



1.0 PROJECT DESCRIPTION

1.1 Identification of Project and Project Proponent

M/s. Lanco Vidarbha Thermal Power Private Limited (formerly known as Lanco Mahanadi Power Private Limited) promoted by LANCO Group, a leading infrastructure group with focus on infrastructure projects such as Power, Highways, and Construction etc. Lanco Group Limited is the Group Company with Lanco Infratech as the holding company for investments in Power sector.

The proposed 2x660 MW (1320 MW) coal based thermal power plant will be located near Mandva village, Wardha district of Maharashtra state. The cost of the total project is Rs. 6936 Crores which includes about Rs. 415 Crores for environmental protection measures. The project will be commissioned in 38 months from zero date.

1.2 Environmental Setting of the Site

The study area map of 10-km radius around the proposed site is given in **Figure-1**. The environmental setting of the proposed plant site is given in **Table-1**.

**TABLE-1
ENVIRONMENTAL SETTING OF THE SITE**

Sr. No.	Particulars	Details																																							
1	Plant location	Near Mandva village, Wardha district, Maharashtra																																							
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Environmental Impact Assessment for The Proposed 1320 MW Lanco Vidarbha Coal Based Thermal Power Project Near Mandva Village, Wardha District, Maharashtra State

Executive Summary

Sr. No.	Particulars	Details																																																										
		Y	20° 48' 59" N	78° 28' 15.0" E																																																								
		Z	20° 48' 59.5" N	78° 28' 3.5" E																																																								
5 A	Climatic conditions (IMD, Wardha)																																																											
a)	Temperature Mean maximum Mean minimum	43.1°C (May) 13.7 °C (December)																																																										
b)	Mean annual rainfall (total)	1055.4 mm																																																										
c)	Relative Humidity	Maximum-84.0 (August) minimum-16.0% (April)																																																										
d)	Predominant wind directions	Post-monsoon: NE, E and N Annual: W and NE																																																										
e)	Wind speed	1-19 KMPH																																																										
5 B	Climatic conditions at site	From 1 st October to 31 st December 2009																																																										
a)	Temperature	Max: 35.1 °C and Min:18.9 °C																																																										
b)	Relative humidity	Max:74.4% and Min: 32.8%																																																										
c)	Predominant wind directions	NE, W and NW																																																										
d)	Wind speed	1-5 KMPH																																																										
6	Plant site elevation above MSL	280-m above MSL																																																										
7	Plant site topography	Generally flat																																																										
8	Present land use at the site	Barren land & unused and partly agricultural land																																																										
9	Nearest highway	State Highway (SH#255 - 1 km)																																																										
10	Nearest railway station	Wardha (14-15.0 KM, SE)																																																										
11	Nearest Airport	Nagpur (70-km, NE)																																																										
12	Nearest major water bodies	Dham river (3.9 km ENE) Bhor nallah (2.1 km, NE)																																																										
13	Water source for the project	Lower Wardha reservoir (30-km)																																																										
14	Nearest town/City	Wardha (11.8 KM, E)																																																										
15	Nearest village	Mandva (0.6-km, W)																																																										
16	Hills/valleys	No hills and valleys with in 10 km radius																																																										
17	Archaeologically important places	None in 15-km radius																																																										
18	Protected areas as per Wildlife Protection Act,1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	None in 15-km radius (Bor wildlife sanctuary located at a safe distance of 27-km from project site)																																																										
19	Reserved / Protected Forests	<p>Forest blocks exist in 10-km radius:</p> <table border="1"> <thead> <tr> <th>Sr. No.</th> <th>Name of the Forest block</th> <th>Distance (km)</th> <th>Direction</th> </tr> </thead> <tbody> <tr><td>1</td><td>Ratanpur RF</td><td>6.9</td><td>NW</td></tr> <tr><td>2</td><td>Tamasvada RF</td><td>9.5</td><td>NE</td></tr> <tr><td>3</td><td>PF near Heti village</td><td>9.7</td><td>NNE</td></tr> <tr><td>4</td><td>PF near Madna village</td><td>9.6</td><td>NNE</td></tr> <tr><td>5</td><td>PF near Kasarkheda village</td><td>7.3</td><td>NNE</td></tr> <tr><td>6</td><td>PF near Pavnar village</td><td>4.2</td><td>NNE</td></tr> <tr><td>7</td><td>PF near Barkhedi village</td><td>9.1</td><td>NE</td></tr> <tr><td>8</td><td>PF near Amgaon village</td><td>7.6</td><td>ENE</td></tr> <tr><td>9</td><td>PF near Saldhara village</td><td>7.0</td><td>WNW</td></tr> <tr><td>10</td><td>PF near Jamumdara village</td><td>7.3</td><td>WNW</td></tr> <tr><td>11</td><td>PF near Sukli village</td><td>9.9</td><td>NW</td></tr> <tr><td>12</td><td>PF near Bothli village</td><td>7.1</td><td>N</td></tr> <tr><td>13</td><td>PF near Marangna village</td><td>9.6</td><td>NNW</td></tr> </tbody> </table>			Sr. No.	Name of the Forest block	Distance (km)	Direction	1	Ratanpur RF	6.9	NW	2	Tamasvada RF	9.5	NE	3	PF near Heti village	9.7	NNE	4	PF near Madna village	9.6	NNE	5	PF near Kasarkheda village	7.3	NNE	6	PF near Pavnar village	4.2	NNE	7	PF near Barkhedi village	9.1	NE	8	PF near Amgaon village	7.6	ENE	9	PF near Saldhara village	7.0	WNW	10	PF near Jamumdara village	7.3	WNW	11	PF near Sukli village	9.9	NW	12	PF near Bothli village	7.1	N	13	PF near Marangna village	9.6	NNW
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20	Seismicity	Seismic Zone-II as per IS 1893 (Part I): 2002																																																										
21	Defence Installations	Ammunition Depot located at a safe distance of 12-km from the project site																																																										

