

COMMITTEE VISIT REPORT

IN COMPLIANCE

OF

ORIGINAL APPLICATION No. 481 / 2018

[Earlier O. A. NO. 27/2013 (WZ)]

1. BACKGROUND

In the matter Original Application No. 27/2013 (WZ) (Conservation action Trust & Ors. V/s Union of India & Others), Hon'ble NGT in its order dated 18th Aug. 2020 constituted a committee and directed following:

“... ”

“...The Committee shall visit the area in question and verify on the violations said to have been committed in respect of the CRZ Clearance. The State PCB shall be the nodal agency for coordination and for providing logistic support.

In the event of any violation being detected, the Committee shall identify its cause, damage caused to the environment, assess its cost and cost of remediation and fix the responsibility of the damage.

While undertaking the above task, the Committee shall provide opportunity to the Respondents No. 3 and 4 namely, the Coastal Gujarat Power Limited and M/s. 45 Adani Power Ltd., respectively to submit their views which shall either be oral or in writing. The deliberations shall be duly recorded in a minute prepared for the purpose.

Report shall be filed before the Tribunal within three months from hence by email at judicial-ngt@gov.in....”

In compliance of the said order a committee comprising of following officials was constituted:

- Dr. S. K. Lal, Scientist C, MoEF& CC, IRO - Bhopal
- Mr. Amit Thakkar, Scientist D, CPCB RD (W), Vadodara
- Mr. K. B. Chaudhari, Regional Officer, Kutch – East, GPCB
- Mr. Gaurang B. Bhatt, DEE, Forest & Environment Department, Govt. of Gujarat. [Representative of GCZMA]
- Dr. Ankur Patel, Manager (Coastal), Gujarat Ecology Commission (GEC), Gandhinagar. [Representative of Member Secretary, GEC]
- Dr. Soniya Sukumaran, (Principal Scientist) CSIR-National Institute of Oceanography (CSIR-NIO)

- Mr. J. K. Vyas, Member – SEAC & Representing SEIAA, Govt. of Gujarat
- Mr. K. G. Chaudhary, SDM -Mundra, Collectorate, Kutch
- Mr. Harsh J. Thakkar, Deputy Conservator of Forest Kutch East Forest Division
- Mr. Tushar B. Patel, In-charge DCF Kutch West Forest Division

The committee convened a meeting to hear respondent no. 3 & 4 namely, M/s Coastal Gujarat Power Ltd. & M/s. Adani Power Ltd. respectively on 15.10.2020. Records of discussion of the meeting are provided at Annexure I. Visit of project area, intake channel, outfall channels, fisheries area was carried out on 16.10.2020.

This report has been prepared based on inputs on aspects dealt in respective fields by committee members from relevant authorities and organizations. The observations made during visit and documents provided by the respondents were taken into account while providing inputs. Compliance status as per the following points mentioned in the order of Hon'ble NGT regarding CRZ Clearance is discussed in the subsequent paragraphs.

As regards, condition no. (iv) of CRZ Clearance, it is stated that the boundary wall constructed around the project site has made it difficult for the fisher folk to access the sea and the markets which was a violation of the condition.

The committee visited the project site. The intake channel falls under the APSEZ developed by M/s. Adani. As informed, boundary wall was observed to have been constructed for security reasons. However, 7 Gates are provided to facilitate movements and fishing activities covering Navinal, Jarpara, Dhrub, Mundra, Shekhadia, Tunda Vandh. Security Guards are deployed for maintain entry and exit from the village to access the sea in the portion of APSEZ. The committee interacted with the security personnel to understand the procedure. It was understood that the fishermen were checked for identity cards and only those with proper IDs were allowed access.

M/s CGPL has informed that following steps were taken to facilitate the fisherman activity

- Alternate road was provided which is connecting Tragadi village to Tragadi Bunder including construction of bridge over the outfall channel.
- Approach road was also provided up to Tragadi bunder to access the fishing site.
- Boat has been provided to cross the outfall channel.
- There are more than 120 fisherman household residing near outfall channel of CGPL with 115 boats. The number of fisherman house hold has reportedly shown increasing trend in last 10 years.

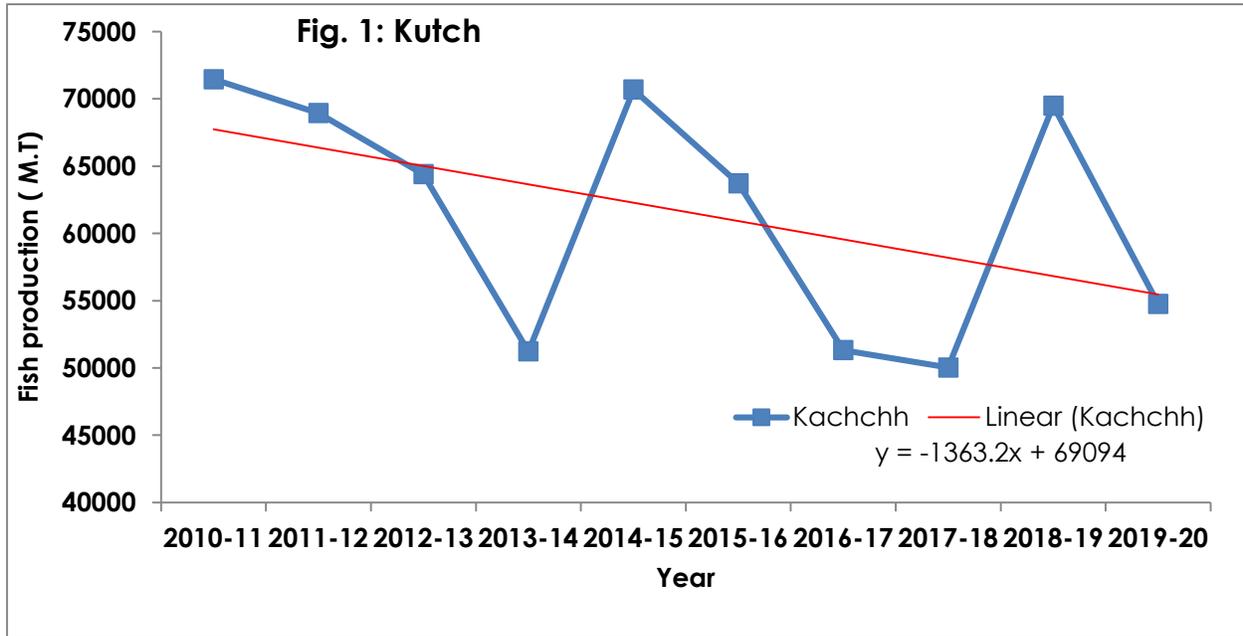
Photograph taken during committee visit:





The committee had carried out the visit at 1. Entry Gate for fisherman and other local community; 2. Fly Ash Pond; 3. Outfall Channel of CGPL & 4. Discussion among Committee Members

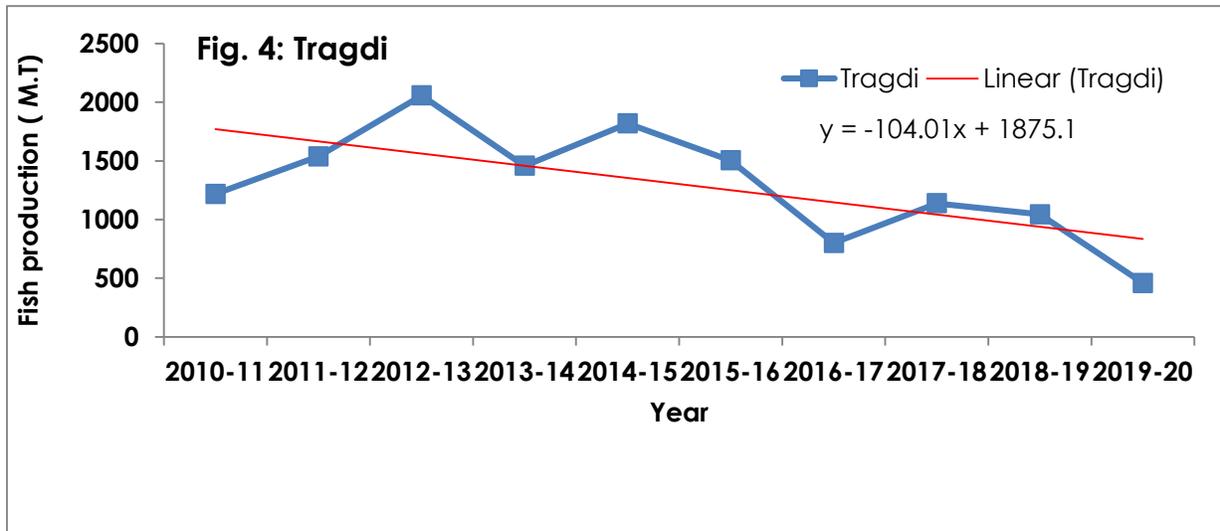
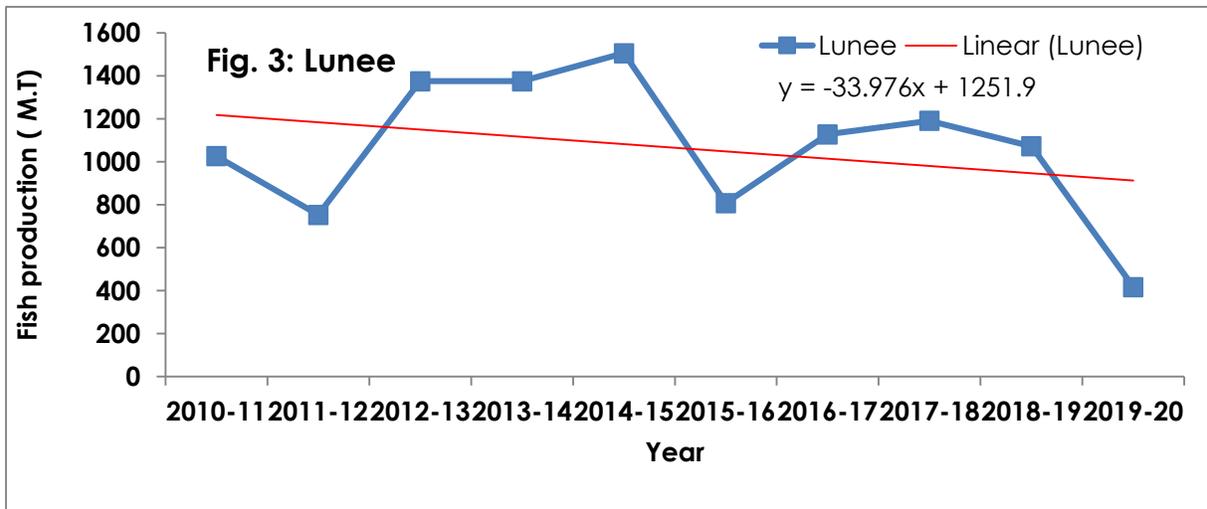
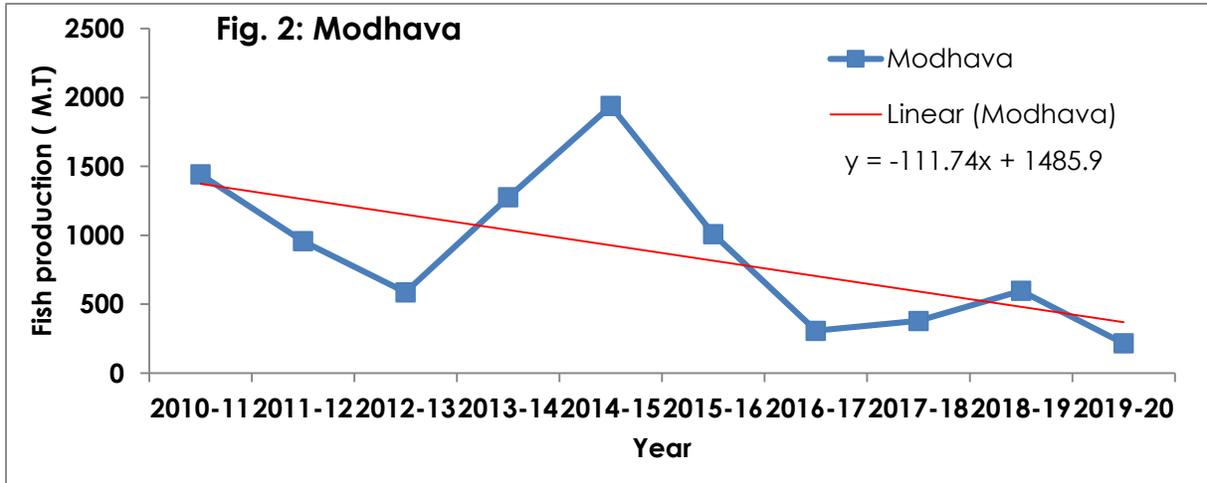
As regards condition no. (xiv), it is stated that the intake channel has caused destruction of the breeding and spawning of fish and other marine fauna in the vicinity which is compounded by discharge of hot and polluted water to the outfall channel causing decrease in the fish catch affecting the livelihood and biodiversity of the area;

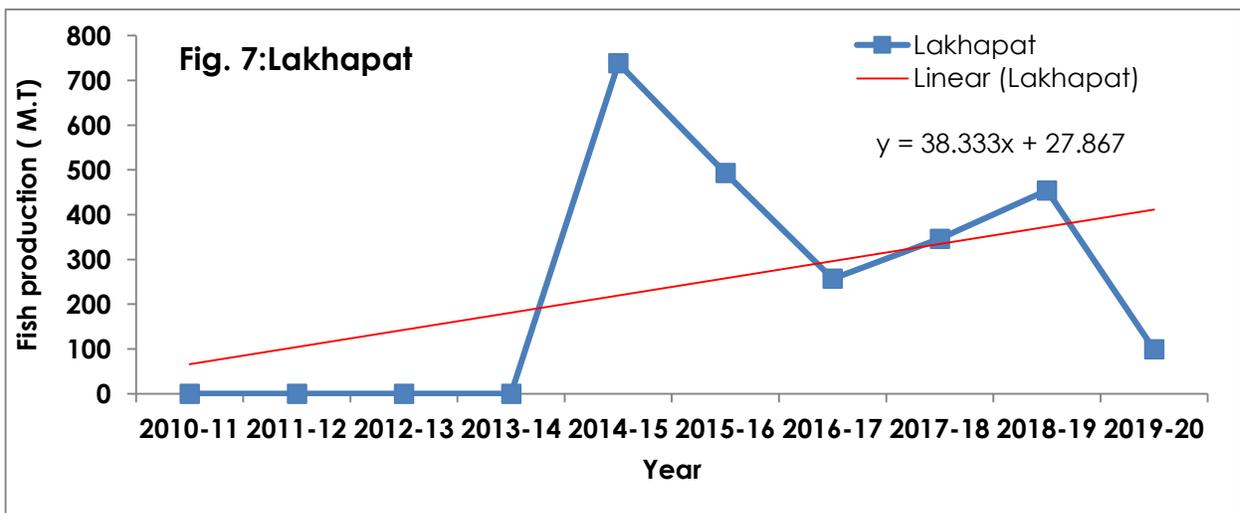
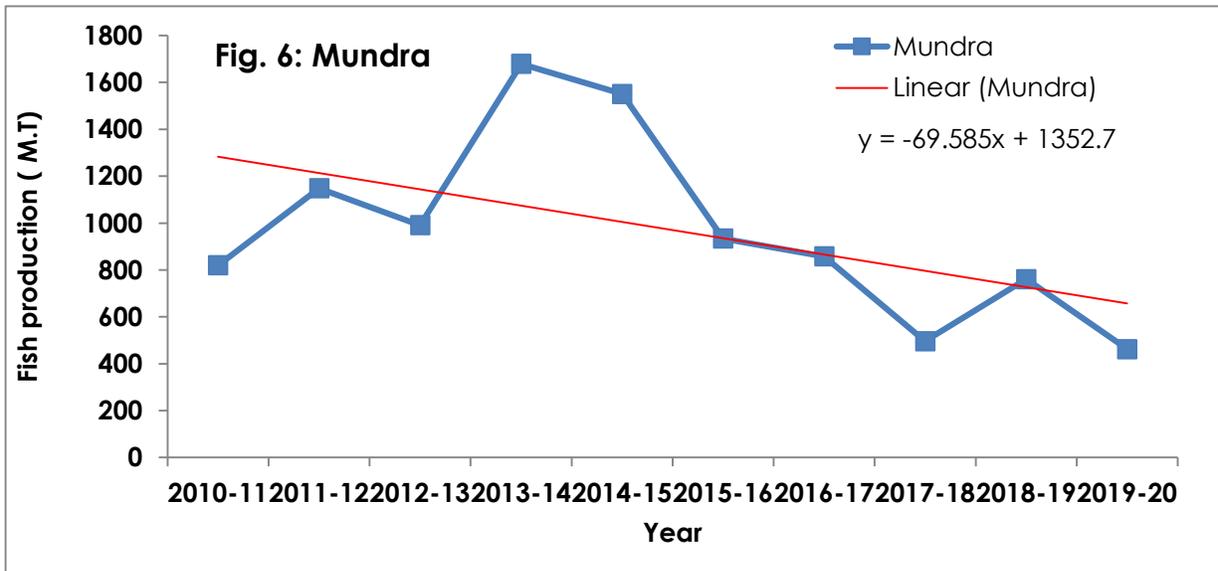
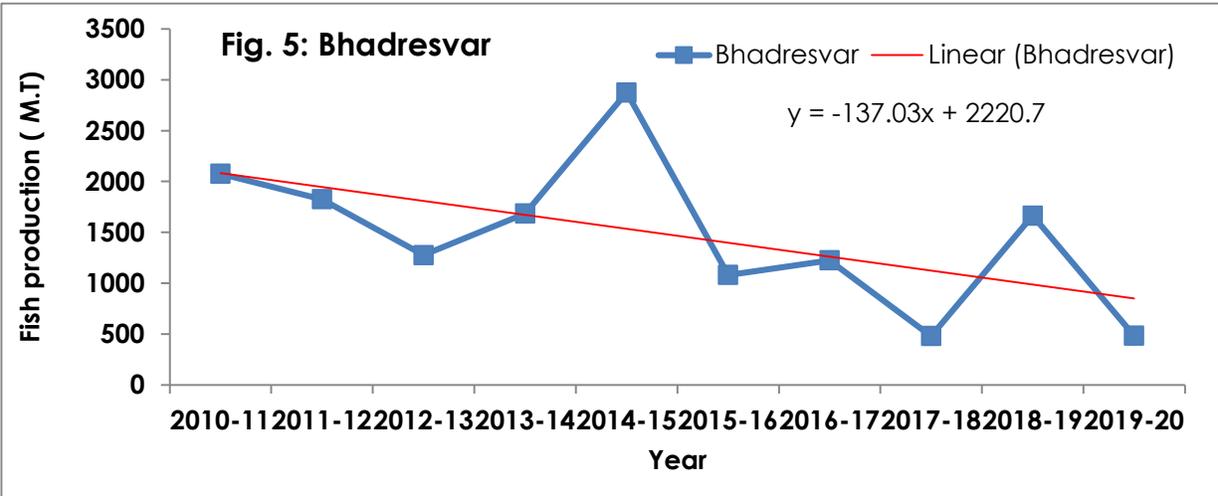


