

#### CGPL/UMPP/ENV/MoEF/3495

April 20, 2013

To

The Director,
Western Regional Office,
Ministry of Environment & Forest,
E-5, Arera colony, Link Road-3,
Ravishankar Nagar, Bhopal-462016 (M.P.)

#### Kind Attn: Dr. A. Mehrotra

#### Dear Sir,

Sub

: Half yearly Compliance report for 4000 MW Mundra Ultra Mega Thermal Power Project at village Tunda, near Mundra, district Kutch by M/s Coastal Gujarat Power Limited.

Ref

- : 1) Environment clearance granted to us vide letter dated 2<sup>nd</sup> March, 2007 bearing No. J-13011/41/2006-IA.II (T) and
  - 2) Corrigendum dated 5<sup>th</sup> April, 2007 bearing no. J-13011/41/2006-IA.II (T).
  - 3) Corrigendum dated 26<sup>th</sup> April, 2011 bearing no. J-13011/41/2006-IA.II (T).

Please find enclosed herewith point wise compliance report on the status of implementation of the stipulated conditions in Environmental Clearance for Coastal Gujarat Power Limited.

Thank you,

Yours Faithfully,

For Coastal Gujarat Power Limited

(Sharad Baijal) Head – O&M

Encl: As above

#### Copy to:

- 1. The Director, Ministry of Environment & Forest, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110003
- 2. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-office complex, East Arjun Nagar, Delhi-110032
- 3. The Chairman, Gujarat Pollution Control Board, Parvayaran Bhawan, Sector 10A, Gandhinagar-382010(Guj.)

**Coastal Gujarat Power Limited** 



Doc. No.	CGPL/FOR/ENV/08		
Issue No.	01	Date	01/11/12
Rev. No	<b>0</b> 0	Date	-

#### Status of the conditions stipulated in Environment Clearance

Status of Conditions stipulated in Environment Clearance for CGPL, Mundra

Sr. No.	Conditions	Compliance Status as on April 20, 2013
1	Comprehensive EIA study shall be carried out based on full one year data and submitted to MoEF within 15 months. Based on the same, air quality modeling shall be carried out. In case the modeling results show ground level SO2 concentration exceeding 80 µg/m3 at any location in the impact zone or the sulphur content in coal is to ever exceed 1%, FGD shall be installed.	Comprehensive EIA study done based on one full year data and report submitted to MoEF, Delhi on 6 <sup>th</sup> September, 2007.
2	Space provision shall be made for flue gas de-sulphurisation (FGD) unit, if required at a later stage.	Space for FGD has been provided.
3	Physical modeling shall be carried out through one of the expert organization/ institution like CWPRS with the following objectives  a) The activity does not affect the flow regime.	Marine EIA Study for the same has been done by NIO. Based on the study open Intake and outfall channel for once through cooling is finalized.
	b) To determine the intake and outfall location. c) To determine the mode (i.e. open channel or closed channel) for drawl of water.	
	d) Hydraulic and thermal regime is not effected     e) Sensitive areas such as mangroves, corals and aquatic flora and fauna are not affected.	
4	Based on above said modeling study, locations of intake and outfall point and the mode of drawl of water shall be finalized prior to start of the work on the intake and outfall channels.	Location of the outfall point and mode of drawl of water is finalized based on the study done by NIO.
5	For the activities in CRZ area, necessary clearance under CRZ Notification as may be applicable shall be obtained prior to start the work on such activities.	Obtained vide letter no. F.No.11-11/2007-IA-III dated 9 <sup>th</sup> March, 2010 from MoEF.
6	A dredging plan showing the quantity of dredge material likely to be generated by capital dredging and maintenance dredging and the mode of disposal of the dredge material shall be submitted to MoEF at least 6 months prior to the commencement of the dredging operations and the project proponent shall abide by such directions as may be given by the ministry on its environmental aspects.	Dredging plan and Maintenance dredging plan has been submitted vide letter No. CGPL/UMPP/SHE /MoEF/1308 dated July 30, 2010 and letter No. CGPL/UMPP/ENV /MoEF/3318 dated December 24, 2012 respectively.
7	No Land filling of the site shall be carried out.	Noted. Only grading or backfilling of the site is being done wherever required.
8	The total land requirement shall not exceed 1242 Ha for all the activities/ facilities of the power project put together.	Total land under possession is 1037 Hectare excluding outfall channel.



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Issue No.	01	Date	01/11/12
Rev. No	<b>0</b> 0	Date	-

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Sr. No.	Conditions	Compliance Status as on April 20, 2013
9	The land requirement, which has been added from that proposed, originally, shall be reconciled at the stage of issue of notification for land acquisition under section 6. Land requirement shall be optimized and reduced land earlier meant for MRG system shall be converted into Green Belt.	Noted
10	Imported coal consumption shall not exceed 12 million tonnes per annum and ash and Sulphur content in the coal to be used in the project shall not exceed 10% and 1% respectively.	CGPL is using coal having ash content less than 10% and sulphur content less than 1%.
11	"One tri-flue and one bi-flue stacks of 275 m height each shall be provided with Continuous online monitoring equipments. Exit velocity of 25 m/sec shall be maintained".	One tri flue and one bi flue stack has been provided.
12	High efficiency ESP with efficiency not less than 99.9% shall be installed to ensure that particulate emission does not exceed 100 mg/Nm3.	High Efficiency ESP provided to comply with the condition.
13	Low NOx burners shall be provided.	Low NOx burners with rating 365ppm have been provided.
14	Adequate dust extraction and dust suppression system such as bag filters and water spray system in dusty areas such as coal and ash handling areas, transfer areas and other vulnerable areas shall be provided.	<ul> <li>State of the art dry fog system has been provided in all coal transfer points</li> <li>Bag filters have been provided on the top of fly ash silo.</li> <li>Water spraying arrangement provided on coal conveyer belt and coal storage area.</li> </ul>
15	Fly Ash shall be collected in dry form and shall be used in a phased manner as per provision of the notification on Fly Ash Utilization issued by the Ministry in September, 1999 and its amendment. By the end of 9th year full fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry.	Noted.
16	Ash Pond shall be lined with impervious lining.	Ash pond is provided with HDPE lining.
17	Rain water harvesting shall be practiced. A detailed scheme for the rain water harvesting to recharge the ground water aquifer shall be prepared in consultation with Central ground water Authorities/ State Ground Water board and a copy of the same shall be submitted within three months to the ministry.	Rain water harvesting Scheme is being implemented as per approved rain water harvesting plan obtained from CGWA vide letter No. TS 8(9)/WCR/CGWB /MoEF-CGPL/1744 dated 25/10/2012. Copy is enclosed as annexure 1.



