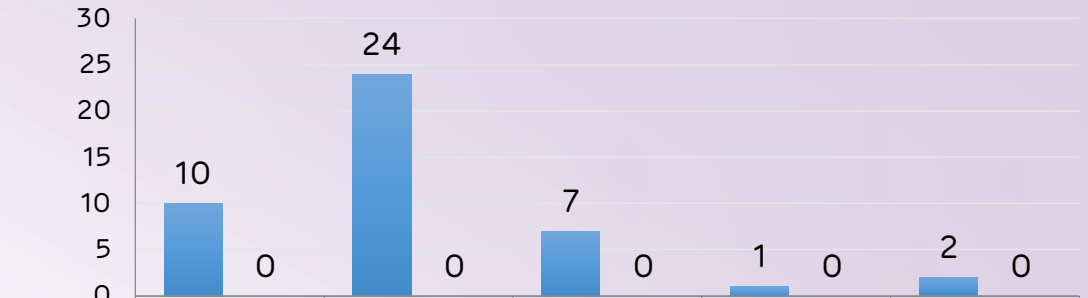
Admissions From April to September, 2020

Free Training Model



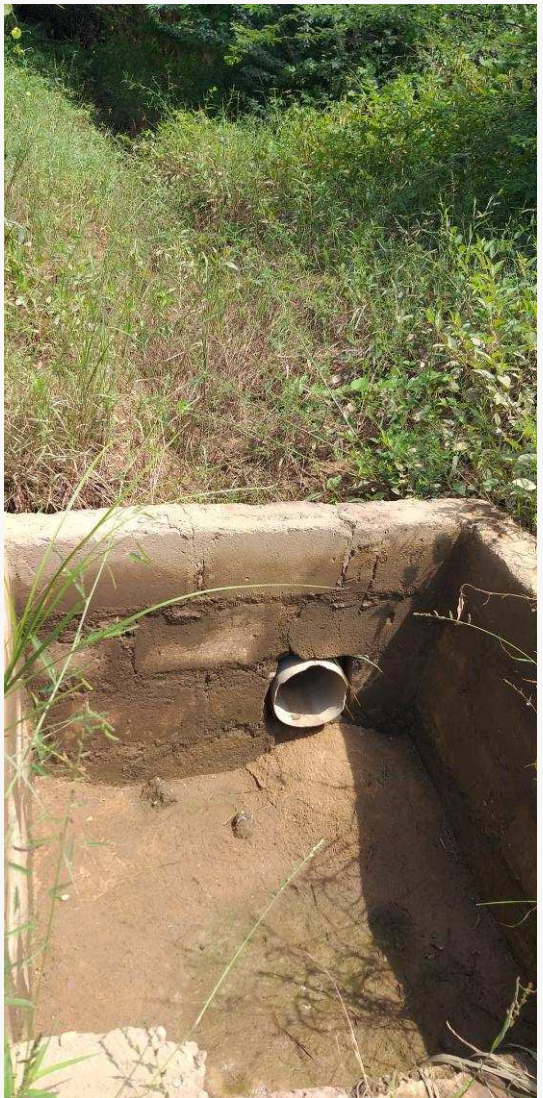
	Digital Literacy	Basic Functional English	Basic Home Health Care	Financial Literacy	Marketing Skill	Training Skill
Female	8	11	4	1	0	2
Male	8	11	1	1	5	2

Subsidized Training Model



	Digital Literacy	Mud work	Beauty Therapist	Manicure Pedicure	Basic English
Female	10	24	7	1	2
Male	0	0	0	0	0

CSR - Nakhatrana



Recharge Bore well

Adani Foundation, Nakhatrana had revived ground water table by recharging the bore wells and wells in Amara and Jinjay village. Total 15 Bore well recharge work will be beneficial to more than 70 beneficiaries in irrigation.

Benches and Otta Work

In Jinjay Village 5 cement benches were grouted and 2 sitting places – otta were repaired at public places. Also in Amara village 6 cement benches was grouted near Village Pond which brought visibility of our entry point activity work for Green Energy Projects.

Tree Guard Support

Adani Foundation always believes in Nature conservation. For purpose of planting and protection of trees, Adani Foundation provided 50 cages in Ugedi village of Nakhtrana taluka and 100 cages in Ratadia village..

CSR - Nakhatrana

Swavlamban Divyang Support

The Adani Foundation, Nakhtrana provides a variety of tools to help people with disabilities become financially self-sufficient. Disabled people are given various support for livelihood such as cabin shop, sewing machine, Atta chakki in which they earn income by selling various things.

SETU Agriculture Projects

Adani Foundation supported agriculture projects by linkages of Government Scheme. Facilitated 23 SC Farmers of Ugedi, Amara, Ratadiya and Desalpar village by Kitchen Garden kits worth Rs 2000 by coordination with Department of Horticulture GOG.

SETU Widow/Divyang Support

We act as a bridge between Government schemes for Widows and Divyang people. 104 Widow women were supported to fulfill formalities of filling pension scheme forms and started getting aid of Rs. 1250 per month. Tricycle, Bus pass and sewing machine support was also coordinated with social welfare department

CSR - Nakhatrana

Biodiversity - Ugedi

Adani Foundation also works for the conservation of biodiversity. To do such work, Adani Foundation works with the advice of experts and the guidance of an expert organization to protect the environment and also to protect and preserve the wild biodiversity. It works to protect biodiversity.

This work has been entrusted to Sahajivan, an expert organization for the protection and conservation of biodiversity, as part of which a Biodiversity Conservation Committee has been formed in Ugedi village (BMC). As well as in the garden of Ugedi village and in the place of Angalwadi, trees have been planted. Also, in the seam area of Ugedi village, more than 300 native trees have been planted, In which trees like Pilu, Desi Bawal, Khejari, Liar have been planted. As well as the seeds of the native trees have been sprinkled, babool has been removed from the roots in the village pastures by JCB and the pastures have been cleared so that the native trees can grow more and the sprinkled seeds grow there and It has been tried to grow back the native trees of Kutch. Also, a small pond has been constructed in Shim of Ugedi village, in which wild animals can get water as well as survive

CSR - Lakhpat

Tree Guard Support

Adani Foundation always believes in Nature conservation. For purpose of planting and protection of trees, Adani Foundation provided 100 cages in Kapurashi village of Lakhpat taluka and 100 cages in Koriyani village..

Fodder Cultivation

Animal Husbandry is the main livelihood of Lakhpat. Due to good rain we motivated more than 61 farmers to grow fodder in at least one acre of land to become self sustainable.

CSR-Tuna

Rations Kits Support

We believes in growth with Goodness and giving back to society.

We are Always ready to support during any Nature calamities and pandemic.

During the Covid -19 pandemic we had started Ration kit Distributed campaign with spreading precautionary awareness to needy and poor people.

Total 1100 Ration Kits Distributed to Tuna Rampar and Vandi Villages

SETU – Widow/Divyang Support

We act as a bridge between Government schemes for Widows and Divyang people. social welfare department.

We arranged Awarness program with Anarde Foundation , setu and Government Officers.

CSR-Tuna

Potable water Distribution

at Vira and Ghavarvado Fishermen Vasahat

Water Project

Water Pipe Line installation & Storage tank construction with Collaboration with WASMO , GP and AKBTL at Tuna

Fodder Support

Fodder distribution to Rampar and Tuna Villages.

Rampar

15520 Kg dry Fodder Rs.1.1 Lacs

122930 Kg Green Fodder Rs.3.50 Lacs

Tuna

32430 Kg Dry Fodder Rs.2.65 Lacs

212800 Kg Green Fodder Rs.6.06Lacs.

Tree Plantation

Adani Foundation always believes in Nature conservation. For purpose of planting and protection of trees, Adani Foundation have Done Tree planation at Tuna , Rampar , Vandi Government Schools and Police station.

EVP-Employee Volunteering program

802 students of Vallabh Vidhalaya schools has been adopted by Adani employee

35 tablet for students of AVMB

Amid covid-19 its difficult to continue 10th standard study for the financial weaker students who don't have any digital gadget for online learning . Hence to enable them for online learning our APSEZ Employee volunteering support to provide Lenovo tablet to AVMB Students . .

All the 802 students are in the school are from migrants labour families who are working in various industries in and around of Mundra. Laborer children are in addition to resource constrain at home and also bear the dis-advantages of unfamiliarity of local language and culture, which inhabiting them to participation in school. Vallabh vidhalaya by passes the language barrier as the medium of instruction is Hindi.

Total Rs.16.04Lacs cheque had been handed over to Mr. Dharmendra who is the director of Vallabha vaiadhalaya On 1st may as the world labour day.

Events

World Environment Day

World Environment Day was celebrated in Four Talukas by different activities related to conservation of Environment.

- Mangrove Plantation at Luni sea coast with fisher folk community
- Tree Plantation at Mundra, Nakhtrana, Lakhpat & Tuna block.
- Inauguration of Gauchar land development work in 22 acres at Siracha village
- Tissue culture plant distribution to farmer
- 1500 herbal plants like meshvak, amla, galo, gugal, ardusi, pilu, etc planted at Nandi Sarovar biodiversity park

Events

Vanmhotsav

4100+ tree plantation

Vanmhotsav tree plantation :

Tunda, Siracha, Navinal , Zarpara, Dharb, Baroi, Luni, Samgoga, Nani bhujapar, Moti bhujapar, Mota bhadiya, Gundiyali , Anjar, Tuna, Rampar and Wandi Village.

For Mota bhdiya, Ravalpirdada tample and Zarpara with Government 1000 plants received from Forest Department.

Events

World Mangrove day

Web talk show was organized on the occasion of "World Mangrove days On Multi species Mangrove bio diversity with Joint effort of Guide and Adani Foundation, mundra.

Dr.V.Vijayan Kumara (Director of Gujarat institute of Desert ecology) , Mr. C.R.K Reddy (Former chief scientist ,CSIR-CSMCRI CEO) and Respected PNR sir and Gadhvi sir had delivered occasionally speech. As well as Paper presentation by GUIDE and with KSKV Scientist . Total 70 participated had joint this webinar.

Events

World ocean day

World ocean day

World ocean day celebration on 8th June at Luni bandar with spreading cleanliness message through coastal cleaning program and aware about government scheme with maintaining of social distancing

My Mother's dream became true

Name: Mura Keshabhai Dhuva

Place: Khavda**,** Bhuj, Kutch, Gujarat

Employer: Alliance Hospital (Covid 19 hospital), Mundra, Kutch, Gujarat.

Job: Joined as Nursing Assistant.

Salary: Rs. Up to 9000/- per month with lodging and boarding facilities.

Candidate Brief:

He belongs to rural family. Father is Carpenter and mother is Home maker. Parental household's monthly income prior to his placement was Rs.8, 000. His prior educational qualifications is 12th pass.

In his own words:

My mother's dream is that one of the sons should be in medical field. But due to financial constraint, I couldn't study further. I thought I will never be able to fulfill my mother's dream but fortunately, I got opportunity to get trained under GDA course and soon after its completion, I got placement in hospital. I feel proud to serve Covid19 patients and will continue doing fearlessly.

Thanks to Adani Skill Development Centre to give me opportunity to take training under DDU-GKY scheme and make me capable to take care of my family.

When asked how confident he is at his new and challenging work, he replies "Along with GDA training we were also trained with soft skills training as it helped me to become good team member and work efficiently."

It helped me to become good team member and work efficiently

Name: Nipul Punjabhai Sanjot

Place: Bidada-Mandvi, Kutch, Gujarat

Employer: Alliance Hospital (Covid 19 hospital), Mundra, Kutch, Gujarat.

Job: Joined as Nursing Assistant.

Salary: Rs. Up to 9000/- per month with lodging and boarding facilities.

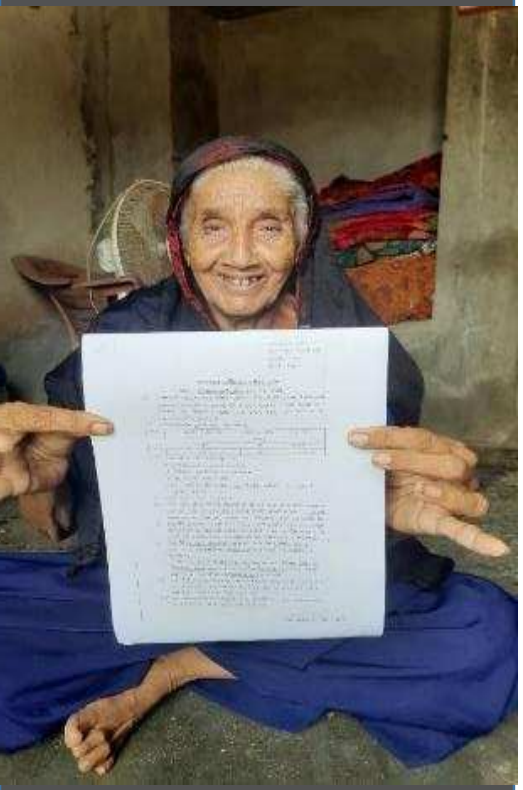
Candidate Brief:

His father and mother works as helping staff (housekeepers) in another hospital. Monthly income of family prior to his placement was 10,000/-. His prior educational qualifications is 12th pass.

In his own words:

I am youngest in Covid19 hospital here but I know this is the time to act wise. When my friends ask me do you fear working as PCA? I simply laugh and say I am trained in GDA course and fully prepared for this work. My duty is to check patient's temperature, blood pressure and oxygen level and maintain record. We get residential facility nearby hospital. To Treat Covid19 patients, needs a courage and team work and I am blessed I got this wonderful chance. Thanks to Adani Skill Development Centre to give me opportunity to take training under DDU-GKY scheme and make me capable to take care of my family.

Stick at old ages



Dhanuba a self-esteem lady from Zarpara Village .While I peeped in her life it seems like that her existence is only to bear grief and sadness .Her husband was passed away before 20 Years since that she has been eduring social and economic responsibility of her family by drudgery daily wages. She have two daughter who are married and two sons who are supporting her for daily end meet ,day was passed little more good combatively .....Who knows it was for short times .....

Unfortunately one more shock in her life that her elder son get Heart attack and passed away & younger son got mentally ill again she have to drudgery to get them daily bread and butter... Though her daughters called her to lives with them but she denied strongly believed to don't be burden & belongs to daughter. Now she is 70 years old and physically weak and also get illed often.

One day she came to our Rural clinc for medical check-up and was talking with deep sigh & despair about her problem. Fortunately our Employee Mr. Karsanbhai was present at their and promptly talked with her and comprehend the reality. She could not availed benefit of widow pension scheme because of the certain government limitation even after numbers of time applied and Follow-up for the same. He went along with her and Collected the essential document and submitted to the respective department later within two month she received sanction order for the same and further Rs.1250 /- Widow pension has been started which been the great support for daily meet.

She and her daughters expressed great gratitude and said that Adani Foundation is hope

For the Poor and needy persons.

“Vidyadan Mahadan”

Really AF Scholarship support intervention could be the Community transformation rather than Individual.

Name: Sohil Gafur Manjaliya

Place: Luni ,Mundra

AF intervention:- Education Scholarship Support

Progress & Achievement:- Studied intently and perused Graduation Degree and process for LLB admission

Salary: Working with Lawyer as a practicenor and earn Rs. 8000/Month

Back Ground : He belongs to Poor Fishermen family and sincere to study since child hood. He belongs to Poor Fishermen family and sincere to study since child hood. His father is used to Pagadiya fishing practice to get the daily end meet.

In his own words:

In our community most of the youth left study after 8th standard and engaged in Fishing practice but when I had interacted with AF staff and persuaded for further study and Scholarship support. I realized that the only education can be the game changer to strengthen my Financial condition. Later I focused to study Intentionally and dreamed to be Lawyer.

Now am working with Advocate as Assistance and do Financially support to my family.

Indeed AF sensitized me and act as catalyst to transform my life than others really I am honored by friends and Society

The sewing machine act as legs to made me earned and confident for my family

Real Support

Name: Harkhumben hirabhai Rabari

Place: Jinjauu,Nakhtrana

AF intervention:- Sewing Machine Support.

Progress & Achievement:- Started Embroidery and sewing work

Income : Rs.2500 to 3000/Month

Back Ground : She is 40 year old lady and disable by polio in childhood. They are five members three Children and Husband wife. Her husband is driver and the only person to earn hence financial problem is always remain host. However She is illiterate & handicapped but symbol of etiquette and dedication. She always thought to be financial Supporter to her life partner . As belongs to Rabari community stitching & hand work is imbibed in her and she want to purchase Sewing machine for the same but Financial constrain did not allow them for same.

During community interaction she express her willing sewing machine support. we met her and after verification Support accordingly.

In his own words:

It was difficult to me as house wife to maintain budget but since I have started sewing work which added some extra money which can we expence for our children nurturing and education for their bright future.

Thanks to Adani foundation to be supporter to such disable persons

Sea of Change – I got a job ....

Manjaliya Jakum Osman is 36 years old Fishermen Youth though he was little dull in study but has insight sense and dedication to work. After completion of primary education he had been engaged in fishing practice with his father. Though he was earning but not enough to sustain his big family with Five Daughters .

He was always thinking to get hike and asking to provide work according to his skill like drivering ,electrician and painting work.
One day we offer him contract work in our dry cargo department for loading Unloading work. He started enthusiastically with 30 Labors teams and paid 100% Efforts to fetch the targets but.....Unfortunately he had to left contract due to some constrain.

Again he engaged in fishing as routine but destiny define another for him. we had called From APSEZ to need Casual labors and referenced for Jakum as having Good feedback for dedication toward work.

he accepted opportunity even did not know the process. Initially We supported for gate pass and other mandatory formalities. Currently 22 Fishermen youth are working under him.

He is saying that I am earning Approx Rs.40000/Month. And massage to Fishermen youth that I am grateful to AF to provide chance to proof my self and sustaining well. now I can Fulfill all basic amenities and invest to my daughter education.

He message to Fishermen Youth that we have great Opportunity as having ADANI port and companies to get employed.

Media coverage

ખારેક, દાડમ અને કેરીના ગ્રેડિંગ, ક્લીનિંગ અને પેકિંગ માટે ખાસ વ્યવસ્થા ઉભી કરાશે

મુંદ્રાના ૧૧ ગામોના ખેડૂતોના ઉત્થાન માટે 'કચ્છ કલ્પતરૂ પ્રોડ્યુસર કંપની લિ.' એગ્રોમોલ બનાવશે !

●અદાણી ફાઉન્ડેશનનો સહયોગ અને ડાયરેક્ટરોના સમન્વય થકી ધરતીપુત્રોને કૃષિ ક્ષેત્રે મળશે સાચા

●ઓક્ટોબરના અંત સુધીમાં ૨૦૦ સભાસદોનો

ખારેક બજાર વ્યવસ્થા માટે કચ્છ-કલ્પ તરુ પ્રોડ્યુસર કંપની બનાવશે : અદાણી ફાઉ. દ્વારા આયોજન

જીવન સાથે જીવનનિર્વાહની સામર્થવાન કામગીરી કરતું: અદાણી ફાઉન્ડેશન

(પ્રેસ રીલીઝ) મુંદરા તા. ૧૨ આજે અદાણી ફાઉન્ડેશન ૧૮ રાજ્યમાં ૨૨૫૦ ગામડાઓ સુધી લોક કલ્યાણ અર્થે કામ કરી રહ્યુ છે. અદાણી ફાઉન્ડેશન કચ્છ જિલ્લામાં પણ સુસંગત, વ્યવસ્થિત રીતે, સમાજ ઉપયોગી કામગીરી કરવા હંમેશા તત્પર રહ્યું છે. તેની કામગીરી સહીયારા મૂલ્યની વિભાવનાથી પ્રેરિત છે. જેમાં અદાણી ફાઉન્ડેશન સમાજ માટે સર્વસમાવેશક વાતાવરણ ઉભું કરવા ઉત્સુક છે, તેના આ કાર્યની સાબિતી મુન્દ્રાના લાભાર્થી પરિવારો પૂરી પાડે છે.

અદાણી ફાઉન્ડેશન દ્વારા દેશના ૧૮ રાજ્યમાં ૨,૨૫૦ ગામડાઓમાં કરવામાં આવેલ લોક કલ્યાણના વિવિધ કર્યો : મુન્દ્રા તાલુકાના ૨૨ ગામોને સેનીટાઈઝ કરવામાં આવ્ય અસરગ્રસ્ત પરિવારોને ૧૦,૦૦૦ જેટલી રાશન કીટનું વિતરણ

અદાણી ફાઉન્ડેશને મુંદરાના વલ્લભ વિદ્યાલયનાં ૮૦૦ બાળકને દત્તક લીધાં

માસિક એ શારીરિક પ્રક્રિયા હોવાથી અપવિત્રતા સાથે ન જોડો

અદાણી ફાઉન્ડેશન દ્વારા રાષ્ટ્રીય માસિક સ્ત્રાવ સ્વચ્છતા દિવસની ઉજવણી કરાઈ

મુન્દ્રા તાલુકાના ૮ ગામોના ૩૪ ખેડૂતોને બારહી ખારેકના ટીસ્યુકલ્ચર રોપાઓનું વિતરણ કરાયું

ભુજપુર આસપાસ ૨૩ લાખના ખર્ચે વિવિધ વિકાસકામો સંપન્ન : ખાનગી કંપનીનો સહયોગ

નર્સિંગ કોર્ષના ૨૦ તાલીમાર્થીઓને પ્રમાણપત્ર પહેલા જ નોકરી મળી

ભુજમાં અદાણી સ્કિલ ડેવલપમેન દ્વારા અપાઈ હતી તાલીમ

કચ્છમાં જરૂરિયાત મુજબ નિમણૂક અપાવવામાં પ્લેસમેન્ટ ઓફિસર નિરવ લેઉવા, કિન્નરી ઉમરાણીયા તથા રોહન સોની મદદરૂપ થયા હતા. તાલીમ માટે અસ્મિતાબેન જેઠી અને પૂર્વી ગોસ્વામી સહાયરૂપ થયા હતા. હજુ પણ જરૂરિયાત મુજબ પ્રયત્નો કરવામાં આવી રહ્યા છે. અત્રે ઉલ્લેખનીય છે કે, ગયા ઓક્ટોબર-૧૯માં બેચ શરૂ થઈ હતી. પરંતુ, લોકડાઉન આવી જતા પરીક્ષા લઈ શકાઈ નહોતી છતાં ફળ મળ્યું છે.

