

(PUBLIC HEARING DOCUMENT)

Summary of EIA/EMP for Chhal OC Expansion Project 7.5 MTY(Peak)



**PUBLIC HEARING DOCUMENT OF EIA/EMP
FOR
CHHAL OC EXPANSION PROJECT
(Raigarh Area)**

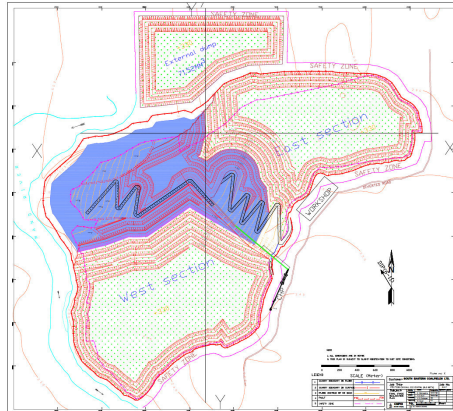
**Village: Chandrashekharpur, Chhal, Nawapara, Khedapali,
Bandhapali, Pusalda, Lat.; Tahsil: Dharamjaigarh;**

District: Raigarh, Chhattisgarh.

Capacity: 6.0 MTY Normative & 7.5 MTY Peak

Project area: 1342.86Ha.

South Eastern Coalfields Limited
(A Mini Ratna Company)



October -2018
Central Mine Planning & Design Institute Limited
Regional Institute – V
CMPDI Complex, Seepat Road, Pin-495006
BILASPUR (C.G.)

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1.1 INTRODUCTION

1.1.1 Purpose of the EIA/EMP

The EIA/EMP has been prepared for seeking Environmental Clearance for Chhal OC Expansion Project (from 3.5 MTY to 7.5 MTY), Raigarh Area, South Eastern Coalfields Limited as per provisions of EIA Notification, September, 2006 from Ministry of Environment & Forests, Govt. of India.

Chhal OC Expansion Project is an expansion project from 3.5 MTY to 7.5 MTY (Peak) of coal with a lease hold area of 1342.86ha. 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.

1.1.2 Scope of the study:

Details of Project Report

The PR of Chhal OC(Seam-III) project 6 MTY was prepared based on report "Geological report of Chhal Block, Mand-Raigarh coalfield, MP" submitted in March 1991. The PR was approved on 16.12.2013 for a total capital outlay of Rs. 610.63 crore with outsourcing option by CIL board.

Details of Exploration

CMPDI and GSI have carried out detailed exploration in the block. In total 118 boreholes have been drilled in 8.33 sq km of the block with borehole density of 14.16 boreholes / sq.km. Total 118 borehole of CMPDI and 7 borehole of GSI has been considered for preparation of this report.

Details of Environmental baseline data

Baseline environmental data in respect of micro-meteorological data, air quality, water quality, soil quality data and noise quality data have been generated by Edward Food Research & Analysis Center Limited (EFRAC), Kolkata. The socio economic data of study area have been prepared by M/s SARDA, Ramgarh, Jharkhand. The flora & fauna details of core zone and buffer zone has been prepared by the VRDS Consultant, Chennai. The satellite imaging of the core zone & buffer zone is prepared by CMPDI for SECL.

1.2 Project description:

1.2.1 Identification of project & Project Proponent:

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The project is located in Mand- Raigarh coalfield under the administrative control of General Manager, Raigarh Area. The project is located south of village Chhal at an approximate distance of 2.5 km on Kharsia - Dharamjaygarh State Highway and 16 km from Kharsia town. The block is bounded by latitude 22°4'40" and 22°6'27" N and longitudes 83°6'10" and 83°9'10" E and is included in the Survey of India Topo Sheet No. 64 N/4.

The details of the Project Proponent is given as under:

**South Eastern Coalfields Limited,
Post Box No. 60, Seepat Road,
Bilaspur (Chhattisgarh), Pin No. 495006
Tel. No. 07752-246324, E-mail gmenvtsecl@gmail.com**

1.2.2 Need of project and Justification for Expansion

Based on "Perspective Plan of Coal India Ltd - 2030-31" the target of SECL for the year 2018-19 and 2019-20 are 167.00 Mt and 179.23Mt respectively. To meet this growth in production of SECL in the year 2018-19 and onwards, Chhal OC has been identified for enhancement of production from peak production of 3.5 MTY to proposed peak production of 7.5 MTY.