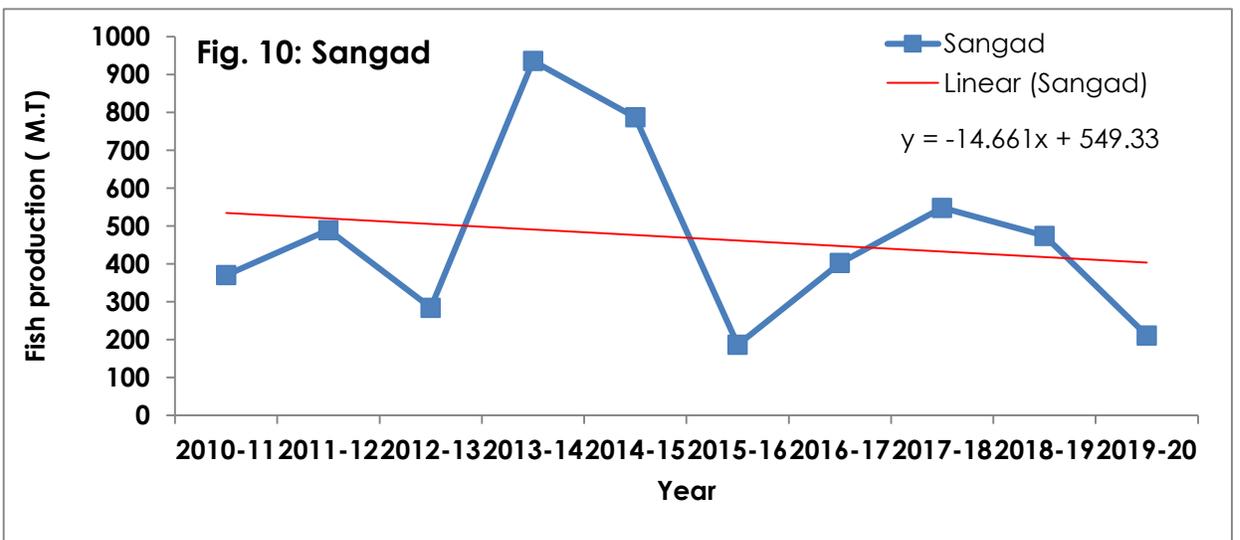
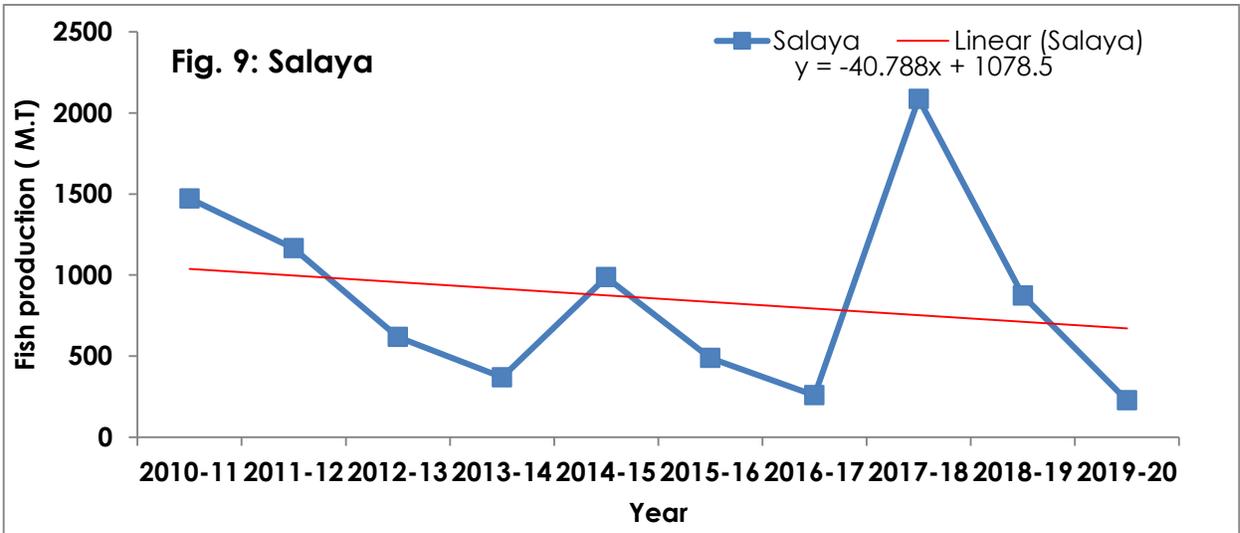
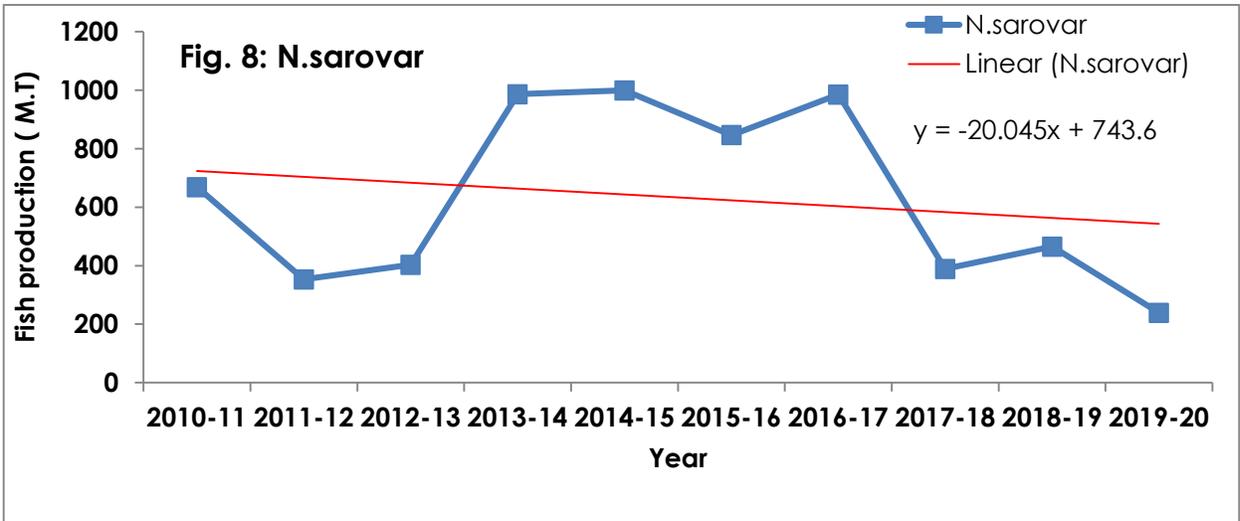
Marine Fisheries data were obtained from Department of Fisheries, Kutch

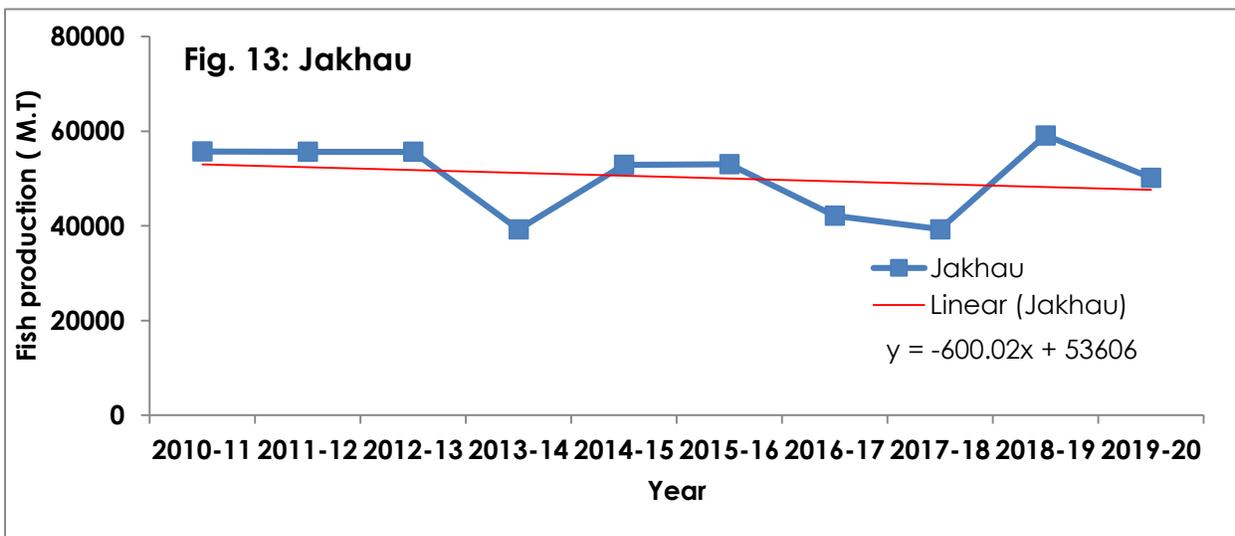
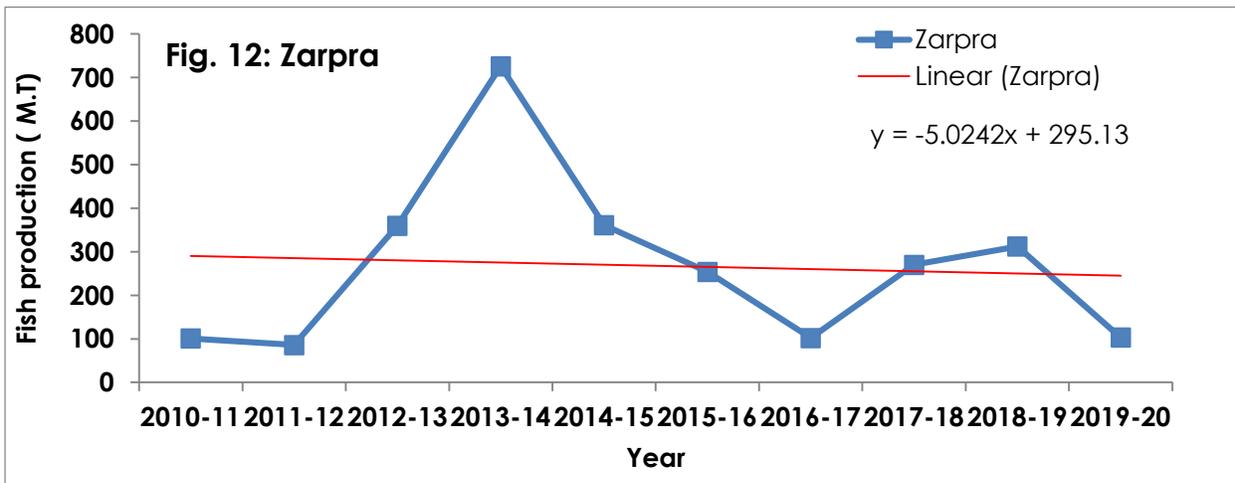
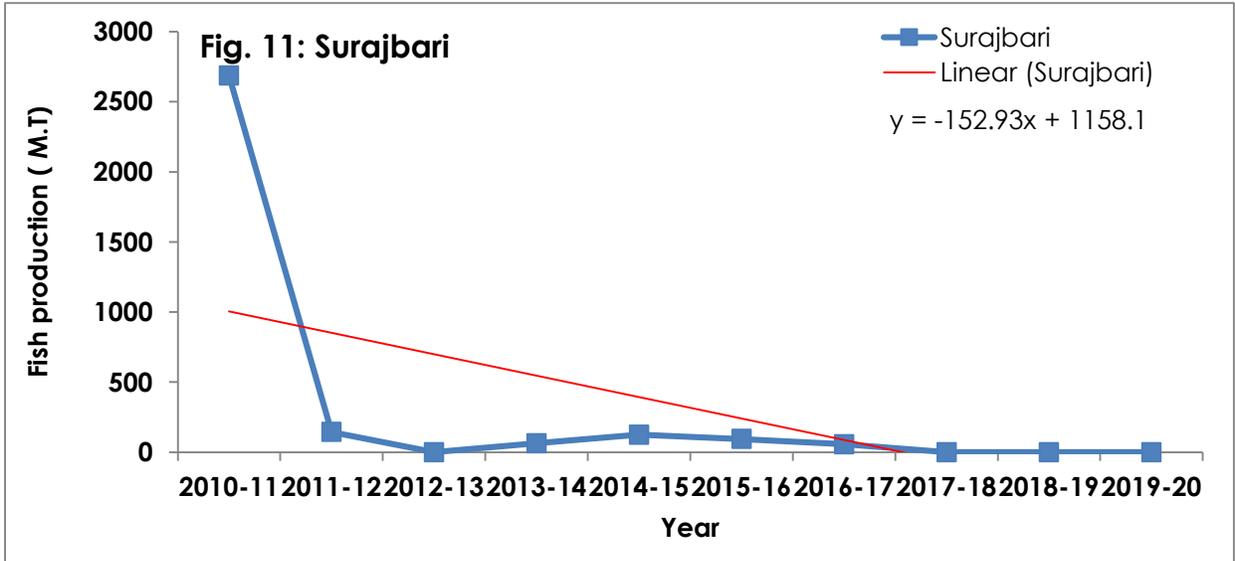
As per Fig. 1, the last 10 years marine fisheries data from Department of Fisheries, Kutch were collected and examined. The marine fish landing trends were analyzed. An uneven trend was indicated in the marine fish landings of the Kutch District in the last 10 years.

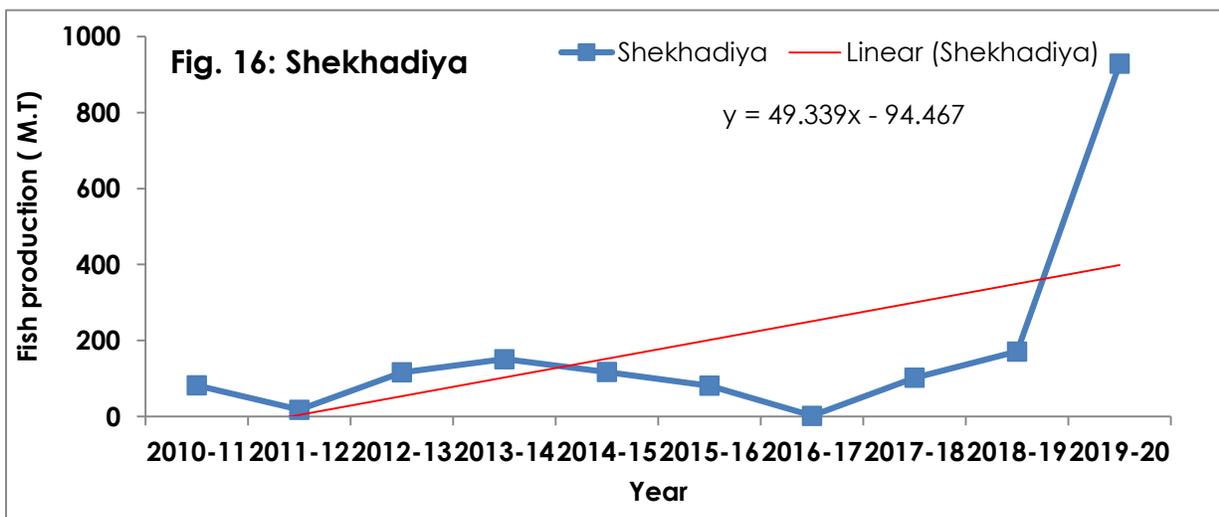
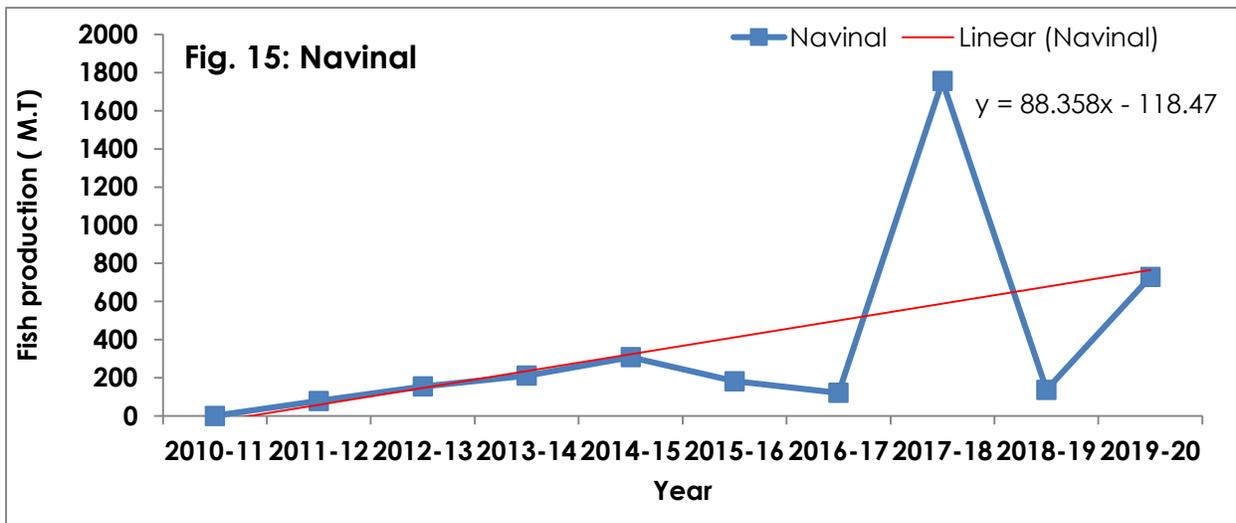
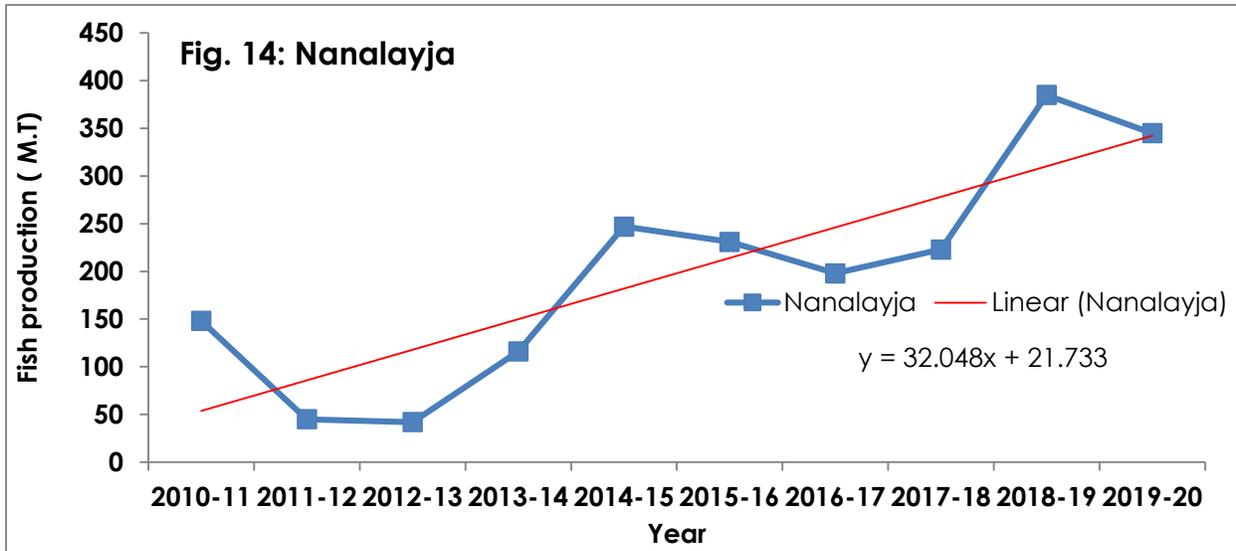
A declining trend over recent years were observed at most landing centers of areas of this district including Tragadi and Modhva (Modhva, Tragadi, Lunee, Mundra, Bhadresvar, Lakhapat, N.Sarovar, Salaya, Sangad, Kandla, Surajbari) (Fig.1– 19).

