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Memo No. 3127 /1 WL-SSP-324/2016
Dated, Bhubaneswar, the 22 Apr, 2016

To

The Principal Chief Conservator of Forests, Odisha,
Bhubaneswar

Sub: *Transfer of lease in respect of diversion of 49.62 ha. (4.16 ha + 45.46 ha; Stage-I for 4.16 ha accorded on 13.8.2014 and final approval for 45.46 ha was accorded on 16.5.2002) of forest land for coal mining at Talabira-I Coal Block in Sambalpur district in the State of Odisha from the Original user i.e, M/s HINDALCO in whose favour forest land was diverted to new user agency i.e, M/s GMR Chhattishgarh Energy Limited in whose favour the coal block was auctioned/re-allotted by the Ministry of Coal-regarding*

- Transfer of approval of Site Specific Wildlife Conservation Plan from the Original user M/s Hindalco Industries Ltd. to new user agency M/s GMR Chhattisgarh Energy Ltd.

I would like to send herewith the copies of the Site Specific Wildlife Conservation Plan for Talabira-I coal block of M/s GMR Chhattisgarh Energy Ltd. in Sambalpur District in duplicate duly approved by the undersigned with financial forecast of ₹257.00 lakh (Rupees two crore fifty-seven lakh) only for the following activities.

a.	For activities to be implemented by the user agency in project area	₹33.00 lakh
b.	For activities to be implemented by DFO, Sambalpur Division in project impact area	₹224.00 lakh
Grand Total:		₹257.00 lakh

**End: 2 copies of approved
site specific WL Conservation Plan**


Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha

P.T.O.

(4)

Memo No. 3128 /date 22-04-2016

Copy forwarded for information and necessary action to -

1. Special Secretary to Govt. of Odisha, F&E Deptt., Bhubaneswar with reference to that Deptt. memo No.10F(Con)48/2014-8933/F&E dt 27.5.2015
2. Regional Chief Conservator of Forests, Sambalpur Circle with reference to his memo No.293 dt 28.1.2016
3. Divisional Forest Officer, Sambalpur Division with reference to memo No.295 dt 28.1.2016 of RCCF, Sambalpur alongwith a copy of the approved site specific wildlife conservation plan
- ✓ 4. Director, GMR Chhattisgarh Energy Ltd., New Shakthi Bhavan, Building No.302, Opposite Terminal 3, IGI Airport, New Delhi-110037 alongwith a copy of the approved site specific wildlife conservation plan


**Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha**

**SITE SPECIFIC
WILDLIFE CONSERVATION PLAN FOR
TALABIRA #1 COAL MINE OF
M/S GMR CHHATISGARH ENERGY LTD
AT KHINDA VILLAGE OF SAMBALPUR**



**Prepared By:
Sri S.K. Mishra , IFS (Retd)
Former Wildlife Warden
O/o The Chief Wild Life Warden, Odisha
Bhubaneswar (Odisha)**

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ANNEXURE

SL. NO.	DESCRIPTION	ANNEXURE
01	Copy of Consent Letter from Ministry of Coal Regarding Approval of Revised Mining Plan OF 1.5 MTPA	ANNEXURE I ✓
02 ✗	Vesting order No.104/2/2015 dt. 23/03/2015	ANNEXURE - II ✗
03	Copy of Consent to operate from Pollution Control Board for the mine under both Water & Air Act	ANNEXURE : III ✗
04	Copy of Environmental Clearance for 3.0 MTPA Open Coal Mine Project	ANNEXURE : IV
05	List of Industries around the Mine	ANNEXURE : V
06	Yearwise break-up of works to be taken up inside the Project area of 170.305 Ha by M/s GMR Chhattisgarh Energy Ltd	ANNEXURE : VI ✓
07	Yearwise break-up of works to be taken up in the Buffer Zone of 10 km radius by Govt. Authority	ANNEXURE : VII, ✓

PLATES

SL. NO.	DESCRIPTION	PLATES
01	Location Map of the Talabira-I Coal Mine	Plate-I
02	Location Map of Talabira-I Coal Mine w.r.t. Proposed Elephant Corridor	Plate-II
03	Satellite Imagery showing Coal Mines & Industries Around the Talabira Coal Mines	Plate-III

PREFACE

P R E F A C E

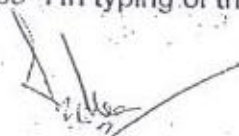
Sri S.K.Mishra, IFS (Retd)
Former Wildlife Warden
O/o The Chief Wildlife Warden, Orissa
Bhubaneswar

Talabira Coal Mines-I is located in Sambalpur District, and Sambalpur South Forest Division in Orissa. This lease is spread over an area of 170.305 Ha. In the adjoining area in the Ib valley, a number of coal mines are in operation. Ministry of Coal, Govt. of India have allocated this block to M/s GMR Chhattisgarh Energy Ltd. as a source for supply of coal to IPP 2 x 685 MW to meet the power requirement. This project is located at Village – Raikheda, Dist. Raipur, Chhattisgarh.

