

EXECUTIVE SUMMARY

OF

**ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR
PUBLIC CONSULTATION**

OF

**Expansion of production capacity from 1.2 MTPA to 1.8 MTPA
Stage III: from 40 to 50 % 1.68 MTPA to 1.80 MTPA (50% of
Original EC capacity) of Karwahi Open cast Coal Block (Gare
Palma IV/7 Coal Block) within the existing Mine lease
under para 7 (ii) (a) EIA Notification and its subsequent
amendments till date**

At

**Village-Karwahi, Khamaria, Saraitola,
Dholnara & Bajarmuda, Tehsil- Tamnar,
District - Raigarh, Chattisgarh**

By

M/s Sarda Energy & Minerals Limited

September 2024

1.0 Brief Description of the Project

Gare Palma IV/7 Coal Mining Project (Mand-Raigarh Coal Field) is located at Village Karwahi, Khamaria, Dholnara, Sanaitola, Mudagaon & Bajarmuda, Tehsil – Tamnar (Ghargoda) District – Raigarh, Chattisgarh. The total Coal Block area of 482 ha against which Stage 1 Mine lease has been granted over an area of 277.10 ha and the balance Mining lease will be availed after completion of Exploration works.

Earlier, the project was granted Environment Clearance by MoEFCC vide letter no. J-11015/37/2004-IA-II (M) dated 30th September 2005 in favour of M/s Raipur Alloys & Steel Ltd. and after completing all the modalities and availing the requisite permissions/consent/clearances the mine commenced operation and the Mine was operational till 31st March 2015 as result of de-allocation of coal block pursuant to the judgement dated 25th August 2014 read with order dated 24th September 2014 of the Hon'ble Supreme court.

Ministry of Coal, Government of India vide their vesting order no 104/18/2015/NA, dated 23rd March, 2015 had allotted the Karwahi opencast Coal Block project in favour of M/s Monnet Ispat & Energy Limited. MoEFCC vide letter no. J-11015/37/2004-IA-II (M) dated 11th May 2015 the granted EC was transferred to Monnet Ispat & Energy Limited (MIEL).

However, the CMDPA between MIEL and Nominated Authority (NA) was terminated vide order dated 30th December 2017 due to non-achievement of Milestone and expiry of Bank Guarantee. Re-auction was done.

Re-auction of Coal Block:

- a) Notice to invite tender under 11th Tranche of Auction under CM (SP) Act (Commercial Mine) and tender document 18th June, 2020 was floated.
- b) The block Boundary of Gare Palma IV/7 Coal Block was revised from 420 ha. to 482 ha and Geological reserve was revised from approx. 67 million to 239.045 million tonne.
- c) The technical bid was submitted on 28th Sept 2020
- d) The Final Offer submitted by SEML is 66.75% of revenue share.
- e) Vide letter dated 28th December 2020, The Nominated Authority declared SEML as the Successful Bidder.
- f) The Coal Block Development & Production Agreement was signed on 11th January 2021.

Thereafter, The Nominated Authority, Ministry of Coal, Government of India vide their vesting order no NA-104/18/2020-NA, dated 08th March, 2021 has vested the Coal Block in

Sarda Energy & Minerals Limited for Sale of Coal, including sale to Affiliates and related parties for any purpose including but not limited to captive consumption and export.

MoEFCC vide letter no. J-11015/37/2004-IA-II (M) (part) dated 2nd June 2021, transferred the Environmental Clearance for Karwahi Opencast Coal Block from M/s Monnet Ispat & Energy Limited to M/s Sarda Energy & minerals limited.

In earlier allotments, the area of Gare Palma IV/7 Block was 420 ha and the mining lease was granted over 335.736 ha land.

Owing to the boundary dispute among the sub block owners of Gare Palma Coal Block, the Central Mine Planning & Design Institute Limited (CMPDI) re-demarcated the boundary of the sub-divided blocks. In the process, the block area of Gare Palma IV/7 Coal Block got revised from 420 ha to 482 ha. (Major area addition on the north side and major area deletion on south side).