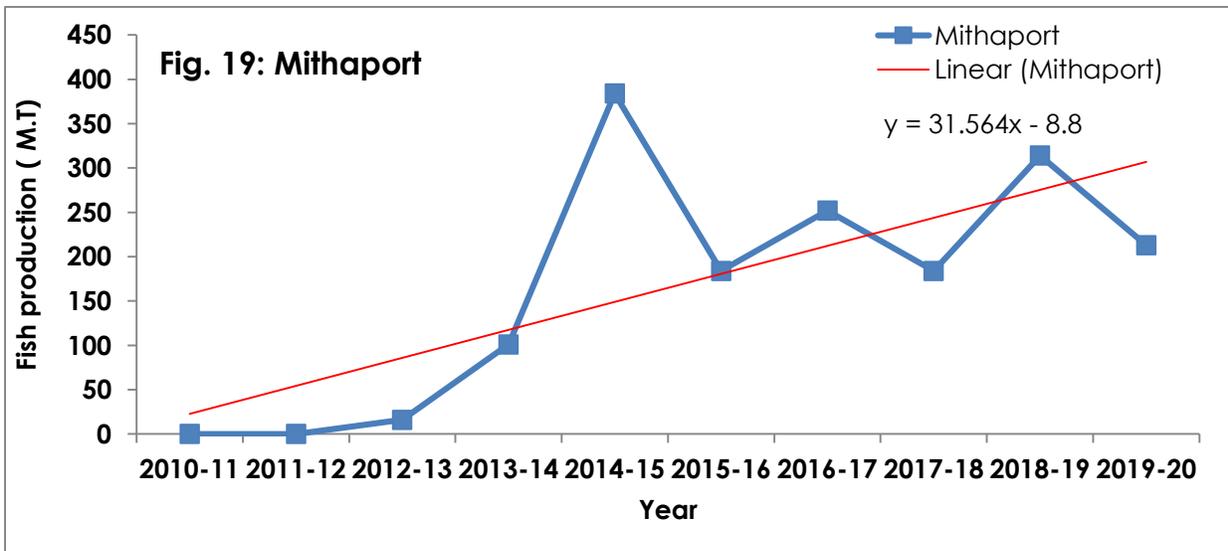
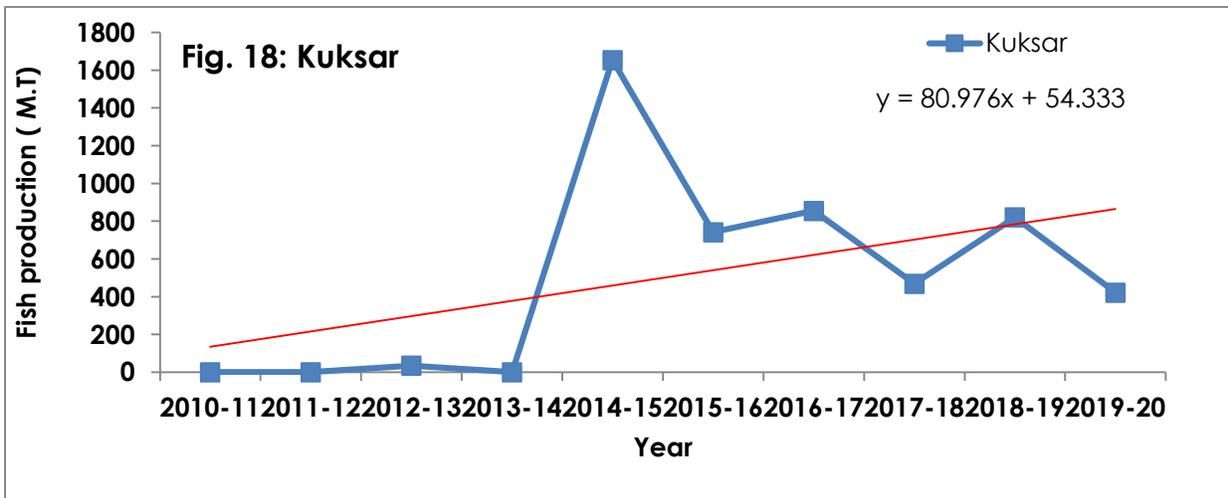
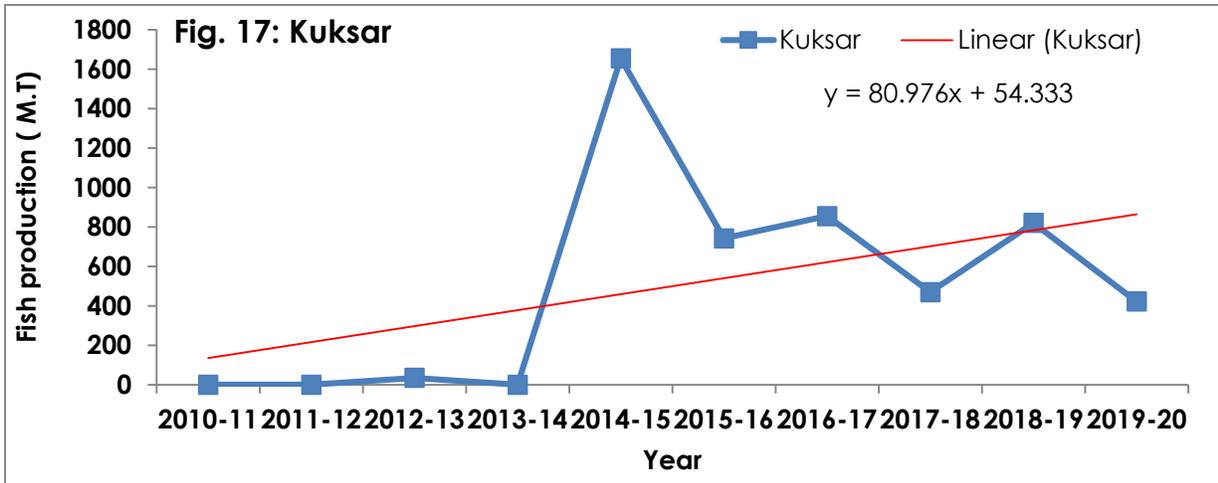


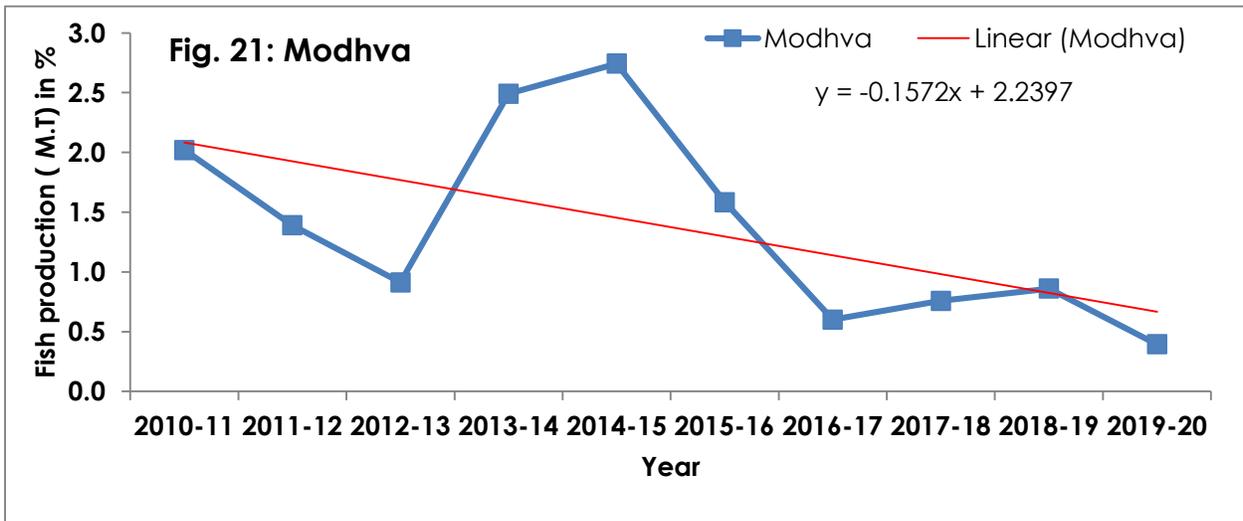
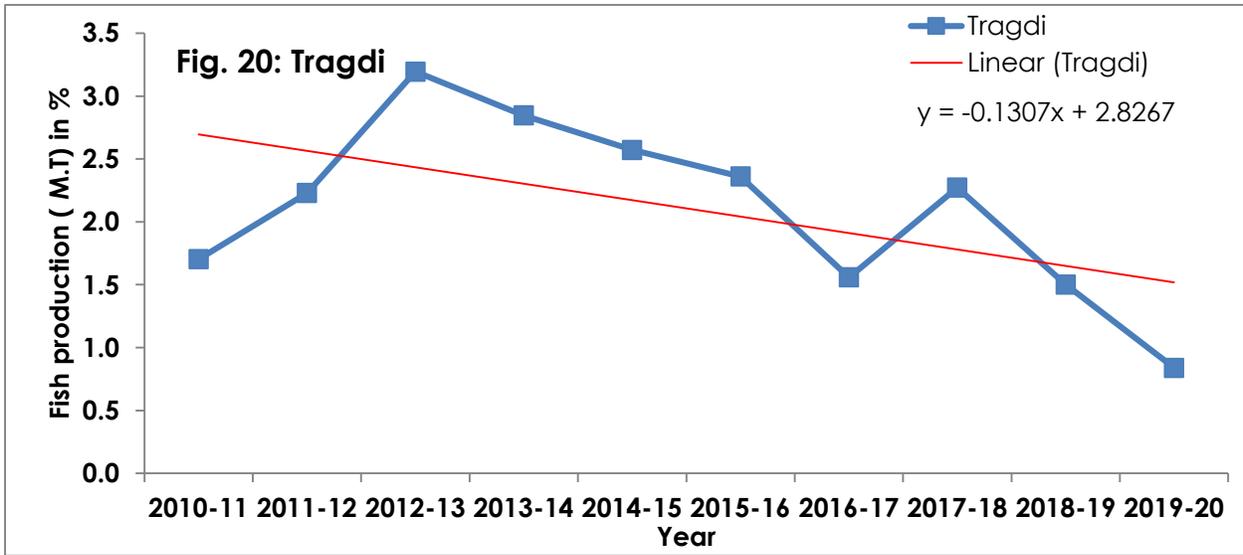






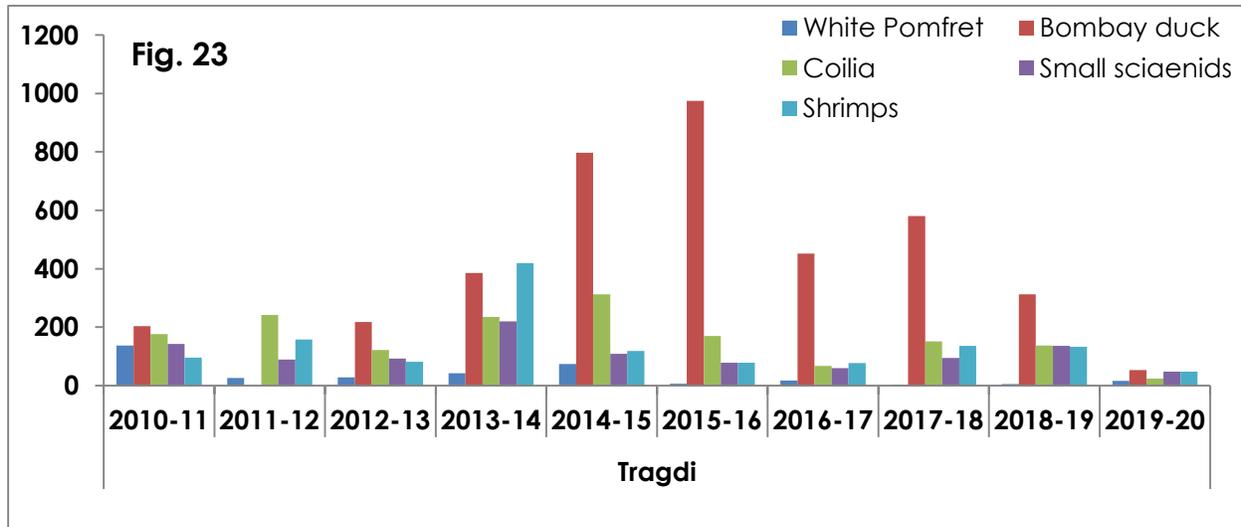
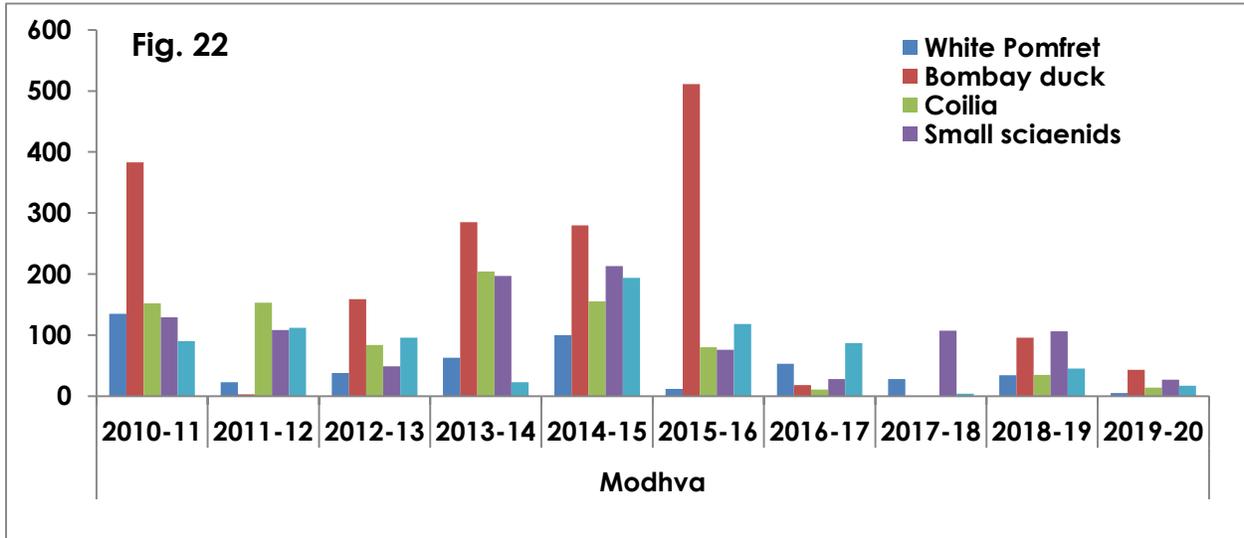






A perusal of the landing data of the past 10 years reveal that the contribution of Modhva and Tragadi to the marine fish landings of Kutch had increased in 2013 – 15 and thereafter a decreasing trend is observed (Fig. 20 & 21). M/s CGPL went into production in March – 2012. M/s Adani Power Ltd went into production in July – 2009.

The major fisheries (White Pomfret, Bombay duck, Coilia) also indicated an increase during 2013 – 2016. (Fig. 22-23)



The data of fishermen population at Tragadi/Modhva made available by M/s. CGPL also indicated a steadily increasing trend in the last 10 years which signified availability of good fisheries to sustain this population.

The data of entire Kutch District is examined and found that Modhva, Tragdi, Lunee, Mundra, Bhadresvar, Lakhapat, N.Sarovar, Salaya, Sangad, Kandla, Surajbari shows reduction in trend of Fish Production rate, Jakhau and Zarpra shows steady fish production rate and Nanalayja, Navinal, Shekhadiya, Kuksar,

Mithaport shows Increase in trend of Fish Production rate. There is no consistent trend of fish production in the entire district i.e. either increase or decrease. The trend observed varied over the years. Also fishing centers away from the project site also registered decrease in fish production.

M/s CGPL has installed an online temperature monitoring sensor at the intake and outfall channels. Monitoring data is displayed online that is linked with CPCB. M/s CGPL has submitted that the water temperature differential between the intake and outfall from March –2017to September – 2020. The Δ values are observed to be ≤ 6.0 °C which are below the consented norms.

M/s CGPL had carried out model conformity test during 2016 by CSIR-NIO, following observations were made in the report:

The physical observations, CTD (Conductivity Temperature and Depth) measurements and modeling results of the study concluded that subsequent to the continuous release of return seawater effluent in the outfall channel, near ambient conditions were being attained at a distance of 600 m from the channel mouth. This distance was much shorter than prediction of 3 km by HR Wallingford based on the modeling studies conducted by them prior to the establishment of the CGPL power plant. The dispersion of temperature in the channel during high water was minimum and greater during low water. CTD observations also indicated that salinity variations due to outfall were not found in the channel. Comparison between the three sets of data (December 2008, December 2013 and April 2015) indicated that the current pattern had not altered off the channel mouth due to its construction.

CTD observations indicated that the water temperature during flood tide varied between 31.0 to 32.5 °C and during ebb tide between 26.8 to 32.5 °C in the discharge channel during the study period. Extensive field observations conducted during December 2013 and April 2015 and its comparison with the results of pre-project baseline ascertained absence of appreciable changes in water and sediment qualities of the coastal zone off Vandh and the observed

deviations were within the natural variability inherent to the coastal areas in the highly dynamic Gulf coastal ecosystem.

The presence of good variety of fish/shellfish in the discharge channel during the aforesaid study period evidenced through experimental fishing indicated that the spikes in water temperature probably had little impact on the fishes present in the channel during the sampling period.

M/s Adani Power Ltd. has not carried out Model Conformity report. As informed, it was not mentioned in the condition of EC. As per EC condition M/s APL monitored temperature of discharge water and intake on regular basis. The monitoring results submitted by the APL shows average difference in temperature less than 5°C in the past three years which is compliant with consent norms.

