

APSEZL/EnvCell/2019-20/021

Date: 20.05.2019

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](mailto:rowz.bpl-mef@nic.in)

**Sub** : Half yearly Compliance report for Environment and CRZ Clearance for the “Multi Product SEZ, Desalination, Sea Water Intake, Outfall Facility and Pipeline at Mundra, Dist. Kachchh, Gujarat of M/s. Adani Ports and SEZ Limited”

**Ref** : Environment and CRZ clearance granted to M/s Adani Ports and SEZ Limited vide letter dated 15<sup>th</sup> July, 2014 bearing MoEF letter No. 10-138/2008-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 – 2018 to March – 2019 has been submitted through mail communication and acknowledge of the same is attached here for your records.

Thank you,

Yours Faithfully,

For, **M/s Adani Ports and Special Economic Zone Limited**



**Avinash Rai**  
**Chief Executive Officer**  
**Mundra & Tuna Port**

**Encl: As above**

**Copy to:**

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



# Environmental Clearance Compliance Report

Multi Product SEZ,  
Mundra, Dist. Kutch, Gujarat

Adani Ports and SEZ Limited

For the period of  
October–20 18 to March–20 19

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

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	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

## **Copy of Environmental and CRZ Clearance**



**F. No. 10-138/2008-IA.III**  
**Government of India**  
**Ministry of Environment & Forests**

**Paryavaran Bhawan,**  
**CGO Complex, Lodhi Road,**  
**New Delhi - 110 003.**

**Dated: July 15, 2014**

**To**  
**M/s Adani Port and SEZ Ltd**  
**Adani House, Near Mithakhali Six Roads,**  
**Navarangpura, Ahmedabad,**  
**Gujarat- 380 009,**

**Subject: EC for proposed Multi- Product SEZ and CRZ clearance for Desalination, sea water intake, outfall facility and pipeline, at Mundra by M/s Adani Port and SEZ Ltd. – Reg.**

This has reference to letter No. ENV-10-2010-1601-E dated 27.03.2012 of the Director (Environment) & Additional Secretary, Govt. of Gujarat and your subsequent letters dated 10.05.2012, 14.05.2012, 26.05.2012 and 29.04.2013 seeking prior Environmental and CRZ Clearance for the above project under the EIA Notification, 2006 and Coastal Regulation Zone Notification, 2011. The proposal has been appraised as per prescribed procedure in the light of provisions under the EIA Notification, 2006 and the Coastal Regulation Zone Notification, 2011 on the basis of the mandatory documents enclosed with the application viz., the Questionnaire, BIA, EMP, recommendations of the State Coastal Zone Management Authority and the additional clarifications furnished in response to the observations of the Expert Appraisal Committee constituted by the competent authority in its meetings held on 16<sup>th</sup> -17<sup>th</sup> April, 2012, 4<sup>th</sup> -5<sup>th</sup> June, 2012 and 9<sup>th</sup> -10<sup>th</sup> July, 2012.

2. It is, interalia, noted that the project involves development of multi product SEZ on a plot area of 18,000 ha. of which 6641.2784 ha. is presently notified under Special Economic Zone (SEZ). As per the proponent, the Multi product SEZ at Mundra comprising of various processing zones, non-processing zones, warehousing zones, Road Network (trunk as well as internal), Bridges or culverts over natural drains, Rail Network, IT-Telecommunication network, Electrical Network, Water supply, conservation & drainage Network, Effluent collection network, Desalination Plant with proposed intake & outfall locations, Common Effluent Treatment Plants & Sewage Treatment Plants, Natural Gas line network, Social Infrastructure, Existing Airstrip, Municipal Solid Waste Disposal site, utilities & supporting infrastructure etc. For the first phase of development total water requirement will be 150 MLD. Power requirement will be approx. 360 MW. Desalination plant of 150 MLD output capacity is proposed. 11 MLD water will be sourced through Narmada water pipeline. Two CETP each of capacity 50 MLD and 17 MLD as well as STP of 62 MLD is proposed. This will require 375 MLD of seawater intake and 241 MLD of treated waste water outfall into the sea. For final phase of development total water requirement will be 450 MLD and power requirement will be approx. 1000 MW.



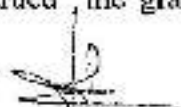
3. A suitable seawater intake point has been identified on the eastern end of the approved East Port Basin at Latitude 22°48'30.76"N; Longitude 69°46'34.06"E where a depth of 6 m below CD would be available after the port development. As per modelling study the combined discharge of 241MLD which includes 16MLD from CETP and 225 MLD from desalination plant as RO reject is expected having 57.57ppt of salinity, 14.41 mg / l of BOD and 94.39 mg/l of COD. After careful consideration of many aspects a suitable outfall location is identified on the west of the Eastern basin at Latitude 22°46'44.04"N; Longitude 69°45'5.51"E taking advantage of the expected 7.5m below CD basin depth. The outfall pipe line length is approximately 5.7 km and diffuser designed to attain a minimum dilution of 40-50 times.

4. The Centre for Earth Science Studies demarcated HTL, LTL and CRZ area. As per the CESS report and GCZMA, out of 6641.2784 ha of SEZ area, 1473.39 ha area falls within CRZ area. No SEZ industrial activity is proposed in the CRZ area. Only the Desalination plant pipeline for intake and outfall is proposed in CRZ areas. The Gujarat SCZMA in their 14<sup>th</sup> meeting held on 27-02-2012 considered the proposal of intake, outfall facilities, Desalination plant and laying pipeline and recommended the same vide their letter no.ENV-10-2010-1601-E dated 27<sup>th</sup> March 2012. Gujarat Pollution Control Board has granted Consent to Establishment of Marine outfall (NOC) vide letter dated 10.11.2011. The length of the intake will be approximately 5 Kms. As the sea water intake demand is 15000m<sup>3</sup>/h, drawal by pipe system is suitable by incorporating a wet well structure at the location. The intake point proposed is within the proposed East Port basin with a depth of 6 m below CD. The projected quantity of water can be transported through a single pipe of 1.3 m dia with a flow velocity of 3 m/ s or with a 1.6 m pipe with flow velocity of 2m/s.

5. The Expert Appraisal Committee, after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations, have recommended for the grant of Environment and CRZ Clearance for the SEZ in an area of 8481.2784 ha. However, SEZ for 1840 ha has been approved in principle by Ministry of Commerce and Industries.

6. Hon'ble High Court of Gujarat in WP No. 21 of 2013 vide order dated 13.01.2014 has directed that the Ministry to take a decision of its own so far as the issue of grant of environmental clearance is concerned considering the position prevailing as on date and also the aspects which have been highlighted by us in this judgment, within a period of thirty days from the date of this judgment without fail. Further, vide order dated 27.01.2014 Hon'ble Supreme Court in SLP No. 1526 of 2014 which was filed against the Order of High Court by the Respondent-1 has passed order that in case, the MOEF is unable to complete the process within the time stipulated by the High Court, it will be open for them to approach this Court for extension of time. Accordingly, Ministry has filed a petition before the Hon'ble Supreme Court seeking extension of two months time.

7. It is noted from the Judgement dated 13.01.2014 of Hon'ble High Court of Gujarat in PIL 21 of 2013 the Hon'ble Court has construed the grant of lease to units prior to



obtaining EC by M/s APSEZL as violation of EIA, Notification, 2006. Therefore, according to the OM's dated 12.12.2012 and 27.06.2013, PP was addressed for Board Resolution and the State Government was addressed to take credible action against the PP for the violation. Direction under Section 5 of E(P)Act, 1986 was also issued to APSEZ not to take up and allow any further construction activity within SEZ till the grant of clearance.

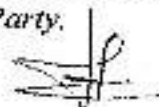
8. Further, Hon'ble Supreme Court video order dated 02.05.2014 in SLP 1526 of 2013 had ordered for stay of Ministry's letter dated 3.04.2014 addressed to Government of Gujarat to initiate legal action for the violation, also directed that the Ministry to complete the process of EC within eight weeks.

9. M/s APSEZ Ltd. has stated that the Board resolved that since the matter is sub-judice before the Hon'ble Supreme Court of India, will fully abide by the outcome of the decision of the Hon'ble Supreme Court.

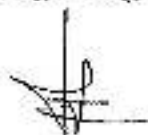
10. In view of the above and to comply with the orders of Hon'ble Courts, Ministry hereby accords necessary Environment Clearance for proposed Multi- Product SEZ in an area of 6641.2784 ha and CRZ clearance for desalination, seawater intake, outfall facility and pipeline for as per the provisions of Environmental Impact Assessment Notification – 2006 and its subsequent amendments and Coastal Regulation Zone Notification, 2011, subject to strict compliance of the terms and conditions as follows:

#### **11. PART A - SPECIFIC CONDITIONS**

- (i) *PP shall abide by the final order/decision of Hon'ble Supreme Court in SLP (Civil) no. 1526/2014 and connected matters.*
- (ii) *Properly conserve the creeks, river and the mangroves area in the area.*
- (iii) *Ensure that mouths of all the creeks are kept open to ensure flushing of the creeks.*
- (iv) *Bring the creeks to the condition as was seen in the satellite map of 2005 which will be a "reference" satellite map and a copy of which shall be sent to you separately.*
- (v) *Submit once in a year latest satellite map which can be compared with the reference satellite map of 2005 to ensure that no modification in the creeks, rivers, mangroves and mouth of creeks have taken place.*
- (vi) *Any direction issued by the MoEF with respect to the report submitted by Ms Sunila Narain Committee shall be complied with by the Proponent as applicable.*
- (vii) *At its cost get Inspection study done once in a year by the organizations like NEERI or any organization approved by this Ministry to - (i) ensure compliance of all the EC conditions (ii) development of SEZ meeting of the environment norms, and (iii) advise any mid-term correction that can be introduced depending on the recommendation of the independent Third Party.*



- (viii) "Consent for Establishment" for the SEZ shall be obtained from Gujarat Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.
- (ix) PP shall get detailed bathymetry done for all the creeks and rivers within Port and SEZ areas along with mapping of co-ordinates, running length, HTL, CRZ boundary, mangrove areas including buffer zone through NCSCM / NIOT. PP shall also get prepared a detailed action plan for conservation and protection of creeks/ mangrove area etc through NCSCM / NIOT and submit the same to GCZMA for their examination and recommendation. GCZMA will submit its recommendations to MoEF for approval.
- (x) PP shall demarcate the CRZ area on land with GPS coordinates in consultation with GCZMA/ the agency which has done the HTL/LTL demarcation for the area. There shall be no allotment of plot/s in CRZ area to industries. No industrial activity within CRZ area except the port and harbor & the foreshore facilities shall be allowed as committed
- (xi) Till the approval of action plan for conservation and protection of creeks/ mangrove area, the CRZ area within SEZ shall be demarcated as "No Development Zone". PP shall not allow/ undertake any development in CRZ area of SEZ.
- (xii) The implementation of action plan approved by the MoEF shall be monitored by the NCSCM/ NIOT. Compliance with action plan shall be submitted to GCZMA and to MoEF, RO. at Bhopal along with six monthly monitoring report.
- (xiii) PP shall earmark separate budget for the implementation of the above action plan. The details of the expenditure shall be submitted to GCZMA and to MoEF, RO. at Bhopal along with six monthly monitoring report.
- (xiv) All the industry in SEZ shall be connected through impervious drainage lines to the STP/ CETP for the discharge of their sewage or industrial effluent. There shall not be any discharge to creeks / rivers. PP shall be accountable for implementing this condition and necessary clause shall be incorporated in the MoU while allotting the plot to the individual industries
- (xv) PP shall not carry out any river course modification.
- (xvi) The individual industrial units shall obtain prior EC under EIA Notification, 2006 as applicable.
- (xvii) Proponent shall identify 200 ha of land for mangrove plantation as per the condition laid by SEAC.
- (xviii) 50 meter buffer from the existing mangrove area should be provided for any developmental activity,





- (xix) *Proponent shall develop the green belt with 3 layers of canopy all along the periphery.*
- (xx) *All the recommendation of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.*
- (xxi) *There shall be no disturbance to the sand dunes. The pipelines shall be laid using advanced method viz. Horizontal Directional Drilling (HDD) so as to avoid disturbance to the sand dunes/ creeks/ mangroves.*

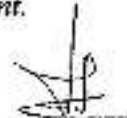
## **PART – B. GENERAL CONDITIONS**

### **Construction Phase.**

- (i) *Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.*
- (ii) *A First Aid Room will be provided in the project both during construction and operation of the project.*
- (iii) *All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.*
- (iv) *Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed, taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.*
- (v) *Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.*
- (vi) *Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.*
- (vii) *Any hazardous waste generated during construction phase should be disposed off as per applicable rules and norms with necessary approvals of the Gujarat Pollution Control Board.*
- (viii) *The diesel generator sets to be used during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.*



- (ix) *The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from Chief Controller of Explosives shall be taken.*
- (x) *Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours.*
- (xi) *Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/GPCB.*
- (xii) *Fly ash should be used as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27<sup>th</sup> August, 2003. (The above condition is applicable only if the project site is located within 100 Kms of Thermal Power Stations).*
- (xiii) *Ready mixed concrete must be used in building construction.*
- (xiv) *Storm water control and its re-use should be regulated as per CGWB and BIS standards for various applications.*
- (xv) *Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other referred best practices.*
- (xvi) *Permission to draw ground water shall be obtained from the competent Authority prior to construction/operation of the project.*
- (xvii) *Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.*
- (xviii) *Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.*
- (xix) *Use of glass may be reduced by upto 40% to reduce the electricity consumption and load on air-conditioning. If necessary, use high quality double glass with special reflective coating in windows.*
- (xx) *Roof should meet prescriptive requirements as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfill requirements.*
- (xxi) *Opaque wall should meet prescriptive requirement as per Energy Conservation Building Code which is proposed to be mandatory for all airconditioned spaces while it is aspirational for non-airconditioned spaces by use of appropriate thermal insulation material to fulfil these requirement.*



- (xxii) *The approval of the competent authority shall be obtained for structural safety of the buildings due to earthquake, adequacy of fire fighting equipments, etc. as per National Building Code including protection measures from lightning etc.*
- (xxiii) *Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.*
- (xxiv) *Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it is found that construction of the project has been started without obtaining environmental clearance.*

### **Operation Phase**

- (i) *The PP while issuing the allotment letter to individual member units shall specifically mention the allowable maximum quantity of water usage and effluent generated by each member unit.*
- (ii) *The PP shall establish an environmental monitoring cell with all the potential polluting units as members to review the environmental monitoring data and suggest improvements.*
- (iii) *Treated effluent emanating from STP shall be recycled/reused to the maximum extent possible. Treatment of 100% grey water by decentralised treatment should be done. Discharge of unused treated effluent shall conform to the norms and standards of the Pollution Control Board. Necessary measures should be made to mitigate the odour problem from STP.*
- (iv) *The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry / inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.*
- (v) *Diesel power generating sets proposed as source of back up power for elevators and common area illumination during operational phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Low sulphur diesel should be used. The location of the DG sets may be decided in consultation with the Gujarat Pollution Control Board.*
- (vi) *Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.*
- (vii) *Green belt of adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.*



- (viii) *Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period.*
- (ix) *Rain water harvesting for roof run- off and surface run- off, as plan submitted should be implemented.*
- (x) *The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.*
- (xi) *Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.*
- (xii) *A Report on the energy conservation measures conforming to energy conservation norms finalised by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & D Factors etc and submitted to the Ministry along with six monthly monitoring report.*
- (xiii) *Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be an integral part of the project design and should be in place before project commissioning. Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid mercury contamination. Solar panels may be used to the extent possible.*
- (xiv) *Adequate measures should be taken to prevent odour problems from solid waste processing plant and STP.*
- (xv) *The buildings should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.*
- (xvi) *The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.*
- (xvii) *Adequate drinking water facility be provided.*
- (xviii) *Incremental pollution loads on the ambient air quality, noise and water quality should be periodically monitored after commissioning of the project.*
- (xix) *Application of solar energy should be incorporated for illumination of common areas, lighting for gardens and street lighting in addition to provision for solar water heating. A hybrid system or fully solar system for portion of the apartments should be provided.*
- (xx) *Ozone depleting substance (Regulation & Control) Rules should be followed while designing the air conditioning system of the project.*

12. Officials from the Regional Office of MOEF, Bhopal who would be monitoring the implementation of environmental safeguards should be given full cooperation, facilities and documents / data by the project proponents during their inspection. A complete set of all the



documents submitted to MoEF should be forwarded to the CCF, Regional office of MOEF, Bhopal

13. In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.

14. The Ministry reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.

15. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

16. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

17. The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Clearance and copies of clearance letters are available with the Gujarat Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.

18. Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

19. "Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010".

20. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.

21. The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.



22. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.

23. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.

  
(Lalit Kapur)  
Director (IA-III)

Copy to:

1. The Principal Secretary, Forest and Environment Department, Block no. 14/ 8 floor Sachivalaya, Gandhinagar – 382 010 Gujarat.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 110 032.
3. The Member Secretary, Gujarat Coastal Zone Management Authority & Director,( Environment) Forests & Environment Department, Block No. 14, 8<sup>th</sup> Floor, Sachivalaya, GandhiNagar-382.
4. The Chief Conservator of Forests, Ministry of Environment and Forests, Regional Office, Western Region, Kendriya Paryavaran Bhavan, Link Road No. 3, Ravishankar Nagar, Bhopal – 462016 (M.P.)
5. The Member Secretary, Gujarat State Pollution Control Board, Paryavaran Bhawan , Sector 10-A, Gandhi Nagar 382043, Gujarat
6. Director (EI), Ministry of Environment and Forests.
7. Guard File.
8. Monitoring File.

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(Lalit Kapur)  
Director (IA-III)



**Adani Ports and Special Economic  
Zone Limited, Mundra.**

**From : Oct'18  
To : Mar'19**

**Status of the conditions stipulated in Environment and CRZ Clearance**

# **Compliance Report of Environmental and CRZ Clearance**

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

M/s. APSEZ has been granted Environmental / CRZ clearance vide letter no. 10-138/2008-IA.III, dated 15<sup>th</sup> July, 2014 for development of “Multi Product SEZ, Desalination, Sea Water Intake, Outfall Facility and Pipeline”.

Activities / Facilities approved are as below:

<b>Facilities / Components Approved</b>	<b>Capacity</b>	<b>Status as on 31.03.2019</b>
Desalination Plant	150 MLD	Construction has not been started.
Sea water Intake & Outfall Facility	375 MLD: Intake 241 MLD: Outfall	Construction has not been started.
Common Effluent Treatment Plant	17 MLD	MPSEZ Utilities Pvt. Ltd. (MUPL) has been granted environmental clearance for CETP having 17.0 MLD capacities. Out of which at present one module of CETP having 2.5 MLD capacities has been constructed and is in operation.
	50 MLD	Construction has not been started.
Social Infrastructure Projects	--	Adani Mundra SEZ Infrastructure Pvt. Ltd. (AMSIPL) has granted environmental clearance for township and area development project in 255 Ha. Out of approved 10,000 no. of residential units, 1368 units are constructed.
Sewage Treatment Plant	62 MLD	APSEZ has installed Sewage Treatment Plant @ 150 KLD Capacities within SEZ for treatment of sewage generated from port user buildings.
Airstrip	--	Airstrip has been developed within SEZ area after obtaining requisite permissions.
Municipal Solid Waste Site	--	Material Recovery site is provided for the management of Municipal Solid Waste.
Free Trade & Ware House Zone (FTWZ)	--	Construction is completed and in operation.

**Note:**

Environmental / CRZ clearance has been granted for additional facilities like Processing Zones, Non-processing Zones, Warehousing Zones, Road Network (Trunk as well as Internal), Bridges or Culverts over natural drain, Rail Network, IT-Telecommunication Network, Electric Network, Water Supply, Conservation & Drainage Network, Effluent Collection Network and Utilities & Supporting Infrastructure within SEZ area.

Boundary wall is constructed along the project periphery. In some of areas level raising and area development of SEZ area, wherever required is also under progress.

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

### List of Industrial Units within SEZ area

Sr. No.	Name of Unit	Nature of Business	Status
1	Skaps Industries (Unit – I & II)	Textile	In Operation
2	Skaps Industries (Unit – III)		Under Construction
3	Terram Gosynthetics Pvt. Ltd.		In Operation
4	Ahlstrom Fibre Composite India Pvt. Ltd.		In Operation
5	Ashapura Garments		Not in Operation
6	Anjani Udyog Pvt. Ltd.		In Operation
7	Raa Overseas Pvt. Ltd.		Under Construction
8	M.D. Equipments		Under Construction
9	Thermax Ltd.	Engineering	In Operation
10	Oilfield Warehouse Services Pvt. Ltd.	Ware House	In Operation
11	Oilfield Warehouse Services LLP		Under Construction
12	Avesta Eng. Pvt. Ltd.	Engineering	Not in Operation
13	MD equipment		Not in Operation
14	Alstom Bharat Forge Power Ltd. & Kalyani Alstom Power Ltd.		Under Construction
15	Dorf Ketel Specialty Catalyst Pvt. Ltd.	Chemical	In Operation
16	Oriental Carbon and Chemicals Ltd.		In Operation
17	Gujarat CREDO Alumina Chemicals Pvt. Ltd.		Under Construction
18	Aadi Oil Pvt. Ltd. (Mundra Oil)		In Operation
19	Garg Tubes Exports LLP		In Operation
20	Seabird Marine Services Pvt. Ltd.	CFS	In Operation
21	Honeycomb Logistics Pvt. Ltd.		In Operation
22	All Cargo Global Logistics Ltd.		In Operation
23	Mundhra CFS		In Operation
24	Saurashtra Containers Pvt. Ltd.		In Operation
25	Transworld Terminals Pvt. Ltd.		In Operation
26	Mundra International Container Terminal (DP World)		In Operation
27	Central Warehousing Corp. Ltd.		In Operation
28	Maruti Suzuki India Limited (PDI Yard)	Pre Delivery Inspection Yard	In Operation
29	Britannia Industries Limited	Food Products	In Operation
30	Mundra Solar Photo Voltaic Ltd.	Electronics Manufacturing Cluster	In Operation
31	Mundra Solar Technopark Pvt. Ltd.		In Operation
32	Vishakha Renewable Pvt Ltd		In Operation
33	Vishakha Solar Films Pvt Ltd		In Operation
34	Vishakha Metals Pvt Ltd		Under Construction
35	Empezar Logistics	Ware House	In Operation
36	Steinweige Sharaf		In Operation
37	Kerry Index Logistic Pvt. Ltd.		In Operation
38	Fast Track CFS		In Operation
39	Adani Power (Mundra) Limited	Thermal Power Plant	In Operation
40	Samudra Township (including residential units, hospital, hotel, commercial complex, school etc.)	Social Infrastructure	In Operation
41	Mundra International Airport Pvt. Ltd.	Private Airstrip	In Operation
42	MPSEZ Utilities Pvt. Ltd.	Common Effluent Treatment Plant	In Operation

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

Half yearly Compliance report of Environment Clearance for the project “Multi Product SEZ” and CRZ Clearance for the project “Desalination, Sea Water Intake, Outfall Facility and Pipeline at Mundra, Dist. Kachchh, Gujarat of M/s. Adani Ports and SEZ Limited” vide MoEF letter No. 10-138/2008-IA.III dated 15<sup>th</sup> July, 2014.

Sr. No.	Conditions	Compliance Status as on 31-03-2019
<b>Part – A: Specific Conditions</b>		
i.	PP shall abide by the final order/decision of Hon'ble Supreme Court in SLP (Civil) no. 1526/2014 and connected matters.	<p>Point noted and will be complied.</p> <p>Vide order dated 14.07.2014, the Hon'ble Supreme Court directed MoEF&amp;CC to complete the process of environmental clearance to the MSEZ project of APSEZ within eight weeks. MoEF&amp;CC issued EC and CRZ clearance to the proposed project vide letter dated 15.07.2014. Hence, the SLP (Civil) no. 1526/2014 is deemed closed. Details of the same were submitted along with last EC Compliance report for the period Apr'18 to Sep'18.</p>
ii.	Properly conserve the creeks, river and the mangroves area in the area.	<p>Complied.</p> <p>This reply covers condition no ii, iii, ix, x, xi, xii &amp; xiii.</p> <p>Conservation of creeks and rivers:</p> <ul style="list-style-type: none"> <li>• The prominent creek system (main creeks and small branches of creeks) in and around APSEZ are: (1) Kotdi (2) Baradimata (3) Navinal (4) Bocha (5) Mundra (Oldest port (Juna Bandar) leading to Bhukhi river).</li> <li>• Rivers passing through the APSEZ area are: (1) Khari (2) Nagmati (3) Phot (4) Bhukhi (5) Dhaneshwari (6) Buchiya (7) Jidal.</li> <li>• All the rivers passing through the SEZ area are dry throughout the year except for monsoon season.</li> <li>• All creeks as well as rivers are in existence allowing free flow of water and there is no filling or reclamation of any creek or river area. APSEZ has so far constructed 19 culverts having total length of approx. 1100 m with total cost of INR 20 Crores. Three RCC Bridges have also been constructed over Kotdi creek with total length of 230 m and cost of INR 10 Crores. Details were submitted along with compliance report submission for the period of Apr'17 to Sep'17.</li> <li>• From the APSEZ operations, there is no discharge of any sewage or effluent to the water streams.</li> </ul> <p>Conservation of mangroves:</p> <ul style="list-style-type: none"> <li>• In and around APSEZ, approx. 1800 ha. mangrove area was</li> </ul>



	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		<p>identified by NIO in an EIA report prepared the year 1998.</p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• It may be noted that the entire area of 1254 ha is not covered with mangroves.</li> <li>• 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.</li> <li>• As per MoEF&amp;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.</li> <li>• NCSCM final report on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around has been submitted to the concerned authorities i.e. MoEF&amp;CC, New Delhi and GCZMA, Gandhinagar vide our letter dated 04.06.2018 and details of the same were submitted along with last EC Compliance.</li> </ul>
iii.	Ensure that mouths of all the creeks are kept open to ensure flushing of the creeks.	<p>Complied.</p> <ul style="list-style-type: none"> <li>• The prominent creek system (main creeks and small branches of creeks) in and around APSEZ are: (1) Kotdi (2) Baradimata (3) Navinal (4) Bocha (5) Mundra (Oldest port (Juna Bandar) leading to Bhukhi river).</li> <li>• All above creek mouths are open allowing free flow of water in to the creeks and surrounding areas and there is no filling or reclamation of any creek area.</li> <li>• This aspect is also confirmed from the recent study of NCSCM which highlights the bathymetry data of the entire coast around APSEZ.</li> <li>• From the bathymetry data it can be concluded that there are sufficient depths at the creek mouths and all creek mouths are open allowing flushing of water.</li> </ul>
iv.	Bring the creeks to the condition as was seen in the satellite map of 2005 which will be a "reference" satellite map and a copy of which shall be sent to you separately.	<p>Not applicable</p> <p>This reply covers condition no iv, v, vi.</p> <p>The stated conditions were stipulated in the EC and CRZ clearance with respect to the pending SCNs and based on Ms. Sunita Narain committee report. In continuation to the SCNs</p>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
v.	Submit once in a year latest satellite map which can be compared with the reference satellite map of 2005 to ensure that no modifications in the creeks, rivers, mangroves and mouth of creeks have taken place.	and subsequent submissions by APSEZ, MoEF&CC issued a final order vide letter dated 18.09.2015 (which disposed the pending Show Cause Notices). Full compliance of the directions issued vide the said order is provided as <b>Annexure – B</b> .  It may be noted that the stated conditions related to the satellite image of 2005 are not imposed to APSEZ as part of the said order. Hence, APSEZ has made submission to MoEF&CC vide letters dated 23.05.2016 and 07.11.2016. Copies of the said letters were submitted along with compliance submission for the period from Oct'16 to Mar'17. Further there are no directions from MoEF&CC.
vi.	Any direction issued by the MoEF with respect to the report submitted by Ms Sunita Narain Committee shall be complied with by the Proponent as applicable.	
vii.	At its cost get Inspection study done once in a year by the organizations like NEERI or any organization approved by this Ministry to - (i) ensure compliance of all the EC conditions (ii) development of SEZ meeting of the environment norms, and (iii) advise any mid-term correction that can be introduced depending on the recommendation of the independent Third Party.	Complied.  NEERI has been appointed to carry out the inspection study up to the year 2020 at a cost of INR 12 Lacs.  Compliance report of the period from Apr'18 to Sep'18 was submitted to NEERI. Based on the site visit during period Oct'18 to Mar'19 as well as the said compliance report NEERI has given their feedback. No non-compliance is observed by NEERI. Copy of the same is annexed as <b>Annexure – 1</b> .
viii.	"Consent for Establishment" for the SEZ shall be obtained from Gujarat Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Complied.  Consent to Establish (CtE) is obtained for the project from Gujarat Pollution Control Board vide their letter no. GPCB/CCA-KUTCH-1044/ GPCB ID 31463/ 109800, dated 16.04.2012. Copy of the same was submitted to MoEF&CC, Regional Office, Bhopal vide our letter dated 05 <sup>th</sup> Aug, 2014. The CtE was also submitted with compliance report submission for the period Oct'15 to Mar'16.  The project has been developed as per Consent to Establish (CtE) and Consent to Operate (CtO) granted by SPCB. The



	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

Sr. No.	Conditions	Compliance Status as on 31-03-2019												
		<p>present in-force CtO are mentioned below.</p> <table><tr><th>Permission</th><th>Project</th><th>Ref. No. / Order No.</th><th>Valid till</th></tr><tr><td>CtO – Fresh</td><td>Multi Product SEZ</td><td>AWH – 88998</td><td>21.08.2022</td></tr><tr><td>CtO – Amendment</td><td>Multi Product SEZ</td><td>AWH – 97361</td><td>21.08.2022</td></tr></table> <p>Copy of updated / amendment in CtO and CtE are attached as <b>Annexure – 2.</b></p>	Permission	Project	Ref. No. / Order No.	Valid till	CtO – Fresh	Multi Product SEZ	AWH – 88998	21.08.2022	CtO – Amendment	Multi Product SEZ	AWH – 97361	21.08.2022
Permission	Project	Ref. No. / Order No.	Valid till											
CtO – Fresh	Multi Product SEZ	AWH – 88998	21.08.2022											
CtO – Amendment	Multi Product SEZ	AWH – 97361	21.08.2022											
ix.	PP shall get detailed bathymetry done for all the creeks and rivers within Port and SEZ areas along with mapping of co-ordinates, running length, HTL, CRZ boundary, mangrove area including buffer zone through NCSCM /NIOT. PP shall also get prepared a detailed action plan for conservation and protection of creeks /mangrove area etc through NCSCM/NIOT and submit the same to GCZMA for their examination and recommendation. GCZMA will submit its recommendations to MoEF for approval.	<p>Complied</p> <p>Based on the MoEF&amp;CC directions, APSEZ has entrusted NCSCM to carry out the detailed study. Scope of the study include the following:</p> <ul style="list-style-type: none"><li>• Detail bathymetry and topography survey of creeks</li><li>• Demarcation of mangrove areas and buffer zone</li><li>• Demarcation of HTL and CRZ areas with co-ordinates</li><li>• Preparation of a comprehensive and integrated conservation plan for protection of creeks and mangroves</li></ul> <p>In order to complete the study, NCSCM has carried out number of site surveys which are mentioned below:</p> <ul style="list-style-type: none"><li>• Bathymetry survey of creeks</li><li>• Topography survey of intertidal areas</li><li>• Mangrove survey (health and area demarcation)</li><li>• Sampling of soil and water for analysis of physico-chemical and biological parameters</li><li>• Tide and currents data collection (including residence time of tidal water) study</li></ul> <p>Based on the study, the following points can be summarized:</p> <ul style="list-style-type: none"><li>• There is no obstruction to any water stream (creeks / branches of creeks / rivers)</li><li>• Presently, mangrove cover in and around APSEZ is over 2340 ha. There is substantial growth in mangrove cover to the tune of 246 ha (comparison between 2011 and 2016-17)</li><li>• Majority of the development at Mundra has happened between this tenure. Hence it can be interpreted that the infrastructure development has not left any adverse impacts on ecology.</li></ul> <p>The study report is submitted to GCZMA (with a copy to MoEF&amp;CC) for their examination and recommendation.</p>												

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		NCSCM final report on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around has been submitted to the concerned authorities i.e. MoEF&CC, New Delhi and GCZMA, Gandhinagar vide our letter dated 04.06.2018 and details of the same were submitted along with last EC Compliance report for the period Apr'18 to Sep'18. Further request letter for necessary hearing has been submitted to GCZMA vide letter dated 4 <sup>th</sup> Jan 2019. Please refer the survey maps in the report for interpretation of the details mentioned above. Cost of the study as per the NCSCM proposal is 315.5 Lakh. 90% of the payment against the proposal value is already paid to NCSCM.
x.	PP shall demarcate the CRZ area on land with GPS coordinates in consultation with GCZMA/ the agency which has done the HTL /LTL demarcation for the area. There shall be no allotment of plot/s in CRZ area to industries. No industrial activity within CRZ area except the port and harbor & the foreshore facilities shall be allowed as committed.	Being complied  Based on the MoEF&CC directions and in consultation with GCZMA, APSEZ has entrusted NCSCM for demarcation of HTL and CRZ areas. NCSCM has prepared the draft maps. Once the maps are finalized, they will be submitted to GCZMA and MoEF&CC for their examination and recommendation.  In addition to that please note that <ul style="list-style-type: none"> <li>• There is no allotment of plot(s) in CRZ area to any industry.</li> <li>• Only those activities which are allowed within CRZ area are being carried out (with due approvals from concerned authorities)</li> <li>• No industrial activity within CRZ area except the port and harbor &amp; the foreshore facilities are carried out.</li> </ul>
xi.	Till the approval of action plan for conservation and protection of creeks /mangrove area, the CRZ area within SEZ shall be demarcated as "No Development Zone". PP shall not allow / undertake any development in CRZ area of SEZ.	Complied  The action plan for conservation of creeks and mangrove areas is prepared by NCSCM and the same is submitted to GCZMA and MoEF&CC for their examination and recommendation. The main action plan as per the study are mentioned summarized below: <ul style="list-style-type: none"> <li>• Monitoring of mangrove cover in Jan/Mar, 2020 using latest satellite images and validation with field observations</li> <li>• Monitoring of tidal range in the mangrove areas and comparison with the data collected during 2017</li> <li>• Removal of silt / sand spits from the central part of navinal creek</li> <li>• Dredging of shallow area off Bocha Island to reduce current velocity.</li> </ul> These measures will be discussed with GCZMA and the same will be implemented after obtaining their approval. No

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		development is carried out in the 'No Development Zone' (i.e. CRZ area of SEZ)
xii.	The implementation of action plan approved by the MoEF shall be monitored by the NCSCM/NIOT. Compliance with action plan shall be submitted to GCZMA and to MoEF, RO at Bhopal along with six monthly monitoring report.	<p>Point noted and will be complied</p> <p>The action plan for conservation of eco sensitive areas prepared by NCSCM is submitted to GCZMA and MoEF&amp;CC for their approval. Implementation of the action plan will be carried out by APSEZ and same will be monitored by NCSCM and compliance report in this regard will be submitted to all the concerned authorities as part of the six monthly compliance report.</p>
xiii.	PP shall earmark separate budget for the implementation of the above action plan. The details of the expenditure shall be submitted to GCZMA and to MoEF, RO at Bhopal along with six monthly monitoring report.	<p>Point noted and will be complied</p> <p>A separate budget will be allocated for implementation of this action plan and details of the same will be submitted as part of the six monthly compliance report.</p>
xiv.	All the industry in SEZ shall be connected through impervious drainage lines to the STP/CETP for the discharge of their sewage or industrial effluent. There shall not be any discharge to creeks / rivers. PP shall be accountable for implementing this condition and necessary clause shall be incorporated in the MoU while allotting the plot to the individual industries.	<p>Complied.</p> <p>As per the Lease Deed agreement, all existing industries are well connected with impervious pipeline to discharge their effluent / sewage after confirming to the inlet norms of CETP. Typical copy of the Lease Deed (Agreement) was submitted along with compliance report submission for the duration of Oct'16 to Mar'17.</p> <p>Entire quantity of treated wastewater from CETP is being utilized for horticulture purpose within SEZ area. No discharge is allowed in to creeks / rivers. Same practice will be continued in future as well and capacity enhancement of CETP will be carried out based on requirement.</p> <p>List of CETP member units were submitted along with last compliance report submission Apr'17 to Sep'17. And there is no further change.</p> <p>The industries which treat the sewage / effluent within their premises comply the stipulated norms of discharge given by GPCB. Through regular monitoring it is ensured by APSEZ that</p>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		the treated water is used for gardening within the respective industries and there is no discharge to any water body including rivers or creeks.
xv.	PP shall not carry out any river course modification.	Complied  The project was conceptualized in such a way that no river course modification is required to be carried out. All the rivers passing through SEZ are maintained through proper path for area drainage.
xvi.	The individual industrial units shall obtain prior EC under EIA Notification, 2006 as applicable.	Complied.  All industrial units coming up in within the SEZ are informed and aware about the said requirement. Out of total units established within SEZ, only APL & Dorf Ketel falls under purview of EIA Notification 2006 and they have obtained their specific EC as applicable. During the compliance period of Oct'17 to Mar'18, no new such industry has been established at SEZ which requires EC under EIA Notification, 2006. The condition is being followed on case to case basis as applicable.
xvii.	Proponent shall identify 200 ha of land for mangrove plantation as per the condition laid by SEAC.	Complied.  100 Ha. Mangrove plantation is carried out by SAVE at Tala Tadav village of Khambhat Taluka of Anand district. A final report of SAVE was submitted along with half yearly compliance report for the period Apr'17 to Sep'17.  100 Ha. Mangrove plantation is carried out by GEC. From which 38 ha. plantation is completed at Tala Tadav village of Khambhat Taluka of Anand district during 2017-18 and remaining 62 ha. plantation is completed at Aliya Bet of Bharuch district during 2018-19. A final report of GEC is enclosed as <b>Annexure – 3</b> .
xviii.	50 meter buffer from the existing mangrove area should be provided for any developmental activity.	Complied.  50 meter buffer from the existing mangrove area as per the CRZ notification is being maintained and all developmental activities are being carried out as per the approval only.
xix.	Proponent shall develop the green belt with 3 layers of canopy all along the periphery.	Being complied.  APSEZ has developed "Dept. of Horticulture" which is taking measures/ steps for terrestrial greening as well as mangrove plantation. Development of greenbelt at various locations within the SEZ is an ongoing activity. Green belt of 3 layer

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		<p>canopy will be developed as part of the development of SEZ.</p> <p>The species such as Ficus Infectoria, Ficus religiosa, Terminalia arjuna, Cocos nucifera, Washingtonia fillifera, Casurina spp., Azadirachta Indica, Eucalyptus spp., Jatropha curacus, Ficus bengalensis, Subabool spp., Casia fistula, Date Palm and Delonix regia were grown in SEZ area.</p> <p>Width of the green belt varies from 2 m to 8 m and density varies from 2000 to 2500 trees per hectare at various locations. Total 114.7 hectares of land with approx. 2.5 Lacs trees is developed within SEZ area till date. So, far more than 455 ha. area is developed as greenbelt with plantation of more than 8.3 Lacs trees within the entire APSEZ area.</p> <p>Please refer <b>Annexure – 4</b> for further details regarding greenbelt development and mangrove afforestation. An updated green belt development plan is also attached as part of the said annexure. Total expenditures of the horticulture dept. during the FY 2018-19 are INR 580 lakh.</p> <p>It may be noted that individual industrial units has developed the greenbelt within their premises based on their planning &amp; approvals and new industries coming up any will also comply as per their approvals. The same will be ensured by the environment monitoring committee of APSEZ.</p> <p>For the area where further development is yet to be carried out, APSEZ will ensure that greenbelt with 3 layer canopy is developed by either APSEZ or the industrial unit to whom the land is allotted. Photographs showing the 3 layer canopy greenbelt developed within APSEZ are attached as <b>Annexure – 4</b>.</p>
xx.	All the recommendation of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along	<p>Complied.</p> <p>Compliance report of environmental management plan and mitigation measures proposed as part of the EIA report is summarized below. The same is submitted to the concerned authorities including MoEF&amp;CC, RO, Bhopal as part of the six monthly compliance reports. Details of the past six compliance reports are mentioned below.</p>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

Sr. No.	Conditions	Compliance Status as on 31-03-2019																							
	with half yearly compliance report to MoEF-RO.	<table><tr><th>Sr. no.</th><th>Compliance period</th><th>Date of submission</th></tr><tr><td>1</td><td>Oct'15 to Mar'16</td><td>30.05.2016</td></tr><tr><td>2</td><td>Apr'16 to Sep'16</td><td>01.12.2016</td></tr><tr><td>3</td><td>Oct'16 to Mar'17</td><td>30.05.2017</td></tr><tr><td>4</td><td>Apr'17 to Sep'17</td><td>01.12.2017</td></tr><tr><td>5</td><td>Oct'17 to Mar'18</td><td>01.05.2018</td></tr><tr><td>6</td><td>Apr'18 to Sep'18</td><td>30.11.2018</td></tr></table>	Sr. no.	Compliance period	Date of submission	1	Oct'15 to Mar'16	30.05.2016	2	Apr'16 to Sep'16	01.12.2016	3	Oct'16 to Mar'17	30.05.2017	4	Apr'17 to Sep'17	01.12.2017	5	Oct'17 to Mar'18	01.05.2018	6	Apr'18 to Sep'18	30.11.2018	Summary of the compliance to the measures suggested in EMP are given in <b>Annexure – 5</b> .	
Sr. no.	Compliance period	Date of submission																							
1	Oct'15 to Mar'16	30.05.2016																							
2	Apr'16 to Sep'16	01.12.2016																							
3	Oct'16 to Mar'17	30.05.2017																							
4	Apr'17 to Sep'17	01.12.2017																							
5	Oct'17 to Mar'18	01.05.2018																							
6	Apr'18 to Sep'18	30.11.2018																							
xxi.	There shall be no disturbance to the sand dunes. The pipelines shall be laid using advanced method viz. Horizontal Directional Drilling (HDD) so as to avoid disturbance to the sand dunes/creeks/mangroves.	Complied.  There is no sand dune in the SEZ area.  Point noted. No pipelines for intake and outfall of sea water are laid till now and same will be studied as and when required.																							
Part – B: General Conditions																									
	Construction Phase																								
i	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Not applicable at present.  Most of the construction labours reside in the nearby villages where all basic facilities are easily available. There are no housing requirements for labours inside the project area.																							
ii	A first aid room will be provided in the project both during construction and operation of the project.	Complied.  APSEZ has established Occupational Health Center & First Aid facility, which will be utilized during entire construction as well as operation phase of SEZ project. In case of emergency situation requiring higher level of treatment, the facilities at																							



**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Conditions	Compliance Status as on 31-03-2019																																																																																
		Adani hospital located with SEZ area can be utilized.																																																																																
iii	All the topsoil excavated during construction phase should be stored for use in horticulture/landscape development within the project site.	<p>Complied.</p> <p>Excavated topsoil, if any, will be used for the horticulture /landscape development within the project site.</p>																																																																																
iv	Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and be disposed, taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.	<p>Complied.</p> <p>No excavated muck has been generated and disposed-off. Construction waste, if any, is utilized for area development within the project site.</p>																																																																																
v	Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.	<p>Complied.</p> <p>Environment Monitoring is being carried out on regular basis in Port &amp; SEZ areas through NABL accredited and MoEF&amp;CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the ground water as well as soil assessment for duration from Oct'18 to Mar'19 is mentioned below.</p> <p><b>Bore Hole Water Sampling:</b> <b>Sampling locations &amp; frequency: 3 nos. (Half Yearly)</b></p> <table><tr><th>Sr. No.</th><th>Parameter</th><th>Unit</th><th>Max. Value</th><th>Min. Value</th></tr><tr><td>1</td><td>pH</td><td>--</td><td>8.25</td><td>7.16</td></tr><tr><td>2</td><td>Salinity</td><td>ppt</td><td>37.2</td><td>2.93</td></tr><tr><td>3</td><td>Oil &amp; Grease</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>4</td><td>Hydrocarbon</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>5</td><td>Lead as Pb</td><td>mg/L</td><td>0.018</td><td>0.016</td></tr><tr><td>6</td><td>Arsenic as As</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>7</td><td>Nickel as Ni</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>8</td><td>Total Chromium as Cr</td><td>mg/L</td><td>0.025</td><td>0.025</td></tr><tr><td>9</td><td>Cadmium as Cd</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>10</td><td>Mercury as Hg</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>11</td><td>Zinc as Zn</td><td>mg/L</td><td>0.2</td><td>0.16</td></tr><tr><td>12</td><td>Copper as Cu</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr><tr><td>13</td><td>Iron as Fe</td><td>mg/L</td><td>0.34</td><td>0.28</td></tr><tr><td>14</td><td>Insecticides/Pesticides</td><td>mg/L</td><td>Absent</td><td>Absent</td></tr><tr><td>15</td><td>Depth of Water Level from Ground Level</td><td>meter</td><td>2.05</td><td>1.85</td></tr></table> <p>*BDL = Below Detectable Limit</p>	Sr. No.	Parameter	Unit	Max. Value	Min. Value	1	pH	--	8.25	7.16	2	Salinity	ppt	37.2	2.93	3	Oil & Grease	mg/L	BDL*	BDL*	4	Hydrocarbon	mg/L	BDL*	BDL*	5	Lead as Pb	mg/L	0.018	0.016	6	Arsenic as As	mg/L	BDL*	BDL*	7	Nickel as Ni	mg/L	BDL*	BDL*	8	Total Chromium as Cr	mg/L	0.025	0.025	9	Cadmium as Cd	mg/L	BDL*	BDL*	10	Mercury as Hg	mg/L	BDL*	BDL*	11	Zinc as Zn	mg/L	0.2	0.16	12	Copper as Cu	mg/L	BDL*	BDL*	13	Iron as Fe	mg/L	0.34	0.28	14	Insecticides/Pesticides	mg/L	Absent	Absent	15	Depth of Water Level from Ground Level	meter	2.05	1.85
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	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		<ul style="list-style-type: none"> <li>• The ground level in this area is saline in nature due to close proximity to the coast.</li> <li>• There is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.</li> <li>• There is no leaching of heavy metals and other toxic contaminants through soil.</li> </ul> <p>Please refer <b>Annexure – 6</b> for detailed analysis reports. Approx. INR 20.36 Lakh is spent for all environmental monitoring activities during the FY 2018-19.</p>
vi	Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.	<p>Complied.</p> <p>Construction spoils including bituminous material is being kept at identified temporary storage area outside CRZ and is being utilized for area development purpose as and when required.</p> <p>Hazardous materials such as diesel, lube oil etc. are handled with utmost care and all applicable rules are followed. Storage area is provided with paving and spill kit to ensure there is no contamination to soil or ground water.</p> <p>Used oil is sold to GPCB approved recycler namely M/s. Western India Petrochem Industries, Bhavnagar. Oily rags are being disposed through co-processing at cement industries namely M/s. Sanghi Industries Ltd., Kutch and / or Recycling Solutions Pvt. Ltd., Panoli. Dates of validity of all the vendors and details of the same were submitted along with last half yearly EC compliance report for the period Apr'18 to Sep'18. Necessary approvals from GPCB for disposal of hazardous wastes are obtained. Authorization copy was submitted with compliance report submission for the period Apr'17 to Sep'17.</p> <p>Individual units within SEZ are handling their hazardous wastes as per Hazardous waste rules – 2016 after obtaining necessary permissions from GPCB.</p>
vii	Any hazardous waste generated during construction phase should be disposed off as per applicable rules and norms with necessary approvals of the Gujarat Pollution Control Board.	<p>Complied.</p> <p>All the hazardous wastes are being handled as per Hazardous Waste Rules – 2016.</p> <p>Please refer Point No. vi (General Condition: Construction Phase) for further details.</p>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
viii	The diesel generator sets to be used during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.	<p>Complied.</p> <p>DG sets are being used only as power back up source in case of power failure. Presently, cumulative capacity of all DG sets installed at APSEZ is 4843 KVA. During the compliance period of Oct'18 to Mar'19, there was no instance of power failure hence it was not required to operate the DG sets.</p> <p>All the DG sets are of low sulphur diesel type. Certificate showing Sulphur content in diesel was submitted along with last half yearly EC compliance report for the period Apr'18 to Sep'18. DG sets are being used in conformance to the EPA norms and proof for the same was submitted along with last compliance period i.e. Apr'17 to Sep'17.</p>
ix	The diesel required for operating DG sets shall be stored in underground tanks if required; clearance from Chief Controller of Explosives shall be taken.	<p>Complied.</p> <p>Diesel is stored in the underground tank located in existing port area and approval of the same from Chief Controller of Explosives is obtained from PESO with License no. P/HQ/GJ/15/5188 (P28539) dated 15.12.2016 and is valid till 31.12.2019. Copy of Certificate from CCE is attached as <b>Annexure – 7.</b></p>
x	Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards and should operate only during non-peak hours.	<p>Complied.</p> <p>The vehicles of on-going construction work enter inside the premises only after passing through the fitness check at vehicle health-check centre established by APSEZ. At the vehicle health check-up centre, parking light, reverse light, Horn, wheel, breaks, mirror, etc. are checked before allowing the vehicle to enter the site.</p> <p>APSEZ has also established a licenced PUC station to monitor the compliance with applicable Motor Vehicle Act for vehicles. Details were submitted along with last half yearly EC compliance report for the period Apr'18 to Sep'18.</p> <p>Majority of the vehicles bringing construction materials are operated during non-peak hours.</p>
xi	Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should	<p>Complied.</p> <p>Ambient Air Quality and Noise monitoring are being carried out by NABL accredited and MoEF&amp;CC authorized agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'18 to Mar'19 is mentioned below.</p>

**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Conditions	Compliance Status as on 31-03-2019																																								
	be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/GPCB.	<p><b>Air sampling locations &amp; frequency: 8 nos. (twice a week) &amp; Noise sampling locations &amp; frequency: 5 nos. (once in a month)</b></p> <table><tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit<sup>§</sup></th></tr><tr><td>PM<sub>10</sub></td><td>µg/m<sup>3</sup></td><td>96.3</td><td>42.7</td><td>100</td></tr><tr><td>PM<sub>2.5</sub></td><td>µg/m<sup>3</sup></td><td>58.3</td><td>18.4</td><td>60</td></tr><tr><td>SO<sub>2</sub></td><td>µg/m<sup>3</sup></td><td>28.5</td><td>6.3</td><td>80</td></tr><tr><td>NO<sub>2</sub></td><td>µg/m<sup>3</sup></td><td>45.4</td><td>14.2</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>74.2</td><td>49.3</td><td>75</td></tr><tr><td>Night Time</td><td>dB(A)</td><td>69.5</td><td>50.2</td><td>70</td></tr></table> <p><sup>§</sup> as per NAAQ standards, 2009 Values recorded confirms to the stipulated standards.</p> <p>Such environmental monitoring is being carried out on continuous basis at stipulated frequencies. The analysis results are being closely observed for incremental pollution load. From the above results and past data, it can be inferred that the emission levels are well within the prescribed standards. All the analysis data collected are submitted to the concerned authorities as part of the six monthly compliance reports. The data is also submitted to GPCB on monthly basis as part of the online submission – Monthly Patrak.</p> <p>Please refer <b>Annexure – 6</b> for detailed analysis reports and accreditation certificates. Approx. INR 20.36 Lakh is spent for all environmental monitoring activities during the FY 2018-19.</p> <p>Following safeguard measures are taken for abatement of dust and noise emissions.</p> <ul style="list-style-type: none"><li>• Regular sprinkling on road and other open area</li><li>• Regular cleaning of roads</li><li>• Development of greenbelt along the periphery of the storage yards/back up area</li><li>• D.G. Sets having Acoustic enclosures</li></ul>	Parameter	Unit	Max	Min	Perm. Limit <sup>§</sup>	PM <sub>10</sub>	µg/m <sup>3</sup>	96.3	42.7	100	PM <sub>2.5</sub>	µg/m <sup>3</sup>	58.3	18.4	60	SO <sub>2</sub>	µg/m <sup>3</sup>	28.5	6.3	80	NO <sub>2</sub>	µg/m <sup>3</sup>	45.4	14.2	80	Noise	Unit	Max	Min	Perm. Limit	Day Time	dB(A)	74.2	49.3	75	Night Time	dB(A)	69.5	50.2	70
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xii	Fly ash should be used as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27 <sup>th</sup>	<p>Complied.</p> <p>Part of fly ash generated from Adani Power Limited, Mundra is being utilized by Adani Group to manufacture paver blocks and the same paver blocks are used for development of back up area, footpath, colonies area, parking area, approach road etc.</p>																																								

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
	August, 2003. (The above condition is applicable only if the project site is located within 100 Kms of Thermal Power Stations).	APSEZ has utilized 1237 MT of fly ash to manufacture paver block during the period of Oct'18 to Mar'19. Details of methodology for manufacturing of paver blocks were submitted along with last half yearly EC compliance report for the period Apr'18 to Sep'18.  Fly ash based PPC cement is used for construction activity.
xiii	Ready mixed concrete must be used in building construction.	Complied.  Only RMC is used for construction activity.
xiv	Storm water control and its re-use should be regulated as per CGWB and BIS standards for various applications.	Complied.  Storm water drainage systems are provided. There are no perennial rivers and the possibility of storm water run-off is only during monsoon season. The area is receiving scanty rainfall and there is no continuous flow of water during monsoon. Therefore presently, the storm water drainage is designed to facilitate the area drainage meeting with the downstream part of water area.
xv	Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other referred best practices.	Complied.  Only RMC is used for construction activity.
xvi	Permission to draw ground water shall be obtained from the competent Authority prior to construction /operation of the project.	Complied.  No ground water is used during construction & operation stage of the project. Current sources of water are Narmada water through GWIL and desalination plant of APSEZ. Average water requirement is approx. 4.2 MLD during the compliance Period i.e. Oct'18 to Mar'19.
xvii	Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.	Not applicable  As per the master planning all types of waste water generated are transferred through common conveying system for providing desired treatment at CETP. Treated waste water is utilized for gardening purpose within the premises of APSEZ / individual industries.  It may be noted that condition number xvi to xxi are imposed on all member industries coming up within the SEZ areas (as part of the Lease Deed agreement). The same practice will continue in future also. As suggested by RO, Bhopal during

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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		the site visit, an environment monitoring committee is formed which will ensure strict compliance of the stipulated conditions by individual industries.
xviii	Fixtures for shower, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.	Complied.  Water flow reducers are installed at various locations within APSEZ. The water flow reducers consume approx. 66% less water compared to the normal tap. Water free urinals are also installed at Port User Buildings for water conservation. In phase wise manner, all the fixtures will be replaced with such water efficient devices.
xix	Use of glass may be reduced by up to 40% to reduce the electricity consumption and load on air-conditioning. If necessary, use high quality double glass with special reflective coating in windows.	Complied  Majority of the building envelopes are constructed with energy efficient building materials. While using glass, wherever required, it is ensured that only high quality glass with reflective coating is used.
xx	Roof should meet prescriptive requirements as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfill requirements.	Complied  Majority of the building envelopes (including roofs) are constructed with ECBC compliant building materials having appropriate thermal insulation.
xxi	Opaque wall should meet prescriptive requirement as per Energy Conservation Building Code which is proposed to be mandatory for all air-conditioned spaces while it is aspirational for non-air-conditioned spaces by use of appropriate thermal insulation material to fulfil these requirement.	Complied  Majority of the building envelopes (including walls) are constructed with ECBC compliant building materials having appropriate thermal insulation.
xxii	The approval of the competent authority shall be obtained for structural	Complied  Mundra falls in seismic zone V. All the building structures

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

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	safety of the buildings due to earthquake, adequacy of firefighting equipments, etc. as per National Building Code including protection measures from lightning etc.	constructed, if any, will meet the requirements of the applicable guidelines for safety. The same practice will continue in future also. However, being a developer no buildings are constructed by APSEZ.
xxiii	Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.	<p>Complied.</p> <p>SEZ industries were visited to check measures taken for Energy Conservation, Water Conservation, Waste and Hazardous waste management and phase out plan of Ozone depleting substance during the compliance period. Various industries shared the data in line with above reference. Details of the same were submitted along with last EC compliance report for the period Apr'18 to Sep'18.</p> <p>It may be noted that condition number xvi to xxi are imposed on all member industries coming up within the SEZ areas (as part of the Lease Deed agreement). The same practice will continue in future also. As suggested by RO, Bhopal during the site visit, an environment monitoring committee is formed and ensures strict compliance of the stipulated conditions by individual industries. Details of compliance verification of SEZ industries are attached as <b>Annexure – 8</b>.</p>
xxiv	Under the provisions of Environment (Protection) Act 1986, legal action shall be initiated against the project proponent if it is found that construction of the project has been started without obtaining environmental clearance.	<p>Point noted.</p> <p>Wherever applicable, construction activities have started only after obtaining environmental clearance.</p>
	<b>Operation Phase</b>	
i.	The PP while issuing the allotment letter to individual member units shall specifically mention the allowable maximum quantity of water usage and effluent generated by each member unit.	<p>Complied.</p> <p>Provisions are made while issuing the allotment letter to individual member units for specifically mentioning the allowable maximum quantity of water usage and effluent generated by each member unit. Sample copy of one of such letter was submitted along with compliance report submission for the period Oct'16 to Mar'17.</p>
ii.	The PP shall establish an	Complied.