This coal mine is situated at a close proximity to the proposed Sambalpur Elephant Reserve. Government of Orissa had proposed for expansion of the elephant reserve during 2002 but later on, realizing the existence of a number of mines and industries in the area probably did not notify the same as yet and withdrawn the said proposal. Due to close proximity of the said Talabira coal mine to the proposed Sambalpur Elephant Reserve it has been undertaken a wildlife conservation plan in order to protect the said elephant reserve. By this approach, there shall be some improvement in the situation to the advantage of the wildlife habitat. This plan aims at contributing to this cause in a modest way. This sitespecific plan, if implemented in letter and spirit, is hoped to provide some respite to all forms of wildlife and its habitat from the adverse impact of intensive activities of mining operation. For smaller wildlife animals like deer, boar, civets, hares, jungle cat, pangolin and many birds, the intervention shall definitely lead to habitat recovery and optimal population turn over.

I thank Sri Subash Chandra Sahu, I.F.S., D.F.O., Sambalpur (South) Division; and Sri A.K. Behera, R.O., Rengali for their valuable suggestions rendered for preparation of this Plan. I also thank Sri Rabindra Misra, Joint President & Sri V. Srinivasan, Head:- HiraKud Complex of M/s GMR C E Ltd , HiraKud Complex for providing all logistic support for field visit and collection of data for preparation of this Plan.

I also thank Sri S.K.Mohanty, O.F.S (Retd.), Former Asst. Nodal Officer, Orissa for his contribution for preparation of this Plan. I am thankful to Sri Bira Kishore Das who has taken all pain in typing of this Plan.



S. K. Mishra

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY .

- 1.1 Talabira-I Coal block, located in Khinda-village of Sambalpur District was granted to M/s GMR Chhattisgarh Energy Ltd by Government of India for its own consumption necessary statutory clearances vide vested order of Ministry of Coal vide order No. 104/2/2015/NA dated 23rd March 2015.
- 1.2 The coal mine is located in Rengali Range of Sambalpur (South) Forest Division.
- 1.3 The mining plan for the coal mine was approved by the Ministry of Coal vide their letter No.13016/11/96-CA Dt.13.01.1999 for production of 0.4 MTPA. Based on the mining plan, M/s GMR Chhattisgarh Energy Ltd had applied to MoEF and obtained Environmental Clearance for 3.0 MTPA. Vide Ministry's letter No.J-11015/58/2009-IA-II(M) Dated 16th April 2015.
- 1.4 Talabira-I has also obtained valid, consent to operate for 3.0 MTPA under both - Air & Water Act from SPCB, Orissa valid upto 31.03.2016. A Copy of the same is enclosed.
- 1.5 Coal from this mine is supplied to its IPP at Raikheda Dist. Raipur operating at-2x685 MW capacity,
- 1.6 The coal mine falls in tropics 21° 43' 45" and consequently, has tropical dry deciduous vegetation accompanied with associated wild fauna. The mine area does not form part of any National Park, Wildlife Sanctuary, Biosphere Reserve, Elephant Reserve, Elephant Corridor, Tiger Reserve nor any of these sensitive areas fall in the Buffer Zone of the study area. The expansion of Sambalpur Elephant Reserve was proposed by the State Government but later on has been withdrawn, Vide Government of Orissa Memo No : 11994 dated 26th July, 2007.

- 1.7 This is an open cast mechanized mine and coal transportation is done by road. Shovel dumper combination with CSM and Ripper Dozer is used for mining. It is pertinent to mention that no drilling or blasting is involved in the mining operations of this mine. The annual production target is 1.5 Million tonnes.
- 1.8 The mining and transport activities, cause impacts, mostly adverse, on the physical and biological ingredients of environment. It cause generation of dust, noise, smoke, fire and loss of forests. Secondary impacts go to fauna of the area, water and soil losses etc.
- 1.9 In order to minimize the likely adverse impact on the environment, it is necessary to take steps so that the adverse impacts are mitigated or their effects diluted to safe limits. Generation of dust and noise, outbreak of fire, loss of forest and habitat are all to be controlled and minimized. Regeneration of degraded forest areas and wasteland are to be taken up on priority. Transport roads are to be maintained. Photo voltaic fencing and engagement of competent guards is a must. All above is discussed in this conservation plan.
- 2.0 The over-burden dumps on reaching their approved heights steps should be taken for biological reclamation to prevent dust pollution/soil erosion /moisture loss, which is already underway.
- 2.1 The Conservation Plan period is suggested for 10 years and its efficacy shall be properly monitored by Company representatives, Range Officer, Rengali, Chairman of local VSS, prominent wildlife lover of the area if any, during this period.

- 2.2 The total cost of the Plan is Rs.210.00 lakhs. Out of this Rs. 53.00 lakhs shall be utilized by the lessee within the lease area while the balance of Rs.138.00 lakhs shall be deposited by the lessee with the DFO, Sambalpur (South) Division for measures to be taken in the Buffer zone of the Project area. In addition, Rs.19.00 lakhs worth of infrastructure shall be provided by the lessee in shape of Vehicle, cost of running, maintenance, driver wages, Computer for office & G.P.S (Ref. Chapter-6, Sec.6.3.1).

