

ODISHA POWER GENERATION CORPORATION LTD.

(A Government Company of the State of Odisha)

CIN: U40104OR1984SG001429

1b Thermal Power Station

Banharpali, Dist.: Jharsuguda, Odisha - 768 234, India

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No.ITPS. 7820 /WE/ Date- 25.11.2016

To

The Addl. Director (S)
Ministry of Environment Forests & Climate Change, Govt. of India
Eastern Regional Office,
A/3, Chandrasekharpur,
Bhubaneswar-751023.

Sub: Environmental Status Report of ITPS (2 x 210 MW), Banharpli, Dist: Jharsuguda for the period: April 2016 – September 2016

Ref: Environmental Clearance No. 14/13/83-EM-2, Dt. 27 Sept.1984.

Sir,

Enclosed please find herewith the Environmental Status report of IB Thermal Power Station (2x210 MW), Banharpli, Dist: Jharsuguda for the period from April 2016 – September 2016 for kind perusal.

The soft copy of the report in PDF form has been sent through e- mail to mef@ori.nic.in.

Enclosures:

- i) Annex -I- Compliance status of Environmental Conditions
- ii) Annex -II-CREP Compliance Status.
- iii) Annex-III-Ash Utilization report
- iv) Annex-IV- Maximum and Minimum of monitoring reports.
- v) Annex-V- Green Belt & Plantation Status

Thanking you.

Sincerely yours,

Alok Mukherjee
Director (Operations)
OPGC Ltd

ANNEXURE-I
ODISHA POWER GENERATION CORPORATION LTD
IB THERMAL POWER STATION (2X210MW)
COMPLIANCE STATUS OF THE ENVIRONMENTAL CONDITIONS

Period – April 2016 – September 2016

Sl. No.	Environmental Clearance Conditions	Compliance Status
1.	AIR POLLUTION	
i.	A common stack height of not less than 200 mtr should be provided for two units of 210 MW. Similarly, for other two units a common chimney of 200-mtr height should be provided.	<p>A bi flue common Stack of height 220 meters has been provided for U#1&2 of 210MW each.</p> <p>Other two units, i.e. U#3&4 of capacity 660 MW each are under construction with twin flue common stack of height 275 meter.</p>
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.	<p>ESP of operational efficiency 99.82 %(design value) has been provided for both of the Units.</p> <p>ESP internals both for Unit #1 & Unit #2 have 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.</p> <p>ESP retrofitting job for both the units had been taken up to achieve revised particulate emission norm of 100 mg/Nm³. 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. After resolving these issues, BHEL is going to conduct PG test of both the Units' ESPs by January 2017.</p>
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.	<p>Stack monitoring has been taken up through online continuous emission monitoring system for parameters SPM, SO₂, NO_x & CO for trend monitoring and taking corrective action so as to keep parameters within prescribed limit. Offline test is being conducted through grab sampling by calibrated portable Stack monitoring kit & Flue gas analyzer on weekly basis. These results are being recorded and reported.</p> <p>Five permanent ambient air-monitoring stations are installed by OPGC in & around ITPS out of which 03 no stations are placed in Industrial zone & 02 no in Residential zone. Ambient air monitoring has been</p>

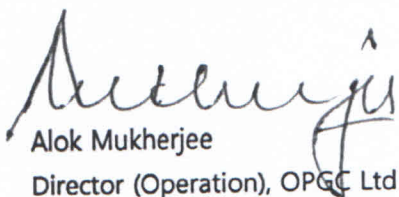
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		<p>done regularly for parameters PM₁₀, PM_{2.5}, SO₂, NO_x & Noise.</p> <p>In total four online ambient air quality monitoring station has been installed out of which two are inside plant & two are in residential area to monitor PM_{2.5}, PM₁₀, SO₂ & NO_x. Real time data transmission to the OSPCB & CPCB servers from the ambient air quality monitoring station has been established. Two CEMS has also been connected to OSPCB & CPCB servers.</p> <p>Monitoring reports are being sent to SPCB & CPCB every month. Half yearly reports are being sent regularly to MoEF & CC, Govt. of India, Eastern Regional Office. Maximum, Minimum and Average Emission Data for the period April 2016 to September 2016 is enclosed as Annexure-IV.</p>
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 tipping area, transfer points, crushers etc.	<p>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.</p> <p>Arresting of dust leakage points, restricting spillage of coal and floor washing are some of the measures being taken up in plant area to suppress work zone dust concentration.</p> <p>Pre-sprinkling & sprinkling system has been installed in track hopper area.</p> <p>As a work zone emission improvement step, OPGC is going to install dry fog system in place of existing sprinkling systems in order to bring higher level of fugitive dust control. The project implementation has already been started and expected to be completed by end of December 2017.</p>
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.	<p>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-</p> <ul style="list-style-type: none"> Domestic sewage of Plant has been discharged to soak pits after treatment in septic tanks. Domestic sewage of Colony