Doc. No.	CGPL/FOR/ENV/08		
Issue No.	01	Date	01/11/12
Rev. No	<b>0</b> 0	Date	-

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Sr. No.	Conditions	Compliance Status as on April 20, 2013
18	Suitable system shall be provided to reduce water temperature at the final discharge point so that the resultant rise in the temperature of receiving water does not exceed 7°C over and above the ambient temperature of the receiving water body.	Once through cooling system is adopted to comply with the condition.
19	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and periodic reports shall be furnished to the Regional office of this ministry.	Regular monitoring of Ground water in and around ash pond is being carried out and periodic reports are submitted to regional office of the Ministry. Last report submitted on October 30, 2012 vide
		letter No CGPL/UMPP/ENV/MoEF/3225. The report of ground water quality around ash pond from Oct, 12 to Mar, 13 is enclosed as annexure 2.
20	100 m wide green belt shall be developed all around the plant, ash pond and township site covering one third (1/3 <sup>rd</sup> ) of the total project area under green belt development.	Green belt development is in the progress. 233,445 Nos. of saplings have been planted till March 31, 2013. The detailed status of Green belt is enclosed as annexure 3.
21	Conservation and development of mangroves species found in this area shall be taken up with a conservation plan duly approved by State Forest Department.	The project area is devoid of mangroves. However, we are developing mangroves on 1000 Ha land in village Kantiyajal, Bharuch, Gujarat in consultation with Gujarat Ecology Commission.
22	Infrastructure facilities including first aid and sanitation arrangement shall be made for the drivers and other contract workers during construction phase.	Infrastructure facilities such as first aid centers, toilets, and STPs have been provided.
23	Leq of Noise level should be limited to 75 dB (A) and regular maintenance of equipment be undertaken. For people working in the high noise areas, personal protective devices should be provided.	Noise Monitoring is being carried out on regular basis. PPEs are provided for people working in high noise areas. Last report submitted on October 30, 2012 vide letter No CGPL/UMPP/ENV /MoEF/3225. Monitoring report of Noise levels for the month of Oct, 12 to Mar, 13 is enclosed as annexure 4.



Doc. No.	CGPL/FOR/ENV/08		
Issue No.	01	Date	01/11/12
Rev. No	00	Date	-

#### Status of the conditions stipulated in Environment Clearance

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Sr. No.	Conditions	Compliance Status as on April 20, 2013
24	The proposed generation capacity of the project could be increased only by way of adoption of waste heat recovery and entailing no additional coal and water consumption. The generation capacity thus obtained taking waste heat recovery into account shall however not exceed 4150 MW and configuration of units may be accordingly adopted at 5x830 MW.	Noted.
25	Regular monitoring of ambient air quality shall be carried out in and around the power plant and records maintained. The location of monitoring stations and frequency shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this ministry.	Ambient Air Quality in and around plant is being monitored and reports are submitted to regional office of this ministry. Last report submitted on October 30, 2012 vide letter No. CGPL /UMPP/ENV/MoEF/3225. Monitoring report of ambient air quality for the month of Oct, 12 to Mar, 13 is enclosed as annexure 5.
26	The project proponent shall advertise in at least two local newspapers widely circulated the region around the project, one of which shall be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at website of the MoEF at envfor.nic.in	Published in "Kutch Mitra and The Times of India" dated 08/06/2007. Copy of the same is submitted to you vide our letter No. AK/MOE/2309/2008/66 dated September 23, 2008.
27	A separate environment monitoring cell with suitable staff should be set up for implementation of the stipulate environmental safeguards.	CGPL has established Environment Management Cell with qualified personnel to implement the
		Environmental Management Plan and a separate budget has been provided.
28	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to the ministry, its regional office, CPCB and SPCB	Half yearly compliance report is being submitted to Ministry, Regional Office, CPCB and GPCB on regular basis. Last Report submitted October 30, 2012 vide letter No CGPL/UMPP/ENV/MoEF/3225.



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Rev. No	<b>0</b> 0	Date	-

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Sr. No.	Conditions	Compliance Status as on April 20, 2013
29	Regional office of the MoEF located at Bhopal will monitor the implementation of the stipulated condition. A complete set of EIA Report and EMP along with the additional information submitted to MoEF from time to time shall be forwarded to the Regional Office for their use during monitoring.	Noted.
30	Separate funds shall be allocated for implementation of environmental protection measures along with item wise breakup. This cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purpose and year wise expenditure should be reported to this Ministry and its regional office.	2012-13 are enclosed as annexure 6.
31	The project authorities shall inform the Regional office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and dates of start of land development work and commissioning of plant.	<ul> <li>The financial agreement for debt financing was signed on April 24, 2008.</li> <li>Test pile work for boiler foundation was started on February 4, 2008.</li> </ul>
32	Full cooperation shall be extended to the scientist/ officers from the ministry/ Regional office of the ministry at Bhopal/ the CPCB/ the SPCB who would be monitoring the compliance of environmental status.	Noted.
33	Coal transportation from MPSEZ Port to plant site at Mundra shall be by closed conveyor belt system traversing a distance of about 9.10 Km	Complied with.
34	The project proponent shall upload the status of compliance of the conditions stipulated in the environmental clearance issued vide this Ministry's letter of even no. dated 02.03.2007 and its amendment dated 05.04.2007, in its website and updated periodically and also simultaneously send the same by e-mail to the Regional Office of the Ministry of Environment and Forests.	Compliance status of the conditions stipulated by MoEF is being regularly sent to MoEF and its Regional office. Last report submitted on October 30, 2012 vide letter No CGPL/UMPP/ENV/MoEF/3225. It is also uploaded on <a href="https://www.tatapower.com">www.tatapower.com</a> .
35	Criteria pollutants levels including NOx, RSPM (PM <sub>10</sub> & PM <sub>2-5</sub> ), SOx (from stack & ambient air) shall be regularly monitored and results displayed in your website and also at the main gate of the power plant.	Criteria pollutant levels including NOx, RSPM (PM <sub>10</sub> & PM <sub>2.5</sub> ), SOx, (from Stack and Ambient air) are monitored regularly, results are being displayed at main gate and company website www.tatapower.com.



Doc. No.	CGPL/FOR/ENV/				
Issue No.	01	Date	01/11/12		
Rev. No	00	Date	-		

#### Status of the conditions stipulated in Environment Clearance

Status of Conditions stipulated in Environment Clearance for CGPL, Mundra Ref.: Environment Clearance vides Letter no. J-13011/41/2006 – IA.II (T) dated 02/03/2007, Corrigendum dated 05/04/2007 and 26/04/2011

Sr. No.	Conditions	Compliance Status as on April 20, 2013
36	An amount of Rs 72.0 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 14.40 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	CGPL is committed for its social responsibility and budget is not a constraint for CSR activities. However a report on CSR activities and expenditure is submitted to MoEF, New Delhi on July 11, 2011 vide letter No. CGPL /UMPP /ENV /MoEF /2291. Details of the expenditure for the year 2012-13 are enclosed as annexure 7.
37	It shall be ensured that an in-built monitoring mechanism for the schemes identified under CSR activities are in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time	An In-built monitoring mechanism for the schemes identified under CSR activities are in place and Mahatma Gandhi Labour Institute (MGLI), Government of Gujarat is conducting social audit for CGPL. Social audit report for the year 2012-13 has been submitted to MoEF vide letter No. CGPL/UMPP/ENV/GPCB /3361 on January 29, 2013.

# ANNEXURE 1 Rain Water Harvesting approval letter from CGWB



Speed Post भारत सरकार / Govt. of India जल संसाधन मंत्रालय / Ministry of Water Resources केन्द्रीय भूमि जल वोर्ड / Central Ground Water Board पश्चिम मध्य क्षत्र / West Central Region म्वामि नागयण कॅलिज विल्डिंग /Swaminarayan College Building ाह आलग टोल नाका, अहमदावाद /Shahalam Toll Naka, Ahmedabad - 380022

दुरभाष / Telephones : 079-25394464, 25396007, 25320476

फंक्य / Fax 079 -25329379

इ - मेल / E-mail: rdwcr-cgwb@nic.in / tswcr-cgwb@nic.in

TS 8 (9) /WCR / CGWB / MoEF - CGPL

Dated: 25 /10/2012

2 6 OCT 2012

To Head, O & M Coastal Gujarat Power Limited Tunda Vandh Road, Tunda Village Tal Mundra, Gujarat - Pin - 370436

Sub: Rain water harvesting for 4000 MW Mundra Ultra Mega Power project at Village Tunda, Nr Mundra – Kutch – Gujarat.