Accordingly, the Gare Palma IV/7 Block now vested in SEML has an area of 482 ha. However, all the previously granted statutory clearances (including but not limited to EC) and surface rights over the land now vested in SEML correspond to those granted for previous block area of 420 ha.

As a result of the re-demarcation, 58.636 ha of land previously granted in the mining lease area falls outside the re-demarcated Gare Palma IV/7 block as allotted to SEML.

Thus, the out of 335.736 ha (Previously granted lease area), the fresh Mining Lease now executed is over 277.100 ha.

The Mining Lease has been executed by the State Government on 23.11.2021 is over an area of 277.100 ha. After execution of the Fresh Mining Lease Deed and other statutory clearance, the Karwahi Open cast Coal Block (Gare Palma IV/7 Coal Block) operations commenced on 14thDec 2021

Now the company has envisaged enhancing the production capacity from 1.2 MTPA to 1.8 MTPA. The Revised mining plan for enhanced production capacity has been approved by the the Coal Controller Organization, Ministry of Coal, GoI vide letter dated 02.06.2022 (copy enclosed as Annexure – I)

In order to obtain the Environment Clearance, this Revised EIA/EMP report is prepared as per the suggestions of EAC committee in accordance with the O.M. dated 30.05.2022 issued vide File no. IA3-22/2022-IA.III [E177258] for proposed expansion in the production

capacity by 50% of the existing EC (i.e., from 1.2 MTPA to 1.8 MTPA) and the application is being submitted under para 7 (ii) (a) as per EIA Notification, 2006 and its subsequent amendments till date (O.M. Dated 11.04.2022 and 30 May, 2022).

MoEF&CC has granted EC for production capacity from 1.2 MTPA to 1.44 MTPA (Stage -1 i.e 20% of original capacity) without increase in lease area vide letter dated 24.03.2023 under 7(ii).

And SEIAA, Chhattisgarh has granted EC for production capacity from 1.44 MTPA to 1.68 MTPA (Stage- II; 40% expansion) without increase in lease area vide letter dated 22.03.2024.

Now M/s Sarda Energy and Minerals Limited has planned for Expansion of Karwahi Open cast Coal Mine (Gare Palma IV/7 Coal Mine) production capacity from 1.68 MTPA to 1.80 MTPA (Stage -III: 50% expansion) within the existing Mine lease under para 7 (ii) as per EIA Notification and its subsequent amendments till date.

As per EIA notification dated 14th September 2006 and its amendments, the Karwahi Open cast Coal Block falls under Activity 1 (a) Mining of Minerals.

As per MoEF&CC Notification No. S.O. 1886(E) dated 20th April 2022, all the Coal Mining Projects with lease area less than 500 ha has been classified as Category "B" projects.

1.1 Location of the Project

M/s Sarda Energy & Minerals Limited (SEML), the project proponent proposes an Expansion of Karwahi Open cast Coal Block (Gare Palma IV/7 Coal Block, expansion of Production capacity-from 1.20 MTPA to 1.8 MTPA in an ML area of 277.10 ha at Village-Karwahi, Khamaria, Saraitola, Dholnara & Bajarmuda, Tehsil- Tamnar, District - Raigarh, Chhattisgarh within same lease area and same methodology.

1.2 Size and Magnitude of Operation

The approved revised Mining Plan envisages expansion in production capacity with peak production capacity of 1.8 MTPA having project area of 277.100 ha. Further, the Mining Plan envisages mining technology of deployment of Surface Miner for mining of coal and Combination of Shovel-Dumper in Overburden extraction.

The Project envisages extraction of 46.40 million tonnes of coal. The life of the project is estimated to be 24 years based on the proposed rate of coal production of 1.8 MTPA.