Against condition no. (x), it is contended that construction of the intake and outfall channels undertaken by the Respondent No. 3 has caused destruction of mangroves while increasing the width of the channel. No Forest Clearance (FC) has been obtained before commencing work on the outfall channel:

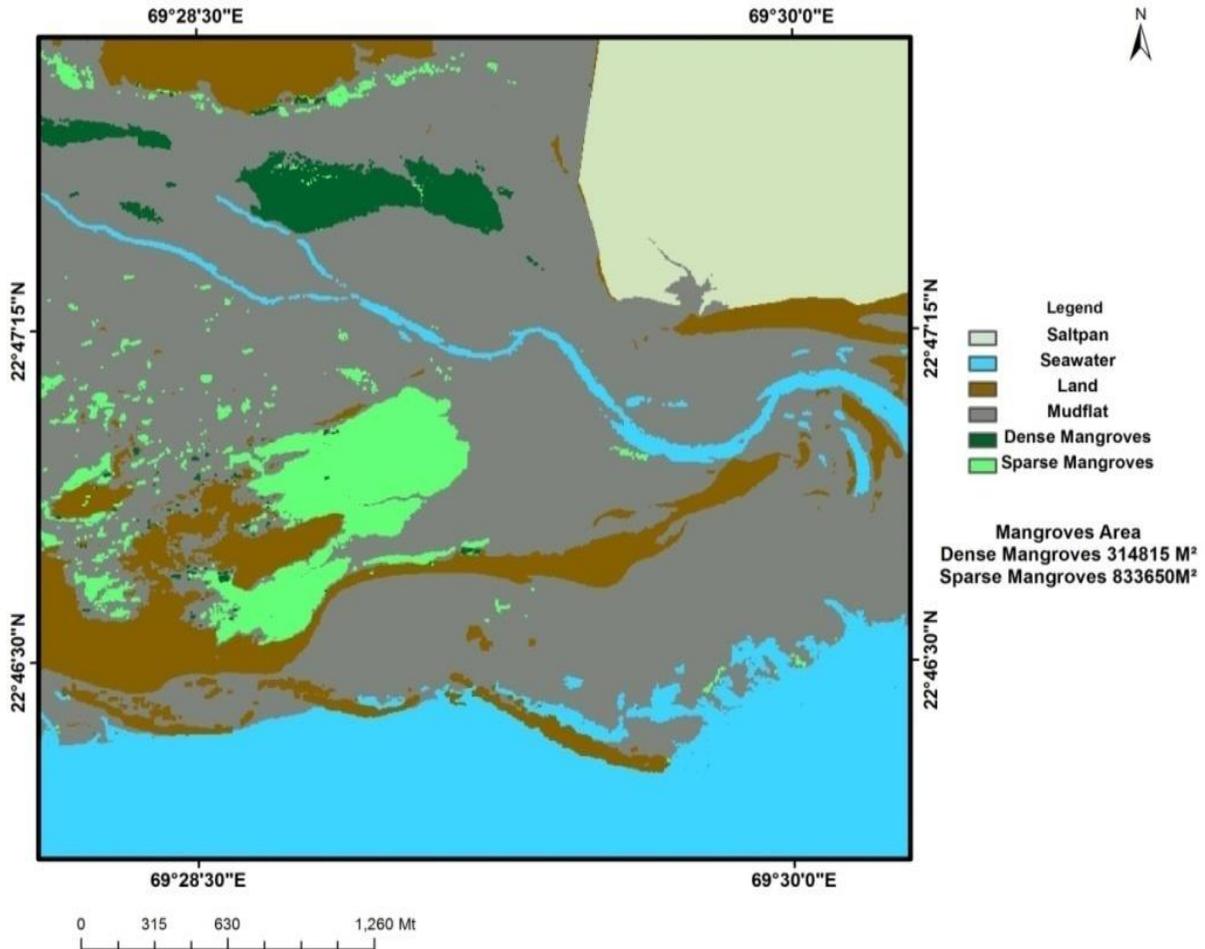


Fig. 24: Mangrove classification from the IRS-LISS IV image collected on dtd. 16 March 2005

Comparison of satellite images were used for identifying status of Mangroves. CGPL has carried out Model conformity study. The Model conformity study report was conducted by CSIR-NIO for the CGPL outfall channel during December 2013 and April 2015. Following conclusions were made in the report:
Two Satellite images i) IRS P6 & ii) IRS Resource sat – 2 were used.

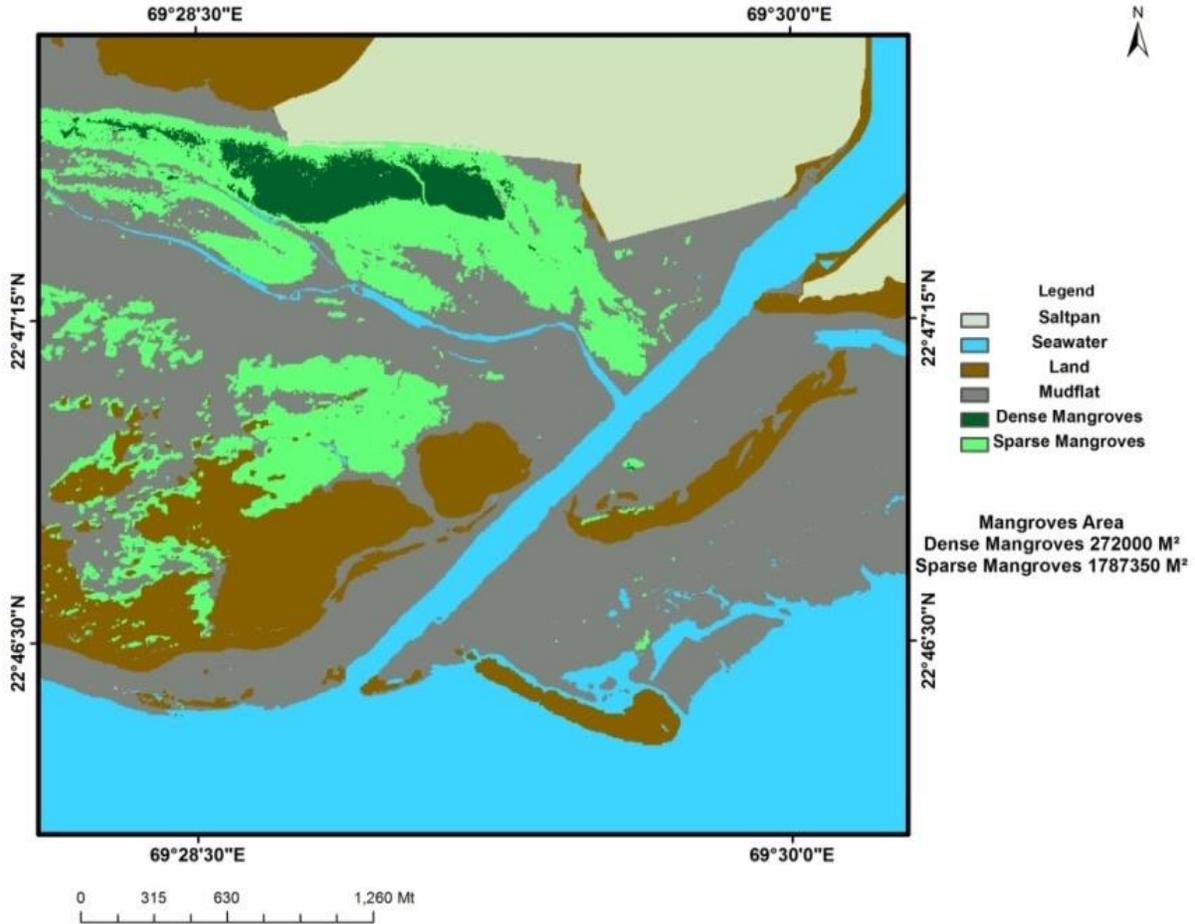


Fig. 25: Mangrove classification from the IRS-LISS IV image collected on Dt. 07 January 2014

Spectral resolution of both images is 5.8 and sensor is Linear Image Self Scanner-IV (LISS-IV). Using Arc-GIS 9.2, the study area has been selected and geo-referenced and the projection was set to UTM WGS1984. For atmospheric correction and supervised classification, ERDAS IMAGE processing software was used. The images collected in 2005, which represents the pre-project period and 2014, depicting the post project situation, have been classified for mangrove cover. The results are presented in the Fig. 24& 25. Satellite imagery showed that the sparse mangrove cover has increased in the north and south of the intertidal region as compared with the pre-project period.

This shows absence of any adverse impact of CGPL effluents on mangroves was in the region.

CRZ map submitted by M/s. Adani:

The documents submitted by M/s. Adani viz. the CRZ map of the Intake channel which was prepared by SAC Ahmedabad in 2006 and CSIR-NIO in 2007 indicated that mangroves were present outside the area demarcated for the intake and outfall channels. Recent satellite images to compare the present status were not available. Therefore the committee is of the opinion that, Year wise comparison of satellite imagery of the area in the past before establishment of the common Intake and M/s Adani Outfall channel with the present condition may need to be carried out by M/s. Adani Power Ltd. from the institute like National Centre for Sustainable Coastal Management (NCSCM). The study will establish the fact about destruction of mangroves, if any in the area. Submission of latest satellite map, once in a year with reference to satellite map of 2005. Is one of the condition of EC to ensure that no modification in the creeks, rivers, mangroves, and mouth of creeks have taken place.

Details regarding Forest Clearance:

- It was informed that Clearance obtained through F & E Dept., Govt. of Gujarat letter No. FCA -1007 (10 – 18) SF-14-K; Dt. 10.08.2009 by CGPL for 130 Ha.
- Clearance obtained by APL vide letter no. FCA-1009 (10-14) SF-18-K; Dt. 17-11-2009 for 1840 Ha.

Against condition no. (xi), it is alleged that there is no evidence of any mangrove plantation having undertaken by the Respondent No. 3 as required under the condition.

A. M/s., Coastal Gujarat Power Ltd., had carried out 1000 hectare area of Mangrove Plantation through Public Private Partnership under the Project titled of “Restoration, Plantation & Conservation of Mangroves’ along the Gujarat Coast in consultation with Gujarat Ecology Commission. Details are as below:

Year	Plantation Location	Plantation in Ha.
2011 – 12	At. Kantiyajal, Ta. Hansot, Di. Bharuch	500
2012 – 13	At. Kantiyajal, Ta. Hansot, Di. Bharuch	300
2013 – 14	At. Kantiyajal, Ta. Hansot, Di. Bharuch	200
	Total	1000

B. M/s., Adani Ports & Special Economic Zone Ltd., Ahmedabad had carried out 1200 hectare area of Mangrove Plantation through Public Private Partnership under the Project titled of “Restoration, Plantation & Conservation of Mangroves’ along the Gujarat Coast in consultation with Gujarat Ecology Commission. Details are as below:

Year	Plantation Location	Plantation in Ha.
2006-07	At. Dandi, Ta. Olpad, Di. Surat	200
2007-08	At. Dandi, Ta. Olpad, Di. Surat	200
2008-09	At. Dandi, Ta. Olpad, Di. Surat	200
2010-11	At. Dandi, Ta. Olpad, Di. Surat	100
2010-11	At. Dandi, Ta. Olpad, Di. Surat	100
2014-15	Rohino Island, Di. Bhavnagar	250
2015-16	At. Tada Talav, Ta. Khambhat, Di. Anand	100
2017-18	At. Aaliya Bet, Ta. Hansot, Di. Bharuch	50
	Total	1200

(a) Land along the intake channel has been illegally reclaimed;

The committee has visited intake channel. Photographs of intake channel are shown below:



All necessary clearances and permissions were taken for construction of intake channel. The portion of land along the intake channel was compacted for the movement using the dredged soil. Separate permission for such activity is not required as it is considered as part of construction activity of intake channel.

(b) AAQ of the entire surrounding area has been impacted adversely due to the operation of the project:

GPCB has carried out AAQ Monitoring at Up-stream and downstream location for 24 hours for parameters PM10, PM 2.5, SO₂, NO₂. The analysis results are provided at Annexure - VI. The analysis results reveal that the AAQ are within the National Ambient Air Quality Standards.

As per the conditions of EC, the project proponent has provided continuous and manual AAQ monitoring stations inside the premises

(c) coal dust and ash released by the operation of the project has adversely affected the villagers, as coal dust and ash released from the project cover the entire settlement in a fine layer of the coal dust;

(d) fish put out to dry are coated with coal dust and,

(e) the salt pan owners have complained of the salt manufactured in the vicinity of the plant being contaminated by coal dust and ash.

The committee has visited ash pond of CGPL and collected information about fly ash utilization.

CGPL submitted that, utilization of ash is being done mostly in Cement Industries, Bricks manufacturing Plants etc, further exploration for utilization in Road embankment, Government projects, Abandoned Mines & RMC plants is in the pipeline. CGPL has submitted following records of Ash generation and utilization:

- Ash Generation for FY 2017-18 was 786192 MT & Utilization was 630913 MT, percent utilization was 80.2 %. Estimated quantity of Ash Pond as on 31.08.2018 is 1676800 MT.
- Ash Generation for FY 2018-19 was 802671 MT & Utilization was 753640 MT, percent utilization was 94 %. Estimated quantity of Ash Pond as on 31.08.2019 is 1726160 MT.
- Ash Generation for FY 2019-20 was 712459 MT & Utilization was 803404 MT, percent utilization was 113%. Estimated quantity of Ash Pond as on 31.08.2020 is 1635215 MT

It is gathered that CPCB has issued direction under section 5 of Environment Protection Act 1986; dtd. 02nd July 2020 to M/s. CGPL for not utilizing 100% fly ash. The Copy of direction is enclosed as **Annexure - IV**.

APL, Mundra also submitted that utilization of ash is being done mostly with Cement Industries, and Fly Ash vendors supplying Ash for various construction activates and also exporting ash to various ash utilization projects etc. APL has submitted following records of Ash generation and utilization:

- As generation for FY: 2017-18 was 747267 MT and utilization was 748295 MT Percent utilization was 100.14 %. Estimated quantity of ash pond as on 31.03.2018 is 112542 MT.
- As generation for FY: 2018-19 was 772462 MT and utilization was 796285 MT Percent utilization was 103.08 %. Estimated quantity of ash pond as on 31.03.2019 is 79895 MT.

As generation for FY: 2019-20 was 735740 MT and utilization was 742073 MT Percent utilization was 100.86 %. Estimated quantity of ash pond as on 31.03.2020 is 79895 MT. The committee has visited the fishing settlement area surrounding the projects, Household & Boats Household (fisherman settlement) near the outfall channel of CGPL at Tragadi Bunder, ash pond and collected information about the salt pan owners near the project area. During visit that there were no evidences of coal dust/fly ash deposit observed on fishes hung on the stakes open for drying, dried fishes collected in jute bags, dried fishes stored in piles, plants and settlement. Photographs are shown below:





Details regarding Salt Pan:

Information regarding land given on lease for the purpose of Salt around the area of outfall of M/s. CGPL and M/s. Adani was collected from the Office of Prant Officer and Sub Divisional Magistrate, Mundra, Kutch. The copy of the same is attached as annexure - V.

As per the information received, no drastic change in the production of Salt during last Five years was reported.

Report Deliberation:

For the final report deliberation, there were 3 (Three) time virtual meeting held by the committee members on 1. dtd. 18th Nov. 2020 at 16:00; 2. dtd. 08th Dec. 2020 at 16:00 & 3. Dtd. 15th Dec. 2020 at 15:30.

Conclusion:

1. Based on the above point wise observations of the committee members, physical condition observed during present visit, analysis result of ambient air quality monitoring carried out, presentation made by representatives of CGPL and APL, the following conclusions can be drawn. There is a common intake channel for CGPL and APL and separate outfall channel for CGPL and APL respectively. As per the reports of NIO and satellite images available for the past, it was concluded that there were no mangroves previously in the area used for construction of outfall channel of CGPL. However as per satellite images of 2006, mangroves near the outfall channel of Adani Power was observed. No such study report of recent satellite images comparison for status of mangrove at common intake and outfall of Adani Power Ltd. is available. Therefore the committee is of the opinion that, Year wise comparison of satellite imagery of the area in the past before establishment of the Common Intake and the Outfall channels of M/s Adani with the present status may need to be carried out by the project proponent from the institute like National Centre for Sustainable Coastal Management (NCSCM), the report shall be submitted to MoEF &CC and Other concerned authority. The Scope of the study shall also include the fact about the destruction of mangrove, if any in the area.
2. The sides of the intake channel were compacted for the movement using the dredged soil. Separate permission for such activity is not required as it is considered as part of construction activity of intake channel for which all necessary clearances and permissions were taken. The committee has collected information about the salt pan owners, it was informed that no drastic change in the production of Salt was observed during last Five years.
3. Security Guards are deployed to maintain entry and exit from the village to access the sea in the portion of APSEZ. CGPL has provided alternate road including construction of bridge over the outfall channel. Boat has been

provided to cross the outfall channel etc. It was observed that fisherman households were residing near outfall channel of CGPL. The number of fisherman house hold has reportedly shown increasing trend in last 10 years.

4. Data of last 10 years were collected from fishery department, Government of Gujarat for entire district and was examined. It was found that an uneven trend was indicated in the marine fish landings of the Kutch District in the last 10 years. Modhva, Tragdi, Lunee, Mundra, Bhadresvar, Lakhapat, N.Sarovar, Salaya, Sangad, Kandla, Surajbari shows reduction in trend of Fish Production rate, Jakhau and Zarpra shows steady fish production rate and Nanalayja, Navinal, Shekhadiya, Kuksar, Mithaport shows Increase in trend of Fish Production rate. There is no consistent trend of fish production in the entire district i.e. either increase or decrease. The trend observed varied over the years. Also fishing centers away from the project site also registered decrease in fish production.
5. The committee visited the fishery area near outfall of CGPL, ash pond of CGPL, intake channel, discharge point of APL etc. During visit, no such evidences of dust deposition on fishes, vegetation were observed. GPCB has carried out ambient air quality monitoring and founds the analysis results within National Ambient air quality standards. The Kutch region is windy and therefore the possibility of re-suspension of present accumulated ash in the ash ponds cannot be ruled out.
6. Based on the above, no violations in the above mentioned conditions as per CRZ clearance were observed. However, the fact about destruction of mangroves if any can be established only after the satellite imagery study over the past years (before establishment the common intake and outfall channel of M/s Adani Power Ltd.) is compared with the recent satellite imagery. Based on the finding of the report, compensation towards the damage of mangrove if any, need to be assessed & levied by the concerned authority.

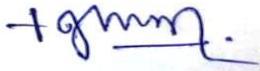
Signature of Committee Members:



Dr. S. K. Lal
Scientist – C, MoEF & CC, IRO-Bhopal



Amit Thakkar
Scientist – D, CPCB RD (W), Vadodara



K. B. Chaudhari
Regional Officer, Kutch (E),
State PCB, Govt. of Gujarat



G. B. Bhatt
Deputy Environmental Engineer
Representative of GCZMA
Govt. of Gujarat



Dr. Ankur Patel
Manager (Coastal)
Representative of Member Secretary
Gujarat Ecology Commission



Dr. Soniya Sukumaran,
Principal Scientist
CSIR (CSIR-NIO),
Mumbai



J. K. Vyas
Member – SEAC & Representing - SEIAA,
Govt. of Gujarat



K. G. Chaudhary
Sub District Magistrate - Mundra
Representative of District Magistrate
Kutch - Gujarat



H. J. Thakkar
Deputy Conservator of Forest,
Kutch (E) Forest Division,
Govt. of Gujarat

Annexure- I

Minutes of the Joint Committee Meeting constituted by the Honorable NGT (WZ, Pune's order dated 18/08/2020 in the matter title O. A. 481/2018, Conservation Action Trust vs Union of India &ors.

Date: 15.10.2020

Venue: Fern Residency, Mundra

Time: 15:30 hrs

Agenda:

1. Introductory meeting of committee members
2. To deliberate on the modality of the site visit of committee
3. To provide opportunity for the Respondents no. 03 and 04 to represent their views

Members Present:

- Dr. S. K. Lal, Scientist C, MoEF& CC, IRO - Bhopal
- Mr. Amit Thakkar, Scientist D, CPCB RD (W), Vadodara
- Mr. K. B. Chaudhari, Regional Officer, Kutch – East, GPCB
- Mr. Gaurang B. Bhatt, DEE, Forest & Environment Department, Govt. of Gujarat. [Representative of GCZMA]
- Dr. Ankur Patel, Manager (Coastal), Gujarat Ecology Commission (GEC), Gandhinagar. [Representative of Member Secretary, GEC]
- Dr. Soniya Sukumaran, (Principal Scientist) CSIR-National Institute of Oceanography (CSIR-NIO)
- Mr. J. K. Vyas, Member – SEAC & Representing SEIAA, Govt. of Gujarat
- Mr. K. G. Chaudhary, SDM -Mundra, Collectorate, Kutch
- Mr. Harsh J. Thakkar, Deputy Conservator of Forest Kutch East Forest Division

Deliberations:

Member from GPCB has introduced himself and welcomed the committee members. He requested the committee members to introduce themselves so that all members were acquainted with each other.

It was flagged that the Member Secretary, GEC Member Secretary was unable to attend and Dr. Ankur Patel was nominated to attend the meeting on his place.

As the NGT order had explicitly nominated the Member Secretary GEC in the Committee, it was requested to the Member Secretary to attend the meeting through video call.

