October 2025

EXECUTIVE SUMMARY

PELMA OPENCAST COAL MINE PROJECT OF 15 MTPA CAPACITY OVER AN AREA OF 2077.934 Ha.

VILLAGE: PELMA, URBA, MADUADUMAR, LALPUR, HINJHAR, JARHIDIH, SAKTA, MILUPARA AND KHARRA

TEHSIL- TAMNAR, DISTRICT- RAIGARH, CHHATTISGARH

STUDY PERIOD: MARCH TO MAY, 2024 COLLECTED BY: M/s Vardan EnviroLab LLP.

[The proposed project is listed under Schedule 1(a) Mining of Minerals under the Schedule of EIA Notification, 2006 and categorized as Category-A]

PROJECT PROPONENT

SOUTH EASTERN COALFIELD LIMITED (SECL)

Project Officer, Pelma OCP, Raigarh Area, SECL, Post Gharghoda,
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ENVIRONMENT CONSULTANT

VARDAN ENVIRONET LLP

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EXECUTIVE SUMMARY

1. INTRODUCTION

Pelma Opencast Coal Mine (ML area: 2077.934 Ha having production capacity of 15 MTPA) by South Eastern Coalfields Limited located at village: Pelma, Urba, Maduadumar, Lalpur, Hinjhar, Jarhidih, Sakta, Milupara and Kharra; Tehsil: Tamnar; District: Raigarh; State: Chhattisgarh. Pelma OCP lies between latitude 22°10'51" N to 22°14'06" N and Longitude 83°29'29" E to 83°33'25" E and is covered under Survey of India toposheet No. F44L 7, F44L 8, F44L 11 & F44L 12. The Project area consists of 362.109 Ha. of forest area. The proposed project involves in mining of coal with extent of 2077.934 Ha and falls in schedule 1 (a) (i) Mining of Minerals of Category 'A'.

2. PROJECT DESCRIPTION

Opencast Mining with full mechanization by deploying high-capacity shovels, drills, surface miners, loaders and matching dumpers. Considering proper conservation of coal, economy of the project and maximum backfilling, excavation will begin in two quarries. The mining operation will be carried out as per the approved Mining Plan. Detail of the project is summarized in below attached table:

Table 1: Detail of the Project

S. No.	Description	Particulars
1.	**Name of the Project**	Pelma Opencast Coal Mine (ML area: 2077.934 Ha having production capacity of 15 MTPA) by M/s South Eastern Coalfields Limited located at village: Pelma, Urba, Maduadumar, Lalpur, Hinjhar, Jarhidih, Sakta, Milupara & Kharra; Tehsil: Tamnar; District: Raigarh; State: Chhattisgarh
2.	**Type of the Project**	Opencast Mechanized Coal Mining
3.	**Mining lease area**	2077.934 Ha
4.	**Forest Area**	362.109 Ha
5.	**New / Expansion**	New
6.	**Category as per EIA Notification**	"A"
7.	**Location**	
8.	**Villages**	Pelma, Urba, Maduadumar, Lalpur, Hinjhar, Jarhidih,

S. No.	Description	Particulars
		Sakta, Milupara & Kharra
	Tehsil	Tamnar
	District	Raigarh
	State	Chhattisgarh
	Latitude	22°10'51" N to 22°14'06" N
	Longitude	83°29'29" E to 83°33'25" E
	Toposheet No.	F44L 7, F44L 8, F44L 11 & F44L 12
9.	**Name of the Organization**	M/s South Eastern Coalfields Limited
10.	**Coal Field**	Mand Raigarh Coalfield
11.	**Coal Block**	Pelma
12.	**No. of coal seams**	Total 19 seams
13.	**Seams considered for mining**	Seam-X Top to IV Bottom (Total 16 working seams).
14.	**Seams not considered for mining**	Seam II is unworkable in the entire block and Seam III and I are found to be workable only in isolated patches
15.	**Maximum Thickness of seams**	Total 19 seams with thickness ranging from 0.16 m to 9.81 m
16.	**Gross Geological reserve**	492.297 MT
17.	**Net Geological Reserves**	443.06 MT
18.	**Extractable Reserves**	219.14 MT
19.	**Average GCV & Grade of Coal**	Grade G-12 with GCV 3748 Kcal/Kg
20.	**Total OB/Inter burden to be excavated**	772.37 Mcum of OB
21.	**Average Stripping Ratio (m^3/t)**	3.52
22.	**Peak Production Capacity**	15 MTPA
23.	**End Use of Coal**	Power plants and non-power sector consumer as well as can be used for basket linkage to various industries.

