सत्यमेव जयते

File No.: J-11015/72/2016-IA.II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
****

Dated **13/08/2024**

To,

Sh. Nitin s Wagh
M/s Maharashtra State Power Generation Co. Ltd.
PRAKASHGAD, PLOT NO. G-9, ANANT KANEKAR MARG, BANDRA (EAST), MUMBAI 400051 PRAKASHGAD, PLOT NO. G-9, ANANT KANEKAR MARG, BANDRA (EAST), MUMBAI 400051, RAIGARH, CHHATTISGARH, HDIL Towers, 3rd floor, A wing , 400051
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Subject: **Gare Palma Sector II Coal Mine Project of 23.6 MTPA Capacity (22.0 MTPA Opencast + 1.6 MTPA Underground) within the mining lease area of 2583.487 Ha of M/s Maharashtra State Power Generation Company Ltd (MAHAGENCO) located at Thili Rampur, Kunjemura, Gare, Saraitola, Murogaon, Radopali, Pata, Chitwahi, Dholnara, JhinkaBahal, Dolesara, Bhalumura, Sarasmal and Libra villages, Tamnar Tehsil, Raigarh District, Chhattisgarh State –Grant of Environmental Clearance-Regarding.**

Sir/Madam,

This is in reference to your online application submitted to MoEF&CC vide proposal number IA/CG/CMIN/466451/2024 dated 20/03/2024 for grant of prior Environmental Clearance (EC) to the project mentioned above, under the provision of the EIA Notification 2006-and as amended.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A0605CG5972856N
(ii) File No.	J-11015/72/2016-IA.II(M)
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Coal Mining
(vii) Name of Project	Gare Palma Sector-II Coal Mine Project of 23.60 MTPA (OC-22.0 MTPA + UG- 1.6 MTPA) over an area of 2583.48 ha in District Raigarh, Chhattisgarh.

(ix) Location of Project (District, State)	RAIGARH, CHHATTISGARH
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	No

3. M/s. Maharashtra State Power Generation Company Ltd (MAHAGENCO) has made an online application vide proposal no. IA/CG/CMIN/466451/2024 dated 20/03/2024 along with copy of EIA report and Forms (Part A, B and C) seeking Environment Clearance (EC) under the provisions of the EIA Notification, 2006 for the project mentioned above.

4. The proposed project activity is listed at S. No. **1(a) Mining of minerals under Category "A"** of the schedule of the EIA Notification, 2006 (as amended) and appraised at Central Level.
5. The instant Proposal was earlier considered by the EAC (Coal) in its 9th &11th meeting held on 21.03.2024 and 09.05.2024, wherein the proposal was deferred for the want of some additional information. The PP submitted the additional information vide letter dated 18.06.2024. The proposal was further considered in the 13th EAC Meeting held during 1-2nd July 2024. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at https://parivesh.nic.in.

6. The proposal is for Environment Clearance of Gare Palma Sector II Coal Mine project of 23.6 MTPA Capacity (22.0 MTPA opencast + 1.6 MTPA Underground) within the mining lease area of 2583.487 Ha of M/s Maharashtra State Power Generation Company Ltd located at Thili Rampur, Kunjemura, Gare, Saraitola, Muregaon, Radopali, Pata, Chitwahi, Dholnara, Bhalumura, Sarasmal and Libra villages, Tamnar Tehsil, Raigarh District, Chhattisgarh State.

7. The salient features of the project are as under:

i. **Location**: The project area is covered under Survey of India Topo Sheet No. F44L7, F44L8, F44L11 and F44L12 and is bounded by the geographical coordinates ranging from 22°06'24.215"N to 22°10'49.891"N and longitudes 83°26'15.433"E to 83°31'12.632"E. Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC vide is OM dated 13th January, 2010 has imposed moratorium on grant of Environment Clearance.

ii. **Mining Lease**: PP submitted that the block area has been acquired on 31.08.2015 vide allotment order no. 103/30/2015/NA for a total area of 2583.487 Ha. Out of the total lease area of 2583.48 Ha, land acquisition process shall be commenced after execution of mine lease deed.

iii. **Forest Area**: PP submitted that the project involves 214.869 Ha of Forest Land. The Stage – II FC clearance for the same was obtained vide letter no. 8-06/2022-FC. The PP submitted that there is no broken forest land and there is no violation of FC Act.

iv. **Protected Area**: PP submitted that the project is not located within 10 KM of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. PP submitted that there is no violation of WLP Act. PP also submitted that there is presence of Schedule – I species in the concerned area and Wildlife Management Plan for the conservation of the same has been prepared and the same has been approved by PCCF, WL vide letter no. 494/12, dated 20.01.2021.

v. **Mining Plan & Method of Mining**: The mining plan & mine closure plan for the project was approved for (capacity 23.60 MTPA, Area - 2583.48 Ha area) vide letter no. 34011/16/2016-CPAM, dated 12.08.2016. PP submitted that it is an integrated project. Excavation of Coal is through Surface Miner (Surface miners will be used for cutting the coal precisely and selectively). Mining of thin coal by surface miners and ripping has also been now investigated by the RQP besides the drilling/ blasting considered earlier and it has been concluded that the coal mining will be carried out totally by Surface Miners.

vi. **Geological reserve**: Total geological reserve reported in the mine lease area is 1059.298 MT with 781.78 MT (582.292 MT (Opencast) + 199.393 (Underground) mineable reserve. Out of total mineable reserve of 781.78 MT, 655.15 MT (553.17 MT (Opencast + 101.97 (Underground) are available for extraction. The percentage of extraction is (OC- 75.15% and UG- 31.55%).

vii. **Details of Land usage**:

Pre-mining:

S. No.	Land Use	Within ML Area (ha)	Outside ML Area (ha)	Total
1.	Agricultural Land	2002.48	Nil	2002.48
2.	Forest land	214.869	Nil	214.869
3.	Waste Land	Nil	Nil	Nil
4.	Grazing Land	Nil	Nil	Nil
5.	Surface Water Bodies	56.17	Nil	56.17
6.	Settlements	79.18	Nil	79.18
7.	Other (Roads / Other infrastructure)	230.781	Nil	230.781

Post Mining:

S.N.	Land use	Plantation	Water Body	Public Use	Un-disturbed	TOTAL
	During Mining					
1.	External OB Dump	0	0	0	0	0
2.	Top soil Dump	0	0	0	0	0
3.	Excavation	2440.55	0	0	0	2440.55
4.	Roads	0	0	30.30	0	30.30
5.	Built up area	0	0	50.94	0	50.94
6.	Green Belt	36.07	0	0	0	36.07
7.	Undisturbed Area (Under Kelo River)	0	0	0	15.42	15.42
8	Bund			5.2		5.2
9	Settling Pond	0	5			5.0
	TOTAL	2476.62	5	86. 44		

viii. **Transportation of Coal**: The PP submitted that the coal is proposed to transport within the outside mining lease area in the following manner:
• In pit: Dumpers (By road)
• Surface to siding: Dumpers/conveyor
• Siding to loading: Rapid loading system
• Quantity being transported by Road/Rail/conveyer/ropeway: 23.60 MTPA
• There are no proposed changes in transportation means.

ix. **Legal Issues/ Violation**: PP reported that there is no legal issue/violation wr.t i) Environment (Protection) Act, ii) Air(P&CP) Act, Water (P&CP), Act, Forest Conservation Act, Wildlife Protection Act, CRZ Notification, MMDR Act, Factories Act. Further, there is no court case on the project.

x. **Reclamation Plan**: PP submitted that the reclamation plan includes afforestation, which shall be done progressively covering an area of: 2476.62 ha at the end of mining. This will include:
• External dump 194.76 Ha.
• Plantation in backfilled area 2025.77 Ha (in new eia)
• Safety zone and greenbelt 36.07 ha (in new eia)
• Density of tree plantation (in no. of plants): 2500/Ha

xi. **R&R Issues**: PP submitted that there are total 14 villages within the mining lease area. Detailed R & R studies has been carried out by reputed institute and suggestions made by the institute meeting the “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act, 2013 of Central government or Chhattisgarh State Model Rehabilitation Policy 2007.

xii. **Baseline Data**: PP submitted that the environmental baseline data was generated in the pre-monsoon from 25th March

to 15th June 2024. Based on the survey conducted, the project site does not have any species which fall under the Schedule I of The Indian Wildlife (Protection) Act, 1972 or under threatened category of The IUCN Red List of Threatened Species. But within the 10 km radius of project site (in Reserve Forest patches) three Schedule-I species were recorded as per the Forest records. Wildlife conservation plan has been approved by PCCF, WL vide letter no. 494/12, dated 20.01.2021.

xiii. **Waste**: The details of solid and hazardous waste generation along with its mode of treatment/disposal is furnished as below:

S. No.	Type of Waste	Source	Quantity (TPA)	Mode of Treatment	Disposal	Remarks
1	OB waste	Mining	2761 Mcum	Re-handling	Refilling of mine out area	Solid waste
2	Domestic waste	Workers & Admin office	3.76	Re-cycling	Food waste composter	
3	Sludge	STP	1.632	Re-cycling	Manure	
4	Used Oil	Mines Workshop	2224.82	Re-cycling	Through authorized Vendors/Recycler	Hazardous waste

xiv. **Water Requirement**: PP reported that the water requirement will be 2785 KLD and the source of water will be surface water, groundwater and mine sump water. PP submitted that there will be groundwater intersection involved and NOC for abstraction of ground water has been obtained from CGWA, new Delhi, vide letter no. CGWA/NOC/MIN/ORIG/2020/7943 and valid up to 05th May 2022 to dt. 04th May, 2022, for 1454 KLD. Renewal application has already been submitted at online portal (NOCAP) CGWA portal.

xv. **Plantation**: Proposed greenbelt will be developed in 36.07 Ha. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC. Local and native species will be planted with a density of 2500 trees per hectare. Total no. of 5641500 saplings in 2256.60 ha area will be planted and nurtured in hectares in 32 years.

xvi. **Public Consultation**: The PP submitted that PH notification was published in local and english newspaper (Dainik Bhaskar & Times of India) on 25.08.2019 and public consultation took place on 27.09.2019 at the Government Primary school ground of Dolesara village in Raigarh district. Mr. R.A Kuruvanshi (ADM) was the presiding officer present at the public consultation. The major issues involved in the PH were land, employment, environment, health check-up, education etc.

Action plan as per MoEF&CC O.M. dated 30/09/2020

S. No.	Physical activity and action plan Name of the Activity Physical Targets	Name of the Activity Physical Targets	Total Expenditure (in Rs Cr)
1.1	Dolesara Water drinking facility in the village	(Drinking Water Filtration with purification and door to door distribution Project through Women Self Help Group)	0.38
1.2	Dolesara Provide school bus facility	School transportation Facility will be provided to the students, doing study in schools within 10 Km radius. (for 05 years)	0.60
1.3	Dolesara To provide sports facility	Kabaddi is a famous game among youths, a Kabaddi mat will be provided to the village team. Development of open Gym and sports item will be provided to school.	0.10
1.4	To provide food for poor children	Supplentary Nutritious food mixture will be provided to the children age from 3-6 year. (for 05 years) - approx 60 children in 03 Anganwadis X 180 days in a year X 05 years = 54000 @ 20/- per day	0.11
1.5	To provide Training centre for business purpose	Construction of Training Center Building ((1 hall, store room, washrooms with water facility)	0.12

1.61	Establishing sweing Center	Establising Tailoring Training center for women. Train 40 students every year (05 years project)	0.10
1.62	Masroom Training	Provide training for Mashroom production - 50 Women every year (for 05 years)	0.025
1.7	To provide school teacher for primary School	Provide 03 Primary teachers for five years	0.18
1.9	To provide Toilet facility in school	Renovation of Toilets and urinals of Primary and Middle School	0.05
2.1	To Provide Water facility	Construction of water Tank (2 Lakh liter capcity) and provide tape connection in village.	0.80
2.2	Provide drainage facility	Construct of drainage in village	0.20
2.3	To Provide Girls Training Programme	Capacity building of Girls - Karate Training	0.05
2.4	Pond Deepening	Deepening of Purain-Muda Pond	0.08
2.5	Library Facility	Develop Library facility at the center of village (for 05 years)	0.05
2.6	Provide sports facility	Playground Leveling and Cricket Ground preparation	0.05
3.1	Provision for child education	Special teachers appointed in 03 Aanganwadi centers for pre-school education (for 05 years)	0.10
3.2	Provide Clean Water		repeated 1.1
3.3	Income generation activity for less women educated women		repeated 1.61 &1.62
4.1	To start english medium School	Provide support and facilitate for opening english medium school up to 5th standard.	0.40
4.2	To provide drinking Water facility		repeated 1.1
4.3	Playground facility		repeated 2.6
5.1	Construct School for children		repeated 4.1
5.2	Provide drinking Water facility		repeated 2.1
5.3	Develop Anagwandi Centers	Renovation of Anganwadi Centers and provide educational and sports material	0.10
6.1	Provide Health facilities	Renovation of Existing Sub Health Center and develop facilities and equipments for institutional delivery	0.08
7.1	Tree Plantation	Tree Plantation drive will be organized every year in the month of July and August. Plantation of 2000 trees every year in common place of village (for 05 years)	0.05
8.1	To provide road	Construction of CC Road in Gare village	0.20
8.2	To Provide Health checkup camp	Free Health Checkup camps will be organized every week in the villages.	1.20
	Education facilities	Support teachers for special education of English and maths in middle school (5 years)	0.10
8.3	To Provide water facility	Borewell drilling, installation of Submersible pump with water tank construction	0.15
Total			5.275

xvii. **Cost of Project**: The capital cost of the proposed project is Rs. 7463 Crores and the capital cost for environmental protection measures is proposed as Rs. 1484.53 Crores. The employment generation from the proposed project is 3400 persons. The CSR cost will be 2% of the average net profit and R&R cost will be 2435 Crores. The Cost of implementing

EMP (Capital and Recurring both) will be Rs. 1484.53 crores in which 1027.66 crores is for Progressive Closure and 456.87 Crores is for Final Closure of Mine.