The task assigned by Hon'ble NGT in the order was discussed. It was also highlighted that Point number 46 of the said order which seems conditional i.e. in case of any violation being detected, the committee shall identify its cause, damage caused to the environment, assess its cost and cost remediation and fix the responsibility of the damage.

Mr. Bhatt, GCZMA was asked to clarify the various CRZ clearances given to the respondents.

The Committee decided to ask the respondents to submit a list of the conditions listed in their CRZ permissions and the status of its compliance. The Committee also discussed at length the modality of addressing the said CRZ violations raised in the NGT order within the time stipulated. There was a suggestion that the existence of mangroves before and after construction of channels could be verified by the CRZ maps submitted by both the respondents during the application of permission. Verification using satellite maps were also discussed.

As per the order, the committee was also tasked to hear the Respondent No. 03 and 04. Accordingly, the M/s. Coastal Gujarat Power Limited (CGPL) and M/s Adani Power Ltd. has given presentation regarding the matter and status of CRZ compliance.

The respondents, M/s. Coastal Gujarat Power Limited (CGPL) represented by Mr. I. N. Rao, Head Environment made a presentation on the background of the NGT order, the current status of compliance of CRZ conditions and strongly refuted the alleged violations. They also submitted the fisheries data of Modhva and Tragadi obtained from Department of Fisheries, Govt. of Gujarat to substantiate that the local fisheries were not declining. M/s CGPL was questioned regarding the denial of accessibility to local fishermen. They strongly refuted this allegation and requested the committee to ascertain the facts during the site visit. M/s CGPL also

informed the Committee that the land for the outfall was purchased from the salt pan owners. They also indicated that the mangrove plantation was done as required under CRZ compliance; this was verified by the GEC member of the Committee. The Committee requested GPCB to take up AAQ monitoring during the visit. Copy of presentation made by the respondent no. 03 before the committee is provided at **Annexure – II.**

M/s. Adani Power Ltd represented by Mr. Santosh Kumar Singh, Sr. VP Environment made a presentation on the background of the NGT order. They detailed the various Environmental Clearances (EC) obtained and their validity. The status of the compliance of EC conditions was presented. They strongly refuted the allegations of CRZ violations and inform that the plant site is not under CRZ limits. This integrated intake & outfall has been approved by MoEF under the clearance for Waterfront Development proposed by APSEZL. APL is using this integrated intake and separate outfall. They also presented details and data of marine monitoring carried out regularly by their Environment laboratory which is NABET accredited. They also elaborated on their CSR activities. Copy of presentation made by the respondent no. 03 before the committee is provided at **Annexure – III.**

Post the presentations and the departure of the respondents, the Committee discussed the submissions made by the two power companies. The Committee deliberated at length on the various EC and CRZ permissions granted to the respondent. It was decided that a list of documents mutually agreed upon by all the Committee members will be communicated to the respondents through the GPCB for early submission and appraisal. Later the Committee decided to begin the site visit at 0730 hrs on 16.10.2020

The meeting ended with thanks to all the committee members and requesting them to be vigilant and to report to the committee in case violations were detected during the site visit.

Photographs of Meeting



ANNEXURE - II

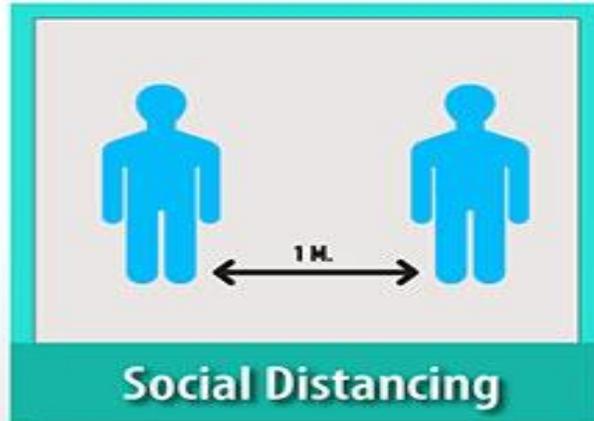


CGPL Welcomes Hon'ble NGT Committee

15th & 16th Oct 2020



Coronavirus disease (COVID-19) Precautions



TAKE CARE, STAY SAFE!



General brief about the Project

Brief Chronology of NGT

NGT Order 18-08-2020

CRZ Clearance compliance

CGPL Submission



Power for All

- GOI in 2005 had envisaged capacity addition of 100GW by 2012

UMPP Initiative by GOI

- Large size coal based thermal Power
- Use of supercritical technology for higher fuel efficiency
- Lower greenhouse gas emissions
- Allocation of power among multiple states
- Imported coal for coastal projects

UMPP- Two stage process

- Power Finance Corporation (PFC) created a shell company called a Special Purpose Vehicle (SPV)
- Private companies were given an opportunity to acquire shell company through a process of competitive bidding

Mundra UMPP awarded

- Project awarded to Tata Power on 28 Dec. 2006 which was named as Coastal Gujarat Power Limited (4150MW)
- Project executed thru' **CGPL**,
- All five units commissioned by Mar'13
- Power Purchase Agreement (PPA) signed with Gujarat(47.5%), Maharashtra(20%), Punjab(12.5%), Rajasthan(10%) and Haryana(10%) and CGPL for 25 years

Among Best in world. New Benchmark of 54 months for project execution

COD of 4150 MW in just over a Year!

Mundra units among Most Efficient Nationally



Technology

- Supercritical, Pulverized Coal-fired Steam Generators (MS: 242 bar (g), 565 °C/ 593 °C Reheat)

No. of Units

- Five (830 MW x 5)

Fuels

- Coal (12 Million MTPA) with Fuel Oil (start-up)

Transmission Lines

- Four 400 kV Double- Circuit lines (by POWER GRID)

Fresh Water

- 25 MLD from Desalination Plant (RO)

Cooling Water

- Sea Water (630,000 m³/hr)





Latest Technology

- India's 1st 830MW unit with Supercritical Technology, Total Capacity 4150MW(830MW×5)
- Boiler package by DOOSAN from Republic of Korea and Turbine Generator Package by Toshiba Corporation from Japan
- Mundra Project was executed non-conventional EPC route, Total 100+ Packages
- Plant gross efficiency of 44% compared with baseline of 34%–36%



Coal Supply

- Strategic investments in Indonesia through 30% stake in the leading coal company PT Kaltim Prima Coal (KPC) to securitise uninterrupted coal supply to CGPL



Coal Transport

- To securitise shipping of the coal at competitive price the shipping company Trust Energy Resources Pte Ltd (TERPL) was formed



Port Services

- Existing facilities at Mundra Port was capable to handle only about 4 million tons per annum of coal. Therefore, CGPL collaborated with Mundra Port and Special Economic Zone Limited(MPSEZL) for construction of a new dedicated berth for Cape Size vessels (1,60,000MT) and mechanized coal-unloading facilities. CGPL engineered and set up mechanized coal-stacking and reclaiming system at port and plant to meet the coal import requirements of 12MMT. This facility is located at a distance of 12km from the plant



IMS Certification





IRCLASS
SYSTEMS AND SOLUTIONS PRIVATE LIMITED

CERTIFICATE OF APPROVAL
Issued by Indian Register Quality Systems
(A Division of IRCLASS Systems and Solutions Private Limited)

This is to certify that the Environmental Management Systems of

Organisation: Coastal Gujarat Power Limited
Address: CGPL Office Complex,
Tunda - Vandh Road,
Village - Tunda, Mundra,
Dist. Kutch, Gujarat - 370 435, India

has been assessed and found conforming to the following requirement

Standard: ISO 14001:2015
Scope: Generation and Supply of Electricity
through Operation and Maintenance of
Coal based Ultra Mega Power Plant

Certificate No.: IRQS/200300358
Original Certification Date: 04/07/2014
Current Date of Granting: 21/07/2020
Expiry Date: 01/07/2023



Indian Register Quality Systems
Mgmt. Sys.
RVA C.071



Shashi Nath Mishra
Head IRQS

This approval is subject to continued satisfactory maintenance of the Environmental Management Systems of the organization to the above standard which will be monitored by IRQS. The use of the Accreditation Mark indicates accreditation with respect to activities covered by the certificate with accreditation no. C071. Condition Overleaf
COA/IRQS/RvA/EMS/Rev 00

Head Office: 52A, Adi Shankaracharya Marg, Opp.Powai Lake, Powai, Mumbai - 400 072, India.



IRCLASS
SYSTEMS AND SOLUTIONS PRIVATE LIMITED

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This is to certify that the Occupational Health & Safety Management Systems of

Organisation: Coastal Gujarat Power Limited
Address: CGPL Office Complex,
Tunda - Vandh Road,
Village - Tunda, Mundra,
Dist. Kutch, Gujarat - 370 435, India

has been assessed and found conforming to the following requirement

Standard: ISO 45001:2018
Scope: Generation and Supply of Electricity
through Operation and Maintenance of
Coal based Ultra Mega Power Plant

Certificate No.: IRQS/200400359
Original Certification Date: 04/07/2014
(OHSAS)
Original Certification Date: 15/10/2018
(ISO 45001:2018-Unaccredited)
Current Date of Granting: 21/07/2020
Expiry Date: 01/07/2023



Indian Register Quality Systems
Mgmt. Sys.
RVA C.071



Shashi Nath Mishra
Head IRQS

This approval is subject to continued satisfactory maintenance of the Occupational Health and Safety Management Systems of the organization to the above standard which will be monitored by IRQS. The use of the Accreditation Mark indicates accreditation with respect to activities covered by the certificate with accreditation no. C071. Condition Overleaf
COA/IRQS/RvA/OHSMS/Rev 01

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Organisation: Coastal Gujarat Power Limited
Address: CGPL Office Complex,
Tunda - Vandh Road,
Village - Tunda, Mundra,
Dist. Kutch, Gujarat- 370 435, India

has been assessed and found conforming to the following requirement

Standard: ISO 9001:2015
Scope: Generation and Supply of Electricity
through Operation and Maintenance of
Coal based Ultra Mega Power Plant

Certificate No.: IRQS/200100357
Original Certification Date: 04/07/2014
Current Date of Granting: 21/07/2020
Expiry Date: 01/07/2023



Indian Register Quality Systems
Mgmt. Sys.
RVA C.071



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COA/IRQS/RvA/QMS/Rev 00

Head Office: 52A, Adi Shankaracharya Marg, Opp.Powai Lake, Powai, Mumbai - 400 072, India.



CAT filed an application against GOI MOEF, GPCB, and CGPL in Hon'ble National Green Tribunal at Pune	October 2013
CGPL Written Submission	November 2013
CGPL submitted affidavit reply	March 2014
First hearing	March 2014
Submission by MOEF& CC (Respondent No.1)	May 2014
Submission by GPCB (Respondent No. 2)	March 2014 and August 2014
CAT filed application to include M/s Adani Power and Forest Dept. GoG in the case.	August 2015
M/s APL made as respondent 4	July 2017
NGT- Pune - Hearing concluded – Order reserved for pronouncement	
The case was transferred to Principle Bench, Delhi renumbered as 481 OF 2018 (ORIGINAL APP NO. 27 OF 2013)	Dec 2018
First listing at Hon'ble NGT- Principal Bench, Delhi	Feb2019
Hearings concluded , Hon'ble NGT sought for written submissions	Feb 2020
Order pronouncement	August 2020

Item No. 07

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

(By Video Conferencing)

Original Application No. 481/2018
(Earlier O.A. No. 27/2013 (WZ))

Conservation Action Trust & Ors.

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 31.07.2020

Date of uploading on the website: 18.08.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S. P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

Applicant(s): Mr. Jai Chhabria, Advocate

Respondent(s): Mr. Nalin Kohli, Advocate with Mr. R.B.
Mahabal, Advocate for Respondent No. 3.
Mr. Harin Rawal, Senior Advocate with
Mr. Saurabh Kulkarni, Advocate for
Respondent No. 4.

39. In the result, the application is dismissed both on the question of limitation and on the merits of the case.

ORDER



40. However, notwithstanding the above position, it may be observed that apart from challenging the clearances and the amendments made thereto, the Applicant has also alleged violation of certain conditions of CRZ Clearance dated 25.04.2007 relevant pleadings in respect of which may be reproduced below:

These conditions and their compliance are given in subsequent slides



41. As regards condition no. (iv) of CRZ Clearance, it is stated that the boundary wall constructed around the project site has made it difficult for the fisher folk to access the sea and the markets which was a violation of the condition. As regards condition no. (xiv), it is

stated that the intake channel has caused destruction of the breeding and spawning of fish and other marine fauna in the vicinity which is compounded by discharge of hot and polluted water to the outfall channel causing decrease in the fish catch affecting the livelihood and biodiversity of the area; against condition no. (x), it is contended that construction of the intake and outfall channels undertaken by the Respondent No. 3 has caused destruction of mangroves while increasing the width of the channel. No Forest Clearance (FC) has been obtained before commencing work on the outfall channel; against condition no. (xi), it is alleged that there is no evidence of any mangrove plantation having undertaken by the Respondent No. 3 as required under the condition.



42. Beside the above, the further allegations are (a) land along the intake channel has been illegally reclaimed; (b) AAQ of the entire surrounding area has been impacted adversely due to the operation of the project; (c) coal dust and ash released by the operation of the project has adversely affected the villagers, as coal dust and ash released from the project cover the entire

settlement in a fine layer of the coal dust; (d) fish put out to dry are coated with coal dust and, (e) the salt pan owners have complained of the salt manufactured in the vicinity of the plant being contaminated by coal dust and ash.

CGPL submission in respect of these is given in subsequent slides



CRZ clearance granted by MoEF to CGPL	April 25, 2007
Amendment in CRZ clearance granted by MoEF for revised location of outfall channel	March 9, 2010
NIO granted certificate indicating that the disposal arrangement made by CGPL is strictly as per their suggestion indicating Longitude and Latitude.	September 29, 2011



Acrobat Document

Latest- October 2019- March 2020



Reference	Stipulation (xiv)	Submission & Compliance
CRZ Clearance dated 25.04.2007	The intake and outfall systems should not cause any hardship to the local fishermen and should not interfere with the breeding and spawning grounds of fish and other marine fauna.	Complying with





Demarcation of HTL, LTL and CRZ boundaries for Coastal Gujarat Power Plant near Tunda Village Kachchh District, Gujarat.



4.0 SUMMARY AND CONCLUSIONS

Based on the précised policy, practice and procedure of MoEF, the following observations/conclusions have been drawn.

- Report was prepared based on the data collected from 29th to 31st October, 2009 for the proposed 4000 MW Coal based Thermal power plant near Tunda village, Gujarat
- The position of HTL, LTL and CRZ boundaries are demarcated on 1:25000 & 1:10000 scale maps.
- High Tide Line for the CGPL power plant outfall area along the coast is demarcated by taking into consideration the geomorphic signatures that were discernible in the field.
- The land in and around the power plant outfall area is rural and undeveloped. The proposed land for development meets the CRZ – III criteria.
- The coastal region comprises of large tidal flats, mud flats and abandoned salt pans.
- Adani Power Plant is located on the eastern side of the plant.
- The outfall channel of the treated waste water crosses the Tidal flat area, inter tidal zone and 500 m set back line and meets the deep sea at 2m depth (CD).
- Thorny trees with grass vegetation were noticed along the open coast between HTL and 500 m setback line.
- The development area of the proposed power plant does not fall under or contain in its vicinity, any environmentally sensitive and important ecosystem.
- **No mangroves are noticed along the route of outlet channel.**

Reference	Stipulation (x)	Submission & Compliance
CRZ Clearance dated 25.04.2007	Mangrove in the area will not be destroyed in any manner.	No mangrove has been destroyed in any manner. The area of outfall channel was devoid of mangroves as confirmed by NIO during their Marine Impact Assessment.



Reference	Stipulation (xi)	Submission & Compliance
CRZ Clearance dated 25.04.2007	Mangrove plantation should be taken up along the channel.	CGPL has developed mangroves on 1000 Ha at Kantiyajal Bharuch in association with Gujarat Ecology Commission.





Reference	Stipulation (iv)	Submission & Compliance
CRZ Clearance dated 25.04.2007	<p>The fishing activities and movement of fishermen on the coast should not be affected.</p> <p>Appropriate measurement such as bridge or walkways over the channel should be provided.</p>	<p>The movement of fishermen or their activities is not restricted by CGPL. To ensure access of fishing communities to the inter-tidal areas and fishing site, following measures have been taken by CGPL</p> <p>Alternate road has been provided which is connecting Tragadi village to Tragadi Bunder including construction of bridge over the outfall channel</p> <p>Approach road has been provided upto Tragadi bunder so as to access the fishing site</p> <p>Boat has been provided to cross the outfall channel and reach the fishing site.</p>





S.No	Other Allegations	CGPL Submission
1	Land along the intake channel has been illegally reclaimed	The land specific to outfall channel has been acquired in accordance to the applicable law of Government of Gujarat. <u>Letter dated 02.11.2009</u>  Land Letter
2	AAQ of the entire surrounding area has been impacted adversely due to the operation of the project	CGPL carried – AAQ Monitoring and data analysis is presented. <u>Data for previous years</u> .
3	Coal dust and ash released by the operation of the Project has adversely affected the villagers, as coal dust and ash released from the project cover the entire settlement in a fine layer of the coal dust;	As per third-party (Taleem Health Assessment carried for IFC funding purpose Report Titled -Baseline Health Profile with Respect to Air Quality in Airshed of CGPL Power Plant)
4	Fish put out to dry are coated with coal dust and ash	As per Fisherman Satisfaction Study Report there is overall satisfaction is 82.1%.
5	The salt pan owners have complained of the salt manufactured in the vicinity of the plant being contaminated by coal dust and ash.	



- Wider dispersal of pollutants
- Stack height of 275m with an exit velocity of not less than 25m/s & exit temperature of 140°C



- Electrostatic precipitators of high efficiency (99.99% efficiency)
- 6 fields/ chamber



- Dry ash handling in the Fly ash silo
- Bag filters for fly ash control



- 417.89 Ha area of green belt
- 1/3 i.e., 33.3% of the total project area (1242 ha) is covered under green belt with around 10,44,728 saplings.



