HALF YEARLY STATUS REPORT TO THE CONDITIONS OF ENVIRONMENT CLEARANCE (2x210 MW COAL BASED THERMAL POWER PLANT) (UNIT 1 &2)

ODISHA POWER GENERATION CORPORATION LIMITED
BANHARPALI, JHARSUGUDA, ODISHA

OPGC
Power for Progress

SUBMITTED TO

MINISTRY OF ENVIRONMENT FORESTS & CLIMATE CHANGE
EASTERN REGIONAL OFFICE, BHUBANESWAR-751023

ODISHA POWER GENERATION CORPORATION LTD.
(A Government Company of the State of Odisha)
CIN: U401040R1984SG001429

Ib Thermal Power Station
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Plant Manager : (+916645) 289266, Fax: (+916645) 222-230
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OPGC
Power For Progress

Letter No. ITPS/ 3168 /WE
May 23, 2017

The Additional Director (S)
Ministry of Environment Forests & Climate Change
Eastern Regional Office
A/3, Chandrasekharpur,
Bhubaneswar – 751023

Sub.: **Half yearly Environmental Status Report of Odisha Power Generation Corporation (2X210 MW ITPS), Banharpali, Dist: Jharsuguda for the period from October 2016- March-2017.**

Ref.: **ITPS Environmental Clearance No.14/13/83-EM-2, dated 27.09.1984**

Dear Sir,

This has reference to the above subject and cited reference.

Kindly find enclosed the half yearly Environmental Status report of Odisha Power Generation Corporation (2X210 MW ITPS) for the period from October 2016- March-2017 for your kind perusal.

Thanking you

Sincerely yours,

Alok Mukherjee
Director (Operations)
OPGC Ltd

Enclosures:

1. Annexure-1- EC Compliance status
2. Annexure-2- CREP Compliance status
3. Annexure-3- Ash utilization report
4. Annexure-4- Monitoring report
5. Annexure-5- Green belt & plantation status

ANNEXURE-1

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION (2×210MW)

COMPLIANCE STATUS OF THE ENVIRONMENTAL CONDITIONS

Environment Clearance No. 14/13/83-EM-2, dated 27.09.1984

Period-October 2016 - March2017

Sl. No.	Environmental Clearance Conditions	Compliance Status
1.	**AIR POLLUTION**	
I.	A common stack height not less than 200 meters should be provided for two units of 210 MW. Similarly for other two units a common chimney of 200 meters height should be provided.	A bi flue common stack of height 220 meters has been provided for U#1&2 of 210 MW each. Other two units, i.e. U#3&4 of capacity 660 MW each are under construction with twin flue common stack of height 275 meters.
II.	ESP of having operational efficiency of not less than 99.7% should be provided and extra fields made part of the design. The efficiency of ESPs should be monitored and recorded. Adequate training should be given to the persons engaged in the operations and maintenance of ESPs.	ESP of operational efficiency 99.82%(designed value)has been provided for both of the units ESP internals both for unit #1 & unit #2 has been repaired during annual overhauling every year. Routine maintenance practice has been followed for ensuring healthiness of ESP to ensure the efficiency >99.7%. Stack monitoring is being carried out on weekly basis to ensure ESP output efficiency. ESP retrofitting job for both the units had been taken up to achieve revised particulate emission norm of 100 mg/m^3. The retrofitting job for both the units has been completed by adding ESP parallel paths. The OEM, M/S BHEL has been working now for ESPs optimization and resolving technical problems. BHEL is going to conduct PG test of both the Unit's ESPs during October-November 2017 after resolving few technical problems during upcoming annual overhauling of both the units.
III.	Emission and ambient air quality monitoring should be done after the commissioning of the units and data recorded and should not exceed the standards set by the Central and State Pollution Control Boards.	Stack emission monitoring has been taken up through two nos. of online continuous emission monitoring system (CEMS) for parameters PM, SO_2, NO_x & CO for taking corrective action so as to keep parameters within prescribed limit. The CEMS are connected to SPCB & CPCB server for transferring emission data on real time basis. Offline test is also being conducted through grab sampling by calibrated stack monitoring kit & Flue gas analyzer. These results are being recorded and reported. For air quality monitoring, five permanent ambient air-monitoring stations are installed in & around ITPS out of which 03 no stations are placed in industrial zone & 02 no in Residential zone.