1.2.1 Anticipated Life of Mine and Cost of the Project

The anticipated life of the mine is 24 Years. Total cost for the proposed mining project is INR 81 Crores (Rs. 74 Cr Existing project Cost + Rs. 7.0 Cr for Proposed Expansion).

1.2.1 Method of Mining

On the basis of geo-mining parameters, the Mine has been planned to work by Mechanized Opencast Mining Methodology by deploying Surface Miner for extraction of coal and Shovel/Dumper Combination for removal of Overburden.

The project details are as follows:

A. General Details				
1	Name of the Company M/s Sarda Energy & Minerals Limited			
2	Project Location Village Karwahi, Khamaria, Saraitola, Dholnara&Bajarmuda, Tehsil – Tamnar, District – Raigarh, Chattisgarh			
3	Coordinates	Mining Lease Area		
		Pillar Coordinate No.	Latitude	Longitude
		P1	22°9'11.383"N	83°28'59.858"E
		P2	2°10'24.363"N	83°27'48.422"E
		P3	22°10'24.363"N	83°29'37.515"E
		P4	22°9'57.249"N	83°29'38.166"E
P5	22°9'49.32"N	83°29'50.409"E		
4	Category of project as per EIA Notification 2006	1 (a), Mining of Minerals “B”, hence it will be assessed at State Level.		
5	Proponent Details	M/s Sarda Energy & Minerals Limited, Registered Address : 73/A, Central venue, Nagpur (MH) – 440018 Correspondence Address: 1st Floor, Vanijya Bhawan, Jail Road, DevendraNagar Square, Raipur 482001- Chhattisgarh. E-mail: pdutttagupta@seml.co.in		
6	Type of Project	Expansion under para 7 (ii)(a) as per EIA notification 2006 and its subsequent amendments.		
7	Production capacity	Proposed expansion from 1.68 MTPA to 1.8 MTPA		
B. Mine details				
1	Area:	Block Area: 482.00 ha Mining Lease Area: 277.10 ha		
2	Mineral Reserve (MT)	Total geological reserves: 239.045 million tonnes Mineable Reserve: 48.84 million tonnes		

		Extractable Reserve: 46.40 million tonnes
3	Ultimate depth of Mining	Maximum depth 100 m in northern side & about 65 m in west side
4	Mining technology	Opencast, Shovel Dumper, Surface Miner
5	Total Life of mine	24 years
6	Period of mining lease	30 years (23-11-2021 to 22-11-2051)
C	Details of Seams	
1	No. of seams	9
2	Thickness of seam	0.5 m to 6.86 m
3	Grade of Coal	G-11
4	Stripping Ratio	2.4708
5	Average Gradient	2° to 3°
D	Details of Dumps	
1	No of Dumps	4 (3 existing +1 proposed)
2	Area of Dump	Dump 1: 23.72 h, Dump 2: 22.712 ha, Dump 3: 12.17 ha, Dump 4: 2.80 ha(Proposed)
3	Height of Dump	Dump 1: 60 m, Dump 2: 50 m, Dump 3: 20 m, Dump 4: 60 m
E	Environmental Sensitivity	
1	Nearest District Headquarter	Raigarh – 50 km (E)
2	Nearest Airport	Veer Surendra Sai Airport, Jharsuguda- 62.5 km (ESE)
3	Nearest Railway station	Raigarh Railway Station – 30.56 km (SSW)
4	Nearest National/ State Highway	SH-1 is at distance of 11.7 km (W)
5	Nearby Water Bodies	Kelo River: ~1.2 km (E) Pajhar River: ~5.0 km (W)
6	National Park/ Wildlife sanctuary/Biosphere reserve/Tiger Reserve/ migratory routes for Birds/Corridor	No national park, wildlife sanctuary and eco-sensitive zone or any archaeological site is present within 10 km from the lease boundary.
F	Project Cost	INR 81 Crores (Rs. 74 Cr Existing project Cost + Rs. 7.0 Cr for Proposed Expansion).
G	Manpower requirement	580 (Existing 400 + 180 for Expansion)
H	Water requirement	526 m ³ /day