Note: All distances mentioned are aerial distances; Source: EIA studies, Vimta Labs Limited, Hyderabad



1.3 Description of the Site

The land identified for the proposed project 1195 acres is mostly dry land. The land in the plant site is generally flat with a general elevation of about 280-m AMSL.

1.4 Details of Proposed Project

The proposed power plant will be operated on coal as main fuel to generate 1320 MW of power. Pulverized coal fired boilers with super critical technology will be installed in the project. The details of the proposed power project are given in **Table-2**

TABLE-2
SALIENT FEATURES OF THE PROPOSED PROJECT

Sr. No.	Features	Description
1	Capacity	1320 MW with super-critical technology
2	Configuration	2X660 MW
3	Type of boilers	Pulverized coal fired
4	Boiler Capacity	2000 tph
5	Power evacuation	3 no's 400 kV lines to PGCIL Substation near Deoli
6	Fuel	Coal
7	Source of Coal	SECL, Chhattisgarh coal field
8	Coal Requirement	7.5 MTPA at 90% PLF
9	Sulphur content	0.3% - 0.5%
10	Ash Content in Coal	42% (max)
11	Ash generation	3.15 MTPA
A	Bottom Ash	0.63 MTPA
B	Fly Ash	2.52 MTPA
12	ESP efficiency	>99.78%
13	Stack	One 275-m height twin - flue stack
14	Water Requirement	3858 m ³ /hr



1.4.1 Technology and Process Description

The power generating units will be with super-critical technology steam parameters. The primary fuel to be used for the power generation will be coal. It is proposed to construct a railway siding line for transporting coal to plant site.

Steam is generated in the boiler of the Thermal Power Plant using the combustion heat of the fuel (coal) burnt in the combustion chamber. The steam generated is passed through steam turbine where part of its thermal energy is converted in to mechanical energy. This mechanical energy is further used for generating electric power. The steam coming out of steam turbine is condensed in the water cooled condenser and condensate is supplied back to the boiler with the help of the boiler feed pumps and cycle is repeated.