		<p>and Hospital has been treated in STP and treated effluent is being reused for watering the Green Belt and Park at ITPS.</p> <ul style="list-style-type: none"> ▪ 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 makeup water in wet ash handling system. ▪ Boiler and Turbine effluents are being reused as ash handling make up after necessary treatment. ▪ D.M Plant regeneration effluent is being reused as Cooling System make up. <p>Around 99% of the liquid effluent being generated has been recycled and reused inside plant. Only the gravity sand filter back wash effluent and CT drift water has been discharged after meeting effluent quality norm. However the back wash water quality matches the drinking water grade in all respect except suspended matter. The water is settled in a zig-zag flow path & by the time it reaches the final discharge point (about 500 m. away), the suspended matter settles down which has been confirmed from routine quality checks. Feasibility study for recycling and reuse of these two effluents has been carried out. It has been planned to recycle the CT drift water by 15th January 2017 (work in progress) however gravity sand filter backwash water will be treated in the upcoming OPGC expansion project in its ETP for complete reuse, which is expected to come under operation by December 2017. The same had been communicated to OSPCB vide letter no. 361(A) dt. 09.07.15.</p> <p>In abnormal or emergency situation if any liquid effluent discharge situation arises, the industry will ensure the effluents are treated properly (neutralization, settling, equalization, natural cooling and oil removal) and prescribed standard is met before discharged.</p>
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 condenser is being cooled through cooling towers & 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.	<p>Fly ash and bottom ash should be collected in the ash dykes/ponds. The supernatant 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.</p>	<p>Part of fly ash is collected from Storage Silo in dry form for ash utilization in manufacturing of ash bricks/ blocks, cement, road embankment preparation and in land reclamation. Balance quantity of fly ash is collected in Ash Pond by wet disposal method. As an environmental friendly ash disposal means, OPGC adopted ash disposal in the form of ash mound making and landscaping. Moist ash from operating Ash Pond A disposed through wet disposal means has been transferred to Ash Pond B for dry ash mound making. The ash mounds are capped with soil and grass turfed on entire ash surface after compaction. Apart from that ash is being used for Ash dyke height raising for Pond A. Required stability & safety study has been carried out by IIT, Madras. Regulatory requirements are also being fulfilled for the same.</p> <p>From ash pond no effluent is discharged out side except the seepage water. Treated ash water after maintenance of turbidity and other required parameters is being re-cycled 100% for reuse as make up water in wet ash handling system.</p> <p>OPGC is in continuous follow up with MCL for getting abandoned mines for dry disposal of fly ash mixing with the OB from long back & seeks support from MoEF & CC in this regard.</p>
ii.	<p>Green belt should be raised on the ash disposal areas filled by fly ash to check the dispersion of fly ash in to the air. Additional land (pvt. Land) should be acquired for compensatory afforestation.</p>	<p>Grass & weeds grow naturally on the ash disposal area i.e. on the ash mound & grass turfing has been maintained on the bund slope for prevention of ash dispersion & to provide additional strength to the bund by minimizing erosion.</p> <p>Dust suppression is being done by water spraying, soil capping & filling the ash pond by discharging ash water at multiple discharge points by garland discharge method to prevent ash dispersion. Provision is made for water spraying during dry seasons.</p> <p>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 from of tree root channeling effect. Thereafter, the tree planted earlier on the dykes were removed for maintaining the safety of the ash dykes.</p> <p>Compensatory afforestation has been done by OPGC over 260 Ha of non-forest land in Deogarh, Odisha, through Forest Department, Govt of Odisha.</p>

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 consulting Forest Department. More than 34% of the plant area is now covered with green belt and high density trees. Plantation activity is also being taken up every year. Detail plantation status is enclosed – Annexure – V.
iv.	Efforts 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 displaced 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 (Operation), OPGC Ltd

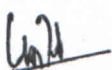
ANNEXURE-II

ODISHA POWER GENERATION CORPORATION LTD IB THERMAL POWER STATION (2X210MW) COMPLIANCE STATUS OF CREP GUIDELINES Period April 2016 – September 2016