Chapter - I
Introduction

CHAPTER - I INTRODUCTION

- 1.0. **Bacic ground of the lease:** The Ministry of Coal, Govt. of India have allowed Talabira-1. Coal Block in Ib Valley Coalfields in Sambalpur District for development by M/s. GMR Chhattigarh Energy Ltd as a captive source for supply of Coal to the proposed expansion of thermal Power Plant at Raikheda, Dist. Raipur Currently, exploration for coal in the lease area is being carried out with promising results. This was initiated in view of assessing the total coal reserves of all seams in the interest of coal conservation, a valuable National asset. Under above circumstances the lease area will be modified on completion of exploration to the extent of allotted Block boundary.
- 1.1.0 M/s GMR C E Ltd had applied to the State Govt. in Dept. of Steel & Mines for Mining lease over 170.31 ha (out of 250 ha of block area). This 170.31 ha includes 50.01 ha of forest land of Gramya Jungle and Patra Jungle category in revenue records. This lease area was granted by Govt. of Orissa in Dept. of Steel & Mines vide Proceeding No.III(D)SM-4/99. 4238/SM Dt.23.04.2003 for 30 years.
- 1.2.0 The entire lease area of 170.31 ha comprises of 39.85 ha of non-forest Government land, 80.45 ha of tenanted land and the rest 50.01 ha of Revenue Forest Land.
- 1.3.0 **Geological Reserve:** The geological reserve of the mining lease has been assessed to be 22.52 million ton in Rampur group of seams. At present exploration is on going for all the seams including lower Ib seams. The results are encouraging and reserves are likely to increase substantially. Thus the mine life will increase at least beyond next 20 years.
- 1.4.0 **Location of the lease:** The mine is located in Topo Sheet No.64 0/14 and bounded by latitude 21° 42' 50" to 21° 44' 37" East and longitude 83° 58' 51" to 84° 00' 39" North.

- 1.5.0 **Details of forest land involved:** The forest land over 50.01 ha comprises of ten plots in Rakhit Khata No.145 in 'Gramya Jungle' category and one plot under 'Patra Jungle' of village-Khinda in Rengali tahasil of Sambalpur District. The status of both these categories of forest land is revenue forests.
- 1.6.0 **Forest diversion proposal:** M/s GMR Chhattisgarh Energy Ltd had applied to MoEF for diversion of 45.46 ha of forest land in first phase. MoEF in their letter No.8-89/1998-FC Dt.11.05.2015 has granted diversion of forest land involved in the lease. After completion of exploration and preparation of mining plan, further diversion of forest land will be applied for in the total block area.
- 1.7.0 **Environment Management:** M/s GMR Chhattisgarh Energy Ltd has carried out a rapid environmental assessment of the mine and prepare environmental management plan. This plan proposes mitigating measures to minimize air pollution, water pollution, soil stabilization and conservation, afforestation and proper resettlement and rehabilitation along with disaster management.
- 1.8.0 **Possible impacts due to mining:** Different types of impacts are anticipated due to the mining process both within the project areas as well as the buffer zone of 10 Kms in radius around the coal block. Measures are required to be taken to minimize/mitigate these impacts. Due to commencement of mining, vehicular traffic, dust pollution, noise pollution, anthropogenic pressure on forest, degradation of forest land are some of the adverse impacts which will felt. However, coal mining has improved the living conditions of the economically backward locals due to Company's proactive R&R policies and the continuing CSR efforts.
- 1.9.0 **Conclusion:** In view of this fact that flora/fauna cover part of project area as well as buffer area, MOEF asked M/S GMR Chhattisgarh Energy Ltd to submit a Wildlife conservation plan, hence this report.

Chapter - II
***General Description
of the study area***

CHAPTER – II
GENERAL DESCRIPTION OF THE
STUDY AREA

- 2.1.0 **Location of the lease:** Talabira-I Coal Block is located in the south-eastern end of Ib valley in Rengali tahasil of Sambalpur District. The block is located at a distance of about 3.5 Kms to the west of Rourkela-Sambalpur State Highway No.10. The nearest township is Jharsuguda located at a distance of 15 Kms by road. The nearest railway station is located at Lapanga at a distance of 09 Kms. This Coal Block is connected to the highway by a road developed by the State Govt.
- 2.2.0 Within the Buffer zone (Area 10 km around leasehold) seven number of medium and large sponge iron/steel plants are under construction/ operation and two nos. of coal based thermal plants are coming up (**Annexure : VI**).
- 2.3.0 **Climate:** This area falls under tropical climatic zone. In summer the temperature rises up to 45^o C and in winter it dips below 10^o C. The monsoon generally arrives in June of every year and the average rainfall for the last 5 years is recorded as 1155 mm. Relative humidity varies from 21% to 87%.
- 2.4.0 **Physiography:** The lease area comprises of a small hillock (Borre Dungri) and surrounded by flat area with sparse vegetation.
- 2.5.0 **Land-use pattern in Buffer zone:** The land use pattern in the Buffer zone shows that about 54% is farming land, 14.5% covered by lakes, ponds and Hirakud reservoir, 12% wet land, 15% forest land and rest 4.5% is occupied by human settlement. Besides, there are seven numbers of large to medium scale sponge iron/ steel plants that are at various stages of construction/ operation and two nos. of coal based power plants.

