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Power

Ref: APL/KPL/EC/MoEFCC/0549/24
Date- 25.10.2024

To,
Additional Principal Chief Conservator of Forest
Ministry of Environment, Forest and Climate Change
Integrated Regional Office, Aranya Bhawan, North Block
Sector 19, Naya Raipur, Atal Nagar,
Chhattisgarh 492 002

Sub: Submission of Six-Monthly Environment Clearance (EC) Compliance Status Report for 2x300 MW Korba Power Limited at Village Pathadi, District Korba, Chhattisgarh

Ref: MoEFCC granted EC for 600 (2x300) MW letter no. J-13012/21/2004.IA-II(T) dated 19.11.2004

Dear Sir,

With reference to the above, please find enclosed herewith Six-Monthly Environment Clearances (EC) compliance status report along with Environmental monitoring reports as Ambient Air, Water Quality, Noise level, Greenbelt development & Fly ash data etc. for the period of **April'2024 to September'2024** in soft copy **(e-mail).**

This is for your kind information & record please.

Thanking You,
Yours faithfully,
for **Korba Power Limited**
(Formerly, Lanco Amarkantak Power Limited)

(R N Shukla)
Head Environment & Forest

Encl: as above

CC: The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
New Delhi – 110 032
The Regional Officer
Chhattisgarh Environment Conservation Board,
Korba, Chhattisgarh.

The Member Secretary,
Chhattisgarh Environment Conservation Board,
Prayavas Bhavan, North Block, Sector-19,
Naya Raipur – 490 009, Chhattisgarh

Korba Power Limited
(Formerly, Lanco Amarkantak Power Limited)
Adani Corporate House
Shantigram, S G Highway
Ahmedabad 382 421
Gujarat, India
CIN: **U40109TG2001PLC036265**

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SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE (EC)

FOR

600 (2x300) MW

Thermal Power Plant

At

Village Pathadi
District Korba, Chhattisgarh

Submitted to:

Integrated Regional Office, Raipur
Ministry of Environment, Forests & Climate Change,
Central Pollution Control Board, New Delhi &
Chhattisgarh Environment Conservation Board, Naya Raipur

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Power

Submitted by:

Environment Management Department

Korba Power Limited
Village Pathadi
District Korba, Chhattisgarh

April'2024 to September'2024

CONTENTS

INTRODUCTION

Korba Power Limited (Formerly, Lanco Amarkantak Power Limited) owns and operates a Coal Based Thermal Power Pant of 600 (2x300) MW at Village Pathadi, District Korba, Chhattisgarh.

The MoEFCC granted Environmental Clearance for 600 (2x300) MW (Unit 1 & 2) vide letter no. J-13012/21/2004.IA-II(T) dated: 19.11.2004. Subsequently, Consent to Establish (CTE) was issued by CECB on dated; 10.03.2005 and Consent to Operate (CTO) issued with validity up to **31.05.2027** by Chhattisgarh Environment Conservation Board (CECB), Raipur, Chhattisgarh.

The Environmental Clearance was granted for Unit 3 (1x660) MW vide letter no. 13011/44/2007-IA.II(T) dated 31.12.2007 and subsequent amendment dated 04.09.2008 & validity extension dated 19.02.2014 and for Unit 4 (1x660) MW vide letter no. J-13011/03/2009-IA.II(T) dated 26.05.2010 and validity extension of EC dated: 22.06.2015 and 17.05.2018. **Environmental Clearance validity for Unit 3 & 4 is expired as per EIA Notification 2006 and its subsequent amendments.**

"Lanco Infratech Limited" was (Sick) admitted into NCLT for Corporate Insolvency Resolution Process (CIRP) on 10.06.2017, which further got liquidated on 27.08.2018 due to Financial Crises. Subsequently. A Corporate Insolvency Resolution Process ("CIRP") initiated in respect of Lanco Amarkantak Power Ltd (LAPL), on 05.09.2019 under the provisions of Insolvency and Bankruptcy Code, 2016 ("IBC").

During the resolution process, Adani Power Limited has been declared as the winning bidder. Further Competition Commission of India (CCI) has approved the 100% acquisition of LAPL by Adani Power Limited (APL) on 26.03.2024. **Hon'ble NCLT vide its Order dated 21.08.2024, approved Resolution Plan submitted by Adani Power,** thereby concluding the CIRP of the Company.

Registrar of Companies, Delhi, vide CIN U40109TG2001PLC036265I certified that the name of the company has been changed from **Lanco Amarkantak Power Limited** to **Korba Power Limited (KPL)**.

Korba Power Limited

(Formerly, Lanco Amarkantak Power Limited)

COMPLIANCE STATUS ON ENVIRONMENTAL CLEARANCE for 2x300MW Units 1&2
(April '2024' to September '2024')
(MoEFCC vide letter no.: J-13012/21/2004.IA-II (T) Dated 19.11.2004)