I	Water source	Mine sump and borewell (NOC from CGWA obtained vide NOC No.: CGWA/NOC/MIN/ORIG/2022/17116 dated 25/11/2022)
J	Power requirement	400 kVA which will be sourced from the Dholnara Sub-station – 33 kVA supply (located at a distance of 2.2 km) & 2Nos of 500 kVA DG sets.
K	EMP Cost	Capital: INR 1084 Lac (INR 997 Lac Incurred + INR 87 Lac Proposed) Recurring: INR 236 Lac
L	CSR Cost	As per the provisions of Company's Act 2013

1.3 BASELINE ENVIRONMENTAL STATUS

The baseline environmental study was carried out for the period 1st March 2022 to 31st May 2022, as well as secondary data also collected from authenticated sources in accordance with the guidelines provided in Standard ToR in accordance with the O.M. dated 30.05.2022 issued vide File no. IA3-22/2022-IA.III [E177258].

Baseline data has been collected by M/s. GRC India Training & Analytical Laboratory, Noida {NABL Accredited Lab, Certificate No. TC – 7501 & MOEFCC No. S.O. 388 E} in accordance with the Guidelines for EIA issued by the Ministry of Environment Forests and Climate Change, Govt. of India and CPCB, New Delhi. The impact identification always commences with the collection of baseline data such as Ambient Air Quality, Micrometeorology, Ground and Surface Water Quality, Noise levels, Soil Quality, Land use pattern, Biological Environment and Socio-economic aspects, Solid and Hazardous waste, Risk Assessment, Geology and Hydrology within the study area of 10 km. radius.

S. No.	Parameters	Baseline status
MARCH- MAY 2022		
1.	Ambient Air Quality	
i.	PM _{2.5}	27.6µg/m ³ to 58.6µg/m ³
ii.	PM ₁₀	48.1-95.1 µg/m ³
iii.	SO ₂	5.6 to 14.2µg/m ³
iv.	NO ₂	5.6 to 14.2µg/m ³
v.	CO	240 to 1540µg/m ³
All results have been found within the AAQ Standard Limit		
2.	Noise Level Monitoring	
i.	Day Time (06:00 Am to 10:00 PM)	43.9dB to 72.3dB
ii.	Nighttime (06:00 Am to 10:00 PM)	34.8dB to 64.8dB
3.	Soil Quality and Characteristics	
i.	pH	7.67 to 7.83
ii.	Electrical Conductivity	397 to 489 µmhos/cm

iii.	Organic Matter	0.58 % to 0.89 %
iv.	Total Nitrogen	48 mg/kg to 65 mg/kg
v.	Phosphorus	6.3mg/kg to 6.8 mg/kg
vi.	Bulk Density	1.15 to 1.19 gm/cc
4.	Ground Water	
i.	pH	7.73 to 7.89
ii.	Total Hardness	215 to 315mg/L
iii.	Total Dissolved Solids	440 to 525 mg/L.
Water quality of study region is not portable because results of parameters do not meet with the drinking water standard as per 10500,2012		
5.	Surface water	
i.	pH	7.24 to 7.62
ii.	DO	5.6 to 6.3 mg/L.
iii.	COD	10 to 16 mg/L.
iv.	BOD	2.5 to 3.4 mg/L.
From the test result of surface water and comparison study with Inland surface water classification (CPCB Standards), it is interpreted that this water cannot be used for irrigation purpose.		

