

EXECUTIVE SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

For

Proposed Expansion of Thermal Power Plant From (1 x 270 MW to 2 x 270 MW)

At Village: Khursapar/Kinhala

Tehsil: Umrer,

District: Nagpur, Maharashtra

Proposed By

IDEAL ENERGY PROJECTS LTD.

Prepared By



Mahabal Enviro Engineers Pvt. Ltd.

Pollution monitoring, Engineers & Contractors in Environmental Management

Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

EXECUTIVE SUMMARY

INTRODUCTION

Ideal Energy Projects limited (IEPL) Nagpur, have proposed for Expansion of existing 1 X 270 MW Coal based Power Plant to 2 x 270 MW at village Khursapar/Kinhala near Village Bela, Tal. Umrer, District Nagpur, Maharashtra. The construction of Phase I Unit of 270 MW is in progress & Unit I will be synchronized by November 11.

The proposal is covered under category A of the Environmental Impact Assessment Notification 2006 and requires an Environmental Clearance from Ministry of Environment and Forest (MoEF).

The purpose of this Environmental Impact Assessment (EIA) study is to provide information on the surroundings and the extent of environmental impact likely to arise on account of the proposed expansion of power project program for 2 x 270 MW (540 MW).

PROJECT LOCATION

The project site is about 51 kms. away from the city of Nagpur, which is the district head quarter. The Power Plant area falls in Survey of India Toposheet No. 55 P/1. The nearest railway station is Borkhedi (12 kms) of Central railway, on Delhi - Chennai and Mumbai - Hawara trunk route. The site data is:

Sr. No.	Particulars	Details
1	Location	Village Khursapar Kinhala near village Bela in Umrer Tehsil of Nagpur district
2	Elevation above Mean Sea Level	247 m above MSL
3	Nearest railway station	Borkhedi (12 km)
4	Nearest town	Nagpur (51 km)
5	Nearest airport	Nagpur (51 km)
6	Access road (National / State highway)	Well connected with good roads, NH – 7 (12 kms)
7	Latitude	200 48' 06.9"N to 200 48' 46.9"N
8	Longitude	790 02' 46.9"E to 790 03' 48.8"E

PROJECT DESCRIPTION

The project involves Installation of stream of machinery and equipments and its associated activities to generate 540 MW of power. Salient features of project are given below:

SALIENT FEATURES FOR PROPOSED POWER PROJECT

Sr. No.	Particulars	Unit	Phase I (Unit I)	Phase II (Unit II)	Total (Unit I + Unit II)
1	Year of Establishment		2011	2013	-
2	Production Capacity	MW	270	270	540
3	Manpower (Workmen + Staff)	Nos.	100	92	192
4	Coal Consumption	t/day	4050	4050	8100
5	LDO requirement	KL/year	1000	1000	2000
6	Furnace Oil	KL/year	4500	4500	9000
7	Land	ha	101	39	140
8	Water	m ³ /day	15,102	15,102	30,204
9	Waste Water Generation	m ³ /day	5,506	5,506	11,012
10	Reuse of Treated Waste Water	m ³ /day	5,448	5,448	10,896
11	Stack height	m	220	220	-
12	Stack diameter at top	m	5.38	5.38	-
13	Stack emissions (SPM)	mg/Nm ³	50	50	-
14	Fly ash generation	t/day	1280	1280	2560
15	Bottom ash generation	t/day	320	320	640
16	Total ash generation	t/day	1600	1600	3200
17	Project Cost	Cr	1001.32	1219	2220.32

Details of the Process

Coal from the gantry is crushed in a crusher and conveyed to coal storage bunkers through a system of conveyor belts, crusher and vibrating screens and is fed to the furnace. The coal burns inside the furnace so as to maintain a furnace temperature of 880-900 °C.

De-mineralised water from the storage tank is pumped to the boiler with the aid of boiler feed pump. The boiler feed water through an economizer enters the steam drum, mud drum and water walls where it is heated and converted to saturated steam. The saturated steam is then heated to a temperature of 540 °C in the super heaters and carried to common steam header. Hot air from the boiler furnace is drawn by an induced draft fan through economizer, air heater and ESP and vented out through a chimney of 220 m height.