Ref:

- 1. Environment Clearance issued by the MoEF vide letter No. 1-13011 /2006 / -1A -II (T), dated 2<sup>nd</sup> March 2012.
  2. Your letter dated 28<sup>th</sup> Oct 2010 & 21<sup>st</sup> August 2012.

Sir.

In compliance to condition No xvii of the directives of MoEF, issued for environment clearance to 4000 MW Mundra Ultra Power Project, you have submitted 'Rainwater Harvesting Scheme' to be implemented at power project site at Tunda, Tal Mundra, Dist Kachchh vide reference 1 & 2 above. Your proposal has been scrutinized for impounding of available surface runoff (2,46,100 m<sup>3</sup> / year) by constructing 5 structures (check dams) at suitable locations at proposed power project sites.

In this connection, it is to inform that your proposal of rainwater harvesting scheme has been approved and also suggest to construct one piezometer (water level monitoring tube well) in down gradient part of the power project site. It is requested to submit completion report for our inspection.

Yours faithfully

(Dr. E. Sampath Kumar) Regional Director

Copy to: The Member Secretary, Central Groundwater Authority, Ministry of Water Resources, West Block-2, Wing-3, R.K.Puram, Sector-1, New Delhi -- 110 066, for kind information.



(Dr. E. Sampath Kumar) Regional Director

# ANNEXURE 2 Ground Water Quality Report



Doc. No.	CGI	PL/FOR	R/ENV/09
Issue No.	01	Date	01/04/13
Rev. No	<b>0</b> 0	Date	-

#### Half Yearly Ground Water Quality Monitoring Report

#### Borewell No. 5 (Near Ash Pond):

Sr.	Payamatays	TIm:4	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No	Parameters	Unit	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	41.5	41.5	41.5	41.5	41.5	41.5
2	Colour	Hazen Units	21	16	150	250	1500	35
3	Turbidity	NTU	26.9	675	915	325	1990	10.4
4	pН	-	7.66	7.76	7.85	7.7	7.71	7.69
5	Electrical Conductivity (at 25°C)	μmhos /cm	2810	2720	2775	2806	2744	2637
6	Suspended Solids	mg/L	1980	1905	1600	976	1493	863
7	Total Dissolved Solids	mg/L	1686	1850	1664	1930	1702	1592
8	BOD (3 days at 27°C)	mg/L	9	14	1	16	11	17
9	COD	mg/L	30	36	3	47	32	52
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	758	729	636	706	691	702
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
12	Total Hardness(as CaCO <sub>3</sub> )	mg/L	95.1	102	101	113	120	110
13	Calcium (as Ca)	mg/L	22.0	23.9	21.4	21.6	24.4	22.9
14	Magnesium (as Mg)	mg/L	10.7	10.9	11.6	14.3	14.2	12.6
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	0.54	1.26	0.69	0.93	1.46	1.84
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	0.13	0.16	0.15
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	568	623	487	617	656	532
23	Potassium (as K)	mg/L	3.1	2.6	2.25	2.03	1.92	1.96
24	Chloride (as Cl)	mg/L	293	342	366	408	385	401
25	Sulphate (as SO <sub>4</sub> )	mg/L	201_	209	239	230	222	204
26	Fluoride (as F)	mg/L	3.51	3.11	3.25	3.75	3.22	2.99
27	Phosphate (as P)	mg/L	BDL	BDL	1.08	0.61	0.34	0.21
28	Nitrate (as NO <sub>3</sub> )	mg/L	8.56	5.12	10.1	6.38	5.44	7.72
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32	Arsenic (as As)	mg/L	20	-	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L	-		BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/1 00mL	< 1.8	< 1.8	< 1.8	7.8	7.8	24



Doc. No.	CGI	CGPL/FOR/ENV/09						
Issue No.	01	Date	01/04/13					
Rev. No	00	Date	-					

#### Half Yearly Ground Water Quality Monitoring Report

Sr.	P	TI	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No	Parameters	Unit	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	37.5	37.5	37.5	37.5	37.5	37.5
2	Colour	Hazen Units	2	5	4	2	8	2
3	Turbidity	NTU	17.8	4	6	3.1	10.6	4.9
4	pH	-	7.40	7.88	7.98	8.37	8.45	8.32
5	Electrical Conductivity (at 25°C)	μmhos /cm	2548	2434	2454	2516	2584	2694
6	Suspended Solids	mg/L	36	20	20	5	15	8
7	Total Dissolved Solids	mg/L	1778	1695	1712	1710	1629	1702
8	BOD (3 days at 27°C)	mg/L	7	7	6	4	4	1
9	COD	mg/L	20	18	14	- 12	8	3
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	913	882	812	788	793	855
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	N.D.	14.6	11.9	81.9	52.2	14.7
12	Total Hardness (as CaCO <sub>3</sub> )	mg/L	117	128	132	146	141	102
13	Calcium (as Ca)	mg/L	28.5	29.8	28.4	20.2	17.9	14.5
14	Magnesium (as Mg)	mg/L	10.3	15.7	18.3	16.9	20.3	14.5
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	0.33	0.14	0.11	BDL	2.57	BDL
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	523	570	584	656	628	642
23	Potassium (as K)	mg/L	4.4	3.7	4.3	3.5	3.15	3.68
24	Chloride (as Cl)	mg/L	222	239	319	324	297	293
25	Sulphate (as SO <sub>4</sub> )	mg/L	96.2	119	216	180	160	152
26	Fluoride (as F)	mg/L	2.89	2.95	2.15	3.2	2.81	2.46
27	Phosphate (as P)	mg/L	0.76	0.94	0.54	0.49	0.49	0.42
28	Nitrate (as NO <sub>3</sub> )	mg/L	6.75	12.6	14.2	16.3	17.2	14.3
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32.	Arsenic (as As)	mg/L	-	-	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L		-	BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/100 mL	< 1.8	< 1.8	4.5	< 1.8	< 1.8	< 1.8



Doc. No.	CGI	CGPL/FOR/ENV/09						
Issue No.	01	Date	01/04/13					
Rev. No	<b>0</b> 0	Date	-					

#### Half Yearly Ground Water Quality Monitoring Report

Sr.	D	TT *4	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No	Parameters	Unit	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	5.5	5.5	5.5	5.5	5.5	5
2	Colour	Hazen Units	1	3	2	2	4	2
3	Turbidity	NTU	9.6	4.9	1.1	2.8	7.9	2.1
4	pH		7.38	7.55	7.99	7.84	7.86	7.61
5	Electrical Conductivity (at 25°C)	μmhos /cm	7660	8000	6478	7570	8747	11180
6	Suspended Solids	mg/L	10	34	8	6	12	8
7	Total Dissolved Solids	mg/L	4365	4968	3990	5296	5418	7382
8	BOD (3 days at 27°C)	mg/L	10	11	3	12	8	8
9	COD	mg/L	30	36	8	40	38	22
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	274	-262	325	295	309	373
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
12	Total Hardness(as CaCO <sub>3</sub> )	mg/L	599	661	532	692	797	844
13	Calcium (as Ca)	mg/L	123	137	108	163	181	152
14	Magnesium (as Mg)	mg/L	71.0	77.7	73.7	74.1	86.6	114
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	BDL	BDL	BDL	0.17	0.13	BDL
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	1366	1616	1000	1415	1745	2503
23	Potassium (as K)	mg/L	16.1	17.4	12.6	14.1	16.6	19.4
24	Chloride (as Cl)	mg/L	1738	2014	1627	2465	2749	3698
25	Sulphate (as SO <sub>4</sub> )	mg/L	352	443	374	392	251	296
26	Fluoride (as F)	mg/L	2.22	2.26	2.34	2.87	2.59	1.79
27	Phosphate (as P)	mg/L	0.22	0.31	0.35	BDL	0.16	0.1
28	Nitrate (as NO <sub>3</sub> )	mg/L	6.05	8.89	11.9	9.09	7.1	5.1
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32	Arsenic (as As)	mg/L	-	-	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L	-	-	BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/ 100mL	< 1.8	< 1.8	< 1.8	40.0	17.0	130.0