- High concentration slurry through pipelines
- Water blanket over Ash pond



- 9m high Wind barrier with 3 Tier Plantation



- Hood cover on conveyor belt
- 9 km long conveyor



- Dry fog system at junction tower
- Water use for Dust & Coal suppression



- Water sprinklers at coal stock yard
- 50nos. water sprinklers have been installed in the coal storage area



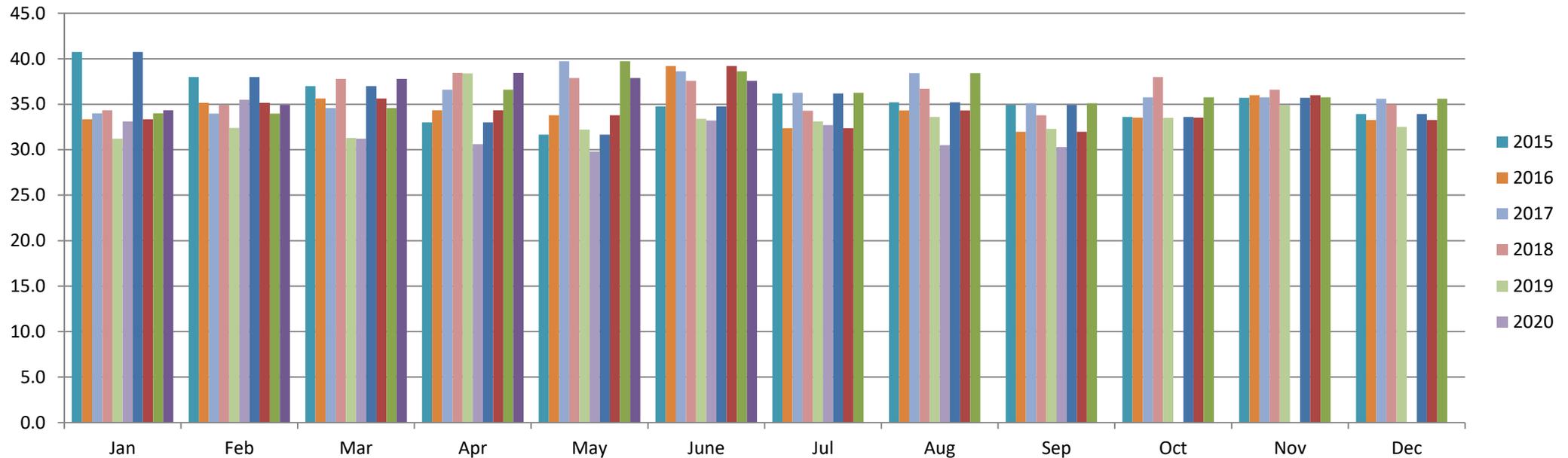
- Water sprinkling on conveyor belt
- Additional protection measure

Particulate Matter Emissions



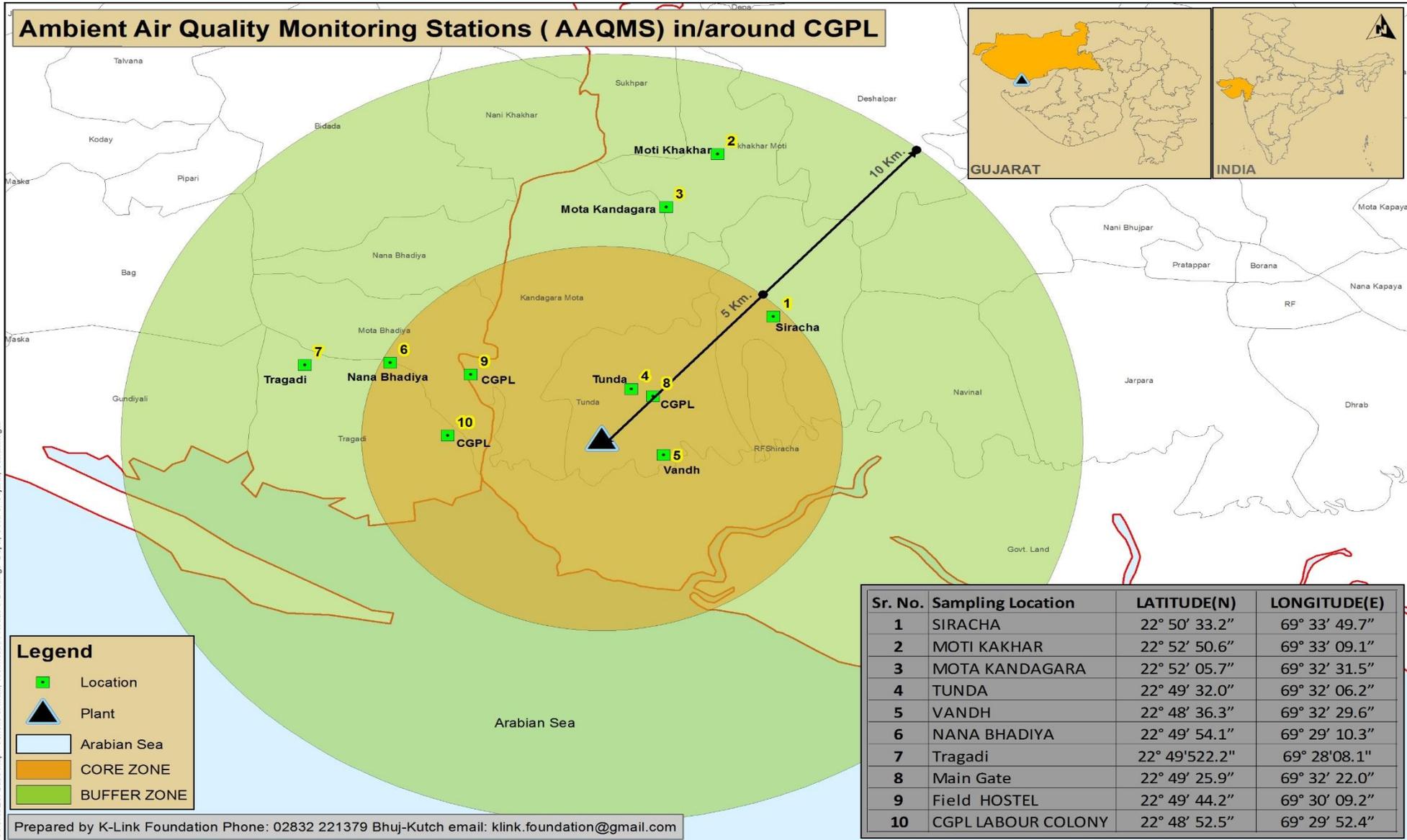
CGPL is complying to the PM –50 mg/Nm³ as per the CC&A point no. 4.2 under Conditions of Air Act, 1981 and MoEFF&CC EC stipulation)

Overall Station Emission data



Emission monitoring is being done by M/s KADAM Environmental Consultants (an NABL certified and MoEF&CC accredited).

Ambient Air Quality Monitoring Map





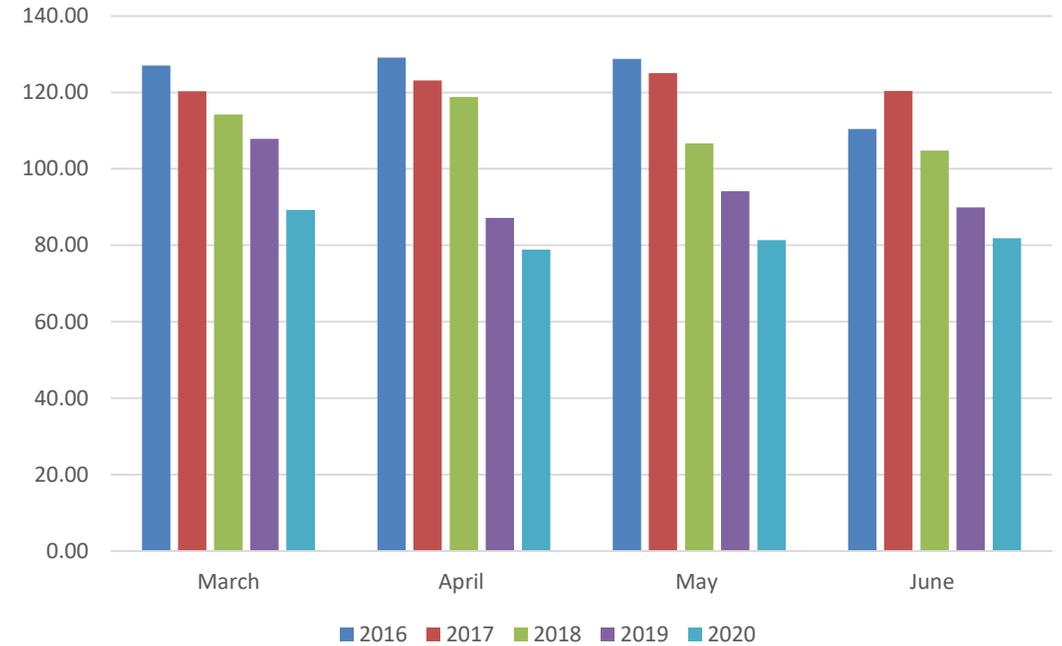
Villages	PM10 (mg/Nm ³)				
	2016	2017	2018	2019	2020
Tunda	90.3	100.4	92.4	78.3	40.1
Vandh	115.4	111.8	111.8	88.6	33.1
Siracha	90.6	96.5	100.7	88.3	62.0
Motikhakkar	112.6	118.6	110.7	78.4	63.2
Motakandagra	88.4	100.7	101.6	77.0	49.6
Tragadi	92.4	104.4	103.6	74.8	42.2
Nanabhadia	94.6	96.8	106.3	74.8	40.6

The fugitive dust control measures have resulted in reduction in the ambient particulate matter.

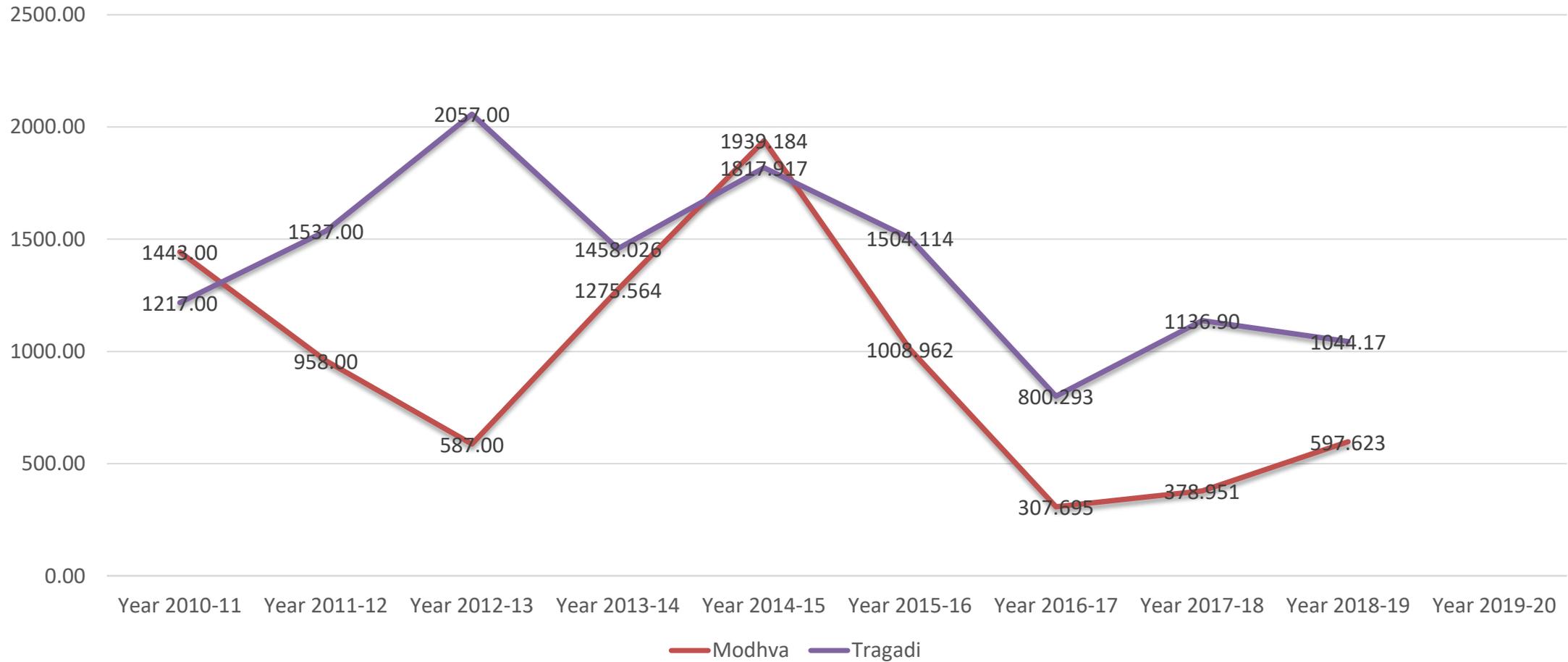
Ambient Air Quality Monitoring - Vandh



PM10 (µg/m³)	2016	2017	2018	2019	2020
March	127.05	120.26	114.20	107.86	89.20
April	129.13	123.08	118.78	87.14	78.82
May	128.74	125.04	106.65	94.15	81.36
June	110.43	120.41	104.76	89.87	81.81



Fish Catch Data at Modhwa & Tragadi as per Government Data



Source – Fisheries Department Bhuj

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Thank You!

Website: www.tatapower.com

Email Id: ivaturi.rao@tatapower.com

Contact: (+91) 9835025201

ANNEXURE - III



Presentation to Committee appointed by NGT

(vide Order dated 18.08.2020 passed in O.A. No. 481 of 2018 - Conservation Action Trust & Anr. vs. Union of India & Ors.)

Marine Environmental Status in APMuL (Integrated Intake & Outfall Channel)

Background of Matter

- Conservation Action Trust & Debi Goenka filed an application being O. A. no. 27 of 2013 before Western Bench (Pune) of NGT. The said application was filed challenging the Environmental Clearance (“**EC**”) granted to CGPL. And initially, Union of India (Ministry of Environment, Forest and Climate Change) (“**MoEF&CC**”), Gujarat Pollution Control Board (“**GPCB**”) & Coastal Gujarat Power Ltd. (“**CGPL**”) were the responding parties.
- The challenge to the EC of CGPL was inter alia on the grounds that no proper EC was taken for acquisition of 268 hectares of additional land, increase of project capacity from 4000 to 4150 MW, inadequacy in carrying out Marine Environment Impact Assessment, violation of CRZ clearance with respect to outfall channel etc.

Background of Matter

APL arraigned as party

- While matter was going on before NGT, on one of the issue of intake channel which is being shared by power plants of CGPL and Adani Power Ltd. ("APL"), Conservation Action Trust moved an application for arraigning APL & Govt. of Gujarat as necessary party to the Original Application.
- The said application also had grounds of alleged violation by APL and on the basis of said alleged violations, Conservation Action Trust sought impleadment of APL as a necessary party.
- NGT, vide order dated 06.10.2015 allowed the said application and both APL and Govt. of Gujarat were made parties to said Original Application.

NGT Order dt. 18.08.2020

NGT held:

The application is barred by limitation and such not maintainable. The relevant paragraph is as under :

"24.the case firstly is not maintainable under Section 14 of the NGT Act, 2010 and secondly even if we consider it as an Appeal under Section 16 of the NGT Act, 2010, it clearly stands barred by limitation. "

Further, NGT also held that the application lacks merits as such liable to be rejected. The relevant paragraph is as under

"38.we are of the considered opinion that Applicant has failed to make out any case to be entitled to the primary relief praying for setting aside and cancelling the clearances dated 09.03.2010 and 26.04.2011 regarding acquisition of additional 268 ha of land granted to the Respondent No. 5 Company as contained in prayer (a). Consequently the other prayers being ancillary to that prayer also stand rejected.

"39.In the result, the application is dismissed both on the question of limitation and on the merits of the case."

As such the Original Application was rejected by NGT both on question of limitation as well as on merits.

Constitution of Committee

NGT while rejecting the Original Application, however directed for formation of a Committee comprising (i) the Regional Office of the MoEF&CC; (ii) the CPCB; (iii) the State PCB; (iv) the Gujarat Coastal Zone Management Authority; (v) the Member Secretary, Gujarat Ecology Commission; (vi) a Scientist, National Institute of Oceanography; (vii) a representative of the SEIAA, Gujarat; (viii) the District Magistrate, Bhuj and, (ix) the Divisional Forest Officer, Bhuj.

The scope & mandate of the Committee prescribed by the NGT is that the Committee shall be looking into violation of CRZ Clearance and in the event of any violation being detected, assess the cost of remediation and fix the responsibility of the damage. The relevant extract of the Order is as under:

“45. The Committee shall visit the area in question and verify on the violations said to have been committed in respect of the CRZ Clearance.

The State PCB shall be the nodal agency for coordination and for providing logistic support.

46. In the event of any violation being detected, the Committee shall identify its cause, damage caused to the environment, assess its cost and cost of remediation and fix the responsibility of the damage.”

Environment Clearance and Authorization obtained by APMuL, Mundra

Sr. No.	Regulator Body/ Environment Clearance	License No.	Date of Clearance	Validity
1.	EC for Phase-I	J-13011/7/2007-IA-II (T)	13.08.2007	--
2.	EC for Phase-II	J-13011/1-2008-IA-II (T)	21.10.2008	--
3.	EC for Phase-III	J-13012/126/2008-IA.II (T)	20.05.2010	--
4.	CRZ Clearance	No. 10-94-2007-IA-III	29.05.2008 21.10.2008	were not acted upon
5.	CTE for Phase-I	GPCB/CCA-KUTCH-444/3040	29.01.2007	--
6.	CTE for Phase-II	GPCB/CCA-KUTCH-444(2)/5402	06.06.2008	--
7.	CTE for Phase- III	PC/CCA-762/GPCB ID: 24233/53891	25.06.2010	--
8.	CTO for Phase-I,II & III	AWH-102106	28.06.2019	29.06.2024
9.	Bio-Medical Waste Authorization	BMW-334450	10.09.2017	31.12.2075

EC: Environment Clearance, CRZ: Costal Regulation zone, CTE: Consent to Establish, CTO: Consent to Operate
Phase -1 – Unit 1&2, Phase 2 – Unit 3 to 6, Phase 3 – Unit 7 to 9

Condition under Environment Clearances

Sr. No.	EC Conditions	Status
1	No activities in CRZ area will be taken up without prior requisite clearance under the provisions of the CRZ Notification, 1991.	<ul style="list-style-type: none">• CRZ Clearance obtained from MoEF&CC vide Letter No. 10 - 94 /2007- IA - III dated 29th May' 2008. and 21ST Oct 2008.• However, the facilities for Sea water intake and outfall were not developed. The CRZ Clearance has not been acted upon.• NIO suggested to develop integrated intake and outfall facility in place of multiple intakes and outfalls. This integrated intake & outfall has been approved by MoEFCC under the clearance for Waterfront Development proposed by APSEZL.• Presently APMuL is using this integrated intake and outfall facilities.

Map of Integrated Intake and Outfall



Condition under Environment Clearances

Sr. No.	EC Conditions	Status
2	The seawater intake structure shall be so designed to ensure that the continuity of free flow of water in the two arms of Kotdi Creek is not hampered.	<ul style="list-style-type: none">• The integrated Intake channel developed by APSEZ is away from Kotdi Creek, which is used by APMuL also.• The outfall crosses Kotdi Creek at one place, for which aqueduct has been provided so that the treated effluent does not mix with water in the Creek and does not Interfere with free flow of water in the two arms of Kotdi Creek.• Marine biology is being monitored on regular basis and reports submitted.
3	It shall be ensured that the mangroves are not adversely affected due to the project.	<ul style="list-style-type: none">• The Thermal Power Plant is located well beyond the CRZ area and there are no mangroves at the plant site.

Condition under Environment Clearances

Sr. No.	EC Conditions	Status
4	<p>Marine biology shall not be disturbed in the Kotdi Creek and Gulf of Tunda due to any activity arising from the operation of power plant. Continuous monitoring of the marine biology in the area shall be undertaken and assessed for any changes beyond the natural variability identified and records maintained and submitted to the Ministry from time to time.</p>	<ul style="list-style-type: none">• The integrated intake channel developed by APSEZL is away from Kotdi Creek, which is used by APMuL also.• The integrated outfall developed by APSEZL and being used by APL, crosses Kotdi Creek, through aqueduct without mixing with Kotdi Creek and without causing any obstruction to free flow.• Marine biology is being monitored & report submitted on regular basis.
5	<p>The temperature of discharged water shall be continuously monitored to ensure that it does not exceed the prescribed limit of 7°C above the ambient temperature of receiving waters at any point of time.</p>	<ul style="list-style-type: none">• The temperature of discharge water and the Intake water is monitored on daily basis.• Differential temperature is well within the Stipulated limits.