**Status of the conditions stipulated in Environment and CRZ Clearance**

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>																											
	environmental monitoring cell with all the potential polluting units as members to review the environmental monitoring data and suggest improvements.	<p>APSEZ has a well structured Environment Management Cell, staffed with qualified manpower for reviewing the environmental monitoring data and suggest improvements. Environment Management Cell organogram is attached as <b>Annexure – 9</b>.</p> <p>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.</p> <p>Budget for environmental management measures (including horticulture) for the FY 2018-19 is to the tune of INR 1069 lakh. Out of which, Approx. INR 1008 lakh are spent during the FY 2018-19. Detailed breakup of the expenditures is attached as <b>Annexure – 10</b>.</p> <p>Please refer Point No. xxiii (General Condition: Construction Phase) for further details.</p>																											
iii.	Treated effluent emanating from STP shall be recycled / reused to the maximum extent possible. Treatment of 100% grey water by decentralized treatment should be done. Discharge of unused treated effluent shall conform to the norms and standards of the Pollution Control Board. Necessary measures should be made to mitigate the odour problem from STP.	<p>Complied.</p> <p>APSEZ has total installed capacity of 5.6 MLD for treatment of effluent / sewage generated at various locations. Details regarding the same are mentioned below. The treated sewage from these decentralized units meets the norms stipulated by GPCB and it is used for gardening purpose.</p> <table border="1"> <thead> <tr> <th><b>Location</b></th><th><b>Capacity</b></th><th><b>Technology</b></th></tr> </thead> <tbody> <tr> <td>CETP</td><td>2.5 MLD</td><td>Aerobic Digestion</td></tr> <tr> <td>Shantivan Colony STP</td><td>350 KLD</td><td>Aerobic Digestion</td></tr> <tr> <td>Shantivan Colony STP</td><td>250 KLD</td><td>Aerobic Digestion</td></tr> <tr> <td>Adani House STP</td><td>150 KLD</td><td>PVA Gel Technology</td></tr> <tr> <td>Samudra Township STP</td><td>2.0 MLD</td><td>MBR</td></tr> <tr> <td>Adani Hospital STP</td><td>30.0 KLD</td><td>Aerobic Digestion</td></tr> <tr> <td>Liquid Terminal ETP</td><td>265 KLD</td><td>Aerobic Digestion</td></tr> <tr> <td>West Port STP</td><td>55.0 KLD</td><td>FAB</td></tr> </tbody> </table> <p>CETP of 2.5 MLD capacity is also constructed in SEZ area (having a separate independent environmental clearance). Sewage generated from individual industry is treated by individual industry itself. However, some of the industries are giving their sewage to the CETP for treatment and final</p>	<b>Location</b>	<b>Capacity</b>	<b>Technology</b>	CETP	2.5 MLD	Aerobic Digestion	Shantivan Colony STP	350 KLD	Aerobic Digestion	Shantivan Colony STP	250 KLD	Aerobic Digestion	Adani House STP	150 KLD	PVA Gel Technology	Samudra Township STP	2.0 MLD	MBR	Adani Hospital STP	30.0 KLD	Aerobic Digestion	Liquid Terminal ETP	265 KLD	Aerobic Digestion	West Port STP	55.0 KLD	FAB
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**Status of the conditions stipulated in Environment and CRZ Clearance**

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		<p>disposal. List of CETP member units were submitted along with last compliance report submission Apr'17 to Sep'17. And there is no further change.</p> <p>The treated effluent from CETP confirms to the GPCB norms. Treated water is used for gardening / horticulture purpose within CETP premises and SEZ areas. Online monitoring system at the discharge point is provided to get the system alert in case of any deviation from discharge norms.</p> <p>Assessment of treated sewage is being carried out by NABL accredited and MoEF&amp;CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd. The summary of analysis results is mentioned below.</p> <p><b>Treated Water Analysis (Frequency Twice in a Month)</b></p> <table><tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit<sup>\$</sup></th></tr><tr><td>pH</td><td>--</td><td>8.14</td><td>6.89</td><td>6.5 – 8.5</td></tr><tr><td>TSS</td><td>mg/L</td><td>120</td><td>8</td><td>100</td></tr><tr><td>BOD (3 Days @ 27 °C)</td><td>mg/L</td><td>19</td><td>7</td><td>30</td></tr><tr><td>Residual Chlorine</td><td>ppm</td><td>0.8</td><td>0.1</td><td>Min 0.5</td></tr><tr><td>Fecal Coliform</td><td>MPN/100 ml</td><td>920</td><td>94</td><td>&lt; 1000</td></tr></table> <p><sup>\$</sup> as per CC&amp;A granted by GPCB</p> <p>Please refer <b>Annexure – 6</b> for detailed analysis reports. Approx. INR 20.36 Lakh is spent for all environmental monitoring activities during the period FY 2018-19.</p> <p>Greenbelt area developed around the treatment plants act as barrier for odour. In addition to this, regular supervision is done to ensure there is no odour problem from any of the treatment plants.</p>	Parameter	Unit	Max	Min	Perm. Limit <sup>\$</sup>	pH	--	8.14	6.89	6.5 – 8.5	TSS	mg/L	120	8	100	BOD (3 Days @ 27 °C)	mg/L	19	7	30	Residual Chlorine	ppm	0.8	0.1	Min 0.5	Fecal Coliform	MPN/100 ml	920	94	< 1000
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iv.	The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.	<p>Complied.</p> <p><b>Waste Management</b> – APSEZ has adopted 5R concept for environmentally sound management of different types of solid &amp; liquid wastes. Please refer below details about management of each type of waste.</p> <p><b>Municipal Solid Waste:</b> A well-established system for segregation of dry &amp; wet waste is in place. All wet waste (Organic waste) is being segregated &amp; 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</p>																														



**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Conditions	Compliance Status as on 31-03-2019									
		<p>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 plant (M/s. Sanghi Industries Ltd., Kutch and/or M/s. Ambuja Cement Ltd., Kodinar) for Co-processing as RDF (Refused Derived Fuel).</p> <p><b>Hazardous Waste:</b></p> <ul style="list-style-type: none"> <li>• E – Waste &amp; Used Batteries are being sold to GPCB registered recyclers namely M/s. e-Processing House.</li> <li>• Solid Hazardous Waste is being disposed through co-processing through common facility i.e. M/s. Saurashtra 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p>Details of permissions / agreements of hazardous waste authorized vendors were submitted along with last EC Compliance Report for the period Apr'18 to Sep'18.</p> <p>The following table summarizes the waste management practice (for Oct'18 to Mar'19) for different types of wastes at APSEZ:</p> <table> <thead> <tr> <th>Waste</th><th>Quantity in MT</th><th>Disposal method</th></tr> </thead> <tbody> <tr> <td colspan="3"><b>Hazardous Waste</b></td></tr> <tr> <td>Pig Waste</td><td>5.87</td><td>Co-processing at cement</td></tr> </tbody> </table>	Waste	Quantity in MT	Disposal method	<b>Hazardous Waste</b>			Pig Waste	5.87	Co-processing at cement
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	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

Sr. No.	Conditions	Compliance Status as on 31-03-2019		
		Tank Bottom Sludge	21.59	industries
		Oily Cotton waste	66.22	
		ETP Sludge	5.21	
		Used / Spent Oil	92.03	Sell to registered recycler
		Discarded Containers	8.72	
		Municipal Solid Waste		
		Recyclables	92.26	After recovery sent for recycling
		Refuse Derived Fuel	178.24	Co-processing at Cement Industries
		Wet Waste (food waste+ Organic waste)	188.44 (Manure) & 1938 Cum (Biogas)	Converted to Manure for Horticulture use / Biogas for cooking purpose
		Please refer Point No. xxiii (General Condition: Construction Phase) for further details.		
v.	Diesel power generating sets proposed as source of backup power for elevators and common area illumination during operational phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Low sulphur diesel should be used. The location of the DG sets may be decided in consultation with the Gujarat Pollution Control Board.	Complied.  DG sets are being used only as power back up source in case of power failure.  Please refer Point No. viii & ix (General Condition: Construction Phase) for further details.  Heights of stacks are maintained as needed for the combined capacity of all attached DG Sets. Locations of the DG sets are checked by GPCB officials during the site visits. Details of all DG set stack heights are mentioned below.		
		Location	Capacity (KVA)	Stack height (m)
		Sherkhariya gate	5	3
		Sherkhariya gate	5	3
		Airstip	140	4
		Airstip	125	4
		BAROI ROAD	5	3
		Airport road entry gate	5	3
		Addi salt	5	3
		Adani hospital	500	3.5
		GMB road	5	3
		East gate	30	4
		MITAP substation	62.5	4
		ROB	320	5
		Zharpara fishermen corridor	5	3
		Navinal fishermen corridor	5	3
		109 culvert	5	3
		Anupam Junction	5	3

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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>			
		West gate	30	3	
		MRSS	250	3	
		Agripark	125	3	
		Labour colony	100	3	
		WTP	380	4	
		Mundra guest house	15	3	
		Shantivan colony	750	3	
		Shantivan colony	250	3	
		Shantivan colony	5	3	
		STP plant shantivan	200	4	
		Adani public school	82.5	3	
		Wadhala farm house	30	3	
		Adani house	750	4	
		PUB Building	500	4	
		PMC stores	82.5	3	
		R&D yard	50	3	
		Near DG house (Adani house)	5	2.5	
		Near DG house (Adani house)	5	2.5	
		Near DG house (Adani house)	5	2.5	
vi.	Noise should be controlled to ensure that it does not exceed the prescribed standards, During night time the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.	<p>Complied.</p> <p>Noise monitoring is being carried out by NABL accredited and MoEF&amp;CC authorized agency namely M/s. Pollucon Laboratories Pvt. Ltd.</p> <p>Please refer Point No. xi (General Condition: Construction Phase) for further details.</p>			
vii.	Green belt of adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.	<p>Being complied.</p> <p>APSEZ has developed "Dept. of Horticulture" which is taking measures/ steps for terrestrial greening as well as mangrove plantation. Development of greenbelt at various locations within the SEZ is an ongoing activity.</p> <p>Please refer condition no. xix (Specific Condition) for further details.</p>			
viii.	Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period.	<p>Complied.</p> <p>Boundary walls are constructed in such a way by keeping weep holes for defined river path to facilitate free flow of water and it is ensured that water is not stagnant at any given point during rainy season.</p>			

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
ix.	Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented.	<p>Complied.</p> <p>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.</p> <p>During current year approx. 24 KL of rain water from storm water collected and utilized on land for gardening / plantation purpose. 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. Photograph showing the roof top rain water harvesting system is attached as <b>Annexure – 11</b>.</p> <p>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.</p> <ol style="list-style-type: none"> <li>1. Pond deepening activities at villages</li> <li>2. 18 check dams were constructed under the 'Sardar Patel Sahbhagi Jalsanchay Yojna'</li> </ol> <p>Total cost of these efforts was approx. INR 320 lakh.</p> <p>Under Sujlam Suflam project Adani Foundation has successfully completed pond deepening work in Mundra &amp; Abdasa Taluka in record time. 26 pond deepening in Mundra and 7 pond deepening in Abdasa accomplished with all parameters calculated. In Mundra taluka 51723 cum excavation work has been done which increase storage capacity of 51 ML. In Naliya taluka 14550 cum excavation work has been done which increase storage capacity of 15 ML. Total 66 ML storage capacity will be increased.</p> <p><b><u>Participatory Ground Water Management:</u></b></p> <p>Adani foundation has started participatory ground water management project. The objective of the project was to reduce the salinity ingress in and around the coastal regions of Mundra, Kutchh and mitigate the ill-effects of this manmade problem to improve the livelihoods of the rural people. The Project will help to get water table high, also it will help in agricultural activities.</p>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		<p>As a part of pre monsoon activities with ACT (Arid Communities and Technologies – NGO) under this program, we have carried out following work. But, due to negligible rainfall we are not able to find out outcome of this project.</p> <ul style="list-style-type: none"> <li>i. Borana – Artificial bore well recharge (work completed)</li> <li>ii. Mangara – Artificial bore well recharge (work completed)</li> <li>iii. Dhrub – Pond deepening work (work completed)</li> <li>iv. Mota Kapaya – abandoned bore well recharge (work completed)</li> </ul> <p>Please refer <b>Annexure – 12</b> for full details of CSR activities carried out by Adani Foundation in the Mundra region. Budget for CSR Activity for the FY 2018-19 is to the tune of INR 1697 lakh. Out of which, Approx. INR 1624 lakh are spent during the year 2018-19.</p> <p>It may be noted that the individual industrial units will also be encouraged for taking various initiatives for rainwater harvesting within their premises / in the villages around the SEZ area.</p>
x.	The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.	<p>Complied.</p> <p>Ground Water Monitoring is being carried out on regular basis in SEZ areas through NABL accredited and MoEF&amp;CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd.</p> <p>Please refer Point No. v (General Condition: Construction Phase) for further details.</p> <p>It may be noted that the analysis results of ground water quality are submitted to CGWB, West Central region, Ahmedabad. Details of the same were submitted along with last EC Compliance Report for the period Apr'18 to Sep'18.</p>
xi.	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.	<p>Complied.</p> <p>The entry and exit gates of SEZ and port are provided with ample parking area (210838 m<sup>2</sup>) near the gate. The entry / exit complex is fully equipped with traffic control equipments and round the clock security is provided for seamless support. No public space is utilized for parking of the vehicle. Details of the same were submitted along with last EC Compliance Report for the period Apr'18 to Sep'18.</p>
xii.	A report on the energy conservation measures	Complied

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	conforming to energy conservation norms finalized by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & D Factors etc. and submitted to the Ministry along with six monthly monitoring report.	<p>Energy audit of port user buildings (including the details about building materials and technology etc.) is carried out once in three years. Last energy audit was done during Oct-2016. Report of the same is submitted to Chief Electrical officer, Gandhinagar. The said report was submitted to MoEF&amp;CC, RO, Bhopal as part of the compliance report for the period Apr – Sept, 2017.</p> <p>Some of the recommendations of these reports have already been implemented as follows.</p> <ul style="list-style-type: none"> <li>• Saving in PAC by overhauling with repairing damage fall ceiling and window curtain</li> <li>• Saving with Improving Power Factor</li> <li>• APFC Panel has already been installed and average PF maintained during last 2 months comes to 0.987</li> <li>• The system voltage at load end is being maintained 230V and therefore there is no need to install AVC</li> </ul>
xiii.	Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be an integral part of the project design and should be in place before project commissioning. Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines / rules of the regulatory authority to avoid mercury contamination. Solar panels may be used to the extent possible.	<p>Complied</p> <p>Energy Conservation through Installation of Motion Sensor (Occu switch) &amp; AC Temp. controls in few of the buildings are provided.</p> <p>Measures for energy conservation are incorporated at design stage. Few of the buildings in MSTPL are designed as green building. Some features of the same are as below.</p> <ul style="list-style-type: none"> <li>• Used fly ash based cement and bricks</li> <li>• Special types of glasses were used which gives maximum sunlight and less heat</li> <li>• VOC free paint used certified by CII (Certificate of Indian Industries)</li> <li>• Water flow reducer installed in the entire building</li> </ul> <p>CFL / LED lighting are being used at various common areas of SEZ. Used CFL are collected and sent for recycling through authorized e-waste collection agency.</p> <p>APSEZ has installed &amp; commissioned 3.37 MW roof top solar plants within APSEZ and Township premises. APSEZ has also installed and commissioned 12 MW wind mill and whatever electricity generated is being supplied to grid.</p> <p>Photographs showing the same are attached as <b>Annexure – 13.</b></p>



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		It may be noted that the individual industrial units will also be encouraged for taking various initiatives with respect to energy conservation (such as energy audit, installation of renewable energy sources, utilization of energy efficient fixtures etc.).
xiv.	Adequate measures should be taken to prevent odour problems from solid waste processing plant and STP.	Complied  5R principals are adopted for sustainable waste management at APSEZ. Utmost care is being taken during the waste management and sewage /effluent treatment to ensure that there is no odour generation. Proper secondary treatment and disinfection is provided to the domestic sewage and treated sewage and then it is utilized for horticulture purpose. These measures ensure that odor problem is not created in the surrounding area. Furthermore, greenbelt on the periphery of the treatment plant as well as waste management sites help to prevent odour problems.
xv.	The buildings should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.	Complied.  Presently, all the buildings have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation. The same practice will be continued in future also.  It may be noted that the individual industrial units will also be encouraged for consideration of these design parameters.
xvi.	The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.	Complied.  Compliance report of all the environmental safeguards contained in the EIA report is attached as <b>Annexure – 5</b> .
xvii.	Adequate drinking water facility be provided.	Complied.  Drinking water facility at approx. 200 locations within APSEZ area is provided.
xviii.	Incremental pollution loads on the ambient air quality, noise and water quality should be periodically monitored after commissioning of the project.	Complied.  Environment Monitoring (air, noise, water, soil) is being carried out on regular basis in Port & SEZ areas through NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratories Pvt. Ltd.  Please refer following condition nos. for further details. • v, viii & xi of General Conditions – Construction Phase

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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
		<ul style="list-style-type: none"> <li>• iii of General Conditions – Operation Phase</li> </ul>
xix.	Application of solar energy should be incorporated for illumination of common areas, lighting for gardens and street lighting in addition to provision for solar water heating. A hybrid system or fully solar system for portion of the apartments should be provided.	<p>Complied.</p> <p>APSEZ has installed &amp; commissioned 3.37 MW roof top solar plants within APSEZ and Township premises. APSEZ has also installed and commissioned 12 MW wind mill and electricity generated from it is being supplied to grid.</p> <p>Please refer condition no. xiii of the General Conditions – Operation Phase for further details.</p>
xx.	Ozone depleting substance (Regulation & Control) Rules should be followed while designing the air conditioning system of the project.	<p>Complied.</p> <p>APSEZ is not procuring air conditioning systems which use ozone depleting gases. All the HVAC systems are with Ozone friendly gases within APSEZ. All new air conditioning systems installed, if any, will be designed in line with Ozone depleting substance (Regulation &amp; Control) Rules.</p> <p>It may be noted that the individual industrial units will also be encouraged to follow Ozone depleting substance (Regulation &amp; Control) Rules while designing the air conditioning system of the project. The same will be implemented by individual unit as per project suitability.</p>
12	Officials from the Regional Office of MOEF, Bhopal who would be monitoring the implementation of environmental safeguards should be given full cooperation, facilities and documents / data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF should be forwarded to the CCF, Regional Office of MOEF, Bhopal.	<p>Complied.</p> <p>Full support is always extended to officers of regulatory authorities (including MoEF&amp;CC and GPCB) visiting the project site. The documents as per their requirements are provided to them.</p> <p>The communication documents like application Form – 1, ToR received from MoEF&amp;CC, Final EIA report, Public Hearing proceedings and recommendations of GCZMA are submitted to MoEF&amp;CC, RO, Bhopal for necessary records.</p>

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13	In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.	Point noted and agreed.
14	The Ministry reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provision of the Environmental (Protection) Act, 1986, to ensure effective implementation of the safeguard measures in a time bound and satisfactory manner.	Point noted and agreed.
15	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponent from the respective competent authorities.	Not Applicable at present.  The mentioned approvals are not applicable to APSEZ since we are the infrastructure support provider. However, the applicable approvals will be availed by the individual member industries prior to construction of work. The environment management committee will ensure strict adherence to the condition by the individual industries.
16	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) act	Point noted and agreed.

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	1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.	
17	The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Clearance and copies of clearance letters are available with the Gujarat Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.	Complied  APSEZ has advertised Environmental and CRZ Clearance in two local newspapers "The Indian Express" (in English language) and "Kutch Mitra" (in vernacular language) on 24.07.14 (within 10 days from the date of receipt of the clearance letter) and copy of the same was submitted vide letter dated 05.08.2014 to Ministry of Environment, Forests & Climate Change, Bhopal.
18	Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this project.	Point noted and agreed.
19	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred,	Point noted and agreed.

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	within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.																						
20	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	<p>Complied</p> <p>Copy of clearance letter was sent to concerned Panchayats, Zilla Parishad, Urban Local Body, Local NGOs and from whom suggestion/representation received. Details regarding the same were submitted to the MoEF &amp; CC along with half yearly compliance report for the period from Apr – 2014 to Sep – 2014.</p> <p>Clearance letter is also put up on the website of the Adani ports <a href="https://www.adaniports.com/ports-downloads">https://www.adaniports.com/ports-downloads</a></p>																					
21	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	<p>Complied.</p> <p>Compliance report of EC conditions is uploaded regularly. Last compliance report including results of monitoring data for the period of Apr'18 to Sep'18 was submitted to Regional Office of MoEF&amp;CC @ Bhopal, Zonal Office of CPCB @ Baroda, GPCB @ Gandhinagar &amp; Gandhidham and Dept. of Forests &amp; Env., Gandhinagar vide our letter dated 23.11.2018. Copy of the same is also available on our web site <a href="https://www.adaniports.com/ports-downloads">https://www.adaniports.com/ports-downloads</a>. A soft copy of the same was also submitted through e-mail on 30.11.2018 to all the authorities. Please refer below for the details regarding past six compliance submissions.</p>																					
22	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of	<table border="1"> <thead> <tr> <th><b>Sr. no.</b></th><th><b>Compliance period</b></th><th><b>Date of submission</b></th></tr> </thead> <tbody> <tr> <td></td><td>Oct'15 to Mar'16</td><td>30.05.2016</td></tr> <tr> <td>2</td><td>Apr'16 to Sep'16</td><td>01.12.2016</td></tr> <tr> <td>3</td><td>Oct'16 to Mar'17</td><td>30.05.2017</td></tr> <tr> <td>4</td><td>Apr'17 to Sep'17</td><td>01.12.2017</td></tr> <tr> <td>5</td><td>Oct'17 to Mar'18</td><td>01.05.2018</td></tr> <tr> <td>6</td><td>Apr'18 to Sep'18</td><td>30.11.2018</td></tr> </tbody> </table>	<b>Sr. no.</b>	<b>Compliance period</b>	<b>Date of submission</b>		Oct'15 to Mar'16	30.05.2016	2	Apr'16 to Sep'16	01.12.2016	3	Oct'16 to Mar'17	30.05.2017	4	Apr'17 to Sep'17	01.12.2017	5	Oct'17 to Mar'18	01.05.2018	6	Apr'18 to Sep'18	30.11.2018
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<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance Status as on 31-03-2019</b>
	CPCB and the SPCB.	
23	The environmental statement for each financial year ending 31 <sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environmental (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	<p>Complied.</p> <p>Environmental statement for each financial year is submitted to GPCB. The same for the FY ending 31.03.2018 in Form-V is submitted to GPCB vide our letter dated 10<sup>th</sup> May, 2018. Details of the same were submitted with last EC Compliance report for the period Apr'18 to Sep'18. Copy of the same is also available on our web site <a href="https://www.adaniports.com/ports-downloads">https://www.adaniports.com/ports-downloads</a>. A soft copy of the same was also submitted through e-mail to all the authorities vide e-mail dated 30.11.2018.</p>





**Adani Ports and Special Economic  
Zone Limited, Mundra.**

**From : Oct'18  
To : Mar'19**

**Status of the conditions stipulated in Environment and CRZ Clearance**

# **ANNEXURE A**

## **Compliance Report of CRZ Recommendation**

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
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**Note:**

With respect to the project components attracting CRZ recommendation from GCZMA, following points shall be noted:

- GCZMA has recommended the CRZ proposal for Sea Water Intake, Outfall system and Pipeline.
- Construction with respect to Desalination Plant, sea water intake and outfall system has not been started yet.
- Existing units are having requisite environmental permissions (from state or central body, as the case may be) for discharging their wastewater, if any, to the Common Effluent Treatment Plant of MPSEZ Utilities Pvt. Ltd. having 2.5 MLD capacity (having a separate individual environmental clearance).
- Treated waste water is being utilized within the premises of CETP and / or SEZ for the gardening / horticulture activities.
- As soon as the need for discharging the effluent / reject from the desalination plant into sea will arise, construction work for the intake and outfall will be started.

In view of the above mentioned facts, the compliance to the conditions stipulated in the CRZ recommendation will be submitted to all the competent authorities when the construction and operation activities are initiated for the project components attracting CRZ recommendation.

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## **Annexure – B**

# **Compliance Status of MoEF & CC Order dated 18.09.2015**

Based on the report submitted by Sunita Narain committee, MoEF&CC issued a Show Cause Notice (SCN) to APSEZ vide their letter dated 30.09.2013. APSEZ replied to the SCN vide letter dated 14.10.2013. Further, an order (containing 10 directions) was issued by MoEF&CC vide their letter dated 18.09.2015. Compliance to these 10 directions is mentioned below.

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i	The proposal of extension of the validity of environmental clearance granted to the North Port vide letter dated 12.01.2009 will be considered separately at later stage.	Point Noted and agreed.  After receipt of this order, so far APSEZ has not done any application to MoEF&CC for the proposed North port.
ii	Bocha island, ecologically sensitive geomorphological features and areas in the island and creeks around the island will be declared as conservation zone action plan for its conservation must be prepared. M/s. APSEZ should provide necessary financial assistance for this purpose.	Complied  This reply covers condition no ii, iv and v.  Based on the MoEF&CC directions and finalization of ToR with GCZMA, APSEZ has entrusted NCSCM to carry out the detailed study. Scope of the study include the following:
iv	A comprehensive and integrated study and protection of creeks/ mangrove area including buffer zone, mapping of co-ordinates, running length, HTL, CRZ boundary, will be put in place. The plan will take note of all the conditions of approvals granted to all the project proponents in this area e.g. the reported case of disappearance of mangroves near navinal creek. The preservation of entire area to maintain the fragile ecological condition will be a part of the plan in relation to the creeks, mangrove conservation and conservation of bocha island up to baradimata and others.	<ul style="list-style-type: none"> <li>• Detail bathymetry and topography survey of creeks</li> <li>• Demarcation of mangrove areas and buffer zone</li> <li>• Demarcation of HTL and CRZ areas with co-ordinates</li> <li>• Preparation of a comprehensive and integrated conservation plan for protection of creeks and mangroves</li> </ul> <p>Cost of the study as per the NCSCM proposal is 315.5 Lakh. 90% of the payment against the proposal value is already paid to NCSCM.</p> <p>In order to complete the study, NCSCM has carried out number of site surveys which are mentioned below:</p>
v	NCSCM will prepare the plan in consultation with NIOT, PP and GCZMA. In recognition of the fact that the existing legal provisions under the E(P) Act 1986 do not provide for any authority to impose ERF by the government, the plan will be financed by the PP. the implementation will be carried out by GCZMA. The monitoring of the implementation will be carried by NCSCM.	<ul style="list-style-type: none"> <li>• Bathymetry survey of creeks</li> <li>• Topography survey of intertidal areas</li> <li>• Mangrove survey (health and area demarcation)</li> <li>• Sampling of soil and water for analysis of physico-chemical and biological parameters</li> <li>• Tide and currents data collection (including residence time of tidal water)</li> <li>• Focus Group Discussions with the community in the close vicinity of the project area</li> </ul>

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		<p>In addition to the site surveys, NCSCM has procured satellite images for analysis of mangrove cover.</p> <p>The data collected (through site surveys and analysis of satellite maps) was used as input for mathematical modelling. The modelling studies were carried out to understand the impacts of the development activities. Based on the outcome of the modelling studies the necessary conservation plan for protection of creeks and mangrove areas is prepared.</p> <p>Based on the final study report, outcome is summarized in to following points :</p> <ul style="list-style-type: none"> <li>• There is no obstruction to any water stream (creeks / branches of creeks / rivers)</li> <li>• Presently, mangrove cover in and around APSEZ is over 2340 ha. There is substantial growth in mangrove cover to the tune of 246 ha (comparison between 2011 and 2016-17)</li> <li>• Mundra has undergone substantial development during this tenure. Hence it can be interpreted that the infrastructure development has not left any adverse impacts on ecology.</li> </ul> <p>Now as directed, the study report is submitted to GCZMA (with a copy to MoEF&amp;CC vide letter dated 04.06.2018) for their consideration and recommendation if any. Further request letter for necessary hearing has been submitted to GCZMA vide letter dated 4<sup>th</sup> Jan 2019. The approved action plan will be implemented by APSEZ under supervision of NCSCM. Compliance status of the implementation plan will be submitted to GCZMA on regular basis.</p> <p>For demarcation of HTL and CRZ areas, NCSCM has prepared the draft CZMP maps (based on the MoEF&amp;CC directions). The draft maps will be finalized by GCZMA and submitted to MoEF&amp;CC for final acceptance. Once the maps</p>

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		are finalized, NCSCM will issue the final maps for the project area of APSEZ. The said maps will then be submitted to GCZMA and MoEF&CC by APSEZ.
iii	The violations of specific condition of all the ECs and CRZ clearances, if any, will be examined and proceeded with the provisions of EP Act, 1986 independently.	<p>Complied</p> <p>Regional Officer, MoEF&amp;CC, Bhopal visited APSEZ on 21-22 December'16 for monitoring the implementation of environmental safeguards. Last visit of APSEZ was done by Dr. HVC Chery Guntupally – Scientist, MoEF&amp;CC Bhopal on 3<sup>rd</sup> May, 2018 for compliance verification. APSEZ provided all requisite information and documents required by the Regional Officer. During the said compliance verification visit, there was no major non-compliance observed.</p> <p>It may also be noted that GPCB, Regional Office does regular site visit for various components. During the compliance period, one such site visit was carried out on 20.11.2018. During this visit as well, no major non-compliance was observed.</p>
vi	There will be no development in the area restricted by the High court of Gujarat. APSEZ shall abide by the outcome of the PIL 12 of 2011 and other relevant cases.	<p>Complied</p> <p>Subject PIL has been disposed off by Hon'ble High Court vide their order dated 17.04.2015 and now there is no restriction on development in the subject area. The order reads as <i>"In view of the aforesaid discussion, we do not find any merit in this writ petition. This writ petition fails and is accordingly dismissed. No order as to cost."</i> Copy of the order was submitted along with last EC Compliance report for the period Apr'18 to Sep'18.</p> <p>Considering the above status and in line to submission of compliance of all the directions under this order, this condition is closed.</p>
vii	APSEZ will submit specific action plan to protect the livelihood of fishermen along with budget.	<p>Complied.</p> <p>Adani Foundation (AF) is the CSR arm of the Adani Group actively working for upliftment of</p>



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		<p>the communities in the surroundings of various project sites of Adani Group. AF has prepared a specific action plan to protect livelihood of fishermen at Mundra.</p> <p>Various initiatives taken by Adani Foundation for protection of livelihood of the fisher folk community was submitted during compliance report submission for the period Oct'16 to Mar'17.</p> <p>APSEZ is carrying out various initiatives specific to the Fisherfolk community which includes:</p> <ul style="list-style-type: none"> <li>• Vidya Deep Yojana</li> <li>• Vidya Sahay Yojana – Scholarship Support</li> <li>• Adani Vidya Mandir</li> <li>• Fisherman Approach in SEZ</li> <li>• Machhimar Arogya Yojana</li> <li>• Machhimar Kaushalya Vardhan Yojana</li> <li>• Machhimar Sadhan Sahay Yojana</li> <li>• Machhimar Awas Yojana</li> <li>• Machhimar Shudhh Jal Yojana</li> <li>• Sughad Yojana</li> <li>• Machhimar Akshay kiran Yojana</li> <li>• Machhimar Suraksha Yojana</li> <li>• Machhimar Ajivika Uparjan Yojana</li> <li>• Bandar Svachhata Yojana</li> </ul> <p>These initiatives are discussed in detail in the report namely “Silent Transformation of Fisher folk at Mundra”. Said report also includes the information related to the planned expenses to the tune of approx. 13.5 Cr. INR for various initiatives for the next five years (2016 – 2021). Copy of the same is already submitted to MoEF&amp;CC vide our letter dated 10.09.2016. Further, details regarding the expenditure incurred against the commitment are attached as <b>Annexure – 14</b>.</p> <p>Further, 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. Brief</p>

**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Condition	Compliance Status																																					
		<p>information about activities in the main five persuasions is mentioned below. Please refer <b>Annexure – 12</b> for full details of CSR activities carried out by Adani Foundation in the Mundra region.</p> <table><tr><th>Area</th><th>Activity</th></tr><tr><td>Community Health</td><td><ul style="list-style-type: none"><li>The Adani Foundation runs two mobile health care units. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Two mobile health care units cover 34 villages and 05 fishermen settlements. Around 109 types of general and lifesaving medicines are available in these units. Total patient was treated under this scheme during the year 2018-19: <b>19092 Nos. &amp; 22256 Nos. through Rural Clinic</b></li><li>During the year 2018-19, total <b>10161 transactions</b> were done by <b>8599 card holders of 66 villages</b> of Mundra Taluka and they received cash less medical services under this project. The limit for the beneficiary was set to 30000/- within a period of 3 years.</li><li>Total <b>10161 OPDs</b> were given medical treatment in various villages through rural dispensaries.</li><li>During this year, anthropometry study done for <b>6548</b> children. under <b>“Suposhan”</b> Project. Additionally, <b>965</b> FGD were conducted during this year.</li><li>During the year 2018-19, <b>Specialty camps</b> were organized and <b>4384</b> Patients were benefitted.</li></ul><table><tr><th>Project Details</th><th>Beneficiaries (Nos.)</th><th>Remarks</th></tr><tr><td>Mobile Van</td><td>19092</td><td>OPD Numbers</td></tr><tr><td>Rural Clinic</td><td>22256</td><td>OPD Numbers</td></tr><tr><td>Senior Citizen</td><td>10161</td><td>Transactions</td></tr><tr><td>Medical Camps</td><td>4384</td><td>Patients</td></tr><tr><td>Awareness Sessions</td><td>987</td><td>Participants</td></tr><tr><td>Needy Patients Support</td><td>1022</td><td>OPD/IPD</td></tr><tr><td>Shakti Raksha Project</td><td>624</td><td>Breast n cervix Cancer</td></tr><tr><td>Dialysis</td><td>5</td><td>Patients (2 times a week)</td></tr><tr><td>Suposhan</td><td>17025</td><td>Mundra and Bitta</td></tr></table></td></tr><tr><td></td><td>Sustainable Livelihood – Fisher folk</td><td><ul style="list-style-type: none"><li>Average <b>118</b> KL of water was supplied to <b>983</b> households from different settlements on a daily basis under Machhimar Shudhh Jal Yojana.</li></ul></td></tr></table>	Area	Activity	Community Health	<ul style="list-style-type: none"><li>The Adani Foundation runs two mobile health care units. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Two mobile health care units cover 34 villages and 05 fishermen settlements. Around 109 types of general and lifesaving medicines are available in these units. Total patient was treated under this scheme during the year 2018-19: <b>19092 Nos. &amp; 22256 Nos. through Rural Clinic</b></li><li>During the year 2018-19, total <b>10161 transactions</b> were done by <b>8599 card holders of 66 villages</b> of Mundra Taluka and they received cash less medical services under this project. The limit for the beneficiary was set to 30000/- within a period of 3 years.</li><li>Total <b>10161 OPDs</b> were given medical treatment in various villages through rural dispensaries.</li><li>During this year, anthropometry study done for <b>6548</b> children. under <b>“Suposhan”</b> Project. Additionally, <b>965</b> FGD were conducted during this year.</li><li>During the year 2018-19, <b>Specialty camps</b> were organized and <b>4384</b> Patients were benefitted.</li></ul> <table><tr><th>Project Details</th><th>Beneficiaries (Nos.)</th><th>Remarks</th></tr><tr><td>Mobile Van</td><td>19092</td><td>OPD Numbers</td></tr><tr><td>Rural Clinic</td><td>22256</td><td>OPD Numbers</td></tr><tr><td>Senior Citizen</td><td>10161</td><td>Transactions</td></tr><tr><td>Medical Camps</td><td>4384</td><td>Patients</td></tr><tr><td>Awareness Sessions</td><td>987</td><td>Participants</td></tr><tr><td>Needy Patients Support</td><td>1022</td><td>OPD/IPD</td></tr><tr><td>Shakti Raksha Project</td><td>624</td><td>Breast n cervix Cancer</td></tr><tr><td>Dialysis</td><td>5</td><td>Patients (2 times a week)</td></tr><tr><td>Suposhan</td><td>17025</td><td>Mundra and Bitta</td></tr></table>	Project Details	Beneficiaries (Nos.)	Remarks	Mobile Van	19092	OPD Numbers	Rural Clinic	22256	OPD Numbers	Senior Citizen	10161	Transactions	Medical Camps	4384	Patients	Awareness Sessions	987	Participants	Needy Patients Support	1022	OPD/IPD	Shakti Raksha Project	624	Breast n cervix Cancer	Dialysis	5	Patients (2 times a week)	Suposhan	17025	Mundra and Bitta		Sustainable Livelihood – Fisher folk	<ul style="list-style-type: none"><li>Average <b>118</b> KL of water was supplied to <b>983</b> households from different settlements on a daily basis under Machhimar Shudhh Jal Yojana.</li></ul>
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**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Condition	Compliance Status
		<ul style="list-style-type: none"> <li>Adani Foundation constructed four Balwadis for kids between the age group of 2.5 years to 5 years at different settlements under Vidya Deep Yojana.</li> <li>Participatory scholarship support for fisherman children studying in SMJ high school Luni and to above 12th standards Students. 80 percentage support given by Adani foundation and 20 percentage support by parents!</li> <li>RTG Crane Operator: <b>03 Fisherman Youth</b></li> <li>Dori Work &amp; Mud Work Training: <b>65 Women</b></li> <li>Mangrove Plantation, moss cleaning, etc.: <b>6261 Man-days.</b></li> <li>In addition to this, employment worth of <b>35787 man-days</b> has been provided till date. The Foundation has also supported Pagadiya fishermen as painting labours by providing them with employment and job in various fields.</li> <li>Total average <b>560 fishermen</b> were benefitted by Mobile Dispensary during last half year. Adani Foundation has extended financial assistance to more than <b>114 financially challenged patients</b> from the Fisher Folk Community in case of medical urgency during this year.</li> <li>The project for the senior citizens is popularly known as Vadi Swasthya Yojana and till date <b>350 senior citizens</b> from fisher folk community are enrolled in the scheme.</li> </ul> <p><b><u>Fisherman Amenities work</u></b></p> <ul style="list-style-type: none"> <li>391 Students : Education Support</li> <li>134 Stunners : Adani Vidya Mandir</li> <li>16 Fisherman : Alternate livelihood</li> <li>78 Fisherwomen : Linkages for schemes</li> <li>1312 Fisherman : Community Engagement</li> <li>1086 Fisherman : Potable water provision</li> <li>6261 Mandays : Mangroves Plantation</li> <li>231 Fisherman : Capacity Building</li> </ul> <p>Education</p> <ul style="list-style-type: none"> <li>Adani foundation adopted <b>17 government school</b> located at Mundra Taluka under the project '<b>UTTHAN</b>' a drive of quality education.</li> <li>To motivate children for schooling by providing the welcome kit / education kit and to create conducive children for “joyful learning” Environment for children for Learning during shala Praveshotsav Govt. has wide spread network of 111 Govt. primary schools in total <b>62 villages of Mundra Taluka, 3 villages of in Anjar taluka, YMC school, AVMB and two villages of Mandvi Taluka (118 Schools)</b> every year on an average <b>2550 to 2700</b> children gets enrolled in 1st std in Taluka</li> </ul>

**Status of the conditions stipulated in Environment and CRZ Clearance**

Sr. No.	Condition	Compliance Status
		<p><b>For 2018-2019 total 2300 children</b> got enrolled &amp; Adani foundation provided the "Enrollment kit" to all new enrollee in Taluka</p> <ul style="list-style-type: none"> <li>• Total <b>3270 educational institutes</b> has visited Adani Port, Adani Power &amp; Adani Wilmar and <b>236032 beneficiaries</b> of the project till date and <b>33932 beneficiaries</b> during current year.</li> <li>• Along with quality education, the school also focuses on providing nutritious food, uniforms and other services to the children for free. Currently, <b>387 students</b>, from Std. 1 to Std. 10 are studying in the Adani Vidya Mandir. Out of these <b>134 children</b> come from the fisher folk community.</li> </ul> <p><b>Beneficiaries Details</b></p> <ul style="list-style-type: none"> <li>✚ 2598 Students : 17 Schools Utthan</li> <li>✚ 2300 Enrollment Kit : 118 Schools</li> <li>✚ 704 Students : Dignity of Workforce</li> <li>✚ 345 Mothers : Mother's meet</li> <li>✚ 5542 Students : 116 Institute Udaan</li> <li>✚ 387 Students : Adani Vidya Mandir</li> <li>✚ 206 Teachers : Guruvandana- I,II,III,IV</li> </ul>
	Rural Infrastructure	<ul style="list-style-type: none"> <li>• Under Dignity of Drivers Project, Adani Foundation has constructed Resting Shed for Drivers entering in SEZ Premises. Total <b>50 beds</b> are constructed, drinking water and sanitation plus recreational – TV Facilities.</li> <li>• Adani Foundation has constructed <b>45 Toilet block</b> and proper bathing place for labours.</li> <li>• <b>Work Completed</b> <ul style="list-style-type: none"> <li>✚ Road repairing various vasahat</li> <li>✚ Open shed at Juna Bandar</li> <li>✚ Sand Filling plot at JUNA BANDAR</li> <li>✚ Concrete Step ladder at Juna Bandar</li> <li>✚ House construction at Shekhadia</li> <li>✚ Two approach road 5000 meter Zarpara Fishermen and 5000 meter Luni Pagadiya</li> <li>✚ Drinking water storage tank 5000 ltr capacity bavdi Bandar -2, Juna Bandar -2, Kutdi Bandar -1</li> <li>✚ water pipe line installation at Wandi village 2000meter.</li> <li>✚ Basic amenities at Rampar Village Paver block 6000 LTR Storage tank and Boundary wall at community place.</li> <li>✚ Additional civil work in community hall</li> <li>✚ Open shed Gundiyaali</li> <li>✚ Boundary wall in common place at Tragadi.</li> </ul> </li> </ul>
	Skill Development	<ul style="list-style-type: none"> <li>• Soft skill training – 362 Nos.</li> <li>• Technical Training – 1457 Nos.</li> </ul>
Budget for CSR Activity for the FY 2018-19 is		

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Condition</b>	<b>Compliance Status</b>
		to the tune of INR 1697 lakh. Out of which, Approx. INR 1624 lakh are spent during the year.
viii	APSEZ will voluntarily return the grazing land, if any, in their possession.	Point noted.  All lands are acquired through proper procedure prescribed by State Government. However APSEZ has voluntarily given 400 acres of land back to Zarpara village for the purpose of Gauchar.
ix	A regional strategic impact assessment report with a special focus on Mundra region will also be prepared. The cost towards these studies will also be borne by PP.	Complied  This reply covers direction no ix and x.
x.	In the subject matter of thermal power plant, the proposed regional strategic Impact assessment analysis will take In to account salinity aspect along with Its potential environmental Impact to suggest future corrective actions as well as the guiding tool on extension and addition of the capacities.	Based on the ToR finalized by GCZMA (as per the instructions of MoEF&CC) for carrying out regional impact assessment study, APSEZ awarded the work to NABET accredited consultant M/s. Choramandalam MS Risk Services Ltd. to carry out the studies as stated in these directions. Total cost of the study is approx. INR 1.3 cr. which is financed by APSEZ.  The stated study was carried out in following 3 phases <ul style="list-style-type: none"> <li>• Baseline data collection and review of the past EIA reports and clearances issued to APSEZ.</li> <li>• Mathematical modelling and other technical studies for identification of potential impacts (for the year 2030) of the approved and existing project activities.</li> <li>• Development of macro level EMP for the phase wise implementation of actionable points.</li> </ul> As part of the study, following modelling exercises / technical studies have been carried out to study the impacts on all environmental attributes: <ul style="list-style-type: none"> <li>• Ambient air quality</li> <li>• Marine (Hydrodynamic, Thermal &amp; Salinity dispersion, Sediment transport)</li> <li>• Noise level</li> </ul>

	<b>Adani Ports and Special Economic Zone Limited, Mundra.</b>	<b>From : Oct'18 To : Mar'19</b>
<b>Status of the conditions stipulated in Environment and CRZ Clearance</b>		

<b>Sr. No.</b>	<b>Condition</b>	<b>Compliance Status</b>
		<ul style="list-style-type: none"> <li>• Traffic assessment</li> <li>• Oil spill contingency plan</li> <li>• Water resource and salinity ingress</li> <li>• Land Use / Land Cover</li> <li>• Socioeconomic, Regional infrastructure</li> <li>• Waste management</li> <li>• Ecology, Bio diversity and Fisheries</li> <li>• Shoreline change assessment</li> </ul> <p>Preparation of these reports require extensive use of modeling software and study of the available information / research reports to assess the impacts on individual attribute of environment. Based on the modeling outcomes and findings of the technical studies, a macro level environment management plan is prepared.</p> <p>The study is recently concluded and the final report is submitted to GCZMA and MoEF&amp;CC for their consideration vide our letter dated 30.04.2018. Further request letter for necessary hearing has been submitted to GCZMA vide letter dated 4<sup>th</sup> Jan 2019. Details of the same were submitted along with last half yearly EC Compliance report for the period Apr'18 to Sep'18. The recommendations mentioned in the EMP which are applicable to APSEZ will be implemented in phase wise manner as per the progress of development.</p>



# **ANNEXURE – 1**



*Dr. N.S. Raman*

Deputy Director & Head  
Environmental Audit

राष्ट्रीय  
पर्यावरण  
अभियांत्रिकी  
अनुसंधान  
संस्थान  
नेहरू मार्ग  
नागपुर 440020  
भारत

National  
Environmental  
Engineering  
Research  
Institute  
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59nsraman@gmail.com

EAC/Max/2019/003  
March 19, 2019

**Head-Environment,**

M/s. Adani Ports and Special Economic Zone Limited,  
Adani House, P.O. Box No. 1,  
Mundra, Kutch – 370421.

**Sub: Status of SEZ Environment Clearance Compliances**

**Ref:**

1. SEZ Environment Clearance bearing MoEF letter No.10-138/2008-I A.III, dated 15<sup>th</sup> July, 2014 (Specific condition No.vii)
2. SO No.4800027105, dated: 02.08.2017

With reference to above stated subject and references, work has been awarded to us for studies through environment clearance compliance audit at Multi Product SEZ of M/s. Adani Ports & SEZ Limited, Mundra with reference to EC Condition No. (vii).

Accordingly, the study undertaken during the period October-2018 to March-2019 concluded that all the conditions stipulated in environment clearance has been complied and there is no violation of any condition.

The compliance report (April - September, 2018) was reviewed by us and found adequate. It was further assessed from the monitoring reports submitted to us as part of the compliance report that all the environmental norms meet the applicable standards. The existing practices shall be continued in future as well to ensure meeting with the applicable norms.

Regards,

Yours faithfully

*NSR* 19/3/19  
(Dr. N.S. Raman)

# **ANNEXURE – 2**



## GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector-10-A, Gandhinagar 382 010

Phone : (079) 23222425

(079) 23232152

Fax : (079) 23232156

Website : www.gpcb.gov.in

By R.P.A.D.

### AMENDMENT TO CONSOLIDATED CONSENT AND AUTHORIZATION (CC&A)

No. PC/CCA-KUTCH-1044(2)/GPCB ID 31463/

Date:

To,  
Adani Port and Special Economic Zone Limited,  
Notified SEZ area, Mundra,  
Tal.:Mundra,  
Dist.: Kutch

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

**Reference** :

1. CCA of the Board issued to your unit vide order No.AWH-88998 dated 26/10/2017 vide letter no: PC/ CCA- KUTCH- 1044/GPCB ID: 31463/428772 Date:23/11/2017
2. Your CCA Amendment Application Inward ID No.144293, dated 03/10/2018.

Sir,

In exercise of the power conferred under section-27 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution)-1981 and Authorization under rule 6(2) of the Hazardous & Other Waste (Management & Transboundary Movement) Rules-2016 & as amended framed under the Environmental (Protection) Act-1986 and without reducing your responsibility under the said Acts/Rules in anyway; this Board is empowered to amend consent order conditions. Accordingly, the Consolidated Consent and Authorisation (CC&A) issued vide letter no. Consent order no. No. AWH-88998 dated 26/10/2017 vide letter no: PC/ CCA- KUTCH- 1044/GPCB ID: 31463/428772 Date:23/11/2017 Which is valid up to 21/08/2022 under reference (1) stands amended in respect of the following conditions;

1. **Consent Order No.: AWH-97361 Date of Issue: 27/11/2018.**
2. The consent order shall be valid up to **21/08/2022** for Additional common infrastructure facilities like agro product storage Godowns ,Administration building including, port user Building ,water supply conversion and drainage network ,Air Strip and Social infrastructure etc
3. There shall be no change in water consumption and waste water generation, and Air Emission and Hazardous waste quantity due to proposed expansion.

**Clean Gujarat Green Gujarat**

ISO-9001-2008 & ISO-14001 - 2004 Certified OrganisationPage 1 of 2

Outward No.:480505, 31/12/2018

4. All other terms and conditions of Consolidated Consent (CC&A) order No. AWH-88998 dated 26/10/2017 vide letter no: PC/ CCA- KUTCH- 1044/GPCB ID: 31463/428772 Date: 23/11/2017 shall remains unchanged.

**For and on behalf of  
Gujarat Pollution Control Board**



**(Sushil Vegda)  
Senior Environmental Engineer**

Outward No: 480505, 31/12/2018

Page 2 of 2

# **ANNEXURE – 3**



**PROGRESS REPORT**  
**OF**  
**MANGROVE PLANTATION ACTIVITIES**  
**UNDER**  
**PUBLIC PRIVATE PARTNERSHIP**

**Financial & Monitoring Support  
By**



**ADANI PORTS & SPECIAL ECONOMIC ZONE LTD.  
AHMEDABAD**

**Technical Partner**



**Gujarat Ecology Commission  
Gandhinagar**

**Implemented By**  
**Koteswar Paryavaran Vyavasthapan Samiti**

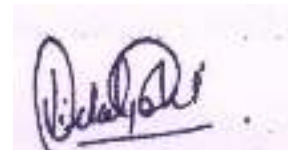
**Mangrove Plantation Year**

**2017 – 18**

**PROGRESS REPORT OF MANGROVE PLANTATION ACTIVITIES**  
**CARRIED OUT IN THE F. Y.: 2017 - 18**  
**FOR ADANI PORTS & SPECIAL ECONOMIC ZONE LTD.**

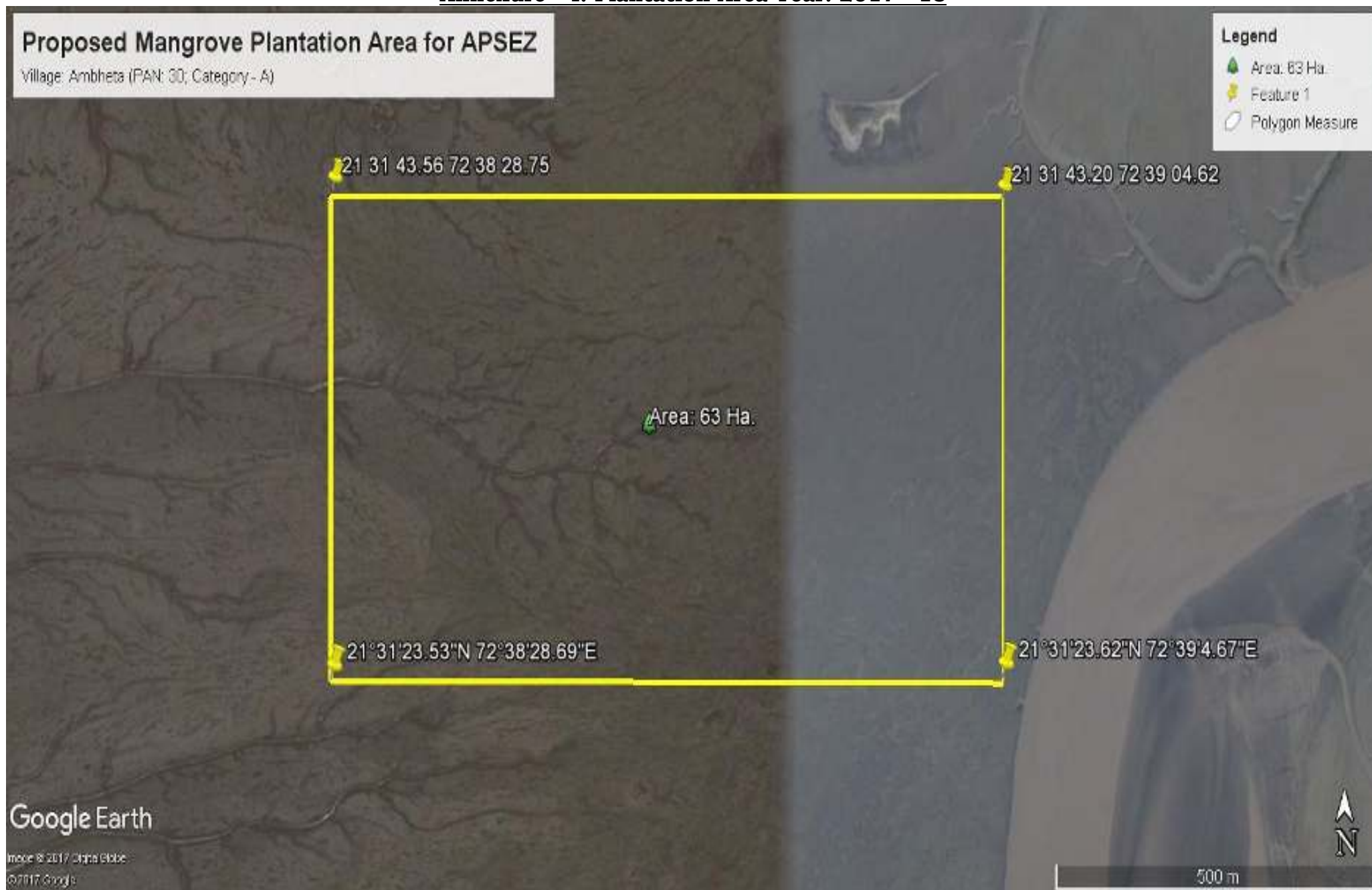
1.	<b>Name of Partner Agency/Company:</b> Adani Ports & Special Economic Zone Ltd. <b>Plantation Year:</b> 2017 - 18 <b>Total Ha.:</b> 62 Ha.	
2.	<b>Name of the plantation site:</b> Lalavi area of Alia Bet <b>Village:</b> Katpor; <b>Ta.</b> Hansot, <b>Dist.:</b> Bharuch	
3.	<b>Name of the CBO:</b> Aaliya Bet Paryavaran Vikas Vyavasthapan Samiti, At. Ambheta, Ta. Hansot, Di. Bharuch	
4.	<b>GPS Locations of Plantation area:</b>	
4.1	<b>GPS Locations of Plantation area year: 2017 – 18 (Annexure – I)</b>	
	<b>Latitude</b>	<b>Longitude</b>
a.	21 31 43.20	72 39 04.62
b.	21 31 43.56	72 38 28.75
c.	21 31 23.53	72 38 28.69
d.	21 31 23.62	72 39 04.67
5.	<p><b>Short Description of the Site:</b> The intertidal region in this district is very large as compared to other costal district of South Gujarat. Therefore, human habitations are far off from the mangrove habitats.</p> <p>Hansot taluka has in important deltaic region locally known as “Aliya bet”. This area had been in important area for the nomadic tribe-Jat Maldhari-who wear using this large population of migratory cattle including their veterinary care. The delta has now disappeared and it has become a saline Westland due to siltation. Initially, this area was lush green locally known as “Aal” (<i>Porteresia coarctata</i>) on which thousands of cattle used to depend for grazing. Hence, it was very important centre for animal husbandry.</p> <p>The plantation site is locally called as “Lalavi area of Alia Bet” in Katpor village of Hansot block of Bharuch district. The site is little far away from the approach road. The plantation site is very close to water front. A small creeks passes through the plantation site. The plantation site is near the aquacultures.</p>	
6.	<b>Soil Observations:</b> a) Land form: Mud flats b) Soil Texture: Clayey Loam c) Colour: Brownish-grey	
8.	<b>Month of Plantation &amp; Year:</b> July: 2017 – March: 2018	
9.	<b>Mangrove species planted:</b> <i>Avicennia marina</i> & <i>Rhizophora Spp.</i>	
10	<p><b>Details of <i>Avicennia marina</i> Nursery: (Plantation Year: 2017 – 18)</b></p> <p>1. Month of Nursery raised: August – October: 2017  2. Total area of Nursery: 50 Ha. 3. No. of Plants/bed: 1000 Plant/Bed  4. Species Used: <i>Avicennia marina</i> 5. No. of Plants/Ha. : 2000  6. Spacement of Plants: 2.5 x 2 mt. 7. Total Plants: 100000  8. Survival Rate till Dt.: Approx. 60 – 65 % 9. Height of Plant till Dt.: 30 - 35 cm.</p>	
11	<p><b>Proposed Details of <i>Rhizophora</i> Propagules: (Plantation Year: 2017 – 18)</b></p> <p>1. Month &amp; Year: March - April: 2018 2. Total area of Propagule: 12 Ha.  3. Total No. of Propagules/Ha.: 2000 4. Spacement of Propagules: 2.5 x 2 mt.  5. Total No. of <i>Rhizophora</i> Propagule: 24000 6. Survival Rate: Approx. 65 – 70%  7. Height of Plant till Dt.: 40 - 45 cm.</p>	
14.	<p><b>Health of the Nursery:</b></p> <p>a. Healthy: Good      b. Infection by pests: NIL      c. Others: NIL</p>	
17.	<p><b>Other Technical Parameter:</b></p> <p>1. <b>The status of the biodiversity in plantation area:</b> Crabs; Snake; Birds; Mudskipper; Other Fish  2. <b>Tidal level of plantation area:</b> Daily</p>	

	<b>3. Any artificial water provided to Nursery:</b> No <b>4. Any by local community:</b> Nil
<b>18.</b>	<b>Any trenching technique used:</b> No
<b>19.</b>	<b>Data collection/monitored:</b> Monthly
<b>20.</b>	<b>Conclusion:</b> <ul style="list-style-type: none"> <li>➤ The entire nursery process of nursery plantation is being carried out by the Members of Aaliya Bet Parvyavaran Vikas Vyasthapan Samiti (Community Based Organization).</li> <li>➤ Village community is being empowered under project in the context of capacity buildings, gender equity and Livelihood opportunities.</li> <li>➤ Model of Industrial partnership in managing and restoring mangroves ecosystem will be successfully established.</li> <li>➤ This will help to motivate the company for replicating the model elsewhere.</li> <li>➤ Plantation Activity wise photographs are annexed herewith in Annexure – II.</li> <li>➤ Nursery Plantation activities will be carried out in the month of February – March: 2018</li> <li>➤ As per the micro-planning developed by CBO, a total 12 ha area will be plant through propagules plantation of Rhizophora mucronata. It will increase the biodiversity status in the region. As selected site has one species stand, therefore it is essential to increase Mangrove biodiversity in the region,</li> </ul>



**[Authorized Signatory]**

## Annexure – I: Plantation Area Year: 2017 - 18





## Proposed Mangrove Plantation Area for APSEZ

Village: Ambheta (PAN: 30; Category - A)

### Legend

- Area: 63 Ha.
- Feature 1
- Polygon Measure

Area: 63 Ha.

