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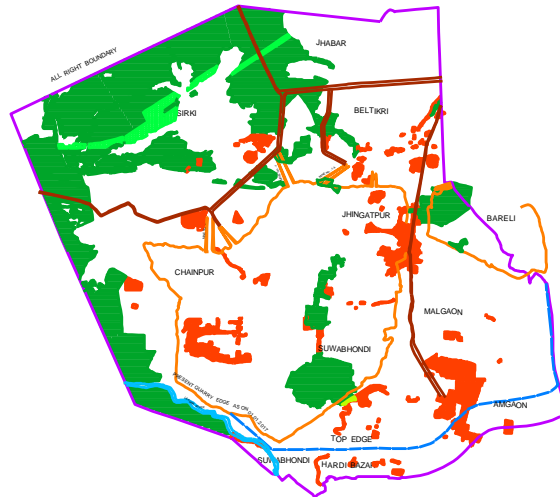
SUMMARY OF EIA/EMP For

DIPKA OPENCAST EXPANSION PROJECT, DIPKA AREA

**Village: Dipka; Tahsil: Katghora; District: Korba;
State: Chhattisgarh;
Capacity Expansion from: 35.00 To 40.00 MTPA)
Project area: 1999.386 Ha.**

**(ToR Granted vide no. J-11015/487/2007-IA. II (M) pt.,
dated 08.06.2020)**

**South Eastern Coalfields Limited
(A Mini Ratna Company)**



(Sep.- 2021)

Prepared by

**Central Mine Planning & Design Institute Limited
Regional Institute – V, CMPDI Complex, Bilaspur (C.G.)**

1.1 INTRODUCTION:

The Dipka Opencast Expansion Project is a mega opencast coal mining project operating in the thick seam zone of SECL command area. It is under the administrative control of Dipka Area. It is a part of Dipka and Hardi geological Blocks and located in the south-central part of Korba Coalfield in Korba district of Chhattisgarh.

These geological blocks cover an area of 12.42 sq.km (excluding the area required for road, colony, infrastructure etc.). Locational details are given below.

Table -11.1

Sl. No.	Particulars	
1.	Name	Dipka Opencast Expansion Project
2.	Village	Dipka
3.	Tehsil	Katghora
4.	Pin Code	495452
5.	District	Korba
6.	State	Chhattisgarh
7.	Latitudes	N 22°18'59"to N 22°19'43"
8.	Longitudes	E 82°30'47" to E 82°33'34"
9.	Maximum Elevation	293m from MSL
10.	Toposheet No.	64J/11
11.	Nearest town	Korba at 26 Km
12.	Nearest City	Bilaspur (C.G)
13.	District head quarters	Korba
14.	State capital	Raipur (C.G)
15.	Nearest Airport	Raipur airport at about 230 km and Bilaspur airport about 85 km.
16.	Nearest Railway Station	Gevra Road Railway Stations' on Champa-Gevra Road branch line of S.E.C Railway at 12 Km
17.	Nearest River (If any)	Hasdeo River is flowing at a distance of about 18Km from the project.
18.	Other water bodies (Lake/Nalla etc.)	Lilagarh Nadi is flowing adjacent to mine boundary, Ahiron River at 8Km, Kholar Nalla at 5 Km & many small channels joining Hasdeo river.

1.2 PURPOSE OF THE REPORT:

Presently, Dipka OCP is having Environment Clearance for a capacity of 35.00 MTPA for an area of 1999.293 Ha of land issued vide MoEF&CC letter no. J-11015/487/2007-IA.II (M)pt., dated 09/03/2020.

Now, based on the approved mining plan for enhancement of production upto 40.00 MTPA, EIA/EMP has been prepared in accordance with the TOR issued for the project vide MoEF&CC letter no. J-11015/487/2007-IA.II (M)pt., dated 08/06/2020.

Purpose of this report is to seek Environment Clearance for a capacity of 40.00 MTPA for an area of 1999.386 Ha.