- 2.6.0** **Water bodies:** Hirakud Dam is located about 30 Kms away from the Project site. However, during the highest flood level, the water of Hirakud reservoir enters the lease area; Therefore, a bund of three meters above the HFL has been constructed along the mining lease area towards the reservoir to avoid water ingress. The river Bheden flows at about 2.1 Kms from the site in the north which joins river IB leading to Hirakud reservoir.
- 2.7.0** **Drainage:** In the buffer zone there are few streams which are seasonal. The ground water table is about 8 to 10 meters. During mining operation, a main sump pit has been made within the mining lease area for storage of rain water. This pit needs to be maintained for water availability. The volume of this sump is 95,000 m³ which is designed to ensure adequate quantity of water storage for use during lean period.
- 2.8.0** **Reserve of the Coal Deposit:** This Coal block has 8 seams viz. Rampur top, Rampur Bottom IV Rampur Bottom III, Rampur Bottom II, Rampur Bottom I, Ib Top, Ib_Middle and Ib Bottom. It has a proved geological reserve of 22.56 million tons of Coal from Rampur Top to Rampur Bottom I seams. The mining plan was formulated and approved for these reserves up to Rampur Bottom I. The Recoverable reserves are 15.19 million ton. The striping ratio is 1.21. In view of Ib seam existing below the Rampur group, exploration is going on for these lower seams. Once the geological report will be ready, a modified mining plan for this coal block will be prepared and mine life will get considerably extended.
- 2.8.1** **Mining Plan approval:** The mine has a Mining Plan approved by the Ministry of Coal vide letter No.13016/11/96-CA Dt.13.01.1999 for production of 0.4 MTPA. Subsequently, Ministry of Coal in their approval letter Dt.14.07.2006 approved the modified Mining Plan for an enhanced rated capacity of 1.5 MTPA based on 22.56 million tons reserves (**Annexure : I**).
- 2.9.0** **Environmental clearance:** State Pollution Control Board, Orissa in their Consent letter No.12907-SPCB/BBSR-1-I-IND

(CON) 2707 Dt.25.05.2007 has granted consent to operate for 0.4 MTPA, valid for 5 years up to 31.03.2011 (**Annexure: IV**).

2.10.0 Population: The population density is 102 persons per sq Km. The Scheduled Caste population is 16.66% whereas S.T. is 14.09 %. The main occupation of local people is agriculture, fishing and country cigarette (Bidi) making; Literacy percentage is 16.03% as against 33.13% of Sambalpur District, 40.97% in the State and 65.18% in national level. Villagers use coal as their main source of fuel, due to easy access.

2.11.0 Forest and Forest types: The project area does not come under reserved forests but revenue forests classified as Gramya Jungle cover part of project area. There are eight reserved forests falling partly within buffer zone. These are :

Sector	Name of Forest Block	Remarks
NE Sector	Kurebaga R.F.	A small patch of these RF entering buffer zone near its boundary
	Katikela R.F.	
	Ghichamura R.F.	
SW Sector	Maulabhanja R.F.	The RF is separated by an elongated stretch of water body of Hirakud reservoir from core zone.
NW Sector	Patrapali R.F.	All these RF are located west of Bhedan river
	Malda R.F.	
	Rampur R.F.	
	Khait R.F.	

Salia Bamboo (Dendrocalamus Strictus) is sporadically present in highly degraded state. Undergrowth is scant to moderately present. Sheet and gully erosion is common along nalas and sloppy areas.

The area has been characteristically dry deciduous forest with pre-dominance of coppice shoots of Sal. According to Champian & Seth, the forest of this area can be classified as 5B/C2. The species commonly seen in the area as revealed from field visit are furnished below.

TREES

Local Name	Botanical Name	Family Name
Achu	<i>Morinda tinctoria</i>	Rubiaceae
Amla	<i>Emblica officinalis</i>	Euphorbiaceae
Ankula	<i>Alangium lamarkii</i>	Cornaceae
Asan	<i>Terminalia alata</i>	Combretaceae
Bahada	<i>Terminalia belerica</i>	Combretaceae
Bara bakulia	<i>Dalbergia paniculata</i>	Pailanaceae
Barakoli	<i>Zizyphus mauritiana</i>	Rhamnaceae
Baruna	<i>Crataeva religios</i>	Capparideceae
Bel	<i>Aegle marmelos</i>	Rutaceae
Bana Bhalia	<i>Semicarpus anacardium</i>	Anacardiaceae
Behenta	<i>Lemonia acidissima</i>	Rutaceae
Bheru	<i>Chloroxylon swietenia</i>	Meliaceae
Char	<i>Buchnania lanzan</i>	Anacardiaceae
Chhatian	<i>Alstonia scholaris</i>	Apocynaceae
Dhaman	<i>Grewia tillaefolia</i>	Tiliaceae
Dhaura	<i>Anogeissus latifolia</i>	Combretaceae
Dimiri	<i>Ficus glomerata</i>	Moraceae
Haldu	<i>Adina cordifolia</i>	Rubaceae
Harida	<i>Terminalia chebula</i>	Combretaceae
Jamun	<i>Syzygium cuminii</i>	Myrtaceae
Kalucha	<i>Glochidion lanceolarium</i>	Euphorbiaceae
Karada	<i>Cleistanthus collinus</i>	Euphorbiaceae
Katrang	<i>Gardenia latifolia</i>	Rubiaceae
Kendu	<i>Diospyrus melanoxylon</i>	Ebenaceae
Kochila	<i>Strychnos nux-vomica</i>	Loganiaceae
Kumbhi	<i>Careya arborea</i>	Myrtaceae
Kusum	<i>Schleichera oleosa</i>	Sapindaceae
Sal	<i>Shorea robusta</i>	Dipterocarpaceae
Sidha	<i>Lagerstroemia parviflora</i>	Lythraceae
Semul	<i>Bombax ceiba</i>	Bombacaceae
Siris	<i>Albizzia lebbek</i>	Mimosaceae
Sunari	<i>Cassia fistula</i>	Ceasalpiniaceae