Doc. No.	CGI	PL/FOR	Z/ENV/09
Issue No.	01	Date	01/04/13
Rev. No	00	Date	-

#### Half Yearly Ground Water Quality Monitoring Report

#### Borewell No. 8 (Near Ash Pond):

Sr.	Parameters	Unit	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No		A CONSTANT	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	8	8	8	8	8	7.5
2	Colour	Hazen Units	2	3	3	1,	4	1
3	Turbidity	NTU	1	4.6	5.9	1.6	6.4	1.2
4	pH		8.31	8.23	8.33	8.41	8.38	8.18
5	Electrical Conductivity (at 25°C)	μmhos /cm	3611	3846	3950	4371	5180	8942
6	Suspended Solids	mg/L	10	18	9	10	14	6
7	Total Dissolved Solids	mg/L	2022	2616	2444	3013	3158	5004
8	BOD (3 days at 27°C)	mg/L	7	11	2	6	4	6
9	COD	mg/L	20	28	4	18	12	19
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	291	282	263	254	269	288
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	37.6	14.3	36.3	54.2	43.8	19.8
12	Total Hardness(as CaCO <sub>3</sub> )	mg/L	161	167	170	204	301	324
13	Calcium (as Ca)	mg/L	30.3	34	31.7	37.7	53.9	58.7
14	Magnesium (as Mg)	mg/L	18.9	19.3	22	26.7	40.5	43.2
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	0.31	BDL	BDL	BDL	0.26	BDL
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	809	880	668	937	1084	1627
23	Potassium (as K)	mg/L	11.3	9.5	8.45	8.43	10.8	13.9
24.	Chloride (as Cl)	mg/L	757	902	104	823	1231	1998
25	Sulphate (as SO <sub>4</sub> )	mg/L	146	185	190	222	154	228
26	Fluoride (as F)	mg/L	1.16	1.85	2.1	2.75	2.44	1.82
27	Phosphate (as P)	mg/L	0.40	1.85	1.06	0.73	1.27	0.78
28	Nitrate (as NO <sub>3</sub> )	mg/L	17.5	0.63	8.37	6.91	9.71	8.8
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32	Arsenic (as As)	mg/L	17	-	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L	0 <b>-</b> 0	-	BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/ 100mL	< 1.8	< 1.8	< 1.8	79.0	22.0	49.0



Doc. No.	CGI	PL/FOR	Z/ENV/09
Issue No.	01	Date	01/04/13
Rev. No	00	Date	-

#### Half Yearly Ground Water Quality Monitoring Report

Sr.	D	TT - 14	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No	Parameters	Unit	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	5.0	5.0	5.0	5.0	5.0	5.0
2	Colour	Hazen Units	1	3	3	5	4	2
3	Turbidity	NTU	10.1	6.4	5.7	6.3	4.1	0.7
4	pH	-	8.07	8.41	8.06	7.98	7.99	7.83
5	Electrical Conductivity (at 25° C)	μmhos /cm	3208	3380	3627	3728	3622	4628
6	Suspended Solids	mg/L	5	5	7	13	8	6
7	Total Dissolved Solids	mg/L	1796	2330	2322	2460	2284	3146
8	BOD (3 days at 27°C)	mg/L	6	5	4	6	4	4
9	COD	mg/L	10	18	13	17	10	13
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	615	628	631	643	653	686
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	9.4	18.6	9.3	N.D.	N.D.	N.D.
12	Total Hardness(asCaCO <sub>3</sub> )	mg/L	205	214	220	232	276	274
13	Calcium (as Ca)	mg/L	29.7	27.8	23.8	30.8	34.9	32.4
14	Magnesium (as Mg)	mg/L	31.7	35.1	40.5	38.4	46.3	47.2
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	0.11	BDL	BDL	BDL	BDL	BDL
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	656	751	539	730	771	1386
23	Potassium (as K)	mg/L	9.7	7.9	6.1	5.4	5.3	5.2
24	Chloride (as Cl)	mg/L	436	528	884	878	850	895
25	Sulphate (as SO <sub>4</sub> )	mg/L	195	237	303	275	175	216
26	Fluoride (as F)	mg/L	4.33	5.59	5.75	6.43	3.62	3.3
27	Phosphate (as P)	mg/L	0.21	0.14	0.18	0.26	0.34	0.33
28	Nitrate (as NO <sub>3</sub> )	mg/L	9.17	9.89	4.09	4.33	5.64	7.64
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32	Arsenic (as As)	mg/L	4	BDL	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L	-	BDL	BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/ 100mL	< 1.8	< 1.8	< 1.8	220.0	49.0	540.0



Doc. No.	CGI	CGPL/FOR/ENV/09				
Issue No.	01	Date	01/04/13			
Rev. No	<b>0</b> 0	Date	-			

#### Half Yearly Ground Water Quality Monitoring Report

#### Borewell No. 10 (Near Ash Pond):

Sr.	Parameters	Unit	Oct, 12	Nov, 12	Dec, 12	Jan, 13	Feb, 13	Mar, 13
No		T.	02.10.12	01.11.12	03.12.12	01.01.13	01.02.13	01.03.13
1	Ground Water Level	Ft (approx)	12.5	12.5	12.5	12.5	12.5	13.5
2	Colour	Hazen Units	3	6	3	2	1	1
3	Turbidity	NTU	7.7	11.6	0.4	3.6	1.7	0.5
4	pH	-	7.61	7.67	7.93	7.82	7.83	7.52
5	Electrical Conductivity (at 25° C)	μmhos /cm	5041	5020	4426	4445	4607	4931
6	Suspended Solids	mg/L	14	16	12	10	8	6
7	Total Dissolved Solids	mg/L	2974	3092	2568	3024	2866	3114
8	BOD (3 days at 27°C)	mg/L	6	14	12	12	6	4
9	COD	mg/L	20	32	38	40	14	13
10	Alkalinity (as CaCO <sub>3</sub> )	mg/L	694	622	643	559	550	535
11	Carbonate (as CaCO <sub>3</sub> )	mg/L	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
12	Total Hardness(as CaCO <sub>3</sub> )	mg/L	312	332	279	306	347	340
13	Calcium (as Ca)	mg/L	58.6	63.1	43.2	59.4	72.5	69
14	Magnesium (as Mg)	mg/L	38.7	41.6	41.3	38.1	40.3	41
15	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
16	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
17	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
18	Iron (as Fe)	mg/L	0.29	0.89	BDL	BDL	0.12	0.84
19	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
20	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium (as Na)	mg/L	967	1036	737	924	958	1013
23	Potassium (as K)	mg/L	4.5	4.3	4.3	4.1	4.45	4.23
24	Chloride (as Cl)	mg/L	864	1102	685	1052	1206	1327
25	Sulphate (as SO <sub>4</sub> )	mg/L	237	263	260	220	149	185
26	Fluoride (as F)	mg/L	2.89	3.25	4.48	4.29	3.48	2.84
27	Phosphate (as P)	mg/L	1.58	1.12	0.62	1.19	1.2	1.09
28	Nitrate (as NO <sub>3</sub> )	mg/L	9.73	10.4	6.79	7.94	7.83	9.57
29	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
30	Phenolic Compounds (As C <sub>6</sub> H <sub>5</sub> OH)	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
31	Oil and Grease	mg/L	BDL	BDL	BDL	BDL	BDL	BDL
32	Arsenic (as As)	mg/L	-	-	BDL	BDL	BDL	BDL
33	Mercury (as Hg)	mg/L	-	-	BDL	BDL	BDL	BDL
34	Total Coliforms	MPN Index/1 00mL	< 1.8	< 1.8	< 1.8	24.0	<1.8	<1.8

# ANNEXURE 3 Green Belt Development Report



Doc. No.	CGI	CGPL/FOR/ENV/10				
Issue No.	01	Date	01/04/13			
Rev. No	00	Date	-			

#### **Green Belt Development Report**

Total Area Covered

: 116.70 ha

**Total Plants Planted** 

: 233,445 Nos.