The details of cost for environmental protection measures is as follows:

Heads	Total Amount, Rs. Lakh	Recurring Cost (Lakh)
Progressive Closure		
Safety and Security	1958.44	19.5844
Topsoil management	5628	56.28
Technical and biological reclamation of mined out land and OB dump	94174	941.74
Plantation over virgin area including Green Belt	143.44	1.4344
Water quality management	340	3.4
Air quality management	340	3.4
Subsidence monitoring	19.09	0.1909
Manpower cost and supervision	163.5	1.635
Sub Total	**102766.47**	**1027.6647**
Final Closure		
Dismantling of infrastructure, disposal/rehabilitation of mining machinery	2843.76	28.4376
Top soil management	955	9.55
Technical and biological reclamation of mined out land and OB dump	41424.12	414.2412
Landscaping and plantation	95	0.95
Power cost	40	0.4
Water quality management	12	0.12
Air quality management	12	0.12
Subsidence monitoring	0.91	0.0091
Manpower cost and supervision	4.5	0.045
Others, miscellaneous	300	3
Sub Total	**45687.29**	**456.8729**
Grand Total	**148453.76**	**1484.5376**

8. The EAC in its meeting held on 1-2nd July 2024, inter alia deliberated the following:

i. The project proposal was considered and appraised by the EAC (Thermal and Coal Mining Projects) in its 58th meeting held on 23rd - 24th June 2016 wherein the Committee recommended the proposal for the grant of ToR. The ToR was issued vide letter No. J-11015/72/2016-IA. II (M) dated 8th August 2016. The validity of ToR was extended vide letter dated 5.08.2019. After the grant of ToR, PP conducted a Public Hearing on 27th September 2019. The PP then submitted the Final EIA/EMP to MoEF&CC on 23.11.2019. The proposal was considered by EAC in its meeting held during 5.12.2019 and 28-29 September 2020 wherein the EAC recommended the proposal grant of EC. EC was issued on 11.07.2022.

ii. MoC, GoI has allotted the Gare-Pelma Sector-II Coal Mine to Mahagenco on 24.03.2015. Mahagenco signed the Allotment Agreement on 30.03.2015 and subsequently signed the Amendment on 31.08.2015. The proposed production rated capacity of the mines is 23.60 MTPA (22.0 MTPA by OC & 1.60 MTPA by UG). Accordingly, the mining plan has been prepared and duly approved for the rated capacity and peak capacity based on the office memorandum F.No.34011/28/2019-CPAM, Ministry of Coal, GOI dated 29.05.2020 and approved by Ministry of Coal, Govt. of India vide letter No. F. No. 34011/16/2016-CPAM dated 12.08.2016. Mining lease application submitted on 08.12.2015.

iii. Production of coal with production capacity 23.60 MTPA (22.0 MTPA by OC & 1.60 MTPA by UG). Installation of coal handling plant - A coal handling plant with design capacity of 23.6 million tonnes per annum will be established. Coal is to be produced through surface miners from opencast and through continuous miners from underground, which will not require additional crushing in the coal handling plant (CHP). Coal produced from opencast will be transported by 100/150T dumpers directly to the ground bunker of 70000 tonne capacity via unloading platform, reclaim conveyor and transfer point and coal from underground will be directly fed to the ground bunker through the conveyor emanating from

the incline. Total geological reserve reported in the mine lease area is 1059.29 MT with 781.78 MT mineable reserves. Out of total mineable reserve of 781.78 MT, 655.15 MT are available for extraction. Percent of extraction is 83.8%. The Coal linkage of the project is proposed for captive use for various thermal power plants of Mahagenco namely Chandrapur Thermal Power Station Unit 8 & Unit 9 (1000 MW), Koradi Thermal Power Station Unit 8, Unit 9and Unit 10 (1980 MW), Parli Thermal Power Station Unit 8 (250 MW). The Life of mine is total 77 years (Life of OC mine – 29 years and UG mine - 66 years starting from 12th year onwards).

iv. The lease area is 2583.48 Ha (Non-Forest Land: 2368.618 Ha & Forest Land: 214.869 Ha). PP submitted that FC Stage-I granted vide File No. 8-06/2022-FC dated 02.06.2022 and subsequently, FC Stage-II granted on 27.01.2023. The Committee observed that the Silot Reserved Forest is located at around 0.1 km (N) and Tolge East Resrved Forest is located at about 2.7 km (E), Barkachhar Reserved Forest – 7.5 km (S) form the project site. The Committee is of the view as the forest is at the distances of 100 meters PP shall create a natural wind barrier between the lease boundary and forest area by developing green belt. Impact on the forest land shall be studies/monitored at regular interval and report shall be submitted to RO. The Committee also observed that there is no grazing land involved in the project.

v. PP submitted that there is no wild life sanctuary, national park or eco sensitive zone within 10 Km radius of the mine lease area. Wildlife conservation plan was prepared by Learn nature consultants pvt Ltd., Raipur. Wildlife conservation plan submitted by PP on 14.11.2019. WLCP has been approved by PCCF (WL), Raipur, Chhattisgarh dated 20.01.2021 with Rs. 344.40 Lakhs of budgetary provision. The Committee is of the view that PP shall deposit the amount to the concerned authority. Although based on the survey conducted, the project site does not have any species which fall under the Schedule I of The Indian Wildlife (Protection) Act, 1972 or under threatened category of The IUCN Red List of Threatened Species. But within the 10 km radius of project site (in Reserve forest patches) three Schedule-I species were recorded as per the Forest records. The Committees is of the view although there are no threatened species but PP shall give training/conduct awareness program for its employee/workers to protect the wildlife if any found in the project area.
vi. The Committee observed that the project is not located in CPA/SPA and the same is also confirmed from Carrying Capacity Study report submitted by CECB.

vii. The Committee observed that earlier, baseline data collection was considered Post Monsoon Season (Oct to Dec 2016) and (Nov 2019 to Jan 2020). Again for re-validation of EIA report baseline data (25th March to 15th June 2024) has been collected. The Committee is of the view the project was to be reviewed from the stage of public consultation but baseline data was asked to collect to get the recent environment scenario.

viii. The Committee observed that as compared to 2016 level there is some increase air pollutants but as per the results of the monitored data indicate that the ambient air quality of the region in general is in conformity with the National Ambient Air Quality Standards with present level of activities. Ambient Air Quality Monitoring reveals that; the minimum and maximum concentrations of PM10 and PM2.5 for all the 25 AAQM stations were found between 37.50 to 82.70 µg/m3 and 18.50 to 57.60 µg/m3 respectively. The minimum and maximum value concentrations of SO2 for all the 25 AAQM stations were found between 4.40 µg/m3 to 25.40 µg/m3. The minimum and maximum value concentrations of NOX for all the 25 AAQM stations were found between 7.80 µg/m3 to 38.90 µg/m3. The concentrations of CO for all the 25 AAQM stations were found between 0.30 to 1.08 mg/m3.

ix. The Committee also observed that more number monitoring stations were installed as compared to 2016 when initial baseline study was done. The Committee observed that as per the EIA the noise levels recorded at all locations were within the limits of ambient noise as per Noise Regulation (Pollution & Control) Rules, 2000. The maximum & minimum Leq values for day and night time was observed to be 53.21 and 30.88 dB (A) respectively, which can be attributed to local prevailing environment (Mining, industrial, Railway siding and Highway). However, the recorded noise levels were found within the limits of Industrial Noise (75 dB (A)). PP submitted the analysis of the 22 nos. of Ground Water and 22 nos. of Surface Water samples in EIA and it has reported that the GW samples are falling within the drinking water standards and surface water is indicating category A of CPCB water quality criteria. As per the EIA the soil samples are predominantly Clay loam type.

x. The Committee observed that PP has provided the impact during the construction and operational phase in the EIA. During the construction activities like establishment of workshop, service buildings, development of roads, etc., will increase the noise levels and dust pollution. PP also provide the mitigative measures for dust, noise and water which inter-

alia include water spraying, speed limit, plantation, PUC for vehicles, covered transportation, Construction activities will be carried out only during day time, Noise generating equipment will be kept away from the residential buildings, all the machineries which will generate noise will be covered with the tin sheets, domestic water will be treated in Septic tank and Soak pit, waste water generated during construction activities will be diverted to settling tank for suspended solids deposition and the same will be used for greenbelt.

xi. The Committee is of the view that during the construction phase there are possibilities of generation of plastic waste and PP shall provide the provision for collection of the same and take steps for its minimization. PP shall ensure the construction waste if any shall also be utilised/handle properly as per rule. During the operation phase, PP reported the impact on Air Quality, Water Quality & Hydro-geology, Noise, Land Use, Flora & Fauna and Socio-Economic Environment. PP has also calculated the AQI (sub-index values) for various pollutants. PP also provided the cumulative impact of all the pollutants in Chapter 4 of EIA. The Committee observed that it is reported that as per the analytical reports of the project site and the surrounding areas, the ambient air quality is found well within the NAAQS limits except the incremental GLC of PM2.5 which is slightly higher than the limit. Environment Management Plan will be appropriately taken up to mitigate the air pollution. Further, the Air Quality Index for study area falls under good, satisfactory, and moderate categorization as per the data obtained during baseline studies. The AQI index of the area is also found satisfactory. The health impact due to this AQI is very less and it may only cause discomfort to sensitive people. The Committee observed that mitigative measures suggested includes i) Wet drilling method will be employed while carrying out the mining to decrease the dust generation, ii) The underground workings of the mine will be well ventilated by adequate ventilation arrangements. The requirements and standards specified in this regard by Director General of Mines Safety (DGMS) would be adhered, iii) Effective water spraying arrangements will be done in underground working places, at haulage junctions, ore loading bunkers at pithead on surface, at main haul roads within the mine, approach roads to the mine and other transfer points, iv) Enclosures at ore transfer points and watering of roads at regular intervals, v) Transportation of materials (timber, roof bolts, grouts/resins, spare parts, cables, lubricants, ventilation stopping materials, etc) from the surface mine to underground working place, direct rope haulage system and endless haulage system will be used, vi) Water sprinkling will be carried out by both fixed and mobile sprinklers on internal transport road, transfer points, critical areas, loading and unloading points, vii) Proper periodic maintenance of machinery and vehicles, viii) The run-off during the monsoon will be collected through the network of drainage system and treated in settling pond and the same will be utilized for dust suppression system, ix) Plantation will be done within the mine premises, along the boundary and also along ore transport route. In order to minimize the adverse impacts of the proposed mine on the local villages, greenbelt development will be carried out using local species around ore loading and unloading points and along the transport road, x) When the roads are ready, it is proposed to plant avenue trees on both sides of roads. Only the native species that are well adapted to the local agro-climatic conditions will be chosen for plantations (avenue trees) along the roadsides and xi) Around 2500 saplings per annum in 1 Ha in the vacant areas.

xii. The Committee noted that in the initial 5 years, the production level proposed is 9.5 MTPA as against 22.0 MTPA which is 43% of the total production and during these 5 years PP shall take massive concurrent dense three-tier plantation along the lease boundary and outside the lease area so that by the time production level reaches to proposed production capacity sufficient plantation/green belt has already been developed. Further from the 6th year onwards, the backfilling shall be started and internal dumping should be done so that reclamation of the backfilled area starts at an early stage. The Committee observed that road transportation is proposed for an initial 2 years is 1.55 MTPA.

xiii. The Committee in the previous meeting deliberated on Judgement dated 15.01.2024 of Hon'ble NGT, in which it is mentioned, "…We find that carrying capacity study was to be conducted by CPCB and CECB and data was required to be compiled by the said authorities. There is nothing on record to show that any such study in respect of Tamnar Block which included the questioned area was conducted as per direction in Shivpal Bhagat (supra). Therefore, carrying capacity study by authority which was required to undertake the same, has not been conducted and this aspect has not been taken care by the Competent Authority in granting prior EC."