GRASSES

Scientific Name	Family Name
<i>Imperata cylindrical</i>	Poaceae
<i>Thysanolaena maxima</i>	Poaceae
<i>Apluda mutica</i>	Poaceae
<i>Aristida setacea</i>	Poaceae
<i>Heteropogon contortus</i>	Poaceae
<i>Cynodon dactylon</i>	Poaceae
<i>Bothriochloa bladhii</i>	Poaceae
<i>Lipocarpa sphacelata</i>	Poaceae
<i>Eragrostis japonica</i>	Poaceae
<i>Sacchrum spontaneum</i>	Poaceae
<i>Themeda triandra</i>	Poaceae
<i>Arundinella khasiana</i>	Poaceae

SHRUBS / HERBS

Local Name	Species Name	Family Name
Anantamula	<i>Hemidesmus indicus</i>	Asclepidaceae
Arakha	<i>Calotropis gigantia</i>	Asclepidaceae
Basanga	<i>Adhatoda vasica</i>	Acanthaceae
Dhatki	<i>Woodfordia fruticosa</i>	Lythraceae
Kurei	<i>Holarrhena antidysenterica</i>	Apocynaceae

CLIMBERS

Local Name	Species Name	Family Name
Akanbindhi	<i>Cissampelos pareira</i>	Menispermaceae
Atundi	<i>Combretum decandrum</i>	Combretaceae
Baidanka	<i>Mucuna monosperma</i>	Papilionaceae
Bichhuati	<i>Urtica dioica</i>	Euphorbiaceae
Mututri	<i>Smilax macrophylla</i>	Liliaceae
Siali	<i>Bauhinia vahlii</i>	Papilionaceae
Satabari	<i>Asparagus racemosus</i>	Liliaceae

The trees, shrubs, herbs and climbers found in the project site are also commonly found in other areas of Orissa and adjacent areas of the project site.



2.12.0

FAUNA

The project area does not form part of any National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve or Ramsar site. No elephant corridor comes within the project area. The fauna noticed in buffer zone are furnished below. This has been collected from droppings, foot prints, interaction with local people, forest officers and site visit.

Local Name	Zoological Name	Schedule
MAMMALS		
Elephant	<i>Elephas maximus</i>	I
Rufous Tailed Hare	<i>Lepus Nigricalis huficaudatus</i>	IV
Rhesus monkey	<i>Macaca mullata</i>	II
Langur	<i>Presbytes entellus</i>	II
Jackal	<i>Canis aureus</i>	II
Civet	<i>Viverricula indica</i>	II
Mongoose	<i>Herpestes edwardsi</i>	II
Hyena	<i>Hyaena hyaena</i>	III
Jungle Cat	<i>Felis chous</i>	II
Wild Boar	<i>Sus scrofa</i>	III
Barking deer	<i>Muntiacus muntjak</i>	III
Spotted Deer	<i>Axix axis</i>	III

TALABIRA - I COAL MINE

Local Name	Zoological Name	Schedule
Porcupine	<i>Hystrix indica</i>	IV
Pangolin	<i>Manis crassicaudata</i>	I
Sloth Bear	<i>Melursus ursinus</i>	I
BIRDS		
Pond heron	<i>Ardeola grayii</i>	IV
Cattle egret	<i>Bubulcus ibis</i>	IV
Open bill stork	<i>Anastomus oscitans</i>	IV
Red Jungle fowl	<i>Gallus gallus</i>	IV
Jacana	<i>Metopidius indicus</i>	IV
Ring Dove	<i>Streptopelia decaocto</i>	IV
Spotted Dove	<i>Streptopelia chinensis</i>	IV
Large Indian Parakeet	<i>Psittacula eupatria</i>	IV
Rose ringed Parakeet	<i>Psittacula krameri</i>	IV
Cuckoo	<i>Cuculus canorus</i>	IV
Crow pheasant	<i>Centropus sinensis</i>	IV
King fisher	<i>Alcedo attahis</i>	IV
Wood pecker	<i>Picus myromecophoneus</i>	IV
Drongo	<i>Dicrurus caerulescens</i>	IV
Bul Bul	<i>Pycnonotus jocosus</i>	IV
REPTILES		
Rock gecko	<i>Hemidactylus maculates</i>	
Chamelon	<i>Chamaelco zeylanicus</i>	II
Checkered Keel Back	<i>Enhydris enhydris</i>	II
Rat Snake	<i>Ptyas mucosus</i>	II
Banded krait	<i>Bungarus caeruleus</i>	III
Cobra	<i>Naj naja</i>	II
Bengal Monitor	<i>Varanus bengalensis</i>	I
AMPHIBIANS		
Indian toad	<i>Bufo melanostictus</i>	
FISHES		
Chital	<i>Notopterus chital</i>	
Dandakiri	<i>Esomus danricus</i>	
Mohurali	<i>Rasbora daniconius</i>	
Bhakura	<i>Catla catla</i>	

Local Name	Zoological Name	Schedule
Rohi	<i>Labeo rohita</i>	
Kantia	<i>Mystus cavasius</i>	
Balia	<i>Wallago atu</i>	
Gadisa	<i>Channa punctatus</i>	

These animals are commonly found in other parts of Orissa also.