**Total Plants Survived** 

: 204,771 Nos.

#### Species wise details:

			Plants planted	Plants survived	Survival Rate	
Sr. No.	<b>Botanical Name</b>	Local Name	Nos.	Nos.	%	
1	Dalbergia Sissoo	Shisham	8511	6038	70.94	
2	Calaspermaum Mopen	Mopen	4225	2552	60.40	
3	Acacia Nelotica	Babool	11276	11276	100.00	
4	Casuarina Equisetifolia	Saru	32818	32543	99.16	
5	Ziziphus Mauritiana	Ber	2600	2470	95.00	
6	Salvadora Percia	Piloo	1800	1711	95.06	
7	Prosopis Cineraria	Khejdi	850	819	96.35	
8	Azadirachta Indica	Neem	40345	39896	98.89	
9	Pithecellobium Dulce	Mithi Imli	3405	3256	95.62	
10	Delonix Regia	Gulmohar	2042	2042	100.00	
11	Albizia Lebbeck	Shirish	765	765	100.00	
12	Phyllanthus Emblica	Amla	300	294	98.00	
13	Terminalia Catappa	Badam	215	209	97.21	
14	Pongamia Pinnata	Karanj	1538	1500	97.53	
15	Phoenix Dactyifera	Khajur(Dates)	453	422	93.16	
16	Mangifera Indica	Mango	1500	700	46.67	
17	Acacia Farnesiana	Acacia Fernesiana	900	800	88.89	
18	Acacia Leucophloea	Harmobaval	900	848	94.22	
19	Ailanthus Excelsa	Arduso	402	400	99.50	
20	Ficus Carica	Anjir	5	5	100.00	
21	Phyllanthus Acidus	Arfa Revdi	22	22	100.00	
22	Terminalia Arjuna	Arjun Sadad	147	140	95.24	
23	Saraca Ashoka	Asopalav	25	21	84.00	
24	Cassia Ariculata	Aval	770	516	67.01	
25	Manilkara Zapota	Chikoo	50	46	92.00	
26	Punica Granatum	Dadam	200	190	95.00	
27	Commiphora Mukul	Gugal	620	550	88.71	
28	Psidium Guajava	Jamfal	100	86	86.00	
29	Ceiba Pentandra	Kapok(Shimlo)	141	118	83.69	



Doc. No.	CGI	CGPL/FOR/ENV/10					
Issue No.	01	Date	01/04/13				
Rev. No	00	Date	-				

#### **Green Belt Development Report**

			Plants planted	Plants survived	Surviva Rate	
Sr. No.	<b>Botanical Name</b>	Local Name	Nos.	Nos.	%	
30	Nerium Indicum	Karen	2090	2067	98.90	
31	Casia Siamiea	Kashid	300	274	91.33	
32	Tamarindus Indica	Khiti Amli	50	49	98.00	
33	Citrus Limon	Limbu	10	8	80.00	
34	Cocus Nucifera	Nariyel	100	50	50.00	
35	Thespesia Populnea	Paras Pipla	500	470	94.00	
36	Peltoforum	Peltoforum	11648	11555	99.20	
37	Ficus Religiosa	Pipal	200	190	95.00	
38	Parkinsonia Aculata	Rambaval	80	73	91.25	
39	Tecoma Stans	Tecoma	305	287	94.10	
40	Ceasalpinia Pulcherima	Galtoro	4457	1450	32.53	
41	Grevillea Robusta	Silver Oak	2	2	100.00	
42	Pterocarpus Santalinus	Red Sandal Wood	2	1	50.00	
43	Syzygium Cumini	Jamun	2	2	100.00	
44	Plumeria Alba	Champa	. 1	1	100.00	
45	Clerodendron Ermie		60000	55000	91.67	
46	Nerium Pink & White		6900	2500	36.23	
47	Nerium Dwarf		5700	5000	87.72	
48	Bougainvillea		8750	4860	55.54	
49	Ficus Blacky	t	2320	1000	43.10	
50	Albezia Procera	Safed Siris	500	483	96.60	
51	Samanea Saman	Rain Tree	92	90	97.83	
52	Assia Javanica		180	156	86.67	
53	Thivetia Peruviana	Bitti	4368	1400	32.05	
54	Alstonioa Scholaris		800	566	70.75	
55	Acacia Mangium		5163	5102	98.82	
56	Thumbergia Grandiflora		500	500	100.00	
57	Quisqualis Indica	(	500	500	100.00	
58	Adenocalymma Alliaceum		500	500	100.00	
59	Ipomea Morning Glory		500	400	80.00	

# ANNEXURE 4 Noise Level Monitoring Report



Doc. No.	CGI	CGPL/FOR/ENV/11				
Issue No.	01	Date	01/04/13			
Rev. No	<b>0</b> 0	Date	-			

#### **Noise Level Monitoring Report**

Date	Time	Unit	Project Site Near CGPL Hostel	Project site Near STP Gate	Project Site Near Intake Channel	Project Site Near Main Gate
00 10 10	Day	dB(A)	59.0	64.7	60.4	67.4
09.10.12	Night	dB(A)	50.9	56.8	53.3	58.0
00 11 10	Day	dB(A)	56.8	64.2	59.0	65.2
09.11.12	Night	dB(A)	50.3	56.5	53.0	57.2
14 10 10	Day	dB(A)	56.0	63.6	58.7	66.1
14.12.12	Night	dB(A)	50.0	55.0	51.3	56.2
15 01 10	Day	dB(A)	56.2	65.2	58.4	67.6
15.01.13	Night	dB(A)	50.1	54.1	51.1	55.2
15.00.10	Day	dB(A)	56.7	63.8	58.3	64.9
15.02.13	Night	dB(A)	51.4	56.1	52.7	57.5
15.00.10	Day	dB(A)	57.0	63.0	59.1	63.9
15.03.13	Night	dB(A)	52.2	54.7	53.8	55.1

