

PUBLIC HEARING DOCUMENT

KUNUSTORIA UNDERGROUND PROJECT
(0.735 MTY)

KUNUSTORIA AREA

EASTERN COALFIELDS LTD.

Public Hearing Document
relating to
EIA/EMP for Kunustoria UGP
(Expansion from 0.195 to 0.735 MTY)

1.1 Introduction

Purpose of the EIA/EMP

The EIA/EMP has been prepared for seeking Environmental Clearance for Kunustoria Block Underground Project (0.735 MTY), Kunustoria Area, Eastern Coalfields Limited as per provisions of EIA Notification, September, 2006 from Ministry of Environment & Forests, Govt. of India.

Kunustoria UGP is an existing UGP producing 0.195 MTY of coal with a lease hold area of 450 ha. The proposal is for expansion in production from 0.195 MTY to 0.735 MTY by exploiting lower virgin seams (Diobrana, Dhasal and Bamanbad seams).

The report attempts to identify the possible impacts of this increase in production from the mine on the environment and to provide remedial measures for their mitigation and control. This has been achieved by doing a baseline study of the present environment under the prevailing production level and arriving at the incremental impacts.

Identification of project & project proponent

The proposed project will be taken up in the Kunustoria Colliery under the administrative control of General Manager, Kunustoria Area, Eastern Coalfield Limited. The details of the Project Proponent is given as under:

Chief Mining Engineer/ Agent,
Kunustoria Colliery, Kunustoria Area, Eastern Coalfields Limited,
PO-Toposi, District-Burdwan, West Bengal, Pin-713362,
Phone- 0341-2444587 (Office)

Nature of the Proposal

The Kenda seam presently being mined at Kunustoria colliery through shafts 1, 2 & 3 and this seam has been fully developed. The present coal production is approximately 650 TPD (0.195 MTY) by working 3 depillaring panels in conjunction with hydraulic sand stowing. Life of the existing mine is expected to be more than 20 years at the present rate of production.

To enhance the coal production, it has been decided to exploit the virgin seams occurring below Kenda seam through new mine entries without interfering with the existing colliery with an additional target capacity of 1800 TPD (0.54 MTY). After the expansion the total capacity of Kunustoria UGP will be 2450 TPD (0.735 MTY). The proposal is for exploitation of lower virgin Dobrana, Dhasal & Bamanbad coal seams

having workable thickness over the entire area. The mine life of the proposed project is 37 years.

Total area for the proposed project is 320 Ha which is within the leasehold of Kunustoria Colliery and under the administrative control of General Manager, Kunustoria Area, Eastern Coalfields Ltd. Alternative site has been considered for sinking of two shafts, construction of service buildings, coal handling plant, approach roads etc. for which about 6.5 Ha additional land will be acquired. There is no habitation in the area proposed for the above acquisition. Therefore no rehabilitation is envisaged. About Rs.21.90 lakh has been earmarked for purchase of land and compensation to the land losers. Compensation and employment will be given as per existing R&R package of Coal India Limited.

Need for the Project

Eastern Coalfields Limited is facing increasing demand of coal because of superior grade, long flame and other consumer friendly characteristics. To meet the growing demand of coal, ECL has planned to increase its production capacity by the end of XI plan (2011-12) from the present production level of 28 Mt. to 45 Mt. This makes this project a suitable choice for enhancing the production with additional capital investment. The proposed project will also bring about enhanced socio-economic benefits to the local population of the project area by way of direct and indirect employment, improvement in infrastructure and growth of ancillary facilities.

1.2 Method of Mining

Underground mining will be done by starting 2 nos. of Bord & Pillar development panels with Low Cost Continuous Miner producing 600 TPD/Panel and 2 nos. of Bord & Pillar depillaring panels in conjunction with hydraulic sand stowing with SDLs producing 300 TPD/Panel. Sinking of two shafts, each of 7.0 m diameter and 240 m depth, is envisaged.

Surface land is highly built up. Thickly populated villages and other infrastructure like Railway, Roads, IOC pipe line and high tension power transmission lines are present on the surface. Hence, extraction of coal will have to be carried out in conjunction with hydraulic sand stowing in order to protect the surface features.

Coal produced from the mine will be transported from the CHP by tippers to the railway siding 300 m from the mine pits. Further transportation of coal to consumers will be made by rail.