લુણીમાં સમુદ્ર સફાઈ અભિયાન હાથ ધરાયું

અદાણી સ્કિલ ડેવ. દ્વારા નિ:શુલ્ક ઓનલાઈન વ્યવસાયલક્ષી અભ્યાસક્રમ







We Salute to Corona Warrior Staff of Adani GKGH, Adani Hospital Mundra, Community Health Staff and team....

Our fight against Corona is still continue with new hope and dreams.....

Adani Foundation-Mundra : Budget F.Y. 2020-21

Executive Summary : Budget Utilization Statement-April to September.2020

F.Y. 2020-21 (Rs. In Lacs)

Sr. No.	Budget Line Item	Budget 2020-21	Budget Utilization	% of utilization	Remarks
A.	**Admin Expense**	**61.10**	**24.07**	**39.39%**	
B.	**Education**	**94.56**	**25.11**	**26.55%**	
B1	Utthan-Education -Mundra	64.11	24.16	37.68%	
B2	Education -Fisherfolk - Balwadi	30.45	0.95	3.12%	
C.	**Community Health**	**420.70**	**95.29**	**22.65%**	
D.	**Sustainable Livelihood Development**	**365.00**	**171.83**	**47.08%**	
E.	**Community Infrastructure Development**	**58.30**	**7.81**	**13.40%**	
F.	**EDM Recommanded Projects**	**60.00**	**1.38**	**2.30%**	
G.	**COVID 19 Support**	**100.00**	**23.05**	**23.05%**	
	Total AF CSR Budget :	**1,159.66**	**348.54**	**30.06%**	
H.	**Adani Vidya Mandir-Bhadreshwar**	**219.67**	**42.24**	**19.23%**	
I.	**Project Udaan-Mundra**	**50.00**	**25.92**	**51.84%**	
	GRAND TOTAL BUDGET F.Y. 2020-21 :	**1,429.33**	**416.70**	**29.15%**	

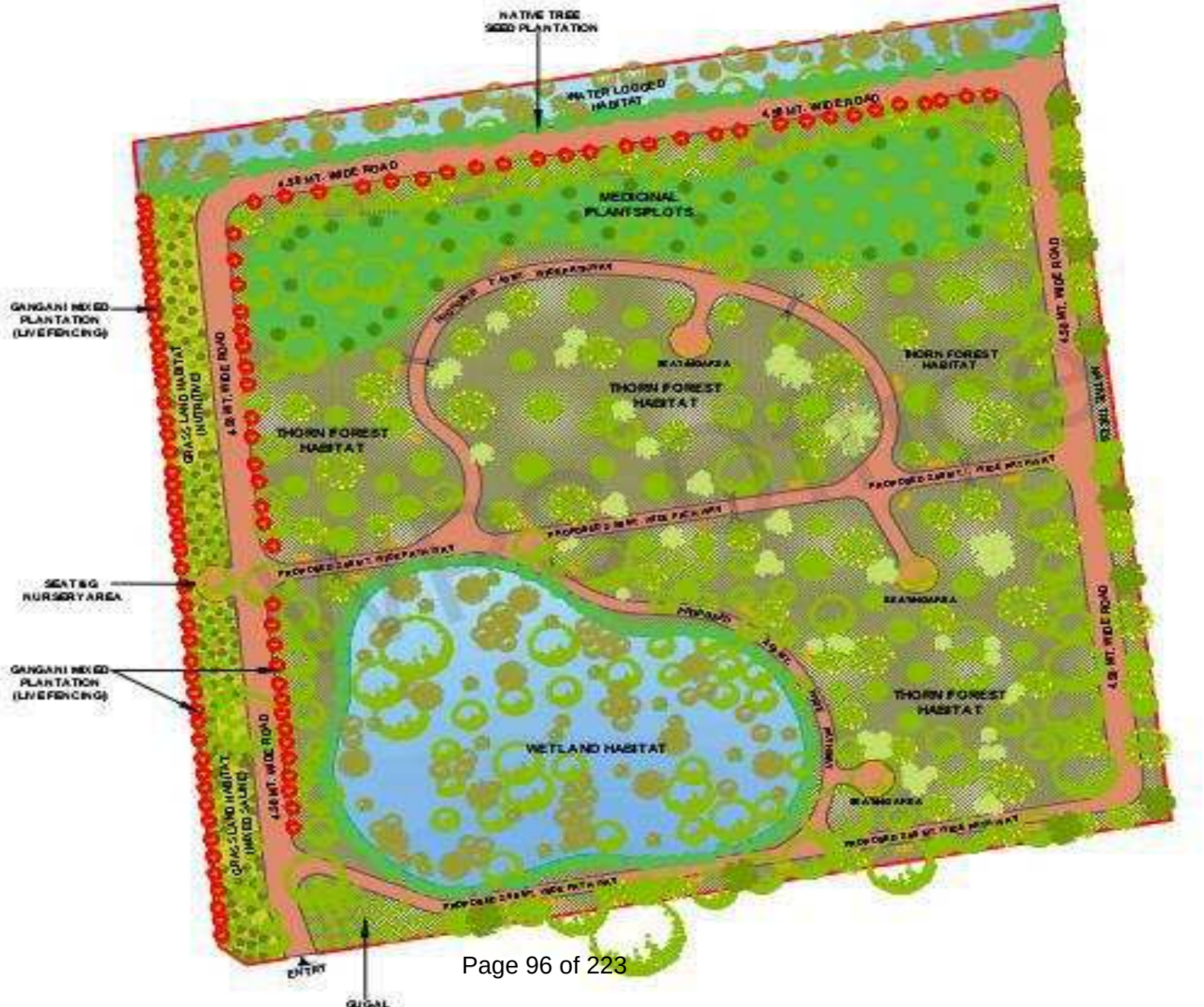
Development of Biodiversity Park

at

Nandi Sarovar

Mundra- Kachchh

Proposed Plan Layout for Biodiversity Park



Collection of Baseline Data

PRE MONSOON SURVEY

- 78 Species (under 34 Families and 71 Genera)
- 384 TREES
- 50% plant species are herbs, followed by trees (31%) and grasses (11%).

POST MONSOON SURVEY

- 25 New NATIVE Species added in List
- 48 SPECIES are planted including 6-7 Saline Mixed Grasses

Site Clearing and Leveling

- *Before and after Lockdown*
- *Through Labors*
- *Through Machineries*
- *Prosopis juliflora,* debris and other waste

Nursery Beds and Purchasing Native Saplings (45+ Species)

Sr. No	Species Name	Social Forest Nursery, Dhunai	Normal Forest Nursery, Dhunai	Hightech Nursery, FD, Bhuj	Salvadora Green Nursery, Nakhtrana	Gov. Ayurveda Farm, Reldi	Pvt. Nursery, Adipur	Gulfarm Nursery, Bhuj	TOTAL
1	Manilkara hexandra (Rayan)				12				12
2	Azadirechta indica (Limdo)			10					10
3	Cordia gharf (Liyar)				63				63
4	Acacia nilotica (Deshi Bavar)			50	50				100
5	Pomegrantum (Dadam)			20					20
6	Psidium (Jamphal)	10							10
39	Withania somnifera (Ashwagandha)					14			14
40	Abrus precatorius (Chanothi)					10			10
41	Canna indica (Canna)						50	50	100
Total from Each Nursery		100	240	150	358	56	60	160	1124

Collection and Purchased SEEDs (10+ Species)

- Vegetative cuttings of stem of drought resistant plant species like *Euphorbia caducifolia* (Tuar, Thor)
- Seeds of *Cassia auriculata* (Awar), *Acacia nilotica* (Desi Baval) and *Pongamia pinnata* (Karanj), from surrounding landscape.
- Seeds of *Grewia villosa* (Luska), *Premna sp.* (Kundher), *Gymnosporia montana (Vikado)*, *Moringa oleifera* (Mitho Saragavo) are collected from wild area of Bhuj Taluka and
- Seeds of *Ziziphus mauritiana* (Bor) and *Salvadora oleoides* (Mithi Jar) are purchased from Koli communities of Rapar taluka

Development of Grassland Habitat

More than 10 species planted: Mixed Saline, High Nutritive, Sedges etc.

More than 5 species are planted through roots-saplings from our site

Development of Wetland Habitat

Site composition	Species planted	Strategies
Waterlogged area	Vitex negundo (Nagod), Salvadora persica (Khari Jar), Suaeda nudiflora (Lano, Unt Morad)	Water preferable species, fast growing and saline tolerant; medicinal plant; attract many insects, butterflies during flowering.
Seepages with sewage water	Canna indica (Cana Plant)	Evergreen tuberous herb and helpful in water purification with control on sewage smell.
Dominant by sedges	Cyperus scariosus, C. rotundens and others	Soil binder and saline tolerant species and also preferable by many insects and butterflies.
Dominant by Phragmites sp. and other vegetation	Seed sowing of mix grasses collected from Banni grassland as part of gap filling along the boundary	Soil binder and saline tolerant-high nutritive species and also preferable by many insects and butterflies.
Dominant by Sesbania bisponosa and Cypers scarious	Seed sowing of mix grasses collected from Banni grassland as part of gap filling along the boundary; and also planted seeds of native thorny species available at sites for providing more shelter trees for birds	Soil binder and saline tolerant-high nutritive species and also preferable by many insects and butterflies. Native seed sowing of Zizyphus mauritiana (Bor), Cassia auriculate (Aavar), Pongamia pinnata (Karanj), Acacia nilotica (Deshi Bavar), Salvadora oleiode (Mithi Jar) etc.
Complete Dry area	Caesalpinia crista (Kachka)	Spiny straggling shrub, provide green and wild protection/live fencing; medicinal species

Development of Thorn Forest Habitat

Species Name	Local Name
Cordia gharaf	Liyar
Acacia nilotica	Desi Bavar
Grewia tanax	Gangani
Commiphora wightii	Gugal
Prosopis cineraria	Khijdo, Kandhi
Pithecellobium dulce	Goras Ambli
Zizyphus mauritiana	Bor
Azadiractha indica	Limdo
Salvadora persica	Khari Jar, Pilu

- Drought resistant, thorny and deep-rooted plants.

- Less requirement of water during summer season compared to other evergreen plant species.

Development of Medicinal Plants PLOTS

- **Increased density:** *Salvadora persica* (Khari Jar), *Moringra concensis* (Kadvo Sargavo), *Pithecellobium dulce* (Goras Amali), *Prosopis cineraria* (Kandhi), *Tecomella undulata* (Ragat Rohido), *Zizyphus mauritiana* (Bor), *Cordia dichotoma* (Gunda), *Salvadora oleoides* (Mithi Jar), *Holoptelea integrifolia* (Kanaji), *Punica granatum* (Dadam), *Acacia nilotica* (Deshi Bavar), *Cordia gharaf* (Liyar).

- Between two small plots, we planted almost **12 medicinal plant species in block**

Development of Climbers and Live Hedges

- Wild climber species are planted i.e. Tinospora cordifoilia (Garo), Abrus precatorius (Chanothi), Argyreia nervosa (Samudra Sosh) and Asparagus racemosus (Satavari).

- Mainly FOUR species, i.e. Acacia nilotica (Deshi Bavar), Pithecellobium dulce (Goras Amali), Grewia tenax (Gangani) and Euphorbia cuducifoilia (Tuar) for plantation are planted as LIVE FENCED

Diversity of Butterflies

Common Faunal Species


Dragon Fly


Red-wattled Lapwing


Garden lizard


Spider


Blue Bull- *Nilgai*


Beetle


Fan Throated Lizard

Celebration of Special Days…

Environment Day on 5th June 2020 and Van-Mahotsav on 6th July 2020

નંદી સરોવરમાં પાર્ક બનાવવાનું આયોજન

પ્રાગપર ગામે પાંચ એકરમાં બાયોડાયવર્સિટી પાર્ક બનશે

અહિંસાધામ અને અદાણી ફાઉન્ડેશન દ્વારા આયોજન

। ભુજ । (સંદેશ પ્રતિનિધિ)

મુન્દ્રા તાલુકાનાં પ્રાગપર ખાતે અદાણી ફાઉન્ડેશન દ્વારા એન્કરવાલા અહિંસાધામ સંચાલિત નંદી સરોવર ખાતે આવેલા પાંચ એકર પ્લોટને બાયોડાયવર્સિટી (જૈવ વિવિધતા) પાર્ક તરીકે વિકસાવવામાં આવશે.

૧લી જુલાઈથી ૭ જુલાઈ સુધી યોજાયેલા વન મહોત્સવ અઠવાડિયા દરમિયાન પાંચ એકર પ્લોટમાં ૧૨૫૦ જેટલા ઔષધિ વનસ્પતિના રોપાંઓનું વાવેતર કરવામાં આવ્યું હતું. આ કાર્ય માટે ડ્રીપ પદ્ધતિ અપનાવવામાં આવી છે. આ વન મહોત્સવમાં અહિંસા ધામના સી.ઈ.ઓ. ગિરીશભાઈ નાગડા, અદાણી ફાઉન્ડેશનનાં હેડ પંકિતબેન શાહ તથા માવજીભાઈ બારૈયા, કરસનભાઈ ગઢવી, સહજીવન સંસ્થાના ડાયરેક્ટર ડો.પંકજભાઈ જોશીનાં હસ્તે વાવેતર કરવામાં આવ્યું હતું. મુન્દ્રા તાલુકાના ઝરપરા ગામની સરકારી હાઈસ્કૂલ અને સ્મશાનભૂમિ ખાતે પણ વૃક્ષારોપણ કરવામાં આવ્યું હતું. આ ઉપરાંત નખત્રાણા તાલુકાના ઉગેડી ગામે વન મહોત્સવ દરમિયાન વિવિધ રોપાંનું સરપંચ મીઠુભાઈનાં સહકારથી અદાણી ફાઉન્ડેશન દ્વારા કરવામાં આવ્યું હતું. સમગ્ર કાર્યક્રમનું આયોજન અને અમલીકરણ પ્રોજેક્ટ ઓફિસર કરશનભાઈ ગઢવી તથા તેમની ટીમ દ્વારા કરવામાં આવ્યું હતું.

Future Planning...
for discussion

- Landscaping, designing and seating arrangement at 2-3 Locations;
- Preparation of Signboards for Medicinal plants and selected Faunal Species;
- GAP Plantation of medicinal plants- MAKING DENSE PLOTS; and
- Compilation of Biodiversity Data: FLORA & FAUNA

Budget For Next Six Months

ACTIVITY	Proposed Budget Rs.	Accumulated Expenses	Available Balance Rs.
Layout and Designing of BD Park	40,000	0	40,000
Saplings , Seeds Purchasing	1,06,230	65,578	40,652
Travel Cost Including TEDE	1,25,200	54,097	71,103
H.R.Cost Including Support Team	2,76,000	1,38,000	1,38,000
Overhead Cost	46,600	23,296	23,304
Total	5,94,030	2,80,971	3,13,059


THANK YOU...

Annexure – 4

O/C

adani
Ports and Logistics

PCB ID: 17739

APSEZL/EnvCell/2020-21/073

Date: 14.09.2020

To,
Regional Officer
Gujarat Pollution Control Board (East – Kutch),
Gandhidham,
Kutch – 370201.

Subject: Intimation regarding revised time line for completion of Effluent Treatment Plant modification work

Reference:

1. **CC&A Order No. AWH – 83561, dated 09.01.2017, Valid till 20.11.2021**
2. **Our letter dated 10.06.2020 (Annexure – 1)**

Dear Sir,

With reference to above stated subject and references, we have submitted tentative time bound action plan for completion of ETP modification work till 15th Sep, 2020 considering ease of lock down and availability of manpower to complete the work vide our letter dated 10th June, 2020.

However due to heavy incessant rainfall in Mundra region during last one month and non-availability of adequate labour strength, the modification work could not be completed as per given time line. Hence the revised time line for completion of ETP modification work considering all the aspects is to be considered as 15th November 2020.

Till the completion of above said work, kindly allow us to discharge industrial effluent + domestic sewage generated from APSEZ, Mundra (PCB ID: 17739) in to CETP operated by M/s. MPSEZ Utilities Ltd. (PCB ID: 10605) for treatment and disposal.

However, we shall try to complete the work on top priority and same shall be intimated to your good office as and when this activity is completed and ETP is re-commissioned.

Thanking you,
For, Adani Ports and Special Economic Zone Limited

Shalin Shah
(Head – Environment)

CC To:
Unit Head (Kutch), Gujarat Pollution Control Board, Gandhinagar – 382010.

15-09-2020
Received
Gujarat Pollution Control Board
Regional Office
Kutch (East)

Adani Ports and Special Economic Zone Ltd
Adani House,
PO Box No. 1
Mundra, Kutch 370 421
Gujarat, India
CIN: L63090GJ1998PLC034182

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Registered Office: Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382421, Gujarat, India

Annexure – 5

"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"

FOR

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

MONITORING PERIOD: APRIL 2020 TO SEPTEMBER 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.
PHONE/FAX – (+91 261) 2455 751, 2601 106, 2601 224.
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	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.20	8.27	8.21	8.26	8.19	8.27	8.21	8.25	8.19	IS3025(P11)83Re.02
2	Temperature	oC	30.9	30.8	31.1	30.8	31.5	31.1	30.6	30.4	30.7	30.4	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	156	174	174	190	186	210	208	225	220	241	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.3	Not Detected	3.6	Not Detected	3.4	Not Detected	3.1	Not Detected	3.0	Not Detected	IS 3025 (P44)1993Re.03Edition 2.1
5	Dissolved Oxygen	mg/L	6.1	5.9	5.9	5.7	5.9	5.8	5.9	5.7	5.9	5.6	IS3025(P38)89Re.99
6	Salinity	ppt	34.7	35	35.6	35.2	36	36.3	36.2	36.5	36.5	36.7	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	8.1	6.12	4.37	5.28	4.18	4.32	3.76	3.53	3.17	2.94	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.74	0.58	0.49	0.31	0.64	0.52	0.94	0.78	0.68	0.52	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.16	3.20	2.68	2.44	3.16	3.1	2.63	2.51	2.53	2.31	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.36	1.17	1.94	1.73	2.44	2.28	1.87	1.63	1.6	1.39	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	12.00	9.90	7.54	8.03	7.98	7.94	7.33	6.82	6.38	1.39	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	5.3	Not Detected	9.5	Not Detected	12	Not Detected	10	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	35790	36170	36649	36274	36948	37204	37294	37450	37446	37638	IS3025(P16)84Re.02
15	COD	mg/L	19	Not Detected	21	Not Detected	25	19.0	23.4	18	26	19.0	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.68	2.61	3.41	2.5	3.04	2.45	2.83	2.61	2.72	2.5	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m	0.7	2.1	1.2	2.2	1.82	2.29	2.18	2.02	1.87	2.27	APHA (22nd Edi) 10200-

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. ArunBajpai
Lab Manager (Q)

		^{3}											H
16.3	Cell Count	No. x 10^3/L	172	96	150	78	142	80	136	92	138	106	APHA (22nd Edi) 10200-H
16.4	Name of Group Number and name of group species of each group	--	*Synedra sp. Thallasiothrix sp. Nitzschia sp. Biddulphia sp.* --	*Cheatoceros us sp. Skeletonema sp. Rhizosolenia sp.* -- --	*Navicula sp. Thallasionema sp. Rhizosolenia sp. Biddulphia sp.*	*Thallasiothrix sp. Coscinodiscus sp. Ceratilem*	Nitzschia sp. Thallasionema sp. Biddulphia sp. Rhizosolenia sp. --	Navicula sp. Pleurosigma sp. Coscinodiscus sp. -- --	*Rhizosolenia sp. Coscinodiscus sp. Pleurosigma sp. Nitzschia sp.*	*Navicula sp. Thallasiosira sp. Synedra sp.*	*Nitzschia sp. Thallasionema sp. Ceratium Biddulphia sp. Cyclotella sp.*	*Fragillaria sp. Rhizosolenia sp. Coscinodiscus sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**												
17.1	Abundance (Population)	noX10^3 / 100 m^3	40		32		27		22		23		APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Ostracods Gastropods Copepods --		Hydroloans Polychaetes Amphipods Molluscans		Polychaetes Gastropods -- --		Hydrodictyons Polychaetes Bivalves Mysids		Polychaetes Chaetognathes Foraminiferans Decapods		APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.45		3.1		3.15		3.10		3.1		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**												
18.1	Total Bacterial Count	CFU/ml	1980		2120		2180		2450		2320		IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

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Dr. Arun Bajpai

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.63	0.56	0.62	0.49	0.37	FCO:2007
2	Phosphorus as P	µg/g	268	314	379	305	408	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	5.1	5.84	5.26	4.86	4.56	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	148	203	218	193	213	AAS 3111B
5.3	Manganese as Mn	µg/g	1240	1048	946	924	870	AAS APHA 3111 B
5.4	Iron as Fe	%	5.18	5.3	5.1	4.9	4.83	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	53	41	59	50	61	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	32	39	42	35	42	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	170	208	196	184	158	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.78	2.19	2.3	1.96	2.3	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Polychaetes Crustaceans --	Polychaetes Crustaceans	Polychaetes Crustaceans ---	Polychaetes Gastropods Crustaceans	Crustaceans Gastropods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	Foraminiferans	Nematodes	--	Foraminiferans	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	529	471	382	324	352	APHA (22nd Edi) 10500-C