<table>
<tr><th>S. No.</th><th>Description</th><th>Particulars</th></tr>
<tr><td>24.</td><td>Life of the Mine</td><td>20 Years</td></tr>
<tr><td>25.</td><td>Details of Wildlife Sanctuaries, National Park, eco-sensitive Zones, within 10 km radius?</td><td>None</td></tr>
<tr><td>26.</td><td>R & R Involved</td><td>This project involves R&R of 8 villages namely- Pelma, Urba, Maduadumar, Lalpur, Hinjhar, Jarhidih, Sakta and Milupara village. Actual no. of habitants requiring R&R will be finalized after detailed survey. However, as per the Census data of 2011</td></tr>
<tr><td>27.</td><td>No. of affected families</td><td>It has been roughly estimated that approximately 1361 families fall within the proposed project area, requiring R&R.</td></tr>
<tr><td>28.</td><td>Technology</td><td>Opencast Mechanized mining is proposed.
Coal-Surface Miner
OB- shovel-dumper combination</td></tr>
<tr><td>29.</td><td>Area of Excavation</td><td>861.59 Ha</td></tr>
<tr><td>30.</td><td>Depth of the quarry</td><td>10-260 M</td></tr>
<tr><td>31.</td><td>Details of Temporary External OB Dumps</td><td>The total volume of external dump has been estimated as 359.8 Mm^3.
<table>
<tr><th>Location</th><th>Area in ha</th><th>Max. Height</th><th>OB Quantity In M.Cum</th></tr>
<tr><td>Beyond the dip side boundary of quarry 1</td><td>566.65</td><td>120m</td><td>359.8</td></tr>
</table></td></tr>
<tr><td>32.</td><td>Details of Internal OB Dumps</td><td>The total volume of Internal dump has been estimated as 412.6 Mm^3
<table>
<tr><th>Location</th><th>Area in ha</th><th>Max. Height</th><th>OB Quantity In M.Cum</th></tr>
<tr><td>Internal Dump (Back filling)</td><td>549.12</td><td>90 m</td><td>412.6</td></tr>
</table></td></tr>
</table>

S. No.	Description	Particulars
33.	**Details of backfilling (at the end of mine)**	Area in ha: 549.12; Max. Height: 90 m
34.	**Details of Final Mine Void (at the end of mine)**	At final stage
	Area	312.47 Ha
	Depth	60 m
35.	**Details of afforestation**	-
	Total Afforestation area	1748.08 Ha
	i. Reclaimed external OB dump	566.65 Ha
	ii. Backfilled internal dumps	549.12 Ha
	iii. Greenbelt	176.1 Ha
	iv. infrastructure and other area	456.21 Ha
36.	**Density of Plantation**	2500 No./ha
37.	**Coal Evacuation**	
	In-Pit	Belt Conveyors
	In-Pit conveyor to CHP	Belt Conveyors
	Surface to Railway Siding	From Surface hopper by belt conveyors
	Siding to loading	Through Rapid Loading System
38.	**Working Regime**	330 days/ year, 3 shifts/day, 8 hours/shift
39.	**Mineral Processing**	A Coal Handling Plant is proposed.
40.	**Employment potentiality**	Peak manpower requirement is 122 and indirect is 1200 nos.
41.	**Power requirement**	Project will receive power at 132 kV by means of two numbers independent overhead lines drawn from 132/33 kV CSEB substation located at Gharghoda. The power demand (quarry and CHP

S. No.	Description	Particulars
		loads) shall be around 15MVA
42.	**Water requirement**	Domestic Water Requirement: 0.941 MLD Industrial Requirement: 2.334 MLD **Total Water Requirement (Peak)**: 3.275 MLD Source: Mine Water & ground water.
43.	**Fuel consumption**	Diesel Consumption would be around 200 KL/Annum of vol. handled. Specific Diesel consumption may be reduced by proper maintaining gradient of haul road and reducing waiting time of dumper as well as proper training to the HEMM operators.
44.	**Explosive Requirement**	25000 Tonnes/annum of explosives shall be used per annum
45.	**Transportation**	Based on the above factors, shovel dumper combination for OB removal and surface miner for coal extraction is being proposed. Inpit Belt conveyors will be used for transportation of coal from the face to the C.H.P. Provision of a coal handling plant with rapid loading facility and series of belt conveyors has been made for dispatch of coal to the various consumers. The CHP has been proposed with a 15,000 te capacity overhead bunker and 1 no. of silo of 3000 te capacity two nos. of loading points with rapid loading system for dispatch of coal to the consumers through rail route and one Truck loading station provision is given for dispatch of coal to local consumers through trucks
46.	**Surface features over the block area**	The Raigarh-Tamnar-Lelunga road is passing through the eastern part of Pelma block. The Diversion of this Road is required. HT Lines of 765kV Grade of approx. 12km of PGCIL is proposed to be shifted for smooth mining operations. The diversion of Chinni Nallah is proposed in the mining plan. This project involves R&R of 8 villages namely- Pelma, Urba, Maduadumar, Lalpur, Hinjhar, Jarhidih,