		Ambient air monitoring is being performed on regular basis for parameters PM_{10}, $PM_{2.5}$, SO_2, NOx & noise. Besides, four online ambient air quality monitoring stations are installed out of which two are stationed inside plant & other two are stationed in residential area to monitor $PM_{2.5}$, PM_{10}, SO_2, & NOx on continuous basis. Real time data transmission to the OSPCB & CPCB servers from these online ambient air quality monitoring station has been established. Monitoring reports are being sent to SPCB & CPCB on every month. Half yearly monitoring reports are being sent regularly to MoEF & CC, Govt. of India, Eastern Regional Office. Maximum, Minimum and Average Emission data for the period October 2016 to March 2017 is enclosed as **Annexure-IV.**
IV.	Adequate space for FGD plant should be part of the design so that they could be installed if required at a later stage.	Adequate space provision has been kept for installation of FGD in later stage as per requirement.
V.	Dust suppression / control equipment should be installed in wagon tippling area, transfer points, crushers etc.	In coal handling plant there are 14 nos. cyclone type dust extractors and 04 nos. dust suppression systems, 11 nos. ventilation systems to control air pollution during handling of coal. These systems have been working satisfactorily. Arresting of dust leakage points, restricting spillage of coal and floor washing are some of the measures being taken up in plant area to minimize work zone dust concentration. Pre-sprinkling & sprinkling system has been installed in track hopper area. As a work zone emission improvement step, OPGC has started installing dry fog system in transfer points in order to bring higher level of fugitive dust control. The system has been observed very effective in controlling fugitive dust and it also additionally brings positive impact on Unit efficiency by reducing moisture in feed coal. The installation and commissioning of this system is expected to be completed by December 2017.
2.	**WATER POLLUTION**	
i.	Closed cooling system for condensers should be provided instead of once-through cooling system as proposed.	The process has been designed and operated with the closed cooling system.
ii.	Liquid effluents emanating from the different plants such as DM plant, Boiler blow down, Ash pond/dyke sewage etc. should be properly treated as per the standards stipulated by the State Pollution Control Board.	The plant has been reusing its liquid effluents in its different process after necessary treatment since 28.06.2008. This is in compliance to SPCB's consent condition to reuse all liquid effluents. The details of reuse processes are-

		▪ Domestic sewage of plant has been discharged to soak pits after treatment in septic tanks. Domestic sewage of colony and hospital has been treated in STP and treated effluent is being reused for watering the Green belt and Park at ITPS. ▪ No effluent from ash pond is discharged except seepage. Treated ash water is recycled 100% for reuse as make up water in wet ash handling system after necessary treatment. ▪ CW blow down effluent is being reused as make up water in wet ash handling system. ▪ Boiler and turbine effluents are being reuse as ash handling make up after necessary treatment. ▪ DM plant regeneration effluent is being reused as cooling system make up. As per our action plan, earlier discharged CT drift water has been recycled and reused successfully since 1st January 2017. With the above steps and actions, around 99% of the liquid effluent generated from the Plant is being recycled and reused inside plant. Now only, the gravity sand filter back wash water has been discharged after meeting effluent quality norm. As per our submitted action plan, this water will be treated in the upcoming OPGC expansion project in its ETP for complete reuse, which is expected to come under operation by July 2018. In abnormal or emergency situation if any liquid effluent discharge situation arises, then it will be ensured that the effluents are treated properly (neutralization, settling, equalization, natural cooling and oil removal) and prescribed standards are met before discharged.
iii.	Hot water coming from the condenser should be properly cooled so as to ensure to keep the temperature of the receiving surface water as per the standard stipulated by the state Board.	Hot water coming from the condensers is being cooled through cooling tower & reused for condenser cooling in close loop. Cooling water blow down is being reused as make up water in ash slurry discharge system. There has been no hot water discharge coming from the condensers.