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H. T. Shah
Lab Manager

Dr. Arun Bajpai
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	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.21	8.17	8.28	8.19	8.24	8.18	8.21	8.17	8.24	8.19	IS3025(P11)83Re.02
2	Temperature	oC	30.5	30.3	31.4	31.3	31.6	31.3	30.4	30.2	30.8	30.4	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	216	238	198	170	209	184	192	174	207	219	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.4	Not Detected	3.5	Not Detected	3.8	Not Detected	3.2	Not Detected	2.9	Not Detected	IS 3025 (P44)1993Re.03Editio n2.1
5	Dissolved Oxygen	mg/L	6.1	5.9	5.9	5.7	5.6	5.8	5.8	5.7	5.9	5.7	IS3025(P38)89Re.99
6	Salinity	ppt	34.9	35.3	35.3	35.2	36.1	36.4	36.3	36.5	36.6	36.8	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	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/ L	8.3	6.13	5.0	4.63	4.86	4.7	3.84	3.61	3.27	3.1	IS3025(P34)88
9	Nitrite as NO_2	µmol/ L	0.72	0.64	0.83	0.59	0.77	0.68	0.96	0.72	0.8	0.67	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/ L	3.56	3.12	2.76	2.17	3.16	3.24	2.74	2.53	2.6	2.3	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/ L	1.27	1.1	2.19	1.93	2.7	2.56	2.36	2.2	2.21	2.16	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/ L	12.54	9.89	8.54	7.39	8.79	8.62	7.54	6.86	6.63	5.95	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	9.2	Not Detected	8.4	Not Detected	11.4	Not Detected	9.6	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	37878	36314	36398	36134	37108	3710	37266	37463	37550	37756	IS3025(P16)84Re.02
15	COD	mg/L	24.0	Not Detected	21.0	Not Detected	26.0	20.0	22.6	17.5	25.0	18.6	APHA(22ndEdi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/ m^3	3.47	2.83	3.2	3.04	2.88	2.45	2.93	2.67	2.83	2.61	APHA (22ndEdi) 10200-H
16.2	Phaeophytin	mg/ m^3	1.0	1.4	1.1	1.1	1.6	2.14	1.51	2.41	1.7	2.5	APHA (22ndEdi) 10200-H
16.3	Cell Count	No. x 10^3/L	158	90	144	86	138	108	124	98	134	102	APHA (22nd Edi) 10200-H

H. T. Shah

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POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Rhizosolenia sp. Cheatoceros sp. Pleurosigma sp. Biddulphia sp.*	*Synedra sp. Nitzschia sp. Fragillaria sp. --*	*Rhizosolenia sp. Coscinodiscus sp. Chaetognathes Nitzschia sp.*	*Navicula sp. Synedra sp. Amphipora sp.*	*Nitzschia sp. Coscinodiscus sp. Rhizosolenia sp. Biddulphia sp.*	*Navicula sp. Rhizosolenia sp. Synedra sp. --*	*Rhizosolenia sp. Coscinodiscus sp. Pleurosigma sp. Nitzschia sp.*	*Navicula sp. Thallasionema sp. Synedra --*	*Rhizosolenia sp. Biddulphia sp. Skeletonema sp. Nitzschia sp.*	*Fragillaria sp. Thallasionema sp. Navicula sp. --*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**												
17.1	Abundance (Population)	noX10^3/ 100 m^3	42		39		33		27		24		APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Polychaetes Ostracods Decapods Foraminiferans		Molluscans Bivalves Foraminiferans		Polychaetes Decapods Bivalves --		Hydrodictyons Polychaetes Bivalves Mysids		Crustaeeans Polychaetes Mysids		APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.95		3.5		3.4		2.90		3		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**												
18.1	Total Bacterial Count	CFU/ml	2120		1950		2210		2210		2160		IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.64	0.53	0.62	0.49	0.43	FCO:2007
2	Phosphorus as P	µg/g	276	304	319	293	318	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	5.14	4.76	4.92	4.76	4.56	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	168	203	234	216	270	AAS 3111B
5.3	Manganese as Mn	µg/g	1130	1076	968	934	839	AAS APHA 3111 B
5.4	Iron as Fe	%	5.24	4.98	4.81	4.96	4.35	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	38	41	56	43	60	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	46	38	47	35	42	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	208	201	213	190	239	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.7	1.98	2.96	1.79	2.5	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Copepods Molluscans Crustaceans	Polychaetes Crustaceans Bivalves	Polychaetes Crustaceans --	Polychaetes Gastropods	Copepods Crustaceans Bivalves	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	--	Foraminiferans	Foraminiferans	Nematodes	--	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	441	469	440	352	381	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.19	8.29	8.23	8.2	8.15	8.23	8.19	8.19	8.14	IS3025(P11)83Re.02
2	Temperature	oC	30.6	30.5	31.6	31.3	31.7	31.5	31	30.3	30.7	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	216	227	234	259	216	204	201	218	216	241	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.5	Not Detected	3.1	Not Detected	4.0	Not Detected	3.3	Not Detected	3.0	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.0	5.9	5.8	5.6	5.9	5.7	5.9	5.7	5.9	5.6	IS3025(P38)89Re.99
6	Salinity	ppt	34.9	35.2	35.9	35.3	36	36.4	36.3	36.5	36.5	36.8	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	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/L	7.94	7.16	4.18	3.96	4.98	4.76	3.57	3.3	2.6	2.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	0.63	0.57	0.83	0.49	0.72	0.58	0.83	0.64	0.49	0.32	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.46	3.00	2.99	2.75	3.18	2.91	2.76	2.56	2.4	2.1	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.33	1.14	2.1	1.93	2.3	2.13	1.94	1.7	1.5	1.39	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	12.03	10.7	8.00	7.2	8.88	8.25	7.16	6.46	5.44	4.7	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	9.8	Not Detected	11.6	Not Detected	15	Not Detected	10.2	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	35824	36418	36910	36298	36918	37316	37298	37494	37450	37746	IS3025(P16)84Re.02
15	COD	mg/L	22.0	Not Detected	23.0	Not Detected	27.0	Not Detected	25	20	23	18.0	APHA(22ndEdi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.15	2.93	3.25	2.77	2.83	2.67	2.93	2.45	2.88	2.56	APHA (22ndEdi) 10200-H
16.2	Phaeophytin	mg/m^3	1.5	1.5	1.3	1.8	1.99	2.0	2.56	2.33	2.05	2.4	APHA (22ndEdi) 10200-H
16.3	Cell Count	No. x 10^3/L	150	78	140	82	132	78	120	96	148	104	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

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Dr. Arun Bajpai

Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Skeletonema sp. Biddulphia sp. Coscinodiscus sp. Thallasionema sp.* --	*Nitzschia sp. Pleurosigma sp. Synedra sp.* -- --	*Nitzschia sp. Biddulphia sp. Thallasionema sp. Chaetognathes Coscinodiscus sp.*	*Navicula sp. Nitzschia sp. Biddulphia sp. Synedra*	*Nitzschia sp.* Coscinodiscus sp. Rhizosolenia sp. *Thallasiosira sp.* --	*Pleurosigma sp. Navicula sp. Synedra sp.* -- --	*Nitzschia sp. Thallasiosira sp. Coscinodiscus sp. Rhizosolenia sp.*	*Synedra sp. Navicula sp. Pleurosigma sp.* --	*Nitzschia sp. Thallasiosira sp. Coscinodiscus sp. Rhizosolenia sp.*	*Synedra sp. Navicula sp. Pleurosigma sp.* --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**											
17.1	Abundance (Population)	noX10^3 / 100 m^3	41		34		28		23		25	APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Decapods Polychaetes amphipods Gastropods		Gastropods Bivalves Foraminiferans Polychaetes		Gastropods Decapods Isopods --		Polychaetes Crustaceans Mysids		Polychaetes Molluscans Chaetognathes	APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/10 0 m^3	3.4		3.5		33		3.05		2.95	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**											
18.1	Total Bacterial Count	CFU/ml	2140		1920		2280		2240		2160	IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent	APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent	IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent	IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

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	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.68	0.56	0.62	0.49	0.45	FCO:2007
2	Phosphorus as P	µg/g	214	270	256	236	293	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	5.06	4.98	4.83	4.7	4.68	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	139	205	228	203	270	AAS 3111B
5.3	Manganese as Mn	µg/g	1180	1074	970	958	816	AAS APHA 3111 B
5.4	Iron as Fe	%	5.16	4.8	5.16	4.63	4.53	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	38	53	42	35	50	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	48	49	39	27	41	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	203	170	204	178	236	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.7	2.19	3.16	2.9	1.94	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Amphipods Polychaetes Copepods	Polychaetes Crustaceans Copepods	Crustaceans Bivalyes Decapods	Polychaetes Crustaeeans Isopods	Crustaceans Gastropods Decapods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	--	--	Nematodes	--	--	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	412	559	441	353	382	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.26	8.19	8.27	8.19	8.29	8.25	8.28	8.2	8.21	8.17	IS3025(P11)83Re.02
2	Temperature	oC	30.7	30.5	31.8	31.6	31.6	31.4	30.5	30.2	30.7	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	230	216	219	247	236	220	212	236	239	256	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	2.9	Not Detected	3.2	Not Detected	4.1	Not Detected	3.6	Not Detected	3.1	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.9	5.8	5.9	5.7	4.8	4.6	5.8	5.6	5.9	5.7	IS3025(P38)89Re.99
6	Salinity	ppt	34.7	35.2	35.8	35.5	36.1	36.4	36.4	36.7	36.8	37.1	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	6.54	6.13	4.27	4.1	4.68	4.32	3.68	3.47	2.71	2.39	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.12	0.69	0.98	0.74	0.82	0.76	0.76	0.49	0.63	0.42	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.27	3.10	2.56	2.33	2.74	2.39	2.53	2.38	2.3	2.1	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.39	1.16	2.21	2.14	2.14	2	1.81	1.67	1.68	1.46	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	10.93	9.92	7.81	7.17	8.24	7.47	6.97	6.34	5.65	4.91	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	6	Not Detected	9.8	Not Detected	11.8	Not Detected	9.2	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	35698	36298	36829	36544	37102	37402	37390	37645	38280	38554	IS3025(P16)84Re.02
15	COD	mg/L	20	Not Detected	25	Not Detected	24.6	Not Detected	21.2	Not Detected	23.9	19.0	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.36	2.67	3.57	2.72	3.09	2.67	2.93	2.61	3.09	2.83	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m^3	1.2	2.4	0.9	2.3	1.69	2.41	1.96	2.32	1.69	1.95	APHA (22nd Edi) 10200-H
16.3	Cell Count	No. x 10^3/L	186	76	162	84	144	76	136	92	144	106	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Melosira sp. Rhizosolenia sp. Coscinodiscus sp. Thallasionema sp.* --	*Nitzschia sp. peridiniu m sp Cyclotella sp.* -- --	*Navicula sp. Synedra Coscinodiscus sp. Thallasionema sp. Pleurosigma sp.*	*Navicula sp. Nitzschia sp. Cheatocerous sp. Cyclotella sp.*	*Nitzschia sp. Thallasiosira sp. Rhizosoleni a sp. Biddulphia sp.* --	*Navicula sp. Coscinodiscus sp. Synedra sp.* -- --	*Navicula sp. Thallasionema sp. Rhizosolenia sp. Pleurosigma sp.*	*Navicula sp. Synedra sp. Biddulphia sp.*	*Navicula sp. Biddulphia sp. Rhizosoleni a sp. Skeletonema sp.*	*Nitzschia sp. Thallasionema sp. Amphora sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**											
17.1	Abundance (Population)	noX10^3 / 100 m^3	42		35		32		27		31	APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Foraminiferans Ostracods Decapods Gastropods		Gastropods Polychaetes Foraminiferans Decapods		Polychaetes Decapods Nematodes Isopods		Polychaetes Decapods Crustaceans		Polychaetes Crustaeeans Chaetognathes	APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/10 0 m^3	3.65		3.9		3.10		2.90		3.35	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**											
18.1	Total Bacterial Count	CFU/ml	1960		2180		2150		2180		2260	IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent	APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent	IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent	IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.72	0.56	0.68	0.52	0.48	FCO:2007
2	Phosphorus as P	µg/g	216	298	340	316	370	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	4.98	5.12	4.98	4.86	4.7	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	180	201	240	213	239	AAS 3111B
5.3	Manganese as Mn	µg/g	1073	958	976	958	864	AAS APHA 3111 B
5.4	Iron as Fe	%	5.11	4.9	5.18	4.7	4.9	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	43	58	62	52	63	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	36	49	54	35	42	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	183	203	216	193	148	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.48	2.79	2.58	2.36	1.79	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Polychaetes Crustaceans --	Polychaetes Bivalves Crustaceans	Polychaetes Molluscans --	Polychaetes Crustaceans Isopods	Polychaetes Gastropods Amphipods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	Foraminiferans	Nematodes	--	--	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	468	497	409	382	350	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.25	8.21	8.28	8.18	8.26	8.21	8.29	8.24	8.21	8.24	IS3025(P11)83Re.02
2	Temperature	oC	30.8	30.7	31.5	31.3	31.4	31.2	30.4	30.3	30.7	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	193	181	218	234	245	270	216	238	241	263	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.1	Not Detected	3.5	Not Detected	4.0	Not Detected	3.1	Not Detected	3.5	Not Detected	IS 3025 (P44)1993Re.03Edition2 .1
5	Dissolved Oxygen	mg/L	6.0	5.8	5.9	5.7	5.9	5.6	5.9	5.5	5.9	5.7	IS3025(P38)89Re.99
6	Salinity	ppt	34.8	35.3	35.9	35.5	36.1	36.4	36.4	36.6	36.7	36.9	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	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/ L	5.1	4.92	4.76	4.13	4.58	4.31	3.61	3.38	2.61	2.34	IS3025(P34)88
9	Nitrite as NO_2	µmol/ L	1.58	1.43	0.99	0.75	0.76	0.68	0.98	0.70	0.73	0.49	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/ L	3.39	3.14	2.59	2.34	2.98	2.71	2.49	2.30	2.32	2.11	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/ L	1.47	1.28	1.96	1.58	2.16	1.92	1.86	1.74	1.69	1.43	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/ L	10.07	9.49	8.34	7.22	8.32	7.70	7.08	6.38	5.66	4.94	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	6.8	Not Detected	10.1	Not Detected	9.6	Not Detected	11.8	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	35710	36312	36918	36540	37120	37310	37362	37568	37642	37834	IS3025(P16)84Re.02
15	COD	mg/L	19.3	Not Detected	27.0	Not Detected	25.8	Not Detected	21.9	Not Detected	25.4	20.0	APHA(22ndEdi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.25	3.04	3.52	3.09	3.20	3.04	2.93	2.72	3.15	2.93	APHA (22ndEdi) 10200-H
16.2	Phaeophytin	mg/m^3	2.1	1.8	1.6	1.6	2.14	1.67	2.6	2.21	1.63	1.47	APHA (22ndEdi) 10200-H
16.3	Cell Count	No. x 10^3/L	162	84	146	78	134	84	126	98	140	108	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Biddulphia sp. peridinium sp Coscinodiscus sp. Rhizosolenia sp.* --	*Fragillaria sp. Melosira sp. Pleurosigma sp.* -- --	*Nitzschia sp. Rhizosolenia sp. Coscinodiscus sp. Biddulphia sp. Cyclotella sp.*	*Navicula sp. Nitzschia sp. Thallasionema sp. Fragillaria sp.*	*Nitzschia sp. Thallasiosira sp. Rhizosolenia sp. Coscinodiscus sp.* --	*Navicula sp. Synedra sp. Biddulphia sp.* -- --	*Coscinodiscus sp. Synedra sp. Thallasiosira sp. Melosira sp. Pleurosigma sp.*	*Navicula sp. Rhizosolenia sp. Cheatocerous sp.*	*Rhizosolenia sp. Synedra sp. Skeletonema sp. Biddulphia sp. Navicula sp.*	*Fragillaria sp. Coscinodiscus sp. Melosira sp. Nitzschia sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**											
17.1	Abundance (Population)	no$X10^3$ / 100 m^3	48		42		26		23		29	APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Polychaetes Gastropods Decapods amphipods		Polychaetes Foraminiferans Cheatocerous sp. Mysids		Polychaetes Gastropods -- --		Polychaetes Molluscans Decapods Mysids		Gastropods Polychaetes Ostracods	APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.7		3.95		3.00		2.9		3.2	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**											
18.1	Total Bacterial Count	CFU/ml	2150		1950		2290		2250		2250	IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent	APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent	IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent	IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

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	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.73	0.59	0.63	0.51	0.42	FCO:2007
2	Phosphorus as P	µg/g	310	294	339	304	374	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	339	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	5.04	4.9	5.12	4.82	4.7	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	208	183	218	203	238	AAS 3111B
5.3	Manganese as Mn	µg/g	1084	918	956	940	813	AAS APHA 3111 B
5.4	Iron as Fe	%	5.14	4.9	5.18	4.98	4.56	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	38	54	61	52	69	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	45	58	43	37	42	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	193	203	236	210	258	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.694	2.16	3.1	2.68	2.1	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Polychaetes Molluscans Amphipods	Copepods astropods Polychaetes	Polychaetes Molluscans Bivalyes	Polychaetes Crustaeeans Bivalves	Polychaetes Bivalves Crustaceans	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	--	--	Nematodes	--	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	499	466	379	324	412	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.17	8.13	8.24	8.17	8.27	8.22	8.28	8.21	8.2	8.16	IS3025(P11)83Re.02
2	Temperature	oC	30.8	30.6	31.5	31.2	31.5	31.1	30	30.1	30.7	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	172	143	219	236	237	256	216	237	224	246	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.9	Not Detected	3.5	Not Detected	3.8	Not Detected	3.2	Not Detected	3.5	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.0	5.8	5.9	5.7	5.9	5.6	5.9	5.7	5.9	5.6	IS3025(P38)89Re.99
6	Salinity	ppt	34.9	35.4	35.9	35.6	36.2	36.5	36.4	36.6	36.7	36.9	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	5.94	5.56	4.74	4.19	4.91	4.72	3.61	3.37	2.73	2.56	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.38	1.17	0.92	0.75	0.78	0.61	0.58	0.41	0.61	0.43	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.49	3.12	2.76	2.37	2.81	2.56	2.60	2.35	2.39	2.17	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.3	1.18	2.19	1.93	2.32	2.15	1.61	1.83	1.41	1.26	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	10.81	9.85	8.42	7.31	8.50	7.89	6.79	6.13	5.73	5.16	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	6.4	Not Detected	10	Not Detected	13.0	Not Detected	8.4	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	35716	36410	36918	36630	36994	37418	37394	37594	37626	37836	IS3025(P16)84Re.02
15	COD	mg/L	Not Detected	Not Detected	27	Not Detected	26	Not Detected	23.6	Not Detected	25.3	21.4	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.25	2.5	3.31	2.56	3.09	2.6	2.93	2.7	3.04	2.72	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m^3	1.3	2.4	1.3	2.3	1.65	2.24	2.33	2.15	2.15	2.06	APHA (22nd Edi) 10200-H
16.3	Cell Count	No. x 10^3/L	148	20	140	76	134	86	150	102	168	116	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

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Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Surirella sp. Melosira sp. Thallasionema sp. Biddulphia sp.* --	*Nitzschia sp. Pleurosigma sp. Cyclotella sp.* -- --	*Nitzschia sp. Thallasionema sp. Pleurosigma sp. Rhizosolenia sp. Biddulphia sp.*	*Nitzschia sp. Coscinodiscus sp. Thallasiosira sp. Cyclotella sp.*	*Pleurosigma sp. Navicula sp. Thallasiosira sp. Rhizosolenia sp.* --	*Navicula sp. Biddulphia sp. Synedra sp.* -- --	*Rhizosolenia sp. Biddulphia sp. Skeletonema sp. Thallasionema sp. Coscinodiscus sp.*	*Biddulphia sp. Fragillaria sp. Cyclotella sp.*	*Skeletonema sp. Biddulphia sp. Rhizosolenia sp. Thallasionema sp.*	*Melosira sp. Fragillaria sp. Navicula sp. Synedra sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**											
17.1	Abundance (Population)	noX10^3 / 100 m^3	38		37		28		23		26	APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Decapods Gastropods Polychaetes --		Polychaetes Gastropods Foraminiferans Decapods		Polychaetes Decapods Bivalves --		Polychaetes Decapods Bivalves --		Polychaetes Gastropods Decapods Mysids	APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.25		3.45		3.5		2.95		3.1	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**											
18.1	Total Bacterial Count	CFU/ml	2080		2140		2160		2140		2360	IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent	APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent	IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent	IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-5)

H. T. Shah

Lab Manager

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Dr. Arun Bajpai

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	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.20	8.11	8.27	8.20	8.25	8.19	8.27	8.21	8.23	8.19	IS3025(P11)83Re.02
2	Temperature	oC	30.6	30.4	31.7	31.4	31.6	31.3	30.5	30.4	30.6	30.4	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	187	169	209	225	228	251	237	256	221	240	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.1	Not Detected	3.4	Not Detected	4.0	Not Detected	3.4	Not Detected	3.0	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.0	5.8	5.9	5.7	5.9	5.6	5.9	5.7	5.9	5.6	IS3025(P38)89Re.99
6	Salinity	ppt	35.3	35.6	36	35.7	36	36.3	36.3	36.6	36.7	36.9	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	6.14	5.7	4.39	4.12	4.95	4.82	3.76	3.41	2.49	2.28	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.2	0.93	0.89	0.73	0.79	0.53	0.58	0.34	0.35	0.19	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.37	3.16	2.70	2.14	2.84	2.63	2.41	2.16	2.28	1.94	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.48	1.17	2.18	1.89	2.4	2.16	2.27	1.98	1.9	1.73	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	10.71	9.79	7.98	6.99	8.58	7.98	6.75	5.91	5.12	4.41	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	7.4	Not Detected	9.8	Not Detected	13.4	Not Detected	8.6	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	36516	36914	36998	36720	36984	37310	37296	37968	37648	38370	IS3025(P16)84Re.02
15	COD	mg/L	21.0	Not Detected	23.0	Not Detected	27.4	Not Detected	23.8	Not Detected	25.4	20	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.47	3.15	3.31	2.99	2.93	2.77	2.83	2.40	2.99	2.72	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m^3	0.6	1.0	0.9	1.3	1.6	1.67	1.73	2.31	1.46	1.76	APHA (22nd Edi) 10200-H
16.3	Cell Count	No. x 10^3/L	148	82	136	74	130	78	148	92	174	110	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

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Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Rhizosolenia sp. Synedra sp. Skeletonema sp. Biddulphia sp. Melosira sp.*	*Cheatoceros sp. Coscinodiscus sp. Navicula sp.* -- --	*Rhizosolenia sp. Coscinodiscus sp. Cheatoceros sp. Biddulphia sp. Navicula sp.*	*Nitzschia sp. Navicula sp. Thallasiosira sp. Synedra*	*Navicula sp. Thallasiosira sp. Rhizosolenia sp. Coscinodiscus sp. Cheatoceros sp.*	*Nitzschia sp. Rhizosolenia sp. Pleurosigma sp.* -- --	*Biddulphia sp. Pleurosigma sp. Thallasiosira sp. Synedra sp.*	*Nitzschia sp. Gyro sigma sp. Biddulphia sp.*	*Biddulphia sp. Skeletonema sp. Thallasionema sp. Rhizosolenia sp.*	*Synedra sp. Nitzschia sp. Coscinodiscus sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**												
17.1	Abundance (Population)	noX10^3 / 100 m^3	35		38		32		27		23		APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Copepods Decapods Gastropods --		Hydroloans Foraminiferans Polychaetes Ostracods		Polychaetes Bivalves Isopods --		Polychaetes Gastropods Decapods --		Polychaetes Mysids Ostracods Chaetognaths		APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.1		3.4		3.5		3.0		3.15		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**												
18.1	Total Bacterial Count	CFU/ml	1950		2210		2170		2320		2340		IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