xiv. The Committee therefore interacted with the representatives of SPCB about the same and asked whether this mine is included in the Carrying Capacity conducted by SPCB for Tamnar Block through IIT Bhilai and IIT Bombay. The representatives of SPCB informed that the study was done for already existing mines and power and iron plants and the proposed mine was not included in it. Therefore, the Committee suggested to SPCB to request IIT or some other reputed government institute to conduct a carrying capacity study, which should include not only the present operating mines and industries but also the proposed industries and mines coming up in the area, along with mitigative measures which should

be taken for the same. The Committee observed that "Carrying Capacity and cumulative impact assessment study with its mitigation measures by also taking into account the impact of the proposed project on the local environment in Tamnar block in District Raigarh, Chhattisgarh" undertaken by Chhattisgarh Environment Conservation Board (CECB), Raipur was carried out by the IIT-Patna. The Committee also interacted with the Dr. Amit Kumar Verma, expert from IIT-Patna who briefed the Committee about the study report. The Committee observed it has mentioned in the report that in April 2023, a carrying capacity study was carried out by IIT Bhilai and IIT Bombay in Raigarh and Gharghoda Blocks of Raigarh District, Chhattisgarh State, in response to a request and invitation from the Chhattisgarh Environment Conservation Board (CECB). IIT-Patna prepared carrying capacity report comprising the region along the Gare Palma and assesses the impact of operational mines and the upcoming project in the surrounding area of the Gare Palma region of Tamnar block. The study consisted of the air quality index based on the regular time air monitoring, water quality of the region, water quality index, soil quality of the region and the ecological impact due to the operational and proposed mines. IIT-Patna team also reviewed carrying capacity report, prepared by IIT-Bhilai and Bombay along with supplementary data study report on socio-economic status, hydrology data, ecology conservation plan and post mining ecological restoration plan submitted by Entrepreneurship Development Institute of India (EDII), Ahmedabad and IIT (ISM), Dhanbad.

xv. The Committee observed that carrying capacity report concluded that in Tamnar block, the concentration of PM, SO2, and NOx falls comfortably within the acceptable limits. Nonetheless, the RSPM levels in the region are close to the highest allowable limit for an industrial zone. Particulate matter could potentially hit its peak level in the future because of build-up. Hence, more steps need to be taken from the environmental management plan to improve climate change and decrease industrial pollution. Further, in the recommendation it has mentioned that The Carrying Capacity assessment conducted in Tamnar of Raigarh District, Chhattisgarh State, showed that the region still has capacity for PM, S02, NOX. Yet, the Tammar block is getting closer to exceeding the maximum pollution concentration limit for Particulate Matter because of poor road conditions and higher levels of industrial activity like coal and ash transportation. Additionally, the following points have been observed that could potentially be incorporated into the action plan.

a) Coal and ash transportation is not permitted on any village road. All industrial roads need to be paved with concrete/asphalt and properly maintained with timely repairs. Roadside plantation needs to be done.

b) Regular water sprinkling work to be taken place all industrial roads.

c) Industries, power plants, and other establishments in the area with mine areas, coal handling units, and ash handling units must have a wheel washing system at all entrance and exit points.

d) Railway sidings need to adhere to CPCB regulations and should include rain guns, windbreaking walls, sprinklers, parking lots, access roads, drainage facilities, settling pits, etc.

e) If coal is being transported by road, transporters should be charged a surcharge based on their distance and time travelled for the purpose of road maintenance and repair.

f) CAAQMS must be installed in almost each village of Tamnar block and consistently connected to the state pollution control board according to CPCB guidelines.

During the meeting the committee discussed the report with Dr. Amit Kumar Verma and asked about the impact on human health. He informed that as per the report the Air Quality Index for the study area is classified as good, satisfactory, and moderate based on data collected during baseline studies. As a result of implementing the project and the activity of cluster mine, the AQI index in some locations will shift from satisfactory to moderate. The health effects of this AQI are minor and may only result in discomfort for individuals who are sensitive.

xvi. The Committee observed that Hon'ble NGT in its Judgment dated 15.01.2024 inter-alia made certain observation about the Hydrogeological Report, impact of mined drainage & diversion of nallas and study of flood level of Kelo River and impact if any. The Committee previously was of the view that the Hydrogeological study was done by NABET Accredited consultant, but Hon'ble NGT observed some shortcomings in the same, particularly concerning high flood levels and mentioned in its judgement that "Moreover, high flood level of the river has been taken for a very small period of 1996-97 to 2002-03, though it should be of the period of last 50 to 100 years." asked the PP to get the revised study done from IIT (ISM) Dhanbad and the concerned institute shall ensure that observation of Hon'ble NGT and applicants shall be addressed in the proposed study report. As desired by the EAC, the PP got the Hydrology Study and Embankment Design done from IIT (ISM) Dhanbad. During the meeting the Committee also interacted with Dr. Sunil Kumar Gupta who briefed the EAC about the report and recommendations.

xvii. The Committee observed, as per the report of IIT – ISM Dhanbad, observed that there are two major Nalas i.e. Nala A situated in West and Karnar Nala B in the East side of the Kelo river. The report suggests that, as these Nallah fall within the mining lease area and will be impacted by the mining activities, it is proposed to divert these Nala along the

periphery of the lease area back into the Kelo river to minimise the impact and facilitate uninterrupted activities in the study area. The report suggests that it is proposed to construct a garland drain along the northern boundary line (within the block area) to join the same into Kelo river located in its east side. The diverted nala section should be lined and the banks should be fully protected by stone pitching on either side. Also, Karnar Nala is a non-perennial drain, with limited discharge during the monsoon period. The flow regime will be subcritical, which means it will not require any installation of energy dissipation structures within the channel due to subcritical flow in the diverted channel. According to the report, mining activities in the Gare II coal block are not expected to directly impact the path of the Kelo River as the course of river will be maintained to its natural course by restricting the mining operation at least 100 m away from both sides of the bank as per the guidelines (DGMS).

xviii. The Committee observed that, as per report the increased siltation in the Kelo River due to material handling activities within the mine lease is a real possibility. Studies carried out by CWPRI in the Mahanadi basin have given a value of annual average sedimentation load as 466 tonnes/sq.km for the Mahanadi basin. The calculations done for the various land uses of the mine clearly indicates that the siltation from the mine lies well below the average limits given for this Basin. The Committee is of the view that the measures suggested in the report to mitigate the siltation on the Kelo River and its catchment must be followed by the PP which includes i) The mining activities will be restricted by maintaining a minimum distance of 100 m between the riverbank and mine pit boundary, avoiding disturbance to the riverbed and natural soil and aquifer characteristics, ii) The garland drains shall be provided for collection of surface runoff at the peripheral boundary of embankment which will also arrest the sediment load, by settling, and treating the water before releasing it back into the Kelo River. iii) The seepage water from the Kelo River to the mine pit will be collected into the mine pit and pumped to the surface and after proper treatment the same will be released for the possible secondary utilization by the local communities. iv) Implementing strict material handling and sediment control measures, and regularly monitoring the river's flow, water quality, and sedimentation levels. v) By implementing these mitigation measures and continuously monitoring the Kelo River's health, the potential impacts of the mining activities can be minimized, ensuring the river's long-term sustainability and its ability to support the dependent ecosystems and communities.

With regard to observation of Hon’ble NGT that “Siltation in the river will also impact its flow and disturb its path”, the Committee observed that, IIT – ISM Dhanbad proposed that the mining activities be restricted by maintaining a minimum distance of 100 m between the riverbank and mine pit boundary, avoiding disturbance to the riverbed and natural soil and aquifer characteristics. Report also suggested implementing strict material handling and sediment control measures, and regularly monitoring the river's flow, water quality, and sedimentation levels. In addition to this, the report suggested that the garland drains shall be provided for collection of surface runoff at the peripheral boundary of embankment which will also arrest the sediment load, by settling, and treating the water before releasing it back into the Kelo River.

The Committee also noted that report provides the impact of seepage of Kelo River into the mine working area wherein it has mentioned that “Detailed analysis of seepage and mine water generated, it is evident that the anticipated amount of water to be dewatered from the mine on a daily basis comes out to be very less as compared to the mean daily flow of Kelo River, which is going to remain less than a maximum value of 0.12 % in the near future (till the year 2028-29). The detailed estimate on the mine water seepage and dewatering is submitted. The impact of seepage and mine dewatering on the Kelo River flow will be negligible.

The Committee is observed in the report submitted by IIT – IIS (Dhanbad) that, the mean discharge of the Kelo river for the period between 1958 to 2023 is 15,50,880 KLD. Over analysis of the impact of mining on the flow of Kelo river dictated that the total water requirement for the mining related activities is 2785 KLD. Out of which 1785 KLD is fresh water and 1000 KLD will be fulfilled from recycled water. Further, out of 1785 KLD water, 1454 KLD water will be met from groundwater with due permission of CGWA. The remaining 331 KLD of freshwater will be taken from Kelo river which is merely 0.021 % of the mean daily discharge of Kelo river. This signifies very less impact on the flow of Kelo river. Further, IIT ISM team shown “anticipated amount of water to be dewatered from the mine, which is going to remain less than a maximum value of 0.12 % in the near future (till the year 2028-29)” which shows that the impact of seepage and mine dewatering on the Kelo River flow will be negligible.

The Committee observed that w.r.t observation of Hon’ble NGT for making arrangement for embankment all along Eastern and Western bank of Kelo river, affecting natural flood plain zone of the river. The PP submitted that in the report submitted by IIT – ISM that the team proposed embankment along the eastern and western bank of Kelo river. DGMS mandated only 15 meters from either bank of a river, however IIT (ISM) team also proposed that a minimum distance of 100 m between the river and the mine pit boundary shall always be maintained at different sections of the river. In the said report IIT ISM team has proposed a detailed design for the embankment along the Kelo river and natural water flow. It also has been recommended that the height of the embankment shall vary from 2m to 9m on the right bank and from 4m to

9m on the left bank. It is further recommended to strengthen the embankment on the riverside by placing large boulders in wire net bags. The embankment will also be stabilised by road rollers and vibrators followed by plantation of grass and bushes. The HDPE geomembrane lining is to be provided in the embankment. The apron provided at the base of the embankment will help in considerably reducing the seepage through the base of the embankment. In addition, the central core layer will have interlocking arrangement at the base to avoid seepage from the base.

The Committee observed that w.r.t to observation of Hon'ble NGT i.e "High flood level of the river has been taken for a very small period of 1996-97 to 2002 03, though it should be of the period of last 50 or 100 years". In this regard PP submitted that Long term Rainfall data of the gauge station in Raigarh, and the discharge values (inflow to the river from the reservoir) collected and used from 1958 to 2006 (48 years) to develop a rainfall-runoff model. EE, Kelo project Yojna also provide a letter for the same. Further, due to unavailability of discharge value from year 2007 to 2023, the total runoff volume was further used to predict the discharge values. Hence the runoff for this period was determined by developing a statistical rainfall-runoff model from annual rainfall data which was available from 1958 to 2023.

In addition to the observations of NGT, the Committee also deliberated on the groundwater in the said area. The report of IIT – ISM Dhanbad states, that to study the impact of mining on the water quality, the groundwater samples were collected from 14 nearby villages of GARE-PALMA II, Coal Block mining region and also from u/s and d/s of Kelo river. Different physico-chemical parameters were assessed. These parameters were then integrated to develop a water quality index (WQI), through which the drinking water suitability of groundwater is determined. The analysis of WQI values of the groundwater samples shows that all the samples fall in the category of excellent to Good, which means that groundwater of the region has not experienced any significant deterioration on account of mining activities. The pH of most of the water samples lies in the permissible limit as prescribed by BIS showing that mine related seepage is not occurring in the groundwater table of the region. Some samples have moderate turbidity values while the other major parameters fall under the permissible limits. This means that "muddy" nature of the groundwater can be tackled by simple filtration units without requiring any advanced filtration system. The water quality of the surface water samples collected from the upstream and downstream section of the river falls in the "Good" category.

The Committee also referred to the Water quality report submitted by NEERI, wherein, at some of the locations, values of arsenic, nickel, iron, manganese, fluoride and such other minerals were found beyond the permissible limits. However, as per the EIA report, Hydrogeological study conducted by IIT (ISM) Dhanbad, carrying capacity study conducted by IIT Patna no such observation was made. The Committee also had gone through the CGWA report 2020, prepared for Tamnar block Raigarh district, as per no arsenic contamination in groundwater was found in any sample collected in Tamnar block. The committee also reviewed the NEERI report for the Tamnar block wherein certain groundwater parameters indicate toxic levels. However these cannot be ascribed to the proposal under consideration since the mine has not started operations. Further, the Committee is of the view that PP shall monitor all these parameters, take mitigation measures if required and submit a report to the concerned RO of MoEF&CC in six monthly report. Safe drinking water shall be supplied to all residents of the ML area.