Justifications for expansion:

- i) Thermal Power Station is likely to be installed by Chhattisgarh Electricity Board in this area. To meet the demand of power grade coal, it is essential to open new projects.
- ii) Quarriable reserves are available in Chhal Block for opening the opencast mine upto seam-III.
- iii) Chhal block is located by the side of Kharsia-Dharamjaygarh State Highway and coal from this project can be despatched to the Robertson Railway Siding or to any other consumer even by road till rail dispatch is established.

1.2.3 Salient features of mine:

The mine features are summarized below:

Total Mineable Reserve	151.36 MT
No. of Coal Seams	13
Seam thickness	Varies from 0.5 m to 11 m
Grade of coal (average)	G-11 (GCV of 4264.00 KCal/Kg)
Stripping Ratio (cum/tonne)	5.63
Gradient	Varies from 4 - 11 Degree
Life of Mine	30 years

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Capital Cost (in Rs crores)	610.63
Capacity of mine	6.00 MTPA (Normative), 7.50 MTPA (Peak)
Mine Lease Area	1342.86 Ha
Mine Closure Plan	Approved by CIL Board on 16.12.2013
Manpower to be employed (Departmental)	Manpower = 296
Project Affected People	675 land owners and 450 families
No. of Villages in Core Zone	07-Chandrashekharapur, Chhal, Nawapara, Khedapali, Bandhapali, Pusalda, Lat.
Maximum Mine Depth	300 m

1.2.4 Method of mining:

The mining will done as opencast mining with shovel dumper combination for OB removal and Surface Miner, FEL & dumper combination for coal extraction.

1.3 Description of the environment:

1.3.1 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 component studied to conduct the environmental impact study is tabulated below.

Sl. No.	Study Areas	Based on References to
1.00	Socioeconomic profile	2011 census data & Primary data generated by (M/s SARDA, Ramgarh, Jharkhand)
1.01	Social Profile	-Do-
1.02	Economic Profile	-Do-
1.03	Workforce Pattern	-Do-
1.04	Basic and Civic Amenities	-Do-
2.00	Land Use pattern	
2.01	Core zone	Incorporated from PR/Scheme of the mine, KML data & other related data collected from Area/Mine authority.
2.02	Buffer Zone / Study area	2011 census data
3.00	Meteorological trends	IMD and Indira Gandhi Agriculture University(IGAU), Bilaspur

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3.01	Temperature trends	-Do-
3.02	Rainfall trends	-Do-
4.00	Micro-meteorological trends	EFRAC, Kolkata
4.01	Wind temperature, speed and direction	-Do-
4.02	Relative Humidity	-Do-
4.03	Cloud Cover	-Do-
4.04	Rainfall	-Do-
5.00	Baseline data	-Do-
5.01	Ambient Air Quality	Post monsoon 2017(EFRAC)
5.02	Water Quality	Pre monsoon 2017(EFRAC)
5.03	Noise Level	-Do-
5.04	Soil Quality	-Do-
6.00	Forest, Flora and Fauna	VRDS Consultants, Chennai
6.01	Forest	-Do-
6.02	Flora	-Do-
6.03	Fauna	-Do-
7.00	Hydrogeological	CMPDIL
8.00	Resettlement & Rehabilitation	SECL as per Government approved R & R Policy
9.00	Land degradation	SECL and CMPDIL
10.00	Solid Waste	SECL and CMPDIL
10.00	Hazard assessment	SECL and CMPDIL
10.01	Ground vibration	SECL and CMPDIL
10.02	Coal Fire	SECL and CMPDIL

1.3.2 Ambient air quality:

The ambient air quality data at nine air monitoring stations along with micro met data has been generated for period Nov 2017-Feb 2018. It has been found that in the core zone SPM values are ranging from 155 µg/m³ to 289 µg/m³ and RPM values are ranging from 62 µg/m³ to 82 µg/m³. SO₂ values are varying between 7 to 24 µg/m³. NO_x values are varying between 20 to 38 µg/m³ respectively. In the buffer zone RPM values are ranging from 55 µg/m³ to 84 µg/m³, SO₂ values are varying between 10 to 32.7 µg/m³. NO_x values are varying between 15 to 45.7 µg/m³ respectively. The concentration levels of heavy metals were found within the prescribed limits.

1.3.3 Water quality:

The water is a vital commodity for the survival of vegetation, animals and human beings which in turn, are essential for proper balance of the eco-system itself. As such, any adverse impact on water quality of the surrounding surface and ground water sources due to mining activity would have serious consequences on the environment. All the values of important parameters

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are well within limits prescribed by IS: 10500:2012 for Drinking water and other applicable category by regulatory bodies.