S. No.	Description	Particulars
		Sakta Milupara village.
47.	**Infrastructure**	Requisite infrastructure will be developed for mining operation & allied activities such as Rest shelters, blasting shelters, Fast-aid center, drinking water supply, Site-offices, Stores, Workshop for HEMM, Explosive magazine and toilets within the mining lease as per requirement.
48.	**Total cost of the project**	Rs 1725.04 Crores
49.	**Fund Provision for EMP**	Capital- Rs 1500 Lakhs Recurring- Rs 208 Lakhs Progressive Biological Reclamation (Plantation Cost)- Rs 12251.22 Lakhs
50.	**Name of the EIA Consultant Organization**	M/s Vardan EnviroNet LLP
51.	**QCI / NABET Accreditation**	Certificate No. QCI/NABET/EIA/2326/RA 0284_Rev.01, Valid up to 04.05.2026

3. DESCRIPTION OF THE ENVIRONMENT

Environmental data have been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data, as well as collection of secondary data and information from the site and surroundings was carried out during summer season, i.e. March to May 2024 by Vardan EnviroLab LLP, NABL Accredited Lab, in accordance with the guidelines of EIA issued by the Ministry of Environment Forest and Climate Change, Govt. of India and CPCB, New Delhi. Secondary data was collected from different Government sources. The scope of the study has been done as per ToR letter. The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from the mine lease boundary (buffer zone), both of which together comprise the study area.

Table 2: Baseline Environment Status

Parameters	Baseline Status
Ambient Air Quality	PM_{10} – 81.5 to 53.4 µg/m³ $PM_{2.5}$ – 41.1 to 21.1 µg/m³ SO_2 – 26.7 to 13.4 µg/m³ NOx – 33.9 to 19.1 µg/ m³

Parameters	Baseline Status
	CO – 0.83 to 0.23 mg/ m^3 O3 – 14.84 to 8.0 µg/ m^3 NH3 – 24.09 to 20.0 µg/ m^3 Benzene – 0.79 to 0.41 µg/ m^3 Ba(P), Arsenic, Nickel, Lead, and Mercury were found BLQ- Below Limit of Quantification. Free Silica % in PM – 1.6 to 2.8
Noise Level	The Leq values for day time was observed to be 43.92 to 50.73 dB (A) in residential area, while during night time 34.62 to 41.86 dB (A).
Water Quality	**Ground Water:** All the Parameters Like pH varies from 7.36 to 7.91, Total Hardness varies from 262 to 392 mg/l, Total Dissolved Solids varies from 388 to 477 mg/L, Chlorides – 49.99 to 84.81 mg/l etc. are found within the permissible limits. Bacteriological studies revealed the absence of Total coliform.
	Surface Water: All the Parameters Like pH varies from 7.4 to 7.95, Total Hardness varies from 390 to 475 mg/L, Total Dissolved Solids varies from 533 to 650 mg/L, Dissolved Oxygen – 5.5 to 6.1 mg/l etc. are found within the permissible limits. Total Coliform count is measured 840 to 1200 MPN/100ml.
Soil Quality	pH- 7.23 to 7.61 Organic matter- 0.28% to 0.33 % Electrical Conductance - 0.379 µS/cm to 0.545 µS/cm Available Nitrogen - 122.64 Kg/ha to 167.29 Kg/ha Available Phosphorous - 15.03 kg/ha to 19.59 kg/ha Potassium as K - 136.36 mg/Kg to 167.81 mg/Kg
Ecology And Biodiversity	No National Park, Wild Life Sanctuary, Bio-sphere Reserve, Elephant Reserve, Tiger Reserve. is present within 10 km of mining lease area. In the mammalian species cataloged within the mine lease area, four species listed under Schedule-I were identified: Golden Jackal, Indian Fox, Jungle Cat, and Common Mongoose. Furthermore, twelve mammalian species documented in the project's buffer zone are also categorized under Schedule-I as per the revised Indian Wildlife Protection Amendment Act 2022 (IWPAA). Among these, the Asian Elephant, Sloth Bear, and Indian Pangolin stand out as the most notable mammalian species observed in the project's buffer zone. The baseline study area revealed the presence of four Schedule-I bird species, including Shikra, Eurasian Owl, Indian Peafowl, and Crested Serpent Eagle. Additionally, among the Schedule-I reptiles, the Rock Python, Rat Snake, Monitor Lizard, Indian Cobra, and Checkered Keelback were recorded within the project's impact zone. A site specific WLCP will be prepared by DFO for conservation of Wildlife.
Socio Economic	The proposed project will provide positive impact to the nearby area. The project will provide direct and indirect employment to nearby villagers.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants, like the plantation of trees along haul roads especially near settlements, to help to reduce the impact of dust on the nearby villages; planning, transportation routes of mined material so as to reach the nearest paved roads by shortest route; regular water sprinkling on unpaved roads to avoid dust generation during transportation etc. The mining activities is likely to increase the per capita income of local people by which the socioeconomic status of the people will be improved. The local people will be provided with either direct employments or indirect employment such as transport & other business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc. Except dust generation, there is no source which can show a probability for health related diseases. Regular water sprinkling will be done with water sprinklers and dust masks will be provided to the workers. All workers will be subjected to a medical examination as per Mines Rule 1955 both at the time of appointment and at least once in a year. Medical camps will be organized for this activity. Insurance for all employees as per the rules will also be carried out.