2.13.0 **Working Plan Prescription:** The forest areas in and around the project area as well as in Buffer zone has been allotted to Rehabilitation Working Circle (Page 351 of Working Plan). The special objects of management is:

- To cut the useless thorny bushes and weed growth to favour the growth of principal and secondary species.
- To encourage the natural regeneration through fire protection, minimizing grazing and tree felling by involving local communities.
- To enrich the micro-edaphic conditions and ensure maximum conservation of soil and water through proper soil & water conservation measures and by involvement of local people.
- To supplement the existing forest growth by planting the indigenous species in the gaps.
- To boost up growth of Sal and other valuable species of coppice origin by appropriate cultural operation.
- To provide adequate protection to the area having rooted waste against biotic interference.
- To meet the bonafied needs of the local people like firewood, small timber, NTFP etc. through their local management committees.

2.14.0 **Land use pattern of the M.L. area :**

The land-use pattern of this mine is as follows:

TALABIRA - I COAL MINE

1.	Non-forest Govt. Land	:	39.85 ha
2.	Tenanted land	:	80.45 ha
3.	Revenue forest land	:	50.01 ha
	Total	:	<u>170.31 ha</u>

CHAPTER - III MINING PROCESS

- 3.1.1 **General:** The Recoverable reserves of Talabira I coal block is 15.19 Million tons for all five seams of Rampur group put together. The annual production target has been fixed at 1.5 Mty. The current exploration for Rampur Bottom and Ib seams is yielding promising results and the life of mine is likely to further increase by 20 more years beyond the earlier estimated 11 years.



- 3.1.2 **Deposit characteristics:** Eight coal seams viz. Rampur top, Rampur Bottom IV Rampur Bottom III, Rampur Bottom II, Rampur Bottom I, Ib Top, Ib Middle and Ib Bottom. are present in Talabira Block- I. Rampur group seams are being worked by opencast method. The block is a small sub basin separated by a N-S trending patch of metamorphics from Talabira II block.
- 3.1.3 **Reserve and stripping ratio:** The total geological reserve of the mine is 22.56 million ton of Coal from Rampur group of seams. Reserves of Ib seam and its splits have not been considered. The Recoverable reserves in Rampur group seams are 15.19 million ton. The striping ratio of the mine is 1.21.

3.1.4 **Mining System:** The present mining operations are being carried out by ripping overburden by ripper dozers and coal mining through continuous surface miner (CSM). There are certain restrictions of mining operations because of proximity to Hirakud Reservoir. According to stipulation of MoEF no drilling and blasting shall be resorted within this mine. Hence the following combinations is being practised:

- Continuous Surface Miner for Coal & Ripper for overburden.

3.1.5 **Excavation:**

Top soil is proposed to be removed and stacked either in temporary storage areas or directly transported to the backfilled and leveled areas for reclamation. The OB is cut Ripper Dozer. Then it is handled by shovel – dumper combination. Coal is cut by Continuous Surface Miner (CSM) and transported by FE loader – trucks combination.



Coal winning by Surface Miner

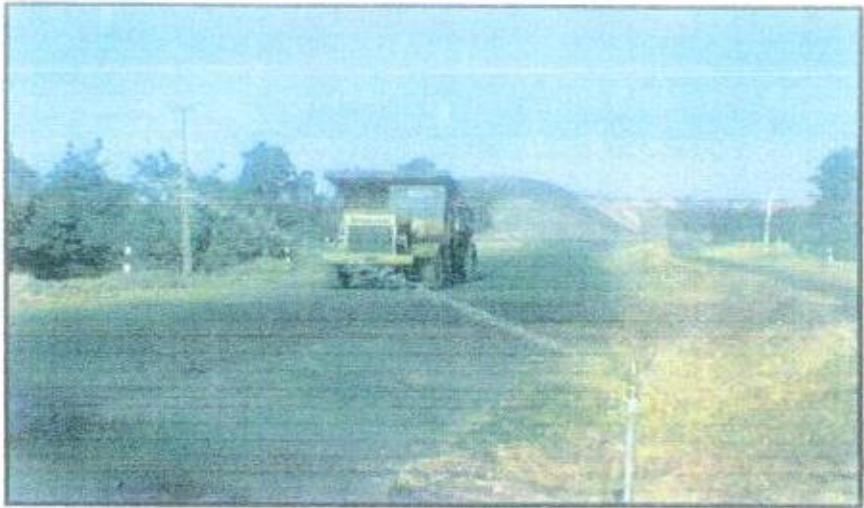


Soil and OB removal by Ripper Dozer

3.1.6 **Transport:**

It is proposed to deploy 9-14 M³ rear dumper in conjunction with 5 cum rope shovel and hydraulic shovels. Transport route for overburden will be along the working flank roads to internal dumps. As proposed feeder breakers would be established within the quarry for crushing coal, limiting coal transportation from working faces to feeder breakers. 35t rear dumper with steel body is proposed to be deployed for

this purpose. Finally the coal is transported to CPP at Hirakud by road.



3.1.7

Pumping and Drainage:

The planning for dewatering the mine has been done in such a way that the working places and haul roads would remain dry as far as possible. The quantity of water inflow to the excavated area during a day of peak rainfall in monsoon season would be pumped out within 3 days by a group of larger capacity pumps and head pumps would be pressed into dewatering service during dry seasons. Water stagnated on haul roads, near the working faces, etc. would be handled by face pumps. During rainfall, the water inflow into the sump would contain silt and clay. Special type of slurry pumps have been provided to deal with such situation.