Sl. No.	Condition	Compliance Status
(i)	All the conditions stipulated by Chhattisgarh Environment Conservation Board letter no. 3971/TS/CECB/2004 dated 05.10.04 should be strictly implemented.	Agreed and being Complied.
(ii)	Coal requirement is estimated 9024 TPD having 45% ash content and 0.5% Sulphur content	Being Complied.
(iii)	A detailed note on Zero effluent discharge including water utilization for greenbelt should be submitted to the MoEF within period of one month from the date of clearance letter.	Complied Already submitted to MoEF vide LAPPL's letter no. LAPPL/MoEF/04/758 dated **13.12.2004**.
(iv)	Exact distance from the nearby canal to the plant boundary should be furnished within one month from the date of clearance.	Complied Already submitted vide LAPPL's letter No. LAPPL/MoEF/04/758 dated **13.12.2004**.
(v)	Rainwater harvesting system should be installed in consultation with Ground water board within period of six months from the date of clearance.	Complied. The Rainwater Harvesting system has already constructed in consultation with ground water board and submitted vide LAPL's letter no. LAPL/MoEF/805/1550 dated on 28.06.2005. Plant has developed 04 nos. of more rainwater harvesting pits for recharging additionally 17102 m3/annum quantum of rainwater. Now the plant has a total of 75181 m3 of rainwater annually from 23 no. of rainwater harvesting pits.
(vi)	A detailed note on Watershed development within 10 Km radius may be submitted within six months.	Complied Watershed development report Already submitted vide LAPPL's letter no. LAPPL/MoEF/805/1550 dated 28.06.2005.
(vii)	Gas velocity rate may be confirmed within one month.	Complied Details submitted vide LAPPL's letter No. LAPL/MoEF/805/1550 dated 28.06.2005
(viii)	Authenticated list of flora and fauna from PCCF/CWLW/Academic institution/ University may be submitted.	Complied Report submitted to MoEFCC vide LAPPL's letter LAPPL/MoEF/805/1550 dated 28.06.2005.
(ix)	As recommended by SPCB greenbelt of 100-150 m in the portion where the state road runs parallel to the site and 50 m along the plant boundary should be developed covering an area of 85 ha or 210 acres.	Complied. Greenbelt has already developed more than 33% of plant area. Third Party Green belt verification report up to April 2024 is enclosed as **Annexure II**

(x)	A captive mine may be acquired for the availability of coal for the second phase of the project (1x300 MW) or within 6 months of the date of environmental clearance.	Complied Long Term Coal Linkage is granted from Ministry of Coal for first phase vide letter Ref 23014/9/2004-CPD dated 20.12.2004 and for 2nd phase vide Ref: SECL/BSP/(P&P)/Linkage 385 dated September 15, 2006.
(xi)	Water authorization from the state government given for stage I (300 MW) will be sufficient for the second stage also. Approval of the state government for using the existing approval for phase II also should be provided within the six months of the clearance.	Complied Water Resource Department, Govt. of Chhattisgarh has allocated 54 MCM water for Units 1, 2, 3 and 4 from River Hasdeo vide following letters. A.16MCM-Ref.no:266/WRD/TS/02/AJP/D-4 dated 17th Nov 2004. B.18MCM-Ref.no:266/WRD/TS/AJP/02/D-4 dated 29th Oct 2007. B.20MCM-Ref.no.7240/WRD/TS/AJP/02/D-4 dated 3rd Dec 2009.
(xii)	A detailed note on the reduction in water consumption by 25% or more than the present level, as stated by proponent may be submitted to MoEF within two months of clearance letter.	Complied Submitted to MoEFCC vide LAPPL's letter no. LAPL/MoEF/04/758 dated 13.12.2004.
(xiii)	For gaseous discharge two stacks of 220 m height shall be provided with continuous online monitoring system.	Complied Two stacks of 220 M height have been installed. CEMS (Continuous emission monitoring system) has already been provided in both units.
(xiv)	Electrostatic precipitator having efficiency of 99.8% should be installed to limit the outlet SPM emission to 100 mg/Nm^3	Complied ESP having efficiency of 99.98 % along with DFGCS (Dual Flue Gas Conditioning System) have been provided in both the units. Emissions from both the units are well within the MoEFCC prescribed limit of 50 mg/Nm3. Monthly monitoring report is enclosed as **Annexure-I**
(xv)	Ash generation will be limited to 4060 TPD. Ash generated should be used in phased manner as per the provisions of the notification on Fly ash utilization issued by MoEFCC in Sept'1999 and its subsequent amendments. By the end of 9th year full fly ash utilization should be ensured. Borough earth should not be taken from the ash pond area for construction of ash dyke etc.	Being Complied Ash is being utilized as per the Fly Ash notifications December'2021 and its amendment. Ash Utilization report for the period of April'2024 to September'2024 is enclosed as **Annexure –III**.
(xvi)	Water requirement should not exceed 65390 m3/day. The wastewater generated should be recycled and reused in the plant and no wastewater be discharged outside the plant boundary or in the natural drain.	Complied Plant is based on Zero Liquid Discharge (ZLD) and PTZ camera is also installed in the plant boundary, real time data being uploaded to CPCB and CECB server as well as wastewater quality monitoring done by NABL laboratory and report submitted to CECB. Wastewater quality report is

		enclosed as **Annexure-I.**
(xvii)	Regular monitoring of water including heavy metals should be undertaken around ash dyke and the project area to ascertain the change in the water quality due to leaching of contaminants from ash disposal area if any.	Being Complied The water quality & ground water level is being monitored regularly around the plant including ash dyke nearby village. Copy of analysis report is enclosed as **Annexure-I**
(xviii)	Noise level should be limited to 75 Leq and regular maintenance of equipment be undertaken. For the people working in the area of generator and other high noise area ear plug should be provided.	Complied. Regular Noise Level monitoring is being carried out in and around the project area at specified locations and noise level is found below stipulated limit. Administrative controls like training & awareness, signage, cautionary boards provided for use of Ear plug and other PPEs as part of standard safety measures at strategic locations. Noise Level Monitoring Report is enclosed as **Annexure-I**
(xix)	Regular monitoring of the air quality should be carried out in and around the power plant and records should be maintained. Six monthly reports on air quality monitoring should be submitted to this ministry.	Being Complied Regular monitoring of ambient air quality is being carried out in and around the plant. Ambient Air Quality Monitoring Report is enclosed as **Annexure-I.**
(xx)	For controlling the Fugitive dust, regular sprinkling of water in vulnerable areas of the plant should be ensured.	Being Complied Regular water sprinkling is being carried out in vulnerable areas to minimize the fugitive dust.
(xxi)	All other mitigative measures shall be taken as enumerated in Chapter 6 of the REIA report.	Complied.
(xxii)	The project proponent should advertise in at least two newspapers widely circulated in the region of the project, one of which should be in vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance latter are available with State Pollution Control Board/Committee and may also seen in the Website of Ministry of Environment and Forest in the - http://envfor.nic.in	Complied Published in two local newspapers dated 08 December 2004 and 09 December 2004.
(xxiii)	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	Complied. We have established separate environmental monitoring cell lead by Sr. Management & supported by qualified Environment Engineers, Chemist, Horticulturist and Ash utilization team for implementation & compliance of environmental standards.
(xxiv)	Half yearly report on the status of implementation of conditions and	Being Complied Half Yearly compliance reports is being