The Committee is of the view that the PP shall implement the recommendation made in the report of IIT (ISM) Dhanbad in addition to this the Committee is of the view that PP shall optimize the water requirement and also augment or harvest the water by rainwater harvesting measures. PP shall monitor the water quality surface as well as groundwater for the presence of heavy metals. In addition to this, a water audit needs to be done every year for the reduction of specific water consumption by various means. The committee observed that all points w.r.t hydrology raised in the judgement of Hon'ble NGT have been adequately addressed in the above additional study by IIT-ISM Dhanbad.

xix. The Committee noted that, Hon'ble NGT in its Judgement dt. 15.01.2024 asked the Ministry to review the proposal from the stage of conducting Public consultation afresh. As per EIA Notification 2006 (as amended) the concerned State Pollution Control Board is responsible for conducting a public hearing and also for seeking written responses from the concerned persons having a stake in the environmental aspects of the project or activity. Therefore, in the previous meeting the EAC sought comments of the Member Secretary, Chhattisgarh State Pollution Control Board regarding details of the prescribed procedure followed for the Public Hearing; was this procedure was fully followed as per the rules; the number of people who participated; details of written submissions received; details of issues/ concerns raised by the attendees both orally and in writing, any comments received from the applicants who have filed the case before Hon'ble NGT may also be provided. The committee also viewed the video recording of the public hearing. The Committee also desired that to further deliberate on this issue, the representatives of SPCB shall be invited. Ministry vide email dt. 02nd May 2024, requested Member Secretary, State Pollution Control Board, to take necessary action as per the above recommendation of EAC and also to attend the 11th EAC meeting scheduled for 09th May 2024. During the 11th EAC meeting the PP informed that Member Secretary, CECB vide letter dated 29.04.2024 provided details of the prescribed procedure followed and mentioned that procedure was followed as per EIA Notification 2006. It was also informed to the

Committee that Sh. R.K Sharma (SE, CECB) and Sh. Jhon Lakda (ACE, CECB) representatives from SPCB has joined the meeting through virtual mode. The committee interacted with the above representatives of CECB on the procedure followed during the public consultation. The representative of CECB informed that Member Secretary, Chhattisgarh Environment Conservation Board (CECB) vide letter dated 29.04.2024 provided a clarification regarding the public hearing and as per the clarification provided by MS, CECB, the public hearing was conducted by CECB as per the procedures laid down in EIA notification 2006 (as amended). All the provisions of EIA Notification, 2006 has been complied with. CECB informed that the Public hearing conducted on 27.09.2019 at Government Primary School Ground, Dolesara, Tehsil Tamnar, District Raigarh in close proximity to the project as per EIA notification, 2006, completing all necessary observations/preparations. Public hearing was conducted under the chairmanship of the Additional District Magistrate Mr. R. A. Kuruwanshi and R.O, CECB- R.K. Sharma as its Member Secretary.

The representative of CECB also confirmed the same during the meeting. In the same meeting the Committee asked whether the opportunity was given to local people to record their observations. In this regard representative of CECB informed that Additional District Magistrate, Raigarh announced many times and local people were asked to come forward and respond and record their objections and consent if any regarding project. The Committee also observed that the same was also recorded in the letter dated 29.04.2024 at Sl. No 12. It was also informed to the Committee that 59 persons present at the venue responded orally and 2 persons submitted the written response. The Committee also asked whether the four petitioners who have filed the case before the Hon'ble NGT recorded their oral and written submission during the PH or earlier submitted any responses. In this regard, representative of CECB informed that representation of two of the petitioners were received in 2018 and 2019 respectively. Further, they have submitted health and environment reports prepared by some individuals on their own and not endorsed by any government agency. The Committee observed that in letter dated 02.04.2018 one of the petitioner requested for cancellation of the Public Hearing on various grounds viz. i) Gram Sabha's NOC for Forest Rights Act, ii) no project can be established in the Fifth Schedule area without the permission of the Gram Sabha, this public hearing being organized in disregard of the Constitution and the PESA Act., iii) Forests and agricultural land will be destroyed, iv) mining should not be done in this area without carrying capacity study and cumulative impact assessment, v) issues related to acquisition of land including tribal land, iv) pendency of forest right claims, vii) environmental condition of this area should be examined etc. The Committee observed that other petitioner raised issue regarding violation of Panchayat Raj Adhiniyam via written submission that gramsabha has not been conducted in all the affected villages, hence request to cancel the public hearing.

It was also informed to the Committee that Maharashtra State Power Generation Company Limited has already obtained Stage –II FC on 27.01.2023 and PP vide email dated 03.05.2024 also submitted the letter dated 02/12/2019 issued by the Collector, Raigrah District thereby forwarding the NOCs obtained from Gram Sabha, which are based on meetings of the gram sabha. The Committee is of the view that CECB shall provide their comments on this issue and any other additional information in writing. Further, the Subcommittee shall visit the site and submit its report for further deliberation on the issue. To get an insight of the views of people the Committee also suggested for a socio-economic study.

In the 13th meeting of the EAC, the CECB officials again explained the procedure for Public hearing carried out as per EIA rules and informed the committee that in other projects also a similar procedure is followed.

During the 13th EAC meeting PP submitted the that as suggested by EAC, PP carried out a comprehensive socio-economic study through Entrepreneurship Development Institute of India (EDII), Ahmedabad, which is an acknowledged National Resource Institute for Entrepreneurship education, research & training and is recognized as the Centre of Excellence by Ministry of Skill Development and Entrepreneurship and is also the National resource Organisation (NRO) for the Ministry of Rural Development, Government of India.

The Committee noted that the study was done based on the data collected from fourteen village and Focused Group Discussion held with various stakeholders of 7 Villages. The study covers 14 villages in the Raigarh district of Chhattisgarh, with a population of 13,567. The data collection process for the study employed three primary techniques: personal interviews, focused group discussions, and hand-out questionnaires. The questionnaires were designed to cover a wide range of topics relevant to the survey, including basic household information, demographic profiles, socio-economic status, occupation patterns, educational status, health status, socio-cultural status, village infrastructure etc. Data Consultation was conducted in all of the villages to ensure a comprehensive understanding of the research area. It is inferred from the survey that the agriculture sector is predominant, and the average annual income from agriculture is 1.35 Lakh; in service, it is 1.25 lakh, and in wage labour, it is 1.09 lakh. Focused Group Discussion has been undertaken in 7 villages out of 14 affected villages. Villages were selected as per the proximity to the mining area, concentration of SC/ST households, most affected villages, and villages having more population. In each village where FGDs are conducted, a common meeting was held with prior information to the members of villages and key informants like Sarpanch, village head, Ward Member, AWW, teachers, farmers, SHG members, etc. Participants highlighted cultural and psychological impacts, including changes in kinship patterns and socio-cultural practices due to the anticipated mining activities.

Environmental concerns such as noise pollution, water pollution, air quality degradation, and the impact on forest resources and wildlife were also raised during the discussions. The villagers' also emphasised on the need for Employment, improved road connectivity, access to electricity, safe drinking water, and sanitation facilities.

Residents near mining sites raised concerns about the impact on their traditional livelihoods. Specifically, the SC and ST women communities of mining-affected villages described that they used to make bamboo baskets and leaf plates before mining. At that period, forest resources were abundant, and by collecting bamboo and sal leaves, they were in the habit of preparing and selling these products. But mining has diminished this occupational opportunity. It was further observed that Forty-five religious places, 25 community halls, 11 panchayat bhavans and six grazing grounds are being disturbed.

One of most significant impact of resettlement is the disturbance of the social fabric. A plan needs to be made that maintains the spatial and cultural practices in the new geography. The sanctity of religious places, not just the sanctum sanctorum, needs to be maintained. This is a sensitive area particular for tribals as they tend to have multiple deities and have spatial conditions for them. Providing space for fairs, melas and Haat is mandatory. Cultural and spiritual support can provide opportunities to the affected individuals for cultural expression, traditional rituals, and spiritual guidance to reconnect with their identity and sense of belonging. Since mine would bring a large multi-cultural population from outside these villages, the demography of the area changes disturbing the social fabric. The Committee is of the view that social fabric of the area needs to be kept intact, accordingly, the R&R plans should be made such that the Cultural and religious belief of the locals are protected.

As mentioned in the report, cash-only resettlements have led to increased impoverishment due to usage of cash for immediate requirements such a loan repayment, higher conspicuous consumption and involvement in nefarious activities specially in case of tribals. A large number of the outsees are not educated enough to get good jobs and end up becoming marginal labourers. It has been observed in much development and government programmes that in large number of cases money given to men has not been utilised properly. Instead, when the amount is given to the women directly, it has led to high family welfare and women empowerment. In some cases, it reduced domestic violence. Women contribute the upkeep of the homes in rural communities with subsistence farming, gardening, rearing chickens, collecting and processing local produce and other foodstuffs, fishing in streams and petty trading.

To cope up with the psychological impact, emotional support provided by trained counsellors can help the individual and families. Apart from this, raising awareness about mental health through community meetings and informational materials can reduce stigma within affected communities and encourage them to seek help when needed. A holistic programme addressing several issues of improvisation, psychological and cultural impact, and environmental and ecological effects needs to be developed. Education, capacity building, health, and women empowerment should be made central. The mitigating plan for resettlements needs a longer term and hence futuristic approach which maintaining the core of the rural communities.

During the meeting, PP informed that representative of EDII study team Prof. Piyush Kumar Sinha, Chief Mentor, EDII is available online for discussion on the outcomes of the report. Prof. Piyush submitted that about 60% of the area will be relocated. Their employment will be impacted. People in the area are of the view that employment should be generated; only compensation payment will not suffice. Rather thoughtful measures should be taken up to develop skills for alternate employment also. He further submitted that officials from EDII interacted with local community residing in the area, Community leaders support the project and seek support for Employment, Education (Skill development), Infrastructure (Hospitals, Roads etc.), Opportunities of entrepreneurial nature (with combine support of Corporate) Innovative industries, Cultural Support. PP Submitted that apart from compensation they will be giving job to members of the affected families. The Committee enquired about willingness of the villagers for establishment of the industry. Prof. Piyush informed that villagers largely support the project due to anticipated benefits in terms of financial compensation, improved livelihoods, and enhanced infrastructure and want the project to be started at the earliest. Many have already invested in their land, expecting greater returns once mining operations commence. He further informed that despite concerns about the potential loss of kinship and traditional ways of life, villagers are optimistic about the developmental opportunities that mining could bring. They anticipate better access to health and education services for their children, contributing to overall improvements in their quality of life.

The Committee observed that major concerns raised during the Social Impact Assessment study carried out by GreenC India Consulting Private Limited during 2017 also envisaged that the major issues present in the area include; people are worried about their relocation/migration, leaving their ancestral place and culture, decisions by Govt. being taken without informing them, loss of land and land rates being offered, health issues education issues; pollution, and infrastructure in the area. The Committee observed that it has mentioned in EIA report the based on this SIA the R&R plan was approved by Chhattisgarh Government on 4.02.2020.

The Committee observed that it has mentioned in the Socio-economic report that “Resettlement is a process that requires a longer-term perspective. It is about recreating the current settlement while keeping the future in mind. The efforts needed

to create a sustainable ecosystem that achieves a balance between modernity, traditions, technology, ecology and humanity. The life of mine is 77 years and beyond. Efforts must be made to craft strategies and plans for at least 10 years. In many cases, it has been found that the budgets allocated tend to be insufficient as the planning horizon is shorter". The report also provides the guiding principles for developing different mitigation plans. The Committee observed that budget proposed for addressing the issues of PH is Rs 5.275 Crores. The Committee suggested that PP shall prepare a mitigation plan following the guiding principal as mentioned in Socio-economic report within a period of six months and submit it to the Ministry. PP shall ensure that sufficient fund shall be allocated for the same keeping in mind that activities to be carried out for at least 10 years.