The steam from the main steam header at 150 Kg/cm² and 540°C temperature is taken to the turbo-generators. After rotating the turbine the exhaust steam is condensed in the condensers and the condensed water is pumped to the de-aerator and fed back to the boilers

RESOURCE REQUIREMENT

Water

The water for proposed expansion will be sourced from Wadgaon Reservoir. The water requirement for the proposed expansion is 15,012 m³/day and will be met from Wadgaon Dam. The total water requirement for both the phases (Phase I & Phase II) is 30,024 m³/day. Government of Maharashtra has accorded an In-Principle Approval for allotment of 7.8 million m³ per year for Phase-I from Wadgaon Dam for the project and further allotment of 10 million m³ of water per annum is also received for phase II.

Fuel

The coal requirement for proposed expansion is around 4050 t/day. The total coal required for both the units is around 8100 t/day (2 x 270 MW). Project has been granted coal linkage from 3 coal companies i.e. WCL, SECL and MCL. The coal will be transported over Indian Railways & will be directly unloaded through wagon tippers at the project site. Railway has granted us a permission by providing offtake at Borkhedi station which is 11Km from project site

Land

The land required for phase I & Phase II is about 101 ha and 39 ha respectively. Approx 108 ha has been acquired and 32 ha will be purchased. For Ash Dyke 19 ha land has been identified and will be acquired.

Infrastructure

At present no rail link is existing for the transportation of coal from mines to site. The nearest railway siding is at Borkeri, which is 12 km away. The coal will be transported over Indian Railways & will be directly unloaded through wagon tippers at the project site. Railway has granted us a permission by providing offtake at Borkhedi station (on Nagpur-Wardha section of Central Railway) which is 11Km from project site. Once the approval is granted, construction work of the siding will be taken up, which will require at least 18 months from start of the work. Till siding is ready, it is proposed to unload coal at Butibori station & then it will be transported by Trucks to project site. Distance from Butibori to project site is 20 Km & all weather tar road is available. The project site is adjacent to Purti Sakhari Karkhana Limited. All the infrastructure facilities are in place and it will be used for proposed power

plant. Also it is proposed to construct township for staff in near by areas of project site.

BASELINE ENVIRONMENTAL QUALITY

Methodology of the Study

Keeping in view the nature of activities, the process of power plant and various environmental guidelines, the area covering a radial distance of 10 Km from the centre of the plant site was selected as study area for the purpose of EIA study. To establish baseline status of air, water, noise, land, biological and socio-economic environment in the study area, extensive field studies were undertaken in and around power plant during the winter season (Dec 2010 to Feb 2011)

Climate

The climate of the Power Plant area is characterized by a hot summer and well distributed rainfall during the monsoon. The winter season is from November to February. This is followed by hot summer from March to May. The South West Monsoon is from June to August. September, October and November constitute the post monsoon season. The temperature shoots up to 45°C in summer and comes down to the minimum of 7°C in winter. The average annual rainfall of the area is about 1000 mm. The relative humidity varies from 62% to 88% during different periods in a year. During monsoon, it is more than 90%, where as in January, February it is 50% to 60% or less. Mean wind direction is towards N-E (from February to September) and SW (from October to January)

Air Quality

Air quality was monitored at eight numbers of air-quality stations and it was observed that the levels of suspended particulate matter (SPM), PM10, PM2.5, Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x), Ozone, Mercury and Carbon monoxide (CO) are well within the standards prescribed by CPCB. Average values of pollutants concentrations are given below

Ambient Air Quality Results (Average)

Sr. No	Location	Concentration							
		SPM µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NOx µg/m ³	Ozone µg/m ³	Hg µg/m ³	CO mg/m ³
1	Plant Area	148.77	61.58	19.89	10.56	20.11	48.00	ND	0.6
2	Wadgaon	130.52	54.97	17.70	11.03	20.17	48.00	ND	0.50
3	Rama Colony	140.36	51.22	16.94	10.93	18.34	43.00	ND	0.47
4	Nishanghat	126.9	49.3	16.7	10.5	20.8	43.00	ND	0.53
5	Bela	132.60	55.33	18.02	10.70	19.26	51.00	ND	0.59
6	Suraburdi	122.81	49.16	17.54	9.71	20.78	44.00	ND	0.55
7	Sawangi	128.48	51.79	17.24	10.36	19.00	46.00	ND	0.53
8	Muradpur	124.29	51.34	16.48	9.39	16.62	46.00	ND	0.54

Noise Quality

Noise levels were monitored at ten locations within the study area. Day time and night time noise level on project site ranges from 49.1 dB (A) to 58.2 dB (A) and 36.8 to 49.5 dB (A) respectively. Noise levels measured at residential, commercial, industrial and sensitive areas are well within the standards prescribed by ministry of Environmental and forest

Water Quality

Water samples of both surface (5 Locations) and ground water (5 Locations) sources, were analyzed and compared with IS:10500 limits. The water quality of all the surface water and ground water sources is well within the standards and can be used for drinking after conventional treatment

Soil Quality

Soil quality was assessed at seven locations. The soil from the study area shows moderate fertility. The texture of these soils is light deep and medium Black and grey in covers about 2/3rd of the cultivated land. The soil samples show low porosity and higher bulk density.