	environmental safeguards should be submitted to this Ministry, the Regional Office, CPCB and SPCB.	regularly submitted to MoEFCC, CPCB, and CECB. Last compliance report for the period of October'2023 to March'2024 submitted vide letter no. LAPL/PWR/HSE/PUB/ L3/IOC/CECB/22 dated 24.05.2024.
(xxv)	Regional Office of the Ministry of Environment & Forests located at Bhopal will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment report, Environment Management Plan should be forwarded to the Regional Office for their use during monitoring.	Complied Environmental Impact Assessment report comprising Environment Management Plan was submitted to the Regional Office, Bhopal vide LAPPL letter No. LAPPL/ MoEF/805/1550 dated 28.06.2005
(xxvi)	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year- wise expenditure should be reported to the Ministry.	Complied Separate Fund is allocated for environmental protection measures and same has been implemented.
(xxvii)	Full cooperation should be extended to the Scientists/Officers from the Ministry and its Regional Office at Bhopal/ the CPCB/ the SPCB during monitoring of the project.	Being Complied Full co-operation & support is being extended to all the Govt visiting officials always.
(xxviii)	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of ministry.	Noted
(xxix)	The environment Clearance accorded shall be valid for 5 years for construction/operation of the power plant .In case, the project authorities fail to do so within the stipulated period, this environment clearance shall laps automatically.	Noted
(xxx)	Any deviation or alteration in the present project cleared by the Ministry, shall be undertaken only after due permission from the Ministry.	Noted
(xxxi)	The above stipulations would be enforced, along with others under the Water (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments and the Environment Impact Assessment Notification of January 1994 and its amendments.	Noted

Korba Power Limited

Annexure- I

AMBIENT AIR MONITORING REPORT
(April'2024 to September'2024)

Location- Switch yard					
Month	**PM 10 µg/m3**	**PM 2.5 µg/m3**	**SO2 µg/m3**	**NOx µg/m3**	**CO mg/m3**
Apr- 24	62.7	29.02	21.60	29.07	0.72
May-24	63.02	29.15	21.53	29.09	0.72
Jun-24	63.73	29.92	19.56	21.22	0.93
Jul-24	59.86	28.10	18.37	19.93	0.87
Aug-24	54.02	25.36	16.58	17.99	0.79
Sept-24	56.58	26.56	17.36	18.84	0.82
Avg	**59.99**	**28.02**	**19.17**	**22.69**	**0.81**

Location - D M Plant					
Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	59.72	28.79	17.88	28.49	0.65
May-24	59.66	28.59	17.95	28.76	0.65
Jun-24	61.57	28.91	18.89	20.5	0.9
Jul-24	85.73	27.57	18.02	19.56	0.86
Aug-24	51.59	24.22	15.83	17.18	0.75
Sept-24	54.13	25.41	16.61	18.02	0.79
Avg	**62.07**	**27.25**	**17.53**	**22.09**	**0.77**

Location- Ash pond					
Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	57.99	28.65	18.03	27.91	0.66
May-24	67.49	27.86	20.84	27.37	0.66
Jun-24	60.96	28.62	18.71	20.3	0.89
Jul-24	56.73	26.63	17.41	18.89	0.83
Aug-24	49.17	23.09	15.09	16.37	0.72
Sept-24	51.43	24.15	15.78	17.12	0.75
Avg	**57.30**	**26.50**	**17.64**	**21.33**	**0.75**

Outside the Plant Air Quality Report

Location- Pathadi Village

Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	60.45	29.95	12.97	20.72	0.69
May-24	60.45	29.95	12.97	20.72	0.69
Jun-24	61.87	29.05	18.99	20.60	0.68
Jul-24	54.09	25.40	16.60	18.01	0.59
Aug-24	39.47	18.53	12.11	13.14	0.43
Sept-24	43.20	20.28	13.26	14.38	0.47

Avg	**53.26**	**25.53**	**14.48**	**17.93**	**0.59**

Location- Saragbundia Village					
Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	56.35	28.52	16.27	19.65	0.63
May-24	56.35	28.52	16.27	19.65	0.63
Jun-24	57.57	27.03	17.67	19.17	0.63
Jul-24	52.06	24.44	15.98	17.33	0.57
Aug-24	42.49	19.95	13.04	14.15	0.47
Sept-24	43.98	20.65	13.50	14.64	0.48
Avg	**51.47**	**25**	**15**	**17**	**0.57**

Location- Sandel Village					
Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	54.46	27.57	15.68	19.06	0.61
May-24	54.46	27.57	15.68	19.06	0.61
Jun-24	55.97	26.28	17.18	18.64	0.61
Jul-24	49.95	23.45	15.33	16.63	0.55
Aug-24	40.84	19.17	12.53	13.60	0.45
Sept-24	42.84	20.11	13.14	14.26	6.47
Avg	**49.75**	**24**	**14.92**	**16.88**	**1.55**

Location- Khoddel Village					
Month	**PM 10**	**PM 2.5**	**SO2**	**NOx**	**CO**
Apr- 24	52.85	26.77	15.18	18.56	0.60
May-24	52.85	26.77	15.18	18.56	0.60
Jun-24	50.35	23.64	15.45	16.77	0.55
Jul-24	50.35	23.64	15.45	16.77	0.55
Aug-24	41.17	19.33	12.69	13.71	0.45
Sept-24	43.19	20.28	13.25	14.38	0.47
Avg	**48.46**	**23.41**	**14.53**	**16.46**	**0.54**