xx. Further, as desired by the Committee, PP submitted the Health Assessment report for study carried out by ICMR in the Tamnar area during the year 2019-2020 and the report on Anticipated Health Impact Assessment and Recommendations by CSIR CIMFR (June24). The study of CSIR CIMFR was carried out with the objective to conduct the study for anticipated impact of the project on the health of people living in the surrounding area, suggest mitigation measures and offer comments on the ICMR report particularly with reference in this study on the predicted impact of the project on the health of people living in the surrounding area of Gare Palma-II Coal Mine Project in Tamnar, Raigarh, Chhattisgarh. During the meeting PP informed the Committee that Prof Santosh Kumar Ray and Prof Bhanu from CIMFR are available online to discuss the report on Anticipated Health Impact Assessment and Recommendations by CSIR-CIMFR. It was informed to the committee that study envisages the a) The project raises concern about water contamination, alteration of geomorphology, soil fertility loss, food contamination, and ecosystem service disruption. Additionally, occupational hazards include respiratory issues, physical injuries, noise-induced health problems, chemical exposure, psychosocial concerns, and sanitation issues, b) Suggested mitigation measures include dust control, transportation optimization, health screenings, ergonomic assessments, chemical substitution, stress management programs, emergency response plans, water management practices, land reclamation efforts, and community engagement initiatives, c) The primary focus is to meticulously assess the potential ramifications of mining activities on the health concerns of the immediate stakeholders, namely employees and PAPs, and to devise proactive, precautionary, mitigative, and adaptive measures accordingly, d) Mining operations inherently entail various occupational health hazards, including exposure to dust, noise, and hazardous chemicals. Dust generated during mining activities poses respiratory health risks, potentially leading to conditions such as pneumoconiosis and chronic obstructive pulmonary disease (COPD) among workers, e) Similarly, prolonged exposure to high noise levels can result in hearing loss and other auditory disorders, f) Furthermore, the disturbance of land and soil fertility loss can impact agricultural productivity, posing additional challenges to the local community's livelihoods, g) The project's proximity to water bodies raises concerns regarding potential water contamination, which could have far-reaching ecological consequences, h) Due to the large-scale operations proposed by the GPII project, there is a chance of potential water contamination. Activities such as mining, waste disposal, and transportation logistics may introduce pollutants into local water bodies, i) To mitigate these occupational health issues and hazards, comprehensive safety measures and health protocols must be implemented throughout the project lifecycle. This includes providing personal protective equipment (PPE), conducting regular health screenings, ensuring proper ventilation in underground mines, implementing ergonomic work practices, promoting mental health awareness, and engaging in community health programs to address the broader health impacts of mining activities. Additionally, ongoing monitoring and evaluation of occupational health risks are essential to adapt and improve safety measures as needed, j) While the project aims to meet India's growing coal demands, bringing-in economic activities and developing a livelihood facilitating ecosystems in the area however, it has also risk of substantial environmental and occupational health concerns. The study outlined potential risks such as water contamination, alteration of geomorphology, soil fertility loss, food contamination, and disruption of ecosystem services. Similarly, the risk of occupational health contains respiratory hazards, physical injuries, noise- induced health issues, chemical exposure risks, psychosocial health concerns, air and water pollution, and emergency response risks for workers and nearby communities, k) ICMR health vulnerability concerns are indicative of its skewness towards lifestyle and psychosomatic dimensions leading to diseases like high blood pressure (BP), diabetes, etc. This may be addressed by mitigating their stress component, which occurs due to idleness, meagre avenues of economic activity, and a lack of livelihood opportunities leading to mundane life quality, l) As stated above, the mine/project may only be consented towards its go ahead if and only if it is to be carried in a sustainable manner. Additionally, towards the health concerns of its people and larger stakeholders, project proponent must develop a healthy ecosystem beyond mandatorily required dispensary and occupational health centres. This may include developing a multi-speciality hospital with modern instruments and medical professionals to cater the health venerability of the people and community living in the area and vicinity, and m) Ultimately, a collective effort involving government agencies, industry stake holders, local communities and health professionals is essential to ensure responsible management of the mining project and preservation of human health and environmental integrity.

The expert of CSIR-CIMFR also briefed the Committee about the recommendations. The Committee observed that the recommendation of CSIR-CIMFR are as follows:

a) Design and operate the mine with a focus on minimizing dust generation during coal and Overburden (OB) production processes. Employ advanced technologies and engineering solutions to mitigate dust emissions at the source.

b) Implement transportation methods that prevent the exposure of dust to the ambient air. Utilize In-Pit Crushing and Conveying (IPCC) or High Angle Conveying (HAC) mechanisms for material handling and transport to minimize airborne dust.

c) Aim to transform the mine into a seldom blast and preferably dumper-free opencast mining by adopting cutting-edge technology for coal production, crushing and transport. This approach not only reduces dust emissions but also enhances work place ergonomics, operational efficiency, health hygiene and safety.

d) Implement a closed transportation system utilizing pipe conveyors or enclosed conveyors. This approach ensures that material transport is contained within a closed system, minimizing the dispersion of dust and pollutants into the surrounding environment.

e) Implement a comprehensive green belt initiative, incorporating dense vegetation surrounding the mine site. This strategic green belt will act as a natural barrier, effectively reducing dust dispersion and minimizing noise pollution, thus mitigating the environmental impact on the surrounding community.

f) Mandate regular medical examinations, including spirometry tests, for all workers to monitor lung function and detect early signs of respiratory diseases. Conduct training sessions on proper respiratory hygiene and cough etiquette to prevent the spread of respiratory infections among workers.

g) Install proximity detection systems on heavy machinery to alert operators of nearby workers and prevent collisions and crush injuries. Establish designated walkways and traffic zones within the mining site to separate pedestrian and vehicle traffic and reduce the risk of accidents. Conduct ergonomic assessments of workstations and equipment to identify and mitigate ergonomic risk factors contributing to musculoskeletal injuries.

h) Provide Personal Protective Equipment (PPE) to all employees to mitigate residual impacts effectively. Ensure that PPE kits are regularly refreshed and samples are periodically tested to maintain their effectiveness in safeguarding the health and safety of workers against any potential hazards encountered during mining operations.

i) Implement a comprehensive hearing conservation program, including annual audiometric testing and noise exposure monitoring for all workers. Utilize advanced noise control technologies such as silencers, mufflers, and acoustic enclosures to reduce noise emissions from equipment and machinery. Provide regular training sessions on the proper use and maintenance of hearing protection devices to ensure maximum effectiveness and compliance.

j) Substitute hazardous chemicals with environmentally friendly alternatives wherever feasible to minimize the risk of chemical exposure to workers and the surrounding environment. Implement a chemical management system to track the handling, storage, and disposal of hazardous substances and ensure compliance with safety regulations. Conduct regular inspections and audits of chemical storage areas to identify and address potential leaks, spills, or contamination risks.

k) Offer stress management workshops and resilience training programs to help workers cope with the demands and challenges of mining work. Establish a peer support network or buddy system to encourage social connections and provide emotional support among workers. Promote work-life balance initiatives, and recreational activities to enhance overall well-being and job satisfaction.

l) Develop and regularly update emergency response plans and procedures to address potential mine accidents, including fires, explosions, and collapses.

m) Conduct emergency response drills and simulations involving both onsite personnel and local emergency services to ensure readiness and coordination in the event of a crisis.

n) Provide specialized training for designated emergency response teams to effectively handle emergency situations and assist with rescue and evacuation efforts.

o) Implement robust water management practices, including regular monitoring of water quality parameters such as pH, turbidity, and heavy metal concentrations.

p) Implement a zero-water discharge policy and establish water bodies within the vicinity to facilitate the treatment and provision of water for the local community. Install sedimentation ponds and filtration systems to capture and treat runoff from mining activities before it enters local water bodies.

q) Collaborate with local communities and regulatory authorities to establish a comprehensive water monitoring program to detect and mitigate any signs of contamination promptly.

r) Implement land reclamation and rehabilitation measures, to restore disturbed areas and minimize erosion and sedimentation.

s) Establish buffer zones and conservation areas around sensitive ecological habitats to preserve biodiversity and ecosystem services in the surrounding area.

t) Conduct regular soil sampling and analysis to assess nutrient levels and soil health parameters and guide appropriate remediation and restoration efforts.
u) Collaborate with local agricultural extension services and farmers to promote sustainable land management practices and mitigate the impact of mining on agricultural productivity.
v) Establish a systematic approach to managing Overburden Dumps, Coal Dumps, Spoil Heaps, Reject Dumps, and Tailings Dumps to ensure minimal impact on soil and land fertility. Adhere to industry best practices and regulatory guidelines when siting and managing these dumps to safeguard soil quality and preserve land fertility throughout the mining operation's lifecycle.
w) Provide training and support to local farmers on safe agricultural practices, including proper irrigation techniques and soil management strategies.
The Committee asked the PP about a comparison of diseases in coal bearing area and non-coal bearing area. PP vide letter dated 05.07.2024 submitted village- wise data of diseases occurred in last three years from Gharghoda area (Non-Coal bearing area) & last one year (2023-24) from Tamnar area (Coal bearing area), obtained from Chief Medical Health Officer, Raigarh District. From the data submitted, it is observed that major diseases occurred in non-coal bearing area are TB, Leprosy, Sicle and Diarrhoea. No case has been reported of Silicosis. For coal bearing area major diseases are TB, Sickle cell, Diarrhoea and few cases of Malaria were found. It can be seen from above that the disease occurred in the coal bearing and non-coal bearing area are similar which shows that coal mining does not have much impact on the occurrence of diseases in the area.
The Committee observed that although there is no mining-specific disease in the data given by local health authorities but PP shall organise medical health camps to monitor the health status of the nearby community to keep a check on any mining-induced disease. Further, the Committee is of the view that PP shall provide free health facilities, medicines etc. to PAFs and nearby communities. Additionally, financial assistance is to be provided for critical illnesses such as cancer, organ failure/transplant etc. under CSR budget on a case-to-case basis. The Committee is of the view that these are in addition to the Occupational health plan required for mine workers as per the requirement of DGMS.

xxi. As desired by EAC, for the purpose of creating a strategy for the post-mining ecological restoration and conservation of the environment in relation to the Gare Palma-II coal mining project in Tamnar, Raigarh, Chhattisgarh, a study was conducted by IIT (ISM), Dhanbad. The study provides various measures that must be taken to reduce the impact of the mining industry on the surrounding ecosystem. Steps to reduce the impact on soil, water, air, wildlife, and ecology of the surrounding area has been suggested under the ecological protection/ restoration plan. The focus should be on the rapid afforestation plan, which is also an essential part of the restoration plan. During the meeting, PP informed that a member of the study team from IIT (ISM) Dhanbad Prof. Vipin Kumar, IIT (ISM) Dhanbad, is available online for discussions on the salient features of the report. Prof. Vipin shared that a baseline study has been presented depicting the current on-ground conditions, including the list of flora and fauna in the area. The study provides various measures that must be taken care to reduce the impact of the mining industry on the soil, water, air, wildlife and ecology of the surrounding area. The restoration plan includes the process of rejuvenating the de-coaled area, using plantation. A process from the preparation of soil conditions to post-plantation monitoring and auditing has been suggested. Prof. Vipin said that the focus has to be on the rapid afforestation plan. The Plan submitted by IIT-ISM Dhanbad aims to minimize environmental degradation, enhance biodiversity conservation, and promote the ecological resilience of mining-affected areas. Prof. Vipin also shared the details of the site visit and the geology of the relevant area. The Committee noted that Ecological assessment of the area for flora and fauna was done by a team of experts in the field of botany, ecology, and environment by visiting the specific key locations in the area and interacting with the local forest officials and local community. Local senior citizens were employed for this specific project to help in the identification of fauna and flora both by direct and indirect methods. Information on animals and birds was also collected through interviews with the villagers of the core and buffer zones. Secondary data collection on local and native flora and fauna was also done using data from the Botanical Survey of India and Zoological Survey of India and other key plantation journals and survey records. The collected data was further corroborated with local forest officials and people community. The identification of the native flora species was done by field visit and help of cola authorities of the forest department. A list of major flora species in the core and buffer zone of the lease area is submitted in the report. Regarding fauna in the concerned region, the report suggests that the area is rich in fauna life. However, most of the species enumerated falls under the category of ‘Least Concern’ as per the IUCN classification of animal species. The report provides a list of fauna in the concerned area, which includes 5 Schedule-I species.
The report also entails the plan for topsoil removal, which will help to retain the fertility of the removed soil. The reports entails suggestions on soil conservation and protection, water management, afforestation and plantation drive, wildlife conservation rehabilitation program, mine closure and reclamation and monitoring and compliances. The report suggests

that the topsoil of the area (at least up to 100 mm of depth) needs to be stripped from the designated areas and stored carefully before any mining activity of the open cast mine starts. The stored topsoil thereafter needs protection and prevention from eroding forces of nature, especially rainfall, till it is utilized as a surface dover in the stabilization or the reclamation stages. The piles of the overburden comprising of soil need to be maintained on the site with proper engineering and biological approaches to prevent soil erosion a loss. Additionally, the undisturbed areas of the soil, around the river, and the boundaries also need protection from natural forces. The report suggests that the soil management can thus be said to be vital for a) Facilitating the hydrological functioning of the mining area and augmenting the water quality of the Kelo River, b) Conservation of soil cover and arrest the soil erosion, flood, and siltation of the river and its tributaries and consequent relation of siltation in the river of Kelo and its reservoir, c) Soil conservation through biological & engineering measures to reduce sediment load in rivers and tributaries, thus improving the quality of water and d) Increase vegetative cover and water-retaining properties.

The report has suggested various approaches for preserving soil moisture and preventing soil degradation. Further, regarding water management, the report entails the sources of water in the area and further includes water reclamation plan and water pollution control measures, river conservation plan, air quality management, afforestation and plantation drives, wildlife conservation and re-habitations, mine closure and reclamation and monitoring and compliances.