1.3 PROJECT DESCRIPTION

Table 11.2 Salient features of project

Sl. No.	Particulars	Project Parameters
1	Type of the Project	Opencast
2	New / Expansion	Expansion
3	Item no. as per EIA Notification	1
4	Category as per EIA Notification	"A"
5	Mineable Reserve (MT):	199.31 as on 01/04/2021
6	(NC: Non-Coking & C: Coking)	(NC)
7	Volume of OB (Mm3)	315.66 as on 01/04/2021
8	Stripping Ratio (m3/t)	1.3
9	Normative Capacity (MTPA)	40
10	Ultimate depth of the quarry (m)	250m
11	Area of Excavation (Ha)	1002.146
12	Area of External dump (Ha)	206
13	Life of mine (Years)	05 as on 01/04/2021
14	Dip of seams (Degree)	3.37 – 6.34
15	Grade	E
16	Forest Land (Ha.)	409.149
17	Total Land use (Ha.)	1999.386
18	R& R involvement (Nos.)	PAF-1690;
19	Capital cost (Crore)	1959.36
20	Corporate Environment Responsibility (Lakhs)	8.5

1.4 DESCRIPTION OF THE ENVIRONMENT:

To assess the impact of mining operation on different components of environment of proposed Dipka Opencast Expansion Project, the study was carried out to generate baseline data w.r.t. air, water, noise and soil quality, land use pattern, hydrology, flora & fauna, socio-economic aspects etc. during the summer season. The present environmental status of the different monitored parameters is discussed briefly.

Physical Resources

Air Environment

Air pollution parameters like Respirable Particulate Matters (RPM), Suspended Particulate Matters (SPM), Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) were identified as related to the project activities for representing baseline status of ambient air quality within the study area. To assess the base line ambient air quality, monitoring locations were selected comprising in core and in buffer zone.

Air Quality status in Core Zone

Ambient air quality data for the core zone was found that all the values of the pollutants are below the acceptance limit.

Air Quality status in Buffer Zone

Ambient air quality data for the buffer zone was found that all the values of the pollutants are below the acceptance limit.

Topography and Drainage

The area is mainly characterized by flat and gentle undulating terrain. The general slope of the area is towards south. The drainage of the area is mainly by Lilagarh river which marks the south-western boundary of the block.

Water Environment

To assess the impact of mining on water quality, samples were collected from different locations. These comprise of surface water samples including mine effluent water and ground water samples from dug well /tube well. All the water samples were analyzed as per standard method prescribed in APHA 23rd Edition 2017 & IS3025 and compared with inland surface water quality (IS:2296, 1982) CPCB Standard and drinking water quality (IS:10500, 1993).

It is observed that all the parameters are well within the drinking water standards (IS: 10500, 1993). In general, the ground water quality within the study area of proposed expansion project is satisfactory. Further, in case of surface water, the values of physico-chemical parameters were found to be well within the prescribed limits. In general, the surface water quality within the study area is suitable for use in agriculture and other domestic requirements as well as also for sustainability of Aquatic life.

Hydrogeology

To assess the water table configuration, a network consisting 75 dug wells,

covering most of the villages falling within the core and buffer zone, was selected for the study area. The wells are mostly used for domestic water needs. The water levels in all the 75 dug wells were monitored during the pre-monsoon period (May 2019) and post-monsoon period (December 2019).

With no processing activity in opencast mining, except for suspended solids, the mine water is free from any serious pollutants. However, with the movement of HEMM and OB/Coal handling, the discharge water will have high TSS. To reduce the TSS, the mine water will be discharged only after passing through the sedimentation tanks. With low sulphur content in coal, no acid mine drainage is anticipated. During baseline data generation and as a part of Environmental Management Plan (EMP) preparation, the surface water, groundwater, and mine water quality were monitored and found to be within the permissible standards as stipulated by the Government of India.

The overall good quality of mine effluents and groundwater reported could be due to the proper treatment of water [i.e. mine water discharge through settling tanks, industrial effluents through ETP and domestic effluents through the DETP prior to discharge. Effective reuse of treated water at the mine site for mine operation purposes and irrigation use by the local public also has the potential to reduce the TSS content of mine drainage water.