Condition under Environment Clearances

Sr. No.	EC Conditions	Status
6	The project proponent shall not be hamper the vocation of the fishing community in the area and it shall be ensured that local fishing community shall be allowed to carry out their vocation in the creek.	<ul style="list-style-type: none">• The power plant is located at a site, which is away from the fishing areas.• Adani Power (Mundra) Ltd. uses the marine facilities such as integrated intake channel and outfall channel which is not hampering the vocation of fishing community.• Our CSR activity enhances infrastructure & essential nets to fishermen communities for the betterment of their vocation in the area.
7	The project proponent shall adopt the fishing communities displaced/ affected by the power plant and in particular those residing in and around Zarpara, Kotdi, Navinal, and Tragadi for their overall socio economic development.	<ul style="list-style-type: none">• No fishing community is displaced by the power plant.• The fishing community is being supported by the CSR activities of the company, being implemented through Adani Foundation.

Sampling locations selected for Marine Monitoring



The regular marine environment monitoring being carried out by in house by – Environmental Dept.’ as well as third party Consultants

Monsoon (June to Sept) **Post-monsoon season**. (October to Jan). **pre-monsoon season**, (Feb to May), & **Summer Seasons**.

Image © 2020 Maxar Technologies
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2020 Google

Google Earth

Marine Monitoring activities



Sea water Temperature, pH and Conductivity study during marine sampling



Zooplankton Collections at Outfall marine



Sea Current meter study at outfall area



Circulation of sea water currents study at outfall



Niskin bottom water sampling west port

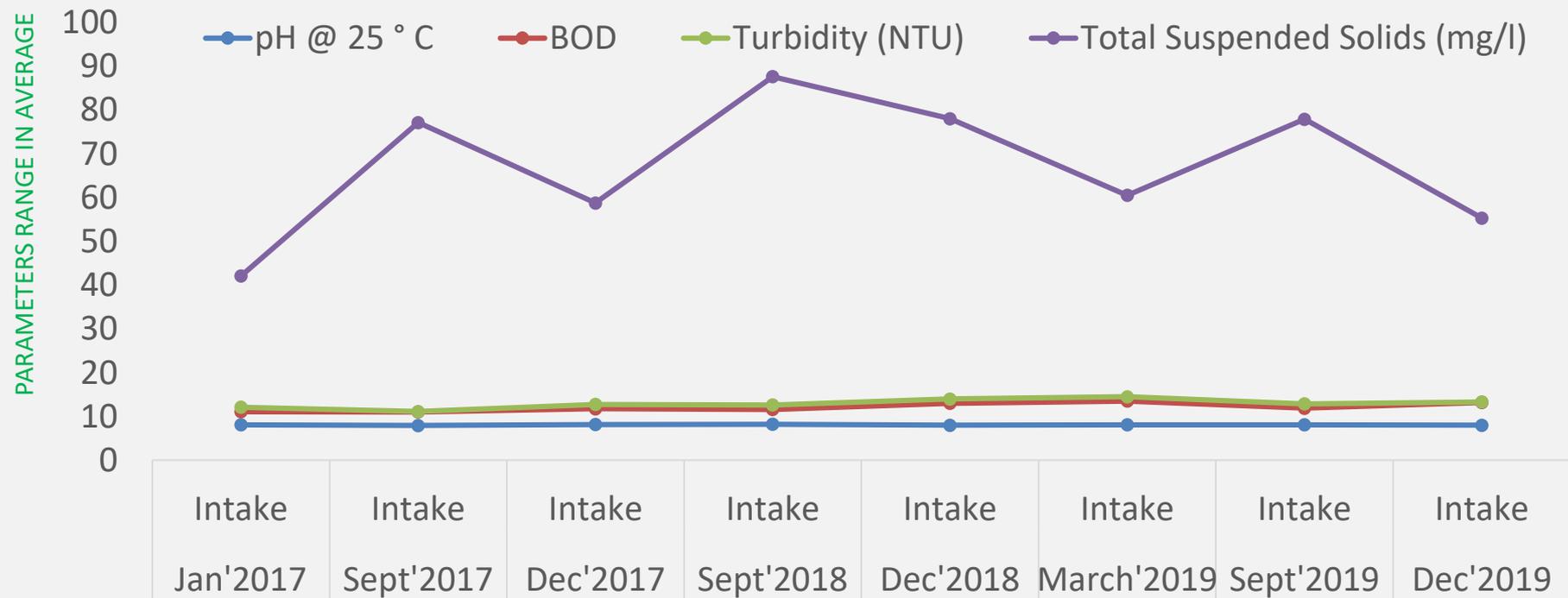


Heavy metal study at Outfall marine sediments



Marine Physical Quality Intake Stations Janaury'2017 to December'2019

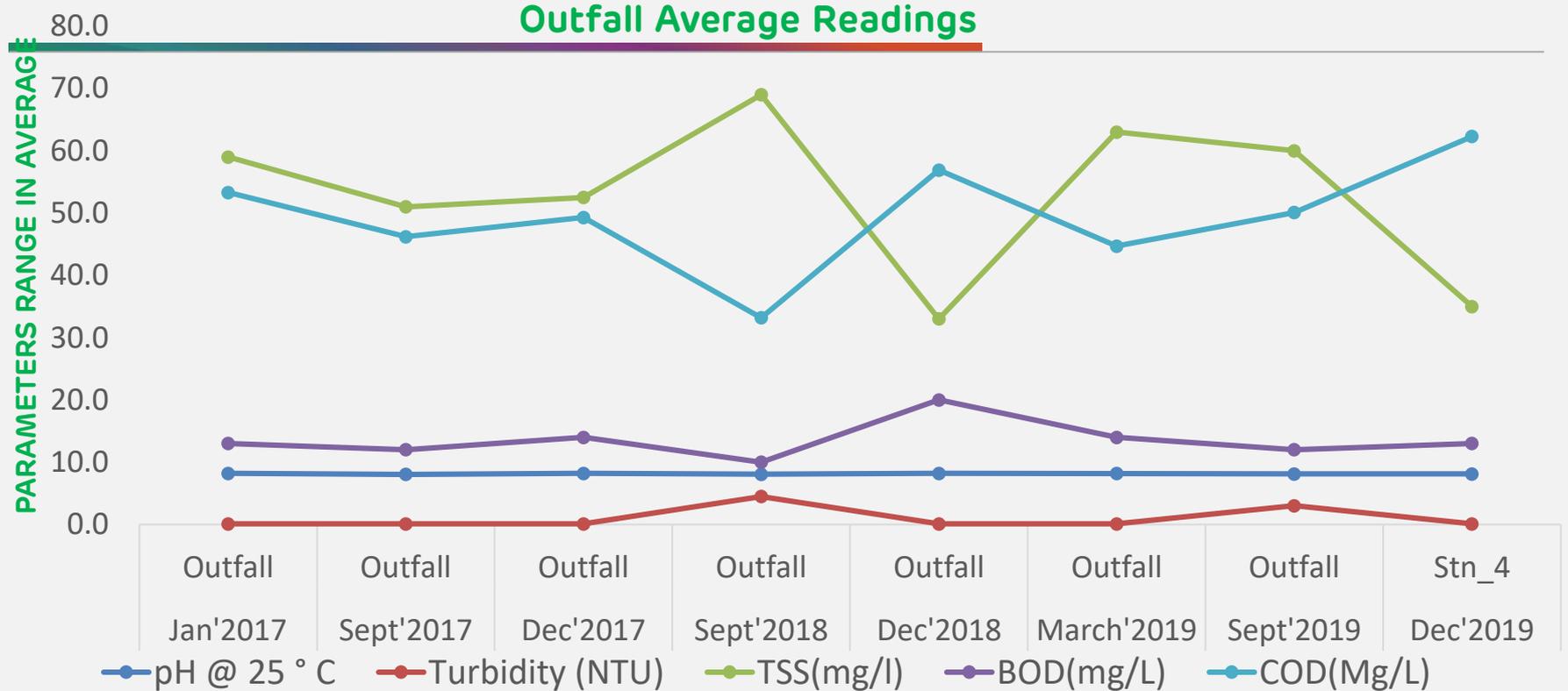
Average Parameters Readings of Station1 and Stations_2(Intake)



LIMITS: PH @ 25 ° C -6.5 TO 8.5, TOTAL SUSPENDED SOLIDS (MG/L)- 100 MG/L,
REMARK: O&G AND TOTAL CHROMIUM ARE IN BELOW DETECTION LIMIT.

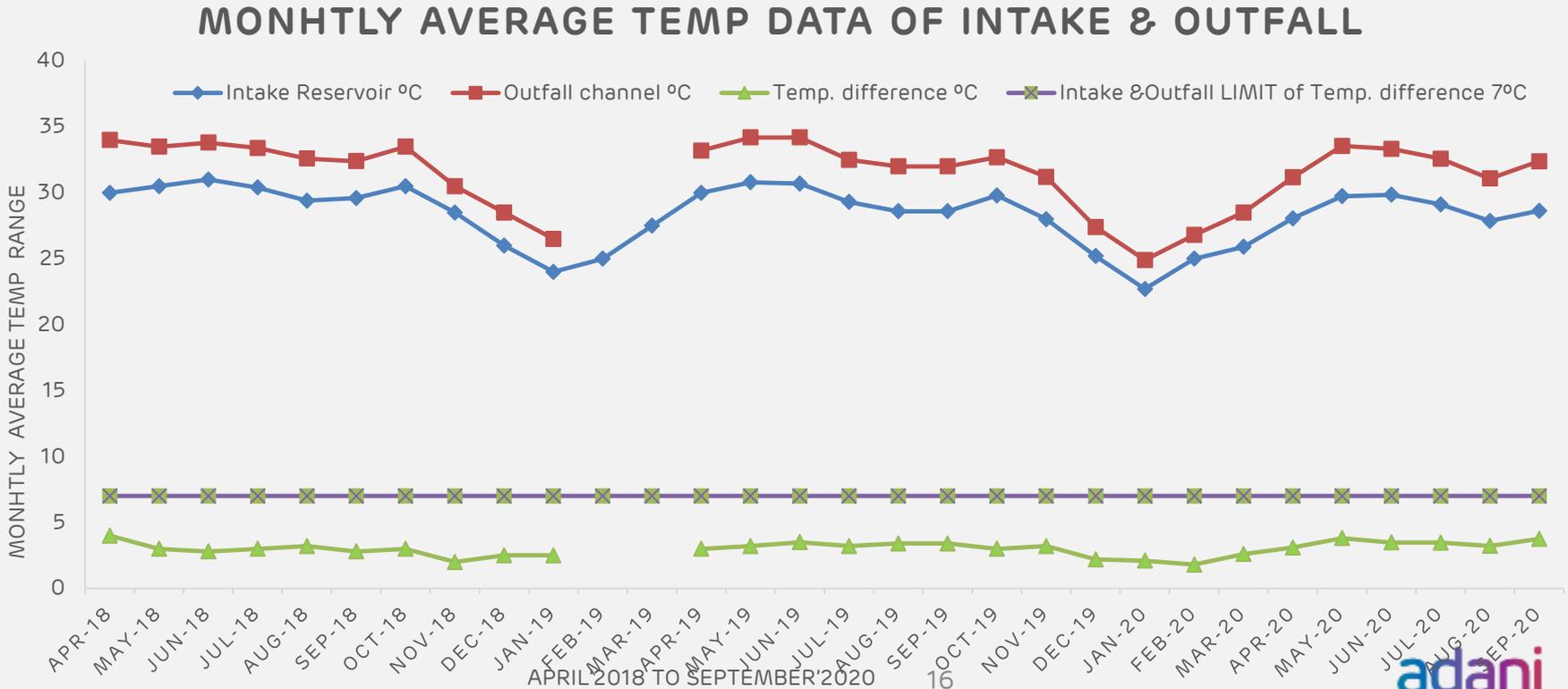


Marine Physical Quality at Outfall Stations January'2017 to December'2019



LIMITS: PH @ 25 ° C -6.5 TO 8.5, TOTAL SUSPENDED SOLIDS (MG/L)- 100 mg/L,
REMARK: O&G AND TOTAL CHROMIUM ARE IN BELOW DETECTION LIMIT.

Temperature Status of Intake Reservoir and Outfall channel



Fish catch record in Mundra form Year 2006-07 to 2014-15

	Cumulative Impact Assessment (CIA) of Waterfront, SEZ and other Ancillary Developments along Mundra Coast, Kutch District, Gujarat	PJ-ENVIR - 201639-718	
		20-04-2018	

Table 3-34 Fish catch record in Mundra and Mandvi Taluka

Bunder	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Mandvi Taluk									
Modhva	1528	1308	902	1669	1362	968	796	1464	1921
Nana	825	451	478	116	131	45	38	116	247
LajaSalaya	1586	3183	2349	1237	1443	1174	791	393	997
Tragadi	1218	1244	781	1092	1162	1538	1087	1653	1887
Mundra Taluk									
Bhadreswar	2263	3259	1836	2581	2055	1825	1603	1884	2913
Luni	2275	1844	1521	1063	1020	753	1739	1385	1565
Mundra	NA	603	1912	1013	989	1148	1885	2436	1580
Navinal	642	259	595	1	NA	78	118	211	308
Shekhadiya	315	171	137	28	66	18	31	151	193
Zarpara	782	448	451	NA	101	86	265	897	382

Source: Department of Fisheries, Kutch

ONLINE EFFLUENT QUALITY MONITORING SYSTEM (EQMS)

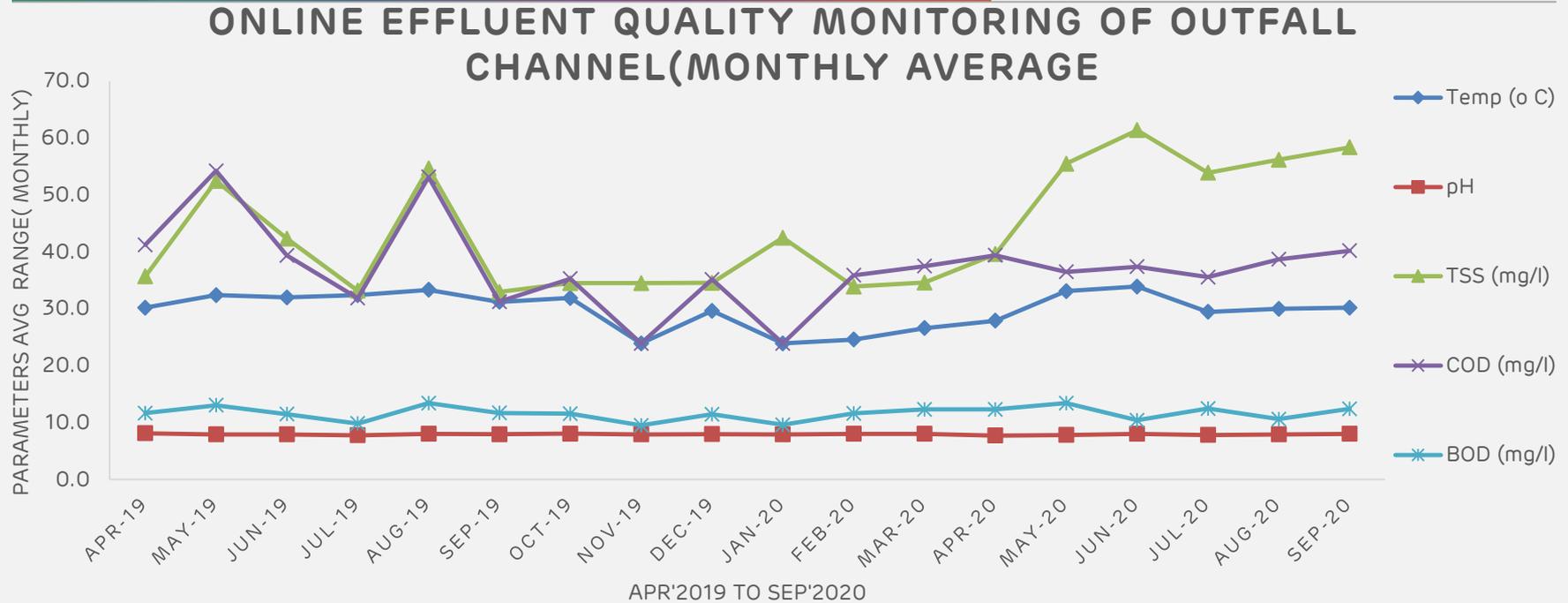


EQMS Installed at Outfall Channel



EQMS Analyzer Panel

Online-EQMS Outfall channel water parameters (Monthly Average)



CPCB LIMITS- pH -6.5 TO 8.5, TSS_100mg/L, COD-100mg/L , BOD_30mg/L

All online EQMS data is transferring to CPCB server by 15 min. intervals

Screen is designed to Prevent fish from swimming downstream screening process to prevent impingement of Marine Life

AT RESERVOIR INTAKE PUMP HOUSES PREVENTING FISH BARRIER SCREENS WITH THE SCREEN MESH



AT INTAKE MOUTH PREVENTING FISH IMPINGEMENT AND CONTACT WITH THE SCREEN MESH



AAQM monitoring near By Villages in 5 Km Radius

AAQM Monitoring at Wandh
Village



AAQM Monitoring at
Kandagara Village



CAAQMS Online Monitoring Stations



CAAQMS Station#1 at Main Gate



CAAQMS Station#2 at Eco park



CAAQMS Station#3 at Ash ponds



CAAQMS Analysers racks

In-Plant Coal Handling System



Coal Conveyors Belt Network with Dust Extraction / Dust Suppression / Ventilation system & Wind Shield around Coal stack yard area for controlling of Fugitive emission

In-Plant Ash Handling System



Dedicated Ash Handling System (AHS) is being developed and established for effective collection, transportation and disposal of all types Ash generated from power generation process.