Google Earth

Image © 2017 DigitalGlobe

©2017 Google

Image © 2017 TerraMetrics

N

3 km



### **Annexure – III: Activity wise Photographs**





































































# **ANNEXURE – 4**

## **Details of Greenbelt development at APSEZ, Mundra**

LOCATION	Total Green Zone Detail Till Up to March - 2019				
	Area (In Ha.)	Trees (Nos.)	Palm (Nos.)	Shrubs (SQM)	Lawn (SQM)
SV COLONY	69.53	32480.00	7298.00	68327.00	95019.00
PORT & NON SEZ	79.87	139992.00	19205.00	74210.78	61295.18
SEZ	114.72	227835.00	17302.00	220583.60	28162.03
MITAP	2.48	8168.00	33.00	3340.00	4036.00
WEST PORT	86.04	186827.00	51342.00	24112.00	22854.15
AGRI PARK	8.94	17244.00	1332.00	5400.00	2121.44
SOUTH PORT	14.25	25530.00	3470.00	3882.00	3327.26
Samundra Township	55.63	52481.00	11818.00	20078.07	46571.67
Productive Farming (Vadala Farm)	23.79	27976.00	0.00	0.00	0.00
<b>TOTAL (APSEZL)</b>	<b>455.23</b>	<b>718533.00</b>	<b>111800.00</b>	<b>419933.45</b>	<b>263386.73</b>

## **Details of Mangrove Afforestation 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
<b>Total Mangrove Plantation:</b>		<b>2889.90 Ha</b>			



### **3 Layer Plantation within APSEZ**



# **ANNEXURE – 5**

## Compliance Report of EMP & Mitigation Measures

Sr. No.	Suggested Measures	Compliance Status
<b>Construction Phase:</b>		
<b>A</b>	<b>Air Environment</b>	
1	Water sprinkling in vulnerable areas	Water sprinkling on road and other construction area as well as on construction materials is being carried out on regular bases.
2	Enforce proper maintenance of vehicles and construction equipment. Allowing only PUC approved vehicles in the site.	Please refer Condition No. ix of Part-B (General Conditions Construction phase) of EC and CRZ Clearance.
3	Enforce usage of covered trucks for transport of construction material.	Covered trucks are being used for handling of construction materials.
<b>B</b>	<b>Noise Environment</b>	
4	Enforce proper maintenance of vehicles and construction equipment. Enforce use of earmuffs / earplugs to workers in high noise level areas.	The vehicles of on-going construction work enter inside the premises after the fitness check. Ear protection device is provided to workers in high noise areas.
<b>C</b>	<b>Water Environment</b>	
5	Provide temporary drinking water supply and proper sanitation facilities within the site	Provision of drinking water and sanitation facility is being provided.
<b>D</b>	<b>Land / Soil Environment</b>	
6	Proper disposal of construction debris at regular intervals	Construction debris is being kept at identified temporary storage area and is being utilized for area development.
<b>E</b>	<b>Thermal Environment</b>	
7	Enforce (i) use of Portland Pozzallano Cement / (ii) use of Portland Slag Cement / (iii) use fly ash as admixture in construction	Part of fly ash generated from Adani Power Limited, Mundra is being utilized by Adani Group to manufacture paver blocks and the same paver blocks are used for development of back up area, footpath, colonies area, parking area, approach road etc.  Please refer Condition No. xi of Part-B (General Conditions: Construction phase) of EC and CRZ Clearance.
<b>F</b>	<b>Energy</b>	
8	Wherever possible, piping shall be along the natural topography to permit gravity flow. Else, energy efficient pumps shall be used. Pipe material	Energy efficient pumps and HDPE Pipelines are used for supply of utilities. Refer point no. xii of EC & CRZ Clearance in Part – B (Operation Phase)

Sr. No.	Suggested Measures	Compliance Status
	shall be such as to minimize friction losses.	for energy efficient electrical fittings. Few of the buildings in MSTPL are designed as green building.
9	Wherever possible, natural light shall be used. Energy efficient electrical fittings and fixtures shall be used.	
🔧 Operation Phase:		
A	Land / Soil Environment	
1	Good quality non-corrosive type pipeline should be used. Regular checking of the pipelines for early detection of any possible leakage and damage. Regular ground water monitoring should be done within the SEZ.	HDPE pipelines are used for supply of utility. Regular visual surveillance along the utility lines corridor is being done to check leakage or damage.  Third party analysis of the ground water is being carried out at every three month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd.  Please refer Condition No. v of Part-B (General Conditions: Construction phase) of EC and CRZ Clearance.
2	The waste should be transported in covered trucks. Vermi-composting is highly recommended for treatment and disposal of biodegradable and kitchen wastes. Other domestic solid waste (garbage) shall be disposed through MSW facility or as per prevailing norms.	Please refer Condition No. iv of Part-B (General Conditions: Construction phase) of EC and CRZ Clearance.
3	The waste should be transported in covered trucks. Transporter should be informed of remedial measures required to be taken in case of spillage of waste	Waste handling vehicles are being handled through covered trucks only. Details were submitted along with last compliance report submission i.e. Apr'17 to Sep'17.
B	Socio-Economic Environment	
4	It will encourage development of surrounding areas & further generate employment. People from various cultures shall mingle encouraging a more tolerant society.	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 in main five persuasions as below.  1. Education 2. Community Health 3. Sustainable Livelihood – Fisher folk 4. Rural Infrastructure



Sr. No.	Suggested Measures	Compliance Status
		<p>5. Skill Development</p> <p>For further details, please refer Condition No. vii of Annexure – B (Compliance Status of MoEF &amp; CC Order dated 18.09.2015).</p>

# **ANNEXURE – 6**

# ENVIRONMENTAL MONITORING REPORT

AMBIENT AIR QUALITY, STACK EMISSION, WATER  
QUALITY AND NOISE MONITORING

Period: October 2018 - December 2018

For

**M/S. ADANI POWER (MUNDRA) LIMITED**



At  
**Tunda & Siracha,  
Tal. Mundra, Dist.: Kutch.  
KUTCH, GUJARAT – 370 435**

**Prepared By:**



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QUALITY CONTROL							
Name of Publication		Environmental Quality Monitoring Report for the Quarter October 2018 - December 2018					
Project Number	03	Report No.	UERL/ENV/OCT/ 10-12/2018	Version	1	Released	January 2019
Project Coordinator		Mr. Bhavin Patel					
Prepared By		Miss. Shweta A. Rana					
Checked By		Mr. Jaivik Tandel					
DISCLAIMER							
UniStar has taken all reasonable precautions in the preparation of this report as per its auditable quality plan. UniStar Environment & Research Labs Pvt. Ltd. also believes that the facts presented in the report are accurate as on the date it was written. However, it is impossible to dismiss absolutely, the possibility of errors or omissions; UniStar therefore specifically disclaims any liability resulting from the use or application of the information contained in this report. The information is not intended to serve as legal advice related to the individual situation.							

**FOR**  
**UniStar Environment and**  
**Research Labs Pvt. Ltd.**



**Mr. Jaivik Tandel**  
**(Authorized By)**





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## EXECUTIVE SUMMARY

Adani Power (Mundra) Limited (APMuL) has total generation capacity of 4620MW in phased manner at Mundra Thermal (coal Based) Power Plant near Village Tunda in Mundra, District Kutch, and Gujarat. The phased wise development being undertaken for ultimate capacity of power plant is shown below.

- First Phase : 2 x 330 MW
- Second Phase : 2 x 330 MW + 2 x 660 MW
- Third Phase : 3 x 660 MW

The Thermal Power Plant is located near Village Tunda, Mundra Taluka in Kutch District. The Site is closed to the sea, making cooling water perennially available for the power plant. The Power Plant is based on supercritical technology using imported coal.

All three phase of the power plant is operational and as the part of the compliance to the statutory requirement, M/s. Adani Power (Mundra) Limited has entrusted the environmental quality monitoring study for the area surrounding the power plant. Adani Power (Mundra) Limited Implemented ISO-14001:2015 Environment Management System (EMS) and Accreditation of NABL in Environmental Laboratory (ISO/IEC 17025:2005) dated: 09.02.2017 vide Certificate No. TC-5215.

Various environmental parameters have been monitored during the period of October 2018-December 2018. The detail of the environmental parameters along with frequency of monitoring is shown in subsequent sections.

## 1. ENVIRONMENTAL PARAMETERS

Sr. No.	Environmental Indices	Parameter	No. of Location and Monitoring.	Frequency of Sampling
1.	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , Sulphur Dioxide and Nitrogen Dioxide	Three Location	Twice a week
2.	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , Sulphur Dioxide, Nitrogen Dioxide, Ozone and Mercury	Two Location	Once in a month
3.	Stack Monitoring	PM, Sulphur Dioxide, Oxide of Nitrogen and Hg	Nine Location	Once in a month
4.	Meteorological Monitoring	Wind rose, Wind speed, Wind direction, Rainfall, Temperature, Relative Humidity	One location	Round the clock
5.	Surrounding Villages Ground Water Analysis	Colour, Odour, Taste, Turbidity, Dissolved Solids, pH value, Total Hardness, Calcium, Boron, Copper, Iron, Manganese, Chloride, Sulphate, Nitrate, Fluoride, Phenolic Compounds, Mercury, Cadmium, Selenium, Arsenic, Cyanide, Lead, Zinc, Anionic Detergents as MBAS, Chromium Cr+6, Mineral Oil, MPN Index for Coliform Bacteria per 100 ml, Residual Free Chlorine, Aluminium, Alkalinity, Magnesium as Mg, Escherichia Coli in 250 ml.	Five Location	Once in Quarter
6.	Effluent Water Sample	pH, Temperature, colour, SS, O & G, BOD <sub>3</sub> , COD, Chlorides, TDS, Sulphates, Ammonical Nitrogen, % Sodium, Sodium Absorption Ratio, Sulphides, Total Chromium, Hexavalent Chromium, Copper, Lead, Zinc, Free available chlorine, Phosphate, Iron	Four Location	Once in a month / Quarter
7.	STP Water Analysis	pH, Residual Chlorine, SS, BOD, COD, Faecal coliform	Three Location	Once in month/ Quarter
8.	Borwell water Near Ash Dyke Area	pH @ 25 ° C, Conductivity (μS), Chloride as Cl <sup>-</sup> Salinity (ppt), Total Dissolved Solids, Carbonate as CaCO <sub>3</sub> , Bicarbonate as CaCO <sub>3</sub> , Mercury as Hg, Arsenic as As, Lead as Pb, Chromium as Cr, Cadmium as Cd.	Four Location	Once in a Quarter
9.	Surrounding Villages Soil Analysis	Magnesium as Mg %, Molybdenum as Mo in ppm, Phosphorus as P %, Calcium as Ca %, Zinc as Zn, Manganese as Mn, Potassium as K%, Nitrogen as N%, Iron as Fe%, Copper as Cu, Boron as B, Sulphur in %, Chloride as Cl%.	Five Location	Once in Six Month
10.	Noise Level Monitoring	Noise level monitoring in dB(A)	10 Location	Once in a Quarter



### 1.1 AMBIENT AIR QUALITY

The scenario of the Ambient Air Quality in the study region has been assessed through a network of 5 locations of Ambient Air Quality Monitoring. The design of monitoring network in the air quality surveillance program was based on the following considerations.

- Topography / Terrain of the study area.
- Human Settlements
- Wind pattern
- Health status
- Representation of regional Background levels.
- Accessibility of monitoring site.
- Resource availability.

Pre-calibrated Respirable Dust Samplers (PM<sub>10</sub>) & Fine Dust Samplers (PM<sub>2.5</sub>) have been used for monitoring the existing AAQM Status. Maximum, Minimum, Average, Standard Deviation and percentile have been computed from the raw data collected at all individual sampling stations to represent the Ambient Air Quality Status.

The significant parameters viz., PM<sub>10</sub>, PM<sub>2.5</sub>, Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>2</sub>) and Mercury were monitored within the study area of 5 km from the site.

### 1.2 FLUE GAS MONITORING

All three phases of the Thermal Power Plant are in operation. The flue gas emission from stack attached to individual boiler is monitored once in month during the monitoring period.

### 1.3 WATER QUALITY MONITORING

The water quality parameters as per IS: 10500 for water resource within the study area have been used for describing the water environment and assessing the impacts on it.

Groundwater samples of nearby villages were collected at five locations the parameters of prime importance selected under physicochemical characteristics were estimated to describe the baseline environmental status of the water resources during the monitoring period. Four bore well samples surrounding the ash dyke area were collected during the month of October 2018 along with outfall water sample.

### 1.4 AMBIENT NOISE LEVEL MONITORING

The Ambient Noise levels within the plant premises were relocated at a different location (10 nos.) For the implementation of effective noise control programs.

## METEOROLOGICAL MONITORING REPORT

Period: – October 2018 to December 2018



### 1.5 MICROMETEOROLOGY

Meteorological parameters are important factors in the study of Air Pollution. The Transport and diffusion of the pollutants in the atmosphere are governed by meteorological factors.

Primary / Basic Meteorological Parameters

- Wind Velocity
- Wind Direction

Since the dispersion and diffusion of pollutants mainly depend on the above factors hence these factors are considered as primary meteorological parameters.

Secondary Meteorological Parameters

- Relative Humidity
- Ambient Temperature

The above-said factors are considered as secondary factors since these factors control the dispersion of the pollutant indirectly by affecting the primary factors.

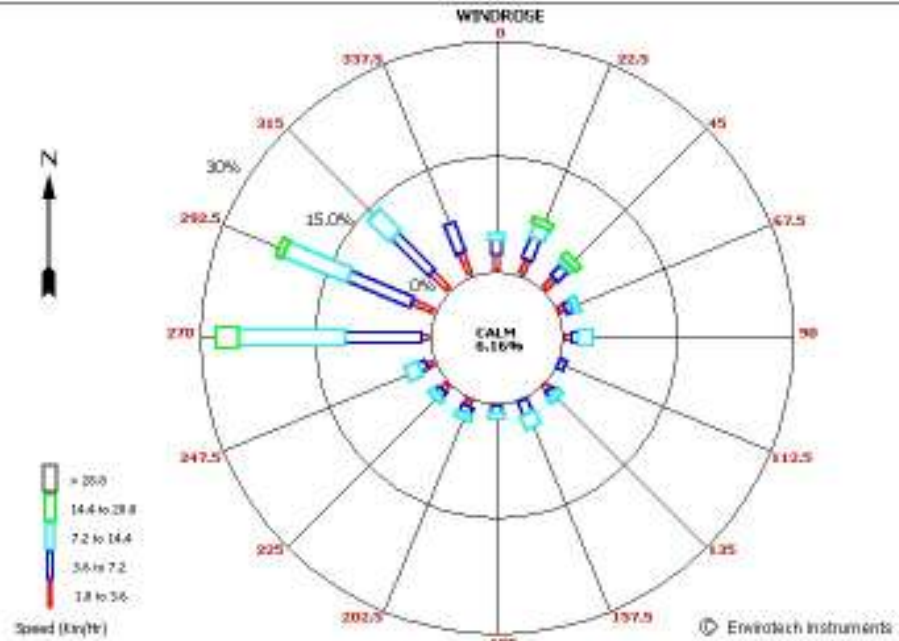
### 1.5.1 Wind Rose Diagram

Project	:	Adani Power (Mundra) Limited (APMuL)	Period	:	October2018 to December2018
Location	:	Village – Tunda, Dist. - Kutch			
Wind Direction	NE				
Average Wind Speed	6.1 km/hr.				
Percentage Occurrence of Calm Winds (<1.7 Km/Hr)	9.82 %				

**ADANI POWER (MUNDRA) LIMITED – MUNDRA WINDROSE FOR THE SEASON OF Oct to Dec. 2018**

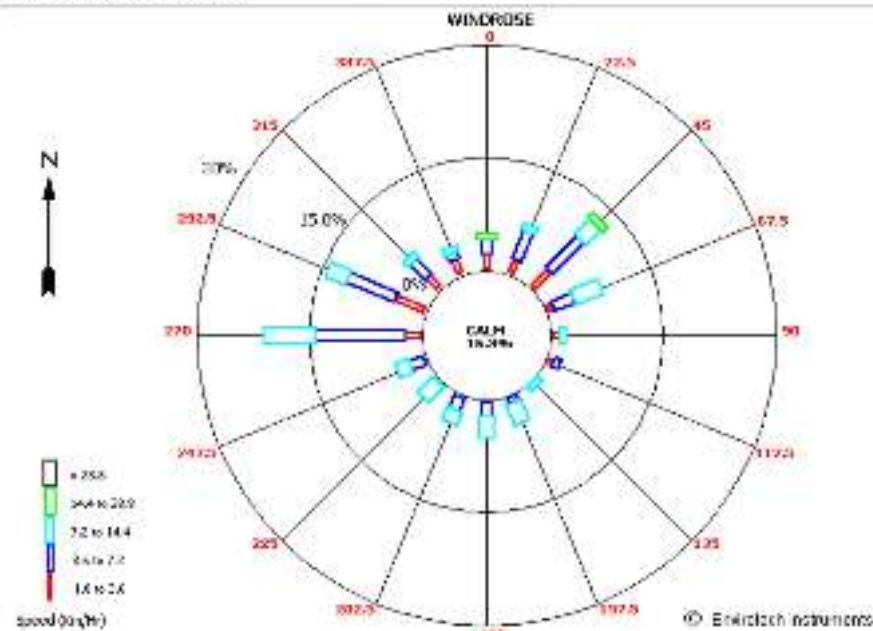
Time : 00:00 - 23:00  
Date : 01/10/18 - 31/10/18

Adani Power (Mundra) Limited



Time : 00:00 - 23:00  
Date : 02/11/18 - 30/11/18

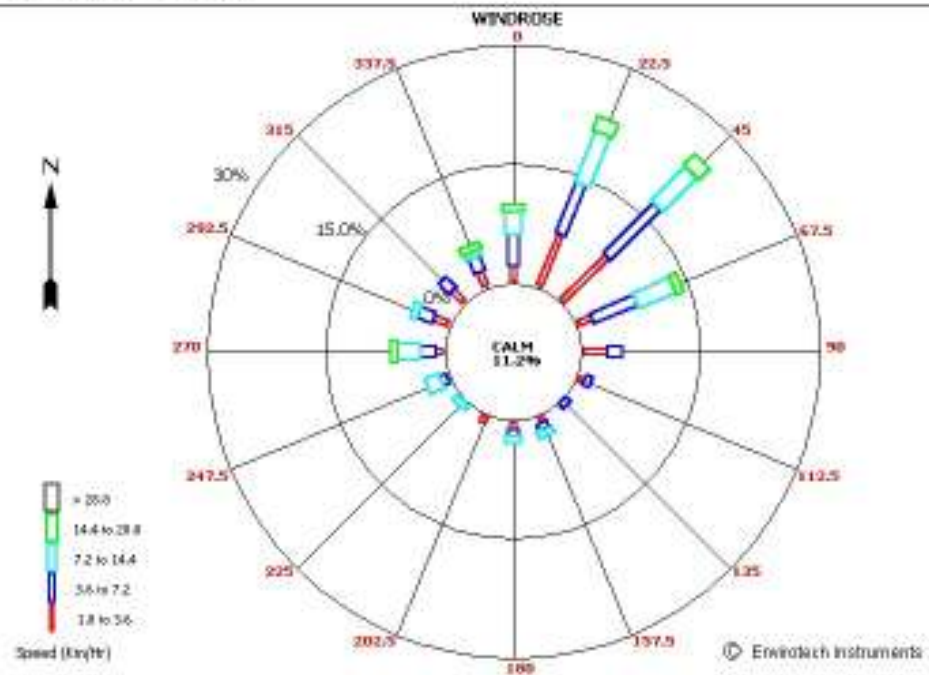
ADANI POWER (MUNDRA) LIMITED





Time : 00:00 - 23:00  
Date : 01/12/18 - 31/12/18

ADANI POWER (MUNDRA) LIMITED



## 2 SCOPE & METHODOLOGY ADOPTED FOR ENVIRONMENTAL MONITORING

### 2.1 Introduction

The scope of the study includes detailed characterization of various environmental like air, water and noise within an area of 5 km radius in and around the power plant area at pump house, erector house, and surrounding villages named as Siracha, Wandh and Kandagara of Dist. Kutch.

The above mentioned environmental components were monitored at the study area and frequency of monitoring, number of samples along with methodology is as shown in below table.

### 2.2 Scope and Methodology for Monitoring of Various Environmental Attributes

Sr. No	Environmental Attributes	Sampling Locations	Sampling Parameters	Sampling Frequency	Total No of samples	Methodology
1	Ambient Air Quality	5	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , Mercury	Twice a week (24 hourly Samples)	120	IS : 5182 & Reference APHA(AIR)
2	Flue Gas Stack Analysis	Unit 1 to 9 Boiler	PM, SO <sub>2</sub> , NOx	Once in month	27	As per IS : 11255
3	Surrounding Villages Ground Water Analysis	5 water sample	Test specification as per IS : 10500 - 1991	Once in Quarter	5	AS per APHA Method
4	Water Quality of Intake & Outfall for APMuL	1	As per CTO	Once in month	6	As Per APHA Method
5	STP Outlet	1	As per CTO	Once in month	3	As Per APHA Method
6	Bore well water Near Ash Dyke Area	4	Test specification as per IS : 10500 - 1991	Once in Quarter	4	As Per APHA Method
7	Cooling Tower Blow down Water Sample	9	As per CTO	Once in Half yearly	9	As Per APHA Method
8	Condensate Cooling Tower Water Sample	9	As per CTO	Once in Half yearly	9	As Per APHA Method

### 3 ENVIRONMENTAL AIR QUALITY AND FLUE GAS MONITORING

The principle objective of the ambient air quality was to assess the existing levels of the air pollution as well as the regional background concentration in the plant area. Air pollution forms important and critical factors to study the environmental issues in the study areas. Thus, air quality has to be frequently monitored to know the extent of pollution due to power plant activity and other ancillary activities.

Flue gas monitoring analysis has been conducted by UniStar Environment and Research Labs Pvt. Ltd. Details are provided in Section 3.2.

#### 3.1 Ambient Air Monitoring Data

##### 3.1.1 Details of Ambient Air Quality Monitoring Stations

The detail of the ambient air monitoring locations including the distance from the project site with direction is as shown below.

S.No.	Code	Name of sampling location	Distance
1	A - 1	Nr.20 MLD Plant	0 Km
2	A - 2	Nr. Shantiniketan-1	0 Km
3	A - 3	Kandagara Village	3 km (NW)
4	A - 4	Siracha Village	3.5 km (NE)
5	A - 5	Wandh Village	3.0 km (SW)

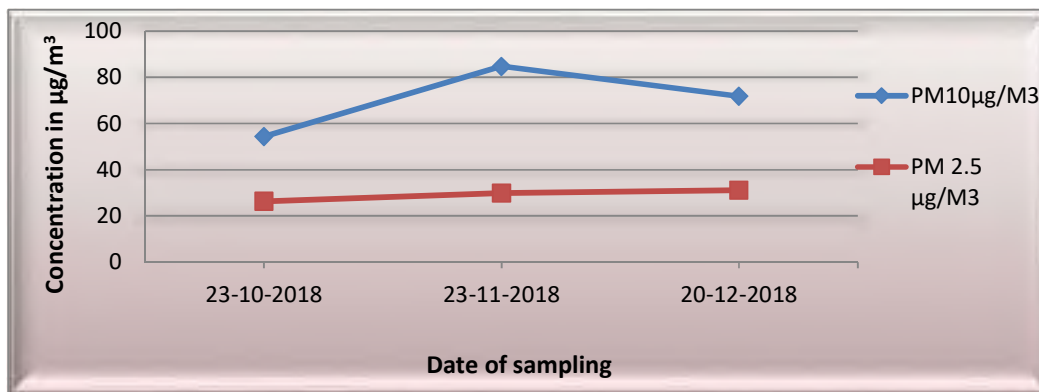
### 3.1.2 Location: Nr.20 MLD Plant

The Sampling station was located in the core zone in Company premises. The Respirable Dust Sampler (PM<sub>10</sub>) & (PM<sub>2.5</sub>) Sampler were placed at a height of 3 m above the ground level. Assess present pollution level the observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during monitoring period (October2018–December 2018) are as follows:

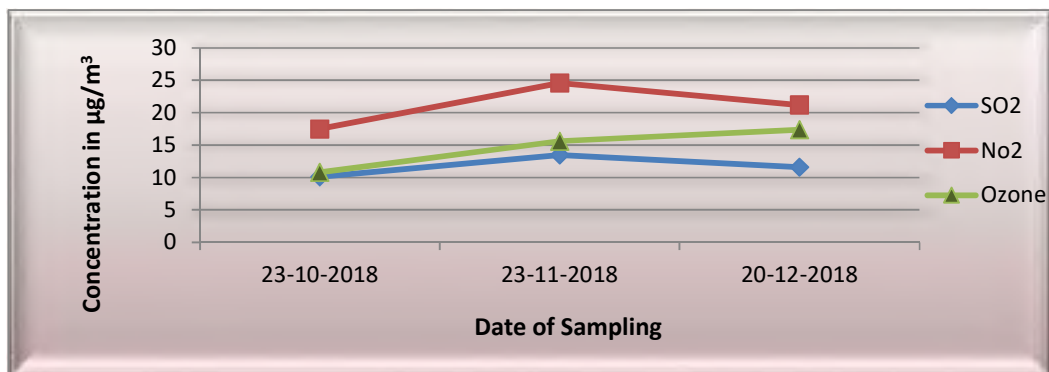
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	84.8	31.2	13.5	24.6	17.4
Minimum Value	54.4	26.4	10.1	17.5	10.8
Average Value	70.3	29.2	11.7	21.1	14.6
Standard Deviation	15.3	2.5	1.7	3.6	3.4
Permissible Limits	100	60	80	80	100

Units: µg/m<sup>3</sup>

**Graph 1 : Particulate Matter Level Nr.20 MLD Plant**



**Graph 2: SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Nr.20 MLD Plant**





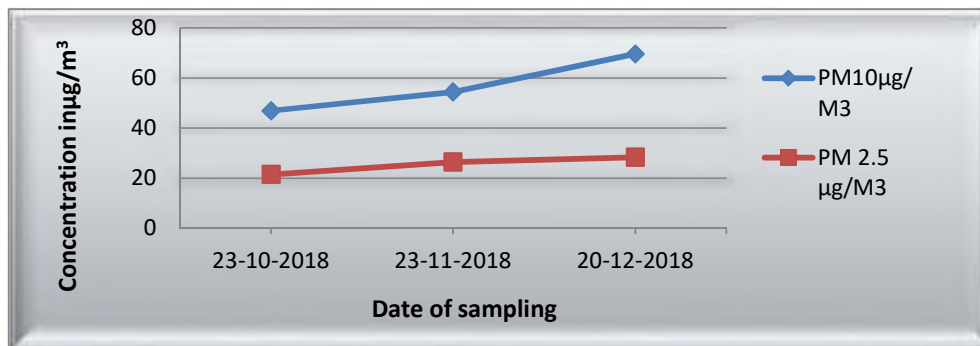
### 3.1.3 Location: Nr. Shantiniketan-1

The Sampling station was located in the core zone in company premises. The Respirable Dust Sampler  $PM_{10}$  &  $PM_{2.5}$  Sampler were placed at a height of 3 m above the ground level. The observed levels of  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$ ,  $NO_2$  and  $O_3$  collected during monitoring period (October 2018–December 2018) are as follows

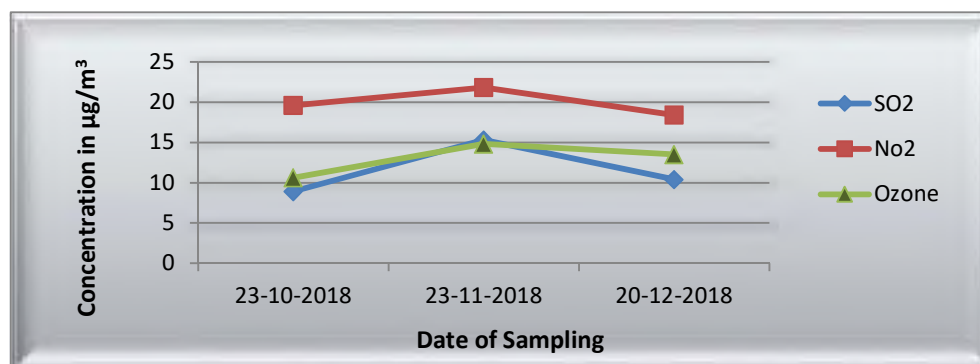
Observations	$PM_{10}$	$PM_{2.5}$	$SO_2$	$NO_2$	$O_3$
Maximum Value	69.6	28.3	15.3	21.8	14.8
Minimum Value	46.9	21.5	8.9	18.4	10.6
Average Value	57.0	25.4	11.5	19.9	12.9
Standard Deviation	11.6	3.5	3.3	1.7	2.1
Permissible Limits	<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>	<b>100</b>

Units:  $\mu\text{g}/\text{m}^3$

Graph 3: Particulate Matter Level Nr. Shantiniketan-1



Graph 4 :  $SO_2$ ,  $NO_2$  and  $O_3$  Nr. Shantiniketan-1



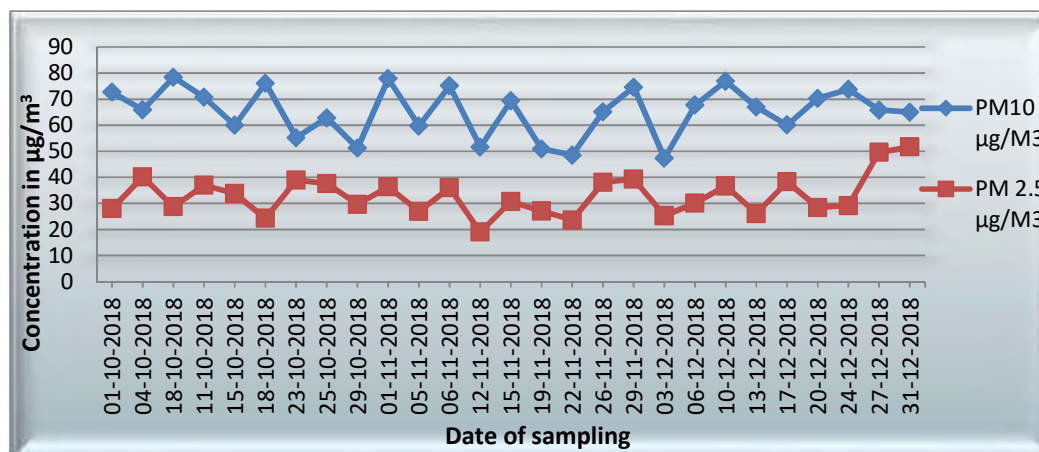
### 3.1.4 Location: Kandagara Village

The Sampling station was located in the core zone. The Station is located at about 3 km away in Northwest Direction from the Company premises. The Respirable Dust Sampler (PM<sub>10</sub>) & PM<sub>2.5</sub> Sampler were placed at a height of 1.5 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (October 2018–December 2018) are as follows.

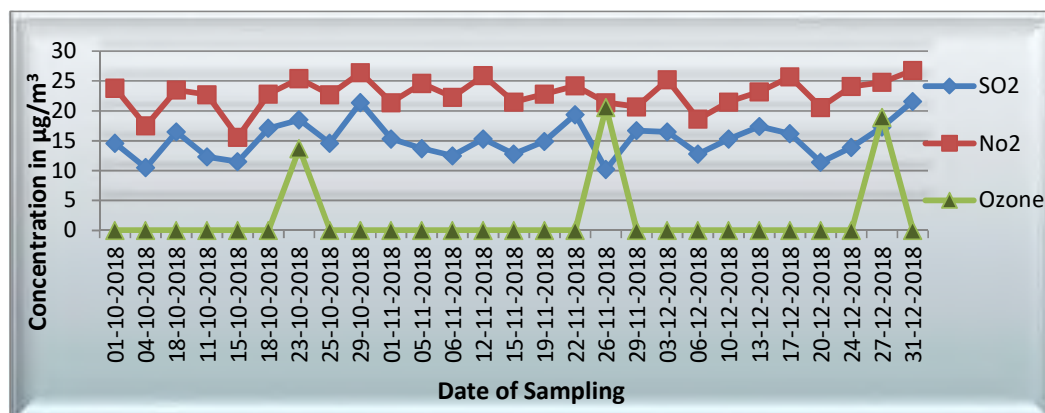
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	78.4	51.7	21.6	26.8	20.6
Minimum Value	47.3	19	10.2	15.6	0
Average Value	65.2	33.0	15.2	22.8	1.9
Standard Deviation	9.5	7.6	3.0	2.7	5.7
Permissible Limits	100	60	80	80	100

Units: µg/m<sup>3</sup>

**Graph 5: Particulate Matter Level Kandagara Village**



**Graph 6 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Kandagara Village**



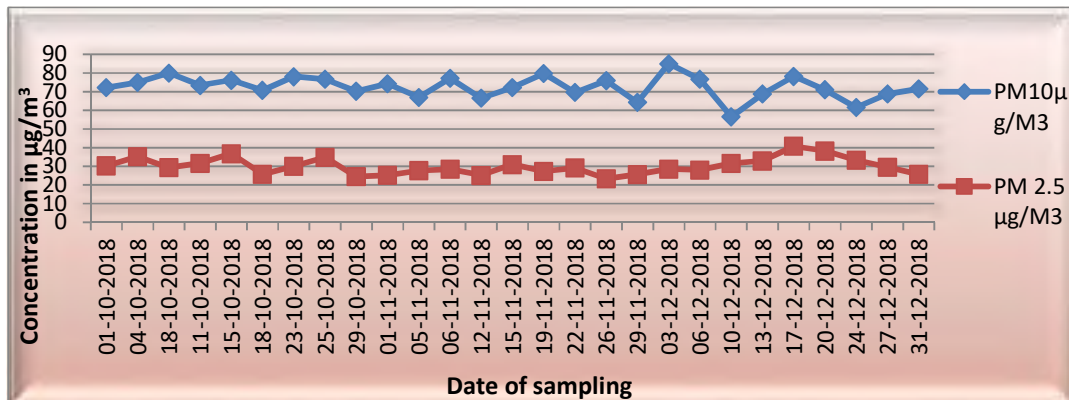
### 3.1.5 Location: Siracha Village

The Sampling station was located in the Siracha village. The Station is located at about 3.5 km away in Northwest Direction from the core zone area. The Respirable Dust Sampler & PM<sub>2.5</sub> was placed at a height of 3.0 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (October 2018–December 2018) are as follows.

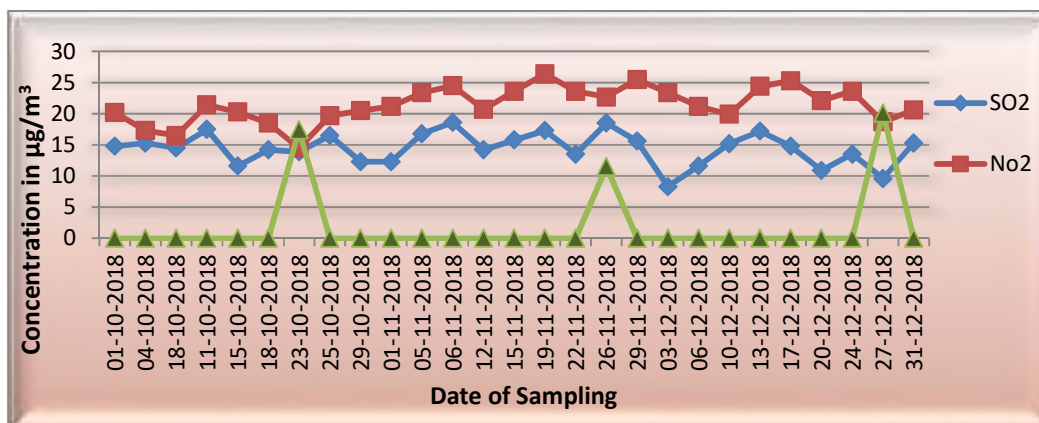
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	85	40.8	18.6	26.4	20.1
Minimum Value	56.6	23.4	8.3	14.5	0
Average Value	72.5	30.0	14.4	21.5	1.8
Standard Deviation	6.1	4.4	2.6	2.9	5.3
Permissible Limits	100	60	80	80	100

Units:  $\mu\text{g}/\text{m}^3$

Graph 7 : Particulate Matter Level Siracha Village



Graph 8 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Siracha Village



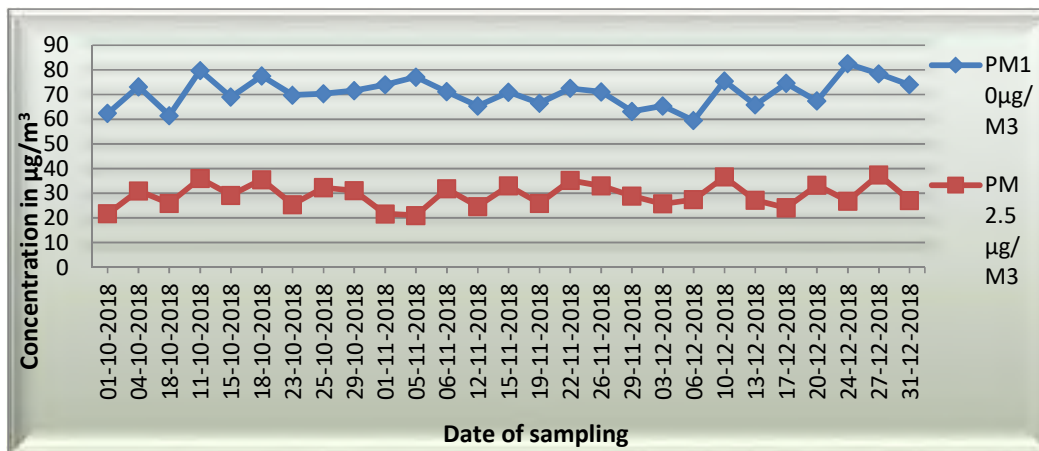
### 3.1.6 Location: Wandh Village

The Sampling station was located in the core zone in Wandh village. The Station is located at about 3.0 km away in Southwest Direction from the Company premises. The Respirable Dust Sampler Was placed at a height of 3.0 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (October 2018–December 2018) are as follows.

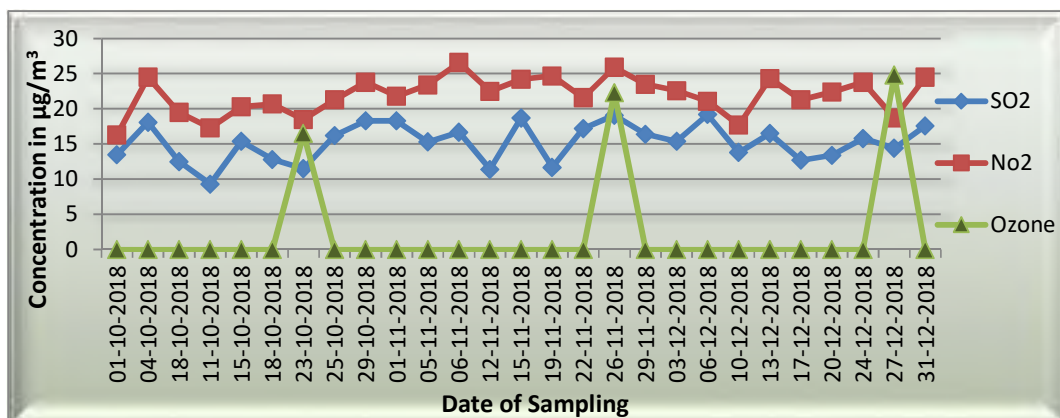
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	82.5	37.5	19.2	26.6	24.8
Minimum Value	59.5	21	9.3	16.3	0
Average Value	70.7	29.2	15.2	22.0	2.3
Standard Deviation	5.8	4.8	2.7	2.7	6.8
Permissible Limits	100	60	80	80	100

Units:  $\mu\text{g}/\text{m}^3$

**Graph 9 : Particulate Matter Level Wandh Village**



**Graph 10 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Wandh Village**



### 3.1.7 Ambient Air Quality Monitoring (Parameters- Mercury & Ozone)

Location	October -18			November-18			December-18		
	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>
Village Kandagara	22.10.18	13.7	BDL	26.11.18	20.6	BDL	27.12.18	18.9	BDL
Village Wandh	24.10.18	16.5	BDL	26.11.18	22.3	BDL	27.12.18	24.8	BDL
Village Siracha	23.10.18	17.4	BDL	26.11.18	11.5	BDL	27.12.18	20.1	BDL
Nr. 20 MLD Plant	23.10.18	10.8	BDL	23.11.18	15.6	BDL	20.12.18	17.4	BDL
Nr. Shantiniketan-1	23.10.18	10.6	BDL	23.11.18	14.8	BDL	20.12.18	13.5	BDL

**Remark:** Calibrated equipment & instruments were used during monitoring & analysis of above identified sample.

**Analysis Method Reference :**

Hg : AAS by VGA Method -3112 B APHA 22 Edition : BDL Limit **Hg** : 2 ppb

O<sub>3</sub> : IS - 5182 (part 9) 2009 Ozone BDL limit: 5 µg/m<sup>3</sup>



### 3.2 Flue Gas Monitoring Data

ISO kinetic Stack monitoring has been carried out by UniStar environment & Research Pvt. Ltd.

Date	Location	PM in mg/Nm <sup>3</sup>	SO <sub>2</sub> in mg/ Nm <sup>3</sup>	NO <sub>x</sub> in mg/ Nm <sup>3</sup>
08-10-2018	Boiler (Unit - 1)	44.3	695.3	306.8
01-11-2018	Boiler (Unit - 1)	41.1	799	290.2
06-12-2018	Boiler (Unit - 1)	45.7	570.4	282.8
08-10-2018	Boiler (Unit - 2)	31.5	735.6	281.4
01-11-2018	Boiler (Unit - 2)	43	843.8	298
06-12-2018	Boiler (Unit - 2)	40.2	698.3	306
09-10-2018	Boiler (Unit - 3)	41.4	842.4	319.7
05-11-2018	Boiler (Unit - 3)	37.6	629.9	279.6
07-12-2018	Boiler (Unit - 3)	35.9	765.8	324.7
09-10-2018	Boiler (Unit - 4)	36.5	728.4	334.2
05-11-2018	Boiler (Unit - 4)	33.3	778.7	308.7
07-12-2018	Boiler (Unit - 4)	38.7	789.4	297.7
08-12-2018	Boiler (Unit - 5)	36.9	651.9	283.9
08-12-2018	Boiler (Unit - 6)	38.2	557.7	263.8
15-10-2018	Boiler (Unit - 7)	39.4	153.8	294.8
24-11-2018	Boiler (Unit - 7)	31.4	163.8	220.1
24-12-2018	Boiler (Unit - 7)	34.6	172.1	307.4
15-10-2018	Boiler (Unit - 8)	32.8	166.4	339.4
24-11-2018	Boiler (Unit - 8)	37.2	169.4	264.7
24-12-2018	Boiler (Unit -8)	38.1	140.1	285.4
15-10-2018	Boiler (Unit - 9)	42.7	144.5	286.7
24-12-2018	Boiler (Unit - 9)	34.9	154.3	257.9
Permissible Limits		50	<500 MWH-600 >500 MWH-200	300

### 3.3 Water Quality Monitoring

#### 3.3.1 Location: Tunda Village Water Sample

DATE: 17/10/2018

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.28	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	88.2	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	15.7	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	11.9	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1504	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	435.1	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	541.3	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	196.1	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	2.7	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.30	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.72	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	08	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.2 Location: Kandagara Village Water Sample

DATE: 17/10/2018

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.21	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	117.6	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	23.6	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	14.3	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1740	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	544.4	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	517.8	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	142.2	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	3.8	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.34	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.75	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	N.D.(MDL:0.001)
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	N.D.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	N.D.(MDL:0.01)
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	N.D.(MDL:0.003)
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	N.D.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.(MDL:0.1)
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	N.D.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	N.D.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	N.D.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.(MDL:0.001)
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	06	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.3 Location: Siracha Village Water Sample

DATE: 17/10/2018

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.18	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odour	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	372.4	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	58.9	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	54.8	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1820	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	343.8	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	530.1	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	231.8	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	1.6	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.36	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.84	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	08	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.4 Location: Navinal Village Water Sample

DATE: 17/10/2018

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.09	6.5 – 8.5	6.5 – 8.5
2	Colour	Pt-Co	10	5	15
3	Odour	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	176.4	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	27.5	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	26.2	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1764	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	568.2	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	494.0	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	184.0	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	3.4	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.34	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.82	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	08	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected



### 3.3.5 Location: Desalpur Village Water Sample

DATE: 17/10/2018

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	7.90	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	215.6	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	31.4	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	33.3	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1680	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	482.3	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	483.8	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	196.8	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	3.1	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.36	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.85	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	10	100 CFU/ml	100 CFU/ml

Note: Colour = 1(10) = 10 APHA, BDL= Below Detection Limit. N.D. = Not Detected

### 3.4 Water Quality Monitoring – Plant area

#### 3.4.1 Location: Outfall Channel

Sr. No.	Parameter	Unit	Date of sampling		
			11/10/2018	19/11/2018	04/12/2018
1	pH @ 25	--	7.36	7.28	7.36
2	Temperature	°C ( Intake)	30.5	29.0	26.5
		°C ( Outfall)	33.5	30.5	29.5
		°C ( Differential)	3.0	2.5	3.0
3	Color	Pt. CO. Scale	20	20	20
4	Total Suspended Solids	mg/L	16	14	10
5	Oil & Grease	mg/L	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
6	Ammonical Nitrogen	mg/L	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
7	Sulphide as S-2	mg/L	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
8	Total Chromium	mg/L	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
9	Hexavalent Chromium as Cr+6	mg/L	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
10	Phosphate as PO <sub>4</sub>	mg/L	0.27	0.29	0.22
11	Lead as Pb	mg/L	0.016	0.012	0.018
12	Copper as Cu	mg/L	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
13	Zinc as Zn	mg/L	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
14	Iron (as Fe)	mg/L	0.193	0.202	0.186
15	Chemical Oxygen Demand(COD)	mg/L	69.1	61.4	54.2
16	Biochemical Oxygen Demand (BOD)	mg/L	16	14	17

Note:BDL= Below Detection Limit. N.D. = Not Detected

#### 3.4.2 Location: STP Outlet Water Sample;

Sr. No.	Parameter	Unit	SPCB Limit	Date of sampling		
				11/10/2018	19/11/2018	04/12/2018
1	pH @ 25 ° C	--	6.5-8.5	7.92	7.96	7.74
2	Total Suspended Solids	mg/L	30	22	26	22
3	Residual Chlorine	mg/L	0.5 Min.	0.61	0.67	0.71
4	Biochemical Oxygen Demand (BOD)	mg/L	20	12	15	13
5	Fecal Coliform	CFU/100 ml	<1000	78	70	66

### 3.4.3 Location: ETP Outlet Water Sample;

S.N	Parameter	Unit	SPCB Limit	Date of sampling		
				11/10/2018	19/11/2018	04/12/2018
1	pH @ 25	--	6.5 – 8.5	7.42	7.51	7.42
2	Temperature	° C	40 Max.	32	31	30
3	Color	Pt. CO. Scale	100 Max.	40	40	40
4	Total Suspended Solids	mg/L	100 Max.	10	14	10
5	Oil & Grease	mg/L	10 Max.	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
6	Chemical Oxygen Demand (COD)	mg/L	100 Max.	15.1	21.3	38.3
7	Biochemical Oxygen Demand (BOD)	mg/L	30 Max.	4	6	12
8	Chloride as Cl <sup>-</sup>	mg/L	600 Max.	397.1	425.5	447.3
9	Total Dissolved Solids	mg/L	2100 Max.	1342	1562	1344
10	Sulphate as SO <sub>4</sub>	mg/L	1000 Max.	51.1	69.3	82.1
11	Ammonical Nitrogen	mg/L	50 Max.	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
12	% Sodium(Na)	mg/L	60 Max.	45.2	47.1	49.6
13	Sodium Absorption Ratio(SAR)	mg/L	26 Max.	8.7	10.3	12.5
14	Sulphide as S <sup>2-</sup>	mg/L	02 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
15	Total Chromium	mg/L	02 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
16	Hexavalent Chromium as Cr+6	mg/L	0.1 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
17	Phosphate as PO <sub>4</sub>	mg/L	5.0 Max.	BDL(MDL:0.1)	BDL(MDL:0.1)	BDL(MDL:0.1)
18	Copper as Cu	mg/L	03 Max.	0.052	0.063	0.078
19	Lead as Pb	mg/L	0.1 Max.	0.055	0.071	0.086
20	Zinc as Zn	mg/L	05 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
21	Residual Free Chlorine	mg/L	0.5 Max.	BDL(MDL:0.2)	BDL(MDL:0.2)	BDL(MDL:0.2)
22	Iron (as Fe)	mg/L	1.0 Max.	BDL(MDL:0.1)	BDL(MDL:0.1)	BDL(MDL:0.1)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

**3.4.4 Location: Bore-well – 1(Nr. Emergency Ash Pond)**
**Date: 16/10/2018**

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	7.99
2	Conductivity (µS)	-	16008
3	Chloride as Cl <sup>-</sup>	mg/L	4483
4	Salinity (ppt)	mg/L	8.1
5	Total Dissolved Solids	mg/L	10245.0
6	Carbonate as CaCO <sub>3</sub>	mg/L	27.6
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	145.6
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	0.082
13	Iron (as Fe)	mg/L	0.892
14	Zinc (as Zn)	mg/L	0.228

**Note: N.D.** = Not Detected, **MDL** = Minimum Detection Limit

**3.4.5 Location: Bore-well – 2(Nr. Emergency Ash Pond)**
**Date: 16/10/2018**

S.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.05
2	Conductivity (µS)	-	17225
3	Chloride as Cl <sup>-</sup>	mg/L	4262
4	Salinity (ppt)	mg/L	7.7
5	Total Dissolved Solids	mg/L	11024
6	Carbonate as CaCO <sub>3</sub>	mg/L	40.1
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	116.5
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.01)
13	Iron (as Fe)	mg/L	BDL(MDL:0.003)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.01)

**Note: N.D.** = Not Detected, **MDL** = Minimum Detection Limit

**3.4.6 Location: Bore-well – 3 (Nr. Emergency Ash Pond)**
**Date: 16/10/2018**

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	7.89
2	Conductivity (µS)	-	14602
3	Chloride as Cl <sup>-</sup>	mg/L	4317
4	Salinity (ppt)	mg/L	7.8
5	Total Dissolved Solids	mg/L	9345
6	Carbonate as CaCO <sub>3</sub>	mg/L	28.7
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	104.9
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.01)
13	Iron (as Fe)	mg/L	BDL(MDL:0.003)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.01)

**Note: N.D.** = Not Detected, **MDL** = Minimum Detection Limit

**3.4.7 Location: Bore-well – 4(Nr. Emergency Ash Pond)**
**Date: 16/10/2018**

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.08
2	Conductivity (µS)	-	16164
3	Chloride as Cl <sup>-</sup>	mg/L	4649
4	Salinity (ppt)	mg/L	8.4
5	Total Dissolved Solids	mg/L	10345
6	Carbonate as CaCO <sub>3</sub>	mg/L	21.7
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	148.4
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.01)
13	Iron (as Fe)	mg/L	BDL(MDL:0.003)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.01)

**Note: N.D.** = Not Detected, **MDL** = Minimum Detection Limit



### 3.4.8 Location: Cooling Tower Blow down Water Sample

S.No.	Parameter	Unit	Limit	Results			
				Unit-1	Unit-2	Unit-3	Unit-4
Date of Sampling ➡				04/12/2018	04/12/2018	04/12/2018	04/12/2018
1	pH @ 25 ° C	--	-	8.02	8.14	8.05	8.12
2	Free available Chlorine	° C	Min. 0.5	0.65	0.71	0.74	0.74
3	Zinc as Zn	Pt. CO. Scale	1.0	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
4	Hexavalent Chromium as Cr+6	mg/L	0.1	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
5	Total Chromium as Cr	mg/L	0.2	0.062	0.059	0.067	0.069
6	Phosphate as P	mg/L	5.0	0.47	0.63	0.65	0.63

S.No.	Parameter	Unit	Limit	Results			
				Unit-5	Unit-6	Unit-7	Unit-8
Date of Sampling ➡				04/12/2018	04/12/2018	04/12/2018	04/12/2018
1	pH @ 25 ° C	--	-	8.09	8.08	8.10	8.08
2	Free available Chlorine	° C	Min. 0.5	0.72	0.75	0.79	0.74
3	Zinc as Zn	Pt. CO. Scale	1.0	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
4	Hexavalent Chromium as Cr+6	mg/L	0.1	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
5	Total Chromium as Cr	mg/L	0.2	0.051	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
6	Phosphate as P	mg/L	5.0	0.43	0.42	0.56	0.53

### 3.4.9 Location: Condensate Cooling Tower Water Sample

S.No.	Parameter	Unit	Limit	Results			
				Unit-1	Unit-2	Unit-3	Unit-4
Date of Sampling ➡				04/12/2018	04/12/2018	04/12/2018	04/12/2018
1	pH @ 25 ° C	--	6.5 to 8.5	8.11	8.02	8.05	8.06
2	Temperature °C ( Intake)	°C	--	30.6	30.4	31	31.6
	Temperature °C ( Outlet)	°C	--	33.6	33.2	33.6	34.2
	Temperature °C ( Differential)	°C	7	3.0	2.8	2.6	2.6
3	Free available Chlorine	mg/L	Min 0.5	0.71	0.65	0.77	0.66

S.No.	Parameter	Unit	Limit	Results			
				Unit-5	Unit-6	Unit-7	Unit-8
Date of Sampling ➡				04/12/2018	04/12/2018	04/12/2018	04/12/2018
1	pH @ 25 ° C	--	6.5 to 8.5	8.10	8.14	8.15	8.18
2	Temperature °C ( Intake)	°C	--	30.4	30.6	30.2	31.2
	Temperature °C ( Outlet)	°C	--	33.6	33.2	33.4	34.2
	Temperature °C ( Differential)	°C	7	3.2	2.6	3.2	3.0
3	Free available Chlorine	mg/L	Min 0.5	0.72	0.65	0.69	0.74

S.No.	Parameter	Unit	Limit	Results			
				Unit -1	Unit -2	Unit -3	Unit -4
1	Total Suspended Solids	mg/L	100	BDL(MDL:4.0)	BDL(MDL:4.0)	BDL(MDL:4.0)	BDL(MDL:4.0)
2	Oil & Grease	mg/L	10	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
3	Total Copper as Cu	mg/L	1.0	0.009	0.008	BDL(MDL:0.05)	BDL(MDL:0.05)
4	Total Iron (as Fe)	mg/L	1.0	0.028	0.032	0.042	0.041

#### 4 AMBIENT NOISE LEVEL MONITORING

The main objective of noise monitoring in the study area is to establish the baseline noise levels and assess the impact of the total noise generated by the operation activities around it. Noise monitoring has been conducted at 10 locations within the periphery of industry premises.

- **Date of Monitoring: 09.10.2018**

##### Result

Sr. No.	Location	Noise Level dB(A)			
		Sampling Time	Day Time dB(A) 06 am - 10 pm	Sampling Time	Night Time dB(A) 10 pm - 06 am
			Limit 75 dB(A)		Limit 70 dB(A)
1.	Nr. LDO Pump House	10:16 am - 12:45 pm	63.2	22:08 pm - 23:49 pm	60.4
2.	Nr. 20 MLD Plant		61.4		60.2
3.	Nr. Pump House		65.2		64.7
4.	Nr. Coal Handling plant		64.3		63.6
5.	Nr. Gate No.4		60.1		59.6
6.	Nr. Integrated Ash Silo		69.8		63.6
7.	Nr. Main Gate		62.3		61.9
8.	Nr. APCH Building		60.7		60.4
9.	Nr. Shantiniketan-I		64.4		60.4
10.	Nr.OHC Building		65.0		61.8

**Remark:** Calibrated instruments were used during monitoring of above identified sample.

- Date of Monitoring: 11.12.2018  
Result

Sr. No.	Location	Noise Level dB(A)			
		Sampling Time	Day Time dB(A) 06 am - 10 pm	Sampling Time	Night Time dB(A) 10 pm - 06 am
			Limit 75 dB(A)		Limit 70 dB(A)
1.	Nr. LDO Pump House	11:25 am - 13:10 pm	60.3	22:20 pm -23:50 pm	56.3
2.	Nr. 20 MLD Plant		59.6		57.2
3.	Nr. Pump House		63.8		59.0
4.	Nr. Coal Handling plant		62.3		56.3
5.	Nr. Gate No.4		60.1		56.7
6.	Nr. Integrated Ash Silo		66.7		61.6
7.	Nr. Main Gate		61.3		59.7
8.	Nr. APCH Building		59.4		56.8
9.	Nr. Shantiniketan-I		63.2		58.9
10.	Nr.OHC Building		60.1		59.9

**Remark:** Calibrated instruments were used during monitoring of above identified sample.

\*\*\*\*\*

# ENVIRONMENTAL MONITORING REPORT

AMBIENT AIR QUALITY, STACK EMISSION, WATER  
QUALITY AND NOISE MONITORING

Period: January 2019 - March 2019

For

**M/S. ADANI POWER (MUNDRA) LIMITED**



At  
**Tunda & Siracha,  
Tal. Mundra, Dist.: Kutch.  
KUTCH, GUJARAT – 370 435**

Prepared By

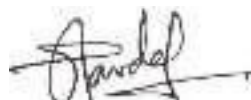




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QUALITY CONTROL							
Name of Publication		Environmental Quality Monitoring Report for the Quarter January 2019 - March 2019					
Project Number	03	Report No.	UERL/ENV/JAN/ 1-3/2019	Version	1	Released	April 2019
Project Coordinator		Mr. Bhavin Patel					
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Checked By		Mr. Jaivik Tandel					
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**FOR**  
**UniStar Environment and**  
**Research Labs Pvt. Ltd.**



**Mr. Jaivik Tandel**  
**(Authorized By)**



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## EXECUTIVE SUMMARY

Adani Power (Mundra) Limited (APMuL) has total generation capacity of 4620MW in phased manner at Mundra Thermal (coal Based) Power Plant near Village Tunda in Mundra, District Kutch, and Gujarat. The phased wise development being undertaken for ultimate capacity of power plant is shown below.

- First Phase : 2 x 330 MW
- Second Phase : 2 x 330 MW + 2 x 660 MW
- Third Phase : 3 x 660 MW

The Thermal Power Plant is located near Village Tunda, Mundra Taluka in Kutch District. The Site is closed to the sea, making cooling water perennially available for the power plant. The Power Plant is based on supercritical technology using imported coal.

All three phase of the power plant is operational and as the part of the compliance to the statutory requirement, M/s. Adani Power (Mundra) Limited has entrusted the environmental quality monitoring study for the area surrounding the power plant. Adani Power (Mundra) Limited Implemented ISO-14001:2015 Environment Management System (EMS) and Accreditation of NABL in Environmental Laboratory (ISO/IEC 17025:2005) vide Certificate No. TC-5215.

Various environmental parameters have been monitored during the period of January 2019-March 2019. The detail of the environmental parameters along with frequency of monitoring is shown in subsequent sections.