1.3.4 Noise level:

The noise level observations in the core and buffer zone were found to be within limits as prescribed in MOEF notification S.O.123(E) dated 14th February 2000 and G.S.R. 742(E) dated 25th September, 2000 the Noise level values dB(A) of Day and Night times.

1.3.5 Forest flora & fauna:

As per study conducted, no rare and endangered flora & fauna found in the core zone of project.

1.4 Anticipated Environmental Impact & Mitigation Measures:

A. Air environment

Air environment can be affected by mining operation including mineral transportation, handling, storage and transfer of minerals/waste and adopted remedial measures such as mobile/static water sprinkling system along the transportation road, mine/stockyard/siding.

Control measures for air pollution:

1. Water spraying by water Sprinkler will be done regularly on approach roads within the mining area to minimize the dust generation.
2. Water sprinkling arrangement will be provided at the transfer point of coal.
3. Intensive plantation of adequate width all along the haul road and other road will be raised to minimize transport generated pollutants.
4. Crusher house of CHP will be provided with dust extraction arrangements.
5. Minimizing the transport of coal from the crusher house to silo loading system, belt conveyor has been provided.
6. Coal transportation to Robertson Railway siding will be done in covered trucks.
7. Exposed overburden dumps will be covered through an appropriate plantation.
8. Optimum blast-hole geometry will be followed to reduce the dust during blasting.

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9. Regular monitoring of ambient air quality of project area.

B. Water environment

(a) Water requirement (m³/day)

Purpose	Peak Demand (m ³ /day)
A. Industrial Water Demand	
1. Mine operation	1
2. Land reclamation	-
3. Dust suppression	405
4. Green belt	383
5. Beneficiation (CHP)	135
6. Washeries	-
7. Fire service	270
8. Others (specify) Washing in workshop	41
9. Add for losses (10%)	128
B. Domestic/Potable Water Demand	
1. Housing	457
2. Non-residential population	20
3. Other (specify) For service buildings	48
4. Process and other losses (10%)	52
Total	1940

(b) Source

Sl.	Source	m ³ /day
1	Mine Seepage water (sump/pit)	1363
2	Ground water (<i>Tube wells for domestic</i>)	577
3	River water	-
Total, m³/day		1940

Conservation measures:

1. The impact will be limited to a maximum of 1198 m. and for a temporary period. The affected habitation will be provided with suitable drinking water supply by sinking hand pumps in the habitat.
2. The entire mine industrial water demand, would be met from the treated mine discharge. The wastage of water will be minimized.
3. The surplus treated mine water will be discharge into the local ponds or agricultural fields. Thereby, the mine water will behave as constant source of recharge and improves the water levels in the mine area. This

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will also become a resource for the local public and increase agriculture output.

4. So also, with the increase in secondary porosity, a significant improvement in the rainfall infiltration rate, close to the mine area can be anticipated.

C. Noise environment

The present noise levels are below the prescribed limits. If the impulsive noise levels increase due to mining operation, suitable measures will be adopted to maintain the noise level within permissible limits at working zone.

The following measures are adopted and will be continued:

1. Planting of rows of trees with thick foliage along roads and other noise generating centers to act as acoustic barriers.
2. Isolating/enclosing the noisy machines/sources by using resilient mounting/altering structures.
3. Routine maintenance schedules for HEMM and other machineries to eliminate noise as far as possible.
4. Balanced and properly aligned conditioning of machines to reduce vibration.
5. Provision of ear muffs/ear plugs to workers subjected to noise level above recommended limits.
6. Controlled blasting and regular monitoring of noise level of project area.

D. 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. There will be spontaneous economic stimulus in the area with the commencement of opencast mine. Traders and private enterprises will grow in the area with this economic growth. Besides, the State exchequer will derive financial revenues through levy of royalty, SGST etc. and Central Government will also be benefited by way of CGST, Income Tax, Cess's etc.

E. Land Resource Requirement & Management: The expansion of project will bring post mining change in the land use after closure of mine.