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

A summary of the anticipated potential impacts and the details of the suggested mitigation measures are provided in below table:

Parameters	Anticipated Impacts	Suggested Mitigation/ Management Measures
Topography	Due to change in topography the Natural drainage pattern shall change.	Creation of large Water Body: The creation of large water body will make up losses by increase in seepage into groundwater. Efforts will be made to restore the land as per Mine Closure Plan.
Drainage	Reduction in surface run off; Increase in ground water run off (base flow).	The increase in ground water runoff (base flow) will be gainfully used in mining activity and balance will contribute to local surface water quality.
Air Quality	Emission of Particulate Matter, Dust and Gaseous Pollutants viz. NO _x , SO ₂ due to mining operations viz. drilling, blasting, loading and transportation and movement of HEMM.	Wet drilling, Controlled blasting – Optimization of charge per hole and charge per round. Regular maintenance of vehicles and machinery; Water sprinkling on haul roads within ML area; Plantation in and around the proposed mine and Green Belt Development. Afforestation of completely mined out

		area, with minimum gap between excavation and afforestation.
Water Regime	Mining induced increase in rate of infiltration and ground water recharge. Mined area will function as rainwater harvesting system.	Regular monitoring of water levels and quality of water in existing open well and borewells to study the ground water in the project area.
Surface Water Quality	Discharge of mine runoff during rains to surface water channels	Water channels/drains carrying the rainwater from the mine will be provided with baffles and settling pits to arrest the suspended solids;
	Wash off from waste dumps and coal stockpiles during rainy season	Retaining walls has been provided at the toe of dumps and unstable OB benches within the mine to prevent wash off from dumps and sliding of material from benches.
	Oils pillage from maintenance workshops	The workshop effluent is being routed through oil & grease trap and treated to the discharge standards through ETP and reused in the workshop.
	Waste water discharge from office building etc.	The domestic sewage from the canteen and toilets will be routed to septic tanks followed by soak pits or STP.
Ground water Quality	Contamination due to discharge of wastewater generated from workshop and offices.	ETP has been provided and regular monitoring of water level around the mine area is being /will be carried out and corrective measures is being /will be undertaken.
Noise and Vibrations	Noise / Vibration generation due to drilling, blasting, operation of HEMM, workshop and vehicular movement.	Drilling parameters like overburden, depth, diameter and spacing will be properly designed to give proper blast. Controlled blasting with proper spacing, burden and stemming will be carried out. Minimum quantity of detonating fuse will be consumed by using non-electrical initiation system; Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM; Provision of sound insulated chambers for the workers deployed on machines (HEMM) producing high levels of noise will be made; Exposure time of workers to the

		higher noise levels would be minimized; Prime movers/diesel engines will be properly maintained; A buffer barrier of tree belt will be provided along the periphery of the mine to attenuate noise;
Land /Soil Environment	Change in land use pattern due to excavation, overburden dumps, soil extraction etc.	<p>Concurrent backfilling and land reclamation is proposed to be carried out as soon as sufficient decoaled area will be available.</p> <p>It is estimated that a total of 1.49million m³ of TOPSOIL and 117.23 million m³ of Overburden (OB) will be generated during mining and the same will be stacked in OB dumps and Top soil Dumps. The waste stored in this OB Dump shall be utilized for backfilling in the decoaled mine pits. After back-filling, area shall be leveled & planted with local species in consultation with local forest officials.</p> <p>The void area of the excavated pit will ultimately become a water body. This void area will also be suitably sloped, bunded and fenced.</p>
Flora and Fauna	There are no endangered and endemic species in the study area. No wildlife sanctuary or national park exists in the study area.	Though no endangered and endemic species are reported in the project area, every attempt will be made to protect and conserve the forest ecosystem.
Occupational / Public Health	Health problems including respiratory disease due to air and noise pollution. Health hazards in the workplace.	<p>Dust masks would be provided to the workers to prevent inhalation of RSPM thereby reducing the risk of lung diseases and other respiratory disorders. Earplugs will be provided to all the operators of HEMM.</p> <p>Regular health check-ups including lung function test and audiometry test of workers is being /will be carried out. Earmuffs will be provided to the workers working in high noise area.</p> <p>Training on health and safety will be imparted to all the workers so that they develop habit of using the</p>