## 1. ENVIRONMENTAL PARAMETERS

Sr. No.	Environmental Indices	Parameter	No. of Location and Monitoring.	Frequency of Sampling
1.	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , Sulphur Dioxide and Nitrogen Dioxide	Three Location	Twice a week
2.	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , Sulphur Dioxide, Nitrogen Dioxide, Ozone and Mercury	Two Location	Once in a month
3.	Stack Monitoring	PM, Sulphur Dioxide, Oxide of Nitrogen and Hg	Nine Location	Once in a month
4.	Meteorological Monitoring	Wind rose, Wind speed, Wind direction, Rainfall, Temperature, Relative Humidity	One location	Round the clock
5.	Surrounding Villages Ground Water Analysis	Colour, Odour, Taste, Turbidity, Dissolved Solids, pH value, Total Hardness, Calcium, Boron, Copper, Iron, Manganese, Chloride, Sulphate, Nitrate, Fluoride, Phenolic Compounds, Mercury, Cadmium, Selenium, Arsenic, Cyanide, Lead, Zinc, Anionic Detergents as MBAS, Chromium Cr+6, Mineral Oil, MPN Index for Coliform Bacteria per 100 ml, Residual Free Chlorine, Aluminium, Alkalinity, Magnesium as Mg, Escherichia Coli in 250 ml.	Five Location	Once in Quarter
6.	Effluent Water Sample	pH, Temperature, colour, SS, O & G, BOD <sub>3</sub> , COD, Chlorides, TDS, Sulphates, Ammonical Nitrogen, % Sodium, Sodium Absorption Ratio, Sulphides, Total Chromium, Hexavalent Chromium, Copper, Lead, Zinc, Free available chlorine, Phosphate, Iron	Four Location	Once in a month / Quarter
7.	STP Water Analysis	pH, Residual Chlorine, SS, BOD, COD, Faecal coliform	Three Location	Once in month/ Quarter
8.	Borwell water Near Ash Dyke Area	pH @ 25 ° C, Conductivity (μS), Chloride as Cl <sup>-</sup> Salinity (ppt), Total Dissolved Solids, Carbonate as CaCO <sub>3</sub> , Bicarbonate as CaCO <sub>3</sub> , Mercury as Hg, Arsenic as As, Lead as Pb, Chromium as Cr, Cadmium as Cd.	Four Location	Once in a Quarter
9.	Surrounding Villages Soil Analysis	Magnesium as Mg %, Molybdenum as Mo in ppm, Phosphorus as P %, Calcium as Ca %, Zinc as Zn, Manganese as Mn, Potassium as K%, Nitrogen as N%, Iron as Fe%, Copper as Cu, Boron as B, Sulphur in %, Chloride as Cl%.	Five Location	Once in Six Month
10.	Noise Level Monitoring	Noise level monitoring in dB(A)	10 Location	Once in a Quarter



### 1.1 AMBIENT AIR QUALITY

The scenario of the Ambient Air Quality in the study region has been assessed through a network of 5 locations of Ambient Air Quality Monitoring. The design of monitoring network in the air quality surveillance program was based on the following considerations.

- Topography / Terrain of the study area.
- Human Settlements
- Wind pattern
- Health status
- Representation of regional Background levels.
- Accessibility of monitoring site.
- Resource availability.

Pre-calibrated Respirable Dust Samplers (PM<sub>10</sub>) & Fine Dust Samplers (PM<sub>2.5</sub>) have been used for monitoring the existing AAQM Status. Maximum, Minimum, Average, Standard Deviation and percentile have been computed from the raw data collected at all individual sampling stations to represent the Ambient Air Quality Status.

The significant parameters viz., PM<sub>10</sub>, PM<sub>2.5</sub>, Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>2</sub>) and Mercury were monitored within the study area of 5 km from the site.

### 1.2 FLUE GAS MONITORING

All three phases of the Thermal Power Plant are in operation. The flue gas emission from stack attached to individual boiler is monitored once in month during the monitoring period.

### 1.3 WATER QUALITY MONITORING

The water quality parameters as per IS: 10500 for water resource within the study area have been used for describing the water environment and assessing the impacts on it.

Groundwater samples of nearby villages were collected at five locations the parameters of prime importance selected under physicochemical characteristics were estimated to describe the baseline environmental status of the water resources during the monitoring period. Four bore well samples surrounding the ash dyke area were collected during the month of January 2019 along with outfall water sample.

### 1.4 AMBIENT NOISE LEVEL MONITORING

The Ambient Noise levels within the plant premises were relocated at a different location (10 nos.) For the implementation of effective noise control programs.

## METEOROLOGICAL MONITORING REPORT

Period: – January 2019 to March 2019



### 1.5 MICROMETEOROLOGY

Meteorological parameters are important factors in the study of Air Pollution. The Transport and diffusion of the pollutants in the atmosphere are governed by meteorological factors.

Primary / Basic Meteorological Parameters

- Wind Velocity
- Wind Direction

Since the dispersion and diffusion of pollutants mainly depend on the above factors hence these factors are considered as primary meteorological parameters.

Secondary Meteorological Parameters

- Relative Humidity
- Ambient Temperature

The above-said factors are considered as secondary factors since these factors control the dispersion of the pollutant indirectly by affecting the primary factors.

### 1.5.1 Wind Rose Diagram

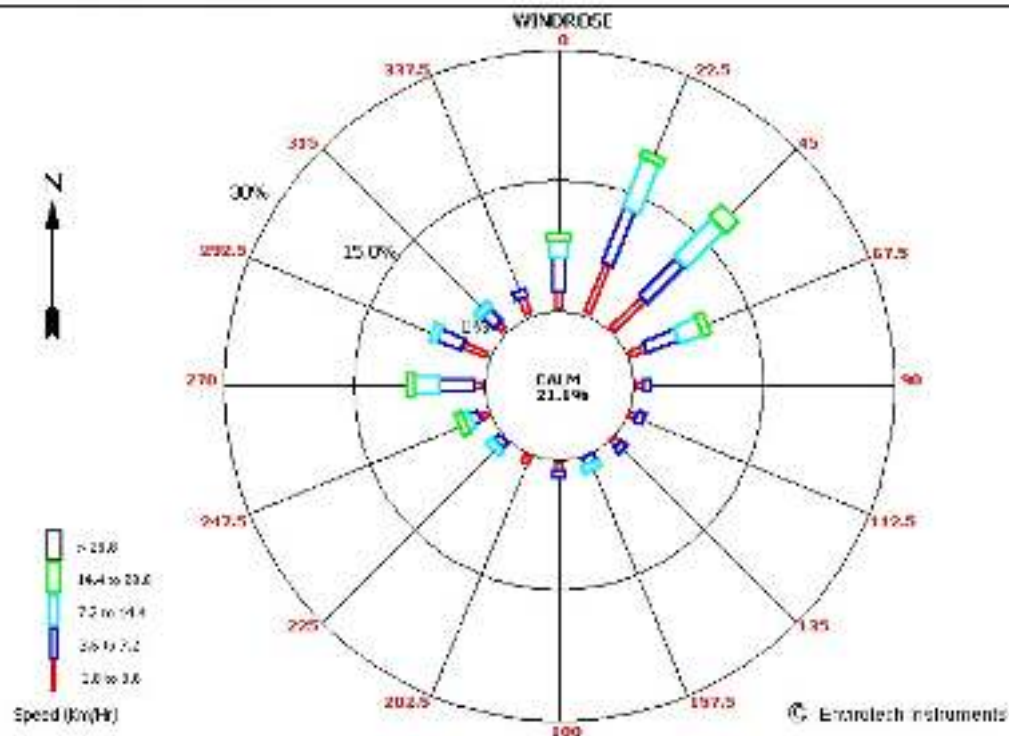
Project	:	Adani Power (Mundra) Limited (APMuL)	Period	:	January 2019 to March 2019
Location	:	Village – Tunda, Dist. - Kutch			
Wind Direction	NE				
Average Wind Speed	7.4 km/hr.				
Percentage Occurrence of Calm Winds (<1.7 Km/Hr)	10.82 %				

ADANI POWER (MUNDRA) LIMITED – MUNDRA WINDROSE FOR THE SEASON OF Jan to Mar. 2019

Time : 00:00 - 23:00

Date : 01/01/19 - 31/01/19

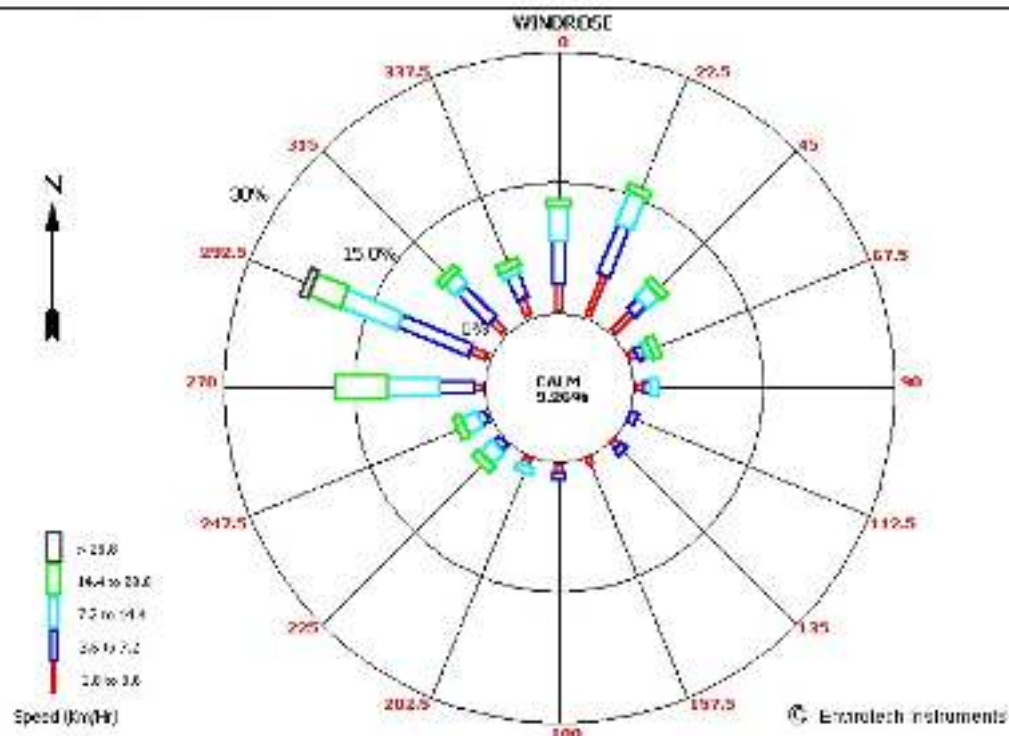
Adani Power (Mundra) Limited



Time : 00:00 - 23:00

Date : 01/02/19 - 27/02/19

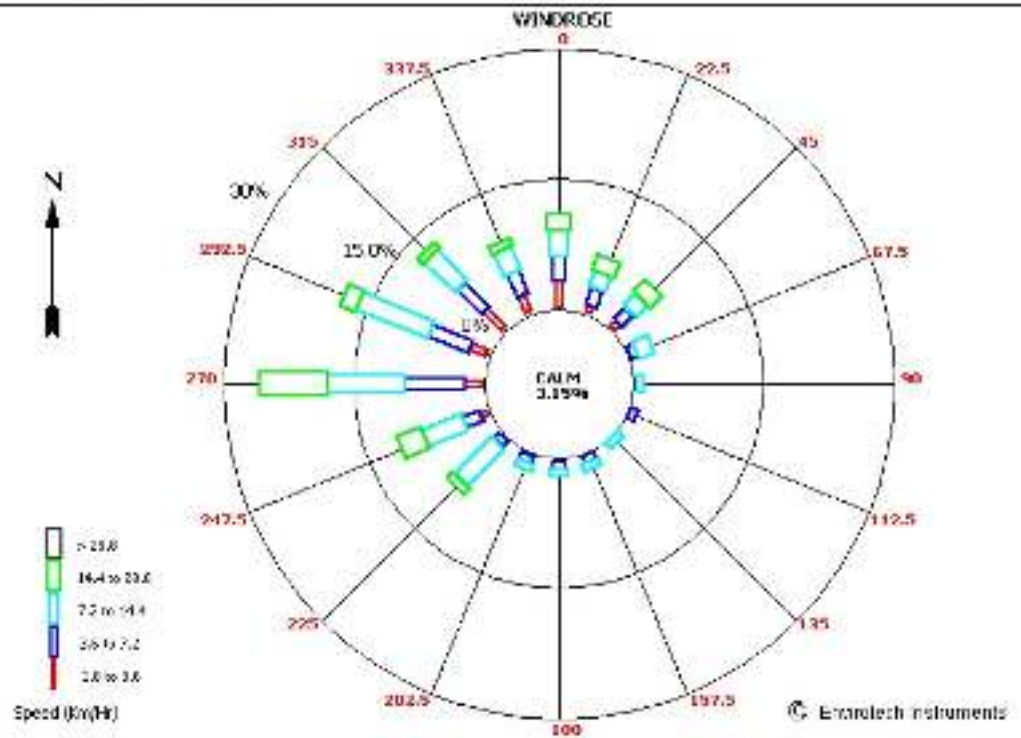
Adani Power (Mundra) Limited



Time : 00:00 - 23:00

Date : 01/03/19 - 01/03/19

Adani Power (Mundra) Limited





## 2 SCOPE & METHODOLOGY ADOPTED FOR ENVIRONMENTAL MONITORING

### 2.1 Introduction

The scope of the study includes detailed characterization of various environmental like air, water and noise within an area of 5 km radius in and around the power plant area at pump house, erector house, and surrounding villages named as Siracha, Wandh and Kandagara of Dist. Kutch.

The above mentioned environmental components were monitored at the study area and frequency of monitoring, number of samples along with methodology is as shown in below table.

### 2.2 Scope and Methodology for Monitoring of Various Environmental Attributes

Sr. No	Environmental Attributes	Sampling Locations	Sampling Parameters	Sampling Frequency	Total No of samples	Methodology
1	Ambient Air Quality	5	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , Mercury	Twice a week (24 hourly Samples)	120	IS : 5182 & Reference APHA(AIR)
2	Flue Gas Stack Analysis	Unit 1 to 9 Boiler	PM, SO <sub>2</sub> , NO <sub>x</sub>	Once in month	27	As per IS : 11255
3	Surrounding Villages Ground Water Analysis	5 water sample	Test specification as per IS : 10500 - 1991	Once in Quarter	5	AS per APHA Method
4	Water Quality of Intake & Outfall for APMuL	1	As per CTO	Once in month	6	As Per APHA Method
5	STP Outlet	1	As per CTO	Once in month	3	As Per APHA Method
6	Bore well water Near Ash Dyke Area	4	Test specification as per IS : 10500 - 1991	Once in Quarter	4	As Per APHA Method
7	Cooling Tower Blow down Water Sample	9	As per CTO	Once in Half yearly	9	As Per APHA Method
8	Condensate Cooling Tower Water Sample	9	As per CTO	Once in Half yearly	9	As Per APHA Method

### 3 ENVIRONMENTAL AIR QUALITY AND FLUE GAS MONITORING

The principle objective of the ambient air quality was to assess the existing levels of the air pollution as well as the regional background concentration in the plant area. Air pollution forms important and critical factors to study the environmental issues in the study areas. Thus, air quality has to be frequently monitored to know the extent of pollution due to power plant activity and other ancillary activities.

Flue gas monitoring analysis has been conducted by UniStar Environment and Research Labs Pvt. Ltd. Details are provided in Section 3.2.

#### 3.1 Ambient Air Monitoring Data

##### 3.1.1 Details of Ambient Air Quality Monitoring Stations

The detail of the ambient air monitoring locations including the distance from the project site with direction is as shown below.

S.No.	Code	Name of sampling location	Distance
1	A - 1	Nr.20 MLD Plant	0 Km
2	A - 2	Nr. Shantiniketan-1	0 Km
3	A - 3	Kandagara Village	3 km (NW)
4	A - 4	Siracha Village	3.5 km (NE)
5	A - 5	Wandh Village	3.0 km (SW)

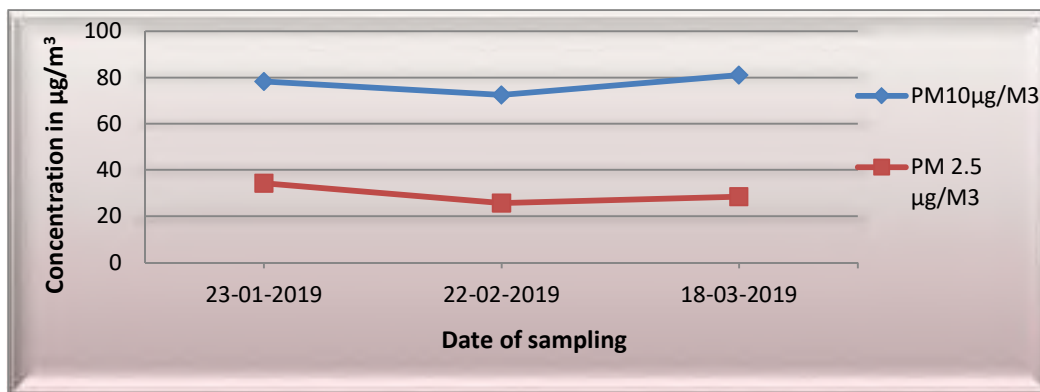
### 3.1.2 Location: Nr.20 MLD Plant

The Sampling station was located in the core zone in Company premises. The Respirable Dust Sampler (PM<sub>10</sub>) & (PM<sub>2.5</sub>) Sampler were placed at a height of 3 m above the ground level. Assess present pollution level the observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during monitoring period (January 2019 - March 2019) are as follows:

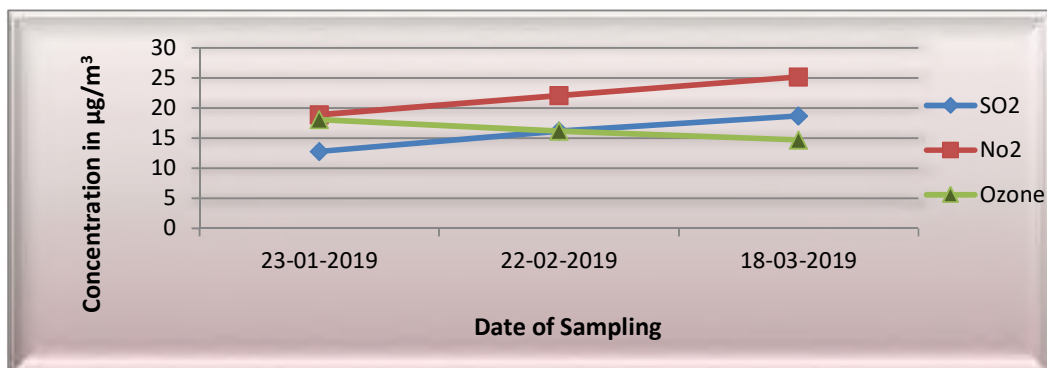
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	81.1	34.3	18.7	25.2	18.1
Minimum Value	72.5	25.7	12.8	18.9	14.7
Average Value	77.3	29.5	15.9	22.1	16.3
Standard Deviation	4.4	4.4	3.0	3.2	1.7
Permissible Limits	100	60	80	80	100

Units: µg/m<sup>3</sup>

**Graph 1 : Particulate Matter Level Nr.20 MLD Plant**



**Graph 2: SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Nr.20 MLD Plant**



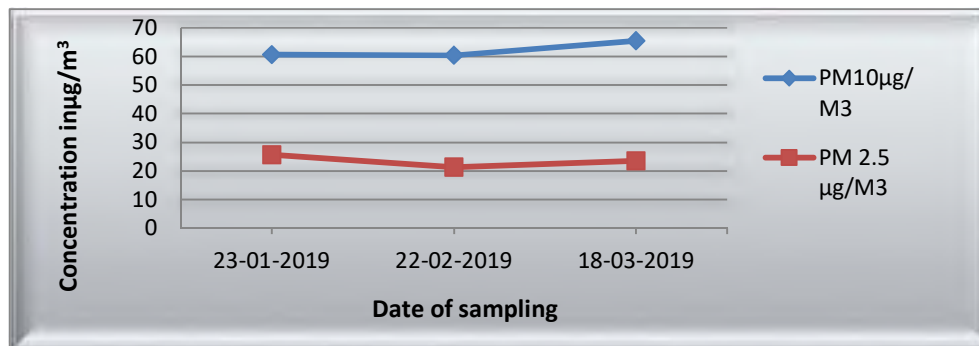
### 3.1.3 Location: Nr. Shantiniketan-1

The Sampling station was located in the core zone in company premises. The Respirable Dust Sampler  $PM_{10}$  &  $PM_{2.5}$  Sampler were placed at a height of 3 m above the ground level. The observed levels of  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$ ,  $NO_2$  and  $O_3$  collected during monitoring period (January 2019 - March 2019) are as follows

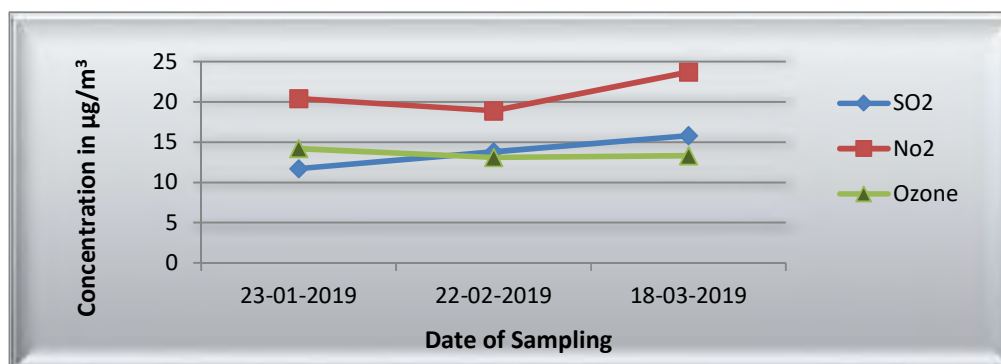
Observations	$PM_{10}$	$PM_{2.5}$	$SO_2$	$NO_2$	$O_3$
Maximum Value	65.5	25.7	15.8	23.7	14.2
Minimum Value	60.4	21.3	11.7	18.9	13.1
Average Value	62.2	23.5	13.8	21.0	13.5
Standard Deviation	2.9	2.2	2.1	2.5	0.5
Permissible Limits	100	60	80	80	100

Units:  $\mu\text{g}/\text{m}^3$

Graph 3: Particulate Matter Level Nr. Shantiniketan-1



Graph 4 :  $SO_2$ ,  $NO_2$  and  $O_3$  Nr. Shantiniketan-1



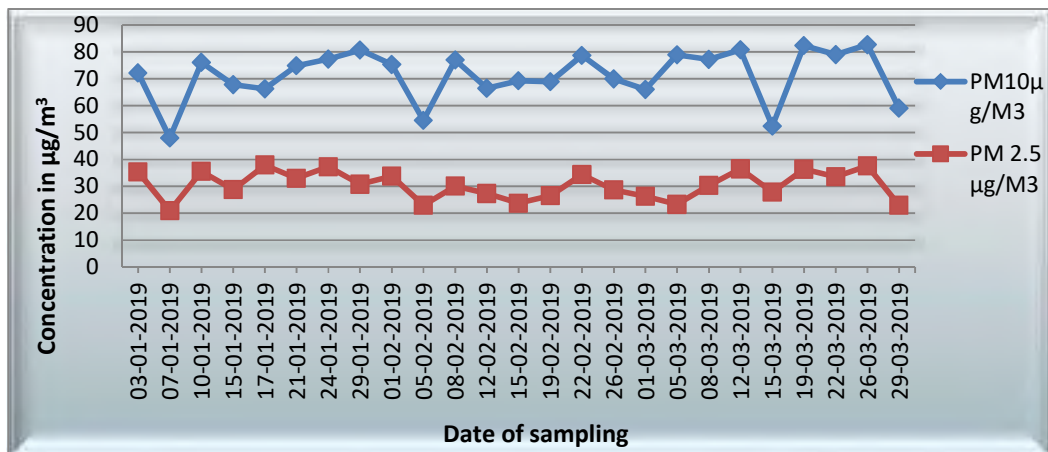
### 3.1.4 Location: Kandagara Village

The Sampling station was located in the core zone. The Station is located at about 3 km away in Northwest Direction from the Company premises. The Respirable Dust Sampler (PM<sub>10</sub>) & PM<sub>2.5</sub> Sampler were placed at a height of 1.5 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (January 2019 - March 2019) are as follows.

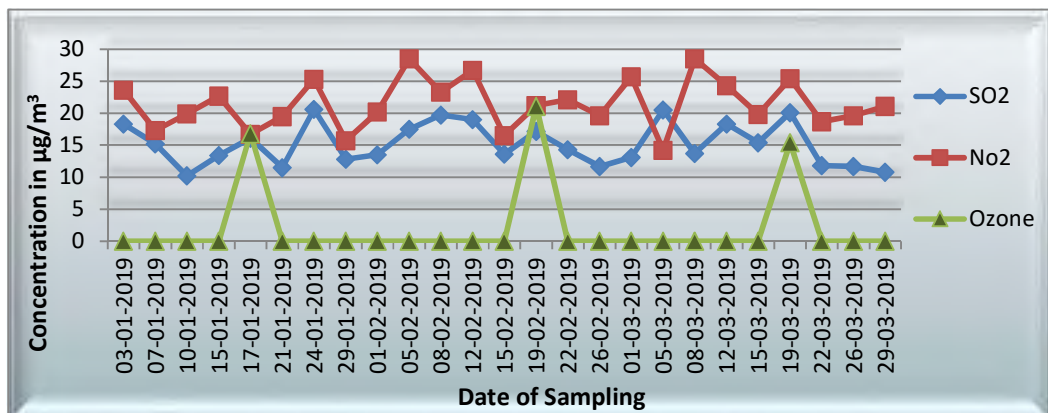
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	82.7	37.9	20.6	28.5	21.1
Minimum Value	48	20.9	10.2	14.2	0
Average Value	71.3	30.5	15.2	21.4	2.1
Standard Deviation	9.6	5.3	3.3	3.9	5.9
Permissible Limits	100	60	80	80	100

Units: µg/m<sup>3</sup>

Graph 5: Particulate Matter Level Kandagara Village



Graph 6 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Kandagara Village





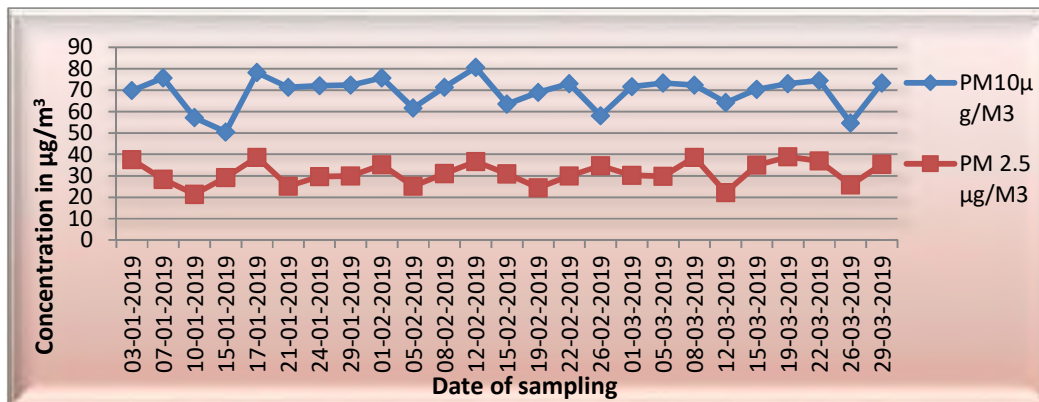
### 3.1.5 Location: Siracha Village

The Sampling station was located in the Siracha village. The Station is located at about 3.5 km away in Northwest Direction from the core zone area. The Respirable Dust Sampler & PM<sub>2.5</sub> was placed at a height of 3.0 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (January 2019 - March 2019) are as follows.

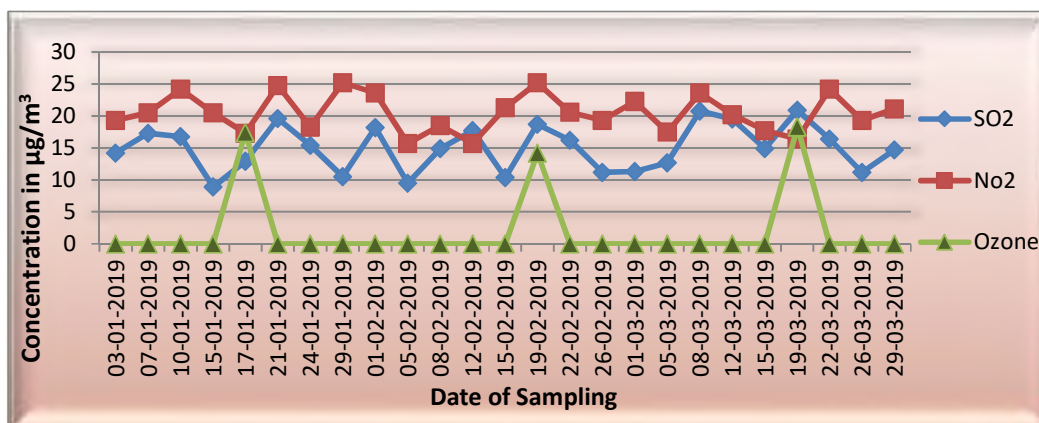
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	80.6	38.9	20.9	25.2	18.3
Minimum Value	50.5	21.4	8.9	15.7	0
Average Value	69.1	31.2	15.0	20.5	1.9
Standard Deviation	7.6	5.3	3.6	3.0	5.5
Permissible Limits	<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>	<b>100</b>

Units:  $\mu\text{g}/\text{m}^3$

Graph 7 : Particulate Matter Level Siracha Village



Graph 8 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Siracha Village



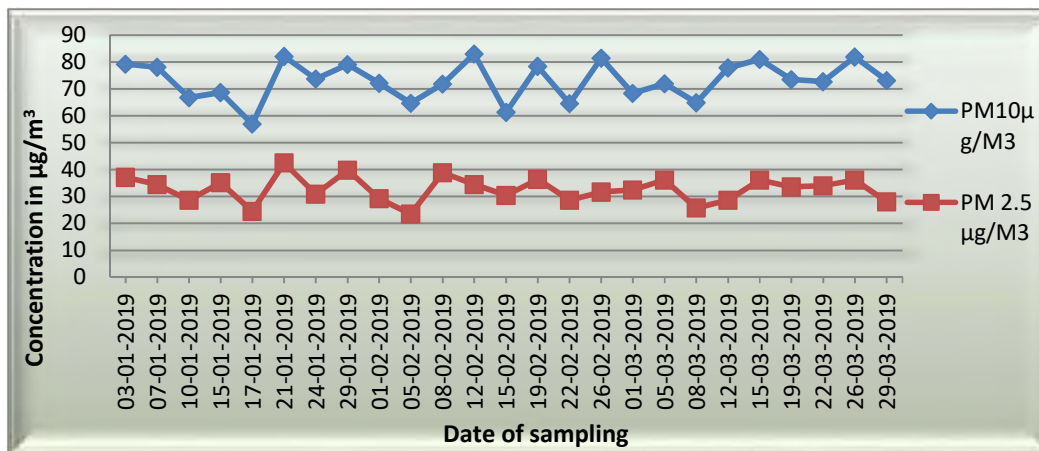
### 3.1.6 Location: Wandh Village

The Sampling station was located in the core zone in Wandh village. The Station is located at about 3.0 km away in Southwest Direction from the Company premises. The Respirable Dust Sampler Was placed at a height of 3.0 m above the ground level. The observed levels of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> collected during the monitoring period (January 2019 - March 2019) are as follows.

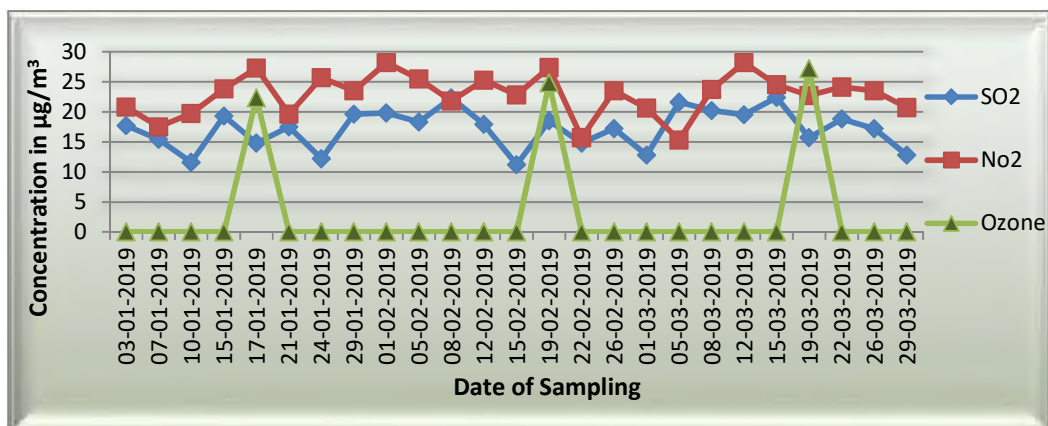
Observations	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	O <sub>3</sub>
Maximum Value	83	42.5	22.4	28.2	27.2
Minimum Value	56.9	23.5	11.2	15.3	0
Average Value	73.1	32.7	17.2	22.9	2.9
Standard Deviation	7.2	4.8	3.3	3.5	8.2
Permissible Limits	100	60	80	80	100

Units:  $\mu\text{g}/\text{m}^3$

**Graph 9 : Particulate Matter Level Wandh Village**



**Graph 10 : SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> Level Wandh Village**



### 3.1.7 Ambient Air Quality Monitoring (Parameters- Mercury & Ozone)

Location	January - 19			February - 19			March - 19		
	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>	Date	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	Mercury (Hg) µg/m <sup>3</sup>
Village Kandagara	17-01-19	16.8	BDL	19-02-19	21.1	BDL	19-03-19	15.4	BDL
Village Wandh	17-01-19	22.3	BDL	19-02-19	24.8	BDL	19-03-19	27.2	BDL
Village Siracha	17-01-19	17.4	BDL	19-02-19	14.2	BDL	19-03-19	18.3	BDL
Nr. 20 MLD Plant	23-01-19	18.1	BDL	22-02-19	16.2	BDL	18-03-19	14.7	BDL
Nr. Shantiniketan-1	23-01-19	14.2	BDL	22-02-19	13.1	BDL	18-03-19	13.3	BDL

**Remark:** Calibrated equipment & instruments were used during monitoring & analysis of above identified sample.

**Analysis Method Reference :**

Hg : AAS by VGA Method -3112 B APHA 22 Edition : BDL Limit Hg : 2 ppb

O<sub>3</sub> : IS - 5182 (part 9) 2009 Ozone BDL limit: 5 µg/m<sup>3</sup>

### 3.2 Flue Gas Monitoring Data

ISO kinetic Stack monitoring has been carried out by UniStar environment & Research Pvt. Ltd.

Date	Location	PM in mg/Nm <sup>3</sup>	SO <sub>2</sub> in mg/ Nm <sup>3</sup>	NO <sub>x</sub> in mg/ Nm <sup>3</sup>
09-01-2019	Boiler (Unit - 1)	41.4	511	308.1
13-02-2019	Boiler (Unit - 1)	34.8	648	254.2
11-03-2019	Boiler (Unit - 1)	39.4	563	274.8
09-01-2019	Boiler (Unit - 2)	35.5	728.8	263.4
13-02-2019	Boiler (Unit - 2)	38.4	545.8	263.4
11-03-2019	Boiler (Unit - 2)	44.8	701.8	269.2
11-01-2019	Boiler (Unit - 3)	45.1	585.7	322.4
18-02-2019	Boiler (Unit - 3)	30.8	712.8	336.7
15-03-2019	Boiler (Unit - 3)	33.1	679.4	311.4
11-01-2019	Boiler (Unit - 4)	41.9	772.1	277.4
18-02-2019	Boiler (Unit - 4)	33	458.3	249.3
15-03-2019	Boiler (Unit - 4)	35.2	559	247
15-01-2019	Boiler (Unit - 5)	33.2	668.2	325.8
08-02-2019	Boiler (Unit - 5)	38.7	568.2	308.3
18-03-2019	Boiler (Unit - 5)	32	612	321.4
15-01-2019	Boiler (Unit - 6)	38.5	594.3	273.5
08-02-2019	Boiler (Unit - 6)	43.7	614.7	289.1
18-03-2019	Boiler (Unit - 6)	27.1	563	249.5
10-01-2019	Boiler (Unit - 7)	36.7	171.2	279.1
09-02-2019	Boiler (Unit - 7)	33.4	161.9	340.2
19-03-2019	Boiler (Unit - 7)	42.6	146.6	227.5
10-01-2019	Boiler (Unit - 8)	32.6	148.3	328.9
08-02-2019	Boiler (Unit - 8)	38.6	136.8	282.4
19-03-2019	Boiler (Unit - 8)	39.1	130.2	305.8
10-01-2019	Boiler (Unit - 9)	33.9	162.4	292.7
09-02-2019	Boiler (Unit - 9)	32.2	159.6	292.7
19-03-2019	Boiler (Unit - 9)	38.5	139.8	220.1
Permissible Limits		50	<500 MWH-600 >500 MWH-200	300

### 3.3 Water Quality Monitoring

#### 3.3.1 Location: Tunda Village Water Sample

DATE: 04/01/2019

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.15	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	124.2	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	21.6	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	17.1	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1692	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	396.3	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	563.3	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>2-</sup>	mg/L	224.1	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	3.6	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.34	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.89	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	10	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected



### 3.3.2 Location: Kandagara Village Water Sample

DATE: 04/01/2019

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.09	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	162.0	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	28.1	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	22.3	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1896	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	496.3	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	539.6	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	178.6	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	4.7	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.36	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.89	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	N.D.(MDL:0.001)
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	N.D.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	N.D.(MDL:0.01)
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	N.D.(MDL:0.003)
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	N.D.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.(MDL:0.1)
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	N.D.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	N.D.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	N.D.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	N.D.(MDL:0.001)
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	10	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.3 Location: Siracha Village Water Sample

DATE: 04/01/2019

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.06	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odour	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	324.0	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	62.8	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	40.7	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1682	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	322.2	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	496.8	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	214.4	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	2.1	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.34	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.77	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	06	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.4 Location: Navinal Village Water Sample

DATE: 04/01/2019

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	8.14	6.5 – 8.5	6.5 – 8.5
2	Colour	Pt-Co	10	5	15
3	Odour	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	183.6	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	32.5	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	24.9	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1866	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	536.3	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	525.3	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	202.1	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	4.2	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.36	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.77	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	06	100 CFU/ml	100 CFU/ml

Note: BDL= Below Detection Limit. N.D. = Not Detected

### 3.3.5 Location: Desalpur Village Water Sample

DATE: 04/01/2019

Sr. No.	Parameter	Unit	Results	Desirable Limits	Permissible limit in the absence of alternate source
1	pH @ 25	-	7.96	6.5 – 8.5	6.5 – 8.5
2	Color	Pt-Co	10	5	15
3	Odor	mg/L	Agreeable	Unobjectionable	Unobjectionable
4	Taste	mg/L	Agreeable	Agreeable	Agreeable
5	Turbidity(NTU)	mg/L	BDL(MDL:0.1)	1 NTU	5 NTU
6	Total Hardness as CaCO <sub>3</sub>	mg/L	237.6	200 mg/lit.	600 mg/lit.
7	Calcium as Ca	mg/L	43.3	75 mg/lit.	200 mg/lit.
8	Magnesium as Mg	mg/L	31.5	30 mg/lit.	100 mg/lit.
9	Total Dissolved Solids	mg/L	1778	500 mg/lit.	2000 mg/lit.
10	Total Alkalinity	mg/L	505.6	200 mg/lit.	600 mg/lit.
11	Chloride as Cl <sup>-</sup>	mg/L	514.4	250 mg/lit.	1000 mg/lit.
12	Sulphate as SO <sub>4</sub> <sup>-2</sup>	mg/L	226.3	200 mg/lit.	400 mg/lit.
13	Nitrate as NO <sub>3</sub>	mg/L	4.9	45 mg/lit.	45 mg/lit.
14	Copper as Cu	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	1.5 mg/lit.
15	Manganese as Mn	mg/L	BDL(MDL:0.1)	0.1 mg/lit.	0.3 mg/lit.
16	Iron as Fe	mg/L	BDL(MDL:0.1)	0.3 mg/lit.	0.3 mg/lit.
17	Residual Free Chlorine	mg/L	0.38	0.2 mg/lit.	1.0 mg/lit.
18	Fluoride as F	mg/L	0.82	1.0 mg/lit.	1.5 mg/lit.
19	Zinc as Zn	mg/L	BDL(MDL:0.05)	5 mg/lit.	15 mg/lit.
20	Phenolic Compound	mg/L	BDL(MDL:0.01)	0.001 mg/lit.	0.002 mg/lit.
21	Mercury as Hg	mg/L	BDL(MDL:0.001)	0.001 mg/lit.	0.001 mg/lit.
22	Cadmium as Cd	mg/L	BDL(MDL:0.003)	0.003 mg/lit.	0.003 mg/lit.
23	Selenium as Se	mg/L	N.D.	0.01 mg/lit.	0.01 mg/lit.
24	Arsenic as as	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.05 mg/lit.
25	Cyanide as CN	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
26	Lead as Pb	mg/L	BDL(MDL:0.01)	0.01 mg/lit.	0.01 mg/lit.
27	Anionic Detergent	mg/L	N.D.	0.2 mg/lit.	1.0 mg/lit.
28	Hexavalent Chromium	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
29	Mineral Oil	mg/L	N.D.	0.5 mg/lit.	0.5 mg/lit.
30	Aluminum as Al	mg/L	N.D.	0.03 mg/lit.	0.2 mg/lit.
31	Boron as B	mg/L	N.D.	0.5 mg/lit.	1 mg/lit.
32	Total Chromium as Cr	mg/L	BDL(MDL:0.05)	0.05 mg/lit.	0.05 mg/lit.
33	Total Coliform	(CFU/100 ml)	Absent	Absent	Absent
34	E. coli	(CFU/100 ml)	Absent	Absent	Absent
35	Total Bacterial Count	(CFU/ml)	04	100 CFU/ml	100 CFU/ml

Note: Colour = 1(10) = 10 APHA, BDL= Below Detection Limit. N.D. = Not Detected

### 3.4 Water Quality Monitoring – Plant area

#### 3.4.1 Location: Outfall Channel

Sr. No.	Parameter	Unit	Date of sampling
			07/01/2019
1	pH @ 25	--	7.42
2	Temperature	°C ( Intake)	24.5
		°C ( Outfall)	27.5
		°C ( Differential)	3.0
3	Color	Pt. CO. Scale	20
4	Total Suspended Solids	mg/L	10
5	Oil & Grease	mg/L	BDL(MDL:2.0)
6	Ammonical Nitrogen	mg/L	BDL(MDL:2.0)
7	Sulphide as S-2	mg/L	BDL(MDL:0.05)
8	Total Chromium	mg/L	BDL(MDL:0.05)
9	Hexavalent Chromium as Cr+6	mg/L	BDL(MDL:0.05)
10	Phosphate as PO <sub>4</sub>	mg/L	0.21
11	Lead as Pb	mg/L	0.011
12	Copper as Cu	mg/L	BDL(MDL:0.05)
13	Zinc as Zn	mg/L	BDL(MDL:0.05)
14	Iron (as Fe)	mg/L	0.167
15	Chemical Oxygen Demand(COD)	mg/L	51.1
16	Biochemical Oxygen Demand (BOD)	mg/L	14

Note:BDL= Below Detection Limit. N.D. = Not Detected

#### 3.4.2 Location: STP Outlet Water Sample;

Sr. No.	Parameter	Unit	SPCB Limit	Date of sampling		
				07/01/2019	12/02/2019	16/03/2019
1	pH @ 25 ° C	--	6.5-8.5	7.65	7.52	7.41
2	Total Suspended Solids	mg/L	30	26	22	26
3	Residual Chlorine	mg/L	0.5 Min.	0.73	0.67	0.58
4	Biochemical Oxygen Demand (BOD)	mg/L	20	14	10	14
5	Fecal Coliform	CFU/100ml	<1000	84	78	86



### 3.4.3 Location: ETP Outlet Water Sample;

S.N	Parameter	Unit	SPCB Limit	Date of sampling		
				07/01/2019	12/02/2019	16/03/2019
1	pH @ 25	--	6.5 – 8.5	8.15	8.14	8.05
2	Temperature	° C	40 Max.	30	31	32
3	Color	Pt. CO. Scale	100 Max.	20	40	40
4	Total Suspended Solids	mg/L	100 Max.	24	18	26
5	Oil & Grease	mg/L	10 Max.	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
6	Chemical Oxygen Demand (COD)	mg/L	100 Max.	34.1	26.5	31.2
7	Biochemical Oxygen Demand (BOD)	mg/L	30 Max.	10	8	10
8	Chloride as Cl <sup>-</sup>	mg/L	600 Max.	485.5	466.3	493.3
9	Total Dissolved Solids	mg/L	2100 Max.	1560	1606	1786
10	Sulphate as SO <sub>4</sub>	mg/L	1000 Max.	74.1	77.1	102.2
11	Ammonical Nitrogen	mg/L	50 Max.	BDL(MDL:2.0)	BDL(MDL:2.0)	BDL(MDL:2.0)
12	% Sodium(Na)	mg/L	60 Max.	56.2	56.7	58.3
13	Sodium Absorption Ratio(SAR)	mg/L	26 Max.	9.1	8.5	10.2
14	Sulphide as S <sup>-2</sup>	mg/L	02 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
15	Total Chromium	mg/L	02 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
16	Hexavalent Chromium as Cr+6	mg/L	0.1 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
17	Phosphate as PO <sub>4</sub>	mg/L	5.0 Max.	0.53	0.44	0.53
18	Copper as Cu	mg/L	03 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
19	Lead as Pb	mg/L	0.1 Max.	BDL(MDL:0.01)	BDL(MDL:0.01)	BDL(MDL:0.01)
20	Zinc as Zn	mg/L	05 Max.	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
21	Residual Free Chlorine	mg/L	0.5 Max.	BDL(MDL:0.2)	BDL(MDL:0.2)	BDL(MDL:0.2)
22	Iron (as Fe)	mg/L	1.0 Max.	BDL(MDL:0.1)	BDL(MDL:0.1)	BDL(MDL:0.1)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

**3.4.4 Location: Bore-well – 1(Nr. Emergency Ash Pond)**
**Date: 04/01/2019**

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.03
2	Conductivity (µS)	-	17072
3	Chloride as Cl <sup>-</sup>	mg/L	4625.1
4	Salinity (ppt)	mg/L	8.3
5	Total Dissolved Solids	mg/L	10926
6	Carbonate as CaCO <sub>3</sub>	mg/L	29.1
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	147.3
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.003)
13	Iron (as Fe)	mg/L	BDL(MDL:0.1)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.05)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

**3.4.5 Location: Bore-well – 2(Nr. Emergency Ash Pond)**
**Date: 04/01/2019**

S.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.12
2	Conductivity (µS)	-	18969
3	Chloride as Cl <sup>-</sup>	mg/L	4456
4	Salinity (ppt)	mg/L	8.1
5	Total Dissolved Solids	mg/L	12140
6	Carbonate as CaCO <sub>3</sub>	mg/L	43.3
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	123.2
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.003)
13	Iron (as Fe)	mg/L	BDL(MDL:0.1)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.05)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

### 3.4.6 Location: Bore-well – 3 (Nr. Emergency Ash Pond)

Date: 04/01/2019

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.01
2	Conductivity (µS)	-	15954
3	Chloride as Cl <sup>-</sup>	mg/L	4526
4	Salinity (ppt)	mg/L	8.2
5	Total Dissolved Solids	mg/L	10210
6	Carbonate as CaCO <sub>3</sub>	mg/L	30.2
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	116.5
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.003)
13	Iron (as Fe)	mg/L	BDL(MDL:0.1)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.05)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

### 3.4.7 Location: Bore-well – 4(Nr. Emergency Ash Pond)

Date: 04/01/2019

Sr.No.	Parameter	Unit	Results
1	pH @ 25 ° C	-	8.15
2	Conductivity (µS)	-	17854
3	Chloride as Cl <sup>-</sup>	mg/L	4785
4	Salinity (ppt)	mg/L	8.6
5	Total Dissolved Solids	mg/L	11426
6	Carbonate as CaCO <sub>3</sub>	mg/L	24.3
7	Bicarbonate as CaCO <sub>3</sub>	mg/L	162.3
8	Mercury as Hg	mg/L	BDL(MDL:0.001)
9	Arsenic as As	mg/L	BDL(MDL:0.01)
10	Lead as Pb	mg/L	BDL(MDL:0.01)
11	Chromium as Cr	mg/L	BDL(MDL:0.05)
12	Cadmium as Cd	mg/L	BDL(MDL:0.003)
13	Iron (as Fe)	mg/L	BDL(MDL:0.1)
14	Zinc (as Zn)	mg/L	BDL(MDL:0.05)

**Note:** N.D. = Not Detected, MDL = Minimum Detection Limit

### 3.4.8 Location: Cooling Tower Blow down Water Sample

S.No.	Parameter	Unit	Limit	Results			
				Unit-1	Unit-2	Unit-3	Unit-4
Date of Sampling ➡				16/03/2019	16/03/2019	16/03/2019	16/03/2019
1	pH @ 25 ° C	--	-	8.10	8.21	8.11	8.08
2	Free available Chlorine	° C	Min. 0.5	0.78	0.83	0.86	0.89
3	Zinc as Zn	Pt. CO. Scale	1.0	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
4	Hexavalent Chromium as Cr+6	mg/L	0.1	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
5	Total Chromium as Cr	mg/L	0.2	0.075	0.067	0.082	0.078
6	Phosphate as P	mg/L	5.0	0.56	0.72	0.74	0.55

S.No	Parameter	Unit	Limit	Results				
				Unit-5	Unit-6	Unit-7	Unit-8	Unit-9
Date of Sampling ➡				16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
1	pH @ 25 ° C	--	-	8.17	8.14	8.16	8.02	8.14
2	Free available Chlorine	° C	Min. 0.5	0.83	0.67	0.67	0.81	0.63
3	Zinc as Zn	Pt. CO. Scale	1.0	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
4	Hexavalent Chromium as Cr+6	mg/L	0.1	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
5	Total Chromium as Cr	mg/L	0.2	0.067	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)	BDL(MDL:0.05)
6	Phosphate as P	mg/L	5.0	0.52	0.33	0.44	0.62	0.45

### 3.4.9 Location: Condensate Cooling Tower Water Sample

S.No.	Parameter	Unit	Limit	Results			
				Unit-1	Unit-2	Unit-3	Unit-4
Date of Sampling ➡				16/03/2019	16/03/2019	16/03/2019	16/03/2019
1	pH @ 25 ° C	--	6.5 to 8.5	8.11	8.08	8.10	8.02
2	Temperature °C ( Intake)	°C	--	30.6	29.6	30	30.7
	Temperature °C ( Outlet)	°C	--	33.6	32.5	32.8	33.5
	Temperature °C ( Differential)	°C	7	3.0	2.9	2.8	2.8
3	Free available Chlorine	mg/L	Min 0.5	0.63	0.74	0.71	0.74

S.No.	Parameter	Unit	Limit	Results				
				Unit-5	Unit-8	Unit-7	Unit-8	Unit-9
Date of Sampling ➡				16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
1	pH @ 25 ° C	--	6.5 to 8.5	8.16	8.09	8.08	8.11	8.15
2	Temperature °C ( Intake)	°C	--	29.7	30.3	30.1	30.6	30.5
	Temperature °C ( Outlet)	°C	--	32.7	33.1	33.1	33.5	33.6
	Temperature °C ( Differential)	°C	7	3.0	2.8	3.0	2.9	3.1
3	Free available Chlorine	mg/L	Min 0.5	0.65	0.69	0.74	0.78	0.65



### 3.5 Soil Quality Monitoring:

Date: 04/01/2019

Locations of soil sampling ➡			Kandagara	Tunda	Desalpur	Siracha	Navinal
Sr. No.	Parameter	Unit	Results				
1	Magnesium as Mg	%	0.0041	0.0035	0.0039	0.0032	0.0031
2	Molybdenum as Mo	%	N.D.	N.D.	N.D.	N.D.	N.D.
3	Phosphorous as P	%	0.342	0.352	0.296	0.385	0.239
4	Calcium as Ca	%	0.0079	0.0065	0.0071	0.0074	0.0042
5	Zinc as Zn	%	N.D.	N.D.	N.D.	N.D.	N.D.
6	Manganese as Mn	%	0.0018	0.0020	0.0036	0.0019	N.D.
7	Potassium as K	%	0.0041	0.0114	0.0042	0.0219	0.0044
8	Nitrogen as N	%	0.0074	0.0241	0.0082	0.0115	0.0078
9	Iron as Fe	%	0.0129	0.0236	0.0073	0.0244	0.0103
10	Copper as Cu	%	N.D.	N.D.	N.D.	N.D.	N.D.
11	Boron as B	%	N.D.	N.D.	N.D.	N.D.	N.D.
12	Sulphur	%	0.0042	0.0092	0.0074	0.0108	0.0065
13	Chlorides as Cl	%	0.0082	0.0141	0.0214	0.0563	0.0471

**Note:** N.D. = Not Detected,

#### 4 AMBIENT NOISE LEVEL MONITORING

The main objective of noise monitoring in the study area is to establish the baseline noise levels and assess the impact of the total noise generated by the operation activities around it. Noise monitoring has been conducted at 10 locations within the periphery of industry premises.

- **Date of Monitoring: 05/01/2019**

##### Result

Sr. No.	Location	Noise Level dB(A)			
		Sampling Time	Day Time dB(A) 06 am - 10 pm	Sampling Time	Night Time dB(A) 10 pm - 06 am
			Limit 75 dB(A)		Limit 70 dB(A)
1.	Nr. LDO Pump House	10:40 am -11:50am	61.5	22:05 pm -23:20pm	55.1
2.	Nr. 20 MLD Plant		65.6		58.1
3.	Nr. Pump House		58.8		56.5
4.	Nr. Coal Handling plant		60.2		54.5
5.	Nr. Gate No.4		52.6		51.9
6.	Nr. Integrated Ash Silo		64.1		57.3
7.	Nr. Main Gate		58.2		55.9
8.	Nr. APCH Building		63.3		54.2
9.	Nr. Shantiniketan-I		56.4		55.7
10.	Nr.OHC Building		60.3		59.3

**Remark:** Calibrated instruments were used during monitoring of above identified sample.

- **Date of Monitoring: 12.02.2019**

##### Result

Sr. No.	Location	Noise Level dB(A)			
		Sampling Time	Day Time dB(A) 06 am - 10 pm	Sampling Time	Night Time dB(A) 10 pm - 06 am
			Limit 75 dB(A)		Limit 70 dB(A)
1.	Nr. LDO Pump House	11:00 am -12:45pm	65.9	22:00 pm -23:15pm	64.4
2.	Nr. 20 MLD Plant		60.8		60.1
3.	Nr. Pump House		62.2		61.7
4.	Nr. Coal Handling plant		61.4		60.3
5.	Nr. Gate No.4		59.7		58.6
6.	Nr. Integrated Ash Silo		66.4		62.0
7.	Nr. Main Gate		61.0		60.5
8.	Nr. APCH Building		59.2		56.3
9.	Nr. Shantiniketan-I		60.5		59.6
10.	Nr.OHC Building		63.0		62.2

**Remark:** Calibrated instruments were used during monitoring of above identified sample.

- Date of Monitoring: 05.03.2019

#### Result

Sr. No.	Location	Noise Level dB(A)			
		Sampling Time	Day Time dB(A) 06 am - 10 pm	Sampling Time	Night Time dB(A) 10 pm - 06 am
			Limit 75 dB(A)		Limit 70 dB(A)
1.	Nr. LDO Pump House	11:05 am -12:40pm	61.7	22:05 pm -23:20pm	56.6
2.	Nr. 20 MLD Plant		65.1		55.7
3.	Nr. Pump House		60.5		57.8
4.	Nr. Coal Handling plant		60.7		57.9
5.	Nr. Gate No.4		57.1		56.9
6.	Nr. Integrated Ash Silo		62.9		60.7
7.	Nr. Main Gate		60.1		57.2
8.	Nr. APCH Building		61.3		57.4
9.	Nr. Shantiniketan-I		58.7		56.9
10.	Nr.OHC Building		58.4		54.8

**Remark:** Calibrated instruments were used during monitoring of above identified sample.

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### TEST REPORT

<b>ULR – TC775318000005181F</b>			
Report No.	URC /18/11/0882	Date Of Report	07/12/2018
Name & Address of Customer	M/s. Dorf Ketal Chemicals India Pvt. Ltd. Survey No. 161, Near Water Treatment Plant, SEZ, Mundra, Kutch, Gujarat.		
Sample Details	Treated Effluent Water Sample	Sample Qty.	3 Lit.
Sampling Date	30/11/2018	Sample Received Date	30/11/2018
Sampled By	Us.	Appearance Of Sample	Colourless
Test Started Date	01/12/2018	Test Completion Date	04/12/2018
UERL Lab Sample ID.No. 18/11/0882			

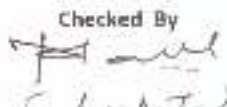
### TEST RESULTS

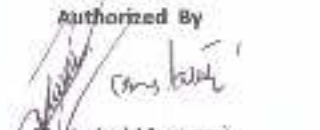
Sr. No.	Parameters	Test Method	G.P.C.B. Desirable Limit	Results
<b>PHYSICAL QUALITY</b>				
1.	pH @ 25 °C	IS 3025(Part 12)1983, (APHA 23 <sup>rd</sup> Ed.,2017,4500-H <sup>+</sup> B)	6.5 – 8.5	7.44
2.	Total Suspended Solids (mg/L)	IS 3025(Part 17)1984,Amd.1 (APHA 23 <sup>rd</sup> Ed.,2017,2540 –D),	800 Max.	16
3.	Total Dissolved Solids (mg/L)	IS 3025(Part 16)1984 (APHA 23 <sup>rd</sup> Ed.,2017,2540– C),	2100 Max.	1008
<b>CHEMICAL QUALITY (In mg/L)</b>				
1.	Chemical Oxygen Demand (COD)	IS 3025(Part 58)2006, (APHA 23 <sup>rd</sup> Ed.,2017,5220-B),	2000 Max.	77.3
2.	Biochemical Oxygen Demand (BOD) (3 days at 27 °C)	IS 3025(Part 44)1993, Amd. 1	1000 Max.	23
3.	Oil & Grease	IS 3025(Part 39)1991,Amd. 2	20 Max.	BDL(MDL:2.0)
4.	Sulphide as S <sup>2-</sup>	(APHA 23 <sup>rd</sup> Ed.,2017,4500 S <sup>2-</sup> F)	2.0 Max.	BDL(MDL:0.05)
5.	Phenolic Compound	IS 3025(Part 43)1992, Amd. 2	1.0 Max.	BDL(MDL:0.1)
6.	Fluoride as F	(APHA 23 <sup>rd</sup> Ed.,2017,4500 F,D)	2.0 Max.	0.63
7.	Chloride as Cl <sup>-</sup>	IS 3025(Part 32)1988 (APHA 23 <sup>rd</sup> Ed.,2017,4500-Cl)	600 Max.	325.1
8.	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025(Part 24)1986	1000 Max.	136.6
9.	Cyanide as CN	IS 3025(Part 27)1986	0.2 Max.	BDL(MDL:0.05)
10.	Copper as Cu	IS 3025(Part 42)1992Amd.01, (APHA 23 <sup>rd</sup> Ed.,2017,3111-B)	3.0 Max.	BDL(MDL:0.05)
11.	Nickel as Ni	IS 3025(Part 54)2003, (APHA 23 <sup>rd</sup> Ed.,2017,3111-B)	3.0 Max.	0.048
12.	Ammonical Nitrogen	IS 3025(Part 34)1988, (APHA 23 <sup>rd</sup> Ed.,2017,4500 NH <sub>3</sub> -B&C),	50 Max.	BDL(MDL:2.0)

Note: BDL= Below Detection Limit, MDL – Minimum Detection Limit

\*\*\*\*\* End of Report \*\*\*\*\*

Tested By  
  
(Chemist)

Checked By  
  
(Sr. Chemist)

Authorized By  
  
(Technical Manager)  
UERL/CHM/F-2/02

Page 1 of 1

## TEST REPORT

ULR - TC775318000005182P			
Report No.	URC /18/11/0883	Date Of Report	07/12/2018
Name & Address of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Survey No. 161, Near Water Treatment Plant, SEZ, Mundra, Kutch, Gujarat.		
Sample Details	STP Outlet Water Sample	Sample Qty.	2 Lit.
Sampling Date	30/11/2018	Sample Received Date	30/11/2018
Sampled By	Us.	Appearance Of Sample	Colourless
Test Started Date	01/12/2018	Test Completion Date	06/12/2018
UERL Lab Sample ID.No. 18/11/0883			

## TEST RESULTS

Sr. No.	Parameters	Test Method	GPCB Limit	Results
<b>PHYSICAL QUALITY</b>				
1.	pH @ 25 ° C	IS 3025(Part 11)1983, (APHA 23 <sup>rd</sup> Ed.,2017,4500-H <sup>+</sup> B)	--	7.56
2.	Total Dissolved Solids (mg/l)	IS 3025(Part 16)1984 (APHA 23 <sup>rd</sup> Ed.,2017,2540-C),	--	898
3.	Total Suspended Solids (mg/l)	IS 3025(Part 17)1984,Amd.1 (APHA 23 <sup>rd</sup> Ed.,2017,2540 -D),	<30	14
<b>CHEMICAL QUALITY (In mg/L)</b>				
1.	*Residual Free Chlorine	IS 3025(Part 26)1986, (APHA 23 <sup>rd</sup> Ed.,2017,4500-Cl-B)	0.5 (min.)	0.89
2.	Chemical Oxygen Demand (COD)	IS 3025(Part 58)2006, (APHA 23 <sup>rd</sup> Ed.,2017,5220-B),	--	33.4
3.	Biochemical Oxygen Demand (BOD )	IS 3025(Part44)1993, Amd. 1	<20	10

Note: \*The test marked with an \* is not accredited by NABL.