Korba Power Limited

Annexure -I

STACK MONITORING REPORT

(Period April'2024 to September'2024)

Unit #1

Month	PM		SO2	Nox
	Limit	50 mg/Nm3	600 mg/Nm3	450 mg/Nm3
April- 24	47.26		867.93	274.65
May-24	39.56		752.16	291.79
June-24	46.25		804.05	287.10
July-24	44.79		769.66	294.57
August-24	Unit Shut down			
September-24	44.36		789.94	290.32

Unit #2

Month	PM		SO2	Nox
	Limit	50 mg/Nm3	600 mg/Nm3	450 mg/Nm3
April- 24	41.55		867.93	303.84
May-24	42.01		790.11	294.54
June-24	42.98		785.45	294.26
July-24	41.90		785.26	273.56
August-24	40.11		658.29	283.75
September-24	38.38		775.05	284.91

Remark: As per MoEFCC notification dated 05th September 2022, Korba Power Ltd. fall under Category "C" TPP and timelines for compliance of SO2 emission is up to 31st December 2026.

Annexure I

Korba Power Limited

Ambient Noise Level Monitoring April'2024 to September'2024

Noise Level Report dB(A)												
Day												
Month	**Colony**	**Gate No. 1**	**Gate No. 2**	**Admin Build**	**LTTL Admin Building**	**Switch yard**	**C.H.P.**	**Ash Dyke**	**DM Plant**	**Chlorination**	**Store Building**	**Service Building**
Apr- 24	49.8	51.4	50.3	53.9	62.8	65.4	61.7	58.1	63.9	64.9	68.9	66.6
May-24	51.2	57.1	56.8	59.0	65.9	70.8	67.1	65.1	66.5	71.3	76.7	65.1
Jun-24	49.3	51.9	51.4	53.4	62.8	65.6	64.3	59.4	65.0	66.5	70.8	68.8
Jul-24	50.4	51.5	50.4	54.0	62.8	65.5	61.8	58.1	64.0	65.0	68.9	66.6
Aug-24	53.4	55.5	58.7	58.8	62.0	69.9	70.4	64.3	67.6	70.4	71.1	67.9
Sep-24	49.8	51.4	50.3	53.9	62.8	65.4	61.7	58.1	63.9	64.9	68.9	66.6

Night												
Month	**Colony**	**Gate No. 1**	**Gate No. 2**	**Admin Build.**	**LTTL Admin. Building**	**Switch yard**	**C.H.P.**	**Ash Dyke**	**DM Plant**	**Chlorination**	**Store Building**	**Service Building**
Apr- 24	44.2	44.6	48.7	48.8	49.9	57.6	58.3	50.7	54.4	54.3	60.4	59.1
May-24	43.3	48.0	46.5	49.0	59.2	65.5	58.2	53.1	54.4	54.8	61.0	55.8
Jun-24	42.2	48.5	46.0	49.9	60.1	66.4	58.9	53.3	54.7	58.3	63.2	57.0
Jul-24	43.2	45.1	48.5	48.0	51.1	57.9	59.3	50.6	55.1	55.5	60.5	59.1
Aug-24	44.0	44.4	48.6	48.7	48.6	56.6	58.4	50.6	53.1	53.7	59.8	58.5
Sep-24	43.2	48.3	49.5	51.6	54.8	62.6	63.2	53.1	57.4	63.5	61.3	60.7

Korba Power Limited

ANNEXURE-I

WASTEWATER ANALYSIS REPORT
(April- 2024 to September- 2024)

ETP Outlet Water

PARAMETERS	PERMISSIBLE LIMIT	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Avg
pH	6.5-8.5	7.4	7.5	7.4	7.3	7.5	7.5	7.4
Temp. deg C		35.9	34.6	32.6	32.0	34.6	35.7	34.2
TSS	100 mg/L	25.3	32.0	31.2	29.5	32.0	27.2	29.5
Oil & Grease	10 mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BOD	30 mg/L	14.0	14.9	14.0	11.3	14.9	15.5	14.1
COD	250 mg/L	54.5	48.0	46.3	49.4	48.0	61.0	51.2
Chloride		30.1	35.6	34.0	39.0	35.7	29.5	34.0

STP Outlet Water

PARAMETERS	PERMISSIBLE LIMIT	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Avg
pH	6.5-8.5	7.3	7.2	7.4	7.3	7.2	7.3	7.3
Temperature		29.3	29.5	28.1	27.8	29.5	33.6	29.6
Suspended Solids	100 mg/L	33.9	31.3	31.4	30.2	31.3	36.9	32.5
Oil & Grease	10 mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BOD mg/L	30 mg/L	17.7	13.9	12.4	10.2	13.9	18.8	14.5
COD	250 mg/L	54.7	43.5	40.8	37.7	42.8	55.8	45.9
Chloride		31.0	25.4	23.8	23.3	25.4	35.8	27.4
E. Coli		Absent	Absent	Absent	Absent	Absent	Absent	Absent
Fecal Coliform		54.4	53.8	49.0	47.0	53.8	55.0	52.2

Ash Water Recovery System

PARAMETERS	PERMISSIBLE LIMIT	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Avg
pH	6.5-8.5	7.2	7.2	7.3	7.1	7.2	7.2	7.2
Temperature		24.7	24.7	25.2	24.9	24.7	24.7	24.8
Suspended Solids	100 mg/L	42.8	43.5	43.3	39.5	43.5	42.8	42.6
Oil & Grease	10 mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BOD	30 mg/L	12.7	11.4	10.9	9.8	11.4	12.7	11.4
COD	250 mg/L	50.0	47.0	45.0	40.3	47.0	50.0	46.5
Chloride		35.5	35.7	35.7	43.7	35.7	35.5	37.0