Biological Environment

The Muniya Reserve forest is located at 5-6 km from project site. The proposed project site is located on the downstream of the Wadgaon reservoir while, the Muniya Reserve Forests is located in the upstream of eastern side of reservoir

catchment. 5.73% of study area (10 km radius from project site) is comes under reserve forest. The Muniya reserve forest is spread over 710 hectares and indicates presence of species like the Hanuman Langur, Hyena, jackal, Indian fox, and wild boar. There are no major protected areas such as Biosphere reserve, Tiger Reserve, National Park, Marine Sanctuary, Ramsar site, etc, exist within 10 km radius from the project area boundary

Socio Economic Environmental

The study area comprises of 24 villages. The total population of the study area is 25,312. The percentage of male and female population is 52.20% and 47.80% respectively. The average sex ratio (number of females per 1000 males) is 907. the scheduled Caste and Scheduled tribe population is accounting 14.3% and 16.2% of the total population respectively. Thus, minority population accounts for about 30.5% of the total population of the study area. The overall literacy rate in the study area is 65.97%. Education uptill primary and middle school level is available in all the villages in the study area whereas, high schools are available only in very few villages. The overall employment in the study area is 48%. Majority of peoples are living on agriculture. There are 18 villages on the fringes of Muniya, mostly tribals, and has some level of dependence on the Muniya Reserve Forest. They are primarily depending upon collection of firewood- dried twigs, grazing in the fringe areas, and collection of Non timber forest produce

Resettlement and Rehabilitation Plan

The land acquired for phase I of Project and being acquired for expansion is private agriculture land. The adequate compensation has been given to the titleholders as per the market rates. The land has been acquired with consents of each titleholder. The land being acquired for phase II will be purchased as per the market rates. No private buildings, structures, public property is present on land to be acquired. All the land owners are staying in nearby Khursapar village. Hence there will not be question of Rehabilitation and Resettlement.

Land use pattern

The land use pattern of study area was studied with use of satellite imagery of the project area. The study area the major portion is occupied by the agricultural fallow land (21.39%). Agricultural fields and Medium Scrub vegetation are the next dominant land use categories accounting for 19.23% and 19.0% of the study area respectively. Waste/Degraded land, Water Body and reserve forest account for 18.02%, 15.70% and 5.73% of the study area respectively. The percentage of settlement accounts (0.93%) in the study area.

IMPACT ASSESSMENT:

"Environmental Impact" can be defined as any alteration of environmental conditions or creation of a new set of environmental conditions, adverse or beneficial, caused or induced by the action or set of actions under consideration.

Air Environment

The major source of air pollution during the construction period is from the movement of vehicles for construction activity. In operation phase it is due to handling of coal & due to burning of coal for electricity generation. The prediction of impact of both the units of 540 MW (2 x 270 MW) Thermal Power Plant on the ambient air quality has been done using ISCST3 Air quality model. The predicted ground level concentrations of pollutants are well within the NAAQS for residential area.

Predicted increase in Sulphur Dioxide SO₂ (Unit: µg/m³)

Sr. No.	Location	24 hourly Max. baseline SO ₂ Conc. (µg/m ³)	Incremental SO ₂ GLC (µg/m ³)	Total SO ₂ Predictive GLC (µg/m ³)
1	Muradpur	11.0	1.9	12.9
2	Surabardi	12.28	0.8	13.08
3	Nishanghat	12.5	5.8	18.3
4	Wadgaon	13.75	4.0	17.75
5	Bela	12.92	5.9	18.82
6	Sawangi	12.02	9.0	21.02
7	Rama Colony	13.54	0.8	14.34
8	Project Site	11.82	9.8	21.62

Predicted increase in Suspended Particulate Matter SPM (Unit: µg/m³)

Sr. No.	Location	24 hourly Max. baseline SPM Conc. (µg/m ³)	Incremental SPM GLC (µg/m ³)	Total SPM Predictive GLC (µg/m ³)
1	Muradpur	149.70	0.4	150.1
2	Surabardi	153.65	0.1	153.75
3	Nishanghat	151.5	1.1	152.6
4	Wadgaon	156.72	0.8	157.52
5	Bela	160.74	1.0	161.74
6	Sawangi	168.20	2.0	170.20
7	Rama Colony	161.40	0.5	161.90
8	Project Site	174.94	2.2	177.14