Table 3: Anticipated Environmental impacts and mitigation

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
Air Quality	Drilling and Blasting	PM_{10}, $PM_{2.5}$, SO_2 and NO_2	Adverse	Use of dust aprons by drillers and adopting wet drilling methods. A. The production of blast fumes containing noxious gases will be reduced by the following methods: • Use of adequate booster/primer. • Proper stemming of the blast hole. • Scientific design of blast. B Drills fitted with dust collection system will be deployed or using wet drilling method. C. Development of greenbelt.
	Overburden removal	Increase in SPM levels in ambient air due to dust generation and NO_2, HC, SO_2 and CO concentration levels in ambient air due to vehicular emissions.	Adverse	• Sprinkling of water on haul roads at regular intervals. • Installing permanent water sprinklers at strategic areas/locations/stretches. • Regular maintenance of vehicles and machinery will be carried out. • Cabins for shovel and dumpers and dust respirators to workmen will be provided. All HEMM cabins will be air-conditioned. • Dust suppression will be done on exposed area using water sprinkler. • Greenbelt development will be taken up all along the haul roads. • Separate storage of top soil for progressive reclamation of dumps and mined out area backfilled with overburden material. • Re-vegetation of mined out area and inactive dumps and • A good housekeeping and proper maintenance will be practiced which will help in controlling pollution.
	Transportation of overburden	-do-	Adverse	• Use of tarpaulin covered trucks for transportation of coal outside the ML area. • Regular water sprinkling on haul, access roads and all transfer points.

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				• Haul roads to be maintained by surface grading to minimize excessive road surface wearing. • Roads no longer required will be re-vegetated as soon as possible.
	General equipment operations	Increase in SPM, NO_2 and CO concentrations in ambient air.	Adverse	• Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel driven vehicles & equipment. • Use of non-electric initiation and computerized blast design to maximize the explosive energy for fragmentation and minimum fume generation in blast.
	All activities	Excessive exposures to airborne particulate matter.	Adverse	Personal protective equipment (PPE) will be provided to all workers working in dusty environment.
Noise Levels and Ground Vibrations	Drilling and Blasting	High impulsive noise levels, overpressure and ground vibrations impacts and noise related community annoyance	Adverse	➢ **Noise Control Measures** • Controlled blasting with proper spacing, burden and stemming will be maintained; • NONEL will be used for initiation of explosives in blasting • The blasting will be carried out during favorable atmospheric condition and less human activity timings; • Provision of sound insulated chambers for the workers deployed on machines (HEMM) • Green belt has been developed all along the lease boundaries to attenuate noise. • A thick green belt will be provided in phased manner around the periphery of the mine to attenuate noise; • Trees will be planted on both sides of haul roads. • Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM;
	Machine and transportation of overburden within the ML area.	Increase in noise levels occupational hazard due to noise exposures and increase in ambient noise	Adverse	