\*\*\*\*\* End of Report \*\*\*\*\*

Tested By [Signature]  
(Chemist)

Checked By  
*[Signature]*  
(Sr. Chemist)

Authorized By  
[Signature]  
(Technical Manager)



### AMBIENT NOISE LEVEL MONITORING REPORT

ULR - TC775318000005040F

Test Report No.:	URA/18/11/AN-149	Date Of Report:	05/11/2018
Name & Add. Of Industries	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist: Kutch, Gujarat - 370421, INDIA		
Sampling Method	IS : 9989 : 1981		

#### Details of Instrument Used for Monitoring.

Instrument Id No.	Instrument Name	Model Number	Cali. Date	Next Cali. Date
UERL/AIR/SLM/09A	Sound Level Meter	24 DTE 2008	01/04/2018	31/03/2019

Date and Time of Monitoring : 29-11-2018 (Day Time: 6:00 am to 10:00 pm)

#### Result

Sr. No.	Location	Noise Level dB(A)			Permissible Limit CPCB
		Min.	Max.	Avg.	
1.	Near Main Gate	46.7	67.3	57	<75 dB(A)
	Near Ware House	49.5	62.6	56.05	<75 dB(A)
	Near Raw Water Tank	58.3	71.2	64.75	<75 dB(A)

Note: Ambient Air Quality Standards in respected of Noise as per CPCB.

Area Code	Category of Area/Zone	Limit in dB (A) Leg	
		Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Prepared By

*Acid*

Page 1 of 1

Authorized By

*[Signature]*

UERL/AIR/F-18/01

### AMBIENT NOISE LEVEL MONITORING REPORT

ULR - TC775318000005041F			
Test Report No.:	URA/18/11/AN-150	Date Of Report:	05/12/2018
Name & Add. Of Industries	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block – F, Sector 12N, Adani Port and Sez, Dist: Kutch , Gujarat – 370421, INDIA		
Sampling Method	IS : 9989 : 1981		

#### Details of Instrument Used for Monitoring.

Instrument Id No.	Instrument Name	Model Number	Cali. Date	Next Cali. Date
UERL/AIR/SIM/09A	Sound Level Meter	24 DTE 2008	01/04/2018	31/03/2019

Date and Time of Monitoring : 29-11-2018 (Night Time: 10:00 pm to 6:00 am)

#### Result

Sr. No.	Location	Noise Level dB(A)			Permissible Limit CPCB
		Min.	Max.	Avg.	
1.	Near Main Gate	35.0	61.4	48.2	<70 dB(A)
	Near Ware House	35.0	55.8	45.4	<70 dB(A)
	Near Raw Water Tank	35.0	67.6	51.3	<70 dB(A)

Note: Ambient Air Quality Standards in respected of Noise as per CPCB.

Area Code	Category of Area/Zone	Limit in dB (A) Leq	
		Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Prepared By

*Acil*

Page 1 of 1

Authorized By

*[Signature]*

UERL/AIR/F-18/01



### TEST REPORT (AMBIENT AIR MONITORING)

ULR - TC775318000005027F

Test Report No.:	URA/18/11/A-138	Report Issue Date:	05/12/2018
Service Request form No.:	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.:	URA/ID/A-18/11/138	Field Data Sheet No.:	URA/FDS/A-18/11/138
Name & Add. of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist: Kutch, Gujarat - 370421, INDIA		
Dates of Sampling :	29/11/2018	Date of Testing	01/12/2018
Sampling Procedure:	CPCB Guideline		
Location of Sampling / Monitoring:	A-1 (Nr. ETP)		
Environmental Conditions during Sampling :	Temp.:	Min.: 21 °C	Max.: 37 °C
	Rel. Humidity:	Min.: 33 %	Max.: 69 %
		Avg.: 29 °C	Avg.: 51 %

#### ➤ Details of Master Instrument Used for Monitoring

Instrument Id No.	Instrument Name	Serial Number	Cali. Date	Next Cali. Date
UERL/AIR/RDS/24	Respirable Dust Sampler	2345-DTB & 1039-DTC-2012	01/04/2018	31/03/2019
UERL/AIR/FPS/50	Fine Particulate Sampler	129-DTL-2012	07/03/2018	06/03/2019

#### ➤ General Sampling / Monitoring Observation as per CPCB Guideline

Sr. No.	Description	Unit of measurement	Observation
1.	Monitoring Duration	h	24
2.	Flow Rate of PM <sub>10</sub>	m <sup>3</sup> /min	1.27
3.	Volume of Air Sampled for PM <sub>10</sub>	m <sup>3</sup>	1828
4.	Volume of Air Sampled for PM <sub>2.5</sub>	m <sup>3</sup>	24.76
5.	Flow Rate for Gas	L/min	0.2
6.	Volume of Air Sample for Gas	L	288

#### ➤ Environmental Conditions during testing: Temp.: 25 ± 5 °C, Relative Humidity: 40 to 50%

#### ➤ Test Parameter Results

Sr. No.	Test Parameter	Unit	Result	Specific Value (As per NAAQMS)	Test Method
1.	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	76	100	IS - 5182, Part - 23
2.	Particulate Matter (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	28	60	UERL/AIR/SOP/11
3.	Sulphur Dioxide	µg/m <sup>3</sup>	16.2	80	IS - 5182, Part - 2
4.	Nitrogen Dioxide	µg/m <sup>3</sup>	20.6	80	IS - 5182, Part - 6
5.	Carbon Monoxide	µg/m <sup>3</sup>	BDL	2.0	IS - 5182, Part - 10
6.	Ozone	µg/m <sup>3</sup>	BDL	100	IS - 5182, Part - 9
7.	Ammonia	µg/m <sup>3</sup>	BDL	400	UERL/AIR/SOP/05
8.	Lead	µg/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 72
9.	Nickel	ng/m <sup>3</sup>	BDL	20	IS - 5182, Part - 22
10.	Arsenic	ng/m <sup>3</sup>	BDL	6.0	IS - 5182, Part - 22
11.	Benzene	µg/m <sup>3</sup>	BDL	5.0	IS - 5182, Part - 11
12.	Benzo pyrene	ng/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 12

Sampling Done By:

*A. Patel*  
(Chemist) / (Supervisor)  
(A-11-7)

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(A-11-7)

Authorized By:

*[Signature]*  
(Manager - Operations)

Page No.: 1 of 1

UERL/AIR/F-05/03

**TEST REPORT**  
**(AMBIENT AIR MONITORING)**

ULR - TC775318000005029F

Test Report No.:	URA/18/11/A-140	Report Issue Date:	05/12/2018
Service Request form No.:	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.:	URA/ID/A-18/11/140	Field Data Sheet No.:	URA/FDS/A-18/11/140
Name & Add. of Customer	M/s. Dorf Ketal Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sex, Dist: Kutch, Gujarat - 370421, INDIA		
Dates of Sampling :	29/11/2018	Date of Testing	01/12/2018
Sampling Procedure:	CPCB Guideline		
Location of Sampling / Monitoring:	A - 2 (Nr. Ware House)		
Environmental Conditions during Sampling :	Temp.:	Min.: 21 °C	Max.: 37 °C
	Rel. Humidity:	Min.: 33 %	Max.: 69 %
		Avg.: 29 °C	Avg.: 51 %

➤ **Details of Master Instrument Used for Monitoring**

Instrument Id No.	Instrument Name	Serial Number	Cali. Date	Next Cali. Date
UERL/AIR/RDS/26	Respirable Dust Sampler	1745-DTA, 1139-DTA-2013	23/01/2018	21/01/2019
UERL/AIR/FPS/42	Fine Particulate Sampler	125-DTD - 2013	01/04/2018	31/03/2019

➤ **General Sampling / Monitoring Observation as per CPCB Guideline**

Sr. No.	Description	Unit of measurement	Observation
1.	Monitoring Duration	h	24
2.	Flow Rate of PM <sub>10</sub>	m <sup>3</sup> /min	1.23
3.	Volume of Air Sampled for PM <sub>10</sub>	m <sup>3</sup>	1771
4.	Volume of Air Sampled for PM <sub>2.5</sub>	m <sup>3</sup>	24.19
5.	Flow Rate for Gas	L/min	0.2
6.	Volume of Air Sample for Gas	L	288

➤ **Environmental Conditions during testing:** Temp.: 25 ± 5 °C, Relative Humidity: 40 to 50%

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit	Result	Specific Value (As per NAAQMS)	Test Method
1.	Particulate Matter. (PM <sub>10</sub> )	µg/m <sup>3</sup>	70	100	IS - 5182, Part - 23
2.	Particulate Matter. (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	23	60	UERL/AIR/SOP/11
3.	Sulphur Dioxide	µg/m <sup>3</sup>	15.4	80	IS - 5182, Part - 2
4.	Nitrogen Dioxide	µg/m <sup>3</sup>	20.6	80	IS - 5182, Part - 6
5.	Carbon Monoxide	µg/m <sup>3</sup>	BDL	2.0	IS - 5182, Part - 10
6.	Ozone	µg/m <sup>3</sup>	BDL	100	IS - 5182, Part - 9
7.	Ammonia	µg/m <sup>3</sup>	BDL	400	UERL/AIR/SOP/05
8.	Lead	µg/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 22
9.	Nickel	ng/m <sup>3</sup>	BDL	20	IS - 5182, Part - 22
10.	Arsenic	ng/m <sup>3</sup>	BDL	6.0	IS - 5182, Part - 22
11.	Benzene	µg/m <sup>3</sup>	BDL	5.0	IS - 5182, Part - 11
12.	Benzo pyrene	ng/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 12

Sampling Done By:

*A. Patel*  
(Chemist) / (Supervisor)  
(a a - i)

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(a a - i)

Authorized By:

*[Signature]*  
(Manager - Operations)

Page No.: 1 of 1

UERL/AIR/F-05/03



### TEST REPORT (AMBIENT AIR MONITORING)

ULR - TC775318000005028F			
Test Report No.:	URA/18/11/A-139	Report Issue Date:	05/12/2018
Service Request form No.:	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.:	URA/IO/A-18/11/139	Field Data Sheet No.:	URA/FDS/A 18/11/139
Name & Add. of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sex, Dist: Kutch, Gujarat - 370421, INDIA		
Dates of Sampling :	29/11/2018	Date of Testing	01/12/2018
Sampling Procedure:	CPCB Guideline		
Location of Sampling / Monitoring:	A - 3 (Nr. Main Gate / RMU)		
Environmental Conditions during Sampling :	Temp.:	Min.: 21 °C	Max.: 37 °C Avg.: 29 °C
	Rel. Humidity:	Min.: 33 %	Max.: 69 % Avg.: 51 %

#### Details of Master Instrument Used for Monitoring

Instrument Id No.	Instrument Name	Serial Number	Call. Date	Next Call. Date
UURL/AIR/RDS/03	Respirable Dust Sampler	1117-DTC-2008, 3355-DTB-2008	21/08/2018	20/08/2019
UURL/AIR/FPS/41	Fine Particulate Sampler	137 - DTD - 2013	01/04/2018	31/03/2019

#### General Sampling / Monitoring Observation as per CPCB Guideline

Sr. No.	Description	Unit of measurement	Observation
1.	Monitoring Duration	h	24
2.	Flow Rate of PM <sub>10</sub>	m <sup>3</sup> /min	1.25
3.	Volume of Air Sampled for PM <sub>10</sub>	m <sup>3</sup>	1800
4.	Volume of Air Sampled for PM <sub>2.5</sub>	m <sup>3</sup>	24.48
5.	Flow Rate for Gas	L/min	0.2
6.	Volume of Air Sample for Gas	L	288

#### Environmental Conditions during testing: Temp.: 25 ± 5 °C, Relative Humidity: 40 to 50%

#### Test Parameter Results

Sr. No.	Test Parameter	Unit	Result	Specific Value (As per NAAQMS)	Test Method
1.	Particulate Matter. (PM <sub>10</sub> )	µg/m <sup>3</sup>	74	100	IS - 5182, Part - 23
2.	Particulate Matter. (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	26	60	UURL/AIR/SOP/11
3.	Sulphur Dioxide	µg/m <sup>3</sup>	13.9	80	IS - 5182, Part - 2
4.	Nitrogen Dioxide	µg/m <sup>3</sup>	22.5	80	IS - 5182, Part - 6
5.	Carbon Monoxide	µg/m <sup>3</sup>	BDL	2.0	IS - 5182, Part - 10
6.	Ozone	µg/m <sup>3</sup>	BDL	100	IS - 5182, Part - 9
7.	Ammonia	µg/m <sup>3</sup>	BDL	400	UURL/AIR/SOP/05
8.	Lead	µg/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 22
9.	Nickel	ng/m <sup>3</sup>	BDL	20	IS - 5182, Part - 22
10.	Arsenic	ng/m <sup>3</sup>	BDL	6.0	IS - 5182, Part - 22
11.	Benzene	µg/m <sup>3</sup>	BDL	5.0	IS - 5182, Part - 11
12.	Benzo pyrene	ng/m <sup>3</sup>	BDL	1.0	IS - 5182, Part - 12

Sampling Done By:

*(Signature)*  
(Chemist) / (Supervisor)  
(A-139)

Tested By:

*(Signature)*  
(Chemist) / (Sr. Chemist)  
(A-139)

Authorized By:

*(Signature)*  
Manager - Operations

Page No.: 1 of 1

UURL/AIR/F-05/03



**TEST REPORT**  
**(STACK MONITORING)**

ULR - TC775318000005038P			
Test Report No.	URA/18/11/S-298	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/298	Field Data Sheet No.	URA/FDS/S-18/11/298
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sex, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	30/11/2018	Date of Testing	01/12/2018
Stack Sampling Attached to	Alkali Scrubber of TiCl <sub>4</sub> Storage Tank (S - 4)		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UURL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

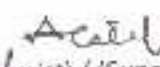
Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	8
2.	Stack Dia	mm	150
3.	Stack Area	m <sup>2</sup>	0.0176
4.	Exit Gas Velocity	m/s	8.35
5.	Exit Gas Flow	m <sup>3</sup> /h	529
6.	Flow Rate for Gas	L/min	1
7.	Volume of Air Sample for Gas	L	30

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value
1.	Hydrochloric Acid (as HCl)*	mg/Nm <sup>3</sup>	2.9	20


Note: \* The parameter marked \* is not accredited by NABL.

Sampling Done By:


  
(Chemist) / (Supervisor)  
(A. R. L.)

Page No.: 1 of 1

Tested By:

  
(Chemist) / (Sr. Chemist)  
(M. D. A.)

Authorized By:

  
(Manager - Operations)

UURL/AIR/F-04/02

**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005035F</b>			
Test Report No.	URA/18/11/S-295	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/295	Field Data Sheet No.	URA/FDS/S-18/11/295
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	30/11/2018	Date of Testing	01/12/2018
Stack Sampling Attached to	Water Scrubber of NH <sub>3</sub> Storage Tank (S - 5)		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	8
2.	Stack Dia	mm	150
3.	Stack Area	m <sup>2</sup>	0.0176
4.	Exit Gas Velocity	m/s	7.32
5.	Exit Gas Flow	m <sup>3</sup> /h	463
6.	Flow Rate for Gas	L/min	1
7.	Volume of Air Sample for Gas	L	30

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value
1.	Ammonia (as NH <sub>3</sub> )	mg/Nm <sup>3</sup>	39	175

Sampling Done By:

*A. A. A.*  
(Chemist) / (Supervisor)  
(A. A. A.)

Page No.: 1 of 1

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(M. D. P.)

Authorized By:

*[Signature]*  
(Manager - Operations)

UERL/AIR/F-04/02



**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005037P</b>			
Test Report No.	URA/18/11/S-297	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/5-18/11/297	Field Data Sheet No.	URA/FDS/5-18/11/297
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	30/11/2018	Date of Testing	01/12/2018
Stack Sampling Attached to	Alkali Scrubber of Vent attached with Reaction Vessels of TPT & TPT Based Titinates (S-6)		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	15
2.	Stack Dia	mm	150
3.	Stack Area	m <sup>2</sup>	0.0176
4.	Exit Gas Velocity	m/s	7.90
5.	Exit Gas Flow	m <sup>3</sup> /h	500
6.	Flow Rate for Gas	L/min	1
7.	Volume of Air Sample for Gas	L	30

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value
1.	Hydrochloric Acid (as HCl)*	mg/Nm <sup>3</sup>	Not Detected	20
2.	Ammonia (as NH <sub>3</sub> )	mg/Nm <sup>3</sup>	24	175

Note: \*The parameter marked \* is not accredited by NABL.  
N.D. = Not Detected.

Sampling Done By:

*(Signature)*  
(Chemist) / (Supervisor)  
(C.A.T.)

Tested By:

*(Signature)*  
(Chemist) / (Sr. Chemist)  
(N.D.P.)

Authorized By:

*(Signature)*  
(Manager - Operations)

Page No.: 1 of 1

UERL/AIR/F-04/02

**TEST REPORT**  
**(STACK MONITORING)**

ULR - TC775318000005036F

Test Report No.	URA/18/11/S-296	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/296	Field Data Sheet No.	URA/FDS/S-18/11/296
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	30/11/2018	Date of Testing	01/12/2018
Stack Sampling Attached to	Water Scrubber of Vent attached with Reaction Vessels of TPT & TPT Based Titinates (S-7)		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

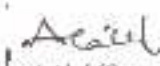
➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	15
2.	Stack Dia	mm	150
3.	Stack Area	m <sup>2</sup>	0.0176
4.	Exit Gas Velocity	m/s	7.18
5.	Exit Gas Flow	m <sup>3</sup> /h	454
6.	Flow Rate for Gas	L/min	1
7.	Volume of Air Sample for Gas	L	30

➤ **Test Parameter Results**


Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value
1.	Ammonia (as NH <sub>3</sub> )	mg/Nm <sup>3</sup>	30	175

Sampling Done By:


  
(Chemist) / (Supervisor)  
(Can 9)

Page No.: 1 of 1

Tested By:

  
(Chemist) / (Sr. Chemist)  
(20.9)

Authorized By:

  
(Manager - Operations)

UERL/AIR/F-04/02



**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005039P</b>			
Test Report No.	URA/18/11/S-299	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/299	Field Data Sheet No.	URA/FDS/S-18/11/299
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	30/11/2018	Date of Testing	01/12/2018
Stack Sampling Attached to	Vent attached with reaction vessels of process chemicals (Antifoulants) (S-9)		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	8
2.	Stack Dia	mm	100
3.	Stack Area	m <sup>2</sup>	0.0176
4.	Exit Gas Velocity	m/s	8.94
5.	Exit Gas Flow	m <sup>3</sup> /h	566
6.	Flow Rate for Gas	L/min	1
7.	Volume of Air Sample for Gas	L	30

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value
1.	Hydrogen Sulfide*	mg/Nm <sup>3</sup>	Not Detected	45

Note: \*The parameter marked \* is not accredited by NABL.  
N.D. = Not Detected.

Sampling Done By:

*Acetel*  
(Chemist) / (Supervisor)  
(A-25)

Page No.: 1 of 1

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(A-10.P)

Authorized By:

*[Signature]*  
Manager - Operations

UERL/AIR/F-04/02



### TEST REPORT (STACK MONITORING)

ULR - TC775318000005030F			
Test Report No.	URA/18/11/S-290	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/290	Field Data Sheet No.	URA/FDS/S-18/11/290
Name & Add. Of Customer	M/s. Dorf Ketal Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	29/11/2018	Date of Testing	30/11/2018
Stack Sampling Attached to	Boiler (S - 1)		
Air Pollution Control Device	Bag Filter		
Fuel Used	Coal		

#### ➤ Details of Instrument Used for Monitoring

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, V551	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

#### ➤ General Stack Monitoring Observation

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	38
2.	Stack Dia	mm	1300
3.	Stack Area	m <sup>2</sup>	1.3266
4.	Ambient Temperature	°C	33
5.	Flue Gas Temperature	°C	117
6.	Exit Gas Velocity	m/s	6.20
7.	Exit Gas Flow	m <sup>3</sup> /h	26909

#### ➤ Test Parameter Results

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value	Test Method
1.	Particulate Matter	mg/Nm <sup>3</sup>	35	150	IS 11255( Part 1)
2.	Sulphur Dioxide	ppm	24	100	IS 11255(Part 2)
3.	Oxide of Nitrogen	ppm	18	50	IS 11255 (PART 7)

Sampling Done By:

*(Signature)*  
(Chemist) / (Supervisor)  
(A n - 1)

Page No.: 1 of 1

Tested By:

*(Signature)*  
(Chemist) / (Sr. Chemist)  
(m-o-e)

Authorized By:

*(Signature)*  
(Manager - Operations)

UERL/AIR/F-04/02

**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005033F</b>			
Test Report No.	URA/18/11/S-293	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/293	Field Data Sheet No.	URA/FDS/S-18/11/293
Name & Add. Of Customer	M/s. Dorf Ketal Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	29/11/2018	Date of Testing	30/11/2018
Stack Sampling Attached to	Boiler (S - 1)		
Air Pollution Control Device	Bag Filter		
Fuel Used	Furnace Oil		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	38
2.	Stack Dia	mm	1300
3.	Stack Area	m <sup>2</sup>	1.3266
4.	Ambient Temperature	°C	33
5.	Flue Gas Temperature	°C	110
6.	Exit Gas Velocity	m/s	5.50
7.	Exit Gas Flow	m <sup>3</sup> /h	26266

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value	Test Method
1.	Particulate Matter	mg/Nm <sup>3</sup>	31	150	IS 11255 (Part 1)
2.	Sulphur Dioxide	ppm	21	100	IS 11255 (Part 2)
3.	Oxide of Nitrogen	ppm	15	50	IS 11255 (PART 7)

Sampling Done By:

*(Signature)*  
(Chemist) / (Supervisor)  
(A.R.S.)

Page No.: 1 of 1

Tested By:

*(Signature)*  
(Chemist) / (Sr. Chemist)  
(A.R.P.)

Authorized By:

*(Signature)*  
Manager - Operations

UERL/AIR/F-04/02



**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005031F</b>			
<b>Test Report No.</b>	<b>URA/18/11/S-291</b>	<b>Report Issue Date</b>	<b>05/12/2018</b>
<b>Service Request form No.</b>	<b>URA/SRF/11/095</b>	<b>Service Request Date</b>	<b>29/11/2018</b>
<b>Sample ID No.</b>	<b>URA/ID/S-18/11/291</b>	<b>Field Data Sheet No.</b>	<b>URA/FDS/S-18/11/291</b>
<b>Name &amp; Add. Of Customer</b>	<b>M/s. Dorf Ketal Chemicals India Pvt. Ltd.</b> Plot No. 2, Block - F, Sector 12N, Adani Port and Sex, Dist.: Kutch, Gujarat - 370421, INDIA		
<b>Date of Sampling</b>	<b>29/11/2018</b>	<b>Date of Testing</b>	<b>30/11/2018</b>
<b>Stack Sampling Attached to</b>	<b>Thermic Fluid Heater- 4 Lac Kcal/Hr. (S - 2)</b>		
<b>Air Pollution Control Device</b>	<b>--</b>		
<b>Fuel Used</b>	<b>Furnace Oil</b>		

➤ **Details of Instrument Used for Monitoring**

<b>Instrument id No.</b>	<b>UURL/AIR/SMK/51</b>		
<b>Instrument Name</b>	<b>Stack Monitoring Kit, VSS1</b>	<b>Serial Number</b>	<b>319, DTE - 14</b>
<b>Calibration Date</b>	<b>01/07/2018</b>	<b>Next Calibration Due On</b>	<b>30/06/2019</b>

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	38
2.	Stack Dia	mm	800
3.	Stack Area	m <sup>2</sup>	0.5024
4.	Ambient Temperature	°C	33
5.	Flue Gas Temperature	°C	115
6.	Exit Gas Velocity	m/s	7.34
7.	Exit Gas Flow	m <sup>3</sup> /h	13275

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value	Test Method
1.	Particulate Matter	mg/Nm <sup>3</sup>	39	150	IS 11255 (Part 1)
2.	Sulphur Dioxide	ppm	29	100	IS 11255 (Part 2)
3.	Oxide of Nitrogen	ppm	22	50	IS 11255 (PART 7)

Sampling Done By:

*Asad*  
(Chemist) / (Supervisor)  
(S-291)

Page No.: 1 of 1

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(S-291)

Authorized By:

*[Signature]*  
Manager - Operations

UURL/AIR/F-04/02

**TEST REPORT**  
**(STACK MONITORING)**

<b>ULR - TC775318000005034F</b>			
Test Report No.	URA/18/11/5-294	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/095	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/294	Field Data Sheet No.	URA/FDS/S-18/11/294
Name & Add. Of Customer	M/s. Dorf Ketal Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	29/11/2018	Date of Testing	30/11/2018
Stack Sampling Attached to	D. G. Set 500 KVA (5 - 3)		
Air Pollution Control Device	-		
Fuel Used	Diesel		

➤ **Details of Instrument Used for Monitoring**

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

➤ **General Stack Monitoring Observation**

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	10
2.	Stack Dia	mm	200
3.	Stack Area	m <sup>2</sup>	0.0314
4.	Ambient Temperature	°C	33
5.	Flue Gas Temperature	°C	240
6.	Exit Gas Velocity	m/s	21.68
7.	Exit Gas Flow	m <sup>3</sup> /h	2450

➤ **Test Parameter Results**

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value	Test Method
1.	Particulate Matter	mg/Nm <sup>3</sup>	43	150	IS 11255 (Part 1)
2.	Sulphur Dioxide	ppm	29	100	IS 11255 (Part 2)
3.	Oxide of Nitrogen	ppm	23	50	IS 11255 (PART 7)

Sampling Done By:

*A. Patel*  
(Chemist) / (Supervisor)  
(A. P.)

Tested By:

*[Signature]*  
(Chemist) / (Sr. Chemist)  
(M. D. P.)

Authorized By:

*[Signature]*  
(Manager - Operations)

Page No.: 1 of 1

UERL/AIR/F-04/02



### TEST REPORT (STACK MONITORING)

ULR - TC775318000005032F			
Test Report No.	URA/18/11/S-292	Report Issue Date	05/12/2018
Service Request form No.	URA/SRF/11/D95	Service Request Date	29/11/2018
Sample ID No.	URA/ID/S-18/11/292	Field Data Sheet No.	URA/FDS/S-18/11/292
Name & Add. Of Customer	M/s. Dorf Ketel Chemicals India Pvt. Ltd. Plot No. 2, Block - F, Sector 12N, Adani Port and Sez, Dist.: Kutch, Gujarat - 370421, INDIA		
Date of Sampling	29/11/2018	Date of Testing	30/11/2018
Stack Sampling Attached to	Thermic Fluid Heater- 15 Lac Kcal/Hr. (5 - 8)		
Air Pollution Control Device	--		
Fuel Used	Furnace Oil		

#### ➤ Details of Instrument Used for Monitoring

Instrument Id No.	UERL/AIR/SMK/51		
Instrument Name	Stack Monitoring Kit, VSS1	Serial Number	319, DTE - 14
Calibration Date	01/07/2018	Next Calibration Due On	30/06/2019

#### ➤ General Stack Monitoring Observation

Sr. No.	Description	Unit of measurement	Observation
1.	Stack Height	m	36
2.	Stack Dia	mm	856
3.	Stack Area	m <sup>2</sup>	0.5751
4.	Ambient Temperature	°C	33
5.	Flue Gas Temperature	°C	124
6.	Exit Gas Velocity	m/s	7.41
7.	Exit Gas Flow	m <sup>3</sup> /h	15341

#### ➤ Test Parameter Results

Sr. No.	Test Parameter	Unit of measurement	Result	Specific Value	Test Method
1.	Particulate Matter	mg/Nm <sup>3</sup>	40	150	IS 11255 (Part 1)
2.	Sulphur Dioxide	ppm	23	100	IS 11255 (Part 2)
3.	Oxide of Nitrogen	ppm	16	50	IS 11255 (PART 7)

Sampling Done By:

*Amit*  
(Chemist) / (Supervisor)  
(Amit)

Page No.: 1 of 1

Tested By:

*Amr*  
(Chemist) / (Sr. Chemist)  
(Amr P.)

Authorized By:

*Amr*  
(Manager - Operations)

UERL/AIR/F-04/02





**POLLUCON**

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# **"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"**

**FOR**



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

**MONITORING PERIOD:  
OCTOBER 2018 TO MARCH 2019**

**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](mailto:pollucon@gmail.com) Web: [www.polluconlab.com](http://www.polluconlab.com)**

**TC - 5945**

**ISO 9001:2015**

**ISO 14001:2015**

**OHSAS 18001:2007**

**POLLUCON****LABORATORIES PVT. LTD.**Environmental Auditors, Consultants & Analysts  
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**RESULT OF AMBIENT AIR QUALITY MONITORING**

WTP- NEAR CETP					
Sr. No.	Date of Sampling	Particulate Matter (PM <sub>10</sub> ) µg/m <sup>3</sup>	Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	Oxides of Nitrogen (NO <sub>2</sub> ) µg/m <sup>3</sup>
1	03/10/2018	88.69	40.32	22.44	42.32
2	06/10/2018	95.46	51.53	13.35	32.77
3	10/10/2018	81.25	37.52	20.24	38.65
4	13/10/2018	73.62	40.28	24.39	44.21
5	17/10/2018	80.84	42.66	18.66	34.43
6	20/10/2018	96.25	58.30	16.50	39.33
7	24/10/2018	83.63	45.34	14.64	27.63
8	27/10/2018	96.25	58.30	19.29	35.35
9	31/10/2018	87.29	41.24	17.39	29.56
10	03/11/2018	81.56	35.61	24.66	38.62
11	07/11/2018	79.34	42.59	16.44	37.54
12	10/11/2018	86.54	56.31	22.51	40.23
13	14/11/2018	72.74	38.6	18.22	29.59
14	17/11/2018	69.41	41.55	21.57	35.52
15	19/11/2018	84.33	45.54	13.46	28.54
16	21/11/2018	68.38	30.75	10.62	25.54
17	26/11/2018	74.58	43.76	17.35	33.62
18	28/11/2018	65.64	28.55	20.24	31.33
19	03/12/2018	95.38	51.49	20.93	39.26
20	05/12/2018	88.26	36.82	23.58	36.61
21	10/12/2018	78.58	34.53	17.51	43.63
22	12/12/2018	68.24	30.63	19.58	34.32
23	17/12/2018	74.29	38.65	26.3	28.5
24	19/12/2018	94.68	56.31	22.65	37.72
25	24/12/2018	82.42	35.65	18.37	33.62
26	26/12/2018	72.52	45.34	15.61	42.52
27	31/12/2018	93.59	39.56	12.62	29.35
28	02/01/2019	86.38	48.62	27.59	32.62
29	07/01/2019	74.30	35.78	21.38	44.39
30	09/01/2019	85.63	38.69	19.53	36.53

Continue ...

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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WTP- NEAR CETP					
Sr.No.	Date of Sampling	Particulate Matter (PM10) $\mu\text{g}/\text{m}^3$	Particulate Matter (PM2.5) $\mu\text{g}/\text{m}^3$	Sulphur Dioxide (SO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$	Oxides of Nitrogen (NO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$
31	15/01/2019	90.22	47.58	22.79	42.45
32	16/01/2019	76.34	43.84	25.39	40.24
33	21/01/2019	92.34	37.27	20.38	31.58
34	23/01/2019	79.72	46.54	17.24	45.35
35	28/01/2019	82.41	49.20	24.35	39.37
36	30/01/2019	72.37	31.29	18.66	35.74
37	04/02/2019	82.62	44.5	22.52	26.79
38	06/02/2019	68.43	36.57	11.84	35.84
39	11/02/2019	74.58	41.35	25.6	30.73
40	13/02/2019	86.68	48.49	20.65	34.44
41	18/02/2019	78.55	32.74	18.91	43.42
42	20/02/2019	61.86	24.27	21.55	41.53
43	25/02/2019	84.57	45.38	14.47	32.34
44	27/02/2019	69.36	40.22	26.29	38.57
45	04/03/2019	70.87	34.53	21.23	41.37
46	06/03/2019	85.44	46.54	19.43	33.5
47	11/03/2019	91.26	53.44	13.49	39.29
48	13/03/2019	67.23	40.18	28.49	35.4
49	18/03/2019	74.28	31.25	24.3	30.2
50	20/03/2019	82.45	43.26	22.07	42.81
51	25/03/2019	77.48	39.56	16.34	36.53
52	27/03/2019	61.60	32.41	25.61	40.44
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-NaAsO <sub>2</sub> )

\*Below detection limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**RESULT OF AMBIENT AIR QUALITY MONITORING**

<b>AIR STRIP</b>								
<b>Sr. No</b>	<b>Date of Sampling</b>	<b>Particulate Matter (PM10) <math>\mu\text{g}/\text{m}^3</math></b>	<b>Particulate Matter (PM 2.5) <math>\mu\text{g}/\text{m}^3</math></b>	<b>Sulphur Dioxide (SO2) <math>\mu\text{g}/\text{m}^3</math></b>	<b>Oxides of Nitrogen (NO2) <math>\mu\text{g}/\text{m}^3</math></b>	<b>Carbon Monoxide as CO <math>\text{mg}/\text{m}^3</math></b>	<b>Hydrocarbon as CH<sub>4</sub> <math>\text{mg}/\text{m}^3</math></b>	<b>Benzene as C<sub>6</sub>H<sub>6</sub> <math>\mu\text{g}/\text{m}^3</math></b>
1	03/10/2018	66.56	28.66	14.89	29.43	0.53	BDL*	BDL*
2	06/10/2018	86.36	45.67	10.33	18.33	0.21	BDL*	BDL*
3	10/10/2018	75.33	35.64	15.60	24.52	0.30	BDL*	BDL*
4	13/10/2018	80.45	41.55	17.42	37.29	0.44	BDL*	BDL*
5	17/10/2018	64.38	31.88	8.68	31.83	0.26	BDL*	BDL*
6	20/10/2018	89.34	54.32	6.49	34.63	0.48	BDL*	BDL*
7	24/10/2018	68.33	32.57	12.41	25.66	0.40	BDL*	BDL*
8	27/10/2018	77.59	29.32	9.67	18.42	0.16	BDL*	BDL*
9	31/10/2018	80.33	37.56	11.25	21.62	0.34	BDL*	BDL*
10	03/11/2018	78.57	32.51	13.55	26.84	0.22	BDL*	BDL*
11	07/11/2018	60.38	26.43	6.3	15.42	0.14	BDL*	BDL*
12	10/11/2018	71.56	23.45	7.6	21.41	0.47	BDL*	BDL*
13	14/11/2018	68.25	29.49	9.36	25.44	0.17	BDL*	BDL*
14	17/11/2018	80.45	34.58	15.62	30.27	0.33	BDL*	BDL*
15	19/11/2018	63.78	31.56	8.33	16.7	0.13	BDL*	BDL*
16	21/11/2018	50.17	19.52	11.6	19.67	0.21	BDL*	BDL*
17	26/11/2018	47.62	27.63	14.63	35.38	0.37	BDL*	BDL*
18	28/11/2018	59.22	24.32	10.78	18.7	0.19	BDL*	BDL*
19	03/12/2018	79.88	45.5	7.57	23.5	0.78	BDL*	BDL*
20	05/12/2018	50.31	20.64	12.37	28.35	0.33	BDL*	BDL*
21	10/12/2018	62.68	39.25	9.52	20.61	0.19	BDL*	BDL*
22	12/12/2018	52.4	33.67	14.63	30.34	0.41	BDL*	BDL*
23	17/12/2018	48.6	23.53	16.27	24.57	0.16	BDL*	BDL*
24	19/12/2018	66.76	38.63	13.65	19.7	0.22	BDL*	BDL*
25	24/12/2018	58.44	26.51	15.83	22.57	0.39	BDL*	BDL*
26	26/12/2018	42.66	18.86	12.5	26.39	0.13	BDL*	BDL*
27	31/12/2018	64.59	28.25	6.33	16.7	0.21	BDL*	BDL*
28	02/01/2019	55.67	34.66	18.33	25.45	0.30	BDL*	BDL*
29	07/01/2019	61.28	27.59	16.57	33.55	0.21	BDL*	BDL*
30	09/01/2019	50.31	21.55	13.39	23.62	0.50	BDL*	BDL*

Continue ...

**H. T. Shah****Lab Manager****Dr. Arun Bajpai****Lab Manager (Q)**



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AIR STRIP								
Sr. No	Date of Sampling	Particulate Matter (PM <sub>10</sub> ) $\mu\text{g}/\text{m}^3$	Particulate Matter (PM <sub>2.5</sub> ) $\mu\text{g}/\text{m}^3$	Sulphur Dioxide (SO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$	Oxides of Nitrogen (NO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$	Carbon Monoxide as CO $\text{mg}/\text{m}^3$	Hydrocarbon as CH <sub>4</sub> $\text{mg}/\text{m}^3$	Benzene as C <sub>6</sub> H <sub>6</sub> $\mu\text{g}/\text{m}^3$
31	15/01/2019	75.63	40.29	6.56	27.85	0.11	BDL*	BDL*
32	16/01/2019	57.26	24.53	14.43	21.61	0.14	BDL*	BDL*
33	21/01/2019	71.55	28.58	7.37	17.60	0.48	BDL*	BDL*
34	23/01/2019	48.37	32.43	12.67	26.63	0.16	BDL*	BDL*
35	28/01/2019	51.59	22.54	17.49	30.52	0.41	BDL*	BDL*
36	30/01/2019	45.36	19.23	9.63	22.45	0.24	BDL*	BDL*
37	04/02/2019	66.25	25.77	15.6	15.75	0.64	BDL*	BDL*
38	06/02/2019	51.62	24.53	10.24	28.39	0.16	BDL*	BDL*
39	11/02/2019	46.58	20.43	14.62	21.67	0.39	BDL*	BDL*
40	13/02/2019	68.32	39.66	12.33	22.45	0.32	BDL*	BDL*
41	18/02/2019	56.69	23.41	7.58	32.52	0.58	BDL*	BDL*
42	20/02/2019	78.23	32.84	9.58	19.44	0.27	BDL*	BDL*
43	25/02/2019	65.45	35.69	11.53	25.4	0.53	BDL*	BDL*
44	27/02/2019	59.63	26.31	13.85	20.6	0.21	BDL*	BDL*
45	04/03/2019	63.68	40.37	13.66	26.39	0.13	BDL*	BDL*
46	06/03/2019	72.66	35.49	8.42	18.69	0.42	BDL*	BDL*
47	11/03/2019	80.47	23.45	12.59	31.84	0.21	BDL*	BDL*
48	13/03/2019	51.65	29.2	16.29	23.49	0.27	BDL*	BDL*
49	18/03/2019	60.68	25.4	14.61	15.39	0.46	BDL*	BDL*
50	20/03/2019	71.69	31.52	10.69	21.72	0.19	BDL*	BDL*
51	25/03/2019	50.23	22.62	15.6	29.4	0.23	BDL*	BDL*
52	27/03/2019	67.20	36.44	9.66	24.56	0.18	BDL*	BDL*
	<b>TEST METHOD</b>	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-NaAsO <sub>2</sub> )	NDIR Digital Gas Analyzer	SOP: HC: GC/GCMS/Gas analyzer	IS 5182 (Part XI):2006/CPCB Method

\*Below detection limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)





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### **RESULTS OF AMBIENT AIR QUALITY MONITORING**

<b>SAMUDRA TOWNSHIP STP</b>					
<b>Sr. No.</b>	<b>Date of Sampling</b>	<b>Particulate Matter (PM<sub>10</sub>) µg/m<sup>3</sup></b>	<b>Particulate Matter (PM<sub>2.5</sub>) µg/m<sup>3</sup></b>	<b>Sulphur Dioxide (SO<sub>2</sub>) µg/m<sup>3</sup></b>	<b>Oxides of Nitrogen (NO<sub>2</sub>) µg/m<sup>3</sup></b>
1	03/10/2018	79.50	34.20	17.48	33.58
2	06/10/2018	64.49	30.25	15.21	27.35
3	10/10/2018	54.26	24.35	13.44	30.34
4	13/10/2018	68.40	33.41	11.64	25.31
5	17/10/2018	57.38	23.77	10.41	29.35
6	20/10/2018	70.51	42.72	14.19	32.40
7	24/10/2018	62.26	35.28	8.70	19.53
8	27/10/2018	78.69	41.22	16.33	28.53
9	31/10/2018	59.22	26.35	12.51	24.21
10	03/11/2018	58.37	23.41	10.50	19.44
11	07/11/2018	74.34	38.75	21.18	22.35
12	10/11/2018	66.75	30.58	17.54	35.77
13	14/11/2018	77.54	42.56	12.45	21.58
14	17/11/2018	61.34	26.48	14.53	18.60
15	19/11/2018	72.35	40.24	6.48	25.60
16	21/11/2018	63.51	27.64	9.50	23.17
17	26/11/2018	55.84	31.29	15.35	27.52
18	28/11/2018	73.57	35.39	7.56	16.55
19	03/12/2018	73.6	41.65	15.5	35.52
20	05/12/2018	62.64	26.36	7.82	20.46
21	10/12/2018	59.44	27.68	11.72	26.51
22	12/12/2018	76.36	46.29	8.6	17.7
23	17/12/2018	69.65	33.86	20.32	25.47
24	19/12/2018	79.47	47.36	19.32	23.36
25	24/12/2018	67.57	28.34	6.56	19.48
26	26/12/2018	58.68	35.64	13.9	34.63
27	31/12/2018	77.58	32.41	16.34	24.41
28	02/01/2019	75.77	43.30	22.62	27.63
29	07/01/2019	54.23	25.36	9.55	19.59
30	09/01/2019	68.55	29.46	7.58	21.35

**Continue..**

**H. T. Shah**

**Lab Manager**



**Dr. Arun Bajpai**

**Lab Manager (Q)**



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SAMUDRA TOWNSHIP STP					
Sr. No.	Date of Sampling	Particulate Matter (PM <sub>10</sub> ) µg/m <sup>3</sup>	Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	Oxides of Nitrogen (NO <sub>2</sub> ) µg/m <sup>3</sup>
31	15/01/2019	78.31	44.35	17.39	36.37
32	16/01/2019	62.51	27.64	21.49	24.42
33	21/01/2019	84.33	34.56	18.40	28.67
34	23/01/2019	66.37	42.68	15.60	37.40
35	28/01/2019	57.58	20.64	8.22	22.78
36	30/01/2019	69.85	36.55	12.92	30.24
37	04/02/2019	79.6	33.44	14.57	22.26
38	06/02/2019	56.39	28.68	7.58	17.59
39	11/02/2019	64.55	39.78	20.54	23.85
40	13/02/2019	52.53	24.37	18.37	30.46
41	18/02/2019	60.41	29.67	10.36	18.64
42	20/02/2019	71.63	40.57	12.85	36.38
43	25/02/2019	50.42	27.52	8.59	19.42
44	27/02/2019	63.82	37.54	17.42	28.56
45	04/03/2019	46.27	18.44	17.65	35.63
46	06/03/2019	80.41	42.27	11.48	20.37
47	11/03/2019	75.68	27.35	8.4	17.64
48	13/03/2019	56.36	34.27	22.37	33.49
49	18/03/2019	67.81	28.76	16.46	28.76
50	20/03/2019	59.38	33.69	13.57	38.47
51	25/03/2019	71.51	36.42	9.4	21.34
52	27/03/2019	55.34	29.34	19.28	31.42
	<b>TEST METHOD</b>	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-NaAsO <sub>2</sub> )

\*Below detection limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**RESULTS OF AMBIENT AIR QUALITY MONITORING**

<b>SAMUDRA TOWNSHIP CUSTOMER CARE</b>					
<b>Sr.No.</b>	<b>Date of Sampling</b>	<b>Particulate Matter (PM<sub>10</sub>) µg/m<sup>3</sup></b>	<b>Particulate Matter (PM<sub>2.5</sub>) µg/m<sup>3</sup></b>	<b>Sulphur Dioxide (SO<sub>2</sub>) µg/m<sup>3</sup></b>	<b>Oxides of Nitrogen (NO<sub>2</sub>) µg/m<sup>3</sup></b>
1	03/10/2018	74.21	30.51	12.59	36.76
2	06/10/2018	69.31	36.57	8.31	24.63
3	10/10/2018	70.33	32.45	17.30	21.58
4	13/10/2018	53.45	27.67	15.36	33.26
5	17/10/2018	52.38	20.83	13.44	23.76
6	20/10/2018	64.83	35.42	11.51	20.58
7	24/10/2018	56.47	26.47	6.81	22.35
8	27/10/2018	72.63	38.67	14.57	31.25
9	31/10/2018	66.88	29.40	9.61	18.67
10	03/11/2018	50.33	20.57	17.50	15.69
11	07/11/2018	67.68	34.66	13.70	31.55
12	10/11/2018	58.72	28.67	9.62	28.35
13	14/11/2018	61.73	33.58	14.48	19.58
14	17/11/2018	53.43	18.70	12.64	27.53
15	19/11/2018	66.32	37.61	10.36	21.30
16	21/11/2018	55.31	23.60	7.20	17.31
17	26/11/2018	62.67	36.53	11.22	30.50
18	28/11/2018	51.22	21.53	15.22	25.64
19	03/12/2018	66.55	34.66	11.35	30.35
20	05/12/2018	57.68	23.48	16.57	18.45
21	10/12/2018	69.3	30.5	14.49	23.54
22	12/12/2018	59.33	25.39	13.56	26.56
23	17/12/2018	63.27	28.38	18.67	20.22
24	19/12/2018	74.28	46.54	15.7	33.26
25	24/12/2018	62.69	31.62	9.83	27.53
26	26/12/2018	50.43	29.42	6.58	31.62
27	31/12/2018	71.62	33.58	20.45	21.56
28	02/01/2019	70.55	40.35	20.57	22.74
29	07/01/2019	66.55	31.58	18.53	28.68
30	09/01/2019	72.50	26.39	10.21	29.35

**Continue...****H. T. Shah****Lab Manager****Dr. Arun Bajpai****Lab Manager (Q)**



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SAMUDRA TOWNSHIP CUSTOMER CARE					
Sr.No.	Date of Sampling	Particulate Matter (PM <sub>10</sub> ) µg/m <sup>3</sup>	Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	Oxides of Nitrogen (NO <sub>2</sub> ) µg/m <sup>3</sup>
31	15/01/2019	56.37	25.59	12.33	33.28
32	16/01/2019	69.32	33.62	17.62	36.52
33	21/01/2019	78.61	30.58	22.52	39.22
34	23/01/2019	58.66	37.57	9.55	32.22
35	28/01/2019	64.68	41.22	19.65	34.52
36	30/01/2019	54.30	23.56	16.21	20.34
37	04/02/2019	75.63	30.46	8.78	33.89
38	06/02/2019	61.63	33.41	15.32	24.57
39	11/02/2019	58.64	29.42	17.65	18.45
40	13/02/2019	64.39	35.32	10.6	27.72
41	18/02/2019	71.29	26.22	22.87	35.61
42	20/02/2019	50.37	19.61	19.43	32.72
43	25/02/2019	73.54	38.69	16.33	28.66
44	27/02/2019	54.56	31.25	20.25	23.76
45	04/03/2019	56.31	20.44	15.38	30.43
46	06/03/2019	60.22	27.47	14.59	29.5
47	11/03/2019	70.67	24.23	22.42	25.36
48	13/03/2019	47.22	18.62	19.48	20.52
49	18/03/2019	54.2	22.69	10.34	18.62
50	20/03/2019	65.68	36.48	20.3	26.37
51	25/03/2019	59.44	28.26	18.65	32.6
52	27/03/2019	48.2	25.22	23.31	28.68
	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-NaAsO <sub>2</sub> )

\*Below detection limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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### RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) $\mu\text{g}/\text{m}^3$	Particulate Matter (PM 2.5) $\mu\text{g}/\text{m}^3$	Sulphur Dioxide (SO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$	Oxides of Nitrogen (NO <sub>2</sub> ) $\mu\text{g}/\text{m}^3$	Carbon Monoxide as CO $\text{mg}/\text{m}^3$	Hydrocarbon as CH <sub>4</sub> $\text{mg}/\text{m}^3$	Benzene as C <sub>6</sub> H <sub>6</sub> $\mu\text{g}/\text{m}^3$
1	02/10/2018	62.57	31.51	18.73	24.53	0.40	BDL*	BDL*
2	05/10/2018	84.35	44.38	11.35	29.67	0.55	BDL*	BDL*
3	09/10/2018	79.63	35.34	16.22	31.22	0.20	BDL*	BDL*
4	12/10/2018	57.24	27.55	13.52	22.43	0.46	BDL*	BDL*
5	16/10/2018	72.80	38.44	10.83	30.58	0.41	BDL*	BDL*
6	19/10/2018	67.89	30.42	8.65	25.69	0.26	BDL*	BDL*
7	23/10/2018	58.64	23.50	12.37	19.40	0.33	BDL*	BDL*
8	26/10/2018	71.58	38.63	15.62	26.19	0.50	BDL*	BDL*
9	30/10/2018	65.65	29.38	9.61	20.60	0.22	BDL*	BDL*
10	02/11/2018	63.77	27.26	7.64	16.26	0.14	BDL*	BDL*
11	06/11/2018	80.35	43.62	12.46	20.25	0.33	BDL*	BDL*
12	09/11/2018	70.43	33.23	6.81	23.7	0.17	BDL*	BDL*
13	13/11/2018	69.32	30.45	8.46	18.64	0.5	BDL*	BDL*
14	16/11/2018	56.38	23.51	11.37	22.48	0.29	BDL*	BDL*
15	21/11/2018	53.45	20.65	13.47	26.83	0.42	BDL*	BDL*
16	26/11/2018	73.64	39.29	16.5	19.53	0.64	BDL*	BDL*
17	28/11/2018	58.42	26.88	17.26	21.24	0.37	BDL*	BDL*
18	03/12/2018	80.24	44.5	6.56	25.71	0.39	BDL*	BDL*
19	05/12/2018	68.32	29.36	19.59	21.6	0.21	BDL*	BDL*
20	10/12/2018	76.34	31.67	13.64	18.65	0.33	BDL*	BDL*
21	12/12/2018	61.25	38.82	10.19	24.61	0.44	BDL*	BDL*
22	17/12/2018	58.35	24.35	8.92	27.6	0.61	BDL*	BDL*
23	19/12/2018	89.32	48.62	12.48	20.37	0.56	BDL*	BDL*
24	24/12/2018	63.57	24.69	17.55	17.69	0.65	BDL*	BDL*
25	26/12/2018	82.68	46.31	14.46	22.68	0.73	BDL*	BDL*
26	31/12/2018	67.87	31.29	9.56	30.23	0.48	BDL*	BDL*
27	02/01/2019	65.56	37.35	9.64	30.34	0.77	BDL*	BDL*
28	07/01/2019	76.51	34.58	11.41	27.70	0.57	BDL*	BDL*
29	09/01/2019	69.32	30.75	18.67	20.46	0.85	BDL*	BDL*
30	15/01/2019	70.20	39.63	7.54	15.63	0.38	BDL*	BDL*

Continue ...