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 by 31 st March 2016 for both the units. Both the unit ESPs retrofitting job 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 x 660MW) under construction.
4	Development of SO ₂ and NO _x emission standards for coal based plants by Dec.2003	MoEF & CC vide their notification dt. 7 th December 2015 has issued SO ₂ & NO _x emission standards for coal based thermal power plants.
	New/expansion power projects shall meet the limit w.e.f 1.1.2005	As per MoEF & CC notification dt. 7 th December 2015, the compliance requirement is w.e.f 07/12/17
	Existing power plants shall meet the limit w.e.f. 1.1.2006	As per MoEF & CC notification dt. 7 th December 2015, the compliance requirement is w.e.f 07/12/17.
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, 2005. 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. 7 th 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 Fields Ltd. for supply of washed coal.
9	Power plants will indicate their requirement of abandoned coal mines for ash disposal & 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, Regional Office, Mahanadi Coal Fields Ltd(MCL) had given clearance in the month of May 2007 for back filling of OPGC ash in Lilari OCM

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		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 9 th 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 40% 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.
wat13	(i) New plant to be accorded Environmental clearance on or after 1.4.2003 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 up on 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 re circulated 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.


 U.K Pahi
 Head (EHS), ITPS

ANEXURE-III
ODISHA POWER GENERATION CORPORATION LTD
IB THERMAL POWER STATION (2x210MW)


ASH GENERATION & UTILIZATION STATUS AT ITPS Period: April 2016 – September 2016								
Ash Generation in M.T	ASH UTILIZATION in M.T							
	Captive (Ash bricks, blocks)	Land Reclam ation	Asbestos	Cenosphere	Outside Ash Brick Plants	NH/SH Road construct ion	Ash Dyke raising	Total Utilization
618644.0	1340	2390	7530	36.7	9293	8363	117854	146806.7
% Utilization- 23.7								

Reasons for not meeting the Ash Utilization Target

1. Due to remote location of plant (pit head power plant located in rural area) there is very limited scope of ash utilization in brick manufacturing. Moreover the ash brick acceptance level remains low. With best effort the utilization in this particular area cannot exceed more than 2 to 3%.
2. Big stone quarry or low lands are not available in the locality.
3. 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.
4. Major road construction activities are taking place near Jharsuguda. The demand from these activities are met by other thermal power plants very close to that road construction area.
5. No scope available in major ash utilization area i.e Cement Plant Use. Only one cement plant in the locality i.e. Ultratech Cement Ltd. offtakes entire quantity of ash for cement manufacturing from their sister concern Hindalco Power, Hirakud.
6. Even though the industry is putting its best effort to get allotment of a mine void for ash utilisation from the coal supplier Mahanadi Coal Fields Ltd., there is no allotment of mine void so far. It may kindly be note that ITPS being the only pit head power plant in this locality, mine void filling is the most feasible utilisation means for achieving 100% utilisation.


Actions to overcome the challenges

1. Transportation subsidy of Rs 150/- per ton has been implemented for enhancing ash utilisation in the areas of manufacturing of brick & fly ash based products.
2. Special initiative has been taken to identify low land in nearby vicinity.
3. Action initiated to utilise 2 lakh MT ash in nearby NH 200 renovation activity.
4. Action initiated to utilise ash in OPGC expansion project MGR line construction.
5. Effort will be strengthened to get mine void allotment from MCL.


U.K Pahi
Head (EHS), ITPS

ANNEXURE-IV								
ODISHA POWER GENERATION CORPORATION LTD								
IB THERMAL POWER STATION								
ENVIRONMENTAL MONITORING REPORTS								
Period- April 2016 to September 2016								
A. STACK EMISSION								
PARAMETER	NORM	STACK 1			NORM	STACK 2		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
SPM (mg/Nm ³)	100	135	87	105	100	119	79	92
SOx (PPM)	NA	542	484	506	NA	535	463	498
NOX (PPM)	NA	218	159	187	NA	203	165	189
B. AMBIENT AIR QUALITY								
PARAMETER	NORM	MAX.		MIN.	AVE.			
PM ₁₀ (ug/m ³)	100	93		43	70			
PM _{2.5} (ug/m ³)	60	38		16	28			
SO2 (ug/m ³)	80	18		7	11			
NO2 (ug/m ³)	80	33		15	22			
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	39	34				
Maximum	72	69	48	41				
Average	68	65	43	37				
D. LIQUID EFFLUENT QUALITY								
Parameters	UNIT	NORM	RESULT					
			MAX.	MIN.				
Temp (In)	°C	T(O) - T(I) = <5 °C	30.4	26.1				
Temp (Out)			34.6	28.9				
pH at 25 oC	NA	5.5-9.0	8.02	7.35				
Chloride as Cl	PPM	1000max	59.6	35.5				
D. Phos as P	PPM	5.0 max	0.47	0.31				
O & G	PPM	10.0 max	1.3	0.65				
TSS	PPM	100 max	57	28.5				
TDS	PPM	2100 max	394	279				
Res Chlorine	PPM	1.0 max	0	0				
BOD	PPM	30 max	4	3				
COD	PPM	250 max	48	35				