Annexure II

Korba Power Limited, Chhattisgarh

Plantation Details

Total no. of Plantation till October 2024	Total area (Hectare) of the Plant	Total area (Hectare) of the plantation till October 2024	Nos. of plant sapling in the year 2024	Location of the plantation done in the year 2024.	Name of the Planted Trees	Percentage of area of plantation
2,48,000 Nos.	257.2 Ha	93.67 Ha	2000	Near Saragbundia village (Imlibhata) inside KPL plant boundary.	Karanj, Gulmohar, Neem, Sheesam, Peepal, Kathal, Peltaform, Guava, Jamun, Mango, Sheetafal, etc.	36.4% of total Plant Area

PLANTATION PHOTOGRAPHS

Annexure-II


2022/11/10 15:09


2022/11/10 15:10


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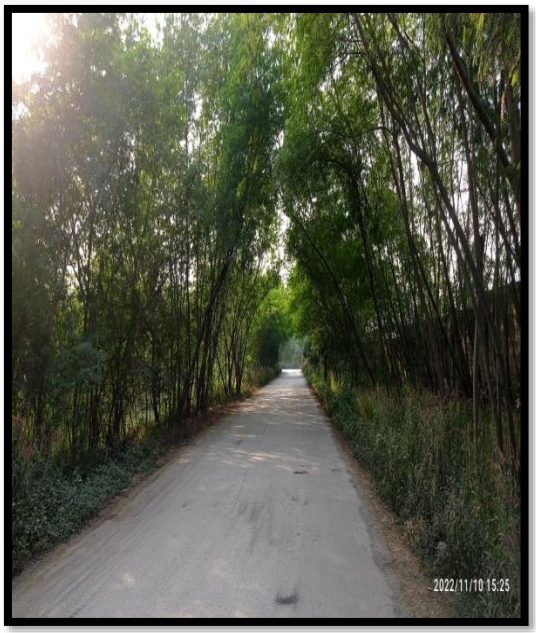
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PLANTATION IN MONSOON SEASON – 2024

REPORT ON "MONITORING AND EVALUATION OF PLANTATION" AT

M/S LANCO AMARKANTAK POWER LIMITED

Tilkeja, Korba - 495674

Year – April 2024

"NAV AASTHA JAN VIKAS SEVA SAMITI"

8/5, "JASMATI BHAWAN", NEAR OLD KATTHA FACTORY,

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WHO WE ARE?

NAV AASTHA JAN VIKAS SEVA SAMITI is a registered NGO under societies registration act. 1973 of Indian constitution, registered on 07th April 2005 at Raipur (C.G.). The working area of the organization is whole Chhattisgarh. Our main focus is towards the youth development as well as women and child empowerment of the state.

We have been working continuously in betterment of the people of Chhattisgarh *(chhattisgarhiya)* in educational, physical and many more sectors by the help of schemes of govt. The organization works under many schemes of the respectable govt. like – **Green India Mission** (GIM), **Bio-diversity Program, Integrated Watershed Management Program** (IWMP), **SGSY**, **SHG** forming, **JFMC** and many more. We are also engaged in **Monitoring and Evaluation** of plantations of government entities as well as private entities. We are also enlisted for the monitoring and evaluation of various entities working in Chhattisgarh by PCCF, Raipur under the ministry of Environment and Forest GoCG.

"New challenges new innovations……."

CENTRAL POLLUTION CONTROL BOARD

The **Central Pollution Control Board (CPCB)**, statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. It also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.

CPCB along with its counterparts **State Pollution Control Boards (SPCBs)** are responsible for implementation of legislations relating to prevention and control of environmental pollution.

The Central Pollution Control Board (CPCB) and the Ministry of Environment and Forests (MoEF) have guidelines for green belt development. The guidelines state that **33% of the total land area should be kept as greenbelt**. The greenbelt should be developed along the boundary by planting tall, evergreen trees.

The guidelines also state that:

- The species selected should be capable of **growing fast, wind firm, and long lived.**
- The **width** of the 3 tier green belt should vary from **15m to 100m** depending on the type of project.
- The **density** of the green belt should be in the range **1500 to 2500 plants per ha.**
- The green belt species should be **native species**.
- Certain species of plants can **absorb pollutants** while others can **thrive** in polluted atmosphere.

INTRODUCTION TO GREENBELT DEVELOPMENT

For India's industrial and other developmental operations, environmental protection has been prioritized. The **Ministry of Environment & Forests (MoEF)** has advocated for the inclusion of environmental considerations in the development of projects through a number of policy & measures. According to the terms of the **Environment (Protection) Act of 1986**, one such initiative is the notification on **Environmental Impact Assessment (EIA)** of developmental projects, which was first issued in 1994 and then updated in 2006. Greenbelts are proactively discussed in the EIA Guidance Manual for building, construction, township, and area development projects.

The term "greenbelt" refers to a boundary established beyond of which industrial development is prohibited. Greenbelts are now present not only for the purpose of protecting sensitive areas to maintain ecological balance but are also found in urban areas so as to act as a sink for the harmful gases released by vehicles and industries operating in the city area. This idea has evolved through a long line of cases. The Central Pollution Control Board has created extensive Guidelines for Developing Greenbelts in this regard [Refer Probes/75/1999-2000].

The establishment of green belts is advantageous in many ways, contributing to biodiversity preservation, soil moisture retention, ground water recharging, and sustaining the region's pleasant microclimate. Additionally, the plants in a green belt can absorb environmental toxins and aid in efficient pollution control.

Green belts are designed open spaces that are protected against construction of new structures, factories, dams, etc. Safeguarded in the sense that only vegetation growth will be permitted on such designated locations, and no infrastructure development will be permitted there. The ecological health of any particular region depends on the presence of green belts in and around urban and industrial regions.