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	MAY 2020	JUNE 2020	JULY 2020	AUGUST 2020	SEPTEMBER 2020	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.68	0.53	0.63	0.52	0.43	FCO:2007
2	Phosphorus as P	µg/g	304	270	294	316	298	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	PLPL-TPH
5	**Heavy Metals**							
5.1	Aluminum as Al	%	4.98	4.86	5.18	4.7	4.56	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	206	190	230	209	239	AAS 3111B
5.3	Manganese as Mn	µg/g	1130	978	956	918	870	AAS APHA 3111 B
5.4	Iron as Fe	%	5.12	4.94	5.3	4.86	4.63	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	46	59	69	54	60	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	39	51	40	32	41	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	213	170	208	190	176	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	2.68	2.19	2.39	1.7	2.13	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	AAS APHA- 3112 B
6	**Benthic Organisms**							
6.1	Macrobenthos	--	Polychaetes Crustaceans Molluscans	Polychaetes Gastropods Bivalves	Polychaetes Bivalves *Isopods*	Polychaetes Crustaceans	Polychaetes Crustaceans Bivalves	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	--	--	--	Foraminiferans	--	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	382	441	353	294	381	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.26	8.19	8.25	8.17	8.29	8.23	8.28	8.24	8.23	8.17	IS3025(P11)83Re.02
2	Temperature	oC	30.7	30.4	31.6	31.3	31.5	31.2	30.6	30.5	30.8	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	183	169	210	249	218	230	228	246	241	268	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.0	Not Detected	3.5	Not Detected	3.9	Not Detected	3.3	Not Detected	3.0	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.0	5.8	5.9	5.7	5.9	5.7	5.9	5.6	5.9	5.7	IS3025(P38)89Re.99
6	Salinity	ppt	35.5	35.9	36.1	35.7	36.2	36.5	36.4	36.7	36.7	37	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	5.68	5.3	4.42	4.16	4.91	4.72	3.69	3.47	2.68	2.39	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.37	1.18	1.28	0.93	0.83	0.69	0.72	0.56	0.5	0.41	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.42	3.19	2.90	2.58	2.89	2.73	2.49	2.28	2.34	2.16	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.34	1.17	2.11	1.97	2.16	2	1.91	1.76	1.7	1.52	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	10.47	9.67	8.60	7.67	8.63	8.14	6.90	6.31	5.52	4.96	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	6.8	Not Detected	5.6	Not Detected	8.6	Not Detected	9	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	36570	37112	37018	36724	37108	37509	37368	37648	37678	37914	IS3025(P16)84Re.02
15	COD	mg/L	23	Not Detected	28	Not Detected	23	17.8	23	Not Detected	23.4	19.6	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.9	2.83	3.52	2.77	3.04	2.83	2.72	2.50	2.99	2.83	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m^3	0.8	2.1	1.0	2.1	1.89	1.90	1.87	2.27	1.35	2.74	APHA (22nd Edi) 10200-H
16.3	Cell Count	No. x 10^3/L	168	90	152	86	144	106	130	96	156	113	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

16.4	Name of Group Number and name of group species of each group	--	*Cheatocerous sp. Nitzschia sp. Thallasiosira sp. Coscinodiscus sp.* --	*Navicula sp. Pleurosigma sp. Staurorneis sp.* -- --	*Rhizosolenia sp. Biddulphia sp. Cheatocerous sp. Thallasiosira sp. Pleurosigma sp.*	*Navicula sp. Pleurosigma sp. Biddulphia sp. Cyclotella sp.*	*Nitzschia sp. Cyclotella sp. Rhizosoleni a sp. Cosmarium sp.* --	*Thallasionema sp. Synedra sp. Biddulphia sp.* -- --	*Nitzschia sp. Thallasiosira sp. Cyclotella sp. Biddulphia sp.*	*Navicula sp. Pleurosigma sp. Amphora sp.*	*Nitzschia sp. Thallasiosira sp. Skeletonema sp. Biddulphia sp. Cyclotella sp.*	*Navicula sp. Fragillaria sp. Melosira sp. Synedra sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**											
17.1	Abundance (Population)	noX10^3 / 100 m^3	45		38		31		29		24	APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Chaetognathes Gastropods Ostracods --		Ostracods Gastropods Polychaetes		Polychaetes Bivalves Mysids --		Polychaetes Molluscans Copepods --		Polychaetes Decapods Mysids Ostracods	APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	3.9		3.60		3.40		3.1		2.8	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**											
18.1	Total Bacterial Count	CFU/ml	1980		2140		1920		2320		2330	IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent	APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent	IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent	IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent	IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent	IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	MAY 2020		JUNE 2020		JULY 2020		AUGUST 2020		SEPTEMBER 2020		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.23	8.19	8.27	8.16	8.26	8.22	8.29	8.21	8.25	8.19	IS3025(P11)83Re.02
2	Temperature	oC	30.6	30.4	31.7	31.5	31.6	31.4	31	30.3	30.8	30.6	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	193	180	218	239	238	251	217	239	224	240	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.2	Not Detected	3.8	Not Detected	4.0	Not Detected	3.5	Not Detected	3.1	Not Detected	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.0	5.8	5.9	5.7	5.9	5.6	5.9	5.7	5.9	5.8	IS3025(P38)89Re.99
6	Salinity	ppt	35.4	35.7	36.1	35.6	36.2	36.6	36.4	36.7	36.8	37.1	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	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	5.34	5.1	4.58	4.29	4.73	4.51	3.79	3.56	2.56	2.39	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.25	1.13	1.18	0.86	0.99	0.83	0.84	0.69	0.38	0.24	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.36	3.00	2.15	1.93	2.31	2.17	1.73	1.56	1.57	1.32	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.41	1.26	2.3	2.18	2.2	2.00	1.9	1.69	1.69	1.43	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	9.95	9.23	7.91	7.08	8.03	7.51	6.36	5.81	4.51	3.95	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	Not Detected	Not Detected	6.9	Not Detected	9.92	Not Detected	12	Not Detected	9.1	Not Detected	PLPL-TPH
14	Total Dissolved Solids	mg/L	36410	36938	37110	36630	37112	37510	37346	37635	37736	37994	IS3025(P16)84Re.02
15	COD	mg/L	21	Not Detected	25	Not Detected	27	19.2	22	Not Detected	24.2	19.6	APHA(22nd Edi) 5520-D Open Reflux
B	**Phytoplankton**												
16.1	Chlorophyll	mg/m^3	3.15	2.93	3.25	2.50	2.99	2.70	2.61	2.50	2.83	2.72	APHA (22nd Edi) 10200-H
16.2	Phaeophytin	mg/m^3	1.5	2.0	1.4	2.3	1.83	1.86	2.50	2.31	1.95	1.86	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

16.3	Cell Count	No. x 10^3/L	170	84	152	86	136	90	122	94	136	102	APHA (22nd Edi) 10200-H
16.4	Name of Group Number and name of group species of each group	--	*Rhizosolenia sp. Nitzschia sp. Biddulphia sp. Pleurosigma sp.* --	*Nitzschia sp. Coscinodiscus sp. Cheatoceros sp.* -- --	*Biddulphia sp. Nitzschia sp. Coscinodiscus sp. Rhizosolenia sp.*	*Navicula sp. Synedra Foraminiferans*	*Cyclotella sp. Thallasiosira sp. Coscinodiscus sp. Rhizosolenia sp.* --	*Biddulphia sp. Synedra sp. Pleurosigma sp.* ***Nitzschia sp.*** --	*Pleurosigma sp. Nitzschia sp. Thallasionema sp. Biddulphia sp.*	*Navicula sp. Fragillaria sp. Cyclotella sp. Nitzschia sp.*	*Nitzschia sp. Skeletonema sp. Thallasionema sp. Rhizosolenia sp. Synedra sp.*	*Navicula sp. Fragillaria sp. Thallasiosira sp.*	APHA (22nd Edi) 10200-H
C	**Zooplanktons**												
17.1	Abundance (Population)	noX10^3 / 100 m^3	35		33		30		27		32		APHA (22nd Edi) 10200-G
17.2	Name of Group Number and name of group species of each group	--	Siphonophores Chaetognathes Copepods Gastropods		Gastropods Polychaetes Ostracods		Polychaetes Gastropods Bivalves --		Polychaetes Gastropods Bivalves --		Polychaetes Bivalves Ostracodes Decapods		APHA (22nd Edi) 10200-G
17.3	Total Biomass	ml/100 m^3	4.0		3.7		3.50		3.40		2.8		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**												
18.1	Total Bacterial Count	CFU/ml	2120		2180		1980		2250		2310		IS 5402:2002
18.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
18.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
18.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
18.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
18.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
18.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

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	12/05/2020	69.37	37.59	10.20	31.59	0.78	ND*	ND*
2	14/05/2020	85.94	47.20	6.18	33.55	0.88	ND*	ND*
3	18/05/2020	80.52	41.21	19.23	21.25	0.65	ND*	ND*
4	20/05/2020	65.62	31.64	17.60	32.43	0.55	ND*	ND*
5	25/05/2020	83.68	45.37	14.53	22.23	0.82	ND*	ND*
6	27/05/2020	71.60	42.62	21.28	38.54	0.66	ND*	ND*
7	02/06/2020	84.36	46.62	19.66	38.34	0.98	ND*	ND*
8	05/06/2020	90.28	49.33	20.46	42.67	0.63	ND*	ND*
9	09/06/2020	62.48	28.31	11.62	28.37	0.70	ND*	ND*
10	12/06/2020	83.59	47.24	15.37	33.21	0.96	ND*	ND*
11	16/06/2020	77.65	36.34	17.56	23.47	1.03	ND*	ND*
12	19/06/2020	80.64	44.21	12.28	26.36	0.49	ND*	ND*
13	23/06/2020	70.48	30.34	18.27	36.22	0.78	ND*	ND*
14	26/06/2020	86.13	48.62	16.22	31.59	1.09	ND*	ND*
15	30/06/2020	91.28	40.63	13.43	34.29	0.81	ND*	ND*
16	03/07/2020	62.52	25.47	10.50	24.37	0.77	ND*	ND*
17	10/07/2020	57.22	23.60	16.32	21.38	0.53	ND*	ND*
18	14/07/2020	80.24	44.37	13.42	32.45	0.64	ND*	ND*
19	17/07/2020	69.47	30.22	11.33	25.64	0.38	ND*	ND*
20	21/07/2020	89.36	49.24	17.59	34.25	0.80	ND*	ND*
21	24/07/2020	75.36	41.58	19.66	38.36	0.96	ND*	ND*
22	28/07/2020	82.74	45.37	14.36	28.30	0.78	ND*	ND*
23	31/07/2020	78.36	34.26	22.66	40.26	0.65	ND*	ND*
24	04/08/2020	60.83	31.26	6.47	16.59	0.60	ND*	ND*
25	07/08/2020	56.37	23.68	10.27	20.33	0.72	ND*	ND*
26	11/08/2020	62.84	28.35	7.58	23.48	0.34	ND*	ND*
27	18/08/2020	71.26	38.38	11.50	28.39	0.71	ND*	ND*
28	21/08/2020	67.62	35.46	14.58	18.53	0.49	ND*	ND*
29	25/08/2020	77.44	40.21	19.24	38.46	0.22	ND*	ND*
30	28/08/2020	63.66	26.35	13.29	22.60	0.54	ND*	ND*

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	01/09/2020	79.62	35.57	20.44	36.51	0.29	ND*	ND*
32	04/09/2020	72.61	29.24	12.38	21.54	0.52	ND*	ND*
33	08/09/2020	82.65	44.57	17.48	31.22	0.40	ND*	ND*
34	11/09/2020	73.51	41.57	14.36	26.59	0.31	ND*	ND*
35	15/09/2020	80.37	49.31	11.22	23.40	0.68	ND*	ND*
36	18/09/2020	68.64	22.32	13.23	32.40	0.39	ND*	ND*
37	22/09/2020	88.37	47.56	16.83	30.39	0.46	ND*	ND*
38	25/09/2020	65.61	25.36	9.57	20.36	0.50	ND*	ND*
39	29/09/2020	74.54	32.45	32.54	34.58	0.32	ND*	ND*
LIMIT#		**100**	**60**	**80**	**80**	**4**	**Not Specified**	**5**
	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**

*Not Detected
#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	12/05/2020	82.14	42.69	14.60	23.43	0.45	ND*	ND*
2	14/05/2020	67.69	33.60	8.55	15.67	0.49	ND*	ND*
3	18/05/2020	75.68	36.27	11.51	27.25	0.57	ND*	ND*
4	20/05/2020	54.30	26.39	19.42	29.67	0.90	ND*	ND*
5	25/05/2020	64.26	34.56	23.44	31.28	0.76	ND*	ND*
6	27/05/2020	58.32	37.56	16.27	34.20	0.50	ND*	ND*
7	02/06/2020	69.64	37.52	16.35	35.65	0.86	ND*	ND*
8	05/06/2020	79.63	42.60	18.37	31.53	0.71	ND*	ND*
9	09/06/2020	56.38	25.68	8.63	21.25	0.60	ND*	ND*
10	12/06/2020	68.65	35.60	10.17	17.21	0.38	ND*	ND*
11	16/06/2020	59.34	27.68	12.64	20.35	0.85	ND*	ND*
12	19/06/2020	64.27	32.64	7.51	15.64	0.26	ND*	ND*
13	23/06/2020	86.73	36.52	9.68	23.65	0.66	ND*	ND*
14	26/06/2020	75.44	41.23	14.48	25.22	0.77	ND*	ND*
15	30/06/2020	67.67	28.43	11.53	28.62	0.89	ND*	ND*
16	03/07/2020	81.38	42.65	8.32	19.63	0.60	ND*	ND*
17	10/07/2020	52.64	20.34	13.32	18.40	0.41	ND*	ND*
18	14/07/2020	72.53	33.52	9.66	21.51	0.52	ND*	ND*
19	17/07/2020	63.53	25.35	6.44	14.48	0.21	ND*	ND*
20	21/07/2020	54.58	35.64	15.48	31.52	0.69	ND*	ND*
21	24/07/2020	61.51	31.56	17.21	29.56	0.79	ND*	ND*
22	28/07/2020	71.56	29.43	12.34	23.55	0.30	ND*	ND*
23	31/07/2020	64.31	26.39	16.14	34.53	0.71	ND*	ND*
24	04/08/2020	75.38	36.36	12.57	21.57	0.27	ND*	ND*
25	07/08/2020	67.31	27.51	14.37	18.31	0.56	ND*	ND*
26	11/08/2020	56.24	23.60	16.31	19.27	0.19	ND*	ND*
27	18/08/2020	61.23	32.47	10.29	24.22	0.46	ND*	ND*
28	21/08/2020	73.77	42.65	19.64	28.29	0.39	ND*	ND*
29	25/08/2020	52.85	31.56	17.54	25.63	0.53	ND*	ND*
30	28/08/2020	43.54	17.26	11.30	16.62	0.50	ND*	ND*

Continue ...

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	01/09/2020	72.38	31.51	17.60	24.22	0.38	ND*	ND*
32	04/09/2020	68.47	22.48	10.58	28.34	0.33	ND*	ND*
33	08/09/2020	75.36	39.21	14.68	23.69	0.49	ND*	ND*
34	11/09/2020	50.22	30.64	12.65	30.63	0.17	ND*	ND*
35	15/09/2020	78.65	45.37	16.51	20.68	0.53	ND*	ND*
36	18/09/2020	61.57	26.52	19.39	26.26	0.14	ND*	ND*
37	22/09/2020	56.32	24.56	13.53	25.33	0.37	ND*	ND*
38	25/09/2020	60.22	21.56	11.36	19.69	0.45	ND*	ND*
39	29/09/2020	51.55	19.56	20.61	27.57	0.22	ND*	ND*
LIMIT#		**100**	**60**	**80**	**80**	**4**	**Not Specified**	**5**
	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**

*Not Detected
#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	12/05/2020	63.62	34.58	18.58	33.70	0.70	ND*	ND*
2	14/05/2020	58.61	37.57	11.53	19.36	0.64	ND*	ND*
3	18/05/2020	67.27	29.45	6.27	14.37	0.84	ND*	ND*
4	20/05/2020	49.39	23.24	15.27	23.51	0.74	ND*	ND*
5	25/05/2020	69.03	30.45	17.68	27.60	0.47	ND*	ND*
6	27/05/2020	76.56	28.32	19.69	30.23	0.71	ND*	ND*
7	02/06/2020	64.35	31.57	12.44	22.67	0.80	ND*	ND*
8	05/06/2020	70.25	35.65	14.34	35.42	0.44	ND*	ND*
9	09/06/2020	50.22	22.45	16.19	32.45	0.50	ND*	ND*
10	12/06/2020	77.34	42.32	8.62	20.25	0.30	ND*	ND*
11	16/06/2020	63.25	23.45	10.64	26.43	0.79	ND*	ND*
12	19/06/2020	74.27	40.32	15.19	29.54	0.42	ND*	ND*
13	23/06/2020	68.66	29.36	11.29	21.54	0.87	ND*	ND*
14	26/06/2020	57.29	32.40	9.50	18.65	0.48	ND*	ND*
15	30/06/2020	62.59	24.24	6.36	31.24	0.62	ND*	ND*
16	03/07/2020	58.68	21.57	15.34	30.54	0.36	ND*	ND*
17	10/07/2020	45.36	16.70	10.34	24.26	0.34	ND*	ND*
18	14/07/2020	79.52	40.23	16.17	19.61	0.22	ND*	ND*
19	17/07/2020	56.31	22.62	14.29	27.64	0.26	ND*	ND*
20	21/07/2020	62.81	38.65	11.61	20.31	0.61	ND*	ND*
21	24/07/2020	70.31	35.28	13.81	33.53	0.73	ND*	ND*
22	28/07/2020	69.31	25.61	7.60	16.64	0.23	ND*	ND*
23	31/07/2020	72.34	29.61	12.67	29.64	0.49	ND*	ND*
24	04/08/2020	55.37	28.24	14.22	29.26	0.64	ND*	ND*
25	07/08/2020	62.54	25.36	12.49	24.60	0.33	ND*	ND*
26	11/08/2020	51.57	21.53	18.52	27.54	0.24	ND*	ND*
27	18/08/2020	66.38	35.44	7.57	20.39	0.55	ND*	ND*
28	21/08/2020	50.22	27.66	9.17	15.63	0.31	ND*	ND*
29	25/08/2020	68.47	33.40	13.44	18.24	0.45	ND*	ND*
30	28/08/2020	53.36	23.41	6.54	13.47	0.23	ND*	ND*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	01/09/2020	66.55	29.32	8.54	20.45	0.57	ND*	ND*
32	04/09/2020	52.41	20.66	16.31	34.24	0.47	ND*	ND*
33	08/09/2020	64.55	34.53	12.42	19.59	0.54	ND*	ND*
34	11/09/2020	58.35	37.53	10.20	21.51	0.42	ND*	ND*
35	15/09/2020	61.25	33.49	14.22	28.55	0.26	ND*	ND*
36	18/09/2020	72.43	30.53	9.84	22.34	0.18	ND*	ND*
37	22/09/2020	67.54	38.36	11.67	18.36	0.58	ND*	ND*
38	25/09/2020	55.34	19.66	6.90	23.57	0.25	ND*	ND*
39	29/09/2020	63.41	27.36	27.40	29.40	0.15	ND*	ND*
LIMIT#		**100**	**60**	**80**	**80**	**4**	**Not Specified**	**5**
	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**

*Not Detected
#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	12/05/2020	89.61	45.19	22.60	37.58	0.58	ND*	ND*
2	14/05/2020	73.55	39.57	15.17	27.38	0.29	ND*	ND*
3	18/05/2020	85.68	48.36	17.50	24.49	0.54	ND*	ND*
4	20/05/2020	69.47	37.15	13.60	21.56	0.87	ND*	ND*
5	25/05/2020	77.55	42.52	18.26	29.53	0.42	ND*	ND*
6	27/05/2020	84.67	46.23	10.22	23.63	0.33	ND*	ND*
7	02/06/2020	76.83	41.28	14.51	30.44	0.92	ND*	ND*
8	05/06/2020	85.68	45.36	11.10	25.68	0.82	ND*	ND*
9	09/06/2020	70.37	35.49	19.32	36.49	0.74	ND*	ND*
10	12/06/2020	90.39	51.23	12.66	27.66	0.90	ND*	ND*
11	16/06/2020	82.69	40.23	15.66	31.43	0.64	ND*	ND*
12	19/06/2020	92.46	53.60	9.26	22.37	0.45	ND*	ND*
13	23/06/2020	75.31	34.53	13.62	32.35	0.53	ND*	ND*
14	26/06/2020	81.33	43.48	18.39	35.71	0.40	ND*	ND*
15	30/06/2020	72.63	31.61	16.47	18.89	0.56	ND*	ND*
16	03/07/2020	68.37	28.32	17.44	33.40	0.50	ND*	ND*
17	10/07/2020	64.55	31.28	15.11	29.51	0.66	ND*	ND*
18	14/07/2020	86.28	48.40	18.56	36.53	0.46	ND*	ND*
19	17/07/2020	50.28	20.45	8.94	20.69	0.32	ND*	ND*
20	21/07/2020	79.47	42.52	13.65	28.36	0.76	ND*	ND*
21	24/07/2020	83.43	46.31	10.20	23.49	0.82	ND*	ND*
22	28/07/2020	78.57	37.53	16.44	32.41	0.72	ND*	ND*
23	31/07/2020	87.31	43.57	19.26	37.53	0.45	ND*	ND*
24	04/08/2020	80.35	40.48	16.35	32.44	0.48	ND*	ND*
25	07/08/2020	70.36	29.82	18.20	28.44	0.44	ND*	ND*
26	11/08/2020	67.23	30.20	20.24	35.30	0.30	ND*	ND*
27	18/08/2020	76.25	42.40	17.56	31.55	0.66	ND*	ND*
28	21/08/2020	81.24	45.36	12.89	25.35	0.55	ND*	ND*
29	25/08/2020	73.67	38.32	9.31	29.29	0.36	ND*	ND*
30	28/08/2020	58.34	28.45	15.54	26.48	0.40	ND*	ND*

