

**Technical Analysis of Draft EIA Report
and Environmental Management Plan
of
Gare IV/6 Coal Mine Project (OC & UG)
at Raigarh, Chhattisgarh
by
Centre for Science and Environment,
New Delhi**

The Centre for Science and Environment, New Delhi carried out the following technical analysis of this EIA report based on the request of Raghubeer Pradhan of Ekta Parishad.

1) General background

The Gare Palma Coal Sub Block IV/6 was allotted jointly to M/s Jindal Steel & Power Limited & M/s Nalwa Sponge Iron Limited by the Ministry of Coal on January 13, 2006 to meet the coal-requirement of their respective Sponge Iron Plants situated at distances of 45 km and 25 km from the Coal Block at Raigarh & Taraimal respectively.

The public hearing for the project was conducted on January 05, 2008 and Environmental Clearance was accorded to this project on May 18, 2009 by the Ministry of Environment & Forest (MOEF) vide their letter no J-11015/110/2007-IA.II (M). The Environmental Clearance was challenged in the National Green Tribunal (NGT) in June 2009. The NGT bench, comprising of Justice C V Ramulu and R Nagendran, said, "It was a mockery of public hearing and the procedure required to be followed." The clearance was given without conducting a proper public hearing. While the EIA notification clearly states that the location for a public hearing should be the project site itself or in close proximity, the venue for the public hearing was fixed as Khamariya village, which was not close to the project site. Khamariya is a remote village, which ensured that the affected people were not able to participate in the hearing. The public hearing was never concluded, it was later cancelled, but a lathicharge ensued.

The NGT, in its judgment dated April 20, 2012 set aside the Environment Clearance with a direction to re-conduct the public hearing. Ministry of Environment and Forests (MoEF) directed the Chhattisgarh Environment Conservation Board (CECB) on May 24, 2012 to re-conduct the public hearing. The Expert Appraisal Committee (Thermal & Coal Mining), after scrutiny of application of M/s Jindal Steel & Power Ltd. issued the Terms of Reference (TORs) vide their letter no. J-11015/214/2012IA.II(M) dated October 19, 2012 for Gare IV/6 coal block. The next public hearing is due on September 25, 2013. The present EIA is not a fresh report, but has been updated for the upcoming public hearing. The EIA is prepared by Min Mec Consultancy Pvt. Ltd., which is not accredited with the Quality Council of India as an EIA consultant, as on September 5, 2013.

The total mine lease area is 381.42 hectares (ha) (including coal washery area of 12.52 ha), out of which 93.57 ha is forestland, 254.34 ha is agricultural land and 33.51 ha is government land. The capacity of both the coal washery and mine will be 4.0 million tonnes per annum (MTPA). A number of reserved and protected forests are situated within the core and buffer zone. The lease area lies within the villages Lamdarha, Saraitola, Gare, Khamhariya and Karwahi. Also, the Kelo river, an important tributary of the Mahanadi, flows along the eastern boundary of the proposed project and its catchment area will shrink due to the project. With an average stripping ratio of 2.34 m³/t, the coal-mine has a life-period of 34 years. The coal-block has the following latitudes and longitudes.

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
Northern	22° 09' 47.4322" N	83° 29'56.8635 " E
North Eastern	22° 09' 14.2488" N	83° 30'21.3609 " E
Southern	22° 07' 58.7109" N	83° 29'49.4764 " E
Western	22° 09' 08.0051" N	83° 29' 04.3174 " E

2) Impact

a. Impact on People: The EIA report states that only 16 households lying within the core-zone will be displaced. The number of persons to be displaced is found only once in the 500 page report in Table 7.2. This number stands at 957, based on the Census 2001 data, despite of Census 2011 data being publicly available. Thus Census 2011 has to be incorporated and definitely the number of displaced people would be much more than the humble interpretation of just 16 households.

Even if the 2001 data is taken into account, it also draws attention that these 16 households shelter 957 persons, i.e. an average of 59.8 persons/household, which truly is quite absurd and needs careful scrutiny.

**TABLE 7.2
CASTE WISE POPULATION BREAK UP OF VILLAGES IN CORE ZONE**

Name of Village	Households					Percentage			
	OBC	SC	ST	Others	Total	SC	ST	OBC	Others
Gare [#]	55	11	82	1	149	7%	55%	37%	1%
Karwahi [#]	28	29	30	6	93	31%	32%	30%	6%
Saraitola [#]	23	22	55	4	103	21%	53%	22%	4%
Khamharia [#]	24	31	24	5	84	37%	29%	29%	6%
Lamdraha [#]	3	6	71	0	80	8%	89%	4%	0%
Tehlirampur [*]	Included in Others	24	213	211	448	5%	48%	Included in others	47%
Total	133	123	475	227	957	18%	51%	24%	11%

[#] Survey by M/s SEED

^{*}As per Census 2001

b. Impact on Forests: Although forest area consists of 93.57 ha, i.e., 24.5 per cent of the main lease area, much more will be impacted in the buffer zone outside the lease area. Over 30 per cent of the buffer zone comprises of forestland, i.e., a forest-cover of 12324.84 ha in the buffer zone would be impacted due to mining. These forests mainly comprise of sal, saj, dhaora, mahua, shisham, tendu, etc. The list of forests within the buffer zone is mentioned below.