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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ADANI HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) $\mu\text{g}/\text{m}^3$	Particulate Matter (PM 2.5) $\mu\text{g}/\text{m}^3$	Sulphur Dioxide (SO2) $\mu\text{g}/\text{m}^3$	Oxides of Nitrogen (NO2) $\mu\text{g}/\text{m}^3$	Carbon Monoxide as CO $\text{mg}/\text{m}^3$	Hydrocarbon as CH <sub>4</sub> $\text{mg}/\text{m}^3$	Benzene as C <sub>6</sub> H <sub>6</sub> $\mu\text{g}/\text{m}^3$
31	16/01/2019	81.27	32.56	13.61	23.92	0.66	BDL*	BDL*
32	21/01/2019	74.35	29.57	10.41	33.55	0.55	BDL*	BDL*
33	23/01/2019	91.39	51.53	8.51	24.72	0.36	BDL*	BDL*
34	28/01/2019	62.34	27.51	14.41	17.66	0.50	BDL*	BDL*
35	30/01/2019	85.45	33.57	19.30	26.62	0.41	BDL*	BDL*
36	04/02/2019	62.47	26.37	10.36	28.69	0.84	BDL*	BDL*
37	06/02/2019	70.53	37.52	13.37	23.74	0.73	BDL*	BDL*
38	11/02/2019	54.68	22.38	16.5	25.49	0.4	BDL*	BDL*
39	13/02/2019	63.59	34.24	19.38	18.69	0.65	BDL*	BDL*
40	18/02/2019	58.64	24.86	17.53	17.6	1.09	BDL*	BDL*
41	20/02/2019	76.49	33.48	11.36	22.7	0.48	BDL*	BDL*
42	25/02/2019	53.4	23.43	15.19	29.27	0.76	BDL*	BDL*
43	27/02/2019	84.28	45.3	7.54	26.54	0.47	BDL*	BDL*
44	04/03/2019	65.65	35.33	14.52	33.49	0.64	BDL*	BDL*
45	06/03/2019	54.35	25.62	21.54	21.75	0.82	BDL*	BDL*
46	11/03/2019	66.24	33.69	15.65	24.4	0.53	BDL*	BDL*
47	13/03/2019	50.22	23.47	18.39	28.52	0.26	BDL*	BDL*
48	18/03/2019	56.86	27.55	11.85	32.5	0.62	BDL*	BDL*
49	20/03/2019	70.42	41.22	12.36	25.79	0.33	BDL*	BDL*
50	25/03/2019	51.28	24.52	17.5	34.57	0.54	BDL*	BDL*
51	27/03/2019	75.59	39.62	8.91	29.5	0.34	BDL*	BDL*
	<b>TEST METHOD</b>	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-NaAsO <sub>2</sub> )	NDIR Digital Gas Analyzer	SOP: HC: GC/GCMS/Gas analyzer	IS 5182 (Part XI):2006/CPCB Method

\*Below detection limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**RESULTS OF NOISE LEVEL MONITORING****Result of Noise level monitoring [Day Time]**

SR. NO.	Name of Location	CETP					
		Result [dB(A) Leq]					
	Sampling Date & Time	03/10/2018	14/11/2018	12/12/2018	11/01/2019	08/02/2019	22/03/2019
1	6:00-7:00	61.4	62.6	62.7	62.1	63.4	68.4
2	7:00-8:00	61.6	58.8	69.1	60.8	60.4	62.1
3	8:00-9:00	64.8	62.9	65.7	65.9	61.8	69.7
4	9:00-10:00	66	66.7	70.4	67.4	68.4	63.1
5	10:00-11:00	71.1	72	72.1	64.3	62.4	70.1
6	11:00-12:00	66.4	64.4	68.1	65.6	65.1	72.3
7	12:00-13:00	62.8	60.6	63.5	69.5	65.3	63.1
8	13:00-14:00	72.7	74.2	65.9	65.2	69.4	69.4
9	14:00-15:00	74.1	71.1	69.1	62.1	73.1	64.1
10	15:00-16:00	65.4	66.2	62.8	70.1	68.4	62.8
11	16:00-17:00	62.8	63.2	66.1	63.5	65.1	68.1
12	17:00-18:00	64.2	67.2	62.8	65.2	65.9	71.3
13	18:00-19:00	66.1	63.8	66.1	62.4	62.4	68.1
14	19:00-20:00	64	61.5	69.4	68.5	66.1	65.1
15	20:00-21:00	63.1	60.2	65.6	61.5	66.8	65.9
16	21:00-22:00	61.8	63.4	63.7	64.9	64.1	64.2
Day Time Limit*		75 dB(A) Leq					

**Result of Noise level monitoring [Night Time]**

	Name of Location	CETP					
		Result [dB(A) Leq]					
	Sampling Date & Time	03/10/2018 & 04/10/2018	14/11/2018 & 15/11/2018	12/12/2018 & 13/12/2018	11/01/2019 & 12/01/2019	08/02/2019 & 09/02/2019	22/03/2019 & 23/03/2019
1	22:00-23:00	56.9	57.5	62.1	60.4	62.1	55.1
2	23:00-00:00	64.4	67.3	60.4	62.4	60.4	61.8
3	00:00-01:00	56.7	56.8	63.4	58.2	63.4	56.7
4	01:00-02:00	60	58.8	65.1	62.5	65.1	59.7
5	02:00-03:00	59.7	57.6	59.4	62.3	59.4	62.1
6	03:00-04:00	60.6	59.3	61.4	65.2	61.4	65.4
7	04:00-05:00	56.9	59.9	62.7	61.2	62.7	60.4
8	05:00-06:00	65.1	65.7	63.4	63.8	63.4	57.4
Night Time Limit*		70 dB(A) Leq					

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**RESULTS OF NOISE LEVEL MONITORING****Result of Noise level monitoring [Day Time]**

SR. NO.	Name of Location	AIR STRIP					
		Result [dB(A) Leq]					
		10/10/2018	10/11/2018	26/12/2018	03/01/2019	14/02/2019	25/03/2019
1	6:00-7:00	49.7	49.3	52.1	54.1	55.1	57.1
2	7:00-8:00	50.4	52.5	56.4	58.1	58.4	56.1
3	8:00-9:00	60.7	63.7	63.1	60.4	60.1	60.1
4	9:00-10:00	55.5	58.2	62.4	62.4	62.4	59.8
5	10:00-11:00	56.8	58.2	68.4	68.4	59.1	59.1
6	11:00-12:00	64.1	65.5	61.4	59.4	63.4	62.4
7	12:00-13:00	59.7	58.8	60.4	60.4	62.8	63.1
8	13:00-14:00	55.4	56.8	58.4	62.1	59.4	66.4
9	14:00-15:00	50	49.4	60.4	58.7	61.2	64.1
10	15:00-16:00	57.4	59	60.9	56.1	61.8	62.7
11	16:00-17:00	66	65.1	63.1	58.4	60.8	62.8
12	17:00-18:00	61.8	63	61.4	60.4	62.4	60.4
13	18:00-19:00	56.5	58.8	65.4	55.8	63.4	65.1
14	19:00-20:00	57.5	56.1	62.4	59.8	61.8	62.7
15	20:00-21:00	66.41	68.41	60.4	56.4	62.8	60.8
16	21:00-22:00	62.2	64.4	60.7	58.4	65.2	63.4
Day Time Limit*		75 dB(A) Leq					

**Result of Noise level monitoring [Night Time]**

SR. NO.	Name of Location	AIR STRIP					
		Result [dB(A) Leq]					
		10/10/2018 & 11/10/2018	10/11/2018 & 11/11/2018	26/12/2018 & 27/12/2018	03/01/2019 & 04/01/2019	14/02/2019 & 15/02/2019	25/03/2019 & 26/03/2019
1	22:00-23:00	57.8	56	59.4	59.4	59.4	58.1
2	23:00-00:00	57.4	54.9	54.4	54.4	54.4	55.1
3	00:00-01:00	56.8	56.9	54.8	54.8	54.8	50.4
4	01:00-02:00	57.8	58.8	58.3	58.3	58.3	53.1
5	02:00-03:00	61.5	62.6	50.3	50.3	50.3	57.1
6	03:00-04:00	58.8	58.9	50.2	50.2	50.2	60.4
7	04:00-05:00	51.5	50.8	51.4	51.4	51.4	56.1
8	05:00-06:00	59.3	56.8	56.4	56.4	56.4	62.8
Night Time Limit*		70 dB(A) Leq					

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**Result of Noise level monitoring [Day Time]**

SR. NO.	Name of Location	SAMUNDRA TOWNSHIP STP					
		Result [Leq dB(A)]					
		17/10/2018	21/11/2018	19/12/2018	25/01/2019	22/02/2019	08/03/2019
	Sampling Date & Time						
1	6:00-7:00	62.1	64.1	61.7	65.2	62.4	57.1
2	7:00-8:00	55.5	57	55.4	62.1	60.2	60.4
3	8:00-9:00	52.6	55.2	59.1	62.7	65.3	59.1
4	9:00-10:00	58.6	58.2	61.7	67.5	67.2	62.4
5	10:00-11:00	60.8	60.3	65.8	63.1	67.2	61.4
6	11:00-12:00	65.2	65.2	65.1	60.9	70.2	63.1
7	12:00-13:00	62.7	60.4	59.1	63.5	73.8	65.4
8	13:00-14:00	59.1	61.1	62.7	65.2	69.3	62.4
9	14:00-15:00	60.4	57.5	67.4	62.4	65.2	62.8
10	15:00-16:00	65.9	65.7	62.4	69.4	63.9	62.9
11	16:00-17:00	62.9	64.7	61.8	72.4	67.3	63.4
12	17:00-18:00	64.7	63.6	60.9	74.1	68.3	61.7
13	18:00-19:00	68	71.1	63.8	70.2	62.1	64.7
14	19:00-20:00	60.5	61.9	62.8	69.5	63.2	67.1
15	20:00-21:00	56.6	59.6	65.1	65.2	65.2	65.1
16	21:00-22:00	58.1	59.9	61.8	63.4	66.9	61.8
Day Time Limit*		75 Leq dB(A)					

**Result of Noise level monitoring [Night Time]**

SR. NO.	Name of Location	SAMUNDRA TOWNSHIP STP					
		Result [Leq dB(A)]					
		17/10/2018 & 18/10/2018	21/11/2018 & 22/11/2018	19/12/2018 & 20/12/2018	25/01/2019 & 26/01/2019	22/02/2019 & 23/02/2019	08/03/2019 & 09/03/2019
	Sampling Date & Time						
1	22:00-23:00	61.7	62	65.1	58.4	60.4	63.4
2	23:00-00:00	60	61.2	58.7	60.4	61.5	61.2
3	00:00-01:00	55.5	55	53.7	60.2	59.8	60.2
4	01:00-02:00	51.2	51.7	52.9	63.4	62.1	62.1
5	02:00-03:00	51.4	54	52.1	61.4	60.4	61.2
6	03:00-04:00	56.6	59.6	56.4	63.2	60.8	62.4
7	04:00-05:00	55.6	57	55.9	61.7	61.7	63.1
8	05:00-06:00	55.4	54.9	58.4	60.3	62.5	65.3
Night Time Limit*		70 Leq dB(A)					

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)

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**Result of Noise level monitoring [Day Time]**

SR. NO.	Name of Location	SAMUNDRA TOWNSHIP CUSTOMER CARE					
		Result [Leq dB(A)]					
	Sampling Date & Time	06/10/2018	07/11/2018	03/12/2018	12/01/2019	07/02/2019	15/03/2019
1	6:00-7:00	54.3	53.6	57.3	55.1	60.8	56.1
2	7:00-8:00	61.8	61.9	55.5	60.4	63.4	59.4
3	8:00-9:00	61.7	63	60.3	62.1	59.4	61.7
4	9:00-10:00	60.4	62.9	65.3	65.4	63.1	63.1
5	10:00-11:00	68.6	67.4	61.2	61.7	60.7	61.7
6	11:00-12:00	65.7	64.2	61.7	65.4	60.8	62.7
7	12:00-13:00	64.4	62.7	63.8	68.4	63.4	68.4
8	13:00-14:00	70.3	67.4	65.3	61.7	65.1	64.1
9	14:00-15:00	70.48	71.28	62.7	65.1	65.2	62.4
10	15:00-16:00	58.9	61.7	62.3	66.1	66.8	68.4
11	16:00-17:00	59	57.3	65.3	68.4	62.7	62.4
12	17:00-18:00	61.14	63.14	62.3	63.4	67.1	63.4
13	18:00-19:00	57.7	59	63.7	61.8	65.7	65.1
14	19:00-20:00	64.4	66.1	65.3	60.4	64.1	67.4
15	20:00-21:00	64.8	66.9	62.4	62.7	62.8	63.4
16	21:00-22:00	62.3	59.4	65.4	61.8	63.8	65.2
Day Time Limit*		75 Leq dB(A)					

**Result of Noise level monitoring [Night Time]**

SR. NO.	Name of Location	SAMUNDRA TOWNSHIP CUSTOMER CARE					
		Result [Leq dB(A)]					
	Sampling Date & Time	06/10/2018 & 07/10/2018	07/11/2018 & 08/11/2018	03/12/2018 & 04/12/2018	12/01/2019 & 13/01/2019	07/02/2019 & 08/02/2019	15/03/2019 & 16/03/2019
1	22:00-23:00	65.2	63.4	62.8	60.3	60.3	61.4
2	23:00-00:00	67.9	69.4	65.7	60.5	60.5	60.4
3	00:00-01:00	57.7	57.5	55.4	57.3	57.3	54.1
4	01:00-02:00	57.5	56.5	59.8	52.6	52.6	56.4
5	02:00-03:00	54.7	55.8	56.8	54.7	54.7	59.1
6	03:00-04:00	52.8	51.8	55.4	50.4	50.4	51.4
7	04:00-05:00	56.2	55.4	53.4	59.4	59.4	60.1
8	05:00-06:00	61	58.5	68.4	62.5	62.5	60.3
Night Time Limit*		70 Leq dB(A)					

H. T. Shah

Lab Manager



Dr. ArunBajpai

Lab Manager (Q)





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### Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	ADANI HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	02/10/2018	13/11/2018	18/12/2018	02/01/2019	15/02/2019	01/03/2019
1	6:00-7:00	65	62.6	60.3	60.3	62.5	65.4
2	7:00-8:00	67.7	68.1	63.4	63.4	68.4	62.8
3	8:00-9:00	67.1	68.7	62.3	62.3	68.1	68.1
4	9:00-10:00	73	71.8	67.4	67.4	63.4	72.1
5	10:00-11:00	72.4	71.3	65.6	65.6	72.4	71.5
6	11:00-12:00	64.6	62.8	68.4	68.4	70.4	69.4
7	12:00-13:00	60.3	59.5	70.4	70.4	70.9	65.2
8	13:00-14:00	65.5	69	65.3	65.3	68.1	62.8
9	14:00-15:00	64.35	67.35	69.4	69.4	62.4	62.8
10	15:00-16:00	62.5	65.3	69.7	69.7	65.1	62.1
11	16:00-17:00	71.11	72.81	67.3	67.3	62.8	65.1
12	17:00-18:00	69.9	72	65.3	65.3	66.8	69.1
13	18:00-19:00	70.9	70	63.8	63.8	69.4	63.4
14	19:00-20:00	63.1	60.9	64.3	64.3	62.1	65.1
15	20:00-21:00	57.9	56	67.4	67.4	68.4	61.8
16	21:00-22:00	64.9	62.4	63.8	63.8	68.2	60.4
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)]					
	Sampling Date & Time	02/10/2018 & 03/10/2018	13/11/2018 & 14/11/2018	18/12/2018 & 19/12/2018	02/01/2019 & 03/01/2019	15/02/2019 & 16/02/2019	01/03/2019 & 02/03/2019
1							
2	22:00-23:00	67.8	69.5	60.4	67.4	60.4	62.5
3	23:00-00:00	66.8	64.4	65.1	68.3	65.1	65.1
4	00:00-01:00	64.3	66.8	65.4	63.2	65.4	65.7
5	01:00-02:00	63.8	64	61.8	60.1	61.8	60.8
6	02:00-03:00	62.3	61.2	63.4	60.4	63.4	60.7
7	03:00-04:00	62	61.2	62.4	62.4	62.4	62.4
8	04:00-05:00	61.3	60.1	65.7	65.3	65.7	58.1
9	05:00-06:00	61.3	63.8	67.1	63.6	67.1	61.8
Night Time Limit*		70Leq dB(A)					

H. T. Shah

Lab Manager



Dr. ArunBajpai

Lab Manager (Q)



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## RESULTS OF STP WATER OUTLET

SR. NO	TEST PARAMETERS	Unit	ADANI HOUSESTP OUTLET							
			October-18		November-18		December-18		GPCB Permissible Limit	TEST METHOD
			03/10/2018	16/10/2018	05/11/2018	20/11/2018	04/12/2018	18/12/2018		
1	pH	--	7.02	7.35	7.19	7.04	7.25	7.60	--	IS3025(P11)83Re.02
2	Total Suspended Solids	mg/L	11	18	23	11	27	24	30	IS3025(P17)84Re.02
3	BOD (3 days @ 270 C)	mg/L	14	16	18	10	19	12	20	IS 3025 (P44)1993Re.03Edition 2.1
4	Residual Chlorine	mg/L	0.6	0.8	--	--	0.6	0.8	Min 0.5	APHA(22ndEdi)4500 Cl
5	Fecal Coliform	MPN/100 ml	430	540	540	920	350	280	< 1000	APHA (22ndEdi) 9221 C&E

SR. NO	TEST PARAMETERS	Unit	ADANI HOUSESTP OUTLET							
			January-19		February-19		March-19		GPCB Permissible Limit	TEST METHOD
			04/01/2019	18/01/2019	04/02/2019	18/02/2019	04/03/2019	18/03/2019		
1	pH	--	7.60	7.70	7.25	7.65	7.69	7.90	--	IS3025(P11)83Re.02
2	Total Suspended Solids	mg/L	23	17	16	24	23	18	30	IS3025(P17)84Re.02
3	BOD (3 days @ 270 C)	mg/L	15	16	18	14	14	10	20	IS 3025 (P44)1993Re.03Edition 2.1
4	Residual Chlorine	mg/L	0.8	0.2	0.6	0.4	0.8	0.6	Min 0.5	APHA(22ndEdi)4500 Cl
5	Fecal Coliform	MPN/100 ml	280	240	240	280	280	350	< 1000	APHA (22ndEdi) 9221 C&E

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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## RESULTS OF STP WATER OUTLET

SR. NO	TEST PARAMETERS	Unit	AMSIPL SAMUNDRA TOWNSHIP STP OUTLET							
			October-18		November-18		December-18		GPCB Permissible Limit	TEST METHOD
			03/10/2018	15/10/2018	03/11/2018	19/11/2018	04/12/2018	17/12/2018		
1	pH	--	7.30	7.12	7.13	7.25	7.12	7.59	--	IS3025(P11)83Re.02
2	Total Suspended Solids	mg/L	16	28	28	14	8	15	30	IS3025(P17)84Re.02
3	BOD (3 days @ 270 C)	mg/L	10	12	14	16	10	12	20	IS 3025 (P44)1993Re.03Edition 2.1
4	Residual Chlorine	mg/L	0.6	0.8	0.5	0.6	0.6	0.4	Min 0.5	APHA(22ndEdi)4500 Cl
5	Fecal Coliform	MPN/100 ml	540	430	< 2	< 2	140	110	< 1000	APHA (22ndEdi) 9221 C&E

SR. NO	TEST PARAMETERS	Unit	AMSIPL SAMUNDRA TOWNSHIP STP OUTLET							
			January-19		February-19		March-19		GPCB Permissible Limit	TEST METHOD
			03/01/2019	18/01/2019	04/02/2019	18/02/2019	04/03/2019	18/03/2019		
1	pH	--	7.21	7.38	7.5	7.75	8.10	8.14	--	IS3025(P11)83Re.02
2	Total Suspended Solids	mg/L	11	21	24	16	28	24	30	IS3025(P17)84Re.02
3	BOD (3 days @ 270 C)	mg/L	7	8.0	18	14	12	10	20	IS 3025 (P44)1993Re.03Edition 2.1
4	Residual Chlorine	mg/L	0.8	0.6	1.0	< 0.1	0.8	0.4	Min 0.5	APHA(22ndEdi)4500 Cl
5	Fecal Coliform	MPN/100 ml	120	110	140	94	150	110	< 1000	APHA (22ndEdi) 9221 C&E

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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## RESULT OF CETP OUTLET

SR. NO.	TEST PARAMETERS	UNIT	CETP OUTLET						GPCB Permissible Limit CETP OUTLET	TEST METHOD
			Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	March-19		
1	pH	--	7.13	7.41	7.35	7.18	7.65	7.09	6 to 9	IS3025(P11)83Re.02
2	Temperature	°C	31.3	30.8	31.8	30.9	31	31.3	Shall Not exceed more than 5 °C above ambient water temperature	IS3025(P9)84Re.02
3	Colour	Co-pt	40	50	70	50	40	70	100	IS3025(P4)83Re.02
4	Total Suspended Solids	mg/L	56	11	23	29	32	44	100	IS3025(P17)84Re.02
5	Oil & Grease	mg/L	2.4	BDL*	BDL*	2.2	3.2	3.4	10	APHA(22 <sup>nd</sup> Edition)5520D
6	Phenolic Compound	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1	IS3025(P43)92Re.03
7	Fluorides	mg/L	0.32	0.44	0.35	0.7	0.45	0.55	2	APHA(22 <sup>nd</sup> Edition) 4500 F D SPANDS
8	Iron	mg/L	0.18	0.12	0.11	0.082	0.11	0.064	3	AAS APHA(22 <sup>nd</sup> Edition)3111 B
9	Zinc as Zn	mg/L	0.18	0.16	0.098	0.082	0.096	BDL*	15	AAS APHA(22 <sup>nd</sup> Edition)3111 B
10	Trivalent Chromium	mg/L	0.29	0.15	0.14	0.074	0.054	BDL*	2	AAS APHA(22 <sup>nd</sup> Edition)3111 B
11	Sulphide as S	mg/L	1	0.8	0.6	0.2	0.4	0.4	2	APHA(22 <sup>nd</sup> Edition) 4500-S
12	Ammonical Nitrogen as NH <sub>3</sub>	mg/L	12	13	12.4	18	15	10	50	IS3025(P34)88Cla.2.3
13	BOD (3 Days @ 27°C)	mg/L	20	36	28	35	40	40	100	IS 3025 (P44)1993Re.03Edition 2.1
14	COD	mg/L	72	102	72	132	156	150	250	APHA(22 <sup>nd</sup> Edition) 5520-D Open Reflux
15	Chloride as Cl	mg/L	560	664	669	639	618	513	1000	IS3025(P32)88Re.99
16	Sulphate as SO <sub>4</sub>	mg/L	96	90	85	60	68	79	1000	APHA(22 <sup>nd</sup> Edition)4500 SO <sub>4</sub> E
17	Total Dissolved Solids	mg/L	1092	1176	1352	1222	1312	1526	2100	IS3025(P16)84Re.02
18	Total Residual Chlorine	mg/L	0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	1	APHA(22 <sup>nd</sup> Edition)4500 Cl
19	Copper as Cu	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	3	AAS APHA(22 <sup>nd</sup> Edition)3111 B

\*Below Detection Limit

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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### RESULTS OF BORE HOLE WATER

SR. NO	TEST PARAMETERS	UNIT	RESULTS			TEST METHOD
			OPP. DRUB RAILWAY STATION	NEAR PUB BUILDING	NEAR CETP MAIN GATE	
	GPS Location		N 22° 43.073' E 069° 39.861'	N 22° 46.761' E 069° 40.999'	N 22° 48.630' S 069° 42.393'	
	Sampling Date		31/12/2018	31/12/2018	31/12/2018	
1	pH	--	7.23	7.16	8.25	IS3025(P11)83Re.02
2	Salinity	ppt	37.2	6.72	2.93	APHA 2520B
3	Oil & Grease	mg/L	BDL*	BDL*	BDL*	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	BDL*	BDL*	BDL*	GC/GC-MS
5	Lead as Pb	mg/L	BDL*	0.018	0.016	AAS APHA(22ndEdi)3111 B
6	Arsenic as As	mg/L	BDL*	BDL*	BDL*	AAS APHA 3114 B
7	Nickel as Ni	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
8	Total Chromium as Cr	mg/L	0.025	BDL*	BDL*	AAS 3111B
9	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
10	Mercury as Hg	mg/L	BDL*	BDL*	BDL*	AAS APHA- 3112 B
11	Zinc as Zn	mg/L	0.16	0.20	BDL*	AAS APHA(22ndEdi)3111 B
12	Copper as Cu	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
13	Iron as Fe	mg/L	0.34	BDL*	0.28	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	1.92	2.05	1.85	--

H. T. Shah

Lab Manager



Dr. Arun Bajpai

Lab Manager (Q)



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**RESULTS OF D.G. STACK MONITORING**

			25/11/2018	25/11/2018		
SR. NO.	TEST PARAMETERS	Unit	WTP	Adani Hospital	GPCB Limit	Test Method
			D.G. Set (380KVA)	D.G. Set* (500 KVA)		
1	Particulate Matter	mg/Nm <sup>3</sup>	10.84	28.76	150	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	2.69	4.94	100	IS:11255 (Part-II):1985
3	Oxide of Nitrogen	ppm	29.45	34.67	50	IS:11255 (Part-VII):2005
4	Carbon Monoxide	mg/m <sup>3</sup>	11.2	9.10	Not Specified	Digital Gas Analyzer
5	Hydro Carbon NMHC	ppm	BDL*	BDL*	Not Specified	Gas Chromatography

\*DG sets are used as standby, so stack monitoring is done on quarterly basis. Results on 15 % O<sub>2</sub> Correction when Oxygen is greater than 15 %**H. T. Shah****Lab Manager****Dr. Arun Bajpai****Lab Manager (Q)**



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### Minimum Detection Limit [MDL]

Water parameter(mg/L)		
Sr. No.	Test parameter	MDL
1	pH	2
2	Temperature	2
3	Colour	2
4	Total Suspended Solids	2
5	Oil & Grease	2
6	Phenolic Compound	0.005
7	Fluorides	0.05
8	Iron	0.01
9	Zinc as Zn	0.05
10	Trivalent Chromium	0.05
11	Sulphide as S	0.1
12	Ammonical Nitrogen as NH <sub>3</sub>	0.2
13	BOD (3 Days @ 27 °C)	1
14	COD	5
15	Chloride as Cl	1
16	Sulphate as SO <sub>4</sub>	1
17	Total Dissolved Solids	10
18	Total Residual Chlorine	0.2
19	Copper as Cu	0.01

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



Dr. Arun Bajpai

Lab Manager (Q)

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Ambient Air Parameters		
Sr. No.	Test Parameter	MDL
1	Particulate Matter (PM10) ( $\mu\text{g}/\text{m}^3$ )	10
2	Particulate Matter (PM 2.5) ( $\mu\text{g}/\text{m}^3$ )	10
3	Sulphur Dioxide ( $\text{SO}_2$ ) ( $\mu\text{g}/\text{m}^3$ )	5
4	Oxides of Nitrogen ( $\mu\text{g}/\text{m}^3$ )	5
5	Hydrogen Sulphide as $\text{H}_2\text{S}$ ( $\mu\text{g}/\text{m}^3$ )	6

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

Stack parameter		
Sr.No.	Test parameter	MDL
1	Particulate Matter ( $\text{mg}/\text{Nm}^3$ )	10
2	Sulphur Dioxide (ppm)	1.52
3	Oxides of Nitrogen (ppm)	2.65
4	Carbon Monoxide ( $\text{mg}/\text{Nm}^3$ )	0.1
5	Haydro Carbon NMHC(ppm)	1.0

H. T. Shah

Lab Manager



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:**  
**OCTOBER 2018 TO MARCH 2019**

**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,  
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**TC - 5945**

**ISO 9001:2015**

**ISO 14001:2015**

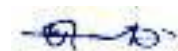
**OHSAS 18001:2007**

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## RESULTS OF BORE HOLE WATER

SR. NO	TEST PARAMETERS	UNIT	RESULTS			TEST METHOD
			OPP. DRUB RAILWAY STATION N 22° 43.073' E 069° 39.861'	NEAR PUB BUILDING N 22° 46.761' E 069° 40.999'	NEAR CETP MAIN GATE N 22° 48.630' S 069° 42.393'	
	GPS Location					
	Sampling Date		31/12/2018	31/12/2018	31/12/2018	
1	pH	--	7.23	7.16	8.25	IS3025(P11)83Re.02
2	Salinity	ppt	37.2	6.72	2.93	APHA 2520B
3	Oil & Grease	mg/L	BDL*	BDL*	BDL*	APHA(22ndEdi)5520D
4	Hydrocarbon	mg/L	BDL*	BDL*	BDL*	GC/GC-MS
5	Lead as Pb	mg/L	BDL*	0.018	0.016	AAS APHA(22ndEdi)3111 B
6	Arsenic as As	mg/L	BDL*	BDL*	BDL*	AAS APHA 3114 B
7	Nickel as Ni	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
8	Total Chromium as Cr	mg/L	0.025	BDL*	BDL*	AAS 3111B
9	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
10	Mercury as Hg	mg/L	BDL*	BDL*	BDL*	AAS APHA- 3112 B
11	Zinc as Zn	mg/L	0.16	0.20	BDL*	AAS APHA(22ndEdi)3111 B
12	Copper as Cu	mg/L	BDL*	BDL*	BDL*	AAS APHA(22ndEdi)3111 B
13	Iron as Fe	mg/L	0.34	BDL*	0.28	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	1.92	2.05	1.85	--

\* BDL: Below Detection Limit



H. T. Shah

Lab Manager




Dr. Arun Bajpai

Lab Manager (Q)



## TEST REPORT

QR/5.10/01

Customer's Name and Address :

Page: 1 of 1

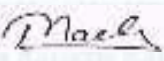
<b>M/s. ADANI PORT AND SPECIAL ECONOMIC ZONE LIMITED</b> <b>C/O. ENVIRONMENT CELL, 3<sup>rd</sup> FLOOR,</b> <b>ADANI HOUSE NAVINAL ISLAND, VILLAGE-MUNDRA,</b> <b>TALUKA-MUNDRA, DIST-KUTCH-370421</b>	Test Report No. : <b>PL/AM 0001A</b> Issue Date : <b>16/01/2019</b> Customer's Ref. : <b>Verbal</b>
--	---

Description of Sample : <b>Soil Samples</b>	Quantity/No. of Samples : <b>01 Kg/Four</b>
Sample Receipt Date : <b>31/12/2018</b>	Protocol (purpose) : <b>Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.</b>
Packing/ Seal : <b>Sealed</b>	Lab ID : <b>AM/1812/84 to 87</b>
Date of Starting of Test : <b>31/12/2018</b>	Date of Completion : <b>15/01/2019</b>
Test Method : <b>US EPA METHOD 3050 B, CPCB Guidelines-LATS/16/2003 - 2004, IS, APHA (22<sup>nd</sup> Edition, 2008) &amp; etc.</b>	
Major Instrument Used : <b>Atomic absorption spectrophotometer (Varian Inc.), Micro Digester, etc.</b>	

### RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT			
			CETP	Dhrub	Near Flyover Bridge	Pub Building
1	pH	--	7.95	8.44	8.10	8.65
2	Nitrogen as N	%	0.015	0.04	0.035	0.050
3	Phosphorus as P	mg/kg	340	90	110	80
4	Potassium as K	mg/kg	30	80	65	50
5	Baron as B	mg/kg	1.6	1.10	0.90	1.50
6	Calcium as Ca	mg/kg	800	650	450	410
7	Magnesium as Mg	mg/kg	650	710	630	750
8	Iron as Fe	%	0.48	0.65	0.80	0.25
9	Moisture	%	9.8	5.2	10.2	11.4
10	Organic Matter	%	0.20	0.11	0.16	0.11
11	CEC	meq/100 gm	7.2	8.4	9.2	8.2
12	TVC	CFU/gm	2.4 x 10 <sup>3</sup>	3.0 x 10 <sup>3</sup>	3.3 x 10 <sup>3</sup>	3.5 x 10 <sup>3</sup>
<b>A Heavy Metals</b>						
13	Cadmium as Cd	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
14	Thorium as Th	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
15	Antimony as Sb	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
16	Arsenic as As	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
17	Lead as Pb	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
18	Chromium (VI) as Cr	mg/kg	Not Detected	Not Detected	Not Detected	Not Detected
19	Cobalt as Co	mg/kg	5.38	4.79	5.19	3.19
20	Copper as Cu	mg/kg	7.57	10.18	9.39	6.79
21	Nickel as Ni	mg/kg	16.34	18.37	25.99	55.94
22	Manganese as Mn	mg/kg	189	174	239	119
23	Vanadium as V	mg/kg	13.95	7.59	8.59	10.18

Not Detected [Minimum Detection Limit for Solid Waste/Soil sample prepared as per USEPA method 3050 B: Cadmium as Cd: 0.1 mg/kg, Thorium as Th: 0.1 mg/kg, Antimony as Sb: 0.05 mg/kg, Arsenic as As: 0.05 mg/kg, Lead as Pb: 0.1 mg/kg, Chromium (VI) as Cr: 0.1 mg/kg, Cobalt as Co: 0.1 mg/kg]

  
**Macky Suraliwal**  
**Sr. Scientist**

  
**Dr. Arun Bajpai**  
**Lab Manager (Q)**

Note: This report is subject to terms & conditions mentioned overleaf.

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




Dr. Arun Bajpai

Lab Manager (Q)

# **ANNEXURE – 7**



भारत सरकार

Government of India

वणिज्य और उद्योग मंत्रालय

Ministry of Commerce & Industry

पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो)

Petroleum & Explosives Safety Organisation (PESO)

आदर्श भवन, यश कर्माज भिन्नी, सयाजी नगर

वडोदरा-390020

8th Floor, Yash Kamal Building, Sayajigunj,  
Vadodara - 390020

E-mail: dyecabardada@explosives.gov.in

Phone/Fax No: 0265 - 2225159

संख्या (No.: PIHQ/GJ/15/5188 (P283638)

दिनांक (Dated: 14/12/2016)

सेवा में (To,

M/s. Adani Ports & Special Economic Zone Limited,  
Adani House, Post Bag No. 1,  
Mundra - 370 021,  
Mundra,  
Taluka: Mundra,  
District: KUTCH,  
State: Gujarat  
PIN: 370021

15 DEC 2016

विषय (Sub: Plot No. NA, NA, Navinal Island, Mundra Port, Mundra, District: KUTCH, State: Gujarat, PIN: 370421 में स्थित विमानन पेट्रोलियम एवं B अधिष्ठान में  
अनुमति: 01 PIHQ/GJ/15/5188 (P283638) के नवीकरण के संदर्भ में।  
Existing Petroleum Class B Installation at Plot No. NA, NA, Navinal Island, Mundra Port, Mundra, District: KUTCH, State: Gujarat. PIN: 370421 - Licence  
No. PIHQ/GJ/15/5188 (P283638) - Renewal regarding.

गौरव (Sir,

),

सूचना आपके पत्र संख्या OIN79928 दिनांक 26/11/2016 का अवलोकन करें।

Please refer to your letter No: OIN7. 328, dated 25/11/2016

अनुमति संख्या PIHQ/GJ/15/5188 (P283638) दिनांक 12/06/2012 को दिनांक 31/12/2018 तक वारीसीकृत था इस पत्र के साथ अधिविन की जा रही है।

Licence No. PIHQ/GJ/15/5188 (P283638) dated 12/06/2012 is forwarded herewith duly renewed upto 31/12/2018.

सूचना पेट्रोलियम नियम 2002 के अर्धीन बनाए गए नियम 148 में दी गई प्रक्रिया का कड़ाई से पालन करें। अनुमति के नवीकरण हेतु समस्त दस्तावेजों को अनुमति की  
विस्तार समाप्त होने की तिथि से कम से कम 30 दिन पूर्व कार्यालय को प्रेषित करें।

Please follow the procedure strictly as laid down in rule 148 of the Petroleum Rules, 2002 and submit complete documents for the Renewal of the licence as  
as to reach this office on or before the date on which Licence expires.

सूचना प्रदर्शित है।

Please acknowledge the receipt.

*you are also requested to submit  
compliance to recommendations  
of MO LAL committee report  
at the earliest.*

सन्दीप (Yours faithfully,

*[Signature]*

(राजेश पिप्लानी)

(Rajesh Pipalani)

उप मुख्य विस्फोटक निबन्धक

Dy. Chief Controller of Explosives

वडोदरा

Vadodara

(अधिक जानकारी के लिए आवेदन की प्रक्रिया, शुल्क तथा अन्य विवरण के लिए हमारी वेबसाइट: <http://peso.gov.in> देखें।)

(For more information regarding applications and other details please visit our website: <http://peso.gov.in>)



**प्रारूप 15**  
(प्रथम अनुसूची का अनुच्छेद 6 देखिए)  
**FORM XV**  
(see Article 6 of the First Schedule)



**संस्थापनों में पेट्रोलियम के आयात और भंडारण के लिए अनुमति (हस्तांतरित)**  
**LICENCE TO IMPORT AND STORE PETROLEUM IN INSTALLATION (Transferred)**

अनुमति सं. (Licence No.) :- P/HQ/GJ/15/5188(P283539)

फीस रुपए (Fees Rs.) 2950/- प्रति वर्ष (Per year)

श्री M/s. Adani Ports & Special Economic Zone Limited, Adani House, Post Bag No. 1, Mundra - 370 021, KUTCH, Gujarat, PIN - 370021 को केवल इसमें यथा विनिर्दिष्ट वर्ग के और मात्राओं में पेट्रोलियम 180 किलोलीटर आयात करने के लिए और उसका, नीचे वर्णित और अनुमोदित नक्शा संख्या P/HQ/GJ/15/5188(P283539) तारीख 12/6/2012 जो कि इससे उपाबद्ध है, में दिखाए गए स्थान पर भंडारण के लिए, पेट्रोलियम अधिनियम, 1934 के उपबंधों या उसके अधीन बनाए गए नियमों तथा इस अनुमति की अतिरिक्त शर्तों के अधीन रहते हुए यह अनुमति अमल की जाती है।

Licence is hereby granted to M/s. Adani Ports & Special Economic Zone Limited, Adani House, Post Bag No. 1, Mundra - 370 021, KUTCH, Gujarat, PIN - 370021 valid only for the importation of 180 K.L Petroleum of the classes and quantities as herein specified and storage thereof in the place described below and shown on the approved plan No P/HQ/GJ/15/5188(P283539) dated 12/6/2012 attached hereto subject to the provisions of the Petroleum Act, 1934 and the rule made thereunder and to the further conditions of this Licence.

यह अनुमति 31 दिसम्बर 2013 तक प्रवृत्त रहेगी।

The Licence shall remain valid upto 31st day of December 2013

पेट्रोलियम का विवरण (Description of Petroleum)	किलोलीटरों में अनुमति क्षमता (Quantity licenced in K.L.)
वर्ग क प्रपुंज पेट्रोलियम (Petroleum Class A in bulk)	निरक (Nil)
वर्ग क प्रपुंज पेट्रोलियम से भिन्न (Petroleum Class A, otherwise than in bulk)	निरक (Nil)
वर्ग ख प्रपुंज पेट्रोलियम (Petroleum Class B in bulk)	180 किलोलीटर (KL)
वर्ग ख प्रपुंज पेट्रोलियम से भिन्न (Petroleum Class B, otherwise than in bulk)	निरक (Nil)
वर्ग ग प्रपुंज पेट्रोलियम (Petroleum Class C in bulk)	निरक (Nil)
वर्ग ग प्रपुंज पेट्रोलियम से भिन्न (Petroleum Class C, otherwise than in bulk)	निरक (Nil)
<b>कुल क्षमता (Total Capacity)</b>	<b>180 किलोलीटर (KL)</b>

Monday, December 12, 2011

कृते मुख्य विस्फोटक नियंत्रक  
for Chief Controller of Explosives

**अनुमति परिसरों का विवरण और अवस्थान**  
**DESCRIPTION AND LOCATION OF THE LICENSED PREMISES**

अनुमति परिसर जिसकी विन्यास सोनाए अन्य विशिष्टताएं संलग्न अनुमोदित नक्शे में दिखाई गई हैं Navmal Island, Mundra Port, Mundra, KUTCH, Gujarat, 370421 स्थान पर अवस्थित हैं तथा उसमें निम्नालिखित सम्मिलित हैं :- Two aboveground Petroleum Class 'B' storage tanks together with connected facilities. (Near Tug Berth in Existing licence premises having licence No. P/HQ/GJ/15/2050(P12369))

The licensed premises, the layout, boundaries and other particulars of which are shown in the attached approved plan are situated at Navmal Island, Mundra Port, Mundra, KUTCH, Gujarat, 370421 and consists of Two aboveground Petroleum Class 'B' storage tanks together with connected facilities. (Near Tug Berth in Existing licence premises having licence No. P/HQ/GJ/15/2050 (P12369))

नवीनीकृत 31/12/2019 तक

सम्मुख विस्फोटक नियंत्रक, बड़ोदा



अनुज्ञप्ति संख्या- (Licence No. ) P/HQ/GJ/IS/5188(P283539)

नवीनीकरण के पृष्ठांकन के लिए स्थान  
SPACE FOR ENDORSEMENT OF RENEWALS

पेट्रोलियम अधिनियम, 1934 के उपबन्धों या उनके अधीन बनाए गए नियमों या इस अनुज्ञप्ति की शर्तों का उल्लंघन न होने की दशा में यह अनुज्ञप्ति फ्रिम्स में बिना किसी छूट के दस वर्ष तक नवीकृत की जा सकती है। The licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provision of the Petroleum Act, 1934 or of the rules framed thereunder or of any of the conditions of this licence.	नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन अधिकारी के हस्ताक्षर और स्टाम्प Signature and office stamp of the licensing authority
---	------------------------------------	------------------------------------	--

यदि अनुज्ञप्ति परिसर इसमें उपाबद्ध विवरण और शर्तों के अनुरूप नहीं पाए जाते हैं और जिन नियमों और शर्तों के अधीन यह अनुज्ञप्ति मंजूर की गई है उनमें से किसी का उल्लंघन होने की दशा में यह अनुज्ञप्ति रद्द की जा सकती है और अनुज्ञप्तिधारी प्रथम अपराध के लिए साधारण कारावास से, जो एक मास तक हो सकता है, या जुर्माने से, जो एक हजार रुपये तक हो सकता है, या दोनों से, और प्रत्येक पश्चात्तवर्ती अपराध के लिए साधारण कारावास से जो तीन मास तक हो सकता है, या जुर्माने से, जो पांच हजार रुपये तक हो सकता है, या दोनों से, दण्डनीय होगा।

This licence is liable to be cancelled if the licensed premises when inspected are not found conforming to the description and conditions attached hereto and contravention of any of the rules and conditions under which this licence is granted and the holder of this licence is also punishable for the first offence with simple imprisonment which may extend to one month, or with fine which may extend to one thousand rupees, or with both and for every subsequent offence with simple imprisonment which may extend to three months, or with fine which may extend to five thousand rupees or with both.

26/11/2013

31/12/2016

मुख्य विस्फोटक निरीक्षक  
Chief Controller of Explosives

# **ANNEXURE – 8**

## **Environment Compliance Verification- “Britannia”**

**Date of Visit: 11.03.2019**

### **Site visit person: -**

1. Mahendra Kumar Ghritlahre (Environment cell)
2. Kalpeshh Kothari (Environment cell)
3. Chirag Rajput (Environment cell)

### **Contact Person-**

1. Mr. Dilipsinh Gol (HR Manager)
2. Mr. Eldhose P. (EHS Manager)

### **GOOD OBSERVATION POINTS:**

1. Having Valid GPCB CCA upto 2023
2. STP, ETP is in proper operation.
3. Treated water from ETP and STP is being utilized for horticulture purpose.

### **RECOMMENDATION POINTS:**

1. Required to update –Environment Board at main gate
2. Provide dedicated Hazardous waste facilities with appropriate facilities like pucca flooring, roof shed, secondary containment pit, etc.
3. Need to shift discarded chemical drums in to dedicated HW storage area, which were stored in open area and ensure its timely disposal.
4. Need to clean storm water drain and ensure it's only for rain water.

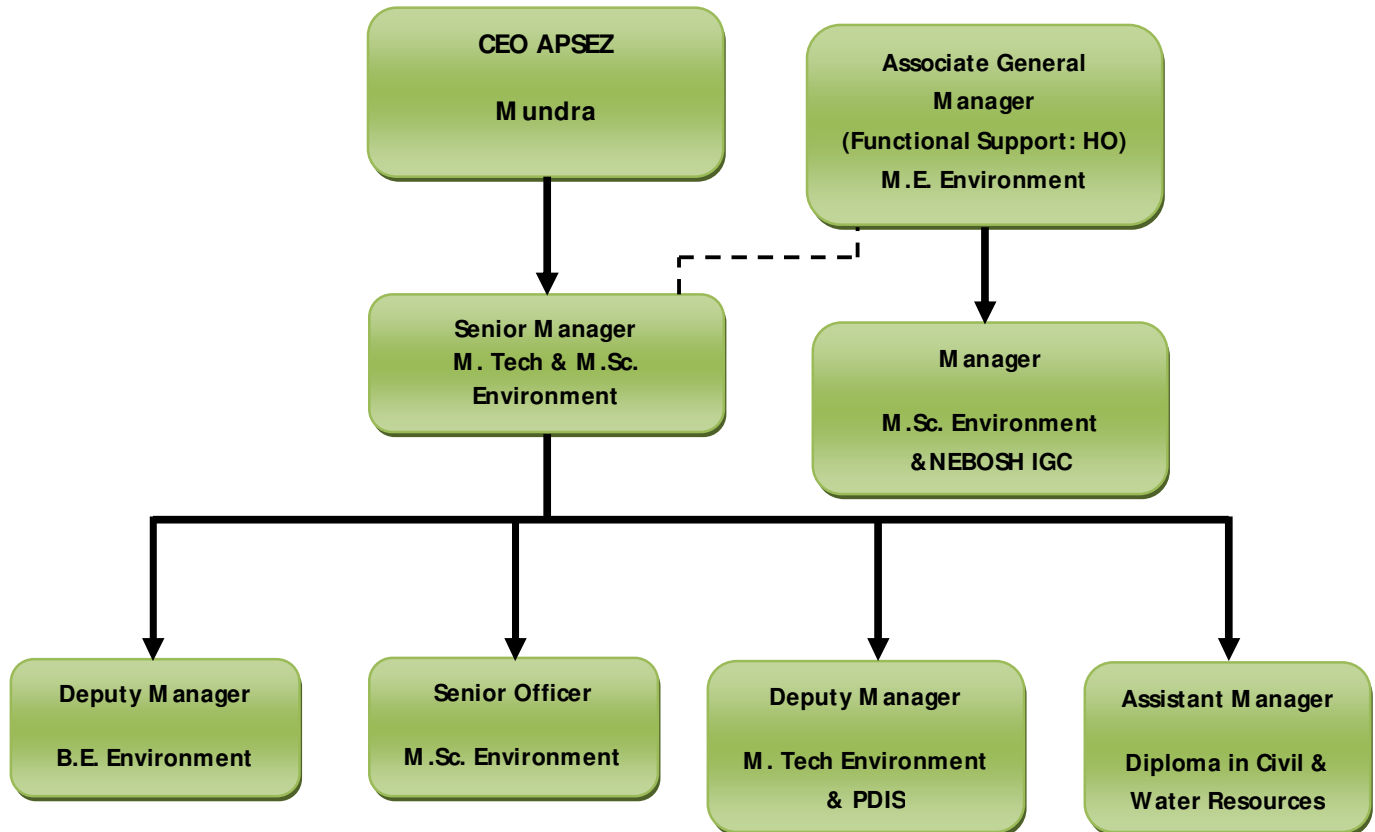
## SITE VISIT PHOTOGRAPHS



# **ANNEXURE – 9**



## Organogram of Environment Management Cell, APSEZ, Mundra



# **ANNEXURE – 10**

### **Cost of Environmental Protection Measures**

Sr. No.	Activity	Cost incurred (INR in Lacs)			Budgeted Cost (INR in Lacs)
		2016 – 17	2017 – 18	2018 – 19	2018 – 19
1.	Environmental Study / Audit and Consultancy	36.78	9.0	6.7	30.5
2.	Legal & Statutory Expenses	4.76	5.07	4.42	5.7
3.	Environmental Monitoring Services	27.95	27.02	20.36	36.0
4.	Hazardous / Non Hazardous Waste Management & Disposal	12.52	65.62	95.72	84.8
5.	Environment Days Celebration	6.71	2.85	0.28	10.0
6.	Treatment and Disposal of Bio-Medical Waste	1.27	1.13	1.21	1.56
7.	Mangrove Plantation, Monitoring & Conservation	72.38	60.0	47.0	50.0
8.	Other Horticulture Expenses	555.00	547.0	579.32	579.32
9.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	61.50	70.02	144.29	153.9
10.	Expenditure of Environment Dept. (Apart from above head)	131.83	102.15	109.28	117.29
<b>Total</b>		<b>910.70</b>	<b>889.86</b>	<b>1008.58</b>	<b>1069.07</b>

# **ANNEXURE – 11**

❖ Roof Top Rain Water Harvesting System



**Location: Tug Berth Building (Mundra Port Terminal)**



# **ANNEXURE – 12**

# Adani Foundation, Mundra

**adani**  
Foundation



## ANNUAL REPORT 2018-19

For a better tomorrow

**Adani Foundation**

Adani House, Port Road, Mundra – Kutch 370 421

[[info@adanifoundation.com](mailto:info@adanifoundation.com)] [[www.adanifoundation.com](http://www.adanifoundation.com)]

# Our Journey

The year 2018-19 has passed off with passion and courage to work for the commitment given to the community. It is essential that sustained growth is achieved at rural level along with the industrial development. This can be made possible by involving more and more people in the rural development programme.

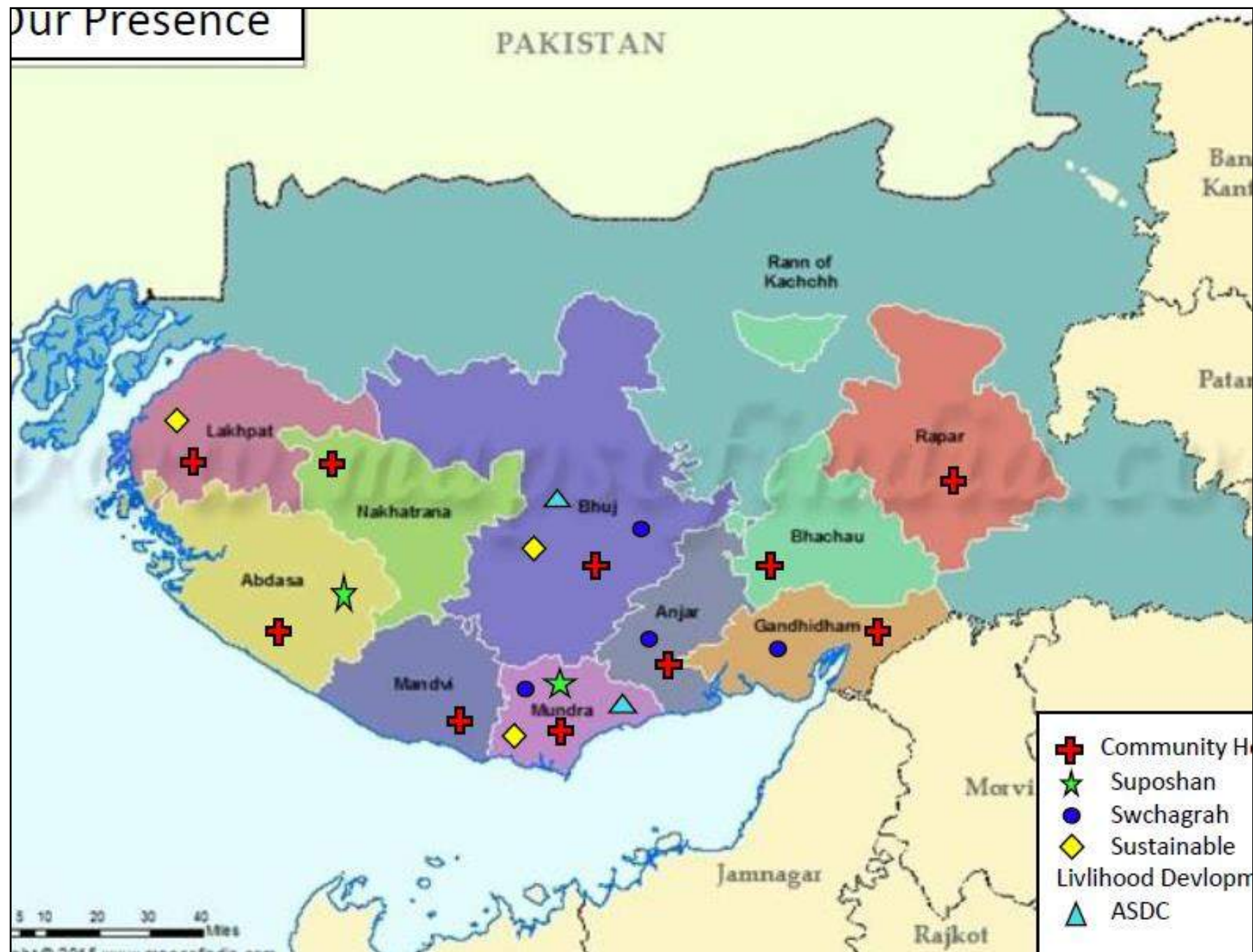
Since 1996, The Adani Foundation Mundra is committed to the cause of the deprived and underprivileged. It has been working relentlessly across 6 Talukas, covering 81 villages, to uplift the lives of more than 42,000 families with a multi-faceted approach.

This year conceded with more streamline projects of Education i.e. Utthan – to enhance primary education of 17 schools of Mundra, milestone achievement in malnourishment project, Launched Swachhagraha in four talukas and 400 schools of Kutchh, considerable impact created by fisherman amenities projects and new era defined in agriculture projects i.e. tissue culture and fodder sustainability .

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

Thanks to Mr. Rakshit Shah and Mr. Avinash Rai for being mentor of the team Always !

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





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# Education

## Beneficiaries Detail



2598 Students	: 17 Schools Utthan
2300 Enrollment Kit	: 118 Schools
704 Students	: Dignity of Workforce
345 Mothers	: Mother's meet
5542 Students	: 116 Institute Udaan
387 Students	: Adani Vidya Mandir
206 Teachers	: Guruvandana- I,II,III,IV

# Project Utthan

**Project Utthan** : Adani foundation has been promoting various educational and human initiatives in education, community health, sustainable livelihood and Rural Infrastructure.

In this context with an aim to enhance the quality of primary education in Kutch district, Adani foundation adopted 17 government school located at Mundra Taluka under the project 'UTTHAN' a drive of quality education.

Adani foundation is expected to achieve visible and measurable important in scholastic area.

Adani foundation will be focusing to bring the positive evidences of change in the personal, behavior and academic development of the students.





# Kick Start of “Utthan”

School improvement and teachers development is a multilayered approach. Therefore, school reform and initiative need to be carefully planned and executed by involving all stakeholders. In the process of implementing school improvement programme, teachers play critical role in institutionalizing change initiative.

A number of activities have been taken into account bring about change and enhance quality education in schools by Government, NGO and CSR,

From Year 2018 – Government of Gujrat has given responsibility through memorandum of understanding of 17 Schools for academic and overall development of school under Project “Uthhan” to Adani Foundation. Many workshops and training programmes are organized to improve the quality of education and support government schools.

In Utthan, main focus on upbringing of students (Priya Vidhyarthi) to the minimum level of reading, writing and counting (Vachan, Lekhan and Ganan). For making this mission successful, para teacher is appointed for each school.

Apart from this, English is introduced from standard first to create strong base. Also distributed science kit, sports kit, music kit to all 17 schools along with library cupboard and 100 books.

Smart class is given to all 17 schools with proper training to teachers for optimum utilization.



## Objective of “Utthan”

- To improve basic knowledge of Math, Languages, English and Computer among students of Govt. schools.
- To Raise Minimum Level of weak students

## Output of “Utthan”

- Increase enrolment ratio of students to 100%
- 100% regular present of students in school
- To improve their arithmetic, reading capacity in various languages, English etc.
- To increase confidence level of students
- Involvement of local community, village leaders and local Govt. through various activities

## Outcome of “Utthan”

- Students of class 1th to 7th in government schools will take interest in activity based learning.
- Community and teachers will be positive and satisfy from this education project.
- Increase interest of students in school, they develop knowledge and understand importance of library.
- Education friendly environment development in school as well as in community.





## Expected impact of “Utthan”

- Vachan, Ganan and Lekhan strengthening in Priya students
- Education department of Gujarat government will include activity based learning in regular course curriculum.

## Implementation Partners of “Utthan”

DPEO/TEPO/BRC will provide guidance for implementation and experts will visit on an interval of 6 months to evaluate the project.

## Proposed Activities “Utthan”

- Training of Government School Staff
- Reading, Writing and Maths improvement as per Gunotsav Data
- Development of Teaching Learning Material
- English Language
- Role Model Activity in assembly
- Reading Corner Activities
- Monitoring and Evaluation





# Shala Praveshotsav



To motivate children for schooling by providing the welcome kit / education kit and to create conducive children for "joyful learning" Environment for children for Learning during shala Praveshotsav Govt. has wide spread network of 111 Govt. primary schools in total 62 villages of Mundra Taluka, 3 villages of in Anjar taluka, YMC school, AVMB and two villages of Mandvi Taluka (118 Schools) every year on an average 2550 to 2700 children gets enrolled in 1st std in Taluka For 2018-2019 total 2300 children got enrolled & Adani foundation provided the "Enrollment kit" to all new enrollee in Taluka

## Mother's Meet

To motivate parents to maintain regularity of school, health hygiene and cleanliness we scheduled 3 mothers meet per week, which is really beneficial for student's overall growth. We arrange quiz completion for mother's to update their general knowledge.





Summary of year 2018-19 for Project "UDAAN"						
NO.	MONTH	SCHOOL/ COLLEGE	BOYS	GIRLS	TEACHERS	TOTAL
1	Apr -18	27	1381	515	108	2004
2	May -18	31	1107	827	105	2039
3	June - 18	30	1333	579	107	2019
4	July - 18	29	1280	727	116	2123
5	Aug -18	29	1256	770	109	2135
6	Sep - 18	28	1317	606	107	2030
7	Oct -18	29	1318	682	107	2107
8	Nov - 18	26	1045	575	87	1707
9	Dec - 18	33	1052	928	110	2090
10	Jan - 19	31	1250	763	113	2126
11	Feb - 19	31	1196	577	96	1869
12	Mar - 19	31	1274	585	104	1963
Total		355	14809	8134	1269	24212
Local 2018-19		201	5543	3710	467	9720
Total						33932



## Project UDAAN

Mundra has created a position for itself by creating capacities in Port Handling, Edible Oil Refining and Power Generation. With a vision to familiarize, educate and inspire the future generation to become successful business leader, engineers, managers and other professionals, the Adani Foundation organizes Education Exposure visits to Mundra for High schools and educational institutes in Various parts of Gujrat.

Total 3270 educational institutes has visited and 236032 beneficiaries of the project till date and 33932 beneficiaries during current year.



## Adani Vidya Mandir, Bhadreshwar

Class	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1 <sup>st</sup>	53	40	45	41	38	40	40
2 <sup>nd</sup>	26	68	46	41	39	37	37
3 <sup>rd</sup>	27	40	73	45	37	39	39
4 <sup>th</sup>		39	48	70	44	36	36
5 <sup>th</sup>			37	46	58	39	39
6 <sup>th</sup>			37	36	46	58	58
7 <sup>th</sup>			34	37	35	44	44
8 <sup>th</sup>			39	34	36	34	34
9 <sup>th</sup>				38	38	30	30
10 <sup>th</sup>					23	27	30
Total	106	187	359	387	394	384	387

In Bhadreshwar, Mundra, the Adani Vidyamandir has completely revolutionized the education scenario. Only the children of families with an income of less than 1.5 lakh are admitted to this school. Along with quality education, the school also focuses on providing nutritious food, uniforms and other services to the children for free. Currently, 387 students, from Std. 1 to Std. 10 are studying in the school. Out of these 134 children come from the fisher folk community. Many students are the first generation in their families to attend school.





### AVMB Std.-10 Second Batch Result 2018-19

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

AVMB STD - 10 SECOND BATCH RESULT		
Year 2017-2018		
SR NO	GRADE	STUDENTS
1	Above 80 %	1
2	Above 70 %	3
3	Above 60 %	5
4	Above 50 %	9
5	Above 40 %	7
6	Fail	2
	TOTAL	27

# ENVIRONMENT SUSTANABILITY

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

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

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





# SUJLAM SUFLAM JAL ABHIYAN

The state government announced its 31-day water conservation drive called 'Sujlam Suflam Jal Abhiyan'. The campaign was launched on "Gujarat Gaurav Din" on May 1, which is the foundation day of Gujarat state. Moreover, the government aims to revive 32 rivers in the state and also to create storage capacity in existing village pond.

Inauguration by GOG Hon'ble Minister, MLA and DM Kutch and other guest day on 1st may at Gundala village taluka Mundra by Adani foundation, Mundra

During 1st may to 31st may AF Mundra had completed deepening work in 26 pond works as per given 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.







Borana- Artificial bore well recharge –work completed



Mangara- Artificial bore well recharge – work completed



Dhrub- pond deepening work – work completed

## PARTICIPATORY GROUND WATER MANAGEMENT

At the turn of millennium, the state watched with growing alarm the steady depletion of its ground water and launched massive drive to achieve water security in Mundra region. As a part of pre monsoon activities with ACT (Arid Communities and Technologies – NGO) we have carried out following work.

But, due to negligible rainfall we are not able to find out outcome of this project.

# PROJECT "SANRAKSHAN" - BIODIVERSITY



The mangrove biodiversity enrichment project in and around Adani ports special economic zone limited (APSEZL) aims to introduce select true mangrove species on a pilot scale in suitable coastal belts and assess their survival. Because this project is the first of its kind, the expected survival rate is between 20-30%.

The project is currently in its initial stages of establishing nurseries and sowing seeds of several different species brought in from multiple locations in and outside of Gujarat state. These nurseries have been developed in tidal flats near the village of Luni, Kutchh, Gujarat.

The mangrove seeds/propagules) for the establishment of the nursery were brought in from various locations in India, namely, Machilipatnam (Andhra Pradesh), Pondicherry (Tamil Nadu), Parangipettai (Pichavaram Mangroves, Tamil Nadu), Kandla (Gujarat) and Jamnagar (Gujarat).