3.	**SOLID WASTE MANAGEMENT**	
i.	Fly ash and bottom ash should be collected in the ash dykes/ponds. The supernatants water should not contain suspended matters more than 100ppm. Dry disposal of fly ash should also be planned including the disposal in abandoned mines after mixing with the OB.	Part of fly ash is being collected from Storage Silos in dry form for utilization of the ash in ash bricks/blocks making, asbestos & cement making, road construction, land reclamation etc. Balance quantity of fly ash is being disposed in ash ponds by wet disposal method. As an environment friendly ash disposal means, OPGC also adopted ash disposal in the form of ash mound making and landscaping in its Ash Pond B. Moist ash from operating Ash Pond A, disposed through wet disposal means is transferred to Ash Pond B for the mound making. The ash mounds are then fully capped with soil and grass turfed after thorough compaction. Apart from that, ash is being used for ash dyke height raising. Required stability and safety study of ash dykes is being conducted by IIT, Madras on regular basis. After wet disposal of ash in Ash Pond, treated ash water after control of turbidity & suspended matter is being re-cycled for reuse as make up water in wet ash handling system. Dry disposal of ash in nearest void mine is the most viable & appropriate means of ash disposal for OPGC being a Pit head power plant. OPGC is in continuous follow up with MCL for getting a mine void for dry disposal/utilization of its fly ash since long but unfortunately this has not been happened so far. OPGC seeks support from MoEF & CC in this regard.
ii.	Green belt should be raised on the ash disposal areas filled by fly ash to check the dispersion by fly ash into the air. Additional land (Pvt. Land) should be acquired for compensatory afforestation.	On the dry ash mounds and on ash bunds grass turfing has been maintained for prevention of ash dispersion & to provide additional strength to the bund by minimizing erosion. Further also, grass and weeds grow naturally on the ash disposal area and surfaces are covered fully to prevent ash dispersion. Additionally, water spraying, soil capping & water ponding on dry ash surfaces is being ensured to prevent ash dispersion. Tree plantation on the slope of the dyke has been restricted by State Pollution Control Board due to the risk involved to the dyke in form of tree root channeling effect leading to dyke failure. After getting this advice from OSPCB, the tree planted earlier on the dykes were removed for maintaining the safety of the ash dykes. Compensatory afforestation has been done by OPGC over 260 Ha of non-forest land in Deogarh, Odisha, through forest department, Govt. of Odisha.

iii	Trees plantation work should be taken up all around the Thermal Power Plant. The species to be planted may be decided in consultation with the Forest Department.	Adequate number of trees of different species has been planted all around ITPS. Species are selected by consulting Forest Department. Around 34% of the plant area is now covered with green belt/plantation. Plantation activity is also being taken up every year. **Detail plantation status is enclosed- Annexure-V.**
iv.	Effort should be made to utilize fly ash in bricks, blocks, building materials etc.	OPGC is having its own fly ash brick plants (capacity-15000 bricks/day) for manufacturing of fly ash bricks. Apart from that OPGC has been providing fly ash free of cost to brick plants whoever shows interest to use in manufacturing of building materials. Besides, OPGC also pays Rs 150/- per MT of ash transport to brick manufacturing units.
V.	A comprehensive re-settlement package of rehabilitation of dispersed families should be made including providing of job to at least one person per family, apart from giving cultivable land for land to those who were possessing the same.	This was already complied earlier as per our status report no ITPS/241/WE/21.01.2001 submitted in MoEF regional office.
vi.	A master plan should be prepared taking into account the requirement of power plant, township, fuel requirement, human settlements, etc. in consultation with District authorities.	It was compiled at the time of the project construction & commissioning stage during the period from the year 1989 to 1995.
vii.	Timber required for the project should be procured through the Forest Corporation and not by private contractor/dealers and the former should not abrogate this responsibility by contracting the supply out and adding its handling charges. If the corporation is not equipped to handle this themselves the project authorities should negotiate the best terms, price and environment-wise with contractors by obtaining bids.	It was compiled at the time of the project construction & commissioning stage during the period from the year 1989 to 1995.