Pre-mining land use

S.N.	LAND USE	Within ML Area(Ha.)	Outside ML Area(Ha.)	Total
1	Agricultural Land	825.827		825.827
2	Forest Land	185.017		185.017
3	Waste Land	228.649		228.649
4	Grazing Land	31.632		31.632

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5	Surface Water Bodies	23.426		23.426
6	Settlements	-----		-----
7	Others(specify)	48.309		48.309
Total		1342.86		1342.86

Post-mining Land use

Sl. No.	Particulars	Quarry Area (After backfilling & reclamation)	External Dump (After Reclamation)	Safety zone as green belt	Infrastructure , Explosive magazine etc.	R&R site	Miscellaneous	Grand Total
1	Afforested area	794	130.73	144.47	5.00	0.00		1047
2	Cultivable Land	0.00	0.00	0.00		0.00	92.65	92.65
3	Final Void / Water Body	81	0.00	0.00	0.00	0.00		81
4	Other Water bodies	0.00	0.00	0.00	0.00	0.00		0.00
5	Built-Up Area.	0.00	0.00	0.00	45.00	50.00		95.00
Total Land for the project		875.00	130.73	144.47	50	50.00	92.65	1342.86

Conclusion:

Environmental parameters for each source has been considered, from each location contributing to respective pollution elements and the same has been evaluated according to the weightage prescribed. Considering, the adopted protective measures, the overall project implementation will not have appreciable impact on environment.

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 regularly at strategic places representing all the categories of location. The Implementing Authority will be guided and advised by feedback data obtained from these tests.

Monitoring Schedule:

A monitoring schedule for Air, Water, and Noise levels is already in operation as per Standards of MOEF vide GSR 742 (E) dated 25.9.2000 & G.S.R-826 (E), dated 16/11/2009.

Ambient Air: Parameters monitored are SPM, PM₁₀, PM_{2.5}, SO₂, and NO_x at the frequency mentioned in GSR 742 (E) dated 25.9.2000 & G.S.R-826 (E), dated 16/11/2009. Monitoring of heavy metal contents such as lead, chromium, arsenic, nickel etc. in ambient air quality will be done half yearly.

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- Water:** For effluent & surface water the parameters monitored are pH, Chemical Oxygen Demand, Total Suspended Solid, Oil & Grease at every fortnight and all parameters once in a year. For drinking water, monitoring is being done as per IS.10500 once in a month.
- Noise:** Noise is being monitored during day & night at every fortnight.

Plant growth, its maintenance and survival rate will be monitored. Health of the employees will be examined for identifying occupational diseases etc. to initiate remedial measures in time. This is already being implemented by SECL 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 CSR/Community Development.

1.6 Additional Studies:

1.6.1 Public consultation:

Public hearing will be done as per act/notification and outcome will be part of final EIA/EMP.

1.6.2 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.

1.6.3 Land use details of the study based on remote sensing data

For monitoring land use pattern and for progressive post mining land use plan satellite imagery is being taken and record is being maintained by CMPDIL, Ranchi. This study will be helping to track the planned mine closure activities.

1.7 Project Benefits:

The expansion of existing Chhal OC Project will enhance the socio-economic activities in the adjoining areas. This will result in following benefits:

1. Employment Generation
2. Meet Energy needs of Nation
3. Improvements in Physical Infrastructure
4. Improvements in Social Infrastructure
5. Contribution to the Exchequer
6. Enhancement of Green Cover
7. Vocational Training Programme
8. Secondary Employment opportunities

1.8 Environmental Management Plan:

The responsibility for implementing environmental management plan would

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rest with the environment management structure who would be properly assisted by a team of qualified and trained personnel.

It will look after the following aspects of environmental management:

- * Generation of environmental data bank.
- * Evolving micro environmental management plan for the project in collaboration with other agencies and consultants.
- * Monitoring project implementation along with environmental control measures.
- * Co-ordinate with other project activities to ensure timely implementation of the project.
- * Co-ordination with Ministry of Environment & Forest, Central/State Pollution Control Board for prevention and control of water and air pollution.

The responsibility for implementing environmental management plan would rest with the project officer of the project, who would be properly assisted by team of qualified and trained personnel. Organization for environmental management in Raigarh area office will carry out the task and responsibility connected therewith.

Funds for Conservation efforts:

In the EMP, funds have been committed under capital & revenue heads for afforestation, reclamation and other miscellaneous expenditure. Provision for capital expenditure of Rs. 7731.45 Lakhs has been made for different environmental control measures including R&R activities. The other activities like environmental monitoring, major mine closure activities like dump reclamation etc and CSR activities will be covered under revenue budget fund.

1.9 Disclosure of Consultants Engaged:

Central Mine Planning & Design Institute Limited, briefly, it is generally called as CMPDI. It is an ISO 9001 Company. Its registered corporate office is situated at Gondwana Place, Kanke Road, Ranchi-834 008, a capital city of Jharkhand state. CMPDI has been accredited by QCI-NABET as EIA Consultant Organisation certificate no. NABET/EIA/1720/RA0092 valid till 01.10.2020.