Storm water on active mine site collected in mine pits

TALABIRA - I COAL MINE

3.1.8 Project at a glance:

The salient features of the mining operation is giving in the following table:

Sl. No	Item	Description
1.	Name of mining plan	Revised Mine Plan of Talabira-I OCP for 1.5 Million Tonnes
2.	Scope of Mining Plan	Mining Plan existing Talabira-I mine and increasing its capacity to 1.5 Million Tonnes
3.	Coalfield	Ib Valley Coalfield
4.	Location	Village Khinda, Thana and Taluka Katarbhanga Tehsil Rengali District Sambalpur
5.	Company	GMR Chhaattigarh Energy Ltd
6.	Total Geological Reserves of the Leasehold area	22.56 Million Tonnes. a) Mineable Reserves: 17.25 tonnes b) Recoverable reserves: 15.19 M. Tonnes. c) Coal Grade: F
7.	Area of Mining Sector	170.305 Ha
8.	Total O.B. Stripping Ratio	12.60 0.83 M ³ /1 Tonne of O.B.
9.	Manpower/OMS (300 days 2 shifts)	(Manpower = 250) 21.33 Tonnes
10.	Average Grade of Coal	Grade "F"
11.	Method of Mining	Opencast, O.B. by Ripper Dozer, Coal by continuous Surface Miner, Loading by FLE & Backhoes. Transport by Rear Dump trucks
12.	Annual out put	1.5 Million Tonnes
13.	Life of mine	11 years, expected to increase further.

TALABIRA - I COAL MINE

3.1.11 Equipments to be deployed:

The list of equipments to be deployed in Talabira Coal Mine is given in the following table:

Deployment	Equipment	Capacity	Number
Overburden	Excavator	3M ³ /0.9M ³ Bucket	2
	Rear Dump Trucks	14M ³	3
	Rear Dump Trucks	10/9M ³	2
	Ripper Dozer	D-457 A3 (770HP)	2
Coal Production	Continuous Surface Miner	2m+0.2m Attachment	1
	Wheel Front End Loader	3M ³ Bucket	2
	Rear Dump Trucks	6.5M ³	10
Auxiliary Equipment	Drill Machine	100mm	1
	Dozer	65M ³ /35M ³	2
Support Equipment	Water Sprinkler	8 K.L. & 12 K.L.	2
	Diesel Browser	8 K.L.	1
	Service Van	1612/407 Tat	2
	Utility Van	Bolero	1
	Ambulance	Omni Van Type	1
	Fire Tender	4 K.L.	1
	Pumps	52 HP	2
		26 HP	2
Geophysical Logger	150m	1	

Chapter - IV
***Impacts on Flora &
Fauna due to Mining***

CHAPTER - IV
IMPACTS ON FLORA & FAUNA
DUE TO MINING

4.0.1 General:

The project area partly covers forest land which is of village forest category and form part of quarry area and the rest is private land and non-forest government land. The topography of the area is flat to moderately undulating. With the existing mine mechanized system, the opencast mining will continue.

4.0.2 As this is an existing mine, normal mining activities are expected to continue in the area which will result in modification of landscape. Changes brought about in the landscape, due to mining will be reclaimed as per the approved Environmental Management Plan.

4.0.3 As the forest within lease area and in near vicinity is already degraded, presence of wild animals is minimal. Small ground dwelling animals like hare, porcupine and birds like grey partridge, jungle bush quall, stone curlew, red vented bulbul, red wattled lapwing, common babbler etc. are there.

4.0.4 Forest within 10 km i.e. in buffer zone of Talabira Coal Block have 8 R.F.s. The ground is undulating with low hillocks with the exception of Maulabhanja R.F. having steep hills. The impact of mining on Maulabhanja R.F is expected to be minimal as the area is clearly separated from the core zone by 2 to 3 km wide tract of water body of Hirakud reservoir. Maulabhanja R.F. has partly bigger trees and rest are all degraded with tree growth 3 - 5 m high. A small family group of elephants make use of Katikela, Malda and Ghichamura R.F.s, more frequently during the paddy crop season.

4.1.0 Anticipated Impacts:

Some anticipated impacts are indicated below for addressing the same effectively, to the extent possible in the subsequent chapters.

4.1.1 Dust:

All mining activities like excavation, dumping, transportation etc shall generate lot of dust including coal dust. This will cover the leaf surface and affect photosynthesis, of plants within 1 km of the quarry area including CHP area.

4.1.2 Noise:

Movement and operation of heavy machineries and of transport vehicles shall generate some noise. It may be noted that no blasting is being done in this mine which will result in considerably less noise pollution as compared to other coal mines.

4.1.3 Lighting :

The fixed lights in the mine and head lights of vehicles will illuminate forest patches and likely to disturb their active and rest phase.

4.1.4 Accidents:

As the mine pits are quite steep and deep, accidentally, animals may fall in the pit while moving during night.

4.1.5 Over dependence of people on forest :

The weaker section of people of the buffer zone are dependent on the forests for their livelihood requirements. As the mining process is mechanized, there is little prospect of their engagement. Consequently, forests gradually get depleted to the detriment of wild animals.

4.1.6 Loss of forest:

Clearing for roads, power lines, colonies, shops and encroachment etc. may reduce the existing forest in the area, if remedial measures are not taken. This will lead to loss of shelter and food resources.