Noise Environment

Noise level was measured at Dipka OC and villages around the proposed study site by using precision sound level meter. Detailed analysis of noise has revealed that there is no noticeable impact of noise in the surrounding environment.

Soil Environment

Present soil quality of the area has been evaluated with respect to its physico-chemical properties viz. texture, bulk density, moisture content, water holding capacity, pH, EC, Organic Carbon and Nutrients, which are important for plant growth and agricultural productivity.

Ecological Resources Floral Diversity

This area comes under Tropical Dry Deciduous forests. However, vegetation characteristics found in the study area are of tropical moist deciduous. The major notified forests in the study area are Unnamed protected Forest.

During survey it is observed that, areas which are important or sensitive for ecological reasons – geological formations, dunes, beaches, coral reefs, mangroves and swamps are not present within the study area.

These forests consist of predominantly of mixed type forest and its distribution is largely determined by the parent rock from which the soil is derived. In buffer zone, the main species existing in the mixed type of forest are Silk Cotton, Babul, Saghvan(Teak), Arjan, Kathal(Jack), Palash, Amaltas, Tendu, Banyan, Pi-

pal, Haldu(Karam), Gamhar, Mahua, Amla, Karanjva, Jamun, Custard Apple, Mango, White Bark Acacia, Bamboo, Khas etc.

Fauna diversity

Prominent wild species found in the buffer zone are Jackal, Black Napped Hare (Khargosh), Indian Grey Mongoose(Nevla), Indian Fox, Common Langur etc. There are no endangered or endemic species of flora and fauna in core and buffer zones of the proposed project.

Also, areas used by protected, important or sensitive species of flora and fauna are not present within the study area.

Socio-economic Environment

As per census 2011, there are 12 villages in core zone and 79 villages in buffer zone with a total population of 1, 53, 771 persons. The villages present within 10 Km. area around the periphery of the proposed Dipka opencast expansion project were surveyed.

Socio-economic study reveals that most of the families in this zone are getting benefits directly or indirectly from the mining industry.

1.5 Anticipated Environmental Impacts & Mitigative Measures

The section summarizes the pollution potential of the proposed project, it's possible impact on the surrounding environment during operational and capacity expansion phases and the necessary management actions proposed for control and abatement of pollution.

Impact due to Air Pollution and its Management

The different activities like removal of vegetation, drilling and blasting, overburden disposal and coal handling arrangements, transportation, movement of heavy vehicles and mining machineries are the sources, which may cause the impact on air quality.

The proposed preventive measures are: effective water/mist spraying on working places, haul roads, approach roads with fixed water sprinkler, mobile water sprinkler, mist sprinkler, long range fogging machine, enclosures of coal transfer points, clearing off coal dust heaps on surface, use of sweeping machine for road cleaning, transportation of coal with tarpaulin covered trucks, regular maintenance of vehicles, DG sets, plantation within mine premises and along coal transport route.

Impact due to Water Pollution and its Management

The possible sources of water due to project activities are:

- Seepage from strata and backfilled area

- Direct precipitation of rainfall and overburden runoff
- Workshop effluents and domestic effluent

Mine Water

The quantity of mine water generated from seepage of strata or backfilled area will be drained by suitable pumps. In the rainy season heavy duty pumps will be deployed to throw accumulated water from workforce into garland drains made around the periphery of the quarry.

Hydrogeology

Coal mining is the major industrial development activity in the area. The Central Ground Water Board, North Central Chhattisgarh Region, Raipur, has reported in their report 'Dynamic Ground Water Resources of Chhattisgarh (as on March, 2013)' that the stage of Groundwater extraction in the **Katghora Development Block** (where the Dipka OC is located) is **68.95%** and hence the region lies within the "**Safe**" category. The overall stage of groundwater extraction in **Korba district** was reported as **30.92%** and falls under the "Safe" category. Stage of groundwater extraction for the study area of the project area has also been determined as about **64.18%**, which is also under the 'safe' category.