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
		levels.		and • Reducing the exposure time of workers to the higher noise levels. • Regular monitoring of Noise level will be carried out. ➢ **Measures to Control Ground Vibration** • Proper quantity of explosive, suitable stemming materials and appropriate delay system are to be adopted for safe blasting. Computerized blast design to be used. • A safe blasting zone is kept around the periphery of the quarry. • Overcharging will be avoided; • The charge per delay will be minimized and preferably more number of delays will be used per blasts;
Water Resources and Quality	Mining will intersect the ground water table.	Depletion of ground water	Adverse	Main source of water will be through borewells and mine water. ➢ **Mine Drainage:** • The garland drains will be developed in advance for each mine stage such that water is collected in these garland drains and discharged properly into settling tanks to settle out suspended solids in the storm water. The clarified water is reused for green belt development. • The overall drainage planning will be done in such a manner that the existing drainage conditions should be maintained to the extent possible, so that run off distribution is not affected. • Working faces will be laid such that the water from the working areas will flow into a sump by gravity from where it will be pumped out to settling ponds. • The pumped out water from mines shall be channelized through storm water drains
	Water required for mine, (dust suppression systems, workshop, domestic facilities and greenbelt development)	Except water demand for drinking & domestic purpose or quarry discharge.	Adverse	
	Waste water generated from mine	Depletion of ground water level and soil	Adverse	

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
	&domestic usage at mine.	quality when used untreated water for greenbelt development.		• Pumps of adequate capacity will be provided at sump to keep these areas dry. • Stone pitching shall be made at suitable places to regulate water flow. • The settling tank and drains are cleaned periodically, especially during monsoons. ➢ **Surface Water Pollution Control Measures** • Retaining walls of adequate dimensions will be provided at the toe of dumps and the unstable OB benches within the mine to prevent wash off from dumps and sliding of material from benches. This will help in preventing silting of water drains/channels; • The water channels/drains carrying the rain water from the mine will be provided with baffles and settling pits to arrest the suspended solids, if any, present in this water; • The worked out slopes will be stabilized by planting appropriate shrub/grass species on the slopes. This will help in preventing wash-off from these slopes; • The mine water will be regularly tested for presence of any undesirable elements and appropriate measures will be taken in case any element is found exceeding the limits prescribed by CPCB; ➢ **Ground Water Pollution Control Measures** • The domestic sewage will be routed through STP. • Regular monitoring of water levels and quality in the existing open wells and bore well in the vicinity will be carried out.
Drainage pattern and	Quarries, stack yards and	Catchment area inside the	Adverse	A garland drain of suitable dimension will be made all around the dump to catch all the run off water of the dump and will be taken to a sedimentation

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
Hydrogeology	waste dump	mine will be affected.		pond for settling of silt. The water collected will be completely reused for dust suppression (except in monsoon). Gabion walls and Retaining wall will be made at the toe of dumps to arrest any silt due to runoff. Regular monitoring of water quality of the nearby water bodies will be done as per norms and MoEF&CC conditions
Landuse and Soil Characteristics	Mining & allied activities	Existing landuse of the core zone will alter. Land degradation due to disposal of waste materials.	Adverse	Following measures will be taken: • Construction/ Installation of diversion drains and settling ponds • Dust suppression on exposed areas using water tankers and automatic sprinkling systems. • Properly terracing of overburden dump to minimize erosion. • Plantation around service building, along road in and around the safety zone using native plant sapling. • Backfilling & re-handling of external OB dump as per approved Progressive Mine Closure Plan. • Compliance with mine decommissioning plan.
Flora and Fauna	Mine development and operations Mineral Transportation	Displacement of existing fauna. Loss of vegetation	Adverse	• Management of flora and fauna both at core and buffer zone shall be done as per the approved site specific wildlife conservation plan. Suitable reclamation, rehabilitation and restoration of the land shall be made to protect the biodiversity. • However, progressive afforestation and green belt development in the ML area shall be carried out till the life of the mine.
Occupational Health & Safety	Overall Mining& allied activities	Occupational health problems due to dust & noise.	Adverse	• Adoption of dust suppression measures like spraying water, use of drill with dust collection system or wet drilling etc. • Plantation • Avoid blasting during unfavorable wind & atmospheric conditions