To reduce the impact of air pollution towards the habitation, reserved forest, road etc., the EIA proposes to create a green belt around the mine and do plantation in the mined-out area (pg 4.41-4.42). However, no further steps are taken to mitigate the impact outside the mine-boundary, as a green belt would not entirely reduce the coal dust and emissions on forest areas beyond the greenbelt.

**LIST OF FORESTS WITHIN BUFFER ZONE WITH
DISTANCE AND DIRECTION**

Name of the forest	Distance from ML boundary	Direction
Gare PF	within	-
Jamkhani RF	8 km	E
Tolge East R.F	5 km	NE
Silot RF	1.5 km	NE
Deodanagar RF	8 km	NE
Barkachar RF	9 km	S
Deogaon RF	9 km	SW
Bendra RF	2.5 km	SE
PF near Kunjemura	2.2 km	SW
PF near Mudagaon	0.2 km	W
PF near Dholnara	1.8 km	NW
PF near Dholnara	1.9 km	NW
PF near Karuwahi	0.4 km	N
PF near Bhalumuda	5.3 km	NW
PF near Banai	8.1 km	NW
PF near Banai	8.5 km	NW

The EIA also states that impact on agricultural, forest and grazing area outside the lease will be restricted due to presence of other operational blocks surrounding the mine (pg 4.58); but fails to highlight the cumulative impact of all the mines, when Gare IV/6 starts mining. In these forests, important animal species found are sloth bear, spotted deer, barking deer, hyena, short nosed fruit bat, common langur, wild boar, etc.

c. Overburden Management: The EIA report states that the Gare IV/6 block is covered by a thick pile of soil ranging from 6.00 m to 16.15 m at one place while in another line, it mentions that the thickness range of soil in general is 3 to 10 m (pg 2.6). So it is not sure what the actual thickness of the topsoil is. But the project plans to remove and preserve only the topsoil upto 1 m depth (pg 2.16). Thus rest of the valuable topsoil, which is very essential for vegetation growth, will be lost as waste matter.

Further, two types of topsoil storages will be made-one permanent type near the external OB dumps in the southern side of the ML and another temporary stacks on the backfilled area (northern portion of the pit) after start of backfilling for immediate use within the same year before the onset of monsoon. The location of permanent topsoil storage on the southern boundary of the lease area is adjoining the Kelo River. In the event of heavy rainfall/failure of retaining structures, all topsoil might get drained and lost into the river. While it would cause pollution in the surface reservoir, it would also mean loss of valuable topsoil, which is very essential in terms of mine closure. Also, the fact that there are some external OB dumps needs to be scrutinized properly especially given the detrimental environmental effects it has had in Goa and Karnataka.

d. Impact on Kelo River & other surface water-bodies: The Kelo River, an important tributary of the Mahanadi, flows along the eastern boundary of the proposed project and its catchment area will shrink due to the project. However, the EIA report states that “no impact on the surface water resources is envisaged as no surface water will be drawn.” But, what about the impact of mine-water discharge from sedimentation tank into the river? This has not been explored in the EIA report.

The report also has not studied any potential impact on the fishery and other aquatic life forms. This will have serious implications for people whose livelihood depends on the river. As per the mining plan, surface run off and excess mine-water from the sedimentation tank shall be discharged into the Kelo River after settlement. But that doesn't mean that this discharge water will be as clean as the river water itself and thus it will definitely increase turbidity of the river-water as well pollute the river. Therefore, based on data provided in the EIA, it is not accurate to say that the mine pit water will not increase siltation and water pollution in the Kelo River. All the rivers in the region (the Kelo, Mand and Kurkut rivers), which are important sources of water in the region, are already heavily stressed. Therefore we need to consider the large-scale mining activity already happening in the area.

There is a Nala on the western corner of the lease. At the end of the 5th year, waste-dump would be formed in its place and the nala would be diverted along the boundary of the waste-dump. In case of a dump-failure, the wastes would be discharged in to the nala, which joins the Kelo River downstream.

There are also a number of other streams and rivers in the buffer zone of the mine-lease area, which are likely to be impacted.

MAJOR STREAMS AND RIVERS IN STUDY AREA

Name	Distance from ML, km	Direction w.r.t. ML
Kelo river	Adjoining eastern boundary	E
Bendra Nala	0.1	E
Dumer Nala	2.8	NE
Karanara Nala	1.0	S
Koledega Nala	6.5	S
Pajhar Nadi	6.7	W
Digi Nala	8.7	WSW
Chini Nala	3.9	NNE

e. Impact on Air Quality: Ambient air quality monitoring for Lamdarha village, which is very close to the eastern-mine boundary has not been done. Given that the wind direction is towards northeast predominantly, dust and emissions from the mine lease area (including washery) are likely to have a very high impact on this village/habitation area. So air quality monitoring for this area is a must.