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

CT-3 RMU-2								
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	01/09/2020	84.58	41.23	15.64	27.22	0.62	ND*	ND*
32	04/09/2020	79.41	33.56	19.52	38.51	0.71	ND*	ND*
33	08/09/2020	87.34	47.23	22.41	41.28	0.60	ND*	ND*
34	11/09/2020	65.62	38.35	16.56	35.47	0.55	ND*	ND*
35	15/09/2020	85.33	52.36	18.35	32.88	0.74	ND*	ND*
36	18/09/2020	78.35	36.56	10.38	37.53	0.57	ND*	ND*
37	22/09/2020	83.53	44.23	14.35	28.50	0.64	ND*	ND*
38	25/09/2020	76.67	32.43	17.20	31.56	0.36	ND*	ND*
39	29/09/2020	68.33	30.72	30.86	39.54	0.78	ND*	ND*
LIMIT#		**100**	**60**	**80**	**80**	**4**	**Not Specified**	**5**
	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**

*Not Detected
#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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 PUMP HOUSE				
		Result [Leq dB(A)]				
	Sampling Date & Time	27/05/2020	19/06/2020	17/07/2020	28/08/2020	15/09/2020
1	6:00-7:00	67.3	65.2	61.4	67.4	60.1
2	7:00-8:00	65.2	62.8	63.7	62.5	63.8
3	8:00-9:00	61.4	69.9	69.8	65.9	67.4
4	9:00-10:00	68.8	63.7	73.5	66.4	62.1
5	10:00-11:00	65.5	65.5	70.1	62.8	69.8
6	11:00-12:00	69.3	60.8	65.5	61.5	65.1
7	12:00-13:00	73.2	62.9	68.1	65.9	64.2
8	13:00-14:00	70.2	63.1	64.8	69.9	68.7
9	14:00-15:00	67.4	62.8	63.7	72.1	65.1
10	15:00-16:00	64.7	68.2	65.1	74.1	60.8
11	16:00-17:00	69.4	66.4	62.4	70.6	65.9
12	17:00-18:00	66.4	70.1	60.8	71.8	62.8
13	18:00-19:00	62.2	69.1	68.8	69.8	69.1
14	19:00-20:00	68.1	66.1	64.5	64.2	62.5
15	20:00-21:00	63.8	68.4	62.1	63.7	63.7
16	21:00-22:00	67.6	63.8	65.5	62.8	68.4
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 PUMP HOUSE				
		Result [Leq dB(A)]				
1	Sampling Date & Time	27/05/2020	19/06/2020	17/07/2020	28/08/2020	15/09/2020
2	22:00-23:00	65.5	63.8	63.4	60.4	67.1
3	23:00-00:00	62.1	60.1	62.7	64.8	62.5
4	00:00-01:00	63.4	61.8	62.4	63.1	65.9
5	01:00-02:00	68.1	67.5	65.8	62.8	62.8
6	02:00-03:00	62.7	65.8	67.1	65.2	62.5
7	03:00-04:00	60.1	62.8	66.2	60.8	63.8
8	04:00-05:00	60.9	61.7	63.4	67.1	68.1
9	05:00-06:00	63.1	63.4	61.8	66.2	64.8
Night Time Limit*		70 Leq dB(A)				

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	20/05/2020	09/06/2020	10/07/2020	25/08/2020	18/09/2020
1	6:00-7:00	65.3	60.4	68.1	63.8	62.5
2	7:00-8:00	69.3	65.8	61.4	60.8	66.1
3	8:00-9:00	67.3	63.4	62.8	70.5	61.3
4	9:00-10:00	65.3	69.1	65.8	72.1	68.7
5	10:00-11:00	70.2	62.4	62.8	71.8	67.1
6	11:00-12:00	67.2	72.4	69.9	68.8	62.4
7	12:00-13:00	71.2	68.2	72.1	64.4	69.5
8	13:00-14:00	68.8	63.4	65.1	62.5	65.8
9	14:00-15:00	64.3	68.1	64.8	67.1	69.4
10	15:00-16:00	66.2	65.5	65.8	63.8	64.1
11	16:00-17:00	62.2	63.1	63.4	68.7	68.7
12	17:00-18:00	61.4	60.8	68.7	65.5	72.4
13	18:00-19:00	68.4	67.6	63.4	62.9	70.1
14	19:00-20:00	64.2	66.2	70.4	68.1	68.4
15	20:00-21:00	62.3	64.4	68.1	61.8	65.3
16	21:00-22:00	65.8	68.2	62.4	68.4	61.7
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	20/05/2020	09/06/2020	10/07/2020	25/08/2020	18/09/2020
2	22:00-23:00	61.4	61.7	67.4	64.9	65.5
3	23:00-00:00	62.8	65.4	65.3	69.2	64.1
4	00:00-01:00	65.1	63.8	68.2	62.5	62.3
5	01:00-02:00	63.4	69.8	62.4	61.5	68.7
6	02:00-03:00	59.4	69.3	63.4	63.8	64.1
7	03:00-04:00	60.4	67.4	61.5	60.4	62.4
8	04:00-05:00	60.8	62.4	64.7	61.8	66.7
9	05:00-06:00	62.4	65.5	61.5	62.9	63.1
Night Time Limit*		70 Leq dB(A)				

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	18/05/2020	23/06/2020	07/07/2020	11/08/2020	08/09/2020
1	6:00-7:00	65.3	65.2	67.1	65.1	65.5
2	7:00-8:00	62.1	63.8	62.8	68.4	62.4
3	8:00-9:00	68.4	66.1	61.8	69.4	68.7
4	9:00-10:00	70.3	61.8	65.8	72.9	70.1
5	10:00-11:00	68.7	62.8	68.1	70.6	73.4
6	11:00-12:00	64.2	69.1	62.4	65.8	70.4
7	12:00-13:00	62.7	62.8	68.4	62.4	74.1
8	13:00-14:00	69.3	67.1	69.4	61.8	69.8
9	14:00-15:00	63.1	64.3	65.1	64.8	68.1
10	15:00-16:00	61.6	61.8	68.1	68.4	65.4
11	16:00-17:00	68.3	64.5	71.7	63.4	62.1
12	17:00-18:00	63.2	68.9	69.1	65.8	61.8
13	18:00-19:00	62.4	63.1	65.1	62.8	65.7
14	19:00-20:00	66.8	67.2	62.4	63.4	62.2
15	20:00-21:00	68.2	69.9	68.4	61.8	68.7
16	21:00-22:00	65.5	62.8	64.1	68.7	64.2
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	18/05/2020	23/06/2020	07/07/2020	11/08/2020	08/09/2020
2	22:00-23:00	65.1	67.2	64.1	68.4	68.5
3	23:00-00:00	62.7	63.8	60.1	63.4	66.2
4	00:00-01:00	66.4	64.1	62.4	61.5	63.7
5	01:00-02:00	66.9	60.4	58.8	63.1	64.1
6	02:00-03:00	60.1	63.8	63.1	62.4	62.1
7	03:00-04:00	62.4	65.2	65.1	65.5	63.8
8	04:00-05:00	62.8	61.8	62.1	62.4	62.1
9	05:00-06:00	63.7	64.2	60.4	63.1	61.8
Night Time Limit*		70 Leq dB(A)				

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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	15/05/2020	06/05/2020	14/07/2020	18/08/2020	29/09/2020
1	6:00-7:00	60.2	63.7	60.8	68.4	65.1
2	7:00-8:00	58.3	60.8	63.4	65.1	62.8
3	8:00-9:00	65.4	62.8	58.4	63.7	67.5
4	9:00-10:00	67.4	67.0	65.8	65.1	70.5
5	10:00-11:00	62.2	65.5	69.4	62.7	65.5
6	11:00-12:00	68.7	68.1	61.4	65.3	68.2
7	12:00-13:00	64.4	69.5	68.5	61.8	63.1
8	13:00-14:00	68.9	70.4	62.7	65.4	67.1
9	14:00-15:00	60.3	65.1	59.4	68.7	61.5
10	15:00-16:00	62.3	66.4	62.3	62.4	64.2
11	16:00-17:00	66.2	62.8	68.1	60.7	62.5
12	17:00-18:00	63.7	65.1	62.4	63.8	69.8
13	18:00-19:00	67.5	61.9	64.4	68.4	71.1
14	19:00-20:00	69.2	62.8	62.8	71.6	69.8
15	20:00-21:00	65.1	64.7	67.7	65.8	65.4
16	21:00-22:00	69.1	69.1	68.7	62.4	64.2
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	15/05/2020	06/05/2020	14/07/2020	18/08/2020	29/09/2020
2	22:00-23:00	68.4	64.8	68.4	63.4	66.7
3	23:00-00:00	65.5	65.4	65.1	68.1	65.5
4	00:00-01:00	62.4	63.1	63.4	66.1	62.4
5	01:00-02:00	63.1	60.4	61.4	60.4	60.4
6	02:00-03:00	60.4	58.7	60.4	63.8	62.7
7	03:00-04:00	61.8	60.3	65.1	67.2	63.3
8	04:00-05:00	63.7	64.1	62.7	69.1	67.4
9	05:00-06:00	62.8	63.8	65.2	62.8	62.1
Night Time Limit*		70 Leq dB(A)				

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
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
					MAY 2020			
1	Particulate Matter	mg/Nm^3	**150**	17.61	--	--	22.33	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	4.52	--	--	6.52	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	28.62	--	--	33.42	IS:11255 (Part-VII):2005
					JUNE 2020			
1	Particulate Matter	mg/Nm^3	**150**	--	20.60	26.72	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	--	3.73	5.62	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	--	28.35	38.36	--	IS:11255 (Part-VII):2005
					JULY 2020			
1	Particulate Matter	mg/Nm^3	**150**	19.84	--	29.42	21.41	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	5.66	--	6.73	7.75	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	30.70	--	33.48	37.55	IS:11255 (Part-VII):2005
					AUGUST 2020			
1	Particulate Matter	mg/Nm^3	**150**	22.60	--	--	24.62	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	4.50	--	--	6.54	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	26.73	--	--	35.94	IS:11255 (Part-VII):2005
					SEPTEMBER 2020			
1	Particulate Matter	mg/Nm^3	**150**	17.31	--	34.49	--	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	5.66	--	7.78	--	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	29.27	--	37.49	--	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

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Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF D.G. STACK MONITORING

30/08/2020							
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	18.56	20.56	15.66	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	6.44	4.47	8.30	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	36.52	33.49	37.58	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	--	8.8	4.6	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 %

			30/08/2020	25/07/2020			
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	16.26	15.55	18.72	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	5.73	4.48	8.69	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	30.61	33.44	38.43	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	7.3	9.8	--	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 %

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Lab Manager (Q)

05/09/2020							
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	24.52	27.54	20.49	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	5.48	6.21	4.27	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	35.66	33.56	30.28	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m^3	11.89	10.02	13.16	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 %

04/09/2020							
SR. NO.	TEST PARAMETERS	Unit	South Basin			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	34.26	32.39	27.55	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	5.47	6.23	4.61	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	32.37	38.51	29.48	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m3	17.51	14.02	14.62	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 %

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF CETP OUTLET

SR. NO.	TEST PARAMETERS	UNIT	CETP OUTLET					GPCB Permissible Limit CETP OUTLET	TEST METHOD
			May-20	June-20	July-20	Aug-20	Sep-20		
1	pH	--	7.88	7.68	7.73	7.81	7.7	6 to 9	IS3025(P11)83Re.02
2	Temperature	°C	31.6	31.7	31.8	30.7	29.2	Shall Not exceed more than 5 °C above ambient water temperature	IS3025(P9)84Re.02
3	Colour	Co-pt	30	40	30	50	40	100	IS3025(P4)83Re.02
4	Total Suspended Solids	mg/L	41	59	48	56	48	100	IS3025(P17)84Re.02
5	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	10	APHA(22nd Edi)5520D
6	Phenolic Compound	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	1	IS3025(P43)92Re.03
7	Fluorides	mg/L	0.62	1.58	1.28	1.10	0.92	2	APHA(22nd Edi) 4500 F D SPANDS
8	Iron	mg/L	0.032	0.18	0.2	0.52	0.68	3	AAS APHA(22nd Edi)3111 B
9	Zinc as Zn	mg/L	Not Detected	Not Detected	0.069	0.044	0.072	15	AAS APHA(22nd Edi)3111 B
10	Trivalent Chromium	mg/L	0.025	0.044	Not Detected	Not Detected	Not Detected	2	AAS APHA(22nd Edi)3111 B
11	Sulphide as S	mg/L	0.60	0.8	Not Detected	Not Detected	Not Detected	2	APHA(22nd Edi) 4500-S
12	Ammonical Nitrogen as NH_3	mg/L	28	43	45	23	31	50	IS3025(P34)88Cla.2.3
13	BOD (3 Days @ 27°C)	mg/L	32	68	53	45	52	100	IS 3025 (P44)1993Re.03Edition2.1
14	COD	mg/L	165	249	228	210	198	250	APHA(22nd Edi) 5520-D Open Reflux
15	Chloride as Cl	mg/L	719	749	774	719	712	1000	IS3025(P32)88Re.99
16	Sulphate as SO_4	mg/L	131	58.98	62	46	48	1000	APHA(22nd Edi)4500 SO_4 E
17	Total Dissolved Solids	mg/L	2011	2044	2078	1829	1730	2100	IS3025(P16)84Re.02
18	Total Residual Chlorine	mg/L	Not Detected	Not Detected	Not Detected	0.6	0.8	1	APHA(22ndEdi)4500 Cl
19	Copper as Cu	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	3	AAS APHA(22nd Edi)3111 B

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

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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. Arun Bajpai
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:
APRIL 2020 TO SEPTEMBER 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.
PHONE/FAX – (+91 261) 2455 751, 2601 106, 2601 224.
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		15/07/2020	15/07/2020	15/07/2020	
1	pH	--	8.09	7.91	7.99	IS3025(P11)83Re.02
2	Salinity	ppt	4.80	2.1	2.4	APHA 2520B
3	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	Not Detected	Not Detected	Not Detected	GC/GC-MS
5	Lead as Pb	mg/L	0.039	0.041	0.031	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	Not Detected	0.029	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	0.55	0.29	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	0.35	3.1	2.95	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	1.84	2	1.8	--

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		15/07/2020	15/07/2020	
1	pH	--	8.01	7.89	IS3025(P11)83Re.02
2	Salinity	ppt	12.4	7.1	APHA 2520B
3	Oil & Grease	mg/L	Not Detected	Not Detected	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	Not Detected	Not Detected	GC/GC-MS
5	Lead as Pb	mg/L	0.044	0.36	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	0.13	0.65	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	0.51	4.85	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	2.05	--

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 – 6

Chiragsing Rajput

From: Chiragsing Rajput
Sent: Wednesday, May 13, 2020 4:34 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_Restart of Environment Monitoring Activities_APSEZ, Mundra
Attachments: Letter_Restart Environmental Monitoring_12.05.2020.pdf

Dear Sir,

In reference to trailing mail, please find attached intimation letter regarding of restarting of environmental monitoring activities within Adani Ports and SEZ Limited, Mundra (Kutch) from 12th May, 2020 after getting requisite permission from Port authority / district administration.

Kindly consider above submission and oblige.

Thanks & Regards
Chiragsing Rajput

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

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 9687678443 | Ext: 52132 | chiragsing.rajput@adani.com | www.adani.com
Adani House, 1st Floor, P.O. Box 1, Mundra 370421, Gujarat, India.

adani | Growth with Goodness | Our Values: Courage | Trust | Commitment
/AdaniOnline

APSEZL/EnvCell/2020-21/006 Date: 12.05.2020

To,

Regional Officer,
Regional Office – East Kutch
Gujarat Pollution Control Board,
Gandhidham – 370201.

Subject: Intimation for Restart of environmental monitoring within APSEZ, Mundra (Kutch, Gujarat).

Ref.: Our letter & E-mail dated 06.04.2020 (**Annexure – A**)

Dear Sir,

With reference to above stated subject, we would like intimate you that, we have stopped the environmental monitoring activities within APSEZ, Mundra since 23rd March, 2020 due to COVID – 19 Pandemic lockdown and same has been intimated to your good office vide our letter as well as E-mail dated 06.04.2020.

Now we have restarted environmental monitoring activities within APSEZ, Mundra from 12th May, 2020 after obtaining requisite permissions from Port authority and district administration.

This is for your kind information and reference.

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
CIN: L63090GJ1998PLC034182

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Registered Office: Adani House, Shantigram, S G Highway, Ahmedabad 382 421, Gujarat, India

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 9687678443 | Ext: 52132 | chiragsing.rajput@adani.com | www.adani.com
Adani House, 1st Floor, P.O. Box 1, Mundra 370421, 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
www.adani.com

Registered Office: Adani House, Nr Mithakhali Circle, Navrangpura, Ahmedabad 380 009, Gujarat, India

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

Annexure – 7

Cost of Environmental Protection Measures

Sr. No.	Activity	Cost incurred (INR in Lacs)			Budgeted Cost (INR in Lacs)
		2018 – 19	2019 – 20	2020 – 21 (Till Sep'20)	2020 – 21
1.	Environmental Study / Audit and Consultancy	6.7	0.33	2.0	51.0
2.	Legal & Statutory Expenses	4.42	0.84	10.09	11.0
3.	Environmental Monitoring Services	20.36	21.74	8.46	30.0
4.	Hazardous / Non Hazardous Waste Management & Disposal	95.72	108.43	44.34	119.8
5.	Environment Days Celebration and Advertisement / Business development	0.28	1.5	0.94	10.0
6.	Treatment and Disposal of Bio-Medical Waste	1.21	1.62	1.08	1.68
7.	Mangrove Plantation, Monitoring & Conservation	47.0	Nil	Nil	Nil
8.	Other Horticulture Expenses	579.32	734.18	490	910
9.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	144.29	110.18	81.09	160.08
10.	Expenditure of Environment Dept. (Apart from above head)	109.28	105.13	41.44	107.44
	Total	**1008.58**	**1083.95**	**679.44**	**1401.0**

Annexure – 8

adani

Ports and Logistics

PCB ID: 17739

APSEZL/EnvCell/2020-21/077

Date: 26.09.2020

To,
Regional Officer,
Regional Office (East – Kutch),
Gujarat Pollution Control Board,
Gandhidham – 370201.

Gujarat Pollution Control Board, Sector No. 10 A, Gandhinagar - 382 010.

Subject: Submission of compliance to observation/suggestion/instruction made by GPCB officials during inspection.

Reference: GPCB Inspection letter dated 25.09.2020, PCB ID: 17739 (**Annexure – A**)

Dear Sir,

With reference to the above mentioned subject and references, APSEZ is submitting the compliance details of your instruction are as below:

Our Reply against your Observation / Suggestion:

Observation / Suggestion	Our Reply / Compliance
Point No. 1	• As per the standard practise, ETP sludge generated are packed in HDPE bags and stored in designated Central Hazardous waste storage area. • All the hazardous waste are handled and stored in line to Hazardous waste Rules, 2016, amended till date. • As per the communication received, GPCB authorised disposal site (Ambuja Cement Limited, Kodinar) is not in operational condition to due to monsoon (maintenance). All the ETP sludge, will be disposed inline to HWM rules 2016 and same will be intimated to your good office. • The ETP Sludge generated during tank and SDB cleaning during modification process packed in HDPE Bags and stored near-by ETP, which has been transferred to the Central Hazardous Waste Storage Area having appropriate facilities. Photographs showing the same are attached as **Annexure – B**.
Point No. 2	• We are complying with all the conditions stipulated in EC and point wise half yearly compliance report of the same is also being submitted to the regulatory authorities on regularly basis. Acknowledge copy of latest report submitted for the period Oct'19 to Mar'20 is attached as **Annexure – C**. • The site was also inspected by RO-MOEF&CC, Bhopal in line with EC & CRZ Clearance compliance and all points/conditions were found to be satisfactorily complied.
Point No. 3	APSEZ has already implemented various safeguard measures for abatement of fugitive dust emissions, as under • Covered Storage godown to the extent possible

Adani Ports and Special Economic Zone Ltd
Adani House,
PO Box No. 1
Mundra, Kutch 370 421
Gujarat, India
CIN: L63090GJ1998PLC034182

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Registered Office: Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382421, Gujarat, India

adani
Ports and Logistics

PCB ID: 17739

APSEZL/EnvCell/2020-21/077

Date: 26.09.2020

To,
Regional Officer,
Regional Office (East – Kutch),
Gujarat Pollution Control Board,
Gandhidham – 370201.

Subject: Submission of compliance to observation/suggestion/instruction made by GPCB officials during inspection.

Reference: GPCB Inspection letter dated 25.09.2020, PCB ID: 17739 (**Annexure – A**)

Dear Sir,

With reference to the above mentioned subject and references, APSEZ is submitting the compliance details of your instruction are as below:

Our Reply against your Observation / Suggestion:

Observation / Suggestion	Our Reply / Compliance
Point No. 1	• As per the standard practise, ETP sludge generated are packed in HDPE bags and stored in designated Central Hazardous waste storage area. • All the hazardous waste are handled and stored in line to Hazardous waste Rules, 2016, amended till date. • As per the communication received, GPCB authorised disposal site (Ambuja Cement Limited, Kodinar) is not in operational condition to due to monsoon (maintenance). All the ETP sludge, will be disposed inline to HWM rules 2016 and same will be intimated to your good office. • The ETP Sludge generated during tank and SDB cleaning during modification process packed in HDPE Bags and stored near-by ETP, which has been transferred to the Central Hazardous Waste Storage Area having appropriate facilities. Photographs showing the same are attached as **Annexure – B**.
Point No. 2	• We are complying with all the conditions stipulated in EC and point wise half yearly compliance report of the same is also being submitted to the regulatory authorities on regularly basis. Acknowledge copy of latest report submitted for the period Oct'19 to Mar'20 is attached as **Annexure – C**. • The site was also inspected by RO-MOEF&CC, Bhopal in line with EC & CRZ Clearance compliance and all points/conditions were found to be satisfactorily complied.
Point No. 3	APSEZ has already implemented various safeguard measures for abatement of fugitive dust emissions, as under • Covered Storage godown to the extent possible

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Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Received
Gujarat Pollution Control Board
Regional Office

Registered Office: Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382421, Gujarat, India

Observation / Suggestion	Our Reply / Compliance
	• Tarpaulin Cover on dry cargo stored in open stack yard • Sweeping dust machine for road and open area • Photographs showing the same is attached as **Annexure – D** Regular Environment Monitoring is being carried out through NABL / MoEF&CC accredited laboratory, in the upwind and down wind direction. Results of the same, shows that all parameters are within NAAQS standard.