Predicted increase in NO_x (Unit: µg/m³)

Sr. No.	Location	24 hourly Max. baseline NO_x Conc. (µg/m³)	Incremental NO_x GLC (µg/m³)	Total NO_x Predictive GLC (µg/m³)
1	Muradpur	20.18	1.6	21.78
2	Surabardi	23.65	0.4	24.05
3	Nishanghat	25.7	4.0	29.7
4	Wadgaon	26.02	3.8	29.82
5	Bela	23.40	4.0	27.4
6	Sawangi	25.44	7.6	33.04
7	Rama Colony	21.30	1.3	22.6
8	Project Site	25.62	8.2	33.82

Water Environment

The total water requirement of the Power Plant for both the units with associated facilities will be 30,204 m³/day. The proposed power plant will meet its process water requirement from Wadgaon Dam. The total waste water that would be generated from the plant is 5506 m³/day. The effluent would be treated at the respective generation point and it would be collected in the central guard pond after treatment for recycling. There will not be any impact on surface or ground water characteristics due to power plant are anticipated. The surface and ground water characteristics of the samples monitored within the study area are well within the permissible limits. The treated effluents for discharge would meet the MINAS standards and it will be recycled within the plant.

Land Use

The land to be diverted for the proposed thermal power project is 140 ha (Phase I & Phase II) 19 ha of land have been identified for ash dyke. The site preparation activities like clearing, stripping leveling, altering slopes for transmission towers, each filling and excavation for foundation, will lead to change of existing land use pattern.

Noise Environment

The impact of noise generated from the proposed expansion on its workers is expected to be insignificant except for the employees working near compressors, FD fans, PA fans, ID fan, turbines and Blower. For these sources the workers can be protected using earplugs and arranging their duties in cycles. The impact of noise generated due to proposed expansion is insignificant on the human settlements in the area.

Biological Environment

The impact on terrestrials and aquatic ecology due to the proposed the power plant are insignificant. With the green belt development around the plant as suggested in EMP the terrestrial environment of the region will be having

positive improvement and will further mitigate fugitive emissions as well as attenuated noise impact.

Ecology

As the study area does not provide habitation to any rare and endangered species of flora and fauna, impact on ecology will be mainly due to removal of green cover in plant area. This will be compensated, by the tree plantation programs being implemented by the management of the Power plant.

Socio-Economics

The impact of the project on socio-economic status of the region would be predominantly positive, if proper implementations of the measures suggested in the EMP are made.

Overall Impact

The overall impact of the power plant project is beneficial as the impact on the air, noise, water, land and biological environments are not very significant and the socio-economic benefits are predominantly positive.

ENVIRONMENTAL MONITORING PROGRAM

It is also proposed to undertake post-project ambient air quality monitoring program to ensure that the concentrations of various pollutants do not exceed the permissible limits. The air pollutants namely SPM, SO₂ and NO_x would be continuously monitored at appropriate locations and such monitoring programs shall be in conformity with the guidelines of pollution control authority. The effluents produced from the power plant shall also be monitored for various parameters such as pH, suspended solids, oils, greases, TDS etc. to plan for suitable treatment as may be considered necessary.

Sr. No.	Environmental attribute	Locations	Parameters	Period and Frequency
1.	Ambient Air Quality	• One at centre • One Upwind & • Two downwind Location	Criteria Pollutants: SO ₂ , NO _x , SPM, PM,	24-hr average sampling (Twice a week) 3 Seasons
2.	Stack emission monitoring	Stack of Proposed Plant	SO ₂ , NO _x , SPM, CO	Daily during functional phase - Online
3.	Ambient Noise	Inplant Noise levels and Noise level within 1km from	dB(A) levels • SPL (dBA) • L_{eq} (Night +Day)	L_{eq} (day) and L_{eq} (Night) should be monitored once in