# ANNEXURE 5 Ambient Air Quality Monitoring Report



Doc. No.	CGI	PL/FOR	Z/ENV/12
Issue No.	01	Date	01/04/13
Rev. No	00	Date	-

#### **Ambient Air Quality Monitoring Report**

#### Table 1:

Location:	Proj	ect Site, N	r. CGPL I	<b>Iostel</b>	Project Site, Nr. Labour Colony			
Date of Sampling	SO <sub>2</sub>	NOx	$PM_{10}$	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Date of Samping	μg/m <sup>3</sup>	μg/m <sup>3</sup>	μg/m <sup>3</sup>	μg/m³	μg/m <sup>3</sup>	μg/m³	μg/m <sup>3</sup>	μg/m³
21.09.12	6.6	7.9	87.8	31.4	7.2	9.4	83.5	29.5
24.09.12	7.4	8.8	75.3	21.8	7.5	9.8	88.5	31.6
26.09.12	6.9	8.7	91.6	25.8	7.7	9.6	94.6	28.7
28.09.12	5.5	7.3	89.3	27.3	6.9	9.2	77.9	23.6
01.10.12	6.7	7.4	94.2	29.1	7.3	8.9	90.2	25.4
03.10.12	7.2	9.3	117.0	30.7	7.9	9.6	103.0	39.7
05.10.12	7.9	9.8	111.0	22.5	8.3	10.2	115.0	31.2
08.10.12	8.1	9.9	106.0	41.2	7.6	9.9	89.4	30.2
10.10.12	6.9	7.9	115.0	35.8	7.5	9.6	118.0	37.3
12.10.12	7.1	9.4	98.3	29.4	7.7	9.8	113.0	39.9
15.10.12	6.7	8.4	103.0	40.3	7.9	9.7	112.0	40.1
17.10.12	7.4	9.6	118.0	46.5	8.6	10.5	84.7	25.0
19.10.12	8.1	9.5	69.2	21.3	8.4	10.3	98.5	32.4
22.10.12	6.3	7.5	119.0	33.6	6.9	9.2	132.0	40.3
24.10.12	6.8	7.8	102.0	30.6	7.7	9.8	138.0	43.4
26.10.12	7.7	8.9	77.3	30.2	7.9	9.7	140.0	43.7
29.10.12	6.5	8.1	128.0	35.8	8.4	10.3	118.0	33.3
31.10.12	7.3	8.8	119.0	38.6	8.6	10.5	129.0	38.1
02.11.12	7.6	9.2	136.0	48.3	8.3	10.2	142.0	42.3
05.11.12	8.1	9.7	127.0	46.3	7.5	9.6	136.0	42.6
07.11.12	8.4	10.3	120.0	38.6	7.6	9.9	102.0	30.1
09.11.12	7.9	9.4	89.8	31.7	7.9	9.6	74.9	29.5
12.11.12	7.6	9.1	95.7	37.7	7.7	9.6	112.0	32.9
14.11.12	7.3	8.7	131.0	48.1	7.5	9.8	107.0	31.9
16.11.12	8.3	9.9	109.0	40.8	7.3	8.9	67.7	25.1
19.11.12	8.1	9.7	114.0	41.2	8.2	9.6	149.0	47.6
21.11.12	8.3	9.9	116.0	49.2	7.4	9.4	72.9	34.5
23.11.12	8.1	9.7	122.0	50.1	7.9	9.9	115.0	50.3
26.11.12	7.9	9.4	86.6	47.1	8.6	10.2	109.0	37.6
28.11.12	7.6	9.1	108.0	50.2	7.6	9.6	88.2	39.9
30.11.12	8.1	9.7	111.0	44.7	7.9	9.9	95.6	36.5
03.12.12	8.4	10.3	86.7	29.9	8.1	9.7	97.2	49.7
05.12.12	6.8	7.8	107.0	32.5	7.5	9.8	142.0	38.9
07.12.12	7.7	8.9	76.9	24.5	7.3	8.9	119.0	54.6
10.12.12	7.3	8.8	119.0	37.2	7.9	9.7	85.6	35.6
12.12.12	7.6	9.2	103.0	42.5	8.4	10.3	116.0	56.3
14.12.12	7.3	8.7	97.6	48.7	8.6	10.5	87.7	39.2
17.12.12	6.5	8.1	93.7	39.9	8.3	10.2	94.8	40.2
19.12.12	6.3	7.5	92.3	37.6	8.2	9.6	95.5	43.7
21.12.12	7.8	9.3	86.8	39.8	8.2	9.6	85.4	39.8



Doc. No.	CGI	CGPL/FOR/ENV/12				
Issue No.	01	Date	01/04/13			
Rev. No	00	Date	-			

#### **Ambient Air Quality Monitoring Report**

Location:	Proj	ect Site, N	r. CGPL I	Iostel	Project Site, Nr. Labour Colony			
T	SO <sub>2</sub>	NOx	$PM_{10}$	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Date of Sampling	μg/m <sup>3</sup>	μg/m <sup>3</sup>	μg/m <sup>3</sup>	$\mu g/m^3$				
24.12.12	8.3	9.9	108.0	32.7	7.5	9.4	94.3	32.7
26.12.12	8.2	9.6	91.4	39.9	7.9	9.7	107.0	35.5
28.12.12	7.2	8.5	93.9	37.8	7.4	9.4	102.0	41.1
31.12.12	8.4	10.1	104.0	39.0	7.7	9.2	119.0	45.5
02.01.13	6.3	7.5	116.0	45.4	8.6	10.2	81.9	34.9
04.01.13	7.3	8.7	108.0	42.3	7.6	9.6	112.0	41.3
07.01.13	6.5	8.1	83.5	31.7	7.3	8.9	94.7	39.9
09.01.13	7.3	8.8	103.0	32.9	8.1	9.7	84.3	36.8
11.01.13	7.6	9.2	93.2	32.2	8.4	10.3	93.6	35.9
14.01.13	8.4	10.3	84.6	37.9	7.5	9.8	113.0	33.5
16.01.13	6.8	7.8	103.0	34.4	8.6	10.5	108.0	42.7
18.01.13	7.7	8.9	95.6	49.8	8.3	10.2	94.4	39.0
21.01.13	6.8	8.4	102.0	41.3	7.1	9.1	107.0	42.4
23.01.13	7.1	9.3	109.0	49.6	7.3	9.3	99.0	45.1
25.01.13	7.4	9.4	94.7	32.9	7.5	9.5	96.0	42.1
28.01.13	7.9	8.6	102.0	49.8	6.4	8.8	105.0	46.3
30.01.13	8.3	10.4	93.5	34.9	6.7	8.9	94.0	42.4
01.02.13	6.5	8.3	99.0	45.0	8.9	10.1	106.0	47.5
04.02.13	7.4	8.4	101.0	48.8	6.6	8.6	101.0	41.3
06.02.13	6.5	8.2	93.7	25.7	6.3	8.5	94.0	39.8
08.02.13	6.9	8.3	99.0	41.1	8.5	10.3	97.9	37.7
11.02.13	7.9	8.8	92.5	24.3	7.4	9.6	93.2	29.9
13.02.13	8.1	9.8	98.0	36.0	7.9	9.9	96.3	33.9
15.02.13	6.5	8.2	93.0	33.2	7.6	9.6	91.3	31.8
18.02.13	7.9	8.7	94.0	39.8	6.8	8.7	102.0	41.3
20.02.13	6.1	8.1	95:0	34.9	6.4	8.3	99.0	38.0
22.02.13	6.5	8.0	93.0	32.3	6.9	8.8	95.3	31.1
25.02.13	6.9	8.2	99.0	34.5	7.1	8.9	91.1	29.8
27.02.13	7.1	8.8	95.8	36.9	7.3	9.1	98.2	36.5
01.03.13	6.7	8.1	104.0	37.8	6.2	8.5	94.6	26.9
04.03.13	6.3	7.9	98.7	33.1	6.5	8.2	103.0	38.6
06.03.13	6.6	8.5	97.2	35.7	6.8	8.5	104.0	39.6
08.03.13	7.2	8.9	104.0	39.0	6.6	8.6	105.0	36.9
11.03. 13	6.5	8.1	96.4	37.9	6.2	8.4	90.1	27.8
13.03.13	6.9	8.3	93.8	34.5	7.5	9.4	104.0	37.5
15.03.13	7.3	8.4	101.0	39.7	7.4	9.3	93.2	33.4
18.03.13	7.1	8.8	103.0	38.9	6.9	8.9	104.0	41.1
20.03.13	6.7	8.2	93.3	33.2	7.6	9.2	101.0	31.8