Alok Mukherjee
Director (Operations)
OPGC Ltd.

ANNEXURE-II

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION (2×210MW)

COMPLIANCE STATUS OF CREP GUIDELINES

Period-October 2016 - March2017

Sl. No.	CREP Guidelines	Compliance Status/Steps initiated
1.	Implementation of Environmental standards (emission & effluent) in non compliant power plants.	Not applicable being compliant plant.
2.	For existing thermal power plants a feasibility study shall be carried out by CEA to examine possibility to reduce the particulate matter emissions to 100mg/Nm^3.	No such feasibility study report or guideline so far received from CEA. However, as per stipulation by State Pollution Control Board, Odisha, ESP retrofitting job was taken up to achieve revised particulate emission norm, 100 mg/Nm^3 for both the units. Both the units ESPs retrofitting job has been completed & BHEL is now working to conduct PG test shortly after setting right the technical problems.
3.	New/expansion power projects to be accorded environmental clearance on or after 1.4.2003 shall meet the limit of 100 mg/$Nm^3$for particulate matter.	As per point no. 2, although being an old unit the retrofitting job had been taken up. The condition with particulate matter limit 50mg/$Nm^3$is incorporated in the expansion units (2×660) under construction.
4.	Development of SO_2 and NOx emission standards for coal based plants by Dec.2003	MoEF & CC vide their notification dt. 7th December 2015 has issued SO_2 and NOx emission standards for coal based thermal power plants.
	New /expansion power projects shall meet the limit w.e.f. 1.1.2015	As per MoEF & CC notification dt.7th December 2015, the compliance requirement is w.e.f 07.12.2017.
	Existing power plants shall meet the limit w.e.f.01.01.2006	As per MoEF & CC notification dt. 7th December 2015, the compliance requirement is w.e.f. 07.12.2017.
5.	Install /activate opacity meters/continuous monitoring systems in all the units by December 31,2004 with proper calibration system.	Continuous emission monitoring system has been installed since June 2015. Calibration is done by comparing offline test results tested through calibrated Stack Monitoring kit.
6.	Development of guidelines/standards for mercury and other toxic heavy metal emissions by December 2003	The standard /guideline for mercury emission as per MoEF & CC notification dt. 7th December 2015 don't cover power generation capacity less than 500 MW.
7.	Review of stack height requirement and guidelines for power plants based on micro meteorological data by June 2003.	Compliance by other agency/authority. However, the stack height requirement i.e. 220 meter is fulfilled.
8.	Implementation of use of beneficiated coal as per GOI Notification.	The matter has been taken to coal supplier, Mahanadi Coal Field Ltd. For supply of washed coal.
9.	Power plants will indicate their requirement of abandoned coal mines for ash disposal and Coal India/MOC shall provide the list of abandoned mines by June 2003 to CEA.	The requirement was indicated before MCL but no such abandoned mine allotted to OPGC so far. On continuous pursuance from OPGC and with the support of MoEF& CC, Regional Office, Mahanadi Coal Field (MCL) had given clearance in the month of May 2007 for back