Sr. No.	Environmental attribute	Locations	Parameters	Period and Frequency
		plant		<i>month.</i>
4.	Treated Effluent quality	ETP of Power Plant	Parameters for horticulture use - BOD, pH, S.S, pathogens	<i>Once in Every month during functional Phase</i>
5.	Soil quality	Greenbelt area	Organic matter, C, H, N, Alkalinity, Acidity, heavy metals and trace metal.	<i>Pre-monsoon and post-monsoon during functional phase.</i>
6.	Ground water quality	Six locations	Drinking water parameters as per IS 10500	<i>Once in Three months</i>
7.	Surface water quality	Six locations	Drinking water parameters as per IS 10500	<i>Once in Three months</i>
9.	Occupational exposure monitoring	Coal handling plant, feed cycle plant, main plant area	Lung test, Audiometer test.	<i>Once a Year</i>
10.	Meteorology	Plant site at suitable location	Wind speed, direction, Solar radiation, relative humidity,	<i>Continuous on hourly basis</i>

RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

A thermal power plant has various equipment and storages operating under high temperature and high pressure. The adjoining area and the population may face hazardous situations affecting life and property due to the project. The probable dangers / hazards in this station are as follows.

- Fire due to various reasons.
- Hazards due to chemicals and gases.
- Oil Leakages / Spillages
- Electrical hazards.
- Collapse of constructions and machineries.
- Accidents due to transportation of vehicles.

- Devastation, riot / disturbance or combat / war.
- Natural calamity.

The emergency preparedness plan has been prepared for the units, considering the hazards present in the power plant.

Occupational Safety

Since the process do not call for release of any inflammable or toxic substances, it is considered desirable to provide a safe working environment to the operational staff. Suitable casings to all the moving parts will be provided and perfect encasing to the electrical installation will be made to prevent any electrical accident.

Fire protection System

The power plants which are operating on various kinds of fossil-fuels such as coal, oil, gas, etc. are prone to fires. The fires are of various kinds and these need to be quenched by way of resorting to various protection systems. The plant area shall be provided with smoke detection system which could detect any kind of smoke likely to arise on account of fires.

Protective equipments for working personnel

In order to take care of the working personnel, they would be provided with various protective devices, which shall broadly comprise respirators (face pieces, walls, sweat traps, head bands, filters, etc.), goggles, rubber gloves, gum shoes, etc

ENVIRONMENTAL MANAGEMENT PLAN

The proposed power plant shall have two significant phases. The first phase shall be the constructional phase, which would continue for a period 42 months from the date of placement of order of the main power block machinery and the second phase i.e. operational phase, which may continue for a period extending to 40-50 years or even more.

EMP for Constructional phase

The constructional phase comprises various activities which are rather transient in nature and prevail for shorter duration. The following measures are considered desirable:-

- The construction site shall be demarcated and properly cordoned to limit the fugitive emissions within the site itself.
- Necessary facilities such as sanitation, water supply, rest rooms, etc. shall be provided for the construction staff.
- The site excavation, blasting, movement of earthen materials, etc. shall be planned and executed properly to avoid any nuisance / hazard.
- The site shall be provided with suitable trenches for draining of the rain water and construction water effectively.

- The construction staff shall be provided with safety belts, helmets, shoes, hand gloves, etc. wherever necessary. The electrical equipments and instruments shall be properly and carefully handled.
- The spillage of oil / lubricants/ inflammable liquids, acids, etc. shall be avoided and in the event it occurs, suitable measures shall immediately be taken to avert further damage / accident and the consequential hazards.
- The fuels such as petrol, diesel, the lubricating oils, various gases, paints, varnishes, etc. shall be properly stored as per the standard practices.
- The explosives required for blasting or for some other purpose shall be separately stored, preferably, at isolated areas to prevent any disaster / mishaps.
- During the constructional phase of the project, a tree plantation program is expected to be undertaken, keeping in view the aesthetic beauty of the plant site.

EMP for Operational phase

Various standard practices have been evolved to manage the power plant operations efficiently to cause least possible concern to the environment.

Coal Handling Scheme: the coal dust emissions are taken care of by way of providing dust suppressing equipments and sprinkling of water (preferably, waste water) in desired manner to suppress the dust. Transfer of coal from the coal yard to the coal bunkers feeding coal to the boiler furnace, the conveying system is properly encased with needful ventilation to avert any dust nuisance on this account.

Ash handling system: The total ash generation in the proposed thermal power station will be 3200 tonnes/day. The quantum of bottom ash and fly ash to be generated is 640 and 2560 tonnes/day respectively. 19 ha of ash dyke area is identified for ash storage on east side of plot.

The generated fly ash will be send to Cement Manufacturing to the possible extent to nearby cement industries. The Ambuja Cements Limited, Ultra-tech Cements & Murli Industry has agreed to collect fly ash for their cement plants. The coarse ash which could not find use for Cement Manufacturing could be utilised for alternative purposes such as brick manufacturing, various constructional activities, etc.