		<p>protective equipment. Regular Medical Camps for villagers, labours, employees & their family members would be organized.</p> <p>A dispensary will be set up for the workers.</p> <p>Various health awareness and family welfare programmes for the benefit of the general public in project region will be organized.</p>
Socio-economic	<p>The project will create positive impacts both direct on the economy of the region and generate employment potential.</p>	<p>As far as possible locally available workforce in skilled and unskilled category will be employed in the project.</p> <p>The basic amenities/facilities viz. education, safe drinking water supply, sanitation, health care will be done under CER activities based on the needs of the region.</p> <p>Regular environmental awareness programs would be organized by the project proponent to bring forth the environmental management measures being undertaken and the beneficial aspects of the project for improving their quality of life.</p>

1.5 ANALYSIS OF ALTERNATIVES

In the present case, no alternative site is done as the mine is expansion of the existing mine.

It is an existing Mine and now the expansion is proposed in the existing production capacity i.e., from 1.68 MTPA to 1.8 MTPA.

The Project envisages use of conventionally tested Shovel/Dumper Combination Technology along with use of Surface Miner.

The Shovel / Dumper Combination for undertaking Overburden Removal is being used in Indian Coal Mining Industry since long and is the only preferable technology for opencast mining considering the geo-mining conditions of Indian coalfields.

1.6 ENVIRONMENTAL MONITORING PROGRAM

To maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will be complied as per conditions. Environmental Monitoring Programme will also require measurement of ambient environmental quality in the vicinity of the site using ecological/biological, physical and chemical indicators. Monitoring will include socio-economic interaction, through local liaison activities or even assessment of complaints. Regular Monitoring of all the environmental parameters viz., air, water, noise and soil as per the formulated program based on CPCB, CECB and MoEF&CC guidelines will be carried out at regular interval.

1.7 ADDITIONAL STUDIES

In accordance with the Office Memorandum 11.04.2022 and 30.05.2022 issued vide File no. IA3-22/2022-IA.III [E177258, the public consultation is to be done for the expansion from 40% to 50%.

1.8 PROJECT BENEFITS

The management will recruit the highly skilled and semi-skilled workers from the nearby villages. The project activity and the management will support the local Panchayat and provide other forms of assistance for the development of public amenities in this region. The company management will contribute to the local schools, dispensaries for the welfare of the villagers. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the greenbelt. Overall, the proposed expansion in the production capacity of the existing Karwahi Open cast Coal Block proved to be beneficial in development of the nearby area and enhancing the living standards of locals and with implementation of proper mitigation measures there won't be any significant on the ecology and environment.

1.9 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan for effective management of environmental impacts and ensuring overall protection of the environment through appropriate management procedures has been developed.

A Comprehensive Environment Management Plan including development of Green Belt over 18.52 ha area has been suggested. Plantation of about 50040 nos of native species is envisaged over a period of 24 years of Mine Life.

Capital Expenditure of INR 1084 Lac (INR 997 Lac Incure + INR 87 Lac Proposed) and Recurring Expenditure of INR 236 Lac is envisaged for implementation of the suggested Environment Management Plan.

1.10 CONCLUSION

Karwahi Open Cast Coal Block of M/s Sarda Energy & Minerals Limited gives downstream integration of supply chain providing leverage on supply of coal from own source which ultimately helps in increased efficiency and flexibility of Steel/Power generation in case of increased demand in future.

Considering the Demand / Supply Position of coal, extraction of coal from Karwahi Open cast Coal Block of M/s Sarda Energy & Minerals Limited is economically beneficial for the national economy.

Further, the Project shall be creating additional employment opportunities, peripheral development of the mining area and also contributing to the State Exchequer.

The Project on the other hand shall bring in positive and beneficial impacts in terms of growth in regional economy by transforming the economy from predominantly agricultural to significantly industrial, increase in government earnings and revenues and accelerate the pace of overall development of the region.