The main steam parameters envisaged for the plant will be around 2000TPH / 252 bar / 560 °C +/- 5 °C at the steam generator super heater outlet to generate 660 MW. The plant heat rate with performance coal, design ambient conditions and cooling water temperature, is estimated to be 2350 kcal/kWh on GCV basis. The Steam Generator would be of forced circulation, super-critical, once through type, single reheat arrangement for firing domestic coal (pulverized firing). The Steam Generator would be of two pass, water tube, radiant super heater, single reheat, balanced draft, semi outdoor type with low NOx burners.

1.4.2 Power Evacuation

Power generated from the proposed power plant will be stepped up to 400 kV and will be transmitted through 3 nos. 400 kV lines, to PGCIL's /400 kV substation at Deoli.

1.4.3 Fuel Requirement

Maximum total annual coal consumption for the 2x660 MW power plant at 90% PLF will be about 7.5 MTPA. This quantity has been arrived based on design Gross Calorific Value (GCV) of 3300 kcal/kg. Apart from coal, HFO/LDO will be used as auxiliary fuel. The estimated annual requirement of HFO/LDO is about 10000 KL.

1.4.4 Water Requirement

The total water requirement of entire project will be 3858 m³/hr. This water shall be made available from Lower Wardha reservoir located at about 30-km from site. Allocation of 4600 m³/hr (40.2 Mm³/year) of water for the proposed thermal power plant, sourced from Lower Wardha Reservoir, has been approved by Vidarbha Irrigation Development Corporation (VIDC). Adequate water is available throughout the year for the total water requirement to meet the consumptive needs.

1.4.5 Manpower

The proposed power plant will require 600 skilled and semi-skilled personnel during operation, maintenance and administration of the proposed plant of 1320



MW. People from neighbouring villages, if found suitable, shall be employed during construction and operational phases.

1.4.6 Township

It is proposed to provide accommodation for almost 100% of the total staff in the proposed colony. It shall include accommodation for managerial local staff and a good proportion of the rest of the staff. A few staffs are expected to come from neighbouring villages and town's accommodation for such staffs are not envisaged in the colony. It is considered prudent to plan for an accommodation of a higher percentage of staff within the colony itself. Also a provision for guest house inside the colony is considered.

Facilities like medical centre, shopping centre, community centres, play ground etc., will however be provided for all the employees inside the colony.

2.0 **DESCRIPTION OF ENVIRONMENT**

The 10-km radial distance from the plant boundary has been considered as study area for Environmental Impact Assessment (EIA) baseline studies. Environmental monitoring for various attributes like meteorology, ambient air quality, surface and ground water quality, soil characteristics, noise levels and flora & fauna have been conducted at specified locations and the secondary data collected from various Government and Semi-Government organizations.

2.1 **Land Use**

The land use pattern of the study area has been studied by analyzing the available secondary data published in the District Primary Census abstract of the year 2001.

As per the Census records, the 10-km study area admeasure to about 52135-ha. In that total area consists of irrigation land of 2264-ha (4.3%), un-irrigated land about 31682-ha (60.8%), cultivable waste land of 7620-ha (14.6%), land not available for cultivation is about 8548-ha (16.4%).

2.2 **Soil Quality**

A total of eleven samples within 10-km radius of the plant site were collected for the assessment of soil quality. The baseline environmental monitoring studies were carried out from 1st October 2009 to 31st December 2009. It has been observed that the pH of the soil in the study area ranged from 7.3 to 7.8. The electrical conductivity was observed to be in the range of 237 μ mhos/cm to 319 μ mhos/cm. The nitrogen values range between 42.6-154.3 kg/ha. The nitrogen content in the study area falls in less to better category. The phosphorus values range between 27.3 to 96.8 kg/ha, indicating that the phosphorus content in the study area falls in more than sufficient category. The potassium values range between 395.3 – 789.4 kg/ha. The potassium content in the study area falls in very less to more than sufficient category. The chlorides were found to be in the range of 49.6– 85.6 mg/kg of soil.



2.3 Meteorology

On-site monitoring was undertaken for various meteorological variables in order to generate the site-specific data. Data was collected every hour continuously from 1st October 2009 to 31st December 2009. The maximum and minimum temperatures recorded during the study period are 31.2°C and 14.9°C. The relative humidity found varying from 36.1% to 68.5%. The predominant winds are mostly from NE (21.6%) followed by W (14.9%) and NW (10.6%) direction. 24-mm of rainfall was recorded during study period.