Impact due to Noise and Vibration and its Management

The main sources of noise at the proposed project are:

- Drilling and blasting
- Coal and OB handling arrangements
- Vehicular movement
- Heavy machinery

The background noise levels would increase due to the above noise generating sources. The area can sustain during the mining activities with the following noise control measures:

- Diesel power machines and other HEMM, will be maintained properly as per maintenance schedule to prevent undesirable noise.
- Drill machine operators and dumper drivers will be provided with ear-plugs and earmuffs, if required.
- Regular noise level monitoring would be done periodically for taking corrective action, wherever required.
- Excessive plantation of green belt along the road and around the offices will be done.

It is therefore expected that with these measures the exposure level will be within the permissible limits.

Impact on Land and its Management

As the mining operations will be advanced the land use pattern of the project will change due to internal backfilled dumps as well as formation of external dumps.

STATUS OF EXISTING LAND USE:

Total land of the project is 1999.386 Ha. as mentioned in mining plan of 40 MTPA, including land for quarry, external dumps, industrial complex, roads, green Belt, safety zone etc. The break-up of land use is given below.

Table- 11.3

Core Area Land Use: (During Mining)					
Sl. No.	Activity	Types of Land area (Ha)			Total Land Area (Ha)
		Forest	Tenancy/ Agricultural	Govt.	
1	Quarry Area*	52.982	858.314	90.850	1002.146
2	External OB Dump	54.718	125.212	26.070	206.000
3	Infrastructure, workshop, Administration Building etc.	279.242	313.518	41.114	633.874
4	Roads	0.000	4.000	0.000	4.000
5	Green belt	0.000	23.000	0.000	23.000
6	Safety Zone	22.207	85.200	22.959	130.366
Total Land		409.149	1409.244	180.993	1999.386
% of Total Land		20.46%	70.48%	9.05%	100%

* Including 756.093 Ha internal dump, 24Ha for Top soil & 222.053 Ha for water body

CONCEPTUAL POST MINING LAND USE:

The conceptual post-mining land use plan is shown below in table – 11.4. An area of 1777.333 Ha. is proposed to be afforested by way of plantation on reclaimed external OB dumps, top soil dump, reclaimed excavation area, green belt etc. as against degradation of 409.149 Ha. of forest by the mining activity. This is a positive impact.

Table – 11.4

Conceptual Post Mining Land Use						
Sl. No.	Land use during mining	Land Use (Ha)				
		Plantation	Water body	Public use	Undisturbed	Total
1	External OB Dump	206.000	0.000	0.000	0.000	206.000
2	Top soil dump	24.000	0.000	0.000	0.000	24.000
3	Excavation	756.093	222.053	0.000	0.000	978.146
4	Roads	4.000	0.000	0.000	0.000	4.000
5	Built up area	633.874	0.000	0.000	0.000	633.874

6	Green belt	23.000	0.000	0.000	0.000	23.000
7	Undisturbed area	130.366	0.000	0.000	0.000	130.366
Total		1777.333	222.053	0.000	0.000	1999.386

Reclamation

The reclamation plan has been designed within the natural constraints of the site. Particular species selection will reflect the flora known to be resistant to local condition. Plants will be grown in backfilled area, OB dump, along the road sides, mine premises and mine take area. Green belt will be developed in phased manner.

Impact on Flora and Fauna and its Management

There are no endangered or rare species of flora and fauna within the project area. In buffer zone, land will not be disturbed by any mining related activities. Moreover, massive plantation work will be undertaken by the project authorities will attract bird and other fauna in the future.

Management of Socio-economic impacts

The proposed project is expected to yield a positive impact on the socio-economic environment. It will help to sustain the development of this area including further development of infrastructural facilities.