1.3 Present Environmental Scenario

Baseline Studies

The present environmental scenario has been studied by conducting baseline studies for the Project Area (Core Zone) and 10 km Buffer zone. The following studies and investigations have been carried out for preparation of the EIA/EMP-

Sl. No.	Nature of Study	Name of the Agency
1	Geological Report	CMPDI, a subsidiary of Coal India Ltd., is a premier consultancy organization engaged in mineral exploration, land resource management through remote sensing survey, coal petrography, mine planning, coal preparation & utilization, design of coal handling plants, environmental management of coal projects etc. The environmental laboratory of CMPDI is recognised by Central Pollution Control Board, Ministry of Environment & Forests, Government of India and accredited with ISO-9001 certification. It undertakes baseline environmental data generation, EIA, EMP and monitoring various factors related environment.
2	Project report	
3	Land-use study	
4	Hydro-geological Study	
5	Mineralogical analysis of dust	
6	Seasonal Ambient Air Quality Study	VRDS Consultants, Chennai
7	Ambient Noise Level Study	
8	Soil Quality study	
9	Water Quality study	
10	Socio- Economic Study	PDIL, Dhanbad . a premier design engineering and consultancy PSU organization having ISO 9001:2000 certification, committed towards technological excellence and self-reliance in the growth of the core sector.
11	Flora & Fauna study	VRDS Consultants, Chennai & Andhra University

Ambient Air Quality and Noise Level study

The Ambient Air Quality and noise level study was carried out during October 2006 to January, 2007 at six locations (one in core zone and five in buffer zone).

It has been found that in the core zone SPM values are ranging from 100 $\mu\text{g}/\text{m}^3$ to 170 $\mu\text{g}/\text{m}^3$ and RPM values are ranging from 47 $\mu\text{g}/\text{m}^3$ to 86 $\mu\text{g}/\text{m}^3$. SO_2 values are varying between 10 to 13 $\mu\text{g}/\text{m}^3$. NO_x values are varying between 10 to 20 $\mu\text{g}/\text{m}^3$ respectively.

In the buffer zone SPM values are ranging from 78 $\mu\text{g}/\text{m}^3$ to 150 $\mu\text{g}/\text{m}^3$ and RPM values are ranging from 33 $\mu\text{g}/\text{m}^3$ to 71 $\mu\text{g}/\text{m}^3$. SO_2 values are varying between 10 to 18 $\mu\text{g}/\text{m}^3$. NO_x values are varying between 14 to 22 $\mu\text{g}/\text{m}^3$ respectively.

L_{eq} Noise levels during Day time and Night time is found to be 58.5 and 47.6 dB(A) respectively in core zone. L_{eq} Noise levels during Day time and Night time are ranging from 46.5 to 48.4 dB(A) and 38.2 to 39.2 dB(A) respectively in buffer zone.

Water quality status

Water samples were collected during the month of January 2007 at 6 points to ascertain the present status of water quality. Water samples are collected from the following six locations - (i) Mine discharge from Kunustoria Colliery (ii) Drinking water from Drill Well at Kunustoria, Dug Well at Belbaid & Potable water from Agent Office, Kunustoria Colliery and (iii) Surface water samples from Singaran Nala adjacent to the mine.

In general all the values are well within the prescribed limits of MOEF Scheduled - VI Standards for Effluent water, IS: 10500, 1991 for drinking water and IS: 2296 -1982 for Surface water samples.

Flora and Fauna study

The flora and fauna of the Core and the Buffer Zone was surveyed by M/S VRDS Consultants, Chennai in November 2006. The Survey Report shows that there are no rare and endangered flora and fauna species in the Core Zone.

1.4 Detail of Anticipated Environmental impacts & Mitigation Measures

Sources of air pollution

There is no natural source of air pollution in the area. However, air pollution will be caused by the following mining activities:-

1. Transportation of coal and sand by trucks
2. Coal transportation by Conveyor
3. Handling of coal through bunker
4. Wind erosion from coal stockpiles

Air Quality Management

The following mitigation measures shall be taken to contain the air pollution within prescribed level.

1. Maintenance of Vehicles – trucks and dumpers.
2. Maintenance of coal transport roads.
3. Regular water sprinkling along the coal transport route by mobile water sprinklers.
4. Transportation of coal and sand by covered trucks.
5. Avenue plantation along the coal transport route.

6. Fixed nozzle mounted water sprinklers at coal depot and railway siding.

Noise Level Management:

The noise generating points will be enclosed to minimize the propagation of high noise intensity. The workforce working at the coalface, where high noise level is expected, will be provided with protective device for occupational safety. Avenue plantation along the coal transport road will control noise pollution to a great extent.