Further, the Committee noted that the report includes various suggestive measures to restore the ecology of the concerned area. The report also contains a list of possible plants for greenbelt plantation, based on the criteria of the block area. The Committee observed that the report entails various incredible suggestions regarding afforestation and greenbelt development, which the PP must include in its plantation programme.

The Committee observed that the report includes auditing parameters and their expected levels at different stages of mine restoration plans, which the PP must ensure to include in its restoration activities. The report includes recommendations based on the observations and discussions with the local authorities, which are as follows:

a) It is important to emphasize that green belt development offers a solution to most of the environmental problem, including noise and air pollution and land deterioration. Thus, all important processes could be supported by plants as a barrier.

b) Revegetation in ex-mining lands not only protects the mine soil from degradation due to erosion but also improves the quality of the mine soil itself. Improving the quality of mine soil does not solely come from trees but also from the legume cover crops.

c) From the environmental perspective, means putting the land impacted by the mining activity back to a sustainable usable condition, the post mine revegetation should be sustainable, in the long term, under normal land management practices.

d) The afforestation and reclamation should be carried out in a way that promotes the growth of fruit-bearing trees, which will draw wildlife and preserve the region's biodiversity. In addition to fruit trees, various flowering plants should be planted to promote biodiversity and attract native and local creatures, including insects, birds, monkeys, and reptiles. Encouraging the growth of medicinal plants is also vital for the welfare of the surrounding villages. The vetiver plantations may also be encouraged because, in addition to their medicinal potential, the grass species has a high anchoring strength.

e) Many restoration initiatives may be impacted by extreme weather events including storms, droughts, and heavy rain, thus it is important to plan ahead and prevent these effects. Future fire risk should be taken into account.

f) Seasonality and water availability are essential to a species' ability to establish, thrive, and survive. Drought risk should be considered while selecting a restoration site or determining which ecological components to repair.

g) In accordance with the guidelines outlined in the mine plan or scheme, the top soil should only be held temporarily at the designated site(s) and should not be left unused for longer than three years. Reclamation of land and plantation should be the proper uses for the topsoil. It is important to design top layers of dumps and batters of depleted mine workings so that the slope allows water to drain naturally while also protecting against erosion from water.

h) To stop silt and sediment flows from mine operations and OB dumps, suitable-sized catch drains and siltation ponds should be built. The green belt development can be irrigated with the water so gathered. The drains need to be adequately maintained and desilted on a regular basis, especially after the monsoon. When it's required to drain fertile soil-covered surfaces, drainage facilities (ditches) should be built such that the hazardous layers are completely covered. Use of appropriate protective materials is required to regulate the inflow and discharge of water. Wave movement must be prevented on the batter surfaces, particularly those that are close to and above sea level.

i) The characteristics of the soil used for reclamation and the anticipated usage of the area after reclamation determine how thick the covering topsoil layer is. For farmed fields, the biologically active layer of reclaimed soil should be at least 80 - 120 cm thick; for trees, it should be 120 - 200 cm thick.

j) The establishment of native species is aided by the replacement of fertile overburden material, such as carefully

excavated forest floor and topsoil from the cleared opencast working face (fore field), or other biologically active organic materials. It is important to take into account that managing the rootstocks and seeds that are already in the soil is hastening the processes of soil development, particularly the intended humus formation.
k) The status of the local flora and wildlife should be routinely observed throughout the year, taking note of variables such as the area covered by vegetation or plantations, the kind of plantations, the kinds of trees, grasses, and shrubs that are present, the spacing between plants, and the survival rate. It is important to make any changes occurring in the area evident. The State Forest and Wildlife Department should be consulted when conducting the study. The social impact perspective should be used to evaluate all reclamation plans. In order to keep an eye on any potential alterations, environmental control measures should also be taken.

xxii. The Committee observed that it has mentioned in the EIA Report that a proposed alignment of the railway line (4.7 km) is passing through the block, the width of the corridor for the proposed railway line is 90m (45m on either side of tracks). During the Public Hearing held on 29.01.2016. MSPGCL has given the proposal for re-routing the alignment along the periphery of the block boundary citing the reason for blocking 0f 30Mt of coal reserves. The Committee is of the view that PP shall obtain permission from DGMS and concerned railway authorities before such diversion.

xxiii. The Committee also deliberated on the site visit report dated 1/07/2024 submitted by the sub-committee constituted for this purpose vide order dated 17/05/2024. It is revealed from the report that the mining operation is yet to be started for this mine. The sub-committee also visited the Kelo River and in its report suggested that it should not be diverted. The report also mentioned the other mine which is operating at a much lower capacity than the sanctioned capacity. The report also suggested conducting a carrying capacity study and health study. The report concluded that the project may be considered for grant of EC when all the conditions/suggestions/requirements asked by the sub-committee will get completed. The Committee observed that PP has submitted the Carrying Capacity Report and Health Report. Further, there is no diversion of the Kelo River.

xxiv. A site visit by a sub-committee of the EAC for detailed on-site appraisal was done from 17.05.2024 to 19.05.2024. The report of the site visit was discussed by the EAC as a part of the appraisal process. Comments received from the representative of RO, Raipur vide letter dated 27/06/2024 were also brought to the notice of the Chairperson Sub-committee who vide letter dated 10/07/2024 confirmed that the report submitted on 1/07/2024 is the final report. The Committee therefore accepted the report, which based on the ground assessment has recommended to EAC that EC may be granted.

xxv. The Committee noted that the PP has submitted an EMP Budget of Rs. 1484. 53 Crs (capital cost) and 14.84 Cr (recurring) in the form but in EIA in table 6.3 it has mentioned as 1484.53 Cr and no recurring cost is mentioned. Further, in Table 10.2 it annual cost is mentioned as 1484.54 Cr. Additionally, in chapter 11 in section 11.9 it has mentioned that EMP (Capital Cost) is Rs 148453.76 Lakh and recurring cost is 1557.06 Lakhs. The head-wise cost of EMP is as follows:
The head-wise cost of EMP

Heads	Activities	Amount
Progressive Closure		
Safety and Security	Barbed wire fencing	84.10
	Toe wall around the dump	90.10
	Garland drain around the dump	45.14
	Drainage channel from main OB dump and main sump to Nala	300.50
	Settling pond	80.00
	Securing Air Shaft and installation of bore well pump	20.00
	Securing of incline 1&2	10.00
	Fire stoppings	1328.60
Top soil Management		5628.00
Technical and biological reclamation	Reclamation	8884.00

of mined out land and OB dump	Re-handling of crown dump to East pit	12858.00
	Re-handling of crown dump to West pit	72432.00
Plantation over virgin area including Green Belt	Plantation/Green Belt over virgin Area	143.44
Water quality management		340.00
Air quality management		340.00
Subsidence monitoring		19.09
Manpower cost and supervision		163.50
Sub Total		102766.47
Final Closure		
Dismantling of infrastructure, disposal/rehabilitation of mining machinery	Dismantling of workshop	300.00
	Dismantling of CHP	500.00
	Dismantling of facilities	1000.00
	Dismantling of pumps and Pipes	45.00
	Dismantling of UG facilities including main fan	100.00
	Dismantling of UG Conveyors	300.00
	Dismantling of UG Rail tracks	150.00
	Dismantling of UG equipment	200.00
	Re-arranging of water pipelines to dump top, park	15.00
	Dismantling of power line	30.00
	Rehabilitation over area of dismantled facilities	203.76
Top soil management		955.00
Technical and biological reclamation of mined out land and OB dump	Reclamation	1659.12
	Rehandling of crown dump to East pit	30822.00
	Rehandling of crown dump to West pit	8943.00
Landscaping and Plantation	Peripheral road, gates, view point, cemented steps on bank	40.00
	Beautification and landscaping over dump	20.00
	Plantation	35.00
Power cost		40.00
Water quality management		12.00
Air quality management		12.00
Subsidence monitoring		0.91
Manpower cost and supervision		4.50
Others, Miscellaneous	Entrepreneurship development (vocational skill development, training for sustainable income of affected people	100.00
	One time financial grant to society/institution/organization which is dependent upon the project	50.00
	Continuation of other services like running of schools etc.	150.00

Sub Total	45687.29
Grand Total	**148453.76**

PP submitted that a greenbelt will be developed in 36.07 Ha. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC. Local and native species will be planted with a density of 2500 trees per hectare. Total no. of 5641500 saplings in 2256.60 ha area will be planted and nurtured in hectares in 32 years. PP submitted that total area brought under plantation will be 2256.60 Ha which includes [194.76 Ha (external dump within lease area); 2025.77 Ha Plantation in backfilled area and 36.07 Ha Safety zone and greenbelt]. The density of tree plantation will be 2500 sapling/Ha. The budget proposed for the same is Rs 35.0 Lakh. The Committee observed that cost of the plantation is very low and PP shall submit the revised budget for the same as per actual. The Committee is of the view that EMP cost shall also be revised to implement the recommendations made in various study reports.

xxvi. The EAC has also taken into consideration additional information for appraisal such as additional hydrogeological study; health impacts of the proposed mine including health study which also took into account the ICMR study and the information about the prevalent local disease data of the area supplied by state health authorities (as asked for by the EAC); additional carrying capacity study; revised EMP/ EIA; fresh baseline data; mathematical modelling using TMY data and site specific data rather than standard data; Comprehensive Environmental Pollution Index (CEPI data) & CAAQMS data; socio-economic study;Ecology of the surrounding area and post-mining ecological restoration; NEERI report; site visit and public hearing/consultation process including NOC from various gram sabhas (based on gram sabha meetings conducted for FC clearance) while re-appraising this proposal.

9. Based on the discussions held and the documents submitted, the EAC **recommended** the proposal for Environment Clearance of Gare Palma Sector II Coal Mine Project of 23.6 MTPA Capacity (22.0 MTPA Opencast + 1.6 MTPA Underground) within the mining lease area of 2583.487 Ha located at Thili Rampur, Kunjemura, Gare, Saraitola, Murogaon, Radopali, Pata, Chitwahi, Dholnara, JhinkaBahal, Dolesara, Bhalumura, Sarasmal and Libra villages, Tamnar Tehsil, Raigarh District, Chhattisgarh State by **M/s Maharashtra State Power Generation Company Ltd (MAHAGENCO)** under EIA Notification, 2006 (as amended) subject to the compliance of the following specific conditions in addition to the Standard EC conditions (**Annexure 1**).

10. The MoEF&CC has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the EAC hereby accords Environmental Clearance to **M/s Maharashtra State Power Generation Company Ltd (MAHAGENCO)** for Gare Palma Sector II Coal Mine Project of 23.6 MTPA Capacity (22.0 MTPA Opencast + 1.6 MTPA Underground) within the mining lease area of 2583.487 Ha located at Thili Rampur, Kunjemura, Gare, Saraitola, Murogaon, Radopali, Pata, Chitwahi, Dholnara, JhinkaBahal, Dolesara, Bhalumura, Sarasmal and Libra villages, Tamnar Tehsil, Raigarh District, Chhattisgarh subject to compliance of the additional Specific Environmental safeguard Conditions in addition to the standard EC conditions (**Annexure 1**)

11. The proponent shall obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

12. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

13. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

14. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

15. General Instructions:

(i) The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC website where it is displayed.

(ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same for 30 days from the date of receipt.

(iii) The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.

(iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

(v) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

(vi) The Regional Office of this MoEF&CC shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

(vii) Validity of EC is as per the provision of EIA Notification, 2006 and its subsequent amendment.

16. This issue with an approval of the Competent Authority

Copy To

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Deputy Director General of Forests (C),Ministry of Environment, Forest and Climate Change,Integrated Regional Office, Ground Floor, Aranya Bhawan, North Block, Sector- 19, Naya Raipur, Atal Nagar, Chhattisgarh – 492002.
3. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
4. The Regional Director, Central Ground Water Board, Central Ground Water Board, North Central Chhattisgarh Region, Reena Apartment, 2nd Floor, NH 43, Dhamtari Road, Panchpedi Naka,Raipur- 492001, Chattisgarh.
5. The Chairman, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar, Dist- Raipur (C.G.)492002.
6. The Member Secretary, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar Dist- Raipur (C.G.) 492002.
7. The District Collector, Raigarh, Chhattisgarh
8. Guard file/Monitoring file/PARIVESH Portal.