Doc. No.	CGI	PL/FOR	<b>!/ENV/12</b>
Issue No.	01	Date	01/04/13
Rev. No	<b>0</b> 0	Date	-

#### **Ambient Air Quality Monitoring Report**

#### Table 2:

Table 2:						120						
Date of		I a u a				Project						
Sampling	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	NH <sub>3</sub>	O <sub>3</sub>	CO	$C_6H_6$	BaP	Pb	As 3	Ni 3
•	μg/m <sup>3</sup>	ng/m³	μg/m <sup>3</sup>	ng/m³	ng/m³							
21.09.12	82.7	23.5	7.2	9.4	BDL	RDL	1260	BDL	BDL	BDL	BDL	BDL
24.09.12	75.4	21.7	6.9	8.6	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
26.09.12	89.4	29.2	7.4	9.6	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
28.09.12	88.6	29.5	6.5	8.4	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
01.10.12	94.3	20.3	8.2	9.7	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
03.10.12	111.0	40.4	7.6	9.2	BDL	BDL	802	BDL	BDL	BDL	BDL	BDL
05.10.12	91.4	27.7	8.9	10.6	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
08.10.12	115.0	47.3	7.4	9.6	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
10.10.12	92.8	32.2	7.7	9.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
12.10.12	97.5	36.7	8.1	10.4	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
15.10.12	113.0	42.8	8.3	10.3	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
17.10.12	116.0	48.9	7.8	9.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
19.10.12	101.0	47.8	8.5	10.5	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
22.10.12	133.0	41.7	7.6	9.3	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
24.10.12	76.8	28.7	8.9	10.4	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
26.10.12	112.0	27.4	8.2	9.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
29.10.12	116.0	34.8	7.4	9.7	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
31.10.12	142.0	45.3	8.1	10.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
02.11.12	148.0	46.1	8.3	10.4	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
05.11.12	139.0	42.3	7.7	9.6	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
07.11.12	126.0	39.7	7.8	9.7	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
09.11.12	115.0	34.6	8.5	10.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
12.11.12	127.0	38.9	7.3	8.5	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
14.11.12	109.0	33.7	7.8	9.8	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
16.11.12	104.0	36.5	7.9	9.9	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
19.11.12	86.4	30.3	8.3	9.2	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
21.11.12	118.0	53.8	7.9	9.9	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
23.11.12	89.2	43.5	8.3	9.2	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
26.11.12	109.0	51.9	8.2	9.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
28.11.12	142.0	54.9	8.9	10.4	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
30.11.12	154.0	48.9	8.1	10.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
03.12.12	146.0	41.0	8.3	10.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
05.12.12	144.0	41.3	7.7	9.6	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
07.12.12	163.0	57.3	7.8	9.7	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
10.12.12	108.0	36.8	7.6	9.3	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
12.12.12	74.8	40.1	7.3	8.5	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
14.12.12	116.0	45.9	7.8	9.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
17.12.12	149.0	41.2	7.4	9.7	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
19.12.12	137.0	45.7	8.5	10.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
21.12.12	115.0	33.4	8.1	10.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL



Doc. No.	CGPL/FOR/ENV/12				
Issue No.	01	Date	01/04/13		
Rev. No	00	Date	-		

#### **Ambient Air Quality Monitoring Report**

D. C				L	ocation:	Project	Site, Nr	. Site Of	fice			
Date of	$PM_{10}$	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	NH <sub>2</sub>	O <sub>3</sub>	CO	CeHe	BaP	Pb	As	Ni
Sampling	μg/m <sup>3</sup>	PM <sub>2.5</sub> μg/m <sup>3</sup>	μg/m³	μg/m <sup>3</sup>	ng/m <sup>3</sup>	μg/m³	ng/m³	ng/m <sup>3</sup>				
24.12.12	145.0	36.0	7.7	9.6	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
26.12.12	148.0	38.8	8.3	10.4	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
28.12.12	99.6	23.9	7.9	9.9	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
31.12.12	139.0	37.8	8.9	10.4	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
02.01.13	142.0	38.0	8.5	10.2	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
04.01.13	95.0	20.1	8.2	9.8	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
07.01.13	133.0	45.0	7.8	9.6	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
09.01.13	130.0	43.3	8.3	9.2	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
11.01.13	123.0	41.0	7.6	9.3	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
14.01.13	109.0	42.3	7.8	9.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
16.01.13	99.4	36.8	7.4	9.7	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
18.01.13	95.7	25.7	7.3	8.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
21.01.13	109.0	40.1	8.2	10.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
23.01.13	96.0	43.0	7.9	9.9	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
25.01.13	91.0	37.2	8.1	9.8	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
28.01.13	103.0	35.4	8.3	10.5	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
30.01.13	99.0	40.1	7.8	9.7	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
01.02.13	105.0	36.5	8.8	10.7	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
04.02.13	99.4	34.5	8.4	10.3	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
06.02.13	112.0	40.9	7.9	9.7	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
08.02.13	99.0	42.6	8.1	9.9	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
11.02.13	104.0	44.5	7.2	8.7	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
13.02.13	94.0	35.5	8.2	9.9	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
15.02.13	98.0	39.9	7.7	9.5	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
18.02.13	92.0	34.9	7.6	9.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
20.02.13	94.0	41.1	8.4	10.1	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
22.02.13	108.0	40.1	7.8	9.7	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
25.02.13	103.0	43.1	7.7	9.9	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
27.02.13	102.0	37.5	8.1	9.8	BDL	BDL	1031	BDL	BDL	BDL	BDL	BDL
01.03.13	93.3	35.3	7.6	9.3	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
04.03.13	104.0	40.6	7.2	9.1	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
06.03.13	95.3	36.2	8.2	9.7	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
08.03.13	91.6	34.2	8.4	10.1	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
11.03.13	103.0	40.1	7.7	9.5	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
13.03.13	104.0	42.3	7.3	9.1	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL
15.03.13	103.0	41.1	6.8	8.3	BDL	BDL	916	BDL	BDL	BDL	BDL	BDL
18.03.13	94.3	34.9	7.2	9.4	BDL	BDL	1260	BDL	BDL	BDL	BDL	BDL
20.03.13	98.3	39.9	7.5	9.7	BDL	BDL	1145	BDL	BDL	BDL	BDL	BDL

# ANNEXURE 6 Environment Expenditure Report



Doc. No.	CGPL/FOR/ENV/06				
Issue No.	01	Date	01/11/12		
Rev. No	<b>0</b> 0	Date	-		

#### **Environment Expenditure Report**

#### A. Project Budget (Indian Items)

Sr. No.	Activity/ Category	Budget (INR)	Expenditure (INR)
1	Effluent Treatment Plant	35,887,682.02	35,887,682.02
2	Sewage Treatment Plant	15,323,325.81	14,695,175.05
3	Ash Pond	371,987,937.00	341,936,902.00
4	CW channel	3,999,397,747.00	3,762,701,559.63
5	Dust Extraction and Dust Suppression in Coal Handling	60,253,690.00	60,253,690.00
6	Chimney	927,361,736.91	837,091,097.00
7	Closed Conveyor for coal transportation	2,126,377,934.17	2,107,112,063.23
8	Continuous Ambient Air Monitoring Station	5,347,018.00	5,347,018.00
9	Continuous Emission Monitoring System	3,309,900.00	3,369,000.00
10	Mangrove Plantation	23,900,000.00	22,466,000.00
11	Wind Barrier	19,610,117.57	18,521,243.55
12	Accoustic Enclosures in TG and Steam Blow Silencers	18,634,640.00	10,050,475.00
	Total	7,607,391,728.48	7,219,431,905.48