Water Requirement and Source

(a) Water requirement (m³/day)

- | | | |
|---|---|---|
| (i) For Mining | : | 204 m ³ /day |
| (ii) Residential & related | : | 750 m ³ /day |
| (iii) Social (horticulture/environment Maintenance) / other uses - | : | 2515 m ³ /day |
| | | (Industrial premises/dust suppression in CHP 20 m ³ /day + Fire Fighting 35 m ³ /day + Plantation 60 m ³ /day + Hydraulic sand stowing 2400 m ³ /day) |

(b) Source

The above water requirement will be met from mine pumping which is estimated to be 3250 m³/day.

Waste Water Management

Effective water pollution control measures shall be taken as necessary keeping in view of the following points.

- Sufficient safeguards during the planning stage to make the project eco-friendly from water pollution control point of view.
- Recycling of wastewater to the extent possible after appropriate treatment
- Conforming to the limits of the Environment (Protection) Amendment Rules, 2000 ("Schedule-VI", General Standards for discharge of environmental pollutants, Part-A : Effluents) for the quality of the treated effluents.

Surplus water from the project will be discharged for agricultural and other community uses after treatment. Mine water will be settled in settling tanks at surface before discharge. Waste water from workshop and CHP will be routed through Oil & Grease traps and settling tanks before discharge. The quality of discharge water will be maintained as per National guidelines and statutory requirements.

Flora &-Fauna Conservation :

Plantation will be done on vacant project land around the pits, CHP and along the coal transport road. Mixed species shall be planted to ensure enrichment of the flora and fauna of project area.

Socio-Economic Condition:

The project is likely to give a boost to the economy of the area and providing direct and indirect employment to local people. The infra-structural facilities provided by the project will benefit local population also.

Land Resource Requirement & Management

At the proposed Kunustoria Block, the two top-most seams, Kunustoria and Singaran seam have been extensively worked in the entire property. These are mostly worked-out, water-logged and abandoned. Apart from these, a number of villages are strewn around the Block. Underground mining may cause some land degradation and alter the land use pattern. The following measures will be taken for land resource management:

- Filling of potholes and cracks.
- Plantation of trees on degraded land.

Community Development

As per CIL's CSR Policy, 2 % of the retained earnings has been earmarked for Community Development. This is likely to be a significant amount and several basic and civic amenities shall be extended to the adjoining villages.

Conclusion: The environmental control measures suggested in this report are likely to significantly reduce the adverse impacts so that mining operation can be undertaken in an environment friendly manner.

1.5 Environmental Monitoring Program

For effective implementation, a time bound action plan for environmental management including all aspects shall be followed by the project.

Samples for study of air quality, water quality and noise level shall be collected and tested quarterly at strategic places representing all the categories of location. The Implementing Authority will be guided and advised by feed back data obtained from these tests.

Parameters to be monitored

Ambient Air Quality, Water Quality , Ground Water Level, Noise Level, plantation

Ambient air quality, water quality (mine discharge and drinking water samples), ground water level and noise level will be monitored for standard parameters. Plant growth, its maintenance and survival rate will be monitored.

Health

Health of the employees will be examined for identifying occupational diseases etc. to initiate remedial measures in time. This is already being implemented by ECL in other running projects by way of Periodic Medical Examination as per DGMS guidelines. Medical facilities will be extended to the local population also from funds earmarked for Community Development.

1.6 Risk assessment

A comprehensive blue print for risk assessment and management has been drawn for the project incorporating the following:

- Identification and assessment of risks.
- Recommendation of measures to prevent damage to life and property against such risks.

Special care will be taken to ensure safe mining practices as stipulated by DGMS.

1.7 Project Benefits

The opening of the Kunustoria UGP will enhance the socio-economic activities in the adjoining areas. This will result in following benefits

- Employment Generation
- Meet Energy needs of Nation
- Improvements in Physical Infrastructure
- Improvements in Social Infrastructure
- Contribution to the Exchequer
- Prevention of Illegal Mining
- Enhancement of Green Cover

1.8 Environmental Management Plan

Eastern Coalfields Limited, the owner of this project has already set-up an Environmental Cell headed by a General Manager at its HQs. The cell provides necessary support that is required for Environmental Management of various projects and mines under the jurisdiction of the company.