According to MoEF prerequisites, tall, evergreen trees must be planted all along the boundary to create a greenbelt. The overall green area, including the landscaping area, will make up 1/3rd (or around 33%) of the plant area. This will contain a lay-down space that will thereafter become a green area. Two rows of tall, evergreen plants must be planted at a rate of 600–1000 per Acre (1500–2500 per Hectare),

depending on the size, activity, and environmental effects of the industry; the amount of land available; and the agro-climatic conditions. Plants should be spaced apart from one another by around 10 meters for the road side. Trees having a lot of branches and a canopy, such as peepal, banyan, kadamb, neem, and Conocarpus lancefolius, should be grown as these kinds of avenue trees. Plantations must use gathered rainwater and treated effluent water.

A list of plants suitable for greenbelt and to the local agro climatic conditions is given in Table below:

S.No	Botanical Name	Family	Common Name	Habitat	Height (m)
1.	*Acacia auriculiformis A.cunn*	Mimoseae	Australian Wattle	Tree	16
2.	*Acacia nilotica (Linn) Wild*	Mimoseae	Indian gum	Tree	8
3.	*Albizia lebbeck Benth*	Mimoseae	Sirisha	Tree	15
4.	*Anthocephalus chinensis (Lamk.)*	Rubiaceae	Kadambama	Tree	20
5.	*Azadirachta indica*	Meliaceae	Neem	Tree	20
6.	*Bambusa arundinacia (Retz)Roxb*	Poaceae	Thorny Bamboo	Shrub	20
7.	*Bambusa vulgaris Schrad*	Poaceae	The Golden Bamboo	Shrub/ Tree	15
8.	*Bauhinia purpurea Linn*	Caesalpinaceae	Butterfly tree	Tree	7
9.	*Bauhinia varigata Linn*	Caesalpinaceae	Budhist bauhinia	Tree	5
10.	*Cassia fistula Linn*	Caesalpinaceae	Golden showers	Tree	12
11.	*Citrus aurantium Linn*	Rutaceae	Citrus tree	Tree	5
12.	*Cocos nucifera Linn*	Arecaceae	Coconut tree	Tree	15
13.	*Delonix regia (Boijer) Rafin.*	Caesalpinaceae	Flame tree	Tree	15
14.	*Emblica officinalis Gaertn.*	Euphorbiaceae	Gooseberry	Tree	5
15.	*Eucalyptus citriodora Hook*	Myrtaceae	Lemon scented gum	Tree	20
16.	*Ficus benghalensis Linn*	Moraceae	Banyan tree	Tree	20
17.	*Ixora undulate*	Rubiaceae	Ixora	Tree	6
18.	*Madhuca longifolia (Koen)*	Sapotaceae	The butter tree	Tree	15
19.	*Mangifera indica Linn*	Anacardiaceae	Mango tree	Tree	15
20.	*Nerium indicum*	Apocynaceae	Pink oleander	Shrub	5
21.	*Peltophorum pterocarpum*	Caesalpinaceae	Copper pod tree	Tree	20
22.	*Polythia longifolia*	Anonaceae	Ashoka tree	Tree	20
23.	*Terminalia catappa*	Combretaceae	The Indian almond	Tree	10

S.No	Botanical Name	Family	Common Name	Habitat	Height (m)
24.	*Anacardium occidentale*	Anacardiaceae	Kaju	Tree	10
25.	*Syzygium cumini*	Myrtaceae	Jamun	Tree	20
26.	*Tectona grandis*	Lamiaceae	Sagwan	Tree	5
27.	*Ficus benghalensis*	Moraceae	Banyan	Tree	10
28.	*Psidium guajava*	Myrtaceae	Guava	Tree	5
29.	*Diospyros melanoxylon Roxb.*	Ebenaceae	Kendu	Tree	10
30.	*Millettia pinnata*	Fabaceae	Karanj	Tree	15
31.	*Phyllanthusemblica*	Phyllanthaceae	Amla	Tree	10
32.	*Senna siamea*	Caesalpiniaceae	Casia Cemia	Tree	10
33.	*Tamarindus indica*	Leguminosae	Tamarind	Tree	10
34.	*Delonix regia*	Caesalpiniaceae	Gulmohar	Tree	15
35.	*Ficus religiosa*	Moraceae	Peepal	Tree	5
36.	*Schleichera oleosa*	Sapindaceae	Kusum	Tree	10
37.	*Schotia brachypetala*	Fabaceae	Boer	Tree	20
38.	*Dalbergia sissoo*	Fabaceae	Shisham	Tree	5

REGULATIONS FOR GREENBELT DEVELOPMENT

Environmental Guidelines for Industries, created by the MoEF, recommend corporations undertake environmental protection seriously and work to reduce the negative effects of their operations both locally and beyond. As a result, these regulations require project owners to keep certain distances between their companies and places like ecologically sensitive areas, coastal areas, flood plains of riverine systems, transportation and communication systems, and major settlements.

These rules also require that, when citing industry, economic and social factors be acknowledged and evaluated. The following are the main guidelines that all industries must adhere to when establishing manufacturing or processing facilities in specific locations. which are;

1. No forest land shall be converted into non-forest activity for the sustenance of the industry.
2. No prime agricultural land shall be converted into industrial site.
3. Within the acquired site the industry must locate itself at the lowest location to remain obscured from general sight.
4. Land acquired shall be sufficiently large to provide space for appropriate treatment of waste water still left for treatment after maximum possible reuse and recycle. Reclaimed (treated) wastewater shall be used to raise **green belt** and to create water body for aesthetics, recreation and if possible for aquaculture. **The green belt shall be 1/2 km wide around the battery limit of the industry. For industry having odour problem it shall be a kilometer wide.**
5. **The green belt between two adjoining large scale industries shall be one kilometer**.
6. Enough space should be provided for storage of solid wastes so that these could be available for possible reuse.
7. Lay out and form of the industry that may come up in the area must conform to the landscape of the area without affecting the scenic features of that place.
8. Associated township of the industry must be created at a space having physiographic barrier between the industry and the township.
9. Each industry is required to maintain three ambient air quality measuring stations within 120 degree angle between stations.