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		filling of OPGC ash in Lilari OCM void from July 2009. Based on that permission, OPGC had taken immediate step for EIA and feasibility study engaging CIMFR, Dhanbad. But in the month of February 2008, the permission was withdrawn unilaterally by MCL on the ground that the anticipated life of Lilari Mine is extended for ten more years. Since then, OPGC is perusing time and again to MCL to provide any other mine void near OPGC site. In a high level meeting with MCL on 9th February 2011, MCL has agreed to give in principle clearance to OPGC for back filling in Belpahar OCM. This has not happened so far. OPGC seeks support from MoEF & CC in this regard.
10.	Power plant will provide dry ash to the users outside the premises on uninterrupted access to the users within 06 months.	Dry fly ash is being provided to the interested users. Availability of adequate quantity of dry ash has been ensured to meet the users demand. OPGC has made 1200 MT/day dry ash collection facility which is about 49% of its total ash generation quantity.
11.	Power plant should provide dry fly ash free of cost to the users.	Complied. It is being provided free of cost. As per OSPCB direction transportation subsidy to the brick manufacturing industry @ Rs.150 per ton has been implemented.
12.	State P.W.Ds/ Construction and development agency shall also adhere to the specification/schedules of C.P.W.D. for ash/ ash based products utilization.	Compliance by other agency/authority.
13.	(i) New plant to be accorded Environmental clearance on or after 01.04.2003 shall adopt dry fly ash extraction or dry disposal system or medium(35 to 40%) ash concentration slurry disposal system or lean phase with 100% ash water recirculation system depending upon site specific environmental situation.	The requirement is incorporated in the design for its expansion project (unit 3 & 4) under construction stage. 100% dry fly ash extraction system and high concentration slurry disposal system with 100% ash water recirculation is envisaged.
	(ii) Existing plant shall adopt any of the systems mentioned in 13(i) by December 2004.	Complied. 40% dry ash collection facility has been provided. 100% ash water is being recirculated for reuse in ash handling.
14.	Fly ash mission shall prepare guide lines/manuals for fly ash utilization by March 2004.	Compliance by other agency/authority.
15.	New plant shall promote adoption of clean coal and clean power generation technologies.	Condition has been considered for expansion project in shape of supercritical technology for its expansion project under construction stage.

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Sitaram Sahu
Head-EHS

Annexure-III

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION (2×210MW)

ASH GENERATION & UTILIZATION STATUS AT ITPS Period: October 2016-March 2017							
Ash generation in MT	ASH UTILIZATION IN MT						
	Captive(ash bricks, blocks)	Land Reclamation	Asbestos	Cenosphere	Outside Ash Brick Plants	NH/SH Road construction	Total Utilization
618713	1048	156917	6570	40.50	15046	108297	287918
% Utilization-46.53%							

Reasons for not meeting the Ash Utilization Target:

1. The plant is remotely located (pit head power plant, located in rural area), there is very limited scope of ash utilization in brick manufacturing. Further also, acceptance for ash brick remains low in spite of taking up several awareness campaign, with our best effort, the utilization in this particular area remains only close to 2%.
2. No scope available in major and most value adding ash utilization area i,e Cement Plant Use. Only one cement plant in the locality i.e. Ultratech Cement Ltd which offtakes entire quantity of ash for cement manufacturing from their sister concern Hindalco Power.
3. Major road construction activities are taking place at far distance. There are other power plants very close to those road construction sites to fulfil the demand. OPGC recently utilized its ash in construction of the nearest Railway fly over (Belpahar, 15 km from Plant) by paying transportation cost of Rs 150/- per tonne. This was one time opportunity.
4. Big stone quarries or low lands are not available in the locality. Limited/ very low scope of ash utilization in quarry filling or low land development.
5. Export of Ash is not feasible since the site is located at a distance of 500 KM from the nearest Port. Transportation from site to nearest port through rail or any other means is not feasible.
6. Ash Utilization in form of back filling in mine void is the most viable and suitable means for OPGC to meet 100% ash utilization being OPGC a Pit Head Power Plant. Even though the industry has been putting its best effort to get allotment of a mine void from the coal supplier Mahanadi Coal Fields Ltd since the year 2000, the allotment has not been happened so far. At this situation, OPGC sincerely request MoEF & CC to intervene on this issue and pursue MCL for the early allotment.

Future Actions for enhancement of ash utilization:

1. Increase ash utilization in ash bricks and other ash based products manufacturing by extending transportation subsidy of Rs 150/- per ton.
2. Special initiative to utilize ash in low lands and stone quarries in the vicinity
3. Utilization of ash in OPGC's expansion project (around 10lakh MT utilization scope in its new ash pond construction)
4. Pursue MCL to get BOCM mine void allotment.