1.6 ANALYSIS OF ALTERNATIVES:

Method of work to be adopted for any seam depends on many aspects such as depth of occurrence, thickness and gradient of the seam, parting between the seams, structure, gassiness of the seam, geological disturbances etc. In addition the presence of village, built up area and other surface features play an important role in deciding the method of work.

Keeping in view the disposition of coal seams in the area, cover over the seams and occurrence of thick of seams it does not suit underground mining.

The above factors have contributed towards selection of mining methods as opencast mining for the seams E&F, Upper Kusmunda, Lower Kusmunda (Top Split, Lower Kusmunda (Bottom Split) in the identified area of the project.

Keeping in view techno-economic viability and environmental consequences of each system the disposition of coal seam in the area does not suit underground mining techno-economically. Considering cover over the seam and occurrence of thick of seams, opencast mining has been proposed.

1.7 ENVIRONMENTAL MONITORING PROGRAM:

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 is being done half yearly and will be carried forward.

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 scheduled as per IS.10500 once in a month.

For Surface Water, Monitoring will be scheduled on monthly basis as per IS: 2296: Part C

Noise: Noise is being monitored during day & night at every fortnight.

Monitoring data thus generated are to submit to SPCB by end of the following month.

1.8 ADDITIONAL STUDIES:

AQIP Study: As per the TOR issued by MoEF&CC, AQIP study of the project has been considered in the 10KM radius. The Ground Level Concentration (GLC) values for particulate matter (PM₁₀) as carried out in the prediction made by AERMOD for maximum production have been found to be within limits. Additionally AQIP study has also been done for particulate matter (PM 2.5), and SO_x & NO_x.

Slope Stability Study: This will be done from time to time to ensure slope stability and safety of the project.

1.9 PROJECT BENEFITS:

The mine is located in a highly industrialized area of Korba district. A no. of mines like Gevra OC, Kusmunda OC and several underground mines of SECL and their colonies are situated in the study area. This has led to creation of social infrastructures like schools, hospitals, roads etc., which have helped in the economic development of the region. The expansion of mine will further help in development of region through CSR activities and creation of direct and indirect employment.

With the expansion of the project, there will be further improvement of the socio-economic status of the adjoining areas and will help to meet the energy demand of the nation. Project will lead to development of ancillary industries and an overall economic growth of nearby towns to supplement the population of the area.

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, sales tax etc. and Central Government will also be benefited by way of Central Sales Tax, Income Tax, Cess etc.

The project is likely to give a boost to the economy of the area and providing primary and secondary employment to local people. There will be improvement in infrastructure facilities like drinking water, medical, educational, schools etc. There will be overall gain with respect to improvement in social and economic aspect. This will lead to the overall development of the society.

1.10 ENVIRONMENTAL MANAGEMENT PLAN:

To mitigate the adverse impacts caused due to mining operation at the Proposed Project and for overall scientific development of local habitat, the Environmental Management Plan (EMP) has been formulated. The EMP has prescribed environmental monitoring and implementation of environmental protection measures during and after mining operations.

An Environment Management Cell (EMC) is envisaged which will be responsible for monitoring EMP and its implementation. Mine management will be in regular touch with local surrounding villages to update the various developmental schemes made by them. They will also consider any immediate requirement, which could be taken care of in near future. EMC members shall meet once in a month to assess the progress and analyse the data collected during the month. Through proper monitoring, undesirable environmental impacts can be detected at an early stage and remedial measures can be taken accordingly.

1.11 DISCLOSURE OF CONSULTANT

Central Mine Planning & Design Institute Limited. Briefly, it is generally called as CMPDI. It is an ISO 9001 Company. It is QCI/NABET Accredited Environmental Consultancy organization [vide certificate no. NABET/EIA/1720/SA0108 and was valid upto 22/08/2021 and further extended till 18/11/2021 vide NABET letter no. QCI/NABET/EIA/ACO/21/1916 dated 19/08/2021].

Its registered corporate office is situated at Gondwana Place, Kanke Road, Ranchi-834 008, a capital city of Jharkhand state. It operates through seven strategically located Regional Institutes over six states territories of India.

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