In most of these locations, there is adequate fresh water supply available due to high/substantial rainfall and/or presence of major rivers (also important river confluences and deltas that give rise to a thriving estuarine environment). Consequently, the mangrove species that successfully grow in those regions are adapted to a low-salinity environment (where salinity is approximately 20 ppt) against that of 37-44 ppt prevailing in Kutchh coastal waters. Furthermore, the species selected to establish the biodiversity enrichment project also belong to this group of mangrove species. This subsequently creates a challenge for the team heading this project because the Kachchh region does not provide adequate salinity ranges for survival of most of these species. In fact, it provides an extremely harsh saline environment (salinity can range up to as high as 44 ppt during summer).

Considering the above-mentioned scenario, the site selection criteria, need for species of high salinity tolerance and studying their natural occurrence in Kutchh becomes critical in ensuring a substantial survival rate of the mangrove species selected to potentially successfully establish a diverse and resilient mangrove community in the Kutchh region.

Furthermore, a highly diverse set of mangrove species will ensure resilience in the face of changing climate and could probably provide as a thriving gene pool and seed bank in the future for the Kutchh region.

Table 1: NURSERY STATUS AS OF SEPTEMBER 2018

Sr. No.	SPECIES	LOCATION (FROM)	SITE	DATE OF ARRIVAL IN BHUJ	DATE OF SOWING	NO. OF SEED-BAGS ESTABLISHED	NO. OF SEEDS IN EACH BAG	TOTAL NO. OF SEEDS SOWN	APPROX SURVIVAL RATE TILL DATE
1	<i>Aegiceros corniculatum</i>	Parangipettai		Sept 21	Sept 25	2000	2	4000	
		Kandla							
2	<i>Excoecaria agallocha</i>	Pondicherry		Sept 22	Sept 26	4000	10	40000	
3	<i>Rhizophora apiculata</i>	Machilipatnam		Sept 22	Sept 26	4000	1	4000	
4	<i>Ceriops decantra</i>	Parangipettai		Sept 21	Sept 25				
		Machilipatnam		Sept 22	Sept 26				
5	<i>Bruguiera gymnorhiza</i>								
6	<i>Xylocarpus moluccensis</i>	Machilipatnam		Sept 22	Sept 26	1360	1	1360	
7	<i>Bruguiera cylindrica</i>	Machilipatnam		Sept 22	Sept 26	1500	1	1500	
8	<i>Ceriops tagal</i>	Jamnagar		Sept 15					



# Community Health Mundra



Project Details	Beneficiaries (Nos.)	Remarks
Mobile Van	19092	OPD Numbers
Rural Clinic	22256	OPD Numbers
Senior Citizen	10161	Transactions
Medical Camps	4384	Patients
Awareness Sessions	987	Participants
Needy Patients Support	1022	OPD/IPD
Shakti Raksha Project	624	Breast n cervix Cancer
Dialysis	5	Patients (2 times a week)
Suposhan	17025	Mundra and Bitta

Total beneficiaries : 75556





**Healthy mind remain in healthy body which create healthy community to make healthy Nation.**

Adani Foundation relentlessly working for community in health care area through various kind of activities i.e. Mobile Dispensaries, Rural Clinics, Special Innovative Projects - Health Card to Senior Citizens, "SuPoshan"- Fighting to Mal nourishment in Mundra and support to dialysis patients projects. Adani Foundation also organizes special medical camps during disease outbreak.



# Mobile Dispensaries & Rural Clinics



The population of Mundra block is spread over various villages. Due to inadequate transportation facilities, the villagers have to face many hardships even for reaching to the doctor in case of common diseases.

The medical expenses and zero earning per day add surplus to their hardships.

To help them in the above mentioned health related problems, the service of mobile medical van has been started by the Adani Foundation in Mundra block. In big villages, rural dispensaries have been started considering their population and area.

The Adani Foundation runs mobile health care units. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Mobile health care units cover 34 villages and 05 fishermen settlements. Around 109 types of general and life saving medicines are available in these units. It has turned out to be a boon for women and children as the service is availed at their door - step.

Month	Mobile Van	Rural Clinic
Apr-18	1508	1466
May-18	1397	1491
Jun-18	1236	1533
Jul-18	1523	2166
Aug-18	1512	2103
Sep-18	1796	1726
Oct-18	1832	2068
Nov-18	1386	1628
Dec-18	1897	2187
Jan-19	1684	2013
Feb-19	1743	2037
Mar-19	1578	1821
Total	19092	22256

# Mobile Dispensaries & Rural Clinics



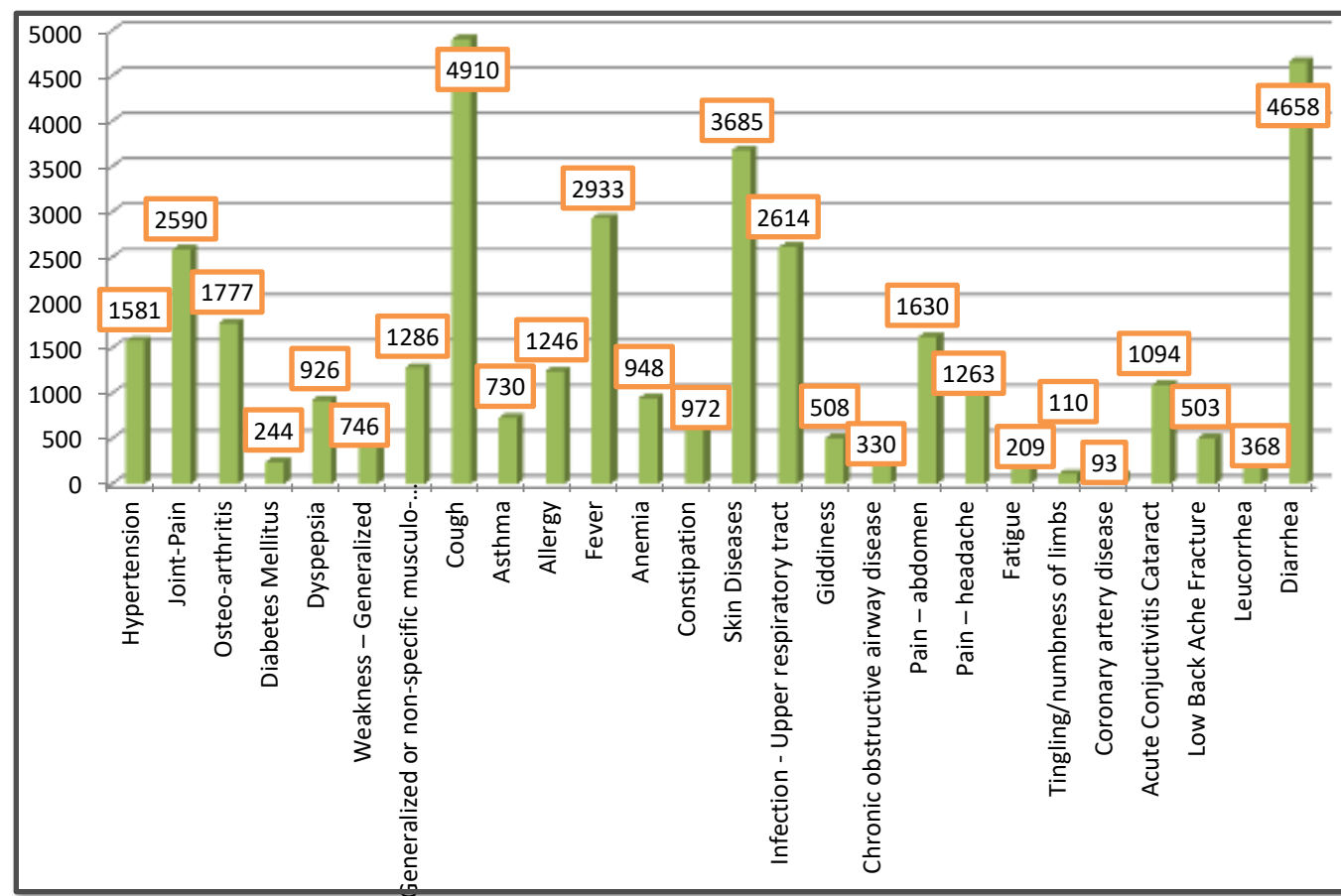
The Adani Foundation operates Rural Dispensaries in 08 villages of Mundra block, 03 villages of Anjar block and 01 village of Mandvi block along with one at Rangoli gate. At these dispensaries, health services are provided free of charge for two hours daily by a doctor and a volunteer.

Sr.No	Villages Name	Total
1	Rangoli Gate	510
2	Luni	6,203
3	Wandh	1,272
4	Siracha	3,794
5	Vadala	1,513
6	Bhadreshwar	1,411
7	Tuna	743
8	Vandi	1,443
9	Rampar	519
10	Tunda	831
11	Tragadi	893
12	Navinal	1,732
13	Labour Colony	53
Total		22,256

Diagnosis	MV	RC	Total
Hypertension	664	917	1581
Joint-Pain	978	1612	2590
Osteo-arthritis	979	798	1777
Diabetes Mellitus	72	172	244
Dyspepsia	699	227	926
Weakness – Generalized	164	582	746
Generalized or non-specific musculo-skeletal pain	430	856	1286
Cough	2478	2432	4910
Asthma	292	438	730
Allergy	266	980	1246
Fever	1404	1529	2933
Anemia	525	423	948
Constipation	406	566	972
Skin Diseases	1980	1705	3685
Infection - Upper respiratory tract	899	1715	2614
Giddiness	220	288	508
Chronic obstructive airway disease	36	294	330
Pain – abdomen	703	927	1630
Pain – headache	589	674	1263
Fatigue	93	116	209
Tingling/numbness of limbs	25	85	110
Coronary artery disease	16	77	93
Acute Conjunctivitis Cataract	831	263	1094
Low Back Ache Fracture	333	170	503
Leucorrhea	298	70	368
Diarrhea	2134	2524	4658
<b>Total</b>	<b>17514</b>	<b>20440</b>	<b>37954</b>

## Mobile Dispensaries & Rural Clinics

MV & RC Disease specific pattern reported in the month April-18 to March-19





## Health Cards to Senior Citizens

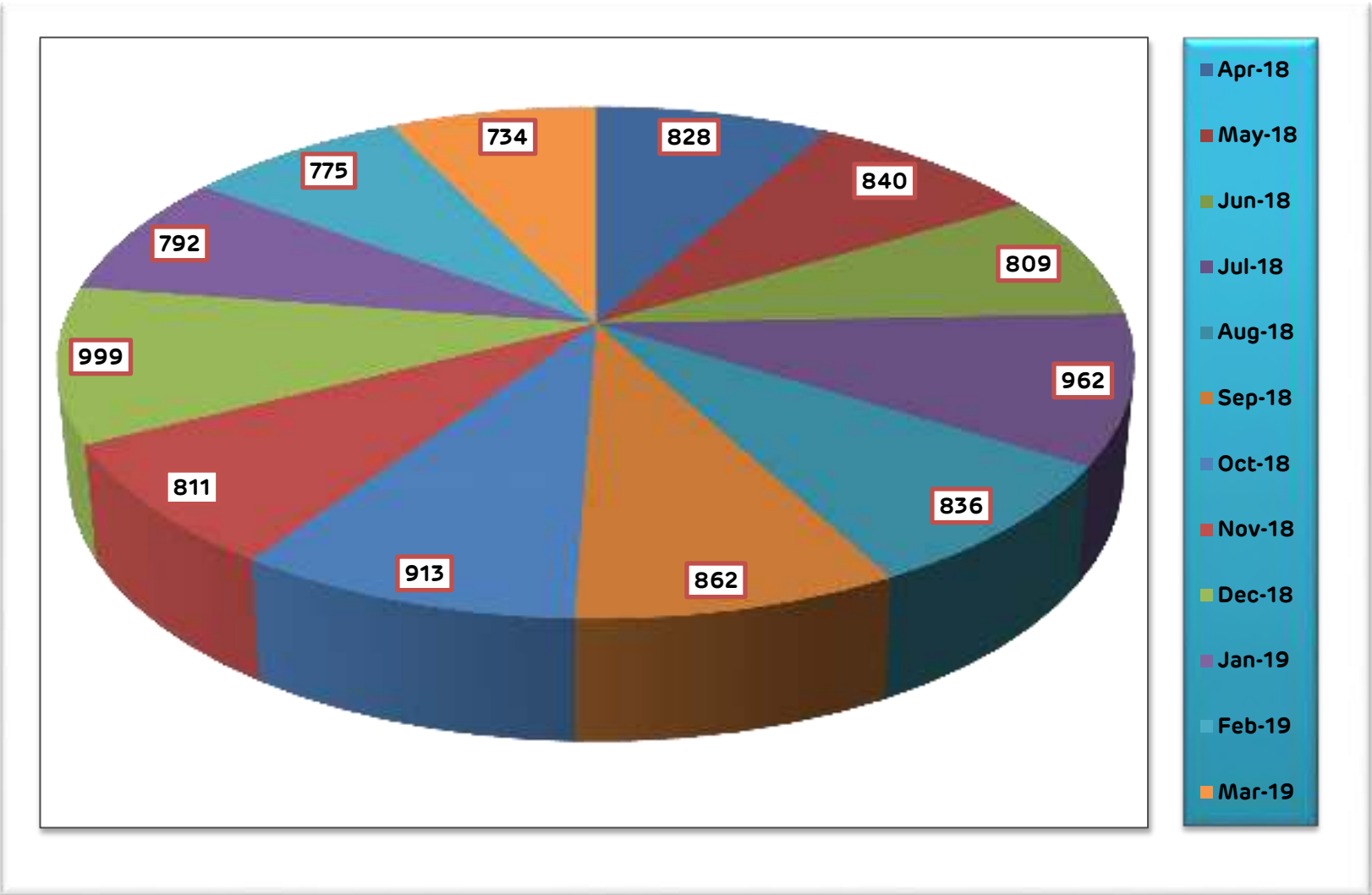
The major junctures of human life are - childhood, adulthood and old age. The first phase is well looked after by the parents and second phase is of self-reliant but the last phase is a dependent one. The needs of old people are less looked after. When people become old, they start living a life of aloofness and solitude. Therefore, the Adani Foundation has started the Adani Health Programme for the aged to look after their health. To address the health care issues related to ageing, AF launched a 3 year long pilot project – 'Adani Vadil Swasthya Yojna' on 20th February 2011 at Mundra and further extended the same for the next three years i.e. up to 2017. Under this Programme, the individuals aged 60 years and above are benefitted. Health Cards are issued to them with the purpose of providing adequate and timely treatment. The families consisting of aged ones with a yearly income of Rs. 2 lacs or more get a Blue Card. The Blue Card holders can avail diagnosis facility and treatment at a subsidized rate in the Adani hospitals, Mundra. The families with a yearly income of less than Rs. 2 lacs are issued a Green Card. Green Card holder aged people get treatment for illness in Adani hospitals, Mundra with an aid up to the limit of Rs. 50,000/- within a period of 3 years.

**During the year 2018-19, total 10161 transactions were done by 8599 card holders of 66 villages of Mundra Taluka.** They received cash less medical services under this project. Scheme is continue since eight years. The third phase of this scheme was started in last year. The limit for the beneficiary was set to 30000/- within a period of 3 years. the senior citizens get emergency medical care at Adani Hospital, Mundra and they are referred to GAIMS



# Sr.Citizen card utilization status April-18 to March-19

Month	OPD/IPD
Apr-18	828
May-18	840
Jun-18	809
Jul-18	962
Aug-18	836
Sep-18	862
Oct-18	913
Nov-18	811
Dec-18	999
Jan-19	792
Feb-19	775
Mar-19	734
Total	10161



# Suposhan

Suposhan Project endeavors to address the issue of vicious cycle of Malnutrition and Anemia with a life cycle approach that includes community based management. The project is more focused on preventive measures.

Objective of the Project is to reduce occurrence of malnutrition and anemia. For successful implementation of the project, "Sangini – Village Health Volunteer" plays major role in the Project.

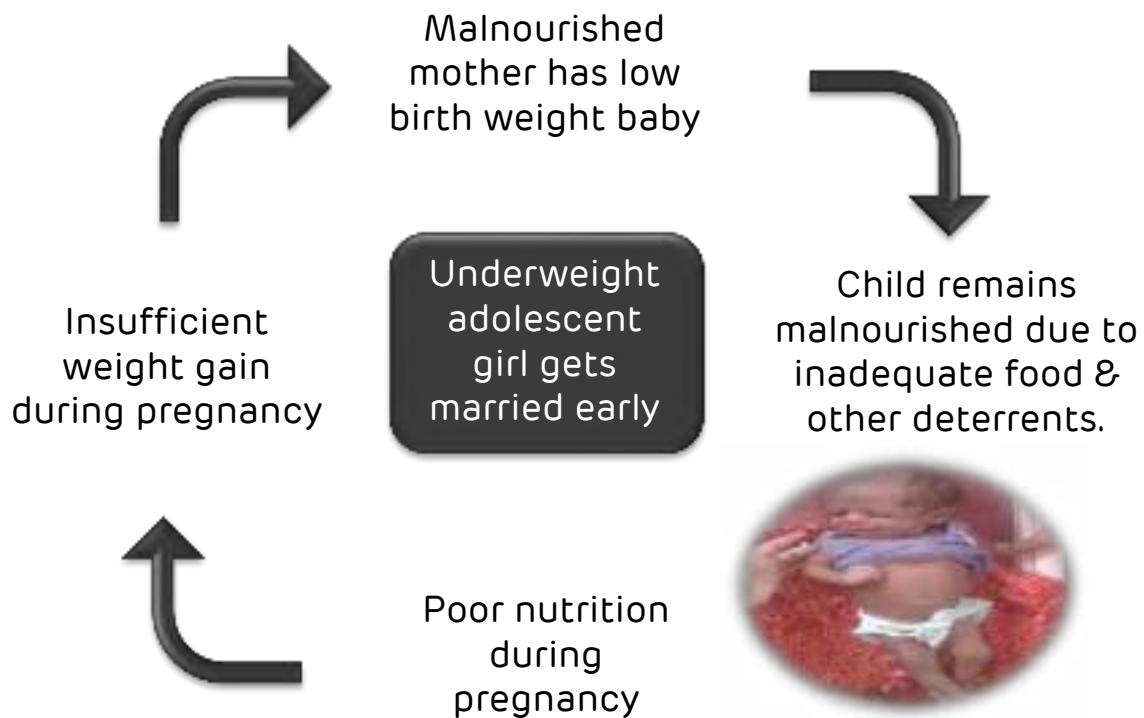
Mundra : 61 Villages

Bitta : 7 Villages

Beneficiaries : 17025

No	Detail	Mundra	Bitta	Total
1	Anthropometric(Children)	5901	647	6548
2	Adolescent – HB Testing	2950	395	3345
3	RPA – HB Testing	5884	1109	6993
4	SAM / MAM to NORMAL	104	35	139
5	FGD	737	228	965





A child's entire life is determined in large measures by the food given to him/her during his/her first five years because childhood is the period of rapid growth and development. Nutrition is one of the most influencing factors in this period. Malnutrition substantially raises the risk of infant and child deaths, and increases the vulnerability to a variety of diseases in later life.

Project Suposhan is initiated with the Motive ....

**Curb malnutrition amongst Children, Adolescent girls and Women in our CSR villages.**

- **To reduce malnutrition and anaemia 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.**
- **Interventions with ICDS and Taluka health Office**
  - CMTC Center started again after our written request to DDO Office
  - Distribution of EDF( Energy Dense Food) by THO to 23 Children who are in SAM Category



# Community Engagement Activity





# Suposhan Saptah

The birth of a healthy newborn child is determined by the health of the mother. Mother's health, in turn, has its basis on her health status during adolescence. The health of a society, as a whole, thus depends on the health of the women, in all stages of their lives. Adani Foundation acknowledges this field of health and aims to address women's health, through their entire life cycle. These efforts have culminated in Project Suposhan, Adani Foundation Health initiative. Project aims to generate awareness in communities and facilitate the strengthening of the health systems and healthcare delivery platforms, with a specific focus on the mother and child. Project focuses on increasing health literacy in communities for mothers, child and adolescent health services through trained community health workers (Sangini), creating effective referral linkages to higher services. SuPoshan "Food Guidance Week" celebration systematized in all 61 villages in Mundra Taluka from 13th Nov – 20th Nov. Suposhan Food competition was organized in coordination with ICDS block and Supervisors, Sarpanch, ASHA workers and women leaders. The reason behind celebrating "Suposhan Food Guidance Week" is to make people aware about the importance of nourishment so that everyone is able to live healthy life. It involves community by · The importance of Nutrition and Balanced Diet · Importance of locally available food. · Preparing own variety nutritious dishes, · Folk songs on nutritious, · Slogans with actions, · Spreading awareness on different schemes, · Vaccination · Kitchen garden and · Exclusive Breast Feeding



# Specialty camp, General Camp & Surgical Health Camp

Sr.no.	Place	Villages Name	Total Patinets
1	Jat Malek Muslim & Maheshari Samuha Sadi At Mundra	Mundra	178
2	Maleria Camp Sukhpar Mundra	Mundra	36
3	Karva E Mustfa Hospital Health Camp	Mundra	50
4	Mahesh Nagar Primary School	Mundra	190
5	Muslim Jamat Samuh Sadi, Luni	Luni	40
6	Rotary Hall, Mundra Surgical Mega Camp	Mundra	185
7	Mithani Labour colony Health camp	Dhrub	80
8	Shri Swaminarayan Mandir-Baroi Boad	Baroi	191
9	Mithani Labour colony Health camp	Dhrub	105
10	Jain Derasar, Oshwal Seri	Mundra	56
11	Bava Gor Pir Uras Luni	Luni	525
12	Mundra Kadva Patidar Samajvadi Health Camp	Mundra	92
13	Nana Kapaya Primary school health camp with Rotry club	Nana Kapaya	170
14	Luni Maheshwari Samaj Samuh Iagan	Luni	517
15	Bukhari pir uras	Mundra	106
16	Activity Hall Gundala	Gundala	65
17	Ashlambhai Labour colony Health camp	Dhrub	315
18	sonal Bij Health Facility	Zarpara	2
19	Ayushman bharat camp Zarpara Panchyat	Zarpara	19
20	Kapilbhai Labour colony Health camp	Dhrub	140
21	Surgical Mega Camp- Art-comace college	Mundra	109
22	Ayushman bharat camp Art-comace college	Mundra	28
23	Juna Bandar Health camp	Mundra	105
24	Eye checkup camp with THO & Rotry	Mundra	388
25	Vallabha vidyalay Health camp	Dhrab	485
26	General health camp	Juna bandar	107
<b>Total...</b>			<b>4384</b>



# Urinary stone – Dialysis Treatment



Drinking water of Mundra contains high Fluoride (amount of salt). Hence, the proportion of patients with urinary stone and kidney failure is more . A project for patients who need dialysis is thus initiated so that the poor patients can receive the treatment at subsidized rates in the nearby, well-equipped hospitals. The main objective of providing dialysis treatment is to help the extremely needy patients to live a healthy life.

Total 5 Patients were being supported for regular dialysis (twice in a week) by participatory approach.

# Health Awareness season Programme

Awareness generation program play crucial role to creak and achieve social transformation for same to create awareness about Health and critical disease various kind of session had been organized.

Sr.no.	Session Topic	Villages Name	Total Beneficiaries
1	Woman Health	Bocha	35
2	Brest & Cervical Cancer & Woman Health	Lifra	20
3	Brest & Cervical Cancer & Woman Health	Desalpar	25
4	Woman Health	Dhrub	28
5	Woman Health	Mundra	125
6	Health & Hygine awareness session	Mota Kandagara	51
7	Anaemic & Suposhan	Samaghogha	50
8	Beast Censor Awareness	Nani Bhujpur	40
9	Gyneac Awareness	Mundra	28
10	Beast Censor Awareness	Dhrub	30
11	Health & Hygiene awareness session	Pragpar-2	20
12	Health & Hygiene awareness session	Wandh	155
13	Swain flu awareness season	Nana kapaya	390
Total....			987

# Community Health Bhuj



- @ 5274 Patient Care and Coordination
- @ 48 Health Camps 25000 beneficiaries
- @ 543 Dead body referred by carry van
- @ 272 Ayushman Gold Card facilitation
- @ 631 Needy patient support
- @ 3560 Mahiti Setu
- @ 1137 Students School health Camps
- @ 36417 Direct Beneficiaries
- @ Covered 293 Villages





# Gujarat Adani Institute of Medical Sciences

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



A teaching hospital (G K General Hospital) with 700 beds is established with GAIMS in which patients of Kutch are getting subsidized medical facilities. The Hostel facility is also available for the students in the campus only. The accommodation facility is given to the staff of GAIMS.



- Adani Foundation Team has initiated coordination with GKGH hospital since 2014 and established a reception area for the smooth patient coordination and preparation for the social networking program.
- Adani Foundation organized **48 General Health Camps and Speciality Camps in various interior villages of Kutch in coordination with GKGH which created magical impact and benefitted 25000 patients.** Adani Foundation Bhuj Health team has also organized more than Eleven awareness camps and village level meetings at 293 villages of Kutch regarding services of GKGH.
- Dead body medical van – Dignity to death is one of the noble initiatives taken up by the Adani Foundation. If any death occurs in GKGH, dead bodies are shifted to the native village of the concerned in the Kutch District free of cost. Total 543 dead bodies privileged till now to different locations in Kutch.



# Patent Care and coordination



Sr. No.	Month	Total Patient Special Care in OPD and IPD level
1	April to June	1190
2	July to September	1507
3	October to December	1505
4	January to March	1072

In the financial year 18-19 we specially care total 5274 patients from our sites Mundra, bitta and tuna,

## Ayushman Yojana

As soon as Government announced for Ayushman Yojana, we started process to enroll Golden card to the eligible families by organizing camps at village level in each taluka

Sr. No.	Month	Total no's ayushman card enrolment
1	December	145
2	January	20
3	February	42
4	March	65
Total		272



# Shakti Raksha – Preventive and Curative Breast and Survival Cancer

Adani hospital Mundra, Taluka health office, Indian Red Cross society and Adani foundation has initiated Shakti Raksha Project in which special gynecologist camp for detection of breast n survival camp and thalassemia testing for pregnant women at CHC MUNDRA. In first phase we have covered all PHC and susceptible cases has been referred for pep test and mammogram at GKGH, Bhuj.

In this project we have covered 103 villages of Mundra and Bhuj this year with curative measures. Most medicine will provided by Taluka health office. We have covered total 624 patients and 120 cases were referred to GKGH Bhuj. In which two cases diagnosed with breast lump (not malignant).

Sr.No	Place	Gaynec	Thelesmia testing	Total Beneficiary	GAMIS Refar Patients
1	Mundra CHC	62	34	118	25
2	Zarpara PHC	26	6	32	5
3	Moti Bhujpur PHC	54	15	86	18
4	Mota Kandagara PHC	42	11	53	10
5	Nani Tumbadi PHC	55	14	69	12
6	Vanki PHC	48	7	55	8
7	Ratadiya PHC	79	11	90	17
8	Bhadreshwar PHC	52	14	66	11
9	Adani Hospital Mundra	183	0	183	11
10	GEB PHC sub center	23	0	23	3
Total....		624	112	775	120







# School Health Camp

``Safe child``

Adani Foundation is regularly organizing health camps in primary government school with support of GKGH.

Current year we have carried out check up of 1137 students in Bhuj Taluka.

Month	Nos of camps	Nos of School students
August	1	219
September	2	308
November	2	410
December	1	200
Total	6	1137

## Arogya Saptah (8th – 14th August 2018)

Adani foundation, Adani Hospital and GAIMS have Jointly Celebrated "Arogya Saptah" 8th to 14th August-2018 in Respect of 72th Independence of our country. Celebration included multi specialty camps, Workshops, truckers health check up, surgical camp on foundation day and adolescent fair at different part of district. Collector, DDO, Minister, MLA and other dignitaries from NGOs had remained present. Objective of the program was to avail health benefits at GKGH and also at Adani Hospital Mundra and Approximately 4500 people will be direct beneficiaries of the program. (2144 Direct beneficiaries)

Day	Date	Event Name	Detail about Event	Beneficiaries
1	8 <sup>th</sup> August 2018	Specialty Mega Camp	Specialist doctors i.e. Gynaecologist, Paediatrician, Nephrologists and general surgeon from GKGH had extended their services.	218
2	9 <sup>th</sup> August 2018	Cervical/Brest cancer Screening & Awareness camp	In SOS gada village screening camp organize with preventive awareness session. 17 women critically suggested for further check up at GKGH.	113
3	10 <sup>th</sup> August 2018	Haemoglobin Testing camp	Haemoglobin testing and awareness for de warming of 917 adolescent girls at Rapar village.	917
4	11 <sup>th</sup> August 2018	1. Surgical Mega Camp, Mundra 2. Roa accident Awareness programme, Nakhtrana	1. Specialist Doctors from Adani hospital Mundra and Medical officers of Adani foundation had extended their services. 2. On occasion of Adani foundation ay session for Road accident awareness and safety including primary health check up camp was organized at Nakhatrana.	223 172
5	12 <sup>th</sup> August 2018	Class-4 Staff CPR and first aid training	Class-4 Staff CPR and first aid training was organize in campus of G K general hospital for capacity building of staff and their motivation.	181
6	13 <sup>th</sup> August 2018	Adolescent fair, Gadhashisha	Adolescent fair was organized at Gadhashisha high school in which lady gynaecologist had cleared doubts of the adolescent girls and given information.	170
7	14 <sup>th</sup> August 2018	Asha Worker workshop	Capacity building workshop was organized for ASHA workers of urban and rural bhuj.	150



## Arogya Saptah (19th – 28th January 2019)

Adani foundation, Adani Hospital and GAIMS have Jointly Celebrated "Arogya Saptah" 19<sup>th</sup> – 28<sup>th</sup> January 2019 in Respect of Republic day our country. Celebration included multi specialty camps, Workshops, truckers health check up, surgical camp on foundation day and adolescent fair at different part of district. Collector, DDO, Minister, MLA and other dignitaries from NGOs had remained present. Objective of the program was to avail health benefits at GKGH and also at Adani Hospital Mundra and Approximately 4500 people will be direct beneficiaries of the program. (Direct beneficiaries – 1342)

Day	Date	Event Name	Detail about Event	Beneficiaries
1	19 <sup>th</sup> January 2019	Workshop for Counseling for Overcome Exam fear.	Workshop Dr.Prutha Deshai (Psychiatrist) she explained about how to reduce Exam Fear and Stress.	250
2	20 <sup>th</sup> January 2019	Cataract Detraction Camp	Cataract Detection Camp organized at khavda village. In this camp 12 patients were referred in GAIMS hospital Bhuj for further treatment.	322
3	20 <sup>th</sup> January 2019	Surgical Camp Mundra	Specialist Doctors from Adani Hospital Mundra and Medical officers of Adani foundation had extended their services.	78
4	21 <sup>st</sup> January 2019	Medical Checkup Camp Swaminarayan Temple	All Shankhyogini Women from Swaminarayan Temple Bhuj were examined by gynecologist and Total blood check up was organized.	209
5	22 <sup>nd</sup> January 2019	Infection Control Awareness Training	Conducted Training on infection control and antibiotic medicine by Dr Gurudas Khilnani and Dr. Kashyap Buch .	170
6	23 <sup>rd</sup> January 2019	Anganwadi worker and Asha Training	Training of ASHA and Anganwadi worker conducted by Dr. Hashmukh Chauhan and Dr. Shardul chorasiya.	25
7	24 <sup>th</sup> January 2019	Multi Specialty Health Camp	Multi speciality Camp was organized at Rapar in which Gynec, Eye Specialist, physician and orthopaedic Doctors had extended their services	203
8	25 <sup>th</sup> January 2019	Medical Checkup camp of journalist and family	This unique initiative covered all journalists of Kutchhh for health check up and awareness sessions	85

# Glimpse of health week





# Mahiti Setu



Sr. No.	Month	Total
1	November	814
2	December	814
3	January	764
4	February	889
5	March	279
		3560

"Mahiti Setu"

Objective of Community resource center is to leverage the Government Schemes and making them accessible to community – It's a sustainable community connect!

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

# SUSTAINABLE LIVELIHOOD DEVELOPMENT PROGRAM

Empowering lives and broadening their scope for economic opportunities, Adani Foundation's initiatives introduced under 'Sustainable Livelihood Development Program', have been founded on community based approaches. In the villages at Mundra Taluka, several communities are economically side-lined and weaker that depend on a sole income source or are unemployed. Sustainable livelihood projects have been launched to cater financial independence through building local partnerships, providing diverse livelihood avenues, inculcate the attitude to establish savings, equipping to earn and updating local skills by making use of existing resources to encourage self-reliant lifestyles. Participation is encouraged by launching specific projects for fishermen communities, farmers and cattle owners, youth and women.







# Fisherman Amenities work

- 391 Students : Education Support
- 134 Stunners : Adani Vidya Mandir \*
- 16 Fisherman : Alternate livelihood
- 78 Fisherwomen : Linkages for schemes
- 1312 Fisherman : Community Engagement
- 1086 Fisherman : Potable water provision
- 6261 Mandays : Mangroves Plantation \*
- 231 Fisherman : Capacity Building
- 3280 Direct Beneficiaries

166 Fisherman for mangroves planation  
AVMB beneficiaries can count seprately

# Education

Education is one of the most important stepping stones to bring about a unified development in any community. The Adani Foundation, through its rigorous surveys and assessments, could understand that it was education which should be taken up to bring about a real change in the status of the fisher folk communities. Following are some of the major education initiatives taken up by the foundation:

Balvadi		
Sr.	Village & Bandar	Children
1	Juna bandar	55
2	Luni	25
3	Zapara-Chhacha	27
4	Bavadi bandar	30
Total		137



## Vidya Deep Yojana

A great amount of efforts were put in developing school preparedness programmes by empowering 'Balwadis' at Fisher folk settlements. Under the Machhimar Vidya Deep Yojana, Adani Foundation constructed four Balwadis for kids between the age group of 2.5 years to 5 years at different settlements. The programme is inclusive of nutritious food, awareness on health, hygiene, cleanliness, discipline, regularity and development of basic age appropriate concepts.

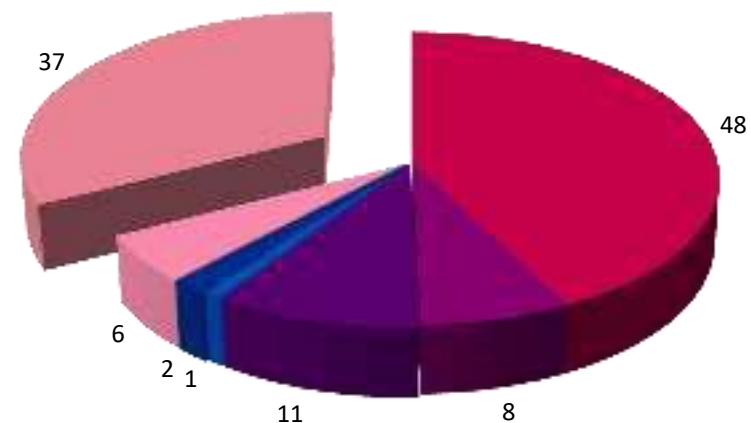


## Vidya Sahay Yojana- Scholarship Support

Participatory scholarship support for fisherman children studying in SMJ high school Luni and to above 12th standards Students . 80 percentage support given by Adani foundation and 20 percentage support by parents! They willingly agree for the same.. We also encourage them for technical education for good job opportunities.. Total 66 students has been benefitted.

This year 68 students were given book support and 8 students were given cycle support for higher secondary study.

## Education Analysis



■ Study in Higher Secondary ■ ITI ■ College ■ LLB ■ B.ed ■ Personal Shop ■ Job

Rather than learn their children, fishermen joined them in their traditional business due to lack of awareness. But Since Adani foundation has started various kind of education initiative like Balwadi , Scholarship support, Cycle support, Book support, free education in AVMB, Transportation support, skill development training ,we bring them in the Ocean of education. By the job placement and motivation we can transform 37 fishermen youth life who have good job and others one continue their further study as below.



# Machhimar Arogya Yojana

A healthy person can work well and earn for his family. Hence it is necessary to provide medical facilities to cure and prevent them and to provide then the treatment of diseases prevailing among the people specially women; children and elderly person, especially due the lack of balanced nutritious diet.

Mobile Health Care Unit - the mobile dispensaries have been run by the Adani Foundation since 2009. The mobile dispensary is available not only in the Vasahats/Settlements but also near the coast where the fishermen, can avail the facilities as and when needed. **Total average 560 fishermen were benefitted by Mobile Dispensary during last half year.**

1. Apart from this, a number of subsidiary initiatives such as health awareness camps, medical check-ups, etc. are conducted by the Adani Foundation at frequent intervals, to provide the fisher folk community with the much needed and required information and assistance.
2. Medical Financial Support –Adani Foundation has extended financial assistance to more than **114 financially challenged patients** from the Fisher Folk Community in case of medical urgency during this year.
3. Health Card for Senior Citizen Project – This is one of the major and prominent and the most innovative project of the Adani Foundation. Under this scheme Health Cards were given to the to Senior Poverty Stricken Citizens to provide them financial support to combat with their health related needs. The project for the senior citizens is popularly known as **Vadil Swasthya Yojana** and till date **350 senior citizens** from fisher folk community are enrolled in the scheme. Most of them keep these cards in their wallets with other important documents and cards.





## Machhimar Shudhh Jal Yojana

This scheme of providing potable water has helped in reducing the drudgery of women and contributed largely towards general wellbeing.

Water tank platforms have been constructed and tanks have been set up in order to provide clean potable drinking water to the community. Daily 1,18,000 Litres of water is supplied at different settlements.

Potable Water		
Sr.	Vasahat	Total liters/ day
1	Juna Bandar (By APSEZ)	30,000
2	Luni Bandar	15,000
3	Randh Bandar	25,000
4	Bavadi Bandar	15,000
5	Veera Bandar ( By AKBTPL)	10,000
6	Ghavarvaro Bandar (By AKBTPL)	8,000
7	Kutdi Bandar (By MSPVL)	15,000
Total		1,18,000

## Linkages with various Departments

Coordination with coast guard, Marine Department and Fisher folk for smooth Port operations Regular Meetings with fisherman for various innovate technology for fishing

## Machhimar Kaushalya Vardhan Yojana

Apart from providing formal education, special programmes were conducted to enhance youth employability. Based on the need of assessment, a number of trades were introduced by the Adani Skill Development Centre in Mundra, where the fisher folk youth could join and get vocational training for a number of technical and non-technical skills.

Sr. No	Course Name	No of Students
1	Mud work Zarpara	45
2	Dori work, Navinal	20
3	Checker Cum RTG Crane Operator	03
Total		68



## Machhimar Ajivika Uparjan Yojana

The 'Ajivika Uparjan Yojana' was implemented to promote and support alternative livelihoods among the Fisher folk communities during the non-fishing months. The Foundation introduced 'Mangrove Nursery Development and Plantation' in the area as an alternate income generating activity for the people of the region. Both men and women received training on Mangrove plantation, moss cleaning, etc. as per requirements. The Foundation provided them with employment equivalent to 6261 man-days. In addition to this, employment worth of 35787 man-days has been provided till date. The Foundation has also supported Pagadiya fishermen as painting laborers by providing them with employment and job in various field.



## Innovative Project : Solar Tent Dryer

CIFT (Central Institute of Fisheries Technology) has been conducting a prototype study on Solar tent dryers with improved technology at their head quarters in Kochi, which is expected to be completed within a span of another three months. They may be able to upscale or replicate the technology once the study is completed. In all probability, they will provide the designs for the solar tent dryer for drying Bombay duck and / or *Acetus Indicus* with financial estimate by the first quarter of next year. Meanwhile the team from the HQ and Veravel centre can visit Mundra region for initial site visit and feasibility studies. CIFT requested our team to visit CIFT HQ at Kochi during coming months to assess the prototype model and understand more on other CIFT developed hybrid dryers



## Fisherman Cricket league



Adani foundation, MUNDRA organized Cricket Tournament " Sixth Adani Premiere League among Fishermen community to promote healthy Sportsmanship and harmonically transparent relationship. The Tournament had been played for 13 days at SVC (Shanti Vihar Cricket Ground) by 6 matches per Days with full of Audience, Total 65 Teams with 780 Fishermen youth were participated with 550Rs. Contribution per teams from Mundra, Anjar and Mandvi Block. The Final Match was played on 9.07.2018 and Pir Saheb (Religious Mentor), Rakshit sir (Executive Director- APSEZ ), Dr.A.k Vatsani (Deputy collector ,Bhuj) Mr. Mahesh Dafda (Assistant Director of Fisheries, Bhuj), Mrs. Pankti Shah(Unit CSR Head) ,AF staff and Fishermen Leaders remained present. The Final Match was so interesting and Salaya team becomes winner over Luni Team and more than 1200 Audience from various villages were present. The winner's trophy, Runners-up Trophy, Man of the Series, Man of the Match, Best Baller, and Best Bats-Man Trophy has been given to the Respective Teams and players. The 25000Rs, 15000Rs, 2100Rs, 1100Rs, and 500Rs, 500Rs Prize given to the above Respective Teams and Players from the Teams contribution.

## Sea weed culture

Sea weed culture as alternate livelihood for fishermen has been started as pilot base with Vivekananda Research and Training Institute.

To create Fishermen alternate livelihood seaweed raft have been installed at Juna Bandar. After successful results we will support for more raft to fisherman as off season employment.

Natural sea weed which is available at Luni coast and being obstacle in fish net is collected and linkages with VRTI for selling.



# Sorting Sieve : Time Saving for Fisher Women

During bulk fishing catch fisher women remain engage whole day to sort out fishes by hand this is time consuming and panic for them so, we provide wooden sorting sieve to sort out small fishes, which make them free from finger pain and time saving.

Adani foundation Mundra, Fisheries Department GOG & CMFRI(Central Marine Fisheries Research Institute) had organized sessions for alternate livelihood for fisher women, importance of savings, bank account and also usage of sieve for Fish sorting work along with 78 wooden sorting sieve distribution. Dr. Imelda Joseph, head & principal scientist of CMFRI, Cochin, Dr. Diu incharge of CMFRI, Veraval and their team had given guidance to all fisher women of Juna Bandar for alternate livelihood possibilities with examples.



## Fisherman Ramatotsav

To Development of physical and mental Development of youth Ramotsav week Program was organized at various Vasahat i.e Junabandar, Luni, Zarapara, Bavdi Bandar and Navinal for 1<sup>st</sup> to 10 th standers .

This year Total 485 children were participated and all were facilitated with school bag as well as 1<sup>st</sup> ,2<sup>nd</sup> and 3<sup>rd</sup> prize from each game.



Fisherman Student Ramtotsav Programme-2018-19					
Date- 07-02-2019 to 16-02-2019					
Sr.No	Fishermen vasahat	Date	Students	Attendants	Total
1	Navinal	07-02-2019	47	150	197
2	Zarpara	08-02-2019	94	250	344
3	Zarpara( Chacha)	08-02-2019	81	300	381
4	Bavdibandar	11-02-2019	69	200	269
5	Lunibandar	12-02-2019	60	200	260
6	Junabandar	15-02-2019	134	350	484
Total			485	1450	1935



# Agriculture & Animal Husbandry



- ❑ 755 Acre – 164 Farmers Drip Irrigation
- ❑ 380 Acre – 212 Farmers Maize Cultivation
- ❑ 56 Acre - 140 Farmers NB21
- ❑ 24 farmers Organic Farming
- ❑ 21 Numbers Bio gas Provision
- ❑ 387 IG Support and Sadhay Sahay
- ❑ 142 Central Govt. Scheme Beneficiaries
- ❑ 154 Pension Scheme Linkages
- ❑ 132 Women Empowerment Project
- ❑ **1364 Direct Beneficiaries**

# Drive for Technology to use in agriculture



Adani Foundation puts efforts in Mundra block for consistent betterment in livelihood sector. The organization has carried out remarkable activities in the agricultural and animal husbandry sectors.

- We have initiated Programme for Awareness of Farmers in collaboration with KVK. The outreach is approximate 80 farmers of 5 villages
- 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.

Agriculture Programme		
Sr.no	Village Name	Member
1	Zarapara	40
2	Zarapara	42
3	Siracha-	26
4	Navinal	22
5	Dhrub	141
		271



# Fodder Cultivation

The organization provides fodder during the time of scarcity and the last 3 months of summer every year. During this period, fodder is regularly sent to every village with the help of the local people. This has given stability to the families who earn their livelihood through animal husbandry.

In order to meet the demand of fodder, the Adani Foundation purchases it from the regional farmers. This gives them fair rates in return.

This year we have given 1,78,000 man fodder worth Rs. 402.00 Lacs approximately at Mundra, Lakhpur, Anjar, Abdasa and Rapar Taluka

But, For this Critical Condition some Sustainable Solution is required to find out

Fodder is the main issue as rainfall is very less in this region. Adani Foundation is working intensively in direction of fodder sustainability in three ways

1. Individual Fodder Cultivation Support – NB21 demonstration – Supported 140 Farmers of Dhrub and Zarpara
2. Drip Irrigation support Linkages with Fodder – First phase we will support drip irrigation in 22 villages and this linkages will help to convince them for NB21 at least in one acre land



### 3. Village Level Fodder Cultivation : Participatory Approach

- (a) Winter crop Cultivation – Support to 180 Individual  
(Supported for seeds of Makai for 180 acre land)
- (b) Winter Crop Cultivation – Support to Group of Farmers (200  
acre of land with 32 farmers)

We are also planning for grassland development at Village Zarpara and Siracha in Gauchar with mutual understanding with Gram Panchayat.

#### **Win win situation of this project**

- Cost saving initiative: Financial saving by Rs. 7.23 lac in three months. (15%)
- Assured of green fodder and supply
- Empowerment of farmers by providing livelihood
- Increase of Green fodder cover
- Milk productivity enhancement
- Fulfilment of double the farmer income concept of Govt. of India
- Crop rotation increases the soil fertility







# PROJECT "DRIP IRRIGATION"

- **Basis of Requirements of Drip Irrigation**

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

- **Process of Drip Support**

Farmer have to applied in the prescribed form of Adani foundation with photograph. Inspection and verification will be by AF representative.

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

Farmer will be informed by telephonic to have form query.

Primary information about farmer land will be received by telephone.

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

Verification report submitted to account office.

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

Farmer economic study after our support.

- **Villages of Drip Support**

Keeping in view the situation and request comes from community, once again **Drip irrigation support is planned in three phase. As a part of first phase, we are considering 22 potential villages. We have covered 164 farmers and 755 acre drip irrigation area.**



# Biogas

Biogas is a clean, non-polluting and low cost fuel. It contains about 55 to 75 percent methane, which is inflammable. Bio gas can be produced from cattle dung, human waste and other organic matter by a process called "Anaerobic digestion" which takes place in a biogas plant. The digested effluent, which comes out of the plant, is enriched manure.

The Multiple benefits of the biogas have changed many lives in rural areas. During this year 21 plants have been constructed. We are providing support addition to Government support to the beneficiary. (Under bio-gas scheme of government, the total cost is Rs.33, 500 out of which Rs.15, 000 will be granted by the government and out of the pending amount of Rs.18, 500 sum of Rs.10, 000 will be contributed by the Adani Foundation. The beneficiary will have to pay only Rs. 8, 500). Beneficiary women use the time, saved from cooking and fuelwood collection, to take up an additional economic activities.

Representation of Adani Foundation was invited as Guest of honor by Krishi Vigyan Kendra in 'Scientific Advisory Committee Meeting' . Main Objective of meeting was to study about present agricultural Scenario of Kutchh and new CROP Patter. Representative from ICAR ,GOG and Various NGO were present. We made presentation of our activities for sustainable agriculture in this forum.







## Agriculture Fair



Adani Foundation has Participated in District Level Agriculture Fair for three days in first week of January. We had show case various activities of Adani Foundation in field of Fodder Sustainability, Bio Gas Support, Cattle care, water conservation and Biodiversity.

**Adani Foundation was felicitated award for " To Develop Unique Model for Fodder Sustainability in Kutchh".**

State Minister Mr. Vasanbhai Ahir has inaugurated this event. By this platform we could able to connect with approximately 12000 farmers of Kutchh District by providing guidance for NB21 and Maize Cultivation. We have also given information about Saheli Mahila Gruh Udyog and could also our products i.e. Eco Friendly bags, Banana Wafers and Washing powder.

## Tissue Culture

Date is the Amrut Fal of Kutchh and Mainly best quality available in some villages in Mundra Taluka. To maintain quality uniformity Adani Foundation is planning for cultivate 4000 tissue cultured plants of elite varieties to the farmers of project area. For this, we will select best offshoots of elite plants from farmers fields in coordination with farmers groups. The selected planting materials will be given to identify tissue culture laboratory for developing tissue culture plants in 3 years. Hence, whole program is coordinating farmers participation basis having four party i.e. Tissue culture laboratory, Adani Foundation, KVK and farmers committee of project area. Major functions of all parties are as under;

• **TC Lab: Develop TC plantlets of elite varieties** • **Adani foundation: Financial support** • **KVK : Technical support to the program**

Farmers committee : Provide best planting materials for developing TC plants & contribution in distribution & provide nominal cost of plants. Hence, the farmers contribution in the program is 10 Lakh.

Ground work for this project is completed during current financial year i.e. Registration of 200 farmers, series of meeting with KVK and Anand University



# Project Swavlamban

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

**Our objective is**

- To increase awareness about Government schemes for Divyang people, widows and senior citizens and coordinate them with Social Welfare Department, GoG
- After getting income generation equipment support - Proper training provision to make them self-reliant in true sense!!
- Adani Foundation is playing the role of facilitator in case of tie up with Government Scheme for Widows, Senior Citizens and Handicapped people. The identity cards are issued for the handicapped in coordination with Bhuj Samaj Suraksha Khata which is beneficial for them to get specific kit for their disability type. This year 154 beneficiaries linked up with pension scheme.
- The financial benefit of the senior citizen Yojana is Rs. 500 per month and the widow scheme is of Rs. 1250 per month. Jilla Samaj Suraksha Officer and team remain present every time.

No	Type	Beneficiaries	Financial benefit
1	Disabled	409	10,00,000
2	Widow	92	3,25,000
3	Senior Citizen	32	1,75,000
	Total	533	15,00,000





# Women Empowerment Projects



- In Kutch, the situation of women is miserable. Women are totally dependent on male members of family for their needs. Consumption of liquor is one of the main culprits in Kutch. Due to this evil prevalent among men many women are suffering.
- Considering this situation, We have started our training program with two major women's group of Villages near Adani Power and Adani Ports. Both the groups of women (**132 women in total**) successfully completed their training for preparing washing powder, phenyl, liquid for cleaning utensils and hand wash etc.
- We have selected 12 women groups having 132 members total, as per their ability for different work i.e. accounting, banking, leadership, marketing, administration etc.
- As a further step to bring sustainability, we thought to start a shop "Saheli Mahila Gruh Udyog" at Shantivan Colony.
- Main Perishable/ Non perishable items by Saheli are
  1. Washing Powder
  2. Phynayle
  3. Dish wash liquid
  4. Pickle of Bijora
  5. Suf handicraft
  6. Ahir Handicraft

## Women Empowerment Projects

### Step towards socio economic development

No	Village	Group	Members	Saving Amount	Work
1	Mota Kandagra	Jay Mekran	18	100	Stitching
2	Mota Kandagra	Jay Momai	10	200	Stitching
3	Navinal	Vishwas	14	100	Stitching/Dori
4	Navinal	Chamunda	10	100	Phynayle making
5	Baroi	Adhar	12	100	Perishable items
6	Sadau	Vishwasi	16	100	Dhadki, Frames
7	Shekhadia	Sonal	12	200	Washing Powder
8	Mota Kapaya	Tejasvi	10	100	Eco friendly bags
9	Mundra	Meghdhanushya	18	100	Mud work
10	Mundra	Aaarambh	20		Suf Handicraft
			132	1100	

# Glimpse of Women Empowerment Projects

SHG Meetings in various Villages regarding record check , Loan , Interest detail also collect information for their hidden Skill.





Adani Foundation launched programme AAARAMBH to revive the dying art form of Suf in a ceremony in Mundra, Kutch. Under this project, Adani Foundation will facilitate the training of about 30 women in the handicraft and also help them with market linkages to ensure sustained livelihood for them. On the occasion, Adani Foundation also launched a website made by the women themselves to market their products.

Suf handicraft was practiced in Kutchh District, Gujarat. Due to lack of patrons this handicraft has been dwindling. Suf handicraft is painstaking embroidery based on the shape of a triangle. Suf is counted on the wrap and weft of the cloth in a surface satin stitch worked from the back. Each artisan imagines her design and then counts it out in reverse.





# International Women's Day

## International Women's Day Celebration Mundra



International Women's Day has been celebrated by the Adani Foundation, Mundra with Integrated Child Development Scheme. Chief Guest of the event was Mr. Komal Singh (Commandant Coast Guard) and Ms. Ami Rakshit Shah (APS School). Distinguished Guest Mr. Vayda (Taluka Development Officer, Mundra)

On this momentous occasion the supervisors of ICDS were felicitated for their noble work. Adani Foundation also honored Eight women entrepreneurs who were supported by the Adani Foundation, Mundra for income generation.

The Adani Foundation Mundra was also facilitated by the ICDS for their remarkable work in field of women empowerment and Suposhan as well.

Additionally, In coordination with DDO, Kutchh Pradhanmantri Mandhan Yojana form filled up for @ 225 women – who will give benefit of pension of Rs. 3500 per month after age of 60 years. Our Suposhan Sangini remained present and guided about nutrition.

As a Matter of Celebration, Same Day ICDS Mundra got state level Mata Yashoda award at Gandhinagar for best Anganwadi work.

Total 300 women attended the programme with great enthusiasm and Zeal.





## International Women's Day Celebration Bhuj

International Women's Day has been celebrated by the Adani Foundation, Bhuj with SOS Gada Village, Bhuj Engineering College as well as Army force Bhuj. Chief Guest of the event was Dr. Kunika Patel (Gynecologist GAIMS) and Dr. Rajendra Harnagar (Gynecologist GAIMS) and Distinguished Guest was Mr. Mishra (Airport Authority, Bhuj)

As a part of Bhuj and Lakhpat CSR celebration International Women's Day in Various place Bhuj Engineering collage, SOS village and Bhuj Airport. Awareness for Breast and cervical cancer, and health - hygiene. Total 230 women are benefitted in this awareness session. Also discussed about various psychological issues during menopause age and its solution.

# RURAL INFRASTRUCTURE DEVELOPMENT



Building a strong community relationship is the key to progress of Adani Foundation. The programs such as Education, Health and Sustainable livelihood development play a very important role in building this strong relationship with the community. These three programs are incomplete without the inclusion of the Rural Infrastructure Development program.

This year on path of sustainability, we have taken some steps as follows...

Under Dignity of Drivers Project, Adani Foundation has constructed Resting Shed for Drivers entering in SEZ Premises. Total 50 beds are constructed, drinking water and sanitation plus recreational – TV Facilities and will be charged minimum. Adani Foundation has handed over the project to ASSET Department – SEZ as a revenue generation model.

In this ceremony Mr. Avinash Rai (CEO- APSEZ), Mr. Rakshit Shah(Executive Director – APSEZ), Mr. Pritpal Sinh (Head – SEZ Operation) and other transporters remained present.



## RID – Dignity of Workforce

Present condition of migrated labour community of Adani port, power and Willmar is really matter of concern. They are living in pathetic condition. It is true that we cannot achieve our goal of development until we support to up bring lives of this community. Basic needs of this labour force needs to be address. In labour Vasahats they are not getting facility of pure drinking water, proper living condition, sanitation or proper living atmosphere. To build up trust and transparency in labour community, union labours and Smooth business operations and to create more efficiency by providing better living conditions Adani Foundation has constructed 45 Toilet block and proper bathing place for labours.



## Work Completed

- ✓ Road repairing various vasahat
- ✓ Open shed at Juna Bandar
- ✓ Sand Filling plot at JUNA BANDAR
- ✓ Concrete Step ladder at Juna Bandar
- ✓ House construction at Shekhadia
- ✓ Two approach road 5000 meter Zarpara Fishermen and 5000 meter Luni Pagadiya
- ✓ Drinking water storage tank 5000 ltr capacity bavdi Bandar -2, Juna Bandar -2, Kutdi Bandar -1
- ✓ water pipe line installation at Wandi village 2000meter.
- ✓ Basic amenities at Rampar Village Paver block 6000 LTR Storage tank and Boundary wall at community place.
- ✓ Additional civil work in community hall
- ✓ Open shed Gundiyali
- ✓ Boundary wall in common place at Tragadi.



An initiative by  
**adani**  
Foundation





# Swachhagraha

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

The programme draws inspiration from one of the largest mass movements - Satyagraha, which catalyzed action by winning over people's hearts through tremendous patience and resolve, instilling dignity and self-respect among our people. Swachhagraha aims to engage people and bring about a behavior change, where people get involved 'to create a culture of cleanliness'. Swachhagraha is inculcating behavior change education in cleanliness, sanitation, personal hygiene and civic consciousness amongst young minds.



Presently the Swachhagraha project is being implemented in 3000+ schools across 17 States. So far 3500+ teachers have been trained in behavior change education in schools, ranging from elite private schools to government municipal schools. The programme has directly involved over 57000+ students who have further reached out to their peers, parents and community through a variety of planned action projects and campaigns.

Mundra site- Adani Foundation launched Swachhagraha in 4 Blocks of Kutch District (Mundra, Anjar, Gandhidham, Bhuj). The Swachhagraha programme was launched in Bhuj with participation of over 450 Schools in Swachhagraha Prerak's Training Workshop with support of District Education Department, Kutch District. The programme was launched by Mrs. Shilin R. Adani, Trustee (Adani Foundation); Mr. Prabhav Joshi (DDO, Kutch), Mr. V.S.Gadhavi, (Director, Adani Foundation); Mrs. Sushama Oza, (Director, Adani Foundation); Mrs. Ami Rakshit Shah (Adani Public School); Mr. (Rakesh Vyas – DEO, Kutch); Mr. Sanjay Parmar (DPEO, Kutch) on 1st October 2018.





# SWACHHAGRAHA - ACTIVITIES





# Swachhagraha Marathon : Run Against Depression

Gujarat Adani Institute of Medical Sciences G K General Hospital and Student Counsel Organized the Bhuj Marathon. Theme of the marathon was Run against Depression and Swachhagraha. Total more than 800 participants took part in this marathon with enthusiasm and zeal.