2.4 Ambient Air Quality

To establish the baseline status of the ambient air quality in the study area, the air quality was monitored at 12 locations. The summary of the Ambient Air Quality monitored is given in **Table-3**.

TABLE-3
SUMMARY OF AMBIENT AIR QUALITY IN THE STUDY AREA

TSPM	RPM	SO ₂	NO _x	CO	Ozone	Mercury
59.6-112.4	14.2-32.1	4.7-12.4	6.1-17.7	184-385	BDL	BDL

Concentrations are expressed in µg/m³

The results of the monitored data indicate that the ambient air quality of the region in general is in conformity with respect to rural/residential norms of National Ambient Air Quality standards of CPCB, with present level of activities. Mercury and Ozone concentrations were found to be below detectable limits.

2.5 Water Quality

Seven ground water samples and 4 surface water samples within the study area were considered for assessment.

• **Surface Water Quality**

The analysis results indicate that the pH values in the range of 7.0 to 7.6, which is well within the specified standard of 6.5 to 8.5. The TDS was observed in the range of 747 mg/l to 1875 mg/l. DO was observed to be in the range of 4.0 to 6.0 mg/l respectively. The chlorides and Sulphates were found to be in the range of 56.7 to 303.5 mg/l and 42.5 to 120.6 mg/l respectively. It is observed that chlorides and Sulphates are well within the permissible limits. The calcium & magnesium were found to be in the range of 25 to 56 mg/l and 12 to 35 mg/l respectively. It is evident from the above values that all the parameters are found to comply with the requirements of IS: 2296 specification of surface water. The surface water quality does not indicate any industrial contamination.

• **Ground Water Quality**

The analysis results indicate that the pH ranges in between 7.0 to 7.5, which is well within the specified standard of 6.5 to 8.5. Total hardness was observed to be ranging from 70.7 to 337.5 mg/l. Chlorides were found to be in the range of 19.9



mg/l to 221.1 mg/l respectively. Sulphates were found to be in the range of 24 mg/l to 130 mg/l. The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 310 to 1090 mg/l. The ground water quality in the study area does not indicate any industrial contamination.

2.6 Ambient Noise Levels

a) Day time Noise Levels (L_{day})

The daytime (L_{day}) noise levels are observed to be in the range of 40.6 – 48.5 dB (A). It is observed that the day time noise levels are in broadly in accordance to the prescribed limit of 55 dB (A) for rural / residential areas and 75 dB (A) for industrial zones.

b) Night time Noise Levels (L_{night})

The nighttime (L_{night}) noise levels were observed to be in the range of 35.7 – 44.1 dB (A). It is observed that the day time noise levels are in broadly in accordance to the prescribed limit of 45 dB (A) for rural / residential areas and 70 dB (A) for industrial zones.

2.7 Flora and Fauna

Based on the primary data collected by field visits and based on the secondary data collected as per the records of forest department of Wardha district and literature survey, there are no endangered, threatened and protected plants and animal species in the study area.

2.8 Socio-Economic Environment

As per 2001 census the study area consists of 95109 persons inhabited in the study area of 10 km radial distance from the periphery of the proposed plant. The males and females constitute about 51.6 % and 48.4% in the study area respectively. The average household size of the study area is 5 persons. The density of population reveals that the study area has an overall density of 247 persons per km². In the study area, 9.0% of the population belongs to Scheduled Castes (SC) and 28.7% of the population belongs to Scheduled Tribes (ST). The study area experiences average literacy rate of 65.5 %. As per 2001 census records, altogether the main workers works out to be 38.5 % of the total population. The marginal workers and non-workers constitute to 10.1 % and 51.4 % of the total population respectively

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS

The environmental impacts during construction and operation phases of the proposed project have been assessed and adequate management plan has been evolved to mitigate the impacts.



3.1 Impacts during Constructional Phase

The environmental impacts during the construction stage will be short term, temporary in nature and will be confined very close to project sites. The manpower required for these activities should preferably be employed from nearby villages.