Nine air-sampling stations, were used for the baseline data generation on ambient air quality. Given that the wind direction is mostly in the northeast direction, only two of the

nine sampling locations are on the eastern-side, i.e., in the direction of wind-flow. This clearly means the sampling stations were not distributed to give a fair representation.

LOCATION OF AIR SAMPLING STATIONS

Station code	Location of ambient air monitoring stations	Distance (km) & Direction from project site	Justification of station selection
1.	Core zone (CA1)	Within	Within the mine lease area to establish prevailing air quality
2.	Kunjemura (BA1)	2.4, SW	Near station in first predominant downwind direction
3.	Khamharia (BA2)	0.5, NE	First predominant upwind direction
4.	Kosampali (BA3)	1.2, SE	Second predominant downwind direction
5.	Karuwahi (BA4)	0.6, NW	Second predominant upwind direction
6.	Tamnar (BA6)	7.9, SW	Distant station in first predominant downwind direction
7.	Kerakhoh (BA7)	8.1, NW	Second predominant downwind direction
8.	Kondkel (BA8)	2.6, E	Crosswind direction
9.	Gare (BA5)	0.2, SW	Nearest village

The EIA report observes that the concentration of SO_x and NO_x has been increasing in the area due to existing projects. Addition of the Gare IV/6 will also add to the load of SO_x and NO_x in the area, mainly due to increased transport vehicles. But the EIA doesn't mention any steps to mitigate these gases, apart from proper maintenance of the vehicles.

There is no provision of dust suppression at washed coal-stockpiles at the washery process, before being unloaded unto trucks for dispatch to the sponge-iron plants. Although these would be washed coal, but since large quantities of coal would need to be transferred into trucks for dispatch to sponge-iron plant, large amounts of dust would be generated from stockpiled coal as well as from loading of coal unto trucks, which will affect the households and ecology around the mine lease area.

f. Impact on Local Economy & Livelihood: The EIA only discusses that project-affected people will be employed in the mine, but doesn't discuss the social impact due to change in local agrarian economy structure, i.e., when food-grains and vegetables would have to be brought in at higher prices from other areas into a once-surplus region. But the EIA does not mention any specific number of people who will be given employment also it adds to say that "eligible" people will be employed which can mean anything.

52 per cent of the study area (core and buffer zones) is agricultural land, supporting 84 per cent of the population (17,537 individuals), who are cultivators or agricultural labour (as per census 2001). From the available data on land use pattern in the study area, it is clear that the project is likely to impact local biodiversity, the forest ecology, as well as the agricultural base of the local community. So, any impact on agriculture within the buffer zone is going to greatly affect most of the people's livelihoods in the area.

Although census 2011 data has been published, the project proponent uses the outdated decade-old 2001 census data that is a clear under reporting of the number of people who will get affected as a result of the project.

g. Impact on Groundwater: The large-scale underground mining activity also has the potential of altering the groundwater regime. The EIA report also accepts that there will be localized impacts such as decline of water table on the villages in the vicinity of the opencast mines within the radius of influence. However, it fails to quantitatively define the radius of influence for this project, so as to figure out how many lives will be adversely affected due to the project.

In Table 4.8, seams IV, III, II&I are each having different inflows into the underground mine, which add upto 12131.6 cu.m/day; whereas in the EIA the maximum seepage loss is mentioned as 3093.4 cu.m/day. In the underground mine, when all the 4 seams are being mined, waterflow will happen from all the exposed coal-faces, and therefore, the total seepage must be added-up.

**TABLE 4.8
SEAM WISE MINE SEEPAGE ANTICIPATED
DURING UNDERGROUND MINING**

Seam	Length of Drive & Haulage (m)	Width	Groundwater inflow (cum/day)
IV	22134	17	3010.2
III	21578	17	2934.6
II	22746	17	3093.4
I	22746	17	3093.4

Also the groundwater recharging system doesn't specify the quantity of groundwater that is expected to be recharged (pg 4.23).

h. Increased Traffic Density: In absence of the Gare IV/6 project, the traffic density is 1851 vehicles/day in the area (see the table below). The Gare IV/6 coal-block upon its completion is expected to add daily 248 trucks (25 T for clean coal), 946 vehicles (15 T capacity for middlings), 10 buses, 150 scooters and 75 cars for transportation of manpower.

**TABLE 4.9
TRAFFIC DENSITY**

Traffic vehicle	No. of vehicles per day
H.M.V.	446
L.M.V.	293
Two/three wheelers	793
Cycles	279
Tractor/trolley	34
Others	6
Total	1851

It is mentioned in the EIA report that *“there will be increase in the traffic density on the existing road due to the transport of coal from mine to end use plants mainly and manpower, to a **minor extent**”*. However, it is clear from the numbers that the project will add another 1429 vehicles daily to the existing 1851 vehicles daily in the area, which clearly will increase the traffic density drastically and not just to a **minor extent** as stated in the report. Increased transportation will also increase the noise levels along the roads as well as the risk of accidents.