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
		Accident probability due to slope failure, movement of HEMM, handling of explosives.		• Use of personal protective equipment. • Periodical training of workers • Compliance with DGMS circulars Emergency response plan that includes installation of emergency response equipment to combat events such as fire. All personnel required to handle hazardous materials will be provided with personal protective equipment. On-site first aid facilities have been provided to employees and are being extended to the local community in emergencies.
Socio-economic Aspects	Land acquisition for mine site	displacement of people & loss of properties.	-	Suitable R&R plan shall be implemented for the PDFs and PAFs as per the guidelines.
	Mining operations	Increase in economic status of local people & in the region due to Increase in employment opportunities both direct and indirect.	Beneficial	The project will provide opportunity to the local people for direct and in-direct employment. The proposed project will create opportunities for indirect employment in the field of transportation business, vehicle hiring, labours, trading of construction materials, carpenters etc.

5. ANALYSIS OF ALTERNATIVES

We have analyzed all the option for technology alternatives of the proposed project. since it is a mineral specific project therefor analysis of alternative site is not applicable.

6. ENVIRONMENTAL MONITORING PROGRAM

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will comply as per conditions. For this the lessee has taken the decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the mine with the objectives mentioned in Environment Policy. EMP may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socioeconomic interaction, through local liaison activities or even assessment of complaints. Regular Monitoring of all the environmental parameters *viz.*, air, water, noise, SE, EB and soil, as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year. The location of the monitoring stations will be selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature.

7. ADDITOINAL STUDIES

Shall be incorporated after Public Hearing is conducted.

8. PROJECT BENEFIT

Project will generate employment for about 122 persons directly. In addition, more people will be benefited indirectly. Management will engaged the Skilled, semi-skilled and unskilled workers from the nearby villages. The company management will contribute to the Educational Development, Infrastructure Development etc. for the welfare of the villagers. It has proposed to carry out afforestation on 1748.08 Ha (this includes i. Reclaimed external OB dump of 566.65 Ha, ii. Backfilled internal dumps of 549.12 Ha, iii. Greenbelt (Safety Zone) in 176.1 Ha, iv. 456.21 Ha of infrastructure and other area) till the mine closure. The respective regulatory authority will strictly monitor the compliance of the mine lease in this regard. Other than this social development of the village will be considered as per social requirement of locality.

9. ENVIRONMENTAL MANAGEMENT PLAN

As per above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during mining and its allied activity. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation program will be carried out which will

be an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals. A budget of Rs. 1500 Lakhs as a capital cost and Rs 208 lakhs for recurring cost for plan period has been kept for EMP and Rs 12251.22 Lakhs towards Progressive Biological Reclamation (Plantation Cost)-

10. CONCLUSION

The Central government's think tank, said in a report that coal demand will be in the range of 1192-1325 Mt by 2030, led by usage from the electricity sector. It has been forecasted that coal consumption will increase at an average annual rate of 3.9 per cent, to reach 1185 Mt in 2024. Therefore industrial and economic growth of India depends to a large extent on coal, which is the prime source of energy. Our requirement of coal is increasing every year and the demand of coal by the major volume will come from the power sector. The balance coal is required for other industries like Cement, Sponge iron etc.

As a strategy of Pelma OCP of **SOUTH EASTERN COALFIELDS LIMITED (SECL)** for maintaining / increasing the coal production, the present proposal is made for the production from Pelma OCP. It is estimated to have an output of 15 MTPA in the next 20 years.

The industrial development and consequent economic development should lead to improvement of environment through better living and greater social awareness. With the progress in technology and processes, mining activities has gained a better traction and a higher productivity stance, our best solution lies in progressive & innovative planning along with a better environmental management and protection as a part and parcel of the mining system.

The proposed project will have impacts on surrounding environment as detailed in the report however the impacts can be minimized by effective implementation of Environment Management Plan and continual monitoring of EMP to overcome any other remedial measures required as suggested in the EIA study. On the other hand, this project is likely to have several benefits like improvement in direct and indirect employment generation and economic growth of the area, by way of improved infrastructure facilities and better socio-economic conditions. Ultimately it gives financial and social benefits for the local people there by improving their standard of living in addition to that the project will contribute to ongoing efforts of the government to meet the national demand of coal resources, therefore the proposal for the mining activity at Pelma OCP for Coal as a source of energy is crucial and has a socio-economics impact.

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