# International Coastal Clean up Day

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



# Adani Skill Development Centre



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

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

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

**During this year Total 1819 people is given various trainings to enhance socio economic development.**

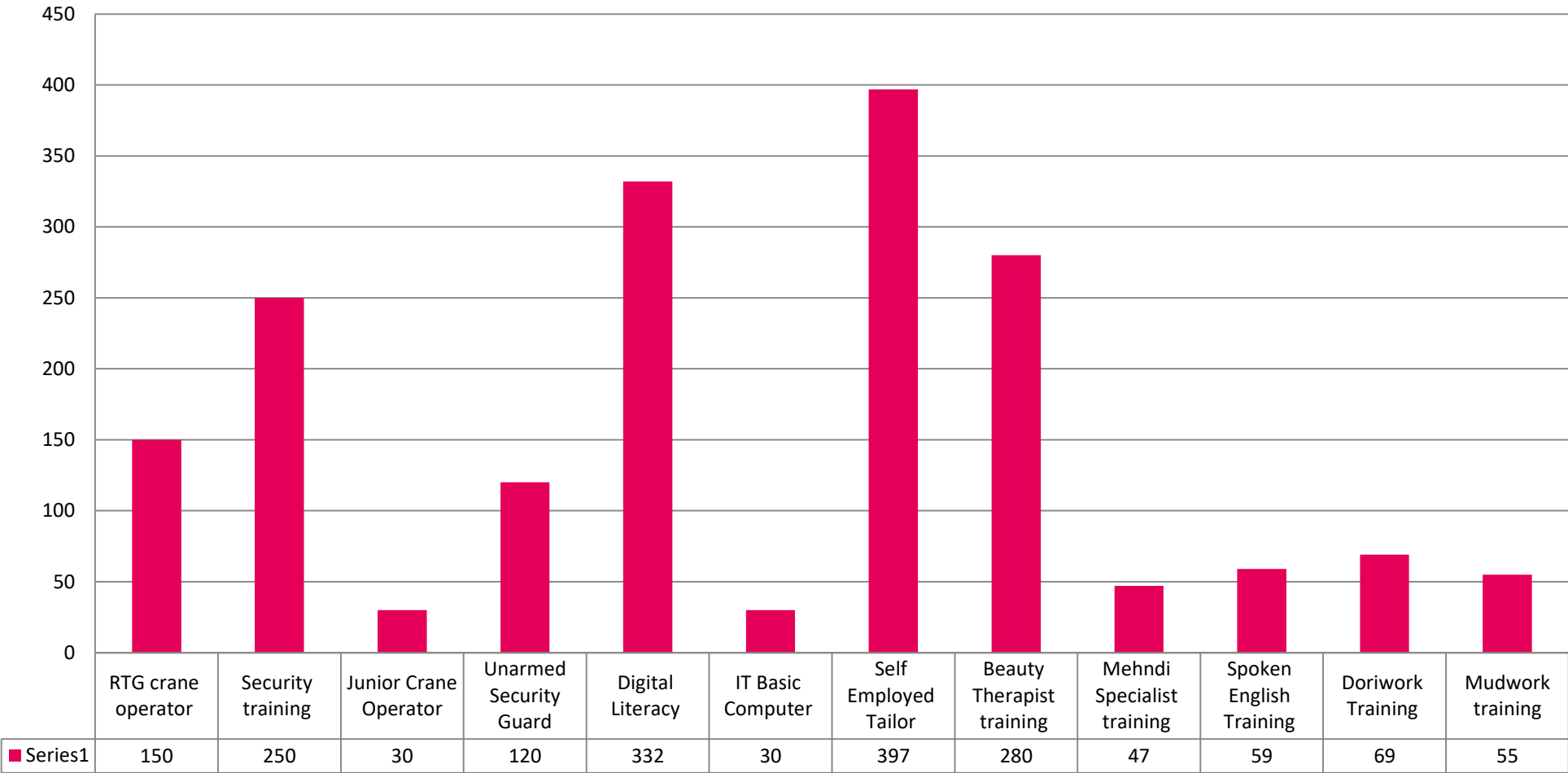
Out of which 1294 People are getting employment or Self Employment and average income up to Rs. 5200 per month. Digital literacy training is very helpful in coordinating with today's Digital world....



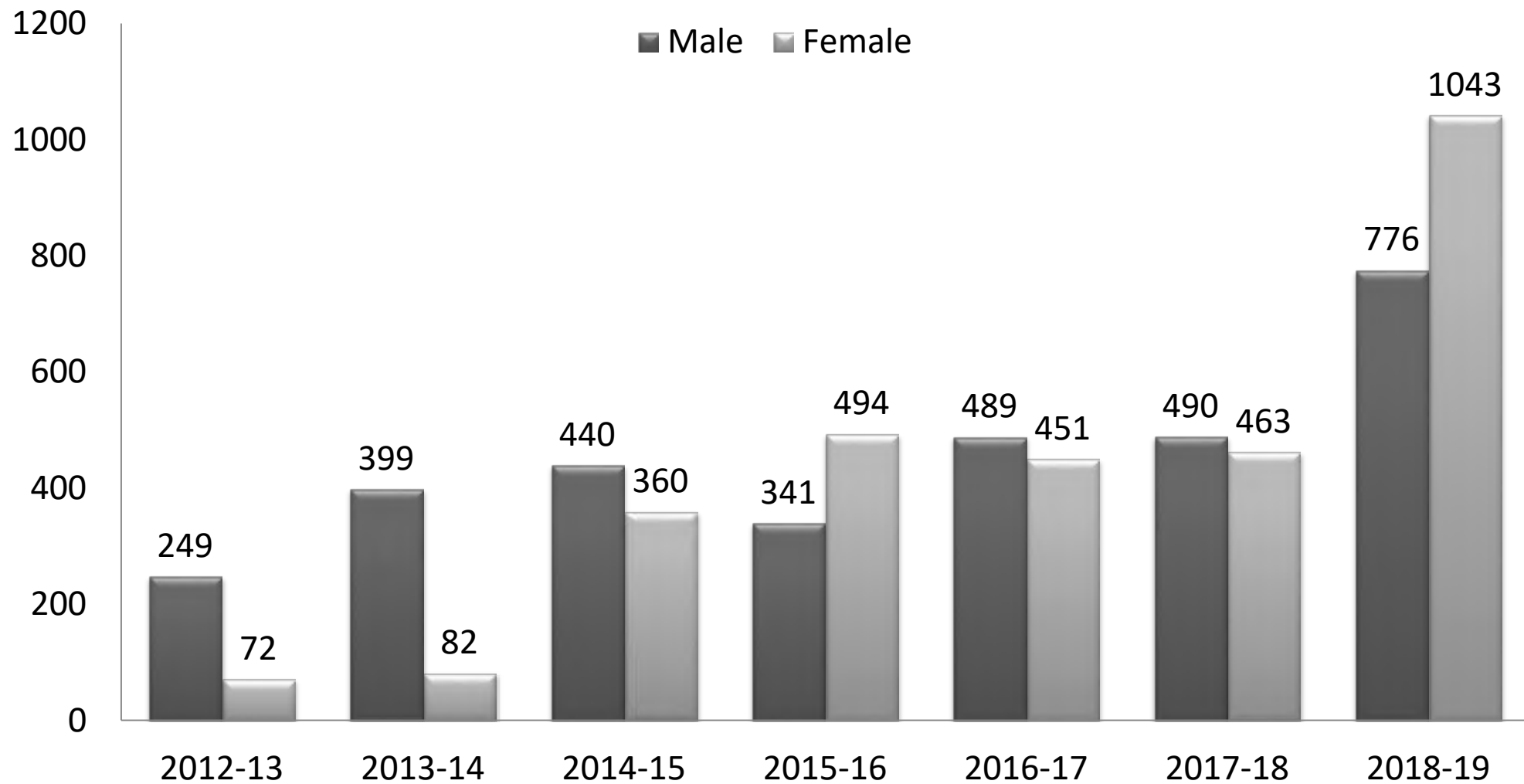
In the year 2018-19, ASDC trained 1819 candidates at Mundra.

THE YEAR IN REVIEW : KEY HIGHLIGHTS

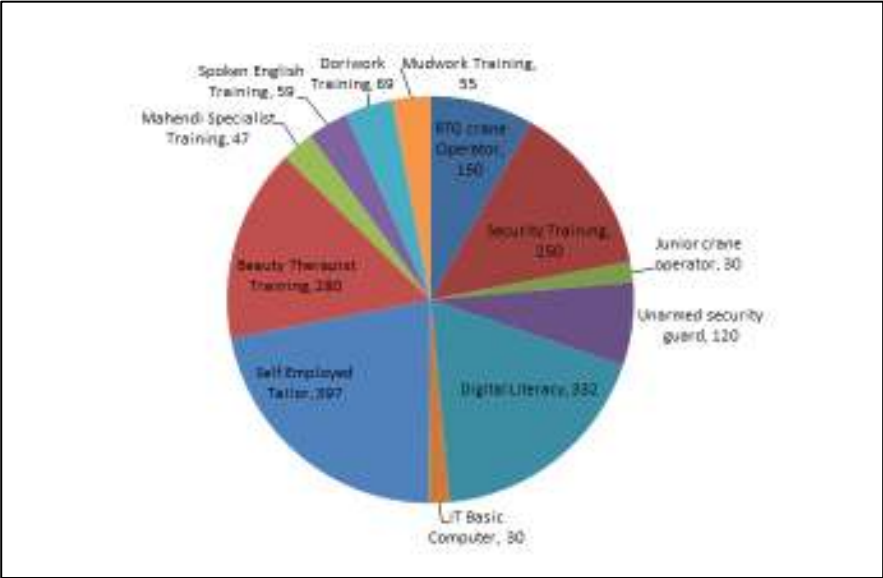
Training chart 2018-19



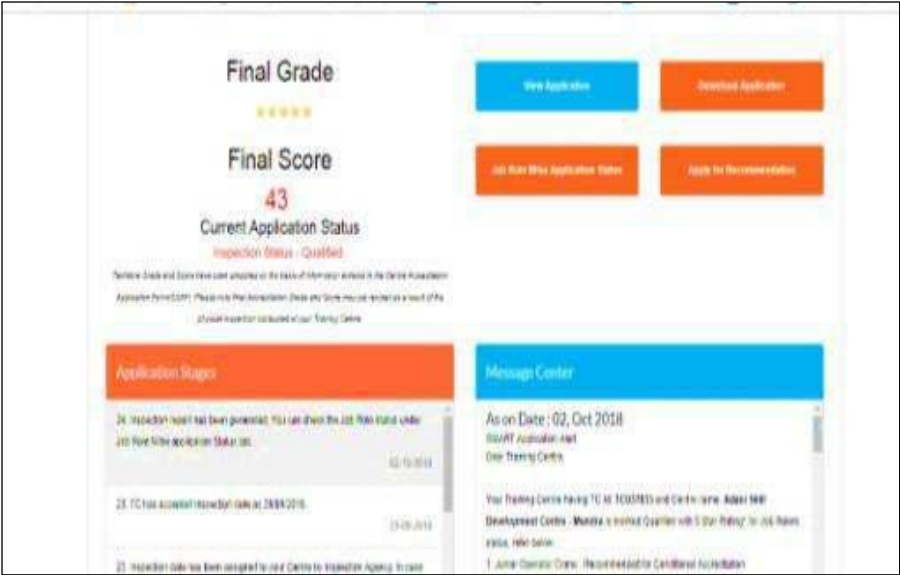
## OUR PROGRESS MUNDRA



# DETAILS OF VARIOUS TRAINING UNDERTAKEN



Adani skill development centre Mundra Placement figures of ASDC. Total 1294 people are getting employment after training with approximate ROI Rs. 5200 per month.



Adani skill development centre Mundra is qualified in NSDC with 5 star rating for job role junior crane operator and unarmed security guard.

## LAUNCHED "SAKSHAM" CENTER AT BAROI GUEST HOUSE



ASDC-Baroi (Mundra):- Adani skill development Center (ASDC) launched 'SAKSHAM' center at Baroi guest house in Mundra on 16th June 2018 to provide skill development training to youth in the Mundra.

An initiative of Adani foundation, the center in the Mundra city will benefit about more than 500 candidates every year in Beauty & Wellness course.

The center will provide skill development training to the youths in the age group of 14-40years initially in Beauty & Wellness course. Total enrolled for this training were 90 students.

## LAUNCHED "DIGITAL LITERACY" AT UTHHAN VILLAGES

Adani Skill Development center, Mundra has started digital literacy class in local village. 40 girls and boy are participated in first session. All village people are happy for this training in phase. We have also arrange evening batches to cover all people of various village.

Digital literacy training done through laptops and Tablets:-

- 1). The course duration is 26 days and number of hours is 52.
- 2). Per day training delivery hour is 2.
- 3). This is completely based on demonstrative and practical training methodologies.
- 4). The delivery is intended to be done through Desktops and Tablets
- 5). Attaching Also cover for payment banking topics .





## LAUNCHED "JUNIOR CRANE OPERATOR" COURSE UNDER PMKVY



On 6<sup>th</sup> December 2018 launching program was organized at Adani house for (1) Junior Operator crane (2) Unarmed Security guard

Total 30 beneficiaries identified and registered for Junior operator crane PMKVY portal. Mr. Vasant Gadhavi Sir (Director of Adani Foundation), Mr. Avinash Rai (CEO, APSEZ), Mr. Rakshit sir (ED APSEZ), and all HOD remained present and all motivated by their speech.

## STARTED UNARMED SECURITY GUARD COURSE UNDER PMKVY



Adani Skill Development Centre, Mundra received 120 candidates target of Unarmed Security guard training of PMKVY (NSDC). We have started 2 batch with 60 candidates of Unarmed security guard training at Adani Security training school at Mundra.

# Adani Skill Development Centre - Bhuj



One more feather added in Cap of Project Saksham – Adani Skill Development Center started in Bhuj.

PMKVY certification received with Four Star Rating in October 2018.

We have started Adani Skill Development Center at Campus of Gujrat Adani Institute of Medical Sciences with a main stream course of “General Duty Assistant”. After that we started digital literacy, beauty and wellness plus stitching courses.

ASDC Bhuj got overwhelming response of district administration for organizing special batch for widows and coordinating for their placements.

We got prodigious rejoinder during training of visually impaired and hearing impaired students at Navchetan Andhjan Mandal Madhapar.

By the unique activities and coordination, ASDC Bhuj received huge amount of appreciation from media.

Total 663 Beneficiaries have taken training out of which 432 people are doing job or self employment.

In the year 2018-19, ASDC trained 663 candidates at Bhuj.

Training Details	Qtr.-1	Qtr.-2	Qtr.-3	Qtr.-4	Total
Digital Literacy	0	27	58	175	260
General Duty Assistant	59	55	83	00	197
Spoken English	0	14	0	0	14
Beauty & Wellness	0	35	18	79	132
Banking Related Training	0	0	0	60	60
<b>Total</b>	<b>59</b>	<b>131</b>	<b>159</b>	<b>295</b>	<b>663</b>





# Event Celebration





# Teacher's Day Celebration : Guru Vandana



- Teacher's day Celebration - Guruvandana' Program was organized under esteemed presence of Shri Prabhav Joshi (District Development Officer) and teachers of 106 government primary schools with great enthusiasm.
- Objective of the programme was "healthy mind resides in a healthy body which is why a health checkup is scheduled for all the teachers which included BMI, BP, RBS, HB and vision test. Health check was done by Adani hospital Mundra.
- Followed by a motivational speech by Dr. Darshana Dhodakiya who is the Director of Bhasha Bhavan of Gujarati Subject, Throwing light on the principle that teachers cannot be trained in to be coming a teacher, but they are teachers because they actually are born teachers.
- Soft skill training by Ms. Riddhi Trivedi who is a highly skilled trainer from ASDC and would explain us the importance and need of soft skills. A highly thought provoking drama by students of 'Shekhadiya' school. And last but not the least session taken by Mr. Jatin Upadhyay.

# Utthan : Review and setting tone

To review and propel the Project Utthan was scheduled on 18<sup>th</sup> February 2019 at Kamandpur Primary School and Dhrub. Distinguished Guest of the Programme was Mr. Prabhav Joshi – District Development Officer, Kutch , Mr. Rakshit Shah - ED, Mundra , Shri Vasant Gadhavi, Director - Adani Foundation. SMC members of the School and villagers were gathered in Kamandpur Primary School.

DDO appreciated this unique initiative taken by Adani Foundation to enhance the level of Primary education of Kutch district. He is happy for the concept of Mothers' meet which is the keen area of this project for sending students on regular basis. He requested to all the mothers to send their ward in school daily. He especially recognized the installation of Smart Classroom in all the 17 School.

SMC members were highly appreciated the material support and introduction of English language in classes- 1 to 4 by the teachers which were appointed by Adani foundation. Principal briefed the project and shared his satisfaction towards this project on behalf of 17 School Principal.

Villagers are accepted Project Utthan with open handed and broad minded. Around 130 people were witnessed of this program.





# Uthhan : Anganwadi Upgradation

Under Project Utthan and part of early intervention Adani Foundation has upgraded Anganwadi infrastructure. To inauguration of the upgraded Anganwadi was scheduled on 18<sup>th</sup> February 2019 at Dhrub. Distinguished Guest of the Programme was Mr. Prabhav Joshi – District Development Officer, Kutch , Mr. Rakshit Shah - ED, Mundra , Shri Vasant Gadhavi, Director - Adani Foundation. ICDS members remained present to motivate the Anganwadi supervisors.



# Coastal Week Celebration with Indian Coast Guard



During celebration of coastal week - Safety and Security awareness program for fishermen while fishing as well as health check up camp and fishermen shed inauguration program was organized at Juna Badar with collaboration of Indian coast guard department. In this occasion Mamlatdar of Mundra, Commandant of coast guard and Mr. Ashvin Zinzuvadiya (Media : Kutchh Mitra) were present. Mainly they emphasized on national security as well as Personnel security in their speech.

Health camp was organized with support of Adani Hospital Mundra. Total 107 patients were benefitted by health check up camp and prize distributed to winner of Ramaotsav program.



# Fisher Folk Amenities..

Adani foundation, MUNDRA organized Cricket Tournament " Sixth Adani Premiere League among Fishermen community to promote healthy Sportsmanship and harmonically transparent relationship. The Tournament had been played for 13 days at SVC (Shanti Vihar Cricket Ground) by 6 matches per Days with full of Audience, Total 65 Teams with 780 Fishermen youth were participated with 550Rs. Contribution per teams from Mundra, Anjar and Mandvi Block. The Final Match was played on 9.07.2018 and Pir Saheb (Religious Mentor), Rakshit sir (Executive Director- APSEZ ), Dr. A.k Vatsani (Deputy collector ,Bhuj) Mr.Mahesh Dafda (Assistant Director of Fisheries, Bhuj), Mrs. Pankti Shah(Unit CSR Head) ,AF staff and Fishermen Leaders remained present. The Final Match was so interesting and Salaya team becomes winner over Luni Team and more than 1200 Audience from various villages were present. The winner's trophy, Runners-up Trophy, Man of the Series, Man of the Match, Best Baller, and Best Bats-Man Trophy has been given to the Respective Teams and players. The 25000Rs, 15000Rs, 2100Rs, 1100Rs, and 500Rs, 500Rs Prize given to the above Respective Teams and Players from the Teams contribution.



# Celebration of World Environment Day at High School, Moti Khakhar

- Plantation of 1111 trees in Moti Khakhar high school ground in coordination with forest department : Moti Khakhar is a Village in Mundra Taluka .It is located 19 KM from Mundra. School is constructed in year 2008 and it is with large ground. Principal requested Adani Foundation to support for tree plantation in area. As per size of ground we can plant more than 1000 plants. In addition, Soil condition is also appropriate. Adani Foundation contacted Forest Department for Tree plantation before monsoon and Forest Department supported for 4000 plants. After getting support from Forest Department – Adani Foundation supported for Drip and Fence for protection of plantation. On 5th June 2018, Adani Foundation Mundra planted 1111 trees at Moti Khakhar. Function was scheduled by Gram Panchayat. Mr. Vyas (District Education Officer),Mr. Anjan (DCF, Mundra), Mr. Saxena (COO, APSEZ),AF Team, students of the school and Village leaders remained present





# Talent Hunt: International Disability Day

Adani Foundation is working intensively for differently abled in Mundra Taluka since 4 years in coordination with District Social Welfare Department. Till date we could able to support more than 560 Divyang in Mundra Taluka .

In celebration of International disability day, Adani Foundation organized Music and Painting competition at Taluka Level and Zone Level.

For Winner s of Zone level – District level competition was organized on 3<sup>rd</sup> December 2018.

With the blessings of almighty, divine Start of the program with blessings speech of District social Defense officer and Laljibhai Prajapati of Navchetan Andhjan Mandal.

Total 675 people from different institutes remained present in inaugural session. All Divyang participants remained present with full preparation.

Some glimpse of the programme Second session of Talent Hunt - International Disability Day was prize distribution with musical celebration. District Collector Ms. Remya Mohan IAS, Mr. Prabhav Joshi IAS, Rakesh Vyas DEO, Mr Arvind District Social welfare officer remained present. Mr. Rakshit bhai Shah ED, APSEZ was with us throughout the program. All four categories got 3 prizes. District social defense officer had given certificate of appreciation to Adani Foundation Mundra..





# Talent Hunt : International Disability Day Glimpse





# Divine feeling towards Mata no Madh!!

Mata no Madh is a village in Lakhpatt Taluka of Kutch district, Gujarat, India. The village lies surrounded by hills on both banks of a small stream and has a temple dedicated to Ashapura Mata, the household deity of former Jadeja rulers of Cutch State. She is also considered patron deity of Kutch. Many people are used to reach this Ashapura temple by feet from different parts of India. G K General hospital has organized health facility through at 10 locations on way of Mata Na Madh during Navaratri 5th to 11th oct.. In addition to medical facility, This health shibir will provide awareness of swachhagraha, swine flu and Beti bachavo as well The concept given by Shri Gadhvi Sir and implementation will be taken care by Dr. Chintan and Adani foundation health team.



# Employee Volunteering Programme

In a move first of its kind employees of the Adani Group have adopted all the students of the Vallabh Vidyalaya school in Mundra in their Employee Volunteering Programme (EVP). All the 704 children in the school are from families of migrant labourers working in various industries in and around Mundra. Children from migrant labourer families in addition to resource constraints at home also bear the disadvantage of unfamiliarity with local language and culture inhibiting participation in school.

Vallabh Vidyalaya by passes the language barrier as the medium of instruction is in Hindi and mostly the kids are from Hindi speaking families. "Thanks to Adani EVP financial resource constraint will be substantially relieved", Dharmendra Bhai who created the school from one shed institution gratefully acknowledged.

Energised by the inspiring leadership of Adani Foundation's Chairperson Dr. Priti Adani the Group employees handed over a collective cheque in an impressive function at the school premises. One student of Std. VII joyfully expressed, "Your benevolence will have indelible imprints and impact on our lives. Will remember you ever."





# Employee Volunteering Programme

Adani Group is deeply involved in all round social and economic development of the areas in and around Mundra. Adani EVP is context driven and employees have taken part in teaching, improving Aanganwadis, giving impetus to national Swachhata Mission and blood donation. The journey continues



# Employee Volunteering Programme

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

## 1. Total OPD by Medical camp at Labour colony-315

## 2. Blanket Distribution to 800 workers

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





# Inauguration of Skill Development training program for Schedule cast beneficiaries

Another milestone reached on 28th Dec 2018, ASDC launched its program for schedule caste in the state of Gujarat. This program will train candidates in various vocational training educational course like Self employed tailor and Beauty & Wellness. Total 60 women/Girls participated in this training. This course is sponsored by Department of Social justice and Empowerment . It was inaugurated in the esteemed presence of Mr. V. S Gadhavi sir (Executive Director ASDC), Mr. Rakshitbhai Shah (ED of APSEZ, Mundra), Mr. K D Kapdiya (Director of Department of social justice and Empowerment), Mr. B P Soyantar (Dep. Director of Social justice and Empowerment, Gandhinagar), Mr. Dhangaru (Dep. Director of Social justice and Empowerment, Bhuj ), Mr. Jatin Trivedi (HOD of ASDC), Mrs. Pankti Shah (Unit CSR Head of AF Mundra), Mr. Javaid Akhtar (HR Manager of ASDC).



## SWACHHAGRAHA : At Gujrat Adani Institute of Medical Sciences

"Swachhagraha " – Project launched at Adani G K General Hospital to embed values of cleanliness in minds of the staff and community as well. Separate staff member is also appointed by HO team for the same. Mr. Gadhavi had launched swachhagraha by presenting insignia to Dr. Bhadarka' (Head, Adani GKGH).



## SAMVEDANA : Series of Motivational Sessions

To motivate and felicitate paramedical and nursing staff motivational session was organized with help of Ms. Hiral Pandya which is critical requirement of GKGH. She talked about behavior aspect as well as compassionate approach to patients.

# NAMDA ON REVIVAL PATH

Even as a breakthrough is waiting to happen, five trainees were enrolled on Tuesday 5th Dec 17 by Adani Skill Development Centre (ASDC) for the age-old Namda craft, a dying art form of Kutchh district in Gujarat. First initiative of its kind, the skill development training on Namda is aimed at preparing a future generation of artisans for the historic art form.

Adani Foundation, the CSR wing of Adani Group had vowed to save Namda from extinction and bring back its past glory. Originally innovated by an artisan of Mughal Era in the 11th Century India, Namda craft was primarily practiced by the Pinjara and Mansuri communities and Sama Muslims native to Kutchh. Sans proper encouragement, marketing avenues and promotion, the art suffered a major setback with artisans gradually switching over to other professions for livelihood earning.

Till recently, when the Adani Foundation, Mundra team members approached Mansuri Karimbhai Umar bhai, perhaps the sole survivor of the craft in Kutchh, Namda was dying a natural death. As a good corporate citizen, the Adani Group initiated a move to protect the art form, as well to make it popular and sustainable.

The first step towards the enormous goal of reviving Namda, the training programme kicked started with lots of positivity and enthusiasm among the trainees, who are committed to put best efforts for bringing back the past glory for this craft. And the best part of the initiative is that, the Namda survivor himself would train the future-artisans.

## **GREAT ACHIEVEMENT IS....**

**KARIM MANSOORI ONCE AN ORDINARY NAMDA ARTISAN IS NOW AN ENTREPRENEUR. THE ADANI FOUNDATION FEELS CONTENT IN REVIVING THE DYING NAMDA ART FORM AND SUPPORTING MANSURI IN STARTING HIS OWN BUSINESS.**

**HIS JOURNEY IS OFF TO A FLYING START AND WE WISH HIM ALL THE BEST.**





# Beneficiaries Speaks





# Utthan : Enhancing Quality of Education !!

Navinal is a small village of Mundra Taluka. The village boasts of the works done by the goodwill of the Mahajans. The village is inhabited by approximately 1000 people. Rameshbhai Sathwara, his wife Champaben along with their three sons are one of the families residing over here. Rameshbhai is a greengrocer and lives a contented life with his family. The eldest son 14 year old Hareesh and the middle one 10 year old Lalji study with devotion and bring good result with god's grace and the blessings of the elders of the family. Their final result would bring a new ray of hope for the parents every year.

But the youngest son, Sanjay studying in class 3 could not read or write. Even after a lot of efforts nothing could not make him read and write. He himself did not even feel like reading or writing. It was meaningless to drag him into learning without his own willingness. The teachers also accepted Sanjay as a dull boy and didn't pay much attention.

But one August morning became august for this boy as it brought a bright ray of hope for him.

A new teacher who had come to teach students like Sanjay talked to Sanjay in his Kutchi mother tongue and this attitude of this teacher made the little boy go wonderstruck. The new teacher made them sing a lot of poems, showed a lot of colourful books and told them a lot of stories. Her attitude interested Sanjay and he willingly came ahead. He sat in the first row and told the teacher about a lot of things including the beehive outside his home, his parents and elder brothers. What appealed Sanjay the most was the constant attention paid by the new teacher to him. The next day led Sanjay to the special classroom made for the students like him.

Thus, every morning became a new, exciting morning for him.

And today, the innovative rangoli making in shape of alphabets using the fallen tree leaves interested him so much that he got interested in writing letters. This interest led him to write alphabets and later words. Moreover, he got interested in co-curricular activities like reciting poems and colouring the pictures.

The factor that attracted him the most was the loving teacher and this teacher is Hansbai Gadhvi. A resident of Mundra itself Hansbai, studied at Adani Public School. She provides her services to Adani Foundation's Utthan programme.

The Utthan project is the result of the agreement under which Shri Bhupendra bhai Chudasama, the Minister of Education of Gujarat assigned the responsibility of improving the quality of Education to the Adani Foundation. And the responsibility has religiously been accepted by Shri V.S.Gadhvi Sir for the 17 government primary school. Shri Gadhvi Sir has taken it as a mission for the foundation to lead the below average students to the upper level. The teachers having command over Hindi, English and Kutchi have been providing their services in these schools.

The Utthan Project initiated in August 2018 has been heartily welcomed and appreciated by the students, parents and teachers of this area. Under this project, the children who are weak at reading, writing and basic calculation are taught in such innovative ways that their foundation becomes strong and they can come into mainstream level of their class.

The best characteristic of this project is introducing English language from the class 1. Talking about the co-curricular activities, these schools have been facilitated by libraries, smart class rooms and sports equipment.

The efforts are made with a hope that these children get the benefit of this teaching mission and move towards a happy, bright and prosperous future.



# Utthan : Enhancing Quality of Education !!

"Her eyes today had a shine so different, so divine, probably astral... was the shine real or an illusion? Or it was a simple result reflecting the efforts put in?"

These are the words of Siddhi Shah who is one of the teachers working as Utthan Sahayak in the Utthan project. She works in the Zarpara village, a village where the chief occupation is agriculture and this works as the chief reason behind the irregularity of children in attending school.

The area in and around Zarpara is quite vast and looking at this only the Government has approved 6 Government Primary Schools. But the scenario on the education side is still dismal. There is a long way to go to achieve the desired results. The teachers like Siddhi Shah who work as Utthan Sahayak have their role here. They play a key role in leading the children to school and bringing their academic level up.

Let's talk about what Siddhi Shah has to say about one such girl Pragna who studies in the Khoyadi Government Primary School.

Pragna's father Haribhai is in agriculture field and rearing cattle. This work cannot be carried ahead without the support given by the wife and thus the mother Malsriben too is busy helping the husband in his daily work along with shouldering the responsibilities of performing the household chores of a joint family and bringing up of her own three children. Hence, she finds it difficult to monitor the schooling of her children.

Pragna herself did not have much interest in studies and being the only girl child of the family, Pragna didn't take going to school seriously.

Siddhiben Shah would check the attendance registers daily and would go to meet the parents of those children who do not come to school regularly.

Pragna's irregular attendance was noticed by Siddhiben Shah and she decided to visit her home.

Once she visited her mother Malsriben and persuaded to send Pragna at school. This worked and Pragna started coming regularly. To her surprise, Siddhiben found that Pragna who was not at all interested in reading and writing could do Maths sums excellently well. Siddhiben used her interest in Maths and led her to reading and writing. Under Siddhiben's guidance, Pragna started with letters, words and with the passage of time she acquired fluency in reading flawlessly. It was like a test for the teacher and Pragna's reading fluently and with interest was the fruit the teacher's hard work bore.

And today when in the Saturday morning assembly, Siddhiben saw Pragna reading the newspaper fluently, she realized that it was her hard work that had borne fruit.

Siddhiben Shah is basically a computer engineer but her love for social work, especially in schools brought her to work in Utthan. The students studying in Adani Foundation and in the schools under the Utthan Project salute her dedication.



# Swavlamban : Pathways to become Self Reliant !!

Mina Ben is resident of Baroi village. She is widow and living with his two children who are studying in school. Adani foundation is coordinating with Jilla samaj Surakha department for availing various benefits of Government of Gujarat to widow women, differently abled and senior citizens of Mundra, Mandvi and Anjar Taluka. We did all procedure for Mina Ben for regular pension scheme.

Mina Ben was ready n passionate to start Gruh Udyog with loan support with 40 percent subsidy by Vajpayee Bankable scheme "With our efforts she got loan and now she will start Gruh Udyog of " Aggarbatti " with pre defined marketing linkages with Ashapura temple trust.





# Swavlamban : Pathways to become Self Reliant !!

Adam Bhai Bayad is living at Moti Khakhar Village He is differently abled and having wife and two children in his family. He is having one skill of mobile and computer repairing. As per his request we allotted him one cabin for income generation. Now he is started to sale Mobile, Mobile accessories. Additionally he started repairing mobile and computer. By hard work he started earning considerable amount. Adam Bhai says "due to this support my children can study well and my quality of life is enhanced



Parvina ben is Divyang but strong lady. She is educated and use to work as a teacher primary school. She was using sticks to reach school. Adani Foundation had given support of tricycle for her comfortable transport.

She says "Adani Foundation is working as a great facilitator for needy people. This is true social work which has created very good imprint in heart of village people. God bless !



# Swavlamban : Pathways to become Self Reliant !!

As the wheels of her sewing machine keep moving, so as the dreams of a better life and empowerment enthuse Bhanuben overcome the physical deformities which came in the form an injury in the spinal cord during childhood. Both her legs were malfunctioned forcing dependence on calipers for movements.

Bhanuben Gangji Patariya of Bhujpur village lost her father when she was just 15 years old, and had very little understanding of the materialistic world and struggle of life. Poverty in the family compelled Bhanuben to drop school and do small odd household jobs of fellow villagers and sometimes accompany her mother as daily labour.

The sudden transition in life, from most adorable darling of her father to an unnoticed and uncared human being in the society, often disturbed the innocent mind of Bhanuben.

Few months back, Bhanuben had enrolled at Adani Skill Development Centre for stitching training, which she could successfully complete within the deadline due to a strong will power and aspiration to win over all odds in life. During her training period only she learnt about AF's Project Swavlamban and expressed the desire to be part of it.

Followed by proper counselling and guidance for self-sustainability, AF donated her one wheel chair and a sewing machine which helped Bhanuben change her life and build the self-confidence of stitching a bright future for her family. Now she earns an average of Rs. 2500 a month which takes care of the basic livelihood needs of her family.

Wearing a smile of satisfaction on her face and the pride of being self-sufficient, Bhanuben expresses her heart-felt gratitude to AF for standing by her during this critical juncture of life. She has become a ambassador to spread the message of all good works by AF in her locality. She is yet, another success story in the saga of sustainable CSR by AF.



## Swavlamban : Pathways to become Self Reliant !!



Her name is Sanjuben. Residing in Vadala village with her Divyang husband and 9 years old son. Her husband is working at one shop and trying for two ends meet. During Divyang Mahiti card Vitran by Mamlatdar office she came to know about project Swavlamban. She meet Kalyan Gadhvi who is community mobilizer in Adani foundation. Kalyanbhai had given information n support for Divyang pension scheme.

Since two years couple is getting pension which amount can be used for further study of their son. Additionally, Adani foundation supported her for tricycle in coordination with district social welfare department. Sanjuben is daily using tricycle to give tiffin to her husband. Small linkage can bring life transformation !!!

## Spruha : Motivating fisher folk for bright future !!



Fakir Mamad Hasan Vagher

24 year old from poor fisherman family was selected by AF To provide cricket coaching last year. he has completed successful training at Rajkot YB sport academy with excellent performance even in Kutch 23 selection. The YB academy organized honor ceremony and invited AF. On this occasion dignitaries and more than 400 peoples were present and they all appreciated noble support by Adani Foundation.

Fakir Mamad saying that he was playing on behalf of other team and earn RS 500 to 600 but after cricket coaching he get status and honor in Kutch cricket even in society and earn Rs 1500 to 2500 for each match.

# Spruha : Motivating fisher folk for bright future !!

Mamad Sakil Osman Ghani Adani Vidya Mandir – Bhadreshwar 'A High Leap by a Poor Child from the Fisher folk Community.....Towards Engineering Studies.....Through Adani Vidya Mandir' 2017-18 Name: Mamad Sakil Osman Ghani Father's Name: Osman Ghani Mother's Name: Halimaben Family: Brother (1) + Sisters (4) & Parents; total 8 members Occupation: Fishing Village: Luni; Taluka: Mundra; District: Kutchh In modern times along with its importance, education has also made changes in our lifestyle.

Adani Vidya Mandir, Bhadreshwar, is like a lighthouse giving a ray of hope in remote areas. It was established to provide education to children from socio-economically backward communities. The school provides high-quality education, nutritious food as well other kinds of facilities so that children's self-respect increases through the education. Speaking of students, Mamad Sakil was enrolled in the Std. 7, in 2014-15 in the Adani Vidya Mandir, Bhadreshwar. His father, Osman Ghani, is a fisherman. His family of eight members consists of his mother, his father, a brother and four sisters. They live in Luni Bandar.

From the beginning it was seen that he was a quiet, straightforward, humble and cultured boy. He also exhibits behavior with moral values. Everyone helped the family socio-economically. In the Adani Foundation with the help of Vijayhai and Ishwarbhai noted details of the family and found that nobody was educated. In such times of rising prices and inflation it is difficult to raise so many children. So the school management decided to take over and fulfil his basic necessities. Efforts for this child's educational success were made including counselling and guidance.

During his first year in the school, he participated in the running competition in the Khel Mahakumbh and came first in the district. In this way, he began to progress in not just education but also other areas. He started getting promoted to the next standard every year and eventually he reached Std. 10. With the help of the school in various ways and his own hard work, he successfully cleared Std. 10 with 77%. He stood second in the school. Now, the journey of his life has really started. He has started to see new and inconceivable dreams for his future career. Now, the Adani Foundation will be holding his hand to fulfil his dreams.

After completing studies of the Std. 10, he was gifted an android phone by the school principal, Smt. Lali madam, as he needed new technology to get admission for further studies. In this way all the obstacles have been removed from his career path. He has now taken admission in mechanical engineering in Bhuj Polytechnic, and the Adani Foundation has paid his entire fee. A new innings has started in his life. With his hard work he is making progress step-by-step. He has set a good example for other students. And we all hope that he will eventually become a strong financial support to his family.





# Adani Vadil Swasthaya Yojana: Holding Hands !!

Every human being has specific periods of the life wherein the childhood is for fun and the adulthood is spent for the family; remains old age to take care of health

Adani Foundation is holded hands of the senior citizens of Mundra

Manubha and his wife stay alone. Their son and daughters stay separately. They earn their living by grazing cattle. Manubha is having **respiratory disorder**. The source of income is very meager and that to dependent on rain. He had to borrow money from family friends or at times take on interest for taking basic treatment. His wife Shantaba also has blood sugar and hence she also requires medical assistance at times. The couple took **Adani Foundations' Senior Citizen Health Card** in 2015 by which they are able to save good amount, which was their medical expense every month.

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





# Adani Vadil Swasthaya Yojana: Holding Hands !!

Adani Foundation at Bhuj is aware of its social responsibilities to the surrounding community. Madhapar is a village approximately 28 km away from Bhuj wherein resides Aseembhai who was financially, health-wise and socially unstable until he availed help from AF at G K General Hospital Bhuj. Aseembhai settled in Madhapar 30 years ago. before 8 years, he lost his wife to heart attack.

His parents passed away when he was 3 years of age and the only surviving relative he could call his own was his brother who was also mentally-challenged. His problems did not end there as e suffered from high blood pressure and stress induced thyroid which required he took medication as long as he lived.

Slowly his body stopped reacting to the medicines and these did not work. One He got convulsions as a side effect of over dose of medicine. His neighbors took him to Adani G K G H Hospital. Adani Foundation staff took very good care of Aseembhai. For one month he admitted to hospital and daily staff members ask about his health.

When he got discharged he said

"Adani is Like my Second Son.. I get the services even without asking for it"



# Saksham Superhero's : Skill Development



My father is working as a mechanic in ST workshop and his income was not sufficient for live life better so my mother also was working in different fields. I also was trying to find job for support to my family financially. One of my friends suggested me to visit Adani Skill Development Centre – Bhuj and join General Duty Assistant. When I visited center I got all the GDA related information from the staff, I took admission. During this course I learnt lots of Medical related things from the faculty I also was taught about Personality Development, Computer basics, Basic English, Interview Skills. During my practical for 1(one) month in GAIMS, I got chance to work in 4(four) wards. During my practical I learnt many things. After completing GDA course ASDC SAKSHAM is arrange interview At Adani GAIMS Hospital Bhuj. I attended interview and I was selected for physiotherapy section. I was offered monthly salary Rs.10000/- and join the job. After joining this job, I am glad that now I am a working woman and more then that I can help my family financially. With this job my life has become better than before. I would like to thanks Adani Skill Development Centre to give me this Opportunity and for making me SAKSHAM.



22 years old Dhanabai has completed Self Employed tailor course from ASDC in the month of June 2018. Now she start her own tailoring business at home and doing stitch ladies clothes. At present she is earning Rs.6000/- Monthly.

# Saksham Superhero's : Skill Development



Bhand Navin Devjibhai is very fond of financial autonomy and self-sufficiency, a principle of life which he has got by virtue of his skill development training at Adani Skill Development Centre (ASDC), Mundra. A Commerce graduate from Mundra village, in the year 2017 Navin had enrolled himself at ASDC for the IT-Basic Computer training. He was unemployed and lacked the minimum confidence of facing any job interview as per his qualification.

As part of the well-designed training curriculum at ASDC, the 21-year old youth learnt skills of public speaking, professional manners, facing interviews etc. along with core subject of IT basic computer. The training helped Navin immensely and fetched him a company job with lucrative Rs. 10,000/- per month salary. Happy with his financial autonomy, he is now in a comfortable position to support his parents and three brothers.

My name is Ashok Maheswari from shedata village, Mundra. My father is no more in this world so I was trying to find job for support to my family financially. One of my friends suggested me to visit Adani Skill Development Centre – Mundra and I have joined



Checker cum RTG crane operator training for 3 months. After successfully my training I sent my resume in various port. One day I received call from aani port at katupalli in Chennai and I attended interview and I was selected for RTG crane Operator. And today my salary 20,000/- per month.

So, I can help my family financially. With this job my life has become better than before. I would like to thanks Adani Skill Development Centre to give me this Opportunity and for making me SAKSHAM.

# Saksham Superhero's : Skill Development

Manisha Patel, from Mundra, has completed Std. 12. Her parents are laborers, earning minimum wages. Manisha had always been a bright student in school, wanting to learn new things. Feeling restricted in life, she dreamt of doing something different. She wanted to have a successful career and be recognized by society. Hence, when she was advised by a close friend to join ASDC's Beauty & Wellness course, which is an NSDC certified course, she grabbed the opportunity. She came to the course with a fresh mind and ready to absorb all the knowledge. She actively participated in all activities. She was full of curiosity and questions, and this attitude enhanced her skills. She was extremely happy when the trainer appreciated her enthusiasm upon completion of the training.

She was delighted to open her beauty parlor. She had also undergone extra training in specific soft skills and business manners in order to handle customers. With these skills, she manages customers like a pro and runs her salon smoothly. Her family members, including her in-laws, were initially hesitant to let her join the course but soon relented upon seeing her enthusiasm and zeal for learning. They are quite proud of what she has achieved in such a short time.

Manisha and Shree Beauty Parlor are synonymous with high-standard beauty and wellness services in the Mundra locality. Her quality services and reasonable prices have increased her popularity and helped in attracting more customers. Today, she earns Rs. 12,000-15,000 per month. Her trainer, Ms. Rekha says, "She and many other candidates who completed their training at ASDC are ambassadors of Saksham. They strive to learn and grow by beating all odds. I am proud to be given this opportunity to groom and create skilled beauticians who can handle the ever-increasing standards of beauty treatments in a city like Mundra. I wish them the very best!"





# Saksham Superhero's : Skill Development

Lilbai koli- A youngest widow of the general duty assistant (GDA ) batch from Adani skill development center (ASDC) Bhuj is an epitome of courage and confidence. She is 22 years old with a one and half year old baby, and lives in a Mirjapur village, Bhuj.

She is 12th pass with Arts stream and used to love drawing and painting as her hobby. Her parents work as laborers and her sister cooks at home. She got married in 2016 and lost her husband in 2018. The most tragic thing is that she didn't even know the exact reason of her husband's sudden death. Happiness is transient, she faced many problems starting with loosing her husband, becoming single parent and loosing financial support from her in-laws which resulted in returning to her parents home.

When asked about her future plan she says "Talking about remarriage is a taboo in our village and culture. I want to be strong enough to work hard and give my son a healthy and happy Life".

Presently, Lilmai is pursuing her ,On the Job Training in G.K General Hospital. A girl who has never seen hospital is now learning technicalities of patient care in emergency ward. A young novice is all set to become a successful patient care assistant with a single goal in life i.e 'To become economically stable enough to educate her child'. Lilbai expresses huge gratitude to Adani Foundation and ASDC Bhuj for giving her opportunity to study GDA course and help her get the job so that she no longer have to depend on anyone's help for herself or her child's future.





# Adani Cementation Private Limited (Lakhpur)



# Adani Cementation Private Limited (Lakhpat)

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

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



# Adani Cementation Private Limited (Lakhpat)

Kutchh is the biggest district in India and Lakhpat is far away from Bhuj which is main city of Kutchh. Health facilities are very poor as District hospital is around 150 Kms Away. Main livelihood is animal husbandry and daily wedge labour. Except GMDC , no big industrial set up is in Taluka.

Critical Issues are as under

1. Poor Health Facilities
2. Quality of Primary Education
3. Infrastructure of School
4. Livelihood options
5. Fodder and water Scarcity
6. Malnourishment



Adani Foundation will make five years plan to mitigate the issues with priorities suggested by Village Development Committees. Detailed PRA including Demographic survey is taken up and submitted.





# Adani Green Energy (MP)Limited (Nakhtrana)

# Adani Green Energy (MP) Limited (Nakhtrana)

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

For Smooth Execution of the Project we have started Participatory Rural Appraisal and Village Development Committee formation at three nearest villages (Ratadiya, Muru and Ambara) of our upcoming Wind Energy Project.





# Adani Green Energy (MP)Limited (Nakhtrana)

Kutchh is the biggest district in India and Ratadiya (Nakhtrana) is 70 Km away from Bhuj which is main city of Kutchh. Health facilities are very poor as District hospital is around 70 Km Away. Main livelihood is Agriculture, animal husbandry and daily wage labour. In Nakhtrana, No big industrial set up is in Taluka.

Critical Issues are as under

1. Poor Health Facilities
2. Quality of Primary Education
3. Infrastructure of School
4. Livelihood options
5. water Scarcity
6. Malnourishment



Adani Foundation will make five years plan to mitigate the issues with priorities suggested by Village Development Committees. Detailed PRA including Demographic survey is taken up and submitted.

# Awards and Accolades

We are glad to announce our latest accolade- the Eminent Award 2018 platinum category presented at the Ek Kaam Desh Ke Naam award ceremony on 25th March , 2019 at New Delhi. The award was bestowed upon Adani Ports and SEZ Ltd, Mundra, for outstanding achievement in Corporate Social Responsibility, specifically " Adani Vadil Swasthaya Yojana - Health card to senior citizen ". The award was presented by Sh. Anil Baijal - Retired IAS & 21st Lieutenant Governor of New Delhi and was received by the Community health team of Adani Foundation, the CSR arm of the Adani Group.





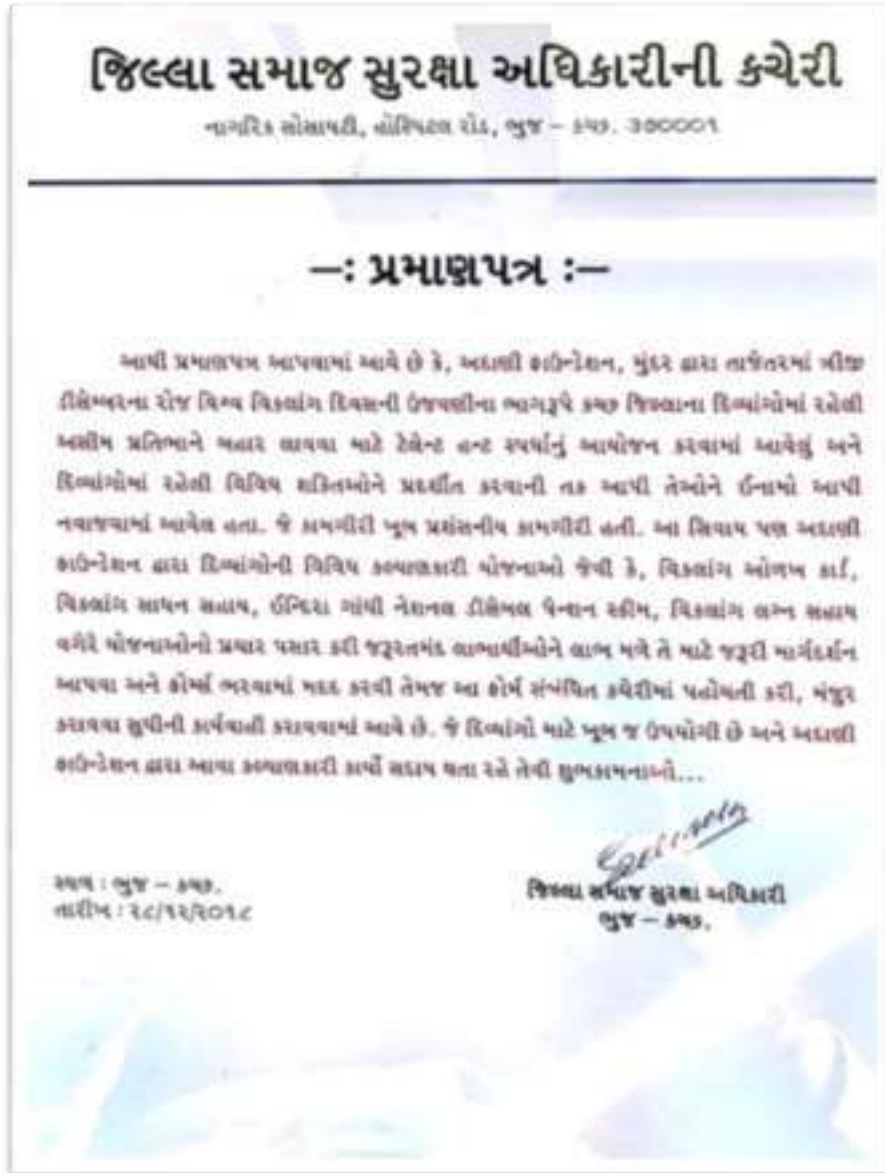
Pleasure to share that  
Adani Foundation have received  
appreciation letter from  
**Mr. Vijay Rupani (Chief Minister,  
Government of Gujarat)** for  
commendable work for Project  
Swavlamban in District Kutchh



# Awards and Accolades



# Awards and Accolades





# ભદ્રેશ્વર ગામે અદાણી ગુપના ચેરમેનના

## જન્મદિનની અનોખી ઉજવણી



અનેધો.૧૨ માં આવેલી દિકરીને પ કરવામાં આવી ૫૦૦ ડસ્ટબીન સ્વ મિશનને સાર્થક બનાવવા ગામલોકો માટે આપવામાં આવે આમ વિવિધ કાર્યો ત્રણે સંસ્થા ઉપક્રમે યોજાઈ ફાઉન્ડેશન શાહ, દેવ કલ્યાણ ગઢ સરપંચશ્રી કારોબારી પ્રધુમનસિંહ ગામના આ હોવા છતાં રહ્યા હતા. સમગ્ર બનાવવા કિરણબેન રમેશભાઈ

મુદ્રા સમયસર પાણી મળી સરકારી ઉ.મા.શાળા ભદ્રેશ્વર મધ્યે ગૌતમભાઈ અદાણી જન્મ દિવસ



આયુષમાન ભારત યોજના તળે ભુજોડીમાં મેડિકલ કેમ્પ યોજાયો

સરકારી ઉ.મા.શાળા ભદ્રેશ્વર મધ્યે ગૌતમભાઈ અદાણી જન્મ દિવસ



તાલુકા હેલ્થ ઓફિસ મુન્દ્રા દ્વારા ઓરી અંગે શાળાના આચાર્યઓનો વર્કશોપ

જીકે હોસ્પિ.માં કાલે માહિતી સેતુ કેન્દ્ર ખુલ્લું મુકાશે સરકારી યોજનાઓ વિશે વિનામૂલ્યે માહિતી અને ફોર્મ આપવામાં આવશે



ભુજના ડૉ. આંબેડકર કન્યા છાત્રાલયને આર.ઓ. પ્લાન્ટ મળ્યો

મુન્દ્રા તાલુકામાં પ્રા. શિક્ષણના ઉર્ધ્વીકરણ અર્થે કરાર કરાયા

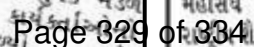
મુન્દ્રા તાલુકામાં શિક્ષણના ઉર્ધ્વીકરણ અર્થે અદાણી ફાઉન્ડેશન અને જિલ્લા પ્રાથમિક શિક્ષણ અધિકારી વચ્ચે કરાર કરવામાં આવ્યા છે.

પ્રાથમિક શિક્ષણની ગુણવત્તા વધે, વિદ્યાર્થીઓનો શિક્ષણ પ્રત્યેનો અભિગમ બદલાય



માંડવીમાં ગણિત-વિજ્ઞાન પ્રદર્શનમાં દુપ શાળાના છાત્રો દ્વારા એકસો વિવિધ કૃતિ પેશ કરાઈ







No	Core Area	Beneficiaries	Remarks
1	Education	5602	Uthhan, Labour School, School Enrollment
2	Adani Vidya Mandir	387	School Students
3	UDAAN	33932	116 Institute Visited
4	Adani Skill Dev. Center	2482	Mundra and Bhuj
5	Community health Mundra	58531	MHCU, Medical Camps, Senior Citizen
6	Community health Bhuj	36417	Health Camps, Mahiti Setu, patient care
7	SLD Fisherman	3280	Water, Education, Mangroves etc.
8	SLD Agriculture	1232	Drip Irrigation, Bio gas, tissue
9	SLD Women Empowerment	132	Saheli mahila gruh udyog – 12 SHG
10	Rural Infra. Development	81098	Pond deepening, AKBTPL, Labours work
11	Swachhagraha	3711	Mundra, Bhuj, Anjar and Gandhidham
12	Suposhan Mundra	17025	Adolescent, Children and RPA
13	Suposhan Bitta	6450	Adolescent, Children and RPA
14	Lakhpatt	512	Cattle owner for fodder

**Total Beneficiaries : 250791**

# Financial Overview

<b>Adani Foundation -Mundra</b>				
Executive Summary-Budget Utilization up to March-19				
(Rs. In Lacs)				
Sr. No.	Budget Line Item	Approved Budget 2018-19	Budget Utilization 2018-19	% of utilization
A	Admin Expense	67.55	55.44	82.07%
B.	Education	67.85	59.11	87.12%
C.	Community Health	243.21	203.88	83.83%
D.	Sustainable Livelihood Development	505.87	624.68	123.49%
E	Rural Infrastructure Development	326.34	231.81	71.03%
<b>TOTAL AF CSR Budget :</b>		<b>1210.82</b>	<b>1174.93</b>	<b>97.04%</b>
F.	Adani Vidya Mandir - Bhadreswar	143.15	133.88	93.53%
<b>GRAND TOTAL_MUNDRA CSR WORKS 2018-19</b>		<b>1353.97</b>	<b>1308.81</b>	<b>96.66%</b>
G.	Project Udaan_Mundra	342.82	315.63	92.07%
<b>GRAND TOTAL_MUNDRA CSR+ PROJECT UDAAN</b>		<b>1696.79</b>	<b>1624.44</b>	<b>95.74%</b>

The Utilization will change slightly after receiving data upto first week of April 2019 due to few GRN is pending



**Adani**

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**Foundation**

**Adani Foundation**  
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Adani House, Port Road, Mundra – Kutch 370 421

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# **ANNEXURE – 13**

## Details of Renewable Energy Installation

Sr. No.	Location	Capacity in MW	Status
<b>Roof Top Solar Plant</b>			
1	Samudra Township	1.5	Commissioned
2	Adani House	0.1	Commissioned
3	Port User Building	0.1	Commissioned
4	MITAP Sub Station	0.03	Commissioned
5	MRSS	0.025	Commissioned
6	Air Strip	0.045	Commissioned
7	Agri Park	1.2	Commissioned
8	Adani Hospital	0.069	Commissioned
9	Water Treatment Plant	0.054	Commissioned
10	RM Plant 4 MLD	0.058	Commissioned
11	PMC Store	0.015	Commissioned
12	Shantivan Township	0.168	Commissioned
	<b>TOTAL</b>	<b>3.368</b>	
<b>Wind Mill</b>			
1	<b>SEZ (Towards APL Road)</b>	<b>12</b>	Commissioned



**Roof Top Solar Plant**



**Wind Mill**

# **ANNEXURE – 14**

<b>Expense Details for Fisherfolk Amenities work in different core areas</b>						
<b>Sr.</b>	<b>Details</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>	<b>Total</b>	<b>Total Amount in Lacs</b>
Expenditure Details (Amount in Rs.)						
1	Vidya Deep Yojana	2069300	1930000	2087000	6086300	<b>60.9</b>
2	Vidya Sahay Yojana	552580	495000	691000	1738580	<b>17.4</b>
3	Adani Vidya Mandir – Shaping Lives	4200000	4030000	3472000	11702000	<b>117.0</b>
4	SENIOR CITIZEN HEALTH CARD	0	8430000	1750000	10180000	<b>101.8</b>
5	FINANCIAL SUPPORT TO POOR PATIENTS	4439507	1275000	813000	6527507	<b>65.3</b>
6	Machhimar Kaushalya Vardhan Yojana	188708	200000	397000	785708	<b>7.9</b>
7	Machhimar Sadhan Sahay Yojana	0	0	315000	315000	<b>3.2</b>
8	Machhimar Awas Yojana	4592106	1165000	0	5757106	<b>57.6</b>
9	Machhimar Shudhh Jal Yojana	2236050	2700000	2038000	6974050	<b>69.7</b>
10	Sughad Yojana	1367300	170000	0	1537300	<b>15.4</b>
11	Machhimar Akshay kiran Yojana	860850	100000	68000	1028850	<b>10.3</b>
12	Machhimar Ajivika Uparjan Yojana	1558800	500000	1382000	3440800	<b>34.4</b>
13	Bandar Svachhata Yojana	106400	50000	0	156400	<b>1.6</b>
14	Cricket league and Cycle Marathon	432000	657119	638000	1727119	<b>17.3</b>
15	Sports Material For Children & Youth at Vasahats	197797	0	0	197797	<b>2.0</b>
16	New Pilot Initiative for Polyculture	398240	160000	0	558240	<b>5.6</b>
17	New Pilot Initiative for Cage farming Asian Seabass & Lobster	8.64	660000	0	660008.64	<b>6.6</b>
	<b>TOTAL</b>	<b>17975386</b>	<b>20227119</b>	<b>12441000</b>	<b>59372765.64</b>	<b>593.7</b>