APSEZ is submitting the compliances regularly and hope the above mentioned submission is in line with requirement.

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

Shalin Shah
(Head – Environment)

Copy to:
Unit Head (Kutch Unit),
Gujarat Pollution Control Board,
Paryavaran Bhavan, Sector – 10A,
Gandhinagar – 382010.

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ANNEXURE – A

GPCB Inspection Letter

ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ
પ્રાદેશિક કચેરી : કચ્છ (પૂર્વ)
દિનદયાલ પોર્ટ ટ્રસ્ટનું વહીવટ મકાન રૂમ નં. ૨૧૫, ૨૧૬, ૨૧૭, બીજો માળ,
સેક્ટર નં. ૮, ગાંધીધામ-૩૭૦૨૦૧, કચ્છ. ફોન : ૦૨૮૩૬-૨૩૦૮૨૮

પ્રતિ, Adani Ports & SEZ

તારીખ : 25/09/2020

જીપીસીબી આઇડી : 17739

ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડના અધિકારીઓ દ્વારા આપના એકમની આજરોજ જુદા જુદા પર્યાવરણીય નિયમોને આધિન સ્થળ મુલાકાત લેવામાં આવેલ.આપના એકમના સ્થળ મુલાકાત દરમ્યાન કરેલ અવલોકનો, આપે આપેલ માહિતી /દસ્તાવેજો અને પર્યાવરણીય નિયમોની જોગવાઇ આધીન, આપને નીચે મુજબ સુચનાઓ આપવામાં આવે છે જેની પૂર્તતા / સ્પષ્ટતા અંગેનો અહેવાલ (કોમ્પલાયન્સ રીપોર્ટ) આ આદેશ મળ્યાની તારીખથી કામકાજના દિવસ-૩ માં લેખીત/એક્ષજીએન/ઇલેક્ટ્રોનિક માધ્યમ મારફતે બોર્ડની વડી કચેરી ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ, પર્યાવરણ ભવન, સેક્ટર ૧૦-એ, ગાંધીનગર-૩૮૨૦૧૦ ને આ કચેરીની જાણ હેઠળ અચૂક મોકલી આપશો.

(i) મુલાકાત દરમ્યાન, ETP બહાર open માં અંદાજે 70 to 80 Bags (1 Bag - 20 to 25 kg weight) ETP sludge રાખેલ હાલે જોવેલ છે તો તેનો proper storage અને નિકાલ કરવો.

(ii) EC ની શરતોનુ ચુસ્તપણે પાલન કરવુ.

(iii) મુલાકાત દરમ્યાન, storage yard માં Fugitive emission જોવા મળેલ છે તો તેને control કરવા માટે યોગ્ય પગલા લેવા.

Harsh Patel
(Advocate)

Preeti Patel
(Advocate)

એકમના પ્રતિનિધિનું નામ અને હોદ્દો
Chirag Rajput
(Deputy Manager)

Adani Ports and Special Economic Zone Ltd
Adani House,
PO Box No. 1
Mundra, Kutch 370 421
Gujarat, India
CIN: L63090GJ1998PLC034182

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

Registered Office: Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382421, Gujarat, India

PCB ID: 17739

ANNEXURE – B

Photographs showing ETP Sludge Stored in Central HW Storage Area

Adani Ports and Special Economic Zone Ltd
Adani House,
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Mundra, Kutch 370 421
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ANNEXURE – C

Acknowledge EC Compliance Report submission

Chiragsing Rajput

From:	Chiragsing Rajput
Sent:	Tuesday, May 19, 2020 5:22 PM
To:	rowz.bpl-mef@nic.in
Cc:	brnaidu.cpcb@nic.in; westzonecpcb@yahoo.com; mefcc.ia3@gmail.com; monitoring-ec@nic.in; direnv@gujarat.gov.in; ro-gpcb-kute@gujarat.gov.in; ms-gpcb@gujarat.gov.in; Shalin Shah; Azharuddin Kazi; Mahendra Kumar Ghritlahre; Ashvin Kumar Patni; Dhanesh Tank; Devendra Banthia; Ranjan Chaudri; Kaushal Singh; muruganrmudaliyar
Subject:	Half Yearly EC Compliance Report Submission - APSEZ, Mundra - WFDP 2009 (Oct'19 to Mar'20)
Attachments:	5. EC Compliance Report_WFDP-2009_Oct'19 to Mar'20.pdf

Ports and Logistics

APSEZL/EnvCell/2020-21/022

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 for Environment and CRZ Cleara Development Project at Mundra, Dist. Kutch, Gujarat.

Ref : i) Environment and CRZ clearance granted to M/s Adani Ports & S dated 12th January, 2009 and 19th January, 2009 bearing MoEF l IA.III.
ii) Environment and CRZ clearance Extension order grant Development Project at Mundra in Kutchh District (Gujarat) October, 2015 bearing MoEF letter No. 10-47/2008- IA.III.
iii) Ministry's Order dated 18.09.2015

Dear Sir,

Please refer to the above cited reference for the said subject matter. In conne to state that copy of the compliance report for the Environmental and CRZ Clea October – 2019 to March – 2020 is being submitted through soft copy (e-mail c

O/C

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

3-6-20
Received
Gujarat Pollution Control Board
Regional Office
Kutch (East)

Encl: As above (CD attached)
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

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

Photographs showing Covered Dry Cargo Storage Godown, Open Storage Yard with Cover & Sweeping Machine

Covered Storage Godown


Dry Cargo Storage with Terpaulin Cover

Road Sweeping through Sweeping Machine

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Annexure – 9

Compliance Report of CIA Study Environment Management Plan

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
1	**Land Use Change**						
1.1	It is predicted that the built up land in the rural areas would increase by an order 50% from the baseline 2015. New settlements near the SEZ area might create slums. Unorganized urban development leading to poor sanitation and proliferation of vectors and disease.	Level - 1	APSEZ has developed two townships (Shantivan and Samudra) presently accommodating 1668 households. Necessary permissions from concerned authorities were already obtained for the development of townships and Associated infrastructure facilities.	The existing townships will be expanded to accommodate about 4 lakh people when the APSEZ is fully developed.	APSEZ	As and when Required	APSEZ has developed two townships (Shantivan and Samudra) accommodating 2180 households and associated infrastructure facilities. Accommodation is made available for all interested employees working within Adani group & SEZ industries. Out of which 89% Occupancies are accommodated within the townships and rest are available for employees working within APSEZ. At present 45 nos. of industries (processing & non-processing) are operating within the SEZ. Township facilities are also made by some of SEZ industries within Mundra town for their employees with basic infrastructure facilities and requirements. Most of the employees working in SEZ industries are residing in Mundra township having all basic requirements and associated facilities. The existing social infrastructure facilities are adequate for present development at APSEZ. The existing townships with associated

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							facilities will be expanded as per requirement. APSEZ has also been granted permission for receiving domestic sewage @ 2.5 MLD from Mundra village (which was earlier discharged in to open area within Mundra region) in to wastewater treatment plant for treatment and disposal. APSEZ has already started receiving of domestic sewage from Mundra, which will abate the poor sanitation and unhygienic condition within Mundra region. Total project cost for laying domestic sewage underground pipeline with other associated facilities from Mundra to APSEZ is **362 Lacs**.
1.2	Once the project is fully developed, due to increase in built up land in the APSEZ area, there will be an increase in the storm water runoff from the facility.	Level-1	The study area experiences scanty rainfall less than 400 mm/year. Considering the natural gradient, ASPEZ have designed and implemented storm water drains in the existing facility to meet the peak daily rainfall of 440	Technical feasibility study can be carried out to explore the possibility of developing storm water collection ponds to utilize maximum possible storm water runoff for dust suppression in the coal yard areas during non-rainy days.	APSEZ	Technical Study - one time, Implementation - Continual process	Presently, 42% of the total SEZ area (8434.5890 Ha) is developed. Based on technical studies, APSEZ has developed adequate storm water facilities that meets with daily demand as per recorded highest rainfall. At present all existing coal yards are designed with drain, for collection of water during water sprinkling and rainfall, which is carried away to dump pond. Supernatant water from dump pond is being collected and used for dust suppression activities or after sedimentation, discharged to sea. Photographs of showing the drain and dump pond has been submitted in along with last EC compliance report (Sept 19 to March 20).

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			mm/hr. Hence flooding of water in the neighboring areas is not envisaged.				During the compliance period (April 2020 to Sept 2020) the maximum recorded rain fall was **46 mm/hr.**, which was much less than the design capacity of existing storm water drainage system. So our existing storm water management facility is adequate to handle the storm water runoff from the area. Hence flooding of water in the neighboring areas is not envisaged.
			As per the directions given in the environmental clearance issued for the proposed Multi-Product SEZ and CRZ clearance for Desalination, sea water intake, outfall facility and pipeline project, the master plan of the project was designed and being implemented without	The channel depth in all the natural streams shall be maintained to accommodate peak flood flow during the monsoon and periodical de-silting activities in the natural steams passing through the APSEZ area	APSEZ, District Administration* and Irrigation department	As and When Required	Presently there is no Desalination plant, sea water intake and outfall facility developed as part of EC & CRZ clearance of Multiproduct SEZ. The project will be designed and implemented without disturbing the natural flow of rainwater in all the seasonal streams.

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			disturbing the natural flow of rainwater in all the seasonal streams.				
1.3	Due to conservation and protection of mangroves in the designated conservation area, it has been predicted that the current mangrove footprint area would marginally increase in next 15 years due to natural growth. This will enhance the overall biodiversity in the local coastal eco-system.	Positive Impact with ecological benefits	In addition to conservation of the identified 1254 ha mangrove areas around Mundra port and SEZ, APSEZ has taken up large scale mangrove afforestation activities in an area of more than 2800 ha at various locations across the coast of Gujarat state in consultation with various organizations	APSEZ will continue mangrove afforestation as per the commitment made with concerned regulatory authority	APSEZ	Short Term	APSEZ has carried out mangrove afforestation in 2890 ha. area across the coast of Gujarat till date. No further mangrove afforestation is pending w.r.t. commitment made with concerned regulatory authority for APSEZ, Mundra project. As per study conducted by NCSCM in 2017, mangrove cover in and around APSEZ, Mundra has increased from 2094 Ha to 2340 ha (as compared between 2011 to 2017). The analysis has shown an overall growth of 246 ha. The cost for said study was INR 3.15 Cr. Further work has been assigned to NCSCM in March 2020 as part of compliance for the action plan “Monitoring of mangrove cover”. The cost of the said work is INR 23.56 Lacs.
1.4	Development		Detailed hydro-	It is recommended to	APSEZ	Continual	

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	activities along the coast might cause certain changes in hydro-dynamic characteristics along the shoreline. Shoreline of any area also can be influenced by storm surges and other natural processes.		dynamic modelling and shoreline change prediction for a fully developed APSEZ facility has been studied. The study reveals that the erosion and accretion in the study area at the end of 15th year will be within the designated criteria of ± 0.5 m/year. which reconfirms that the waterfront development activities of APSEZ would pose insignificant impact on the Mundra shoreline.	map the coastal morphology (Shoreline) at least once in three years		Process	Shoreline assessment study will be conducted in FY 2020-21.
2	**Regional Traffic Management Plan**						

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
2.1	The projected traffic data as per the EIA Report of Multi-Product Special Economic Zone, the peak vehicular traffic from the port and SEZ operations (including supporting facilities and colony) could be in the order of 18,300 and 10,400 vehicles per day respectively. There could be a possible increase in traffic congestions on village-	Level-1	As per the master plan of APSEZ, eight artillery roads will be connected to either state highway or national highway for evacuating the goods from APSEZ. None of these roads are passing through settlements, thereby avoiding traffic Congestions in the respective villages. The carrying capacity of the eight artillery roads connecting APSEZ is estimated to be about 16,000	Additional road as per master plan will be built in future based on the overall progress of the project. Currently about 25% of cargo from APSEZ is transported by Rail and the same will be enhanced to 40% when the facility is fully developed in future. This will further reduce the traffic volumes on the regional road network.	APSEZ	As and When Required	Presently 42% of the total SEZ area (8434.5890 Ha) is developed. Existing road/rail/conveyer infrastructure facilities are adequate to evacuate the existing cargo. Further, APSEZ's cargo evacuation through rail / conveyer has increased to 56 %, thereby reducing the usage of road. Additional road facilities will be built as per master plan considering future development. The facilities for transportation of cargo other than road will be enhanced considering future development, which will reduce the traffic volumes on the regional road Network.

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
	highway intersections and road accidents.		PCU/hr as against the envisaged peak traffic volume of 4,500 PCU/hr. Out of eight artillery roads considered in APSEZ master plan, seven roads were already developed and functional.				
			APSEZ has been imparting Driver Training Programs to all their contractors to enhance awareness on road safety.	APSEZ can undertake technical feasibility of implementing Intelligent Transport System (ITS) for the freight carriers associated with their development activities.	APSEZ & GSRDC*	Long Term	APSEZ is being imparting the regular in-house classroom and on-job training to the all drivers and employees on below topics: • Basic induction Training for drivers • ITV Driver Training • ITV Driver Induction for Supervisor • Defensive Driving • Defensive Driving & BBS • Traffic Management & Road Signage • Driving safety training • RORO Driver training • Defensive Driving & Emergency Action Plan • Drivers Responsibilities & Safe driving

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							• Emergency Rescue (Vehicle) Training Approx. 1282 Participants (On roll and contractual manpower) were benefitted from above trainings in FY 2020-21 (till the sept 2020). The same will be continued in future also. APSEZ has also implemented the Remote traffic management system (RTMS) to manage the traffic movements and capturing the violations to further improve the system. Following steps were taken by APSEZ to reduce the accidents. ✓ Installation of approx. 100 Nos. of cameras which is being operated at ISCR (Integrated security control room) to monitor & manage the traffic system in APSEZ on real time basis. ✓ Installation of 02 Nos. RTMS - Remote traffic management system (having combination of Radar + OCR camera + LED display board - showing speed limit) to recognize the over speeded vehicles, so that timely capture the same and avoid any road accidents.
3	**Water resources Management and sewage treatment & disposal Plan**						
3.1	For a fully developed APSEZ facility,	No-Impact	APSEZ is meeting the current water	As per the master plan and permissions granted under EC,	APSEZ	As and When Required	Currently there are two fresh water sources available with APSEZ. **Desalination Plant** – 47 MLD

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
	water demand will be in the order of 4,30,000 m3/day (430 MLD). APSEZ will be sourcing majority of the water from the captive desalination plants, which will be developed in progressive manner.		demand through Narmada water supply scheme and 47 MLD captive desalination plant at site. Necessary water allocation from concerned authorities was obtained and the same will be renewed from time to time as per the directions of state government.	APSEZ will be developing progressively 4,50,000 m3/day (450 MLD) of desalination plants to meet the future demand. Hence stress on regional water resources due to these developmental projects will be less significant.			**Narmada water through GWIL** – 11 MLD (sanctioned capacity). Current water demand for APSEZ along with SEZ industries including Adani Power Plant is around 30 MLD. So presently, these sources are adequate to fulfill the current fresh water requirement of APSEZ. The desalination plant of additional capacities will be installed on modular basis considering future requirement of APSEZ.
3.2	Existing water demand in the Mundra taluk is estimated as 8500 m3/day (@55 lpcd) and the potable and sanitation water needs	Level-2	Adani Foundation has been contributing to various watershed development projects in the Mundra region to enhance	Adani Foundation is planning to implement the various water resource conservation programs in next ten years under various schemes.	APSEZ and CGWB*	Long Term	Water needs of APSEZ is being met through existing Desalination Plant of APSEZ and Narmada canal supplied by the GWIL which may be further enhanced on modular basis, At present Ground water is not utilized for any activities of APSEZ. However various works are being carried out by Adani Foundation continuously under Water Conservation Work to achieve water security in

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	would increase to 37,000 m3/day (@125 lpcd) in future when the area is fully grown into larger municipality due to induced economic growth. Water demand of the local communities is met through Narmada water supply system to some extent, but largely depending on the ground water in the study area. Mundra block is reported to be a safe ground block		ground water resources in the area. Adani Foundation has contributed about Rs. 300 Lakhs so far for the development of 18 check dams.				Mundra region by Adani Foundation. Following works are carried out as a part of water conservation work since April – 2018. • Under **"Sujlam Suflam Jal Abhiyan compaign"** AF Mundra had completed deepening work in **26 pond** works as pergiven target by District Collector Kutch in **19 villages**. Total excavation done **51723 Cum**. Total storage capacity created **51.72 million liters**. These works done as per government guidelines. • Under **"Partcipatory Ground Water Management"** work we have created artificial recharge borewell in Borana,Mangara & Dhrub village. • 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. • Drip Irrigation 823 Farmers benefitted in coordination with Gujrat Green Revolution Company • Ground recharge activities (**pond deepening work for more than 52 ponds**) individually and 26 ponds under Sujlam Suflam Jal Abhiyan leading to a significant increase in water table and higher returns to the farmers • **Roof Top Rain Water Harvesting 54 Nos.** which is having **10,000 litre** storage which is sufficient for one year drinking water purpose for 5 people family. • Recharge Bore well **75 Nos** which is best ever option to conserve ground water Drip Irrigation

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
	as on date. Due to influx of people and rapid urbanization due to the economic development, there could be some stress on the ground water resources in future.						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 • As per Average Calculation more than **450 hac. area** benefitted with increased in **109 MCFT** water Quantity Adani foundation has spent approx. INR 3853.7 lakhs from April – 2018 to Sep – 2020 for CSR activities which also includes water conservation projects as mentioned above.
3.3	It is estimated that about 60,000 m3/day (60 MLD) of sewage will be generated from the APSEZ facility when the project is fully developed.	No Impact	Seven sewage treatment plants with an aggregate capacity of 3.1 MLD have already built at APSEZ. Treated sewage is utilized for greenbelt development and sewage is not discharged into either seasonal natural streams	APSEZ is permitted to develop decentralized sewage treatment plants of total 62 MLD capacities. Existing sewage treatment facilities will be augmented progressively based on the development at APSEZ in future. Similar to existing practices, treated sewage will be utilized for greenbelt development.	APSEZ	As and When Required	Current installed capacity of wastewater treatment plants is 6.1 MLD (ETP, STPs & CETP) for treatment of effluent & sewage generated at various locations. Out of 45 only 4 industries within the SEZ are sending their partially treated industrial as well as domestic effluent to the CETP confirming to CETP inlet norms for further treatment and final disposal. Other SEZ industries have their own STPs / ETPs for treatment of wastewater generated from their industrial operation and discharging the treated water on land for horticulture purpose within their premises as per specific permission granted by SPCB. APSEZ also granted permission to treat 2.5

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			or marine environment.				MLD of sewage generated from Mundra village through CETP and STP. Presently avg. 1.8 MLD of wastewater (in to ETP, STPs & CETP) is treated and being utilized on land for horticulture purpose within APSEZ premises during Apr'20 to Sep'20. Existing wastewater treatment plants are adequate to treat and handle the total effluent / sewage load considering current development. Existing wastewater treatment facilities will be augmented or new plants will be developed on modular basis considering future requirement.
4	**Air quality management Plan**						
4.1	Although all the regulated activities in the study area will be adopting promulgated emission norms, total air emission mass discharge from the study area would increase.	Level-2	APSEZ and other thermal power plants have obtained valid consent to operate and have been operating the facilities as per the emission norms stipulated in respective consent orders. APSEZ and other two	All existing and new industrial establishments will obtain requisite consents from GPCB and adhere to the stipulated emission norms regulations and guidelines issued by authorities from time to time.	APSEZ And Other Industries	Continual Process	APSEZ has been granted requisite permissions from the concerned authorities with stipulated norms for air emission (flue gas as well as ambient air). Ambient Air Quality monitoring is being carried out by NABL accredited and MoEF&CC authorized agency namely M/s. Pollucon Laboratory Pvt. Ltd. as per NAAQ standards, 2009. Stack emission monitoring is also being carried out on regular basis. Reports of the same are being submitted to the concerned authorities on regular basis. Adani power plant has installed continuous emission and air quality monitoring

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td></td><td></td><td></td><td>power plants are monitoring the ambient air quality on regular intervals as per GPCB/CPCB guidelines and the data is analyzed and presented to GPCB on monthly basis. Both the thermal power plants located within the study area have installed continuous emission and air quality monitoring instruments as per CPCB directive.</td><td></td><td></td><td></td><td>instruments as per CPCB Directive and submitting the reports also. Another power plant of CGPL is outside APSEZ area.

The AAQM summary for last six months (April'20 to Sept'20) are as below.
Locations: 17 Nos. (APSEZ – 12 + APL – 5 including 3 villages)
Frequency: Twice in a week
<table>
<tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit[$]</th></tr>
<tr><td>PM_{10}</td><td>µg/m³</td><td>94.51</td><td>35.34</td><td>100</td></tr>
<tr><td>$PM_{2.5}$</td><td>µg/m³</td><td>53.6</td><td>12.13</td><td>60</td></tr>
<tr><td>SO_2</td><td>µg/m³</td><td>32.54</td><td>6.18</td><td>80</td></tr>
<tr><td>NO_2</td><td>µg/m³</td><td>42.67</td><td>12.50</td><td>80</td></tr>
</table>
[$] as per NAAQ standards, 2009
Values recorded confirms to the stipulated standards.

Approx. INR 8.46 Lakh is spent for environmental monitoring activities during the FY 20120-21 (till the sept 2020) which also includes ambient air quality monitoring.