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Conditions

S. No	EC Conditions
1.1	The project proponent shall obtain Consent to Establish/Operate from the State Pollution Control Boards for the proposed peak capacity of 23.60 MTPA (OC-22.0 MTPA+UG-1.6 MTPA) prior to the commencement.
1.2	NoC from Central Ground Water Authority (CGWA)/ concerned local authority, as the case may be, shall be obtained before drawing the groundwater for the project activities, state pollution control board/pollution control committees shall not issue the consent to operate (CTO) under Air (prevention and control of Pollution) Act and Water (Air (prevention and control of Pollution) Act till the project proponent shall obtain such permission.
1.3	The PP shall implement the following recommendations made in the Hydrogeology & Embankment Design report of IIT (ISM) Dhanbad. PP shall install water meters at all intake points and take specific measures for reduction in water consumption and generation of alternative sources of water through rainwater harvesting measures. PP shall monitor the water quality surface as well as groundwater for the presence of heavy metals. Immediate mitigation measures will be adopted if water quality deteriorates. Safe drinking water shall be supplied to all residents of the ML area. Water audit needs to be done every year by a reputed institute for further reduction of water consumption and PP shall implement its recommendations and submit a report to RO annually. a) Provision of garland drains around pit, dump and backfilled area and embankment. b) Discharge from Garland drain shall be connected to settling pond/reservoir before discharging into Kelo river for controlling sediment load. c) The water seeping into the mine shall be collected in mine sump, pumped to surface reservoir where the sediments shall be separated through gravity separation technique. The surface overflow from these reservoirs after suitable treatment shall be recycled for various end uses i.e. drinking water for the community, irrigation and industrial requirements like sprinkling on haul roads, cleaning and washing of vehicles etc. d) During mining a statutory barrier of 100 m is required to be left between the mine workings and the Kelo river bank. The embankment shall be constructed along the banks of the Kelo river, as per the detailed design and alignment given in the report. The height of the embankment shall vary from 2 m to 9 m on the right bank and from 4m to 9m on the left bank. e) It is further planned to strengthen the embankment on riverside by placing large boulders in wire net bags to prevent erosion and damage to the embankment by floods in river/nala besides grouting any weak portions of the embankment. The embankment will also be stabilised by road rollers and vibrators followed by plantation of grass and bushes all over to prevent soil erosion. f) The HDPE geomembrane lining in the embankment will provide puncture and tear resistance, resistance to acids, bases, salts, and organic chemicals, low permeability to water and gases and stability against environmental stress cracking. g) The apron provided at the base of the embankment will help in considerably reducing the seepage through the base of the embankment. In addition, the central core layer will have interlocking arrangement at the base to avoid seepage from the base specially during the occurrence high flood events. h) The possibility of an AI/IOT based real-time water quality and flow monitoring system integrated with online sensor may be explored in Kelo river and Mine water reservoir to keep online track of mine water quality and Kelo river along with the measurement of Kelo river flow, velocity and depth of water. AI inbuild system will help in providing early warning for any un-precedented flood (Flood alert system) & deterioration in water quality well in advance to adopt all proactive measures to minimise the risk.

S. No	EC Conditions
1.4	PP shall submit the study conducted by IIT Dhanbad to State Water Department and obtain permission before diversion of two nalas, one on the west side (Nala A) and one on the East side (Kamara nala) of Kelo river.
1.5	The total water requirement is 2785 KLD and the net water requirement is 1785 KLD. The total water requirement will be met by bore-wells at site during the initial 2-3 years after which the mine water will be used after appropriate treatment as required. The total industrial water demand (peak) in operation phase shall be met by utilizing treated mine discharge water. If required, necessary arrangement shall be made to reuse treated water from STP & ETP to nearby TPP or coal washery or future coal washery by entering suitable agreement. No wastewater (treated or untreated) shall be discharged into the river or any other water body.
1.6	Water quality and Bioassay tests of kelo shall be monitored quarterly and submitted to the State Pollution Control Board. No waste shall be discharged into the river. Quarterly monitoring of the quality of water from bore wells used for drinking purposes shall be conducted and a report thereof shall be submitted to SPCB.
1.7	All the villages coming under the zone of influence as in the hydrology study shall be provided with suitable water supply along with sanitation facilities.
1.8	PP shall implement the recommendations of NEERI Report within the lease area.
1.9	The social fabric of the area needs to be kept intact, accordingly, the R&R plans should be made such that the Cultural and religious beliefs of the locals are protected. Further, PP shall prepare and implement a mitigative plan based on the guiding principles provided in the Socio-Economic Report prepared by the Entrepreneurship Development Institute of India, Ahmedabad (EDII) within six months. The budget proposed for addressing the issues of PH under CER as per the last EC was 45.35 Cr for 5 years. PP shall ensure that sufficient funds shall be allocated for the same keeping in mind that activities are to be carried out for at least 10 years. PP shall submit a time-bound, activity-wise plan with budgetary provisions to the Ministry. After preparation of the plan, PP shall submit the action taken with documentary proof viz. photographs, the amount spent etc. to the concerned RO in six monthly compliance reports. Separate audited accounts shall be maintained. All the recommendations made in the Socio-economic & Social Impact Assessment study shall be complied within a stringent timeframe. The timeline should be submitted to the District Collector for necessary action points.
1.10	All the recommendations made in the Socio-economic & Social Impact Assessment study shall be complied within a stringent timeframe. The timeline should be submitted to the District Collector for necessary action points.
1.11	PP shall implement the following recommendations made in CSIR-CIMFR report “Advice on mitigation measures to be adopted for the villagers of the GPII coal block area in Tamnar, District Raigarh, Chhattisgarh.”: a) Design and operate the mine with a focus on minimizing dust generation during coal and Overburden (OB) production processes. Employ advanced technologies and engineering solutions to mitigate dust emissions at the source. b) Implement transportation methods that prevent the exposure of dust to the ambient air. Utilize In-Pit Crushing and Conveying (IPCC) or High Angle Conveying (HAC) mechanisms for material handling and transport to minimize airborne dust. c) Aim to transform the mine into a seldom blast and preferably dumper-free opencast mining by adopting cutting-edge technology for coal production, crushing and transport. This approach not

S. No	EC Conditions
	only reduces dust emissions but also enhances work place ergonomics, operational efficiency, health hygiene and safety. d) Implement a closed transportation system utilizing pipe conveyors or enclosed conveyors. This approach ensures that material transport is contained within a closed system, minimizing the dispersion of dust and pollutants into the surrounding environment. e) Implement a comprehensive green belt initiative, incorporating dense vegetation surrounding the mine site. This strategic green belt will act as a natural barrier, effectively reducing dust dispersion and minimizing noise pollution, thus mitigating the environmental impact on the surrounding community. f) Mandate regular medical examinations, including spirometry tests, for all workers to monitor lung function and detect early signs of respiratory diseases. Conduct training sessions on proper respiratory hygiene and cough etiquette to prevent the spread of respiratory infections among workers. g) Install proximity detection systems on heavy machinery to alert operators of nearby workers and prevent collisions and crush injuries. Establish designated walkways and traffic zones within the mining site to separate pedestrian and vehicle traffic and reduce the risk of accidents. Conduct ergonomic assessments of workstations and equipment to identify and mitigate ergonomic risk factors contributing to musculoskeletal injuries. h) Provide Personal Protective Equipment (PPE) to all employees to mitigate residual impacts effectively. Ensure that PPE kits are regularly refreshed and samples are periodically tested to maintain their effectiveness in safeguarding the health and safety of workers against any potential hazards encountered during mining operations. i) Implement a comprehensive hearing conservation program, including annual audiometric testing and noise exposure monitoring for all workers. Utilize advanced noise control technologies such as silencers, mufflers, and acoustic enclosures to reduce noise emissions from equipment and machinery. Provide regular training sessions on the proper use and maintenance of hearing protection devices to ensure maximum effectiveness and compliance. j) Substitute hazardous chemicals with environmentally friendly alternatives wherever feasible to minimize the risk of chemical exposure to workers and the surrounding environment. Implement a chemical management system to track the handling, storage, and disposal of hazardous substances and ensure compliance with safety regulations. Conduct regular inspections and audits of chemical storage areas to identify and address potential leaks, spills, or contamination risks. k) Offer stress management workshops and resilience training programs to help workers cope with the demands and challenges of mining work. Establish a peer support network or buddy system to encourage social connections and provide emotional support among workers. Promote work-life balance initiatives, and recreational activities to enhance overall well-being and job satisfaction. l) Develop and regularly update emergency response plans and procedures to address potential mine accidents, including fires, explosions, and collapses. m) Conduct emergency response drills and simulations involving both onsite personnel and local emergency services to ensure readiness and coordination in the event of a crisis. n) Provide specialized training for designated emergency response teams to effectively handle emergency situations and assist with rescue and evacuation efforts. o) Implement robust water management practices, including regular monitoring of water quality parameters such as pH, turbidity, and heavy metal concentrations. Since there is a reported presence of arsenic in the area, this should be specifically monitored in the ML area and the residents provided with safe drinking water. p) Implement a zero-water discharge policy and establish water bodies within the vicinity to facilitate the treatment and provision of water for the local community. Install sedimentation ponds and filtration systems to capture and treat runoff from mining activities before it enters local water bodies. q) Collaborate with local communities and regulatory authorities to establish a comprehensive water monitoring program to detect and mitigate any signs of contamination promptly.

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	r) Implement land reclamation and rehabilitation measures, to restore disturbed areas and minimize erosion and sedimentation. s) Establish buffer zones and conservation areas around sensitive ecological habitats to preserve biodiversity and ecosystem services in the surrounding area. t) Conduct regular soil sampling and analysis to assess nutrient levels and soil health parameters and guide appropriate remediation and restoration efforts. u) Collaborate with local agricultural extension services and farmers to promote sustainable land management practices and mitigate the impact of mining on agricultural productivity. v) Establish a systematic approach to managing Overburden Dumps, Coal Dumps, Spoil Heaps, Reject Dumps, and Tailings Dumps to ensure minimal impact on soil and land fertility. Adhere to industry best practices and regulatory guidelines when siting and managing these dumps to safeguard soil quality and preserve land fertility throughout the mining operation's lifecycle. w) Provide training and support to local farmers on safe agricultural practices, including proper irrigation techniques and soil management strategies.
1.12	PP shall review the outcome of the skill development programs whether it is providing any benefit or not, and whether it helps the community in getting job/business opportunities. PP shall align the activities as per the present-day needs. The skilled beneficiaries shall be aided in job placements and self-employment ventures by the PP and a record of this shall be maintained. A report in this regard shall be submitted to the concerned RO within 6 months.
1.13	PP shall carry out a survey of the impact of blasting in the nearby area/villages by involving a reputed institute and take remedial measures as proposed by the respective institute. Further, provide compensation if any for any damage caused.
1.14	PP shall implement the following recommendations made in the report “Plan for the protection of the ecology and post-mining ecological restoration plan for the Gare Palma-II coal mine project, Tamnar, Raigarh, Chhattisgarh”, prepared by ISM Dhanbad: a) It is important to emphasize that green belt development offers a solution to most of the environmental problem, including noise and air pollution and land deterioration. Thus, all important processes could be supported by plants as a barrier. b) Revegetation in ex-mining lands not only protects the mine soil from degradation due to erosion but also improves the quality of the mine soil itself. Improving the quality of mine soil does not solely come from trees but also from the legume cover crops. c) From the environmental perspective, means putting the land impacted by the mining activity back to a sustainable usable condition, the post mine revegetation should be sustainable, in the long term, under normal land management practices. d) The afforestation and reclamation should be carried out in a way that promotes the growth of fruit-bearing trees, which will draw wildlife and preserve the region's biodiversity. In addition to fruit trees, various flowering plants should be planted to promote biodiversity and attract native and local creatures, including insects, birds, monkeys, and reptiles. Encouraging the growth of medicinal plants is also vital for the welfare of the surrounding villages. The vetiver plantations may also be encouraged because, in addition to their medicinal potential, the grass species has a high anchoring strength. e) Many restoration initiatives may be impacted by extreme weather events including storms, droughts, and heavy rain, thus it is important to plan ahead and prevent these effects. Future fire risk should be taken into account. f) Seasonality and water availability are essential to a species' ability to establish, thrive, and survive. Drought risk should be considered while selecting a restoration site or determining which ecological components to repair. g) In accordance with the guidelines outlined in the mine plan or scheme, the top soil should only be