3.1.1 Land Environment

The land identified for the proposed 2X660 MW power plant is about 1195 acres. About 389 acres of the land will be used for ash disposal. The proposed plant land is mostly barren land and partly single crop agriculture land. Proposed plant site does not contain habitation, hence no displacement of residential areas.

The earth generated during excavation of water reservoir and ash pond within the project premises will be used for grading the plant area. Hence, no major impact is envisaged on land use pattern of the project site or buffer zone.

3.1.2 Impact on Soil

The construction activities will result in loss of vegetation cover, topsoil and earthen material to some extent in the plant area. However, it is proposed to use the soil and earthen material for greenbelt development and levelling of project site. Greenbelt will be developed in phased manner from construction stage onwards.

Apart from localized construction impacts at the plant site, no adverse impacts on soil in the surrounding area are anticipated.

3.1.3 Impact on Air Quality

The main sources of emission during the construction period are the movement of equipment at site and dust emitted during the levelling, grading, earthwork, foundation works and exhaust emissions from vehicles and equipment deployed during the construction phase is also likely to result in marginal variation in the levels of SO₂, NO_x, SPM and CO. The impact will be for short duration and confined within the project boundary and is expected to be negligible outside the plant boundaries. The impact will, however, be reversible, marginal and temporary in nature. Proper maintenance of vehicles and construction equipment will help in controlling the gaseous emissions. Water sprinkling on roads and construction site will prevent fugitive dust.

3.1.4 Impact on Terrestrial Ecology

The initial construction works at the project site involves land clearance. During construction, vegetation may be disturbed. Greenbelt will be developed phase wise during construction to improve the aesthetic value in the area and to screen out the fugitive dust generated during construction.

The removal of vegetation from the soil and loosening of the topsoil generally causes soil erosion. However, such impacts will be confined to the project site and will be minimized through paving and water sprinkling.



There are no existing matured trees in the site. However, greenbelt will be developed surrounding the plant facilities. Thus, no major adverse impacts are envisaged on terrestrial ecology.

3.1.5 Socio-Economic Impacts

The project will provide either direct or indirect job opportunities to the local population as far as possible.

3.2 **Impacts during Operational Phase**

3.2.1 Impact on Soil

Most of the impacts of power plant project on soils are restricted to the construction phase, which will get stabilized during operational phase. The impact on the topsoil will be confined to the proposed main plant area.

3.2.2 Impact on Air Environment

The impact on air quality is assessed based on emissions of the proposed power plant. Being coal based power plant, Suspended Particulate Matter (SPM), Sulphur dioxide (SO₂) and Oxides of Nitrogen (NO_x) will be the important pollutants emitting from the proposed power plant. The maximum incremental ground level concentrations and resultant concentrations for PM, SO₂, NO_x and Mercury are given in **Table-4**

TABLE-4
PREDICTED 24-HOURLY SHORT TERM INCREMENTAL CONCENTRATIONS

Season	Maximum Incremental GLCs ($\mu\text{g}/\text{m}^3$)				Distance (km)	Direction
	PM	SO ₂	NO _x	Hg		
Study period	0.6	32.1	24.1	0.0011	1.4	SW

The maximum resultant 24 hourly concentrations for PM, SO₂ and NO_x after implementation of the proposed project (1320 MW power project) are 113.0 $\mu\text{g}/\text{m}^3$, 44.5 $\mu\text{g}/\text{m}^3$ and 41.8 $\mu\text{g}/\text{m}^3$ respectively.

3.2.3 Impact on Water Environment

About 849- m^3/hr wastewater will be generated, in that 387- m^3/hr will be used for Ash Handling System, 150- m^3/hr used for CHP Dust Suppression, 45- m^3/hr used for Silo dust suppression, 62- m^3/hr used for gardening, 77- m^3/hr will be sent to Ash slurry Sump, 128- m^3/hr will be the out fall.

The generated wastewater to a maximum extent will be used for ash handling plant, coal handling plant and for gardening. Zero discharge concepts will be followed as far as possible.

Adequate storm drains will be constructed along the boundary of the plant area and within the plant area to drain off the storm water during monsoon period.