Other industries located within the SEZ have obtained requisite permissions from the competent authorities for their respective plant and they also carried out environmental monitoring within their premises to comply with the permission granted. The same has</td></tr>
</table>

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							been ensured by APSEZ as well as SPCB during their regular visits. APSEZ carries out regular visits/inspections of member industries within SEZ and last visit was conducted during March & April 2019 for EMS & compliance verification. During compliance verification, it was verified that monitoring of air emission was well within the permissible standards based on analysis reports. Same will be continued in future also. The monitoring reports of industries within SEZ are also being submitted to the regulatory authorities as a part of half yearly Compliance report of EC for Multi-Product SEZ.
				A common air quality management committee may be framed under the guidance of the State Pollution Control Board and district administration to manage regional level emission inventory data that can help to manage regional level air quality management goals.	APSEZ and Other Industries, Stakeholders, District Administration and GPCB*	Long Term And Continual	APSEZ will co-operate and comply with the directions from concerned regulatory authorities for air quality management within APSEZ area. However at present, APSEZ has formed Internal Environment Monitoring Committee, involving officials from APSEZ, Adani Power Limited and other member units with following role and responsibilities:. • Identification of sources of air & noise emission and its dispersion in surrounding villages • Remedial measures to eliminate, control, reduce or capture air & noise emission • Identify available resource to abate the air and noise emission

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							• Required additional resources for control of air and noise emission • Drinking water and its testing of all the available fresh water sources in surrounding villages • Identify any surrounding villages affected by organization's improper waste disposal mechanism. Last committee meeting was conducted on dated 29th Sept 2020, and below were the point of discussion for way forward. • Maintain the existing practice to control the emission in terms of Air, Water and Noise. • Ensure for proper covering of trucks / vehicles carrying coal / cargo to reduce spillages on road • Carry out study about impact on ground water quality due to continuous extraction or any other factors. • Inclusion of Ambient Air Quality and Noise Monitoring station covering surrounding villages by APSEZ considering further development and statutory clearances. Minutes of meeting is attached as **Annexure-A.** APSEZ and all the industries within SEZ are in compliance to NAAQS and same is being ensured by APSEZ. The monitoring reports of industries within SEZ are being submitted to

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							the regulatory authorities as part of half yearly Compliance report of EC for Multi-Product SEZ.
4.2	Release of particulate emissions from handling and storage of coal at the port and power plants would influence PM10 and PM2.5 concentration in the background air. This could pose some health impacts such as asthma and COPD etc. among the local communities.	Health Impact	APSEZ has been implementing the following management plan to control emissions as per the applicable regulations and similar practices will be adopted in future: Entire bulk material handling facilities are mechanized. Regular water sprinkling on road and other open areas, regular cleaning of roads, dry fog dust suppression systems (DSS)	All industries located in the APSEZ shall adhere to the emissions norms and minimum stack height guidelines issued by CPCB and consent to operate issued by Gujarat Pollution Control Board from time to time.	APSEZ and Other Industries	Continual Process	Following safeguard measures are taken by APSEZ for abatement of dust emissions. • Adequate stack heights to the Boilers, D.G. Sets, TFHs & HWGs for proper dispersion of pollutants within APSEZ • Using of liquid & Gaseous fuels instead of solid fuels in Boilers, Thermic fluid heaters and hot water generators. • Regular sprinkling on road and other open area • Regular cleaning of roads • Dry fog Dust Suppression System (DSS) in hopper, transfer towers and conveyor belts • Use of water mist canon • Closed type conveyor belts • Regular sprinkling on coal heaps • Covering other types of dry bulk cargo heaps • Installation of wind breaking wall • Development of greenbelt along the periphery of the storage yards/back up area • Mechanized handling system for coal and other dry bulk cargo • Wagon loading and truck loading through closed silo

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td></td><td></td><td></td><td>in hoppers, transfer towers and conveyor belts, use of water mist canon, covered conveyor belts, regular sprinkling on coal heaps,</td><td></td><td></td><td></td><td>Adequate air pollution control measures like ESPs, FGDs, Bag Filters, etc. and adequate stack heights provisions are implemented within the thermal power plant.

The stack monitoring summary for last six months (April'20 to Sept'20) are as below.
Total Nos. of Stacks: 22 Nos.
Frequency: Monthly / Half Yearly
<table>
<tr><th>Parameter</th><th>Unit</th><th>GPCB Limit</th><th>Min</th><th>Max</th></tr>
<tr><td>PM</td><td>mg/nm^3</td><td>150</td><td>13.8</td><td>34.5</td></tr>
<tr><td>SO_2</td><td>Ppm</td><td>100</td><td>3.3</td><td>8.7</td></tr>
<tr><td>NO_x</td><td>ppm</td><td>50</td><td>26.7</td><td>39.8</td></tr>
</table>
Values recorded confirms to the stipulated standards.

Approx. INR 8.46 Lakh is spent for environmental monitoring activities during the FY 2020-21 (till the sept 2020) which also includes stack monitoring.

All other industries located within SEZ are adhere to provide adequate stack height and pollution control measures for proper dispersion of pollutants as per respective permissions granted by the board. The same is being inspected and ensured by APSEZ as well as SPCB officials on regular basis.</td></tr>
<tr><td></td><td></td><td></td><td>covering of other types of</td><td></td><td></td><td></td><td>As mentioned above, presently, APSEZ has formed Internal Environment Monitoring</td></tr>
</table>

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			dry bulk cargo heaps by protective materials, installation of wind breaking wall, development of greenbelt along the periphery of the storage yards/back up area and mechanized handling system for coal and other dry bulk cargo and Wagon loading and truck loading through closed silo. Both thermal power plants in the study area have installed electrostatic precipitators on the boilers and are meeting the emission norms	An internal Coal Dust Management Working Group shall be formed by APSEZ to effectively co-ordinate the approach to coal dust management and monitoring	APSEZ and Other Industries, Concerned Stake holders, District Administration*	Long Term	Committee, involving Officials of APSEZ, Adani Power Limited & other member units, with specific role and responsibilities as defined above. The dry cargo is being handled by mechanized system and transported by covered conveyer system, trucks and rail wagons. Wind breaking wall is provided around the coal storage yards of APSEZ as well as Adani Power Plant. Adequate air pollution control measures like ESPs, FGDs, Bag Filters, etc. and adequate stack heights provisions within the thermal power plant for proper dispersion of pollutants. Green belt / plantation is provided around the periphery of dry cargo storage area and regular water sprinkling is also being done to abate the dust emission from coal hips. Last committee meeting was conducted on dated 29th Sept 2020, and below were the point of discussion for way forward. • Maintain the existing practice to control the emission in terms of Air, Water and Noise. • Ensure for proper covering of trucks / vehicles carrying coal / cargo to reduce spillages on road

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			as per the respective ECs granted. Due to installation of tall stacks as per CPCB guidelines and EC conditions, the relative air pollution impacts due to release of emissions from two power plants is insignificant.				• Carry out study about impact on ground water quality due to continuous extraction or any other factors. • Inclusion of Ambient Air Quality and Noise Monitoring station covering surrounding villages by APSEZ considering further development and statutory clearances. Minutes of meeting is attached as **Annexure-A.**
4.3	Ships are one of the significant sources of SO2 and NOX emissions in the study area. Marine diesel engines on the ships often utilize fuel oils that might contain higher sulphur content. As	Level-2	A Standard Operating Procedure (SOP) has be developed to be included as a part of APSEZ environment management plan to verify that all ships	The current global limit for Sulphur content of ships fuel oil is 3.5 % m/m (mass by mass). According to MARPOL, the new global cap on sulphur in the marine vessel fuels will be 0.50% m/m by the 1st January 2025. APSEZ should explore the possibility of providing shore power	APSEZ and Ship Owners	Long Term	The ships coming to the APSEZ is complying with MARPOL and other shipping rules and regulations. APSEZ has already started providing shore power supply to the tugs (11 Nos.), dredgers (2 Nos.) and barges (1 No.). The feasibility of shore power will be explored and implemented on large scale for the visiting vessels to reduce idling stage ship emissions.

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	per the international best practices, these marine diesel engines are designed to meet MARPOL regulations with NOX emissions less than 14.4 gram/Kwhr of engine. Due to lower stack heights of the marine diesel engine, ship emissions often gets dispersed in the local environment and might pose risk of fumigation during the early morning and evening hours due to		anchored at the port are adopting the MARPOL4 regulations.	to the ships at the port to reduce idling stage ship emissions.			

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
	atmospheric inversion break-up periods.						
4.4	Road vehicle emissions will be other major contributors to the air pollution in the region when the facility is fully developed.	Level-2	Not Applicable	Due to implementation of Bharat VI fuels (MoEF&CC)6 in near future the vehicular and diesel engine emissions will be reduced by about 50% from the current national levels. APSEZ should develop a robust contractor environmental policy to ensure that Bharat Stage VI emission norms are adopted by all their contractors and sub-contractors.	APSEZ and All Industries	Short Term	Presently, cargo evacuation through rail & conveyer has increased to 56 %, thereby reducing the usage of road. Vehicles having valid PUC certificate are only being allowed to enter within APSEZ area. In future, APSEZ will also explore the feasibility of using Electric Vehicles for internal cargo movement.
5	**Noise emissions**						
	Noise emissions are envisaged from port operations,		Due to adoption of various mechanized operations at the waterfront development,	APSEZ, all the tenant industries and facilities within APSEZ are required to undertake noise monitoring at their facilities to	APSEZ	Continual	Below Safeguard measures are already taken for abatement of noise emissions. • Development of greenbelt along the periphery of the operational area. • D.G. Sets having Acoustic enclosures. • Maintenance of plant machineries and equipments on regular frequency.

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td>5.1</td><td>industrial operations and power plants in the study area. Any increase in noise levels beyond three decibels from the background levels would be perceived as noise nuisance (USEPA)7.</td><td>Level-1</td><td>the noise emissions from the port cargo handling will be minimal. An adequate greenbelt is being developed by APSEZ to further reduce any residual impacts due to noise emissions from the facility.
Periodic noise level monitoring programs were adopted by APSEZ.
Predicted noise levels were found to be well within the designated noise standards for Industrial facilities.</td><td>demonstrate the compliance with the Noise level standards. Continuous noise recording units can be installed by APSEZ at facility boundary to address the community grievances, when ever required. To assess the overall site wide compliance and also to address any community grievances related to noise issues due to operation of APSEZ facilities.</td><td></td><td>Process</td><td>Noise monitoring is being carried out by NABL accredited and MoEF&CC authorized agency namely M/s. Pollucon Laboratory Pvt. Ltd. as per permission granted and reports are being submitted to the concerned authorities on regular basis.

The noise monitoring summary for last six months (April'20 to Sept'20) are as below.

Locations: 12 Nos.
Frequency: Once in a month (24 hourly)
<table>
<tr><th>Noise</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit[$]</th></tr>
<tr><td>Day Time</td><td>dB(A)</td><td>74.1</td><td>54.3</td><td>75</td></tr>
<tr><td>Night Time</td><td>dB(A)</td><td>69.8</td><td>50.4</td><td>70</td></tr>
</table>
[$] as per GPCB standards

Approx. INR 8.46 Lakh is spent for environmental monitoring activities during the FY 2020-21 (till the sept 2020) which includes noise monitoring.

All the results are well within the standards. From this it can be inferred that there no impacts on the surrounding community.

All other industries located in the APSEZ are adhere to monitor and control the ambient</td></tr>
</table>

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							noise level as per permission granted by SPCB and same is being confirmed by APSEZ as well as SPCB on regular basis. Further, till date APSEZ has not received any grievances/notice for noise issues from any of the stakeholders.
				In order to address the public grievances related to noise from the facility, an internal Noise Management Committee can be formed by APSEZ to investigate the root cause and to develop and implement noise mitigation plans in the specific zones.	APSEZ	Continual Process	As mentioned above, presently, APSEZ has formed Internal Environment Monitoring Committee, involving Officials of APSEZ, Adani Power Limited & other member units, having role and responsibilities as defined above. Last committee meeting was conducted on dated 29th Sept 2020, and below were the point of discussion for way forward. • Maintain the existing practice to control the emission in terms of Air, Water and Noise. • Ensure for proper covering of trucks / vehicles carrying coal / cargo to reduce spillages on road • Carry out study about impact on ground water quality due to continuous extraction or any other factors. • Inclusion of Ambient Air Quality and Noise Monitoring station covering surrounding villages by APSEZ considering further development and statutory clearances. Minutes of meeting is attached as **Annexure-A.**

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
							No grievance received for noise related issues and it is observed that ambient noise level are well within the permissible standards.
6	**Surface water quality (Terrestrial and Marine)**						
6.1	In general, release of untreated wastewater from industrial facilities would pose threat to water quality of streams, estuaries and marine water bodies.	Level -1	As per the master plan of APSEZ, 67 MLD of wastewater is expected to be generated from the fully developed project scenario, for which necessary permissions to set up decentralized CETPs of various capacities are already obtained. Presently a CETP capacity of 2.5 MLD is in place. Presently member units treat their effluents to	As per the master plan of APSEZ, the existing CETP shall be augmented to 67 MLD in progressive manner based on the future demand. The facility should limit the marine discharge of treated industrial wastewater to 16 MLD as per the permits. Remaining treated wastewater shall be utilized for horticulture purpose.	APSEZ	As and When Required	APSEZ has installed Common Effluent Treatment Plant (CETP) having 2.5 MLD capacities for treatment of partially treated effluent and sewage generated from industries within SEZ. Currently, CETP receives 571 KLD hydraulic load and considering the current development scenario, existing CETP is adequate to treat and handle the total effluent load coming from industries within SEZ. Out of 45 only 4 industries within SEZ are sending their partially treated industrial as well as domestic effluent to the CETP confirming CETP inlet norms for further treatment and final disposal. Other industries within SEZ have their own STPs / ETPs for treatment of wastewater generated from their industrial operation and discharging the treated water on land for horticulture purpose within their premises as per permission granted by SPCB. The capacities of CETP will be enhanced on modular basis as per future requirement. Presently avg. 1.8 MLD (from CETP, ETP &

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			meet the CETP inlet norms and then send it to CETP. Treated wastewater from CETP meets the stipulated discharge norms for utilization for greenbelt development within the APSEZ areas.				STPs) of treated water is being utilized on land for horticulture purpose within APSEZ premises and no discharge is made to any other source.
			Online wastewater quality monitoring systems are installed at CETP to ensure quality of treated effluent meets the requisite discharge norms. No wastewater from CETP is discharged into	Efforts shall be made to recycle complete treated wastewater for port operations and industrial operations of APSEZ in future based on a detailed techno- economic feasibility study.	APSEZ	Based on outcome Techno-feasibility Study	Online continuous effluent monitoring system installed at the discharge point of CETP to track any deviation from discharge norms. Presently entire quantity of treated water from CETP is used for gardening / horticulture purpose within APSEZ premises.

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			natural bodies as on date..				
			Runoff during monsoon from coal storage yards is collected in sedimentation ponds (dump pond) to remove any residual dust particulates for further disposal into sea	Storm water runoff from the facility during the first rain shall be sampled and analyzed for the presence of heavy metals or other criteria pollutants to adopt corrective and preventive actions to protect the marine water quality. All red and hazard category industry within APSEZ shall adopt spill prevention and control program and no effluents shall be discharged into storm water-drains.	APSEZ	Continual	There are provision of drains around coal stack yard to carry to runoff water to dump ponds. This water is either used for dust suppression or after sedimentation (to remove residual dust), is allowed disposal to sea. Presently Marine monitoring is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratory Pvt. Ltd. The analysis reports of the same are being submitted to the concerned authorities on regular basis. The marine water quality monitoring summary for last six months (April'20 to Sept'20) is as per below. Locations: 14 Nos. (APSEZ – 9 + APL – 5) Frequency: Once in a Month

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>
<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>8.29</td><td>7.74</td><td>8.25</td><td>7.73</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>245</td><td>16</td><td>270</td><td>6.2</td></tr>
<tr><td>BOD (3 Days @ 27 °C)</td><td>mg/L</td><td>5.6</td><td>3.2</td><td>6.2</td><td>4.2</td></tr>
<tr><td>DO</td><td>mg/L</td><td>6.2</td><td>5.4</td><td>5.9</td><td>4.9</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>36.8</td><td>34.2</td><td>37.1</td><td>34.1</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>38280</td><td>36570</td><td>38554</td><td>36724</td></tr>
</table>
*ND = Not Detectable

Approx. INR 8.46 Lakh is spent for environmental monitoring activities during the FY 2020-21 (till the sept 2020) which includes marine water monitoring.</td></tr>
<tr><td></td><td></td><td></td><td>Detailed marine hydrodynamic modelling studies revealed that the current and proposed dredged soil disposal practices, sea water intake and outfall facilities and desalination plant outfall etc have shown insignificant</td><td>Good dredging practices shall be adopted by APSEZ: (i).Improving the dredging accuracy (ii).Improving onboard automation and monitoring, (iii). Reduce spill and loss, (iv). evaluating the need for installing silt screens near mangrove areas during the dredging phase operations, (v). Environment friendly dredging activities can</td><td>APSEZ</td><td>Long Term</td><td>No capital dredging has been done, since Apr 2015. Dredged material generated during maintenance dredging is being disposed at designated locations within deep sea as identified by NIO.

Dredging Management plan is adopted for carrying out dredging and management of dredge material. Presently there are 3 nos. (2 Nos. Cutter suction + 1 No. Trailer suction) of dredgers are in operation for dredging.

Marine monitoring is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratory Pvt. Ltd. The analysis reports of the same are being submitted to the concerned authorities on</td></tr>
</table>

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			impact on the marine eco-system. As part of the comprehensive environmental monitoring program, APSEZ has been adopting marine water and sediment quality monitoring on monthly basis.	be undertaken in such a way that the overall turbidity levels near the mangrove and ecologically sensitive zones shall not exceed 100 NTU or 200 mg/l of TSS (10% lethal level of fish) Existing marine monitoring program shall be continued as per the directions of MoEF&CC and GPCB.			regular basis. Summary of marine water for the last six months is as mentioned above. The same practice will be continued in future also as per direction by MoEF&CC as well as GPCB. Monitoring will be focused near ecological sensitive area in case of need to carryout capital dragging near such areas.
7	**Groundwater quality and salinity ingress**						
7.1	While Mundra block is enjoying safe ground water status as on date (based on the data published by CGWB), due to induced economic and population growth, use of ground	Level-2	APSEZ is not utilizing ground water for any type of use. APSEZ is meeting the current water demand through Narmada water supply scheme and 47 MLD captive desalination plant at site.	A dedicated desalination plant of capacity 4,50,000 m3/day (450 MLD) will be developed in progressive manner to meet the APSEZ requirements.	APSEZ	As and When Required	Present source of water for various project activities is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited and same is sufficient to meet the present water demand. APSEZ does not draw any ground water. The desalination plant of additional capacities will be installed on modular basis considering future development and requirement.

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
	water resources by the local people might increase in Mundra region. This might increase the TDS and chloride levels in the ground water in future.						
7.2	Due to induced growth in the region, pressure on the available ground water source would increase and this could pose some threat to salinity ingress.	Level-2	Ground water is not drawn by APSEZ for its operations. Natural streams (seasonal rivers) passing through the APSEZ area will not be disturbed, the micro-watershed in the area will not be disturbed. Due to the above reasons,	The Govt. of Gujarat, Narmada, Water Resources, Water Supply & Kalpsar Dept.,(WRD)12 has been implementing various salinity ingress prevention projects	District Administration*	Long Term	APSEZ will co-operate and comply with the directions from concerned regulatory authorities. APSEZ does not draw any ground water for the fresh water requirement.

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			the possibility of salinity ingress due to APSEZ development is not envisaged. Mundra and Anjar blocks fall under fresh water to medium salinity zones. It can be observed that little variation was observed in the ground water salinity levels from year 2013 to 2016 across the Mundra and Anjar blocks. This aspect confirms that the overall salinity ingress from the shore into the land due to existing APSEZ facilities and power				

<table>
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<tr><td></td><td></td><td></td><td>plant outfalls are less significant.</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td>While the individual industries in the study area will continue to undertake ground water quality monitoring as per the environmental clearances issued for the respective projects, a regional level ground water conservation action committee can be formed under the guidance of state ground water board and district Administration.</td><td>All Concerned Stakeholders, District Administration and CGWB*</td><td>Continual Process</td><td>APSEZ (8 Locations – half yearly) & Adani Power Ltd. (5 Locations – quarterly) is carrying out is carrying out ground water sampling and reports of the same are being submitted to the regulatory authorities on regular basis.

The summary of APSEZ ground water quality monitoring for last six months (April'20 to Sept'20) are as below.

<table>
<tr><th>Sr. No.</th><th>Parameter</th><th>Unit</th><th>Min</th><th>Max</th></tr>
<tr><td>1</td><td>pH</td><td>--</td><td>7.10</td><td>8.31</td></tr>
<tr><td>2</td><td>Salinity</td><td>ppt</td><td>2.10</td><td>21.00</td></tr>
<tr><td>3</td><td>Oil & Grease</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>4</td><td>Hydrocarbon</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>5</td><td>Lead as Pb</td><td>mg/L</td><td>0.03</td><td>0.36</td></tr>
<tr><td>6</td><td>Arsenic as As</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>7</td><td>Nickel as Ni</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>8</td><td>Total Chromium as Cr</td><td>mg/L</td><td>0.02</td><td>0.06</td></tr>
<tr><td>9</td><td>Cadmium as Cd</td><td>mg/L</td><td>0.03</td><td>0.03</td></tr>
<tr><td>10</td><td>Mercury as Hg</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>11</td><td>Zinc as Zn</td><td>mg/L</td><td>0.09</td><td>0.65</td></tr>
<tr><td>12</td><td>Copper as Cu</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>13</td><td>Iron as Fe</td><td>mg/L</td><td>0.11</td><td>4.85</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>14</td><td>Insecticides/Pesticides</td><td>mg/L</td><td>0.00</td><td>0.00</td></tr>
<tr><td>15</td><td>Depth of Water Level from Ground Level</td><td>meter</td><td>1.75</td><td>2.50</td></tr>
</table>
* ND – Not Detectable
Approx. INR 8.46 Lakh is spent for environmental monitoring activities during the FY 2020-21 (till the sept 2020), which includes ground water monitoring.

The fresh water requirement of all the industries within SEZ are being satisfied through APSEZ. All the industries are encouraged to monitor ground water quality as per the permissions granted by competent authorities.