#### B. Project Budget (Foreign Items)

Sr. No.	Activity/ Category	Budget (USD)	Expenditure (USD)
13	Electro Static Precipitator	79,558,978.00	79,558,978.00
14	Low NOx Burner (Cost in USD)	12,629,143.00	12,629,143.00
	Total	92,188,121.00	92,188,121.00



	Doc. No.	CGPL/FOR/ENV/06				
	Issue No.	01	Date	01/11/12		
	Rev. No	<b>0</b> 0	Date			

#### **Environment Expenditure Report**

#### C. Expenditure for Environmental Protection Activities during FY 2012-13

Sr. No.	Activity/ Category	Condition Reference	2012-13	Remarks
1	Environment Consultancy	Environment Protection Act- 1986	1,117,700.00	
2	Consent Fees	Water Act, 1974 and Air Act, 1981	411,000.00	
3	Environment Monitoring	EC condition No. xix and xxv, CTE annexure I condition no. 24, 26 & 28	8,446,385.76	
4	Biodiversity Mapping	CTE general condition no. 22	332,885.00	
5	Mangrove Plantation	EC condition No. xxi CRZ amendment specific condition no.9	5,497,000.00	
6	Solid Waste Management	CTO general condition no. 6.10	14,072,617.24	
7	Continuous Ambient Air Quality Monitoring Station	EC condition no. xxv	1,023,392.08	
8	Green Belt Development	EC condition no. xx & CTE general condition no. 1	14,424,857.81	
9	ISO Management	CTE general condition no. 21	-	
10	Water Cess	CTE general condition no. 2	126,081,443.30	Tentative as assessment order is awaited from GPCB
11	Environment Monitoring Equipment	-	489,060.00	
12	O&M of Sewage Treatment Plant	CTE condition No. 2(b) under Water Act, 1974	2,932,936.76	*
13	Treatment and Disposal of Bio medical waste	Bio Medical Waste Rules, 1998	57,971.30	N .
	70	Total	174,829,277.95	

EC – Environment Clearance CTO – Consent to operate CTE – Consent to Establish CRZ – Coastal Regulation Zone

# ANNEXURE 7 Community Welfare Expenditure Report



Doc. No.	CGPL/FOR/ENV/04				
Issue No.	01	Date	01/11/12		
Rev. No	<b>0</b> 0	Date	01/04/13		

#### **Community Welfare Expenditure Report**

Sr. No.	Focus Area	Sub Activities	Details	Expenditure incurred (Rs)
1		English Language/Speaking classes	67 children of Tunda village were beneficiaries	96,000
2	Education	Distribution of School Kit	850 children of 45 school of Mandvi and Mundra block were beneficiaries	102,054
3		Education Flagship Program	6000+ children of Mandvi & Mundra block (total village cover 165) with pratham organization under Shiksha Saarthi Project	612,019
4	Employability/	Facilitate Tunda Vandh and Mota Kandagara trusts for procurement and distribution of fodder	3600 cattle and 412 beneficiaries of Tunda and Mota Kandagara Gaushala Charitable Trust	44,400,220
5	Income Generation/ Livelihood	Bio Gas Demonstration (Convergence with Gujarat Green Revolution Mission)	6 persons from 3 villages are beneficiaries	12,800
6	Healthcare (Health services and Safe Drinking water)	General Health camps	14 camps in 7 surrounding villages	120,000
7		Construction of Gaushala in village Mota Kandagara		2,260,000
8		Construction of Gaushala in village Tunda	(-) ×	583,302
9		Soil Testing of Gaushala	=	8,988
10		Concrete road in Village Vandh	- /	999,774
11	Civic	Construction of Gaushala with Hunnarshala, integration with sustainability plan		23,000
12	Infrastructure	Installation of small weighbridge at Gaushala		388,000
13		Construction of bifurcation wall at Tunda Gaushala	-	198,000
14		Boundary Wall at Gaushala Tunda	-	411,000
15		Boundary wall at Mota Kandagara Gaushala	-	662,989
16		Village road at Modhva	-	119,892
17		Finishing work of Cricket Ground at Tunda		421,685



Doc. No.	CGI	CGPL/FOR/ENV/04				
Issue No.	01	Date	01/11/12			
Rev. No	00	Date	01/04/13			

#### **Community Welfare Expenditure Report**

Sr. No.	Focus Area	Sub Activities	Details	Expenditure incurred (Rs)
18		Area Grading of Gaushala at Tunda	-	936,000
19		Jungle Cutting at River area Kandagara	-	370,000
20		GSB Road at Vandh		700,000
21		Salary and other expenditure for Gaushala	Employment to 12 locals have been given	942,000
22		Rann Utsav	-	4,000,000
23		Samvad Documentation		535,500
24	Miscellaneous	Sponsorship	-	100,000
25	-	Kutch Carnival	***	355,979
26		Administration Expenses Tunda & Kandagara Trust	-	89,545
27		Administration Expenses TPCDT	-	1,490,464
28	Capacity Building	Sagar Bandhu Project AKRSPI	Holistic development of fisher folk community at Modhva	262,706
29		International Women Day celebration	More than 300 women participated	90,615
30		Strengthening of Community Institutions	Formation and strengthening of VDAC, DWC,SHG	538,101
31	Basic Survey/	CSI study including CR effectiveness Index, Social Audit	Social Audit by Mahatma Gandhi Labour Institute, Govt. of Gujarat	903,250
32	Study	GIS Mapping and GRC Flow	Data compilation through Software Development for PAP and Villages	404,810
33	Water	Supply of Drinking water Support at	Tragadi Bunder and Village Tragadi	1,226,104
34		Drainage Line at Village Motakandagara	600 people were beneficiaries	2,257,886
35		Wind Mill at Modhva village	-	150,000
36		Well Deepening	4 wells at Modhva village	750,000
37	1	Pond Deepening	Village pond at Gundiyali	1,124,406
38	1	Installation of RO Plant	8 RO plants is being installed in	



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#### **Community Welfare Expenditure Report**

Sr. No.	Focus Area	Sub Activities	Details	Expenditure incurred (Rs)
		6	Villages Gundiyali, Pipri, Tragadi, Nanabhadiya, Nani Khakhar, Bhadreshwar, Vandh and Bidada	3,670,594
39		Distributions of Fishing net Modhva Village	More than 400 fishermen were beneficiaries	5,985,403
40		Providing Fishing Equipments at Modhva Village	350 fisher women were beneficiaries	3,699,500
41	(3)	Mota Bhadiya Road	± -	706,795
42		Annual Function of Kalaraksha Niketan	- 12	362,000
43		Rehabilitation Compensation	Provided to Tragadi Fishermen	6,800,000
44		Rural Electrification	65 boats group were beneficiaries	630,000
45	Other	Hybrid Solar System	Boat Lighting system	535,000
46		Solar Street Lights	- V	90,000
47		Sanitation Expense	8	198,000
48		Teachers training	-	5,12
49		Computer Learning Centre	Project Sujaan	399,819
50		Project Utkarsh	±, "	2,083,486
51	Expenditure in ongoing projects of FY	Construction of CC Road		706,79
52		Cricket Ground	-	1,587,18
53	11-12	Bull Room	-	24,290
54		Jalamani Programme	RO Service/Maintenance	80,748
			Total Expenditure for FY 12-13	96,211,841