3.2.4 Impact of Solid Waste Generation

Ash is the major solid waste to be generated from the proposed coal based power plant. Coal consumption of 7.5 MTPA at 90% PLF was considered for estimation of ash generation. Fly ash about 2.52 MTPA and bottom ash of 0.63 MTPA will be generated.

It is proposed to collect fly ash from ESP hoppers in dry form and provide/supply to potential ash users depending on the demand. The balance unutilized ash will be disposed off using Lean Slurry Disposal technology. An area of about 389 acres has been identified for ash pond within the project premises.

The sludge from sewage treatment plant will be dried, vermi-composted and used as manure for greenbelt maintenance. Canteen/sanitary waste will be composted and used as manure for greenbelt development.

3.2.5 Noise Environment

The main noise generating sources from the proposed power plant will be pumps, compressors along with cooling tower and boilers. The noise levels at the source for these units will be in the range of 80-90 dB (A).

3.2.6 Impact on Aquatic Ecology

The effluents are not envisaged to be discharged into any streams. Hence, no impact is envisaged from the proposed power plant on aquatic bodies.

3.2.7 Impact on Reserve/Protected Forest

The impacts on the ecology will be due to the incremental gaseous concentrations and noise generated during operation of the proposed power plant. There are eleven protected forests and two reserved forests within 10-Km Radius of the project site.

3.2.8 Impacts of Noise Levels

The predicted incremental noise levels at plant boundary will be in the range between 80 to 90 dB (A) and will recede further as the distance increases. Hence, the impact of the noise levels on the surroundings will be insignificant.

3.2.9 Impact on Human Health

The impact from the air emissions is not expected to be significant since the stack design and the atmospheric conditions are such that the ambient air quality at present as well as in future after the proposed facility will be within the prescribed ambient air quality limits set forth by CPCB.

3.2.10 Impact on Public Health and Safety

The impact from the discharge of waste products on public health and safety is not expected to be significant since, the adverse impacts on ambient air, water and soil quality are predicted to be low.



It is predicted that the impacts on public safety will be very low, due to the effective safety system and safety management available in the plant.

Overall, the impact on public safety and health from the proposed project activities will be insignificant.

4.0 ENVIRONMENT MANAGEMENT PLAN

4.1 Environment Management Plan during Construction Phase

4.1.1 Air Quality Management

The activities like site development, grading and vehicular traffic contribute to increase in SPM and NO_x concentrations. The mitigation measures recommended to minimize the impacts are:

- Water sprinkling in construction area;
- Asphaltting the main approach road;
- Proper maintenance of vehicles and construction equipment; and
- Tree plantation in the area earmarked for greenbelt development.

4.1.2 Water Quality Management

The mitigation measures recommended to minimize the impacts are sedimentation tank to retain the solids from run-off water; oil and grease trap at equipment maintenance centre; septic tanks to treat sanitary waste at labour colony; and utilizing the wastewater in greenbelt development.

4.1.3 Noise Level Management

Operation of construction equipment and vehicular traffic contribute to the increased noise level. Recommended mitigation measures include good maintenance of vehicles and construction equipment and restriction of construction activities to day time only. Plantation of trees around the plant boundary will be done to attenuate the noise. Provision of earplugs and earmuffs to workers will be made.

4.1.4 Ecological Management

During construction, vegetation in the plant premises is required to be cleared. The greenbelt having vegetation density of 1500 trees/ha will be developed.

4.2 Environment Management Plan during Operation Phase

4.2.1 Air Pollution Management

Fugitive and stack emissions from the power plant will contribute to increase in concentrations of SPM, SO₂, and NO_x pollutants. The mitigative measures recommended in the plant are:



- Installation of ESP of efficiency more than 99.78% to limit the SPM concentrations below 50 mg/Nm³;
- Provision of one twin-flue stack of 275-m height for wider dispersion of gaseous emissions;
- Provision of water sprinkling system at coal and ash handling areas etc.,
- Greenbelt with a width of 50-m will be developed around the plant site. The total greenbelt around the power plant complex will be about 290 acres.