Environment Management Plan (EMP) prepared by **MoEF** mandates that community buildings and townships should build 1-1.5 kilometer of greenbelt. This is suggested to restrict air and noise pollution in the vicinity.

As per the stipulations of MoEF, **green belt is to be provided all around the power station boundary by planting trees** and the total green area including landscaping area will be 1/3rd (About 33%) of the plant area. This will include Lay down area which will be later on converted into Green area.

In India, there is no exclusive green belt regulation/policy. However, under the purview of other regulations such as Environmental Guidelines for Industries, Environment Management Plan, National Forest Policy, Forest Conservation Act, etc; certain percentage of land designated for green belts is recommended for different categories of industrial projects. Expansion of agricultural, urban and industrial activities are causing additional burden on natural resources. Industrial development is causing severe health hazards due the exceeded level of pollution. Green belt not only restrict environmental pollution but it helps to maintain the ecological balance of the region.

PROVISION OF GREENBELT FOR INDUSTRIES

Adequate greenery in industrial establishment helps in creating better environment in many ways:

1. It provides a sylvan surrounding to improve the aesthetical conditions which, in turn, improve the working condition of the workers.
2. Tall trees attract birds to roost and also provide shelter to small creatures like squirrel, snacks etc. thus biodiversity is restored.
3. A properly designed green belt of adequate width alts as a filter of our pollutants for outside. Fugitive emissions are mainly controlled by the green belt.
4. Plantation of pollution indicating species at strategic locations can indicate the air pollution status of the area. These plant species are sensitive to air pollutants. Such species serves as “bio indicators”.
5. Green belt acts as a noise barrier for outside.
6. Treated waste water of an industry is always recommended for maximum utilization with in the premises. If the waste water is used for irrigation of green belt and other plantation within, the objective is partially achieved.

PLANNING OF GREENBELT

Planting of green belt requires the following considerations:-
1. Choice of the species
2. Design of the belt
3. Width of belt

Choice of the plants species depends upon the nature of fugitive gaseous pollutants coming from the industries. Obviously those plants should be resistant to the pollutants. Besides, trees with large crown are preferred because they served as a good barriers for particulate and gaseous emissions. In between the resistant, species and within the industrial premises, some strategic locations as these species indicate the status of pollution.

The design of the greenbelt should be such that it should form an effective shield against pollutants to outside. A three tier plantation of small medium and large size plants can achieve the same. Typical 50 m width green belt may have 3 layers may consist of bushes (small tree). The inner layer may have large tree with good crown and under growth. The middle layer in between can have bushes and shrubs (small and medium size tree).

The width of the green belt should be carefully & judiciously decided; because of the cost of the land there is always a demand from the industry to a narrow belt. Ideally the width should be such to have maximum attenuation. The attenuation factor can be expressed as :

$$\mathbf{AF = \frac{Pollution\ level\ at\ a\ point\ a\ just\ outside\ without\ the\ greenbelt}{Pollution\ level\ at\ a\ with\ the\ green\ belt}}$$

The attenuation factor for a well-designed green belt attains a limiting value after a certain width and becomes more effective with the increasing height at trees. For the green belt, with Indian trees species (tropical forest species) longer width may not be necessary for maximum attenuation.

Generally for a large industry, a belt width of 150 – 200 mtrs may be adequate but these can be increased where pollution level is high. For a less polluting industry, a belt less than 150 mtr can also do.

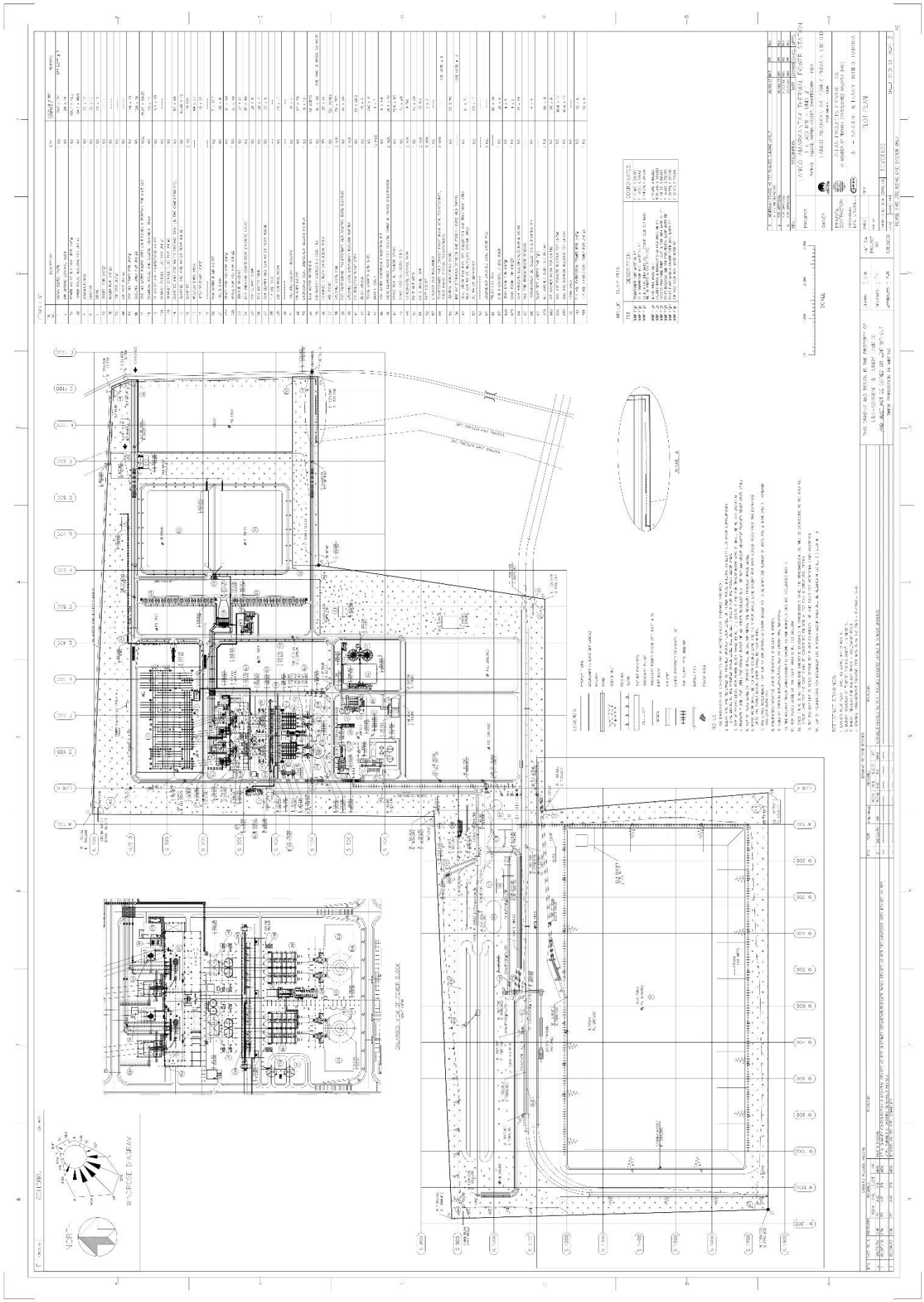
The design and nature of green belts will vary according to the place and the type of industry. Some of the factors which influence the design of green belts are-