Note: As per Environmental Clearance condition vide letter dt. 27.09.1984, the stack emission norm was stipulated as 150 mg/ Nm³. In the year 2013, during renewal of consent, OSPCB stipulated the emission norm, 100 mg/ Nm³. Accordingly, OPGC started implementing the ESP retrofitting project with parallel path addition through BHEL. Both the Units ESPs retrofitting is completed and taken into service. BHEL is still working for resolving the remaining technical problems and optimization of ESP parameters. Soon after BHEL optimizes the conditions, PG test of both the ESPs will be conducted by the OEM. It is planned to complete these jobs by end of January 2017. After the retrofitting and taking parallel paths into operation, particulate emission has come down but BHEL has been asked to bring further improvement in emission.


U.K Pahi
Head (EHS)

Annexure-V(A)

IB THERMAL POWER STATION SUMMARY OF GREEN BELT & PLANTATION, till Oct 2016


- Total Plant & Colony Area - 1227.5 acres
- Greenbelt & High Density Trees- 420 acres
- % Greenbelt & High Density Trees- 34.2
- Total trees planted- 3, 04,574 Nos.
- Total trees survived- 2, 20, 282 Nos.
- % of Survival- 72.3

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	3000	15000

* Additional 5000 tree plantation is in progress

Besides, a nursery of 25000 capacity has been developed.


U.K Pahi
Head (EHS), OPGC


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, Periphery, Pump House, Filter House, Stores etc.	Local agencies	<u>1991-92/92-93</u>	12,000	Akashia Sirish Chhatim	9,550
Periphery of Boundary Wall (Green Belt)	O.P.G.C.	<u>1992-93/93-94</u>	38,500	Kadamba Panash	23,300
Vacant place in front of SBI, Old Hanuman Temple back side of Store yard, colony road side.	Sidhartha agency, Jharsuguda.	<u>1993-94/94-95</u>	23,800	Neem Bottle brush Bottle Palm Chakunda	15,000
i) Back side of Autobase, Falsamunda village area.	i) Sidhartha agency, Brukshyaropan Samiti, Jharsuguda.	<u>1994-95/95-96</u>	20,000	Jhaun Sisoo	15,000
ii) Coal yard side, either sides of main roads, Plant boundary, Railway lines, inside area between D.M. Plant, R.W. pump house and compound wall. Both sides of Rly. In line outside the plant boundary and Ash Pond area.	ii) Departmentally. Total:-		37,000	Golmohar Eucalyptus Gambhari Jarul Litchi Amba Baula	31,155
Jhawn & Plantation coal handling plant area & other species on both sides of roads inside plant.	i) Green channel, Brukshyaropan Samiti & 3 Nos. of Club and Yubak Sangha ii) Departmentally	<u>1995-96/96-97</u>	40,000	Radhachuda Deodaru Karanja Pijuli	
Fuel Oil Pump house area, School, Hospital, Police station Outer periphery of children Parks, Playgrounds etc. Ash Pond	iii) Local agencies Total:-		5,500	Saguan baxa Mandar Rangani Areca Palm Juniperous china Palm Musunda	65,000
Both side of Security road.	i) Brukshyaropan Samiti ii) Departmentally i) Brukshyaropan Samiti ii) Departmentally Total		5,000 5,000 5,000	Karabira Golap Thuja	
Ash Pond		1998-99/99-00	5,500		15,500 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 Banharipali & 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	250	Baula, Mango	650
Plantation inside Plant, on going	Self		3000	Karanja, Neem, Baula	3000
Saplings Distributed, 15000 nos	Others			Grafted Mango, Guava, Teak, etc	
Total			3,04,574		2,20,282
% Survival					72.3

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.


U.K. Pahi
Head(EHS)