4.2.2 Water Pollution Management

Adequate treatment of wastewater in ETP prior to recycle/reuse to maximum extent will be done. Provision of separate storm water system to collect and store run-off water during rainy season and utilization of the same in the process to reduce the fresh water requirement will be made. Suitable rainwater harvesting structures will be constructed.

4.2.3 Noise Pollution Management

Equipments will be designed to conform to noise levels prescribed by regulatory authorities. Provision of thick greenbelt to attenuate the noise levels will be made.

4.2.4 Solid Waste Management

Solid waste in the form of ash will be generated in a coal based thermal power plant. The following measures shall be taken for solid waste management:

- In general ash will be given to potential ash users;
- The excess ash will be disposed off using conventional wet slurry disposal system to ash pond
- The generated waste oil shall be explored to be used in boiler furnace with HFO or shall be given to authorized recyclers;
- The organic portion of solid waste generated in the Sewage Treatment Plant (STP) will be used as manure in greenbelt development; and
- Maintaining the data base on solid waste generation such as quantity, quality, and treatment/management.

4.2.5 Ash Utilization

Fly ash will be utilized in brick plants, cement industries, as micro-nutrient in fertilizer, road construction and backfilling of mines. The fly ash will be utilized in various construction materials to the maximum extent and 100% utilization will be achieved in phases by 4 years of operation.

4.2.6 Greenbelt Development

Greenbelt with a width of 50-m will be developed around the plant site. The total greenbelt around the power plant complex will be about 290 acres.

In the proposed greenbelt about 175500 trees will be planted with a density of 1500 trees/ha. Annual budget of Rs. 5.0 crores will be earmarked for this



purpose. The plantation schedule will be completed within four years from the construction period of the project.

4.2.7 Cost Provision for Environmental Measures

It is proposed to invest about Rs. 415 crores on pollution control, treatment and monitoring systems for proposed power plant. In addition, Rs. 5.0 crores per annum will be spent on environmental protection measures.

5.0 POST PROJECT ENVIRONMENT MONITORING PROGRAMME

Post project environmental monitoring is important in terms of evaluating the performance of pollution control equipments installed in the project. The sampling and analysis of the environmental attributes will be as per the guidelines of CPCB/MPCB. The frequency of sampling and location of sampling will be as per the directives of Maharashtra Pollution Control Board.

6.0 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

The hazard potential of oil and estimation of consequences in case of their accidental release during storage, transportation and handling has been identified and risk assessment has been carried out to quantify the extent of damage and suggest recommendations for safety improvement for the proposed facilities. Risk mitigation measures based on MCA analysis and engineering judgments are incorporated in order to improve overall system safety and mitigate the effects of major accidents.

An effective Disaster Management Plan (DMP) to mitigate the risks involved has been prepared. This plan defines the responsibilities and resources available to respond to the different types of emergencies envisaged. Training exercises will be held to ensure that all personnel are familiar with their responsibilities and that communication links are functioning effectively.

7.0 PROJECT BENEFITS

The proposed 1320 MW Thermal Power Plant will result in improvement of infrastructure as well as upliftment of social structure in the surrounding villages. The people residing in the nearby areas will be benefited indirectly. The major benefit due to the proposed project will be in the sphere of generating temporary employment for substantial number of personnel. The construction phase of Power Plant is expected to span over 38 months.

During the construction phase about 2000 people on an average per day will be employed for a period of about three years. The manpower of power plant during operational period is estimated to be about 600 persons.



Implementation of the power project will result in the following benefits

- Employment will be provided to eligible project affected persons both during construction and operational phase
- Temporary employment for people from the neighboring villages during construction phase.
- Community development activities such as training of local unemployed youth in various construction skills, English speaking, personality development, development of self help groups for women, providing drinking water facility, strengthening of rural roads, deepening of ponds etc.,
- State will get revenue from payment towards taxes and water cess etc.,
- Providing dispensary with a medicine bank to cater to the health care needs of the surrounding villages.
- Providing vocational training to women in areas for their self employment.
- Utilizing the services of ex-servicemen for providing training to youth in areas of personality development, security etc.,