The scope of environmental management includes plantation, surface drainage, industrial waste water treatment plant, air, water and noise pollution check etc. For the purpose of land management and afforestation, the Project shall interact with different Government departments like WBPCB, Forest Department etc. Guidelines and advice from Ministry of Environment and Forest will also result in systematic approach towards environmental management and control. The administrative setup for implementation of environmental control measures is given below:-

- Chief General Manager, Kunustoria Area

- General Manager (Env), ECL
- Addl. General Manager, Kunustoria UGP
- Land Survey and Revenue Deptt. ECL(HQ)
- Representative from State Govt.

Fund Provision

Provision of capital expenditure of 70.8 Lakh has been made for different environmental control measures. Apart from this, provision of Rs.7.08 per tonne of coal produced has been kept from revenue account for environmental control measures.

SUMMARISED DATA

Sl.No.	Item	Particulars
01	Name of the Project	To exploit Dobrana, Dhasal & Bamanbad seams in Kunustoria Block
02	Location	Latitude 23° 81' 12" to 23° 81' 44" North
03	Coalfield	Raniganj Coalfield
04	Type of the Project	Expansion Project
05	Area of the Project	320 Ha within a leasehold of 450 Ha
06	Reference Date	PR dated May,2008
07	Local Drainage	Singaran nala flowing N to S and Benakuri nala flowing W to E to meet Singaran nala.
08	Master drainage	Damodar River
09	Average Annual Rainfall	1492 mm (IMD)
10	Average temperature	Max. 42 ^o C and Min. 12 ^o C
11	Average water table	(a) Pre-monsoon -3.14 to 10.10 m below ground level
12	(core zone)	(b) Post-monsoon -1.20 to 4.38 m below ground level
13	Water Quality	Potable (Detailed Analysis result is in Appendix-IV)
14	Leasehold Area	3.20 Sq. Km
15	Geological Formation	Raniganj Formation, Upper Permian Age (Lower Gondwana)
16	Reserve	
a	Net reserves (In MT) Total 30.6039 MT	Dobrana-7.2769, Dhasal-8.8117, Bamanbad-14.515
b	Extractable (In MT) Total 18.820 MT	Dobrana-4.475, Dhasal-5.419, Bamanbad-8.926
17	Thickness of the Seam (In m)	Dobrana-1.16-4.50 Dhasal-1.58-3.38 Bamanbad-2.26-4.77
19	Depth of working	104 m to 321 m.
	Permeability	Unconfined aquifer- 0.002 to 0.35 m/day Semi-confined Aquifer-0.095 to 0.16 m/day
20	Net annual recharge	67.30 million cubic metre
21	Projected Mine Inflow	3250 m ³ /day
22	Existing Ground water Utilization	Jamuria Block-13.90% (Barddhaman dist-43.49%) Buffer Zone of Project area- 42.13%
23	Average saleable grade	Grade-C (Longflame)
24	Gassiness of the seams	Degree-II
25	Target capacity	
	Existing	0.195 MTY (650 TPD)
	Incremental	0.54 MTY (1800 TPD)
	Total	0.735 MTY (2450 TPD)

26	Estimated year of achieving target capacity	4 th year
27	Life of the Project	More than 25 years
28	Capital investment (In Rs. Lakhs)	14480.87 Additional
29	Specific Investment (In Rs. / te)	2681.64 Additional
30	Requirement of P&M Capital	
a	Total in Rs. Lakhs	11943.00 Additional
b	Per tonne of annual output(Rs./te)	2211.66 Additional
31		
a	Face Machinery	Low Cost Continuous Miners, SDL's, Belt Conveyors, Drills, Aux. fans
b	Gate Transport	Rope haulages, Belt conveyors
c	Trunk Transport	Rope haulages, Belt conveyors
d	Vertical Transport	Cage winding with 3.5 Te mine car for coal, cage winding for men and material
32	Requirement of Manpower addl.	988
33	O.M.S.(Tonne) Overall	2.16
34	E.M.S.(Rs.)	857.74
35	Estimated cost of production (Rs./te) (Incremental)	
a	At 100%	1072.41
b	At 85%	1236.48
36	Average selling price (Rs./te)	1583.83
37	Profit/Loss in Rs./te (Incremental)	
a	At 100%	511.41
b	At 85%	347.34
38 a	BEP (in %)	64.51
b	BEP (In Mty)	0.348
39	I.R.R	
a	At 100%	31.97
b	At 85%	20.92
40	Environment Economics	
a	Capital investment for environment mitigation measure	Rs 70 lakh
b	Revenue expenditure relating to environment management	Rs 7.08/t of coal produced