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	held temporarily at the designated site(s) and should not be left unused for longer than three years. Reclamation of land and plantation should be the proper uses for the topsoil. It is important to design top layers of dumps and batters of depleted mine workings so that the slope allows water to drain naturally while also protecting against erosion from water. h) To stop silt and sediment flows from mine operations and OB dumps, suitable-sized catch drains and siltation ponds should be built. The green belt development can be irrigated with the water so gathered. The drains need to be adequately maintained and desilted on a regular basis, especially after the monsoon. When it's required to drain fertile soil-covered surfaces, drainage facilities (ditches) should be built such that the hazardous layers are completely covered. Use of appropriate protective materials is required to regulate the inflow and discharge of water. Wave movement must be prevented on the batter surfaces, particularly those that are close to and above sea level. i) The characteristics of the soil used for reclamation and the anticipated usage of the area after reclamation determine how thick the covering topsoil layer is. For farmed fields, the biologically active layer of reclaimed soil should be at least 80 - 120 cm thick; for trees, it should be 120 - 200 cm thick. j) The establishment of native species is aided by the replacement of fertile overburden material, such as carefully excavated forest floor and topsoil from the cleared opencast working face (fore field), or other biologically active organic materials. It is important to take into account that managing the rootstocks and seeds that are already in the soil is hastening the processes of soil development, particularly the intended humus formation. k) The status of the local flora and wildlife should be routinely observed throughout the year, taking note of variables such as the area covered by vegetation or plantations, the kind of plantations, the kinds of trees, grasses, and shrubs that are present, the spacing between plants, and the survival rate. It is important to make any changes occurring in the area evident. The State Forest and Wildlife Department should be consulted when conducting the study. The social impact perspective should be used to evaluate all reclamation plans. In order to keep an eye on any potential alterations, environmental control measures should also be taken.
1.15	Progressive backfilling of the mine and progressive reclamation of the OB dump shall be done as per the approved mine closure plan & as per the recommendation of the eco-restoration report.
1.16	The project proponent shall take all precautionary measures during mining operations for the conservation and protection of endangered fauna, if any, spotted in the study area. Wildlife Management Plan prepared and approved by PCCF, WL vide letter no. 494/12, dated 20.01.2021 shall be implemented in consultation with the State Forest and Wildlife Department. The budget earmarked for WLCP is Rs 344.40 Lakh. PP shall deposit the amount of WLCP in the Government account as approved by the concerned authority.
1.17	PP shall implement the following recommendations made in the Carrying Capacity Report undertaken by CECB, Chhattisgarh through IIT-Patna as applicable for the said mines which include: a) Coal and fly ash transportation is not permitted on any village road. All industrial roads need to be paved with concrete/asphalt and properly maintained with timely repairs. b) Regular water sprinkling work to be taken place on all industrial roads. c) Mine should have a wheel washing system at all entrance and exit points. d) Railway siding needs to adhere to CPCB regulations and should include rain guns, wind-breaking walls, sprinklers, parking lots, access roads, drainage facilities, settling pits, etc. e) If coal is being transported by road, transporters should be charged a surcharge based on their distance and time travelled for the purpose of road maintenance and repair. Plantation should be done along such roads. f) CAAQMS must be installed in almost every village of Tamnar block and consistently connected

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	to the state pollution control board according to CPCB guidelines.
1.18	Third-party audit (by NEERI/CIMFR/IIT/NlTs) for air & water quality shall be carried out annually to keep a check on the same. PP shall implement the recommendations of the audit and submit the outcome of the audit to the concerned RO of MoEF&CC.
1.19	As per NGT order dated 15.02. 2022 in Original Application No. 104'2018 in the matter of Shivpal Bhagat & Ors vs UIO, PP to i) comply with all the recommendation of Carrying Capacity Study being conducted by reputed institute by CPCB & SPCB, ii) Coal transportation is permitted for only one year through road from date of commissioning and subsequently. transport must be done by rail or closed conveyor belt only, iii) proper and free health care facilities with multispecialty treatment system shall be provided in coal mine buffer area, iv) when coal is sold to TPP there is the agreement to sell that at least 25% Fly Ash of the coal sold should be accepted by the coal company (seller) from TPP(Purchaser) failing which coal company shall be liable for civil action and other legal measures.
1.20	PP shall ensure that all types of plastic waste generated from the mines shall be stored separately in isolated areas and disposed of strictly adhering to the Plastic Waste Management Rules 2016. In pursuant to the Ministry's OM dated 18/07/2022, PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic(SUP) in order to ensure compliance of the Ministry's Notification published by the Ministry on 12/08/2021. A report along with the photographs of the measures taken shall also be included in the six monthly compliance reports being submitted by PP.
1.21	PP shall obtain a 5-star rating in terms of Environment Compliance from the Ministry of Coal as per the rating system implemented by the Ministry of Coal.
1.22	PP shall ensure that No OB dumping is done outside the lease area.
1.23	PP shall submit an action plan for using and developing Renewable Energy for its consumption in its utilities/machinery/equipment instead of using electricity from Grid/generated from Thermal Power Plants. PP shall Install additional solar power generation units.
1.24	The Committee is of the view as the forest is at a distance of 100 meters PP shall create a natural wind barrier between the lease boundary and the forest area by developing a dense green belt. Impact on the forest land shall be studied/monitored at regular intervals and a report shall be submitted to RO.
1.25	PP shall carry out plantation in an area of 2256.60ha area and plant a minimum of 5641500 saplings. The density of the tree plantation shall be maintained at 2500 saplings/Ha. The budget proposed for the same is Rs 35.0 Lakh the same needs to be increased as per the actual plantation & maintenance cost. After completion of the tree plantation. number of trees shall be duly endorsed by the District Forest Officer.
1.26	PP shall speed up concurrent Green Belt development so as to achieve the targets within the next 3 years. The green belt and plantation plan submitted in the EIA/EMP shall be implemented in a time-bound manner. A survival rate of at least 80% shall be maintained by carrying out gap plantation in case of mortality. The budget earmarked for the plantation shall be kept in a separate account. PP should annually submit the audited statement of expenditure along with proof of activities viz. photographs (before & after with geolocation date & time), details of expert agency engaged, details

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	of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC and on PARIVESH Portal as the case may be for the activities carried out during previous year.
1.27	The plantations done by the PP need to be adequately densified and audited by a third party preferably a forestry institution of MoEFCC (e.g. ICFRE) to assess their efficacy.
1.28	To control the production of dust at the source, the crusher and in-pit belt conveyors shall be provided with mist-type sprinklers. Mitigating measures shall be undertaken to control dust and other fugitive emissions all along the roads by providing sufficient fixed-type water sprinklers. Adequate corrective measures shall be undertaken to control dust emissions, which would include mechanized sweeping, water sprinkling/mist spraying on haul roads and loading sites, long-range misting/fogging arrangement, wind barrier wall and vertical greenery system, green belt, dust suppression arrangement at loading and unloading points etc.
1.29	The annual EMP budget is Rs 148453.76 Lakh (Table 10.2 of EIA Report) shall be kept in a separate account and audited annually. If required, the same shall be increased. PP shall submit the proof (viz. photographs, reports etc.) of activities taken under EMP and the amount spent to the concerned RO in six monthly compliance reports.
1.30	Continuous monitoring of occupational safety and other health hazards and corrective actions need to be ensured.
1.31	PP shall obtain the permission of the State Public Works Department before the proposed for diversion Roads from Bajamura to Ghargoda (approx. 11.6 km) and Milupara to Tamnar (app 3 km).
1.32	Persons of nearby villages shall be given training on livelihood and skill development to make them employable.
1.33	Mining shall be carried out only by surface miners for the project and silo loading till railway siding through in-pit conveyor should be installed to avoid road transportation in 2 years.
1.34	Efforts shall be made for utilizing alternate sources of surface water, abandoned mines or else whatsoever and thus minimizing the dependability on a single source.
1.35	Active OB Dump should not be kept barren/open and should be covered by temporary grass to avoid air born of particles
1.36	PP shall conduct the stability study of OB dump by reputed agencies and necessary approval of DGMS.
1.37	Project Proponent shall obtain blasting permission from DGMS for conducting mining operation near villages and also explore deployment of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity.
1.38	Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual

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	smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.
1.39	Project Proponent shall follow the mitigation measures provided in Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014. titled “Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area”.
1.40	The illumination and sound at night at project sites disturb the villages in respect of both human and animal populations. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PP must ensure that the biological clock of the villages is not disturbed by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day' light/night hours.
1.41	PP shall obtain permission from DGMS and concerned railway authorities before diversion/re-alignment of railway line and comply with the conditions/recommendations of the approval so obtained.
1.42	PP is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.
1.43	PP shall gradually shift to e-vehicles/ LNG/CNG transport for men and materials.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The Environmental clearance shall be subject to orders of Hon’ble Supreme Court of India, Hon’ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project
1.2	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
1.3	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.4	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. TThe implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule-I species in the study area).

S. No	EC Conditions
1.5	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
1.6	The project proponent shall obtain the necessary permission from the Central Ground Water Authority
1.7	Solid/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.
1.8	Permission of power supply to be taken from the concerned authority for meeting power demand of the project site.
1.9	The maximum production or peak production at any given time shall not exceed the limit as prescribed in the EC.
1.10	Validity of EC is as per life of the mine mentioned in EC letter or 30 years as per EIA Notification, 2006 and its amendments therein

2. Air Quality Monitoring And Mitigation Measure

S. No	EC Conditions
2.1	Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Online ambient air quality monitoring station/stations may also be installed in addition to the regular air monitoring stations as per the requirement and/or in consultation with the SPCB
2.2	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
2.3	Transportation of coal, to the extent if permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water sprinkling/rain gun/ Fog cannon /mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal transport roads, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
2.4	Major approach roads shall be black topped and properly maintained.
2.5	PP to install solar lights along the road used for transportation of coal to avoid the accidents at night and also seek its maintenance.

S. No	EC Conditions
2.6	The transportation of coal shall be carried out as per the provisions and route proposed in the approved mining plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.
2.7	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
2.8	Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
2.9	Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.
2.10	Adequate number of Fog canon (mist sprayer) shall be installed to reduce the impact of air pollution at dust generating sources with time bound action plan.
2.11	PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in upwind direction.
2.12	Post environmental closure third party monitoring by reputed instituted in air quality, water, land & soil etc shall be carried out and analysed with EMP measures at regular interval. A suitable recommendation in this regard, shall be furnished to IRO, MoEF&CC for compliance. The data used for analysis shall be obtained from continuos AQMS, site specific water regime. Also third party shall analyses the implementation of river diversion, meeting to the requirement of project report.

3. Water Quality Monitoring And Mitigation Measures

S. No	EC Conditions
3.1	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board.
3.2	The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-lA.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
3.3	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.

S. No	EC Conditions
3.4	Monitoring of water quality upstream and downstream of river including pons, lakes, tanks shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
3.5	Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
3.6	The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.
3.7	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
3.8	The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly
3.9	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
3.10	Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
3.11	The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
3.12	The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A revarian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.
3.13	Domestic water shall be providing to the residents/villages which are coming under the zone of influence of the project due to ground water extraction by installing a RO plant with proper supply line and Taps within 2 years

S. No	EC Conditions
3.14	No obselete technologies for sewage treatment shall be implemented. Construction of Sewage Treatment Plant with latest technology should be completed within 2 years and treated water shall be reused for plantation. CTE and CTO of STP shall be obtained as per the norms.

4. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
4.1	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
4.2	The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

5. Mining Plan

S. No	EC Conditions
5.1	5- Star Rating is mandatory to obtaine certification as per guidelines of Mininstry of Coal
5.2	Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
5.3	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
5.4	Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
5.5	Underground work place environmental conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS standards.
5.6	No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980 and also adhering to The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 read with provisions of Indian Forest Act, 1927.
5.7	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.
5.8	Tranportation by Railway Siding shall be developed to avoid transportation by Road

6. Land Recalmation

S. No	EC Conditions
6.1	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
6.2	Post-mining land be rendered usable for agricultural/forestry purposes and shall be handed over to the respective State Government, as specified in the Guidelines for Preparation of Mine Closure Plan, issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
6.3	Regular monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriate effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
6.4	Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
6.5	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.
6.6	Thorough inspection of the mine lease area for any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.
6.7	Native tree species shall be selected and planted over areas affected by subsidence.
6.8	The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

7. Public Hearing And Human Health Issues

S. No	EC Conditions
7.1	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
7.2	The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended

S. No	EC Conditions
	time to time.
7.3	Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
7.4	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
7.5	Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
7.6	Implementation of the time bound action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the time bound action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
7.7	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
7.8	PP to conduct need based assessment survey of the area to for in order to decide the activities to be carried under the CSR and to provide detail of the activity carried out with adequate budgetary provision and time bound action plan.
7.9	PP should conduct epidemiology study to (analysis of the distribution, patterns and determinants of health and disease conditions in defined populations).
7.10	Permanent Health care facilities of Hospital should be established within 5 km of project boundary for the local people.
7.11	PP must ensure an emergency action plan during pandemic in order to provide assistance to the nearby villages located within the 10 km radius buffer zone (If required)
7.12	PP is asked to also identify the rural areas for installation of solar light with its maintenance within the study area of 10 km radius buffer zone with time bound action plan
7.13	PP to take measure for installation of Renewable Energy sources in nearby area falling within 10 km radius

8. Corporate Environment Responsibility

S. No	EC Conditions
8.1	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the

S. No	EC Conditions
	environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.
8.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
8.3	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
8.4	Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
8.5	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis. Any non- compliance or infringement should be reported to the concerned authority

9. Miscellaneous

S. No	EC Conditions
9.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
9.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
9.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
9.4	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
9.5	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

S. No	EC Conditions
9.6	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
9.7	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
9.8	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
9.9	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
9.10	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
9.11	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
9.12	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
9.13	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
9.14	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
9.15	The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.
9.16	Compensation of the land acquired for the project shall be settled as per the R&R Policy. Adequate facility of drinking water, plantation and other social amenities should be provided to established R&R villages.
9.17	Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.
9.18	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed

S. No	EC Conditions
	limits for day light/night hours