Environmental Laboratory

An ISO/IEC 17025:2017 Accredited Laboratory for its competency in Chemical testing

		National Accreditation Board for Testing and Calibration Laboratories <small>(A Constituent Board of Quality Council of India)</small>	
<u>CERTIFICATE OF ACCREDITATION</u>			
ENVIRONMENTAL LABORATORY-ADANI POWER (MUNDRA) LIMITED			
has been assessed and accredited in accordance with the standard			
ISO/IEC 17025:2017			
"General Requirements for the Competence of Testing & Calibration Laboratories"			
for its facilities at			
VILLAGE TUNDA & SIRACHA, TALUKA MUNDRA, MUNDRA, KUTCH, GUJARAT, INDIA			
in the field of			
TESTING			
Certificate Number:	TC-5215	Valid Until:	28/05/2021
Issue Date:	29/05/2019		
<p>This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL. (To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)</p>			
Signed for and on behalf of NABL			
	 N. Venkateswaran Chief Executive Officer		

Environmental Laboratory



HORTICULTURE DEVELOPMENT STATUS

Types of Greenbelts	Green Belt Developed Area (ha)	No. of Trees & Palm Planted	No. of Shrubs Planted
Terrestrial	138.75	259676	1395954

Data as on September 2020

Greenbelt required as per EC conditions (All three phases)

:

157 Ha.



Coastal Sustainability Activities at Adani Group

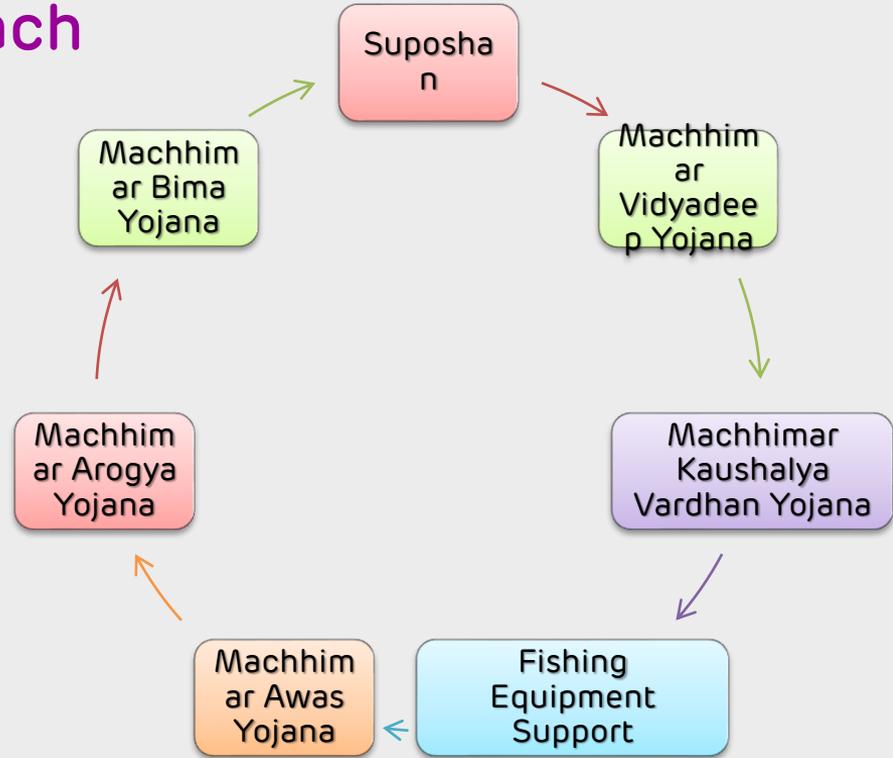
Initiatives to Uplift the Fisher-folk Community: The Adani Foundation works closely with the fisher-folk community to introduce alternative livelihoods and income generation opportunities for their socio-economic development and has provided 37,000 man-days worth of employment during non-fishing months. It has implemented the Ajivika Uparjan Yojana, Mundra-Gujarat, which provides employment to 150 fisherfolk families in a mangrove afforestation programme. It has also introduced polyculture and cage culture techniques to fishermen willing to diversify their occupation.

CSR Initiatives for Fisherfolk Families

Life-cycle approach

Adani Foundation have Designed a program which holistically addressed most critical elements of life bringing about long lasting and sustainable change. Thus it was consciously decided to create a "Collective Impact" model under which it was proposed to intervene along the complete lifecycle of fishermen with interventions which were mutually reinforcing.

Thus a program was designed with the following six intervention areas with the objective of transforming the lives of the fishermen community-Suposhan, Education, Skill Development, Livelihood and Basic Needs Water Shelter and Electricity



CSR Initiatives for Fisherfolk

Location	Outreach	Projects
Mundra & Tuna	1030	Suposhan, Quality Education, Fishing Equipment support, Health Card to Senior Citizen, Alternate Livelihood in off season, Residential Shelters, Training Centre, Fish landing shed, Potable Water, Women Empowerment and Trainings



Machhimar Shudhh Jal Yojana



Machhimar Ajivika Uparjan Yojana



Vidhya Deep Yojna



Alternate Livelihood-by sea weed culture



Providing Fishing Equipment Support



CSR Initiatives for Fisherfolk Families



Alternate migration route has been provided for fishermen community from village to nearest sea coast.

Coastal Sustainability activities at Adani Group



#SoundsOfGoodness MANGROVE CONSERVATION

A key part of our **Growth with Goodness** story, mangrove plantation & preservation strengthen the coastal ecosystem and provide communities with a vital source of income.



Machhimar Ajjvika Uparjan Yojana

The 'Ajjvika Uparjan Yojana' was implemented to promote and support alternate livelihoods among the fisher fish 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, tools, owning, etc. as per requirements. The Foundation provided them with employment equivalent to 6251 man-days. In addition to this, employment worth of 42048 man-days has been provided till date. The Foundation has also supported 'Regative' fishermen as painting laborers by providing them with employment and job in various field.



Coastal Sustainability activities at Adani Group

Sea Weed Project

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

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



Bio diversity Project

Bio diversity Project has been Continue with three species Rhizophora Mucronata, Coripis, Tagal, Ceriops Decandria with good growth at Luni Bander. 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%.



Awareness Program



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

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



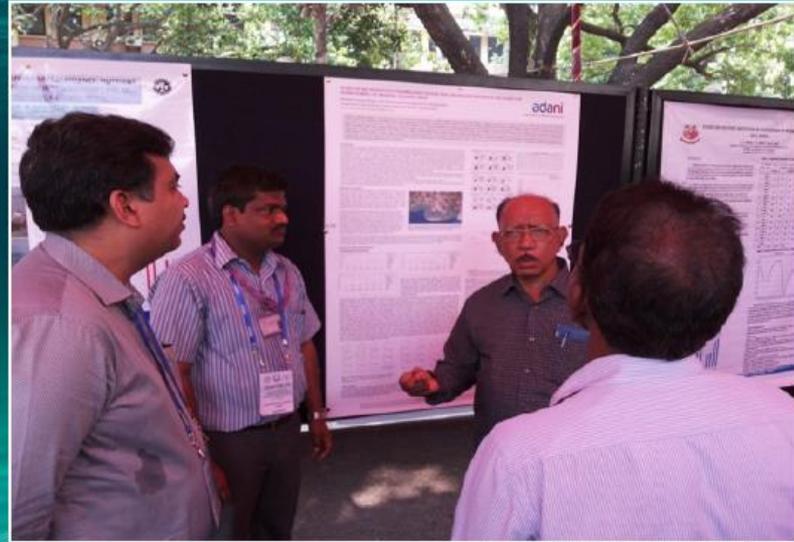
Machhimar Ajjivika Uparjan

Providing fishing materials support like ropes, buoys, anchor, etc. according to fisher. Before these fishermen had to buy these materials from traders which were very them. 28 fishermen has been facilitated by fisher.

Life Under Water

The Ocean Society of India, jointly with NIO, Goa, organized the fourth biennial conference OSICON-2015 during 22-24 March 2015. Over 300 participants from all over India participated in the conference.

The objectives of the OSICON- are advancement and dissemination of knowledge in Science, Technology, Engineering and allied fields related to oceans. It provides a forum for sharing the knowledge and experience of individuals, scientific institutions and industrial organizations for promoting the said objectives and acts as a link among academic and R&D institutions, national policy making bodies, operational organizations and ocean industries by organizing programs such as courses, lectures, symposia and topical reviews. This 4th National conference will also provide periodic and special publications for dissemination of scientific and technical information.



Feedback from Dr.V.Kesava Das, National Institute of Oceanography (Kerala State Council for Science, Technology & Environment (KSCSTE) and Santosh Kumar Singh, Head of Corporate-Environment Adani Power Ltd, Head of Corporate-Environment.

Research & Employee Learning with Organizational Development

Research & Employee Learning with Organizational Development at Adani Power limited

Presented technical papers at various National/International seminar/ symposium as mentioned below

- ✓ **Vertical distribution of Meiofauna in the near shore non-reef interstitial environment Gulf Of Kachchh Gujarat India**, by Santosh Kumar Singh and Shivanagouda N. Sanagoudra; The 13th International Coral Reef Symposium (**ICRS**) held at the Hawaii Convention Center 19–24 June 2016, Honolulu, Hawaii.
- ✓ **Study of Macrobenthic assemblages on sub tidal near shore waters in the vicinity of Adani Power Limited Mundra, Gujarat, India** by Santosh Kumar Singh and Shivanagouda N. Sanagoudra. At 4th National Conference of Ocean Society of India, OSICON-15 Oceanic Processes along the Coasts of India 22nd to 24th March 2015, held at CSIR-National Institute of Oceanography Dona Paula, Goa.
- ✓ **Invited Speaker: Topic on Coastal developments and ecological impacts**, by Santosh Kumar Singh. At National Seminar on ‘Approaches to clean and sustainable development in coastal zones of India - Present status and future need’ scheduled at CSIR-National Institute of Oceanography, Regional Centre, and Mumbai during 25 - 26 August, 2016.
- ✓ **Invited Speaker Topic on Population Dynamics of Meiobenthos of Kali Estuarine Environment Karwar, Karnataka India**, by Dr. Shivanagouda N. Sanagoudra at AOGS 15th Annual Meeting 03 to 08 JUN, 2018. Honolulu, Hawaii.
- ✓ Dr. Shivanagouda N Sanagoudra, *awarded Fellowships to participate* Ocean Carbon Biogeochemistry workshop at [Woods Hole Oceanographic Institution, Woods Hole, Boston, MA, and USA](#). During OCB event he had opportunity interact with Jane Lubchenco Under-secretary of Commerce for Ocean and Atmosphere and NOAA Administrator, USA. (Dr. Jane Lubchenco was the first woman to be appointed under-secretary of commerce for oceans and atmosphere and NOAA administrator. She served in this role from 2009 to 2013. Nominated by President Obama as part of his “Science Team

Objectives & Conclusions for Marine Ecological Studies

- To know the distribution pattern of Marine flora and Marine fauna in and around the APMuL Intake & Marine Outfall
- To estimate the amount of chlorophyll-a, Phaephytin & Phytoplankton diversity in present in in the Kotdi Creek, APMuL Intake and Outfall marine ecological area .
- To evaluate the Zooplankton & Benthos diversity in (kothdi Creek 1&2) APMuL coastal water
- To understand the productivity of the water bodies analysis of Physicochemical water quality;
- To evaluate the impacts, its cause and its mitigation measures.

Conclusions:

Wide-ranging sampling data survey reveals that the physicochemical and marine living parameters of the Seasonal analyses data were not deviated from the baseline monitoring data. However, the unsteady benthic sediment as the effect of natural tidal currents and exchange with sediment carriage activity moves the settlement of the benthic fauna.

adani

Growth
with
Goodness

Thank You





केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
 पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
 MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

SPEED POST

B-33014/7/2020/IPC-II/TPP/1952

July 02, 2020

To,

M/s Coastal Gujarat Power Ltd.
 4000 MW Ultra Mega Power Project,
 CGPL Office Complex, Block B,
 Tunda- Vandh Road, Village - Tunda,
 Mundra, Kutch - 370 435, Gujarat

Sub: Levying Environmental Compensation for non-utilization of 100% fly ash by Thermal Power Plants according to Hon'ble NGT order dt. 12.02.2020 in O.A. No. 117/2014 - reg.

Sir,

In the matter of O.A. No. 117/2014 Hon'ble NGT, Principal Bench, New Delhi vide order dated 12.02.2020 has noted the Environmental Compensation formula submitted by the Committee constituted by MoEF&CC, which is based on CPCB recommendation (Para 23) and has accepted it with certain changes (Para 24). Hon'ble NGT has directed CPCB "to compute and levy Environmental Compensation in accordance with the formula (referred in Para 24 of the order) w.r.t. individual TPPs in accordance with law and submit compliance report to this Tribunal before the next date" (Para 32 c).

In compliance of the above mentioned order of Hon'ble NGT, CPCB has computed the amount of Environmental Compensation for individual TPPs for non-utilization of 100% fly ash by Thermal Power Plants for years 2018 (2018-19) and 2019 (2019-20), respectively. The Environmental Compensation amount computed for your plant is as under:

Capacity 2018-19 (MW)	% Ash Utilization in 2018-19	EC for 2018 (2018-19), (in Rs.)	Capacity 2019-20 (MW)	% Ash Utilization in 2019-20	EC for 2019 (2019-20), (in Rs.)	Total EC for 2018 (2018-19) & 2019 (2019-20), (in Rs.)
4150	93.89	10864369	4150	112.76	0	10864369

It is requested to deposit the above Environmental Compensation amount to "CPCB NGT EC75" - UBI A/c No. 532702010009078, which may be done within 30 days.

Yours faithfully,

Handwritten signature

[Nazimuddin]
 Divisional Head-IPC-II



Office of Prant Officer & Sub-Divisional Megistrate, Mundra-Kutch

Old Port Road, Near Marin Police Station, Mundra

Taluko-Mundra Dist.Kutch

Pin No.370421

Email: dcmundra45@gmail.com /Tel.&Fax: 02838 223112

No.Land/WS/11/2020

Date :- 01/12/2020

To,

Regional Officer,

Gujarat Pollution Control Board(West),

Bhuj-Kachchh.

Sub. :- O.A. No.481/2018 (Erlie O.A.No. 27/2013) in
National Green Tribunal, Principal Bench, New Delhi

Reff. :- Dist.Megistrate, Kachchh-Bhuj's letter no.
land/6/indu./N.G.T./2020 Date : 27/08/2020

With reference to subject above, detailed information of the land given on lease for the purpose of Salt around the area of outfall of intact channel of C.G.P.L & Adani Power is as below :

Sr.No.	Lease holder name	Vill. & Taluka	Area	Dureation /Last Date of renewal of lease	Salt production detail of last Five years	
					Year	Me.Ton
1	Vinod Salt Works Pri.Ltd.	Tragdi, Ta.Mandvi	Ae.300.00 gu.	10 Years/ date : 31/07/2016 In Renewal process	19-20	10029
					18-19	21114
					17-18	25138
					16-17	12814
					15-16	13868
2	Balaji Salt Works	Tragdi, Ta.Mandvi	Ae.238.00 gu.	10 Years/ date : 31/07/2019 In Renewal process	19-20	4661
					18-19	18950
					17-18	15618
					16-17	11910
					15-16	13590

3	Marin Salts & Allies Product	Gundiyali, Ta.Mandvi	Ae.350.00 gu.	10 Years/ date : till 31/07/2014. Renew Appli. date : 05/02/2013	<table border="1"> <thead> <tr> <th>Year</th> <th>Me.Ton</th> </tr> </thead> <tbody> <tr> <td>19-20</td> <td>8500</td> </tr> <tr> <td>18-19</td> <td>9900</td> </tr> <tr> <td>17-18</td> <td>4500</td> </tr> <tr> <td>16-17</td> <td>7100</td> </tr> <tr> <td>15-16</td> <td>7900</td> </tr> </tbody> </table>	Year	Me.Ton	19-20	8500	18-19	9900	17-18	4500	16-17	7100	15-16	7900
Year	Me.Ton																
19-20	8500																
18-19	9900																
17-18	4500																
16-17	7100																
15-16	7900																
4	Krishna Salt	Mota Kandagra, Ta.Mundra	Ae.350.00 gu.	2004-05, In Process of renewal.	Plant is in inactive mode. Land leveling process is in progress.												
5	Mahesh Himatlal Punj	Tunda, Ta.Mundra	Ae.110.00 gu.	date.31/07/2019. Renew Appli.is not done.	Plant is in inactive mode.												
6	Mehul Kantilal Aachary	Tunda, Ta.Mundra	Ae.101.00 gu.	date.31/07/2019. Renew Appli.is not done.	Plant is in inactive mode.												

It is humbly stated that, due to outfall of intact channel of C.G.P.L. & Adani Power , no drastic change is registered in the production of Salt as per the data available to our office through the concern lease holder for the period of last five year.


Deputy Collector,
Mundra

Copy to :-

-- Regional Officer, Gujarat Pollution Control Board, Gandhidham-Kutch.

ANNEXURE - VI

ANALYSIS REPORT FOR AIR

TYPE : Ambient

Gujarat Pollution Control Board

Kutch West

Katira Commercial Complex-1, First Floor

Tax office, Manglam Char rasta ,Sanskar

nagar,

BHUJ - 370 001

Sample ID:291110 - Analysis Completion:03/11/2020 Near Income

Thermal Power Plants / LAB Inward : 6352



1. Name & : Coastal Gujarat Power Ltd. - 19716
 2. Address of the Unit : -,VILL.: -TUNDA,TA:- MUNDRA
 tunda - 370435, Taluka : Mundra, District : Kutch East, GIDC : Not In Gidc
 3. Nature of Sample : REP-Representative/Grab , (Insp Type : HOR-H.O.Reference)
 4. Sample Collected By : K. B. Chaudhary, R.O Head
 5. Date & Time of Collection & Receipt : 16/10/2020, (1300 to 1300)
 6. Date of Start & Completion of Analysis : 19/10/2020 & 03/11/2020
 7. Sampling Point : AAQM Carried out Near Labour colony of the unit (Down Stream) ~
 8. Fuel : --
 9. APCM : --
 10. Filter No & Weight : F.P.No.= 53,54 ,55 (2.7060 gm, 2.7058 gm , 2.7192 gm) & PTO 683455 (0.137938 gm) &for
 11. Temperature on Collection : 14 & Volume-Absord Media : 30 ML
 12. Volume-Gas Passed : For pm10(1)652.8 m3 (2)662.4m3 (3)657.6m3 and for pm2.5 = 16.67 LPM
 13. Parameters : 4 & Oper Time(Min) : 24 HRS

Sr	Parameter	Unit	Test Method	Range of Testing	Result
1	SO ₂ -Amb	MICROG/M3	IS:5182(Part-2),2001	5-10µg/M3	5.9
2	NO ₂ -Amb	MICROG/M3	IS:5182(Part-VI),2006	10-740µg/M3	6.8
3	PM ₁₀ -Amb	MICROG/M3	IS: 5182 (Part - XXIII), 2006	1 – 1000 µg/M3	32
4	PM _{2.5} -Amb	MICROG/M3	-	-	58

Laboratory Remarks : Freeze By:251-r.o_251 Dt.: 04/11/2020

T. C. Barmada

T.C Barmada, SSO

Field Observation : --

**ANALYSIS REPORT FOR AIR****TYPE : Ambient**

Gujarat Pollution Control Board

Kutch West

Katira Commercial Complex-1, First Floor

Sample ID:291107 - Analysis Completion:03/11/2020 Near Income Tax office, Manglam Char rasta ,Sanskar

nagar,

Thermal Power Plants / LAB Inward : 6351

BHUJ - 370 001

1. Name & : Coastal Gujarat Power Ltd. - 19716
2. Address of the Unit : -,VILL.:TUNDA,TA:- MUNDRA
tunda - 370435, Taluka : Mundra, District : Kutch East, GIDC : Not In Gidc
3. Nature of Sample : REP-Representative/Grab , (Insp Type : HOR-H.O.Reference)
4. Sample Collected By : K. B. Chaudhary, R.O Head
5. Date & Time of Collection & Receipt : 16/10/2020, (1210 to 1210)
6. Date of Start & Completion of Analysis : 19/10/2020 & 03/11/2020
7. Sampling Point : AAQM Carried out Near main gate of the unit (Up Stream) ~
8. Fuel : --
9. APCM : --
10. Filter No & Weight : F.P.No.= 61,62 ,63 (2.7197gm, 2.7070gm , 2.6920 gm) & PTO 683498 (0.154896 gm) and fo
11. Temperature on Collection : 15 & Volume-Absord Media : PM10 (1) 586.5 M3 (2) 586.5 M3 (3) 576.0 M3 & for PM
12. Volume-Gas Passed : 30 ML
13. Parameters : 4 & Oper Time(Min) : 24 HRS

Sr	Parameter	Unit	Test Method	Range of Testing	Result
1	SO2-Amb	MICROG/M3	IS:5182(Part-2),2001	5-10µg/M3	8.95
2	NO2-Amb	MICROG/M3	IS:5182(Part-VI),2006	10-740µg/M3	11
3	PM10-Amb	MICROG/M3	IS: 5182 (Part - XXIII), 2006	1 – 1000 µg/M3	58
4	PM2.5-Amb	MICROG/M3	-	-	35

Laboratory Remarks : Freeze By:251-r.o_251 Dt.: 04/11/2020*T. C. Barmeda***T.C Barmeda, SSO**

Field Observation : --