- Climatic factors such as wind velocity, temperature, rainfall, sunlight, humidity etc.
- Assimilation capacity of the ecosystem.
- Height and canopy of trees.
- Topography.
- Size of land available.
- Distance from source.
- Soil and Water quality.
- Nature and extend of pollutants.

ADVANTAGES OF GREENBELTS

- **Noise control-** A green belt reduces the intensity of sound. Function as a barrier. Trees can either deflect, refract or may absorb sound to reduce its intensity. The intensity reduction depends on the distance sound has to travel from source. Trees can also modify suitably the humidity and climate which affects sound intensity.
- Help in **soil erosion control**. Plant species help in improving soil quality and bind soil particles thereby preventing erosion. Green belts also help in containing water run offs.
- **Climate Control**
- **Air Pollution control-** Trees help in removing carbon dioxide and other pollutants from air and by release of oxygen into the air thereby improving air quality. A green belt development can also help in removing particulate matter from the air by trapping such particulate matter.
- **Water Pollution control-** Some species can remove some pollutants from water. Example- copper absorbed by *Chlorella vulgaris* and Scandium buy *Astragalas*, zinc by *Typhalatifolia,* chromium by *Salvinianudans*.

LAYOUT OF PLANT



PLANTATION REPORT

S. No.	Location Name	Plant Species	No. of Sapling Planted / Plants till date	Total area covered under plantation	Survival Rate
1	Near Admin Building	MEETHI IMLI, MANGO, SHEESHAM, KARANJ, KACHNAR, BABOOL NEEM, SIDHA, SATWAN, AMLA, ARJUNA, MUNGA, GULMOHAR, JAMUN, TEAK PLANTATION, SITAPHAL, AMALTAS, IMLI, ASHOKA, KHAIR, BER, SAPTAPARNI, BOTTLE PALM	**245000**	**92.67 Hectares**	**86%**
2	Roadside Plantation				
3	Around Reservoir				
4	Near Hydrogen Shade				
5	Around STP Area				
6	Near Plant Gate				
7	Switch Yard Area				
8	In and around CMS area				
9	Near Chlorination Building				
10	Near Fire Station				
11	Near Residential Area				
12	Around ETP area				
13	Nearby villages Dhandhani, Implipara.				
14	Social Forestry at different sites				
15	Along the boundary walls				

CONCLUSION

The Survival percentile of plantation done by **"M/S Lanco Amarkantak Power Limited, Korba** upto **April 2024** is about **86%** which is **Excellent** for the company. The overall growth of plantation was **satisfactory** as the company actively manages the greenbelt development very well.

The official staff of the company were co-operative, enthusiastic and helpful towards the work. We convey our best regards to the environmental branch of the company for successful greenbelt development following the norms of **MoEFCC**, **Govt of India and Govt of Chhattisgarh**.

GRADING (ON SCALE OF 1 to 10)

GRADING	Excellent (8-10)	Very Good (5-8)	Good (3-5)	Poor (<3)
	8.6			

ON SITE PHOTOGRAPHS

==END OF REPORT==

Annexure - III

Korba Power Ltd.								
April'2024 to September'2024								
Month	Ash Generation (MT)	Fly Ash Utilization						
		Cement Plant (MT)	Brick Manufacturing (MT)	Filling of Low Lying Area (MT)	Filling of Abandoned Mine (MT)	Road Constructions (MT)	Total Utilization (MT)	Percentage Utilization (%)
April'24	116285	32120	4296	155387	59045	41414	292262	251.33
May'24	115596	28925	3636	151407	40956	47420	272344	235.60
June'24	109600	19332	3248	43598	0	64544	130722	119.27
July'24	83158	17003	2140	151	0	0	19293	23.20
August'24	63469	13455	1848	0	0	0	15302	24.11
Sept'24	84113	14978	1972	0	0	0	16949	20.15
Total	**572221**	**125812**	**17139**	**350543**	**100001**	**153377**	**746873**	**130.52**