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Sitaram sahu
Head-EHS

ANNEXURE-IV

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION

ENVIRONMENTAL MONITORING REPORTS

Period-October 2016 to March 2017

A. STACK EMISSION

PARAMETER	NORM	STACK 1			NORM	STACK 2		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
SPM(mg/Nm^3)	100	118	87	95	100	96	80	87
SOX (mg/Nm^3)	NA	1522	455	1132	NA	1567	438	1165
NOX (Mg/Nm^3)	NA	426	162	323	NA	406	162	311

B. AMBIENT AIR QUALITY

PARAMETER	NORM	MAX.	MIN.	AVE.
PM_{10} (µg/m^3)	100	94	59	79
$PM_{2.5}$ (µg/m^3)	60	46	24	34
SO_2 (µg/m^3)	80	18	8	12
NO_2 (µg/m^3)	80	34	17	24

C. AMBIENT NOISE LEVEL

	INDUSTRIAL NOISE LEVEL,dB(A)		RESIDENTIAL NOISE LEVEL,dB(A)	
	Day time	Night time	Day time	Night time
NORM	75	70	55	45
Minimum	65	61	38	35
Maximum	72	69	48	42
Average	68	65	44	39

D. LIQUID EFFLUENT QUALITY

PARAMETERS	UNIT	NORM	RESULT	
			MAX.	MIN.
Temp(In)	^{0}C	T(O) - T(I) = <5^{0}C	27.3	22.8
Temp(Out)			31	25.3
pH at 25^{0}C	NA	5.5-9.0	7.83	7.29
Chloride as Cl	PPM	1000 max	44.1	33.4
D.Phos as P	PPM	5.0 max	0.48	0.32
O & G	PPM	10.0 max	1.1	0.5
TSS	PPM	100 max	57	38.5
TDS	PPM	2100 max	305	221
Res chlorine	PPM	1.0 max	0	0
BOD	PPM	30 max	4	3
COD	PPM	250 max	41	28

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Sitaram Sahu
Head-EHS

Annexure- V (A)

IB THERMAL POWER STATION

SUMMERY OF GREEN BELT & PLANTATION, till March 2017

- Total Plantation & colony Area-**1227.5 acres**
- Greenbelt & High Density Trees- **424 acres**
- % Greenbelt & High Density Trees- **34.5**
- Total trees planted- **309524 Nos.**
- Total trees survived-**224824 Nos.**
- % of survival-**72.6**

Plantation & sapling distribution

Year	Planted	Sapling distributed
2012-13	350	2000
2013-14	1300	6000
2014-15	3000	5000
2015-16	700	4480
2016-17	8200	15000

*Compensatory plantation of 260 acres has been done in Deogarh area.

Besides, a nursery of 25000 capacity has been developed

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Sitaram Sahu
Head-EHS

Annexure- V (B)