As mentioned above, presently, APSEZ has formed Internal Environment Monitoring Committee, involving Officials of APSEZ, Adani Power Limited and other member units, having role and responsibilities as defined above.

APSEZ will co-operate and comply with the directions from concerned regulatory authorities for ground water management.</td></tr>
<tr><td>8</td><td colspan="5">Waste Management</td><td></td></tr>
<tr><td></td><td>Solid waste will be generated</td><td></td><td>APSEZ has been adopting Zero waste</td><td>APSEZ will continue to adopt Zero Waste Initiative and wastes</td><td></td><td></td><td>Presently APSEZ has implemented Zero waste Initiatives as per 5R (Reduce, Reuse, Recycle, Recover & Reprocess) principles of waste</td></tr>
</table>

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8.1	from industrial activities of APSEZ and other permitted facilities in the study area including Mundra town. These wastes would contain recyclable material, construction debris, organic waste, inert material and e-waste etc. In the absence of any organized source segregation programs and material recycling strategies and infrastructure facilities, these wastes	Level-2	Initiatives and the entire waste generated from existing operations is segregated and disposed to recycling vendors, thereby APSEZ has achieved zero landfill status as on date.	will be segregated at source and disposed to various recycling vendors, co-processing in cement plants. This initiative helps not only to reduce the waste to landfill significantly, but also to recycle the materials there by avoiding ecological impacts.	APSEZ	Continual Process	management. At present, APSEZ has developed material recovery facility for 6.0 TPD capacities. 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, Glass etc. are then sent to respective recycling units, whereas remaining non-recyclable waste is bailed and sent to cement plants for Co-processing as RDF (Refused Derived Fuel). The same practice will be continued in future also. APSEZ has also been recognized for Zero Waste to Landfill certification from reputed organization. Copy of certificate has been submitted in earlier EC compliance report (Oct 19 to March 20). APSEZ will continue proper solid waste management in his operational area.

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	will enter into environment and would pose long term health impacts.						
8.2	Considering an average solid waste generation of 0.25 Kg/person/day, the estimated solid waste from facilities within APSEZ will be in the order of 100 TPD (36,500 TPA).	Level-2	APSEZ has made a provision for central waste management facilities within the existing site based on the future needs. As part of the Zero Waste Initiatives, no landfill facilities will be installed at APSEZ.	The existing waste segregation and material recycling facilities will be augmented to dispose safely the wastes generated from APSEZ areas. Solid Waste Management Program shall be adopted and implemented as per Municipal Solid Waste Management Rules 2016 and Construction Waste Management Rules 2016	APSEZ	Continual Process	
8.3	About 35 TPD (13,000 TPA) of solid waste would be generated from the proposed	Level-2	As per the MSW Rules 2016 all the industrial facilities and SEZs are required to adopt waste	Solid Waste Management Program shall be adopted and implemented as per Municipal Solid Waste Management Rules 2016 and Construction Waste	All Industries	Continual Process	

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	industrial areas located outside the APSEZ area.		segregation facilities at the respective properties and non-recyclable waste shall be disposed to landfill sites.	Management Rules 2016			Industries located within the SEZ area are also complying with the waste management rules stipulated by statutory authorities and same is also being confirmed by APSEZ as well SPCB on regular basis.
9	**Ecological aspects (terrestrial and marine)**						
9.1	About 1576 ha of shrub forest land contiguous to APSEZ area is applied for land diversion for various developmental activities. This might have certain level of changes in the biodiversity in	Level -1	It is noted that the designated forest land is free from any native vegetation and comprises of Prosopis juliflora. It is also noted that no endangered species are present at the shrub forests that are applied for land diversion.	APSEZ has approached concerned authorities for diversion of designated forest land. Suitable compensatory afforestation plan shall be adopted based on the recommendations and directions of the concerned authorities. Due to adoption of compensatory afforestation program through a scientific manner, the overall ecological footprint in the district will be	APSEZ/State Forest Department*	Long Term	Stage – 1 forest Clearance for about 1576.81 Ha Forest land has been obtained. Presently APSEZ is in the process of compliance to the stage – 1 Forest Clearance conditions, for further submitting to Govt. authorities for issuance of Stage-2 Forest Clearance.

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	the study area.		It is also noted that no forest produce is reported from this designated forest land parcel due to lack of economic importance of plant species reported in the shrub forest. It is also noted that no tribal lands are located in the designated forest land parcel. Hence there will not be any change in biodiversity due to the proposed diversion.	increased. Due to plantation of native tree species as part of greenbelt development, the overall biodiversity of the region will increase considerably when the project is fully developed.			
	Mangrove conservation		No development activities will be undertaken	Mangrove footprint			As per study conducted by NCSCM in 2017, mangrove cover in and around APSEZ, Mundra has increased from 2094 Ha to 2340 ha (as compared between 2011 to 2017). The analysis

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9.2	areas are located adjacent to the APSEZ area. Accidental discharges of industrial effluents into the marine environment would pose certain ecological risk.	Level -1	within mangrove conservation areas. APSEZ has taken up large scale mangrove afforestation activities in an area of more than 2800 ha at various locations across the coast of Gujarat state in consultation with various organizations The Adani Foundation introduced 'Mangrove Nursery Development and Plantation' scheme in the area as an alternative income generating	and health status shall be monitored annually	APSEZ	Continual Process	has shown an overall growth of 246 ha. The cost for said study was INR 3.15 Cr Further work has been assigned to NCSCM in March 2020 as part of compliance for the action plan "Monitoring of mangrove cover". The cost of the said work is INR 23.56 Lacs. Other than this, Bio diversity Project has been developed by Adani Foundation with three spices Rhizophora Mucronata ,Ceripos Tagal, Ceriops Decandra with good growth at Luni Bandar. Mangrove plantation done at Luni sea coast with fisher folk community during World Environment Day Celebration. Web talk show was organized on the occasion of "World Mangrove days On Multi species Mangrove bio diversity with Joint effort of GUIDE and Adani Foundation, Mundra.

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<tr><td></td><td></td><td></td><td>activity for the people of the region.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>9.3</td><td>Outfall from the thermal power plants desalination and CETP would pose certain level of impact on the marine environment.</td><td>Level-1</td><td>A detailed marine hydro-dynamic and dispersion modelling of the study area indicates that the background temperature and salinity at mangrove conservation area will not increase from the prevailing background levels as the outfalls are located far away.
APSEZ and respective power plants in the study area have been monitoring the marine water quality status</td><td>All approved marine outfalls shall be monitored for salinity, temperature and other designated parameters as per consent to establish issued by GPCB.
Existing marine environmental monitoring program shall be continued.</td><td>APSEZ and Concerned Industry</td><td>Continual Process</td><td>Presently marine monitoring is being carried out by the Adani power plant at the marine outfall locations and reports are being submitted to the concerned authorities on regular basis.

APSEZ is carrying out Marine monitoring once in a month at 9 locations in deep sea by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratory Pvt. Ltd. The analysis reports of the same are being submitted to the concerned authorities on regular basis.

Adani power plant is also doing marine water quality at 5 locations (2 locations at outfall location) in deep sea by NABL and MoEF&CC accredited agency namely M/s. Unistar Environment & Research Labs Pvt. Ltd. The analysis reports of the same are being submitted to the concerned authorities on regular basis. The summary of marine water quality is shown above.

The comparison of marine water results between CIA and current monitoring data are as below.
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Max</th><th colspan="2">Min</th></tr>
<tr><th>CIA</th><th>Present</th><th>CIA</th><th>Present</th></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>S. No.</th><th>Identified environmental and social impacts for the fully developed scenario (year 2030)</th><th>Type of Impact & Magnitude 1</th><th>Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.</th><th>Additional Risk Mitigation Measures/ESMP</th><th>Responsible agency</th><th>Timeframe for implementation</th><th>Compliance</th></tr>
<tr><td></td><td></td><td></td><td>on monthly basis for the stipulated environmental and ecological parameters.</td><td></td><td></td><td></td><td><table>
<tr><td>Temp.</td><td>^{0}C</td><td>30.2</td><td>31.8</td><td>28</td><td>29</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>41.8</td><td>36.8</td><td>34.9</td><td>34.2</td></tr>
</table>
As per above results, it can be seen that there is no major deviation in the concentration of parameters and thus indicates that impacts are insignificant.</td></tr>
<tr><td>9.4</td><td>Terrestrial Ecology: Study area doesn't have any notified national parks or ecological sanctuaries. Since the area falls under dry deciduous shrubs. Due to scanty rains in the area, the overall natural green-cover/vegetation in the area is very small.</td><td>Level-1</td><td>APSEZ has developed greenbelt in an area of 550ha as against the committed area of 430ha. A dedicated nursery is set up to promote plantation.
APSEZ have undertaken a plantation with about 9.6 Lakh fully grown trees.</td><td>The compensatory afforestation area to be monitored annually to check the survival rate of the plantation.</td><td>APSEZ</td><td>Continual Process</td><td>APSEZ has developed its own "Dept. of Horticulture" which is taking measures/ steps for terrestrial plantation/greenbelt development. APSEZ, Individual SEZ Industries and Adani Power Plant has developed total 628 ha. area as greenbelt with plantation more than 9 Lacs saplings within the APSEZ area including SEZ industries & Adani Power Plant.

Dedicated horticulture department is maintaining and monitoring the terrestrial green belt development on regular basis to check the survival rate of plantation.

Total expenditures of the horticulture dept. during the FY 2020-21 (till sept 2020) within APSEZ is INR 490 lakh.</td></tr>
</table>

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10	**Socio-economic aspects**						
10.1	Population growth in the Mundra region was reported to be in the order of 85% during the past decade (2001-2011). Further expansion of the urban area could be possible due to induced economic growth in the region. Increase in population will have a additional need for public infrastructure in the region.	Level-1	Dedicated townships are developed within APSEZ area with necessary community infrastructures such as hospital, school, recreational facilities, sewage treatment and waste collection facilities. Adani Foundation has been undertaking various CSR programs under the principal themes such as education, community health, sustainable livelihood and rural infrastructure. About Rs. 97 Cr	The existing townships will be expanded to accommodate about 4lakh people when the project activity is fully developed.	APSEZ	As and When Required	APSEZ has developed two townships (Shantivan and Samudra) accommodating 2180 households and associated infrastructure facilities. Accommodation is made available for all interested employees working within Adani group & SEZ industries. Out of which 89% Occupancies are accommodated within the townships and rest are available for employees working within APSEZ. At present 45 nos. of industries (processing & non-processing) are operating within the SEZ. Township facilities are also made by SEZ industries within Mundra town for their employees having basic infrastructure facilities and requirements. Most of the employees working in SEZ industries are residing in Mundra township having all basic requirements and associated facilities. The existing social infrastructure facilities are adequate to accommodate the people considering present APSEZ development. The existing townships with associated facilities will be expanded as per requirement. Other infrastructure facilities have been developed for people are as follows. • Multi-Specialty Hospital

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			has been spent on various CSR activities in the Mundra region since 2010. Similar community development programs (based on need based assessment) will be continued in future as well with allocation of appropriate budget.				• School • Commercial complex • Religious place APSEZ is actively working with local community (including fishermen community) around the project area and provides required support for their livelihood and other concerns through the CSR arm – Adani Foundation in the main five persuasions is mentioned below. • Community Health • Sustainability Livelihood – Fisher Folk • Education • Rural Infrastructures • Skill Development Adani foundation has spent approx. INR 3853.7 lakhs from April – 2018 to Sep – 2020 for CSR activities including cost of rural infrastructure projects development. Major works carried out since April 2018 as a part of CSR activities are as below. • Pond Deepening work at Vadala & Mota Bhadiya • Artificial recharge borewell in Borana, Mangara & Dhrub village. • Under Dignity of Drivers Project, Adani Foundation has constructed Resting Shed for Drivers entering in SEZ Premises. Total

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							50 beds are constructed, drinking water and sanitation plus recreational – TV Facilities. • Construction of 45 Toilet block and proper bathing place for labours. • RO Plant – Samaghogha, Siracha village & Vallabh Vidyalaya at Mundra • Basic sanitation facility (18 Nos) at Balvadi, medical centre and retiring places at labour settlements • 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. • Development of Prisha Park at Mundra. • Pond Bund strengthening at Zarpara Village Similar community development programs (based on need based assessment) will be continued in future as well with allocation of appropriate budget.

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10.2	The overall sex ratio was found to reduce by 28% in the Mundra taluk (study area) during the period 2001 - 2011. This could be attributed to increase in influx of working men in the region due to rapid economic development. Similar trend might continue in future due to induced economic growth in the region.	Level-2	Adani foundation is taking up several girl child education programs as part of CSR activities to create awareness about girl child protection.	Suitable regional level awareness programs on the girl child protection and encouragement programs in line with state and national policies shall be adopted under Corporate Social Responsibility programs in association with district authorities.	APSEZ, Other development projects and District Administration*	Long Term	Major works carried out since April 2018 as a part of CSR activities to create awareness about girl child protection are as below. • The Adani Foundation provided scholarship support to motivation and encouragement of fishermen boys and girls for higher education under this program. APSEZ provide 100% fees support to girls as a scholarship. This year total 78 students are being facilitated by Adani foundation. • Separate sanitation facilities for girl child in schools. • Total 8770 haemoglobin screenings of RPA woman and adolescent girls was carried out in year 2017-18. Which helps in controlling anaemia in women and indirectly malnutrition. • Beti Vadhavo Programme was organized in 32 Villages in the presence of Village Sarpanch and other leaders in year 2017-18. We explained people about the various topics i.e. importance of girl child, Sex Ratio, Gender Equality and laws regarding Child abortion. This initiative was well accepted by community and we have observed a visible change in their mindset. We have facilitated 560 daughters with Kit (Small Bed sheet, Mosquito net, Soap and Cream with nutritious food for mother) To create awareness about

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							health, personal hygiene, child education and nutritional diet in fishermen community, various awareness programs have been organized. • Project Suposhan is initiated with the Motive …. Curb malnutrition amongst Children, Adolescent girls and Women in our CSR villages. ✓ 100beneficiaries covered in Menstrual Hygiene Day - with slogan called "RED-ACHHA HAI" ✓ 204 beneficiaries covered in Breastfeeding Week ✓ 320beneficiaries covered in National Deworming Day ✓ 20 villages covered in celebration of NATIONAL NUTRITION MONTH ✓ 42 FAMILY COUNSELLING • To reduce malnutrition and anemia amongst Children 95 % & adolescent girls and pregnant & lactating women by 70 % in three years • Reduction IMR and MMR • Support Awareness & Cover 100 % Vaccination taken by Child & women. • SuPoshan Thanksgiving program was organized. In this webinar DDO, CDPO Mundra and other dignitiaries remained present and appreciated the efforts to overcome malnourishment in Mundra and Bitta.

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							About Rs. 38 Cr has been spent on various CSR activities in the Mundra region since April 2018 till Sep 2020 including cost of community health and education for woman and girl child.
10.4	Due to economic growth leading to rapid urbanization, which prompts the need for healthcare facilities in the region. For an influx of 6 lakh people from APSEZ operations and additional 3 Lakh from induced growth by the year by 2030 (fully developed scenario), total hospitals facilities with about 540 beds would be required.	Level-2	Adani hospitals, Mundra is setup by Adani group near Samudra township with a goal to provide primary and secondary health care services to Adani group employees and the local populace of Mundra. The existing 100 bed Adani hospital at Mundra has been catering the services ranging from wellness and preventative care.	APSEZ will explore other possibilities to augment the primary and secondary healthcare facilities in future depending on the growth scenario at APSEZ development.	APSEZ	Long Term	Adani hospitals (Multi-specialty), Mundra is having 100 bed facility and same is setup by Adani group near Samudra township. Primary health center and community health center are in place within the Mundra taluka. Other than this Adani foundation is doing various activities as part of community health. The details of last year are as below. **<u>Community Health – Mundra</u>** • 11 Rural Clinic – 8 from Mundra & 3 from Anjar block treated; **8196 patients**. • **31 villages** covered, with **109 types** of general and lifesaving medicines through Mobile healthcare unit **6879 patients** benefited during six month. • Provided dialysis treatment to **6 patients** of kidney failure **236 times**. • **Citizen project** - **8672 Card holders** of **68 villages** get benefit under this project. • **2921 sr. citizen patients** benefited during six month - **8000 limit** for three year per patients • **470** Needy patients had been facilitated with Medical Support OPD & IPD treatment with token charges during this six month. • **1150** health calendar were distributed to various PHC, CHC and ICDS department of Mundra,

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							Mandvi, Nakhtrana, Lakhpat, Abadasa, Anjar & Gandidham block. • **594** Protein Powder packet distributed to ANC woman of Utthan villages and TB patient of Mundra block. • Total **18698 & 10380 IPD / OPD** facilities provided project wise and AHMPL subsequently during six months Adani foundation has spent approx. INR 3853.7 lakhs from April – 2018 to Sep – 2020 for CSR activities cost including cost of community health. Present Hospital facilities are adequate to avail the medical treatment for Mundra region considering present development. Other Occupational Health centres, primary health centres and community health centres are also in place in Mundra to take care the people residing in Mundra. Adani group is also operating high quality health care services to the people of Kutch at G. K. General Hospital, Bhuj having 750 beds facilities on public private partnership (PPP) model, which is 60 km far from Mundra. APSEZ will explore other possibilities to augment the primary and secondary healthcare facilities in future depending on the future development at APSEZ.
	Due to rapid economic		APSEZ has been giving				**4830 Man-days** work was provided over **236 Fishermen family** during this six months by Adani Hospital. The Foundation has also supported

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10.5	development in the region, several employment opportunities can be generated to the local people. When the area is fully developed by the end of 2030, the working population of the Mundra taluk would increase from current level of 55,000 to as high as 4,00,000, which will be 45% of the total envisaged population in Mundra Taluk by the end of 2030.		preferences to people from Gujarat for providing employment opportunities based on eligibility and skills. In Mundra, special programmes have been conducted by Adani Foundation to enhance the employability of youth from fisherfolk communities. Based on the need assessment results, several livelihood options have been introduced by the Adani Skill Development Centre, Mundra. In these centres, youth can join and get	APSEZ is committed to provide support for fishermen livelihood activities and has submitted a detailed 5 years plan to MoEF&CC with a total budget of Rs.13.5 Cr.	APSEZ	Short Term	Pagadiya fishermen as painting laborers by providing them with employment and job in various fields. Adani Skill Development Centre (ASDC) is playing a pivotal role in implementing sustainable development in the 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 440 people trained in various trainings to enhance socio economic development. 324 students Enrolled in Online Training. APSEZ is carrying out various initiatives specific to the Fisherfolk community which includes: • Vidya Deep Yojana • Vidya Sahay Yojana – Scholarship Support • Adani Vidya Mandir • Fisherman Approach in SEZ • Machhimar Arogya Yojana • Machhimar Kaushalya Vardhan Yojana • Machhimar Sadhan Sahay Yojana • Machhimar Awas Yojana • Machhimar Shudhh Jal Yojana • Sughad Yojana • Machhimar Akshay kiran Yojana

S. No.	Identified environmental and social impacts for the fully developed scenario (year 2030)	Type of Impact & Magnitude 1	Environment management plans adopted or being adopted by APSEZ as per permits, clearances, applicable regulations and guidelines etc.	Additional Risk Mitigation Measures/ESMP	Responsible agency	Timeframe for implementation	Compliance
			vocational training for a number of technical and non-technical skills. An industrial Training Institute is set up at APSEZ, Mundra, to enhance the skill levels of the local youth to maximum possible extent.				• Machhimar Suraksha Yojana • Machhimar Ajivika Uparjan Yojana • Bandar Svachhata Yojana These initiatives are planned for the period 2016 – 2021 with a committed expense of INR 13.5 Cr as submitted earlier in detail in the report namely "Silent Transformation of Fisher folk at Mundra", . Till, Sep 2020 (Since 2016-17) approx. 8.62 Cr. INR, has already been spent in support for fishermen livelihood activities.

Date: 29th Sep, 2020

Minutes of Meeting (MoM)

Subject: Committee Meeting w.r.t. Environment Management Plan (EMP) suggested in Cumulative Impact Assessment Study of Mundra Region (Virtual Platform)

Agenda of Meeting:

1. Air Quality Management
2. Noise Level Management
3. Regional Ground Water Quality Management and Water Conservation

Date & Time of Meeting: 17th Sep, 2020 (4:00 to 5:30 PM)

Details of Committee Members / Attendees:

1. Azhar Kazi (APSEZ, Mundra)
2. Mahendrakumar Ghritlahre (APSEZ, Mundra)
3. Chiragsing Rajput (APSEZ, Mundra)
4. Ashvinkumar Patni (APSEZ, Mundra)
5. Vivek Gundraniya (APSEZ, Mundra)
6. Mukesh Patel (Adani Power Ltd., Mundra)
7. Shailesh Prajapati (Adani Power Ltd., Mundra)
8. Naimesh Kakkad (Mundra Solar PV Ltd., Mundra)

Points Discussed:

1. Frequency of environmental monitoring as per statutory permission granted
2. Comparison of monitored data with permissible limits, which shows all the parameters are Sharing of unit wise Ambient Air Quality, Ambient Noise and Ground water quality data
3. All the monitored data are well within the permissible limit.
4. Environmental Monitoring (AAQM) in 3 surrounding villages by Adani Power and 1 village by MSPVL, which shows all parameters are well within the standard limit.
5. Ground water quality monitoring in 3 surrounding villages by Adani Power on quarterly basis.
6. Air Pollution Control Measures provided for the flue gas emission
7. Various control measures / action taken for control the air and noise emission well within the permissible standards by individual unit.
8. High salinity is a concern for the ground water quality. Due to continuous extraction of ground water by surrounding villagers the salinity may be increased.

9. PCC done in APSEZ Outfall channel up to APL road culvert to reduce the salinity ingress in ground water.
10. Good practices implemented by unit for environment preservation and conservation.

Action Points:

1. Maintain the existing practice to control the emission in terms of Air, Water and Noise.
2. Ensure for proper covering of trucks / vehicles carrying coal / cargo to reduce spillages on road
3. Carry out study about impact on ground water quality due to continuous extraction or any other factors.
4. Inclusion of Ambient Air Quality and Noise Monitoring station covering surrounding villages by APSEZ considering further development and statutory clearances
5. Visit to Outfall channel for monitoring of its leakages towards sea side.
6. Involvement of Representative from individual SEZ member units to discuss the EMS provided and maintained in their particular unit.