Flue gases

The plant shall be provided with electrostatic precipitators having high efficiency (above 99.98%) for collection of the fly ash that would be produced from the process of coal combustion in boiler furnace. The electrostatic precipitators (ESP) proposed for this project would be designed to limit the emission level of the particulate matter below 50 mg/Nm³. The stack of 220 m height will be

provided for flue gases emissions. This will help to disperse the pollutant effectively.

Water Pollution

During operational phase, the likely sources of water pollution and the measures to be taken for their managements are described hereunder

Effluents from water treatment plant: The effluents from cation/anion resins are combined with the filter back wash in the neutralizing pit and by way of giving additional treatment as may be necessary, the effluents are treated to make them hazard free.

The boiler blow-downs usually do not require any treatment, since the boiler water itself is treated water and free from any contamination. The boiler blow-downs are flashed into an atmospheric flash tank and the boiler blow-down water is then let out into the effluent guard pond for its further use or disposal

The cooling tower blow-down water also shall be collected in the effluent guard pond for its reuse in coal and ash handling schemes

For Effluents from coal dump area a separate pond is provided wherein the coal particles gets settled down and the clear water flows into the effluent guard pond for its further use /disposal

Various drains in the plant area: In this project, it is proposed to collect the rain water from the roof of all the buildings and store in rain water storage pond. Excess rain water will be drained in storm water for further ground water recharge.

Sewage disposal: Sewage from various buildings in the power plant area and colony area proposed in outside premises would be conveyed through separate drains and treated in a sewage treatment plant (STP). The treated effluent shall be reused or recycled depending on the quality

Noise Pollution: The power plant process involves various machineries and equipments and while in operation, these machineries tend to produce noise, which is rather unavoidable. Efforts are always made to maintain minimal possible noise levels on all these accounts. The endeavors would be aimed at maintaining the noise levels below 85-90 dB(A) or even lesser at a distance of about 1.5 meters from the equipment, using stable foundation for machines and appropriate noise absorbing sheets in control cabins.

Land Environment

To minimize disruption of soil and for conservation of topsoil, the topsoil should be taken out and stacked separately and Stackpile it. Topsoil should be utilized for landscaping activity. Other measures, which would be followed to prevent soil erosion and contamination include: 1) Maximize use of organic fertilizer for landscaping and green belt development. 2) Selection of the plant species should be on the basis of their adaptability to the existing geographical conditions and the vegetation composition of the region. 3) The species should be fast growing and providing optimum penetrability. 4) The species should form a dense canopy. 5) Trees with high foliage density, leaves with larger leaf area and hairy on both the surfaces.

Biological Environmental Management Plan

Efforts shall be made to avert any adverse impact on flora and fauna in the area of proposed plant or at least to minimise the impact to the possible extent. To this effect, Green belts of 100 m wide where ever possible shall be suitably developed around the boundry of the power plant with selected locally grown plant species.

Wild Life Management Plan: Although adequate protection measures are in place, an integrated wildlife conservation plan inclusive of catchment area treatment for the Wadgaon reservoir, creation of additional smaller water bodies and special measures towards the conservation of wildlife as whole and Munia as a specific, are incorporated in Wild life Management Plan. The wildlife management plan has been prepared keeping all these factors. Also financial provision has been made towards implementation of wildlife management plan such as documentation, awareness, patrolling, minimization of human wildlife conflicts, and plantation, research and monitoring. The budgetary allocation made for wild life management plan is Rs. 34 Lacs. The recurring and maintenance cost for 20 yrs period is around 89 lacs.

Socio-economic Environment

In order to provide employment to the local people, efforts shall be made to employ the work force from the surrounding area. Various social activities to be undertaken by the project shall be confirming to the local needs and these activities shall be planned in coordination with local representatives of the public, government officials. The budgetary allocation made for implementation of CSR is around **4.25 Cr.** An annual fund allocation of **1.5 Cr/annum** shall be allocated for the recurring expenses of CSR

Environmental Budget

Adequate budgetary provision will be made for execution of Environmental Management Plan.

Budget Provision for EMP

Sr. No.	Description	Cost in Lakhs
1	Stacks	1150
2	Electrostatic Precipitators	4500
3	Continuous SPM, SO ₂ and NO _x monitoring	30
4	Sewage treatment plant	30
5	Other pollution monitoring equipment and instruments	200
6	Green belt development	100
	Total	6010
	Recurring cost per year (for maintenance and monitoring of EMP)	100