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION

YEAR WISE TREE PLANTATION DETAILS OF OPGC AT ITPS

Location	Name of Agency	Year	No.of trees planted	Name of the Species	No.of trees alive
Colony,Guest House,Halipad,	Local agencies	1991-92/92-93	12,000	Akashia	9,550
Periphery,Pump House,Filter				Sirish	
House,Stores etc.				Chhatim	
Periphery of Boundary Wall	O.P.G.C.	1992-93/93-94	38,500	Kadamba	23,300
(Green Belt)				Panash	
Vacant place infront of SBI,	Sidhartha agency,	1993-94/94-95		Neem	
Old Hanuman Tample back	Jharsuguda.		23,800	Bottle brush	15,000
side of Store yard,colony road				Bottle Palm	
side.				Chakunda	
i)Back side of Autobase,	i)Sidhartha agency,	1994-95/95-96	20,000	Jhaun	15000
Falsamunda village area.	Brukshyaropan			Sisoo	
	Samiti,Jharsuguda.			Golmohar	
ii)Coal yard side,either sides	ii)Departmentally.		37,000	Eucalyptus	31,155
of main roads,Plant boundary,	Total:-			Gambhari	
Railway lines,inside area bet-				Jarul	
ween D.M.Plant,R.W.pump				Litchi	
house and compound wall.				Amba	
Both sides of Rly.inline out	i)Green channel,	1995-96/96-97	40,000	Baula	
side the plant boundary and	Brukshyaropan			Radhachuda	
Ash Pond area.	Samiti & 3 Nos.of			Deodaru	
	Club and Yubak			Karanja	
	Sangha			Pijuli	
Jhawn &Plantation coal hand-	ii)Departmentally		34,500	Saguan	
ling plant area & other species				baxa	
on both sides of roads inside				Mandar	
plant.				Rangani	
Fuel Oil Pump house area,	iii)Local agencies		5,500	Areca Palm	
School,Hospital,Police station	Total:-			Juniperous	65,000
Outer periphery of children				china Palm	
Parks,Playgrounds etc.				Musunda	
Ash Pond	I)Brukshyaropan		5,000	Karabira	
	Samiti			Golap	
	ii)Departmentally		5,000	Thuja	
Both side of Security road.	I)Brukshyaropan		5,000		
	Samiti				
	ii)Departmentally		5,000		
	Total				15,500
Ash Pond		1998-99/99-00	5,500		4,500
Ash Pond	By agencies	2000-2001	5,058		0
CHP & Plant	-do-		5,966		4,842
Colony	-do-		11,500		10,000
Ash Filling Area(low lying area), Colony,Warehouse,SVM School(ITPS), Rengali School	-do-	2006-07	1,800		1200
Inside Plant campus	-do-	2007-08	3,000		2300
Distribution of fruit bearing tree in Periphery villages	-do-	2008-09	4,000	Mango, Lemon	2100
Block Plantation in association with District Environmental Society	Majhi		3,000	Teak	2500
Fruit bearing tree plantation at Gujapar and in Schools	do		350	Mango	50
CHP & Learning Centre on Earth Day	Self	2009-10	120	Neem	75
World Env Day	Self		150	Mango	90
Govt. Land near Rengali Nursery	Karunakar Sahu		5000	Neem, Karanja, Kadamba, chakunda etc	2000

Vatarika & Adhapada Mandir- 150 nos fruit & flower tree, Inside Colony vacant place- 100 neem trees, World Env day- 150 neem & Devdaru tree inside Plant Premises, Gujapahar- 200 Fruit bearing trees, 800 Fruit bearing, Radha Chuda etc planted in Binika & Banaharpali through villagers	Self & through villagers	2010-11	1500	Neem, Devdaru,Radhachura, Mango, Guava, Lemon, Jamun, Coconout, Lichi & Flower Plants	900
Vacant space in between Boiler area scrap yard & clarifiers	Self	2010-11	100	Neem	70
Inside Colony Vacant Places	Self	2011-12	150	Mango, Lemon, Guava	100
Vacant space at Coal Handling Plant	Self	2012-13	350	Neem, Devdaru	200
Distribution of fruit bearing & Forest plant species in Periphery villages, 2000 nos	Self	2012-13	2000	Teak, Mango, Lemon	1000
Avenue Plantation at Banharpali & Ash Pond Road & 100 nos inside Plant premises	Self	2013-14	1300	Kadamba, Limba, Karanga, Radhachuda. Teak, Devdaru etc	900
Sapling Distribution, 6000 nos	through nearby villagers		6000	Teak, Guava, Jackfruit, Dalimb etc	3000
Sapling Distribution, 5000 nos	through nearby villagers	2014-15	5000	Teak, Guava, Teak,etc	2500
Block & Avenue Plantation (OPGC old Pump House vacant space , old Adhapada Shiv Temple premises near Banaharpali & Tarrini Temple premises at Pump House Para)	Self		3000		1050
Sapling Distribution	through nearby villagers, 4480 nos	2015-16	4480	Teak, Baula, Guava, Lemon, Karanj etc	2100
Plantation inside Plant and Colony	Self		700		650
Plantation inside Plant and Colony	Self	2016-17, till 20th Nov	200	Baula, Mango	192
Plantation inside Plant, on going	Self		8000	Karanja, Neem, Baula	8000
Saplings Distributed, 15000 nos	Others			Grafted Mango, Guava, Teak, etc	
Total			**309,524**		**224,824**
% Survival				**72.6**	

In addition to above plantation at ITPS ,Compensatory Afforestation has been done by OPGC over 260 Ha. non-forest land in Deogarh, through Forest Department, Govt. Of Odisha.

23/5/17

Sitaram sahu
Head-EHS