4.1.7 Forest fire:

Due to increase in human activities, negligence etc forest fire may take place, though otherwise also, it is quite common in tropical forest. Fire in such type of deciduous forest is mostly anthropogenic in origin. This, in turn, may deprives wildlife of their cover and food.

4.1.8 Weeds:

Due to increased anthropogenic activities and clearance of forest cover many obnoxious weeds viz Eupatorium odoratum, Lantana camara, Pyrethrum, Aegyrum, Sida cordifolia, Papaver mexicana, Cassia tora etc. may spread, preventing rejuvenation of forage and thereby effecting the food and shelter.

4.1.9 Smoke:

The households and colonies, kiosks etc in a coal mine are likely to use coal as a cheap fuel for cooking or heating. This will generate a lot of smoke which will pollute the air and affect forest areas.

4.1.10 Man-wild animal conflict:

this is a general impact where any development is undertaken in forest area. In this mine also the conflict is likely to take place.

4.2.0 All these perceived impacts/threats needs be removed through different measures in order to improve the habitat for wildlife so that their status can be enhanced and healthy environment is created. The measures for the same have been outlined in the next chapter.

CHAPTER - V CONSERVATION PLAN FOR MANAGEMENT OF WILDLIFE

- 5.0.0 Considering the anticipated impacts/threats posed by Talabira-I Open Cast Mine as indicated in Chapter IV, it is necessary to take suitable ameliorative measures to see that the assessed impacts on the wildlife and its habitat, due to mining and ancillary activities is minimized. It will be necessary to manage the perceived adverse impact in such a manner that this does least possible harm despite the mining operation. The strategy of conservation measures will mean promotion of support factors like food, cover, water, tranquility, habitat contiguity (corridors for travel) etc. All habitat requirements will be properly juxtaposed within the cruising radii of wild animals. The vegetation will be maintained in optimum level of interspersed as regards density cover and stand height.

This conservation plan aims at maintenance of optimal habitats in proper stage of productivity and repair of damages already done or that may be done to the habitat through mining and ancillary activities.

Conservation of wild lands and wild life has to be participatory for sustainability. To elicit people's participation, people will be properly educated and avenues of income generated for them through increase in vegetation and insuring the safeguards in the created vegetation areas.

5.1.0 Measures within the M.L. area :

5.1.1 Dust control:

Dust generated due to face activities and due to movement of vehicles affects the wild animals and plants. This will be prevented by covering the coal during transportation and by



Chapter - V
Conservation Plan
for Management of
Wildlife

sprinkling of water thrice daily on haul roads to keep the roads damp. Precaution will also be taken while transporting and dumping of O.B. Sprinkling with water and wetting of coal loaded on trucks shall prevent the fugitive emission of coal dust.

5.1.2 Noise:

Noise due to machine operation and vehicles is likely to disturb wildlife. This would be minimized to least possible level. This would be achieved by proper maintenance of machinery and use of efficient muffling devices. The quarry area shall be encircled by green belt at least 20m thick. The transport route shall be provided by 15m wide avenue plantation on both sides if the road in the project area and road leading to State Highway.

5.1.3 Plantation in degraded habitat :

Safety zone and other degraded habitats within the M.L. area will be covered up with 70 ha of plantation to provide food and cover to wild animals. This will also act as dust trap, light shield and acoustic barrier. Nursery raised seedlings will be planted in 0.45 cubic meter pits with a basal dose of farm yard manure and 30 gms of NPK fertilizer. A spacing of 2.5 x 2.5 m will be used. Natural root stock will also be tended simultaneously to achieve a plant population of 2000-2500 in due course. Standard procedures of tending will be adopted.

5.1.4 Salt licks :

Five salt licks will be maintained within the M.L. area to meet the mineral requirements of deer.

5.1.5 Forest protection :

Rigid protection will be given to the natural forms and plantation for their effectiveness as shelter and shelterbelt. For this purpose, 2 Van Sahayaks will be engaged for the entire period of the plan.

5.1.6 Moisture conservation :

Staggered contour trenching will be done in degraded patches every 25-30 metres. Trenches will be V shaped with top width

0.6 m and depth 0.45 m in 5 m length with a gap of 3 m in between. The excavated soil will be heaped on the downward side. Check dams of boulder will be erected on nala at suitable intervals to reduce velocity of water flow during rains and prevent stream bank erosion.

5.1.7 Photo-voltaic fencing :

Photo-voltaic fencing will be installed around mining pits to prevent straying of wild animals and cattle in to the pit and get injured or killed.

5.1.8 Fire Control:

The accidental fires in the project area shall be extinguished immediately. Fire is a hazard for mining operations also. Hence in project area (core zone) no fire will be allowed to spread to any part including nearest vegetation.

5.1.9 Weed Control:

All weeds are nuisance for mining operations. They hinder growth of desirable trees in colony areas. At beginning of monsoon all young weeds, which sprout on start of rainy season, shall be uprooted and disposed. This will help growth of good trees and support the faunal population.

5.1.10 Smoke Control:

Generation of smoke adversely affects flora and fauna. As it is not being practiced in Coal Companies, no coal would be used for any domestic purposes. Even for industrial purpose, in this project, hardly any coal is to be used. No other impacts are assessed in core zone.

5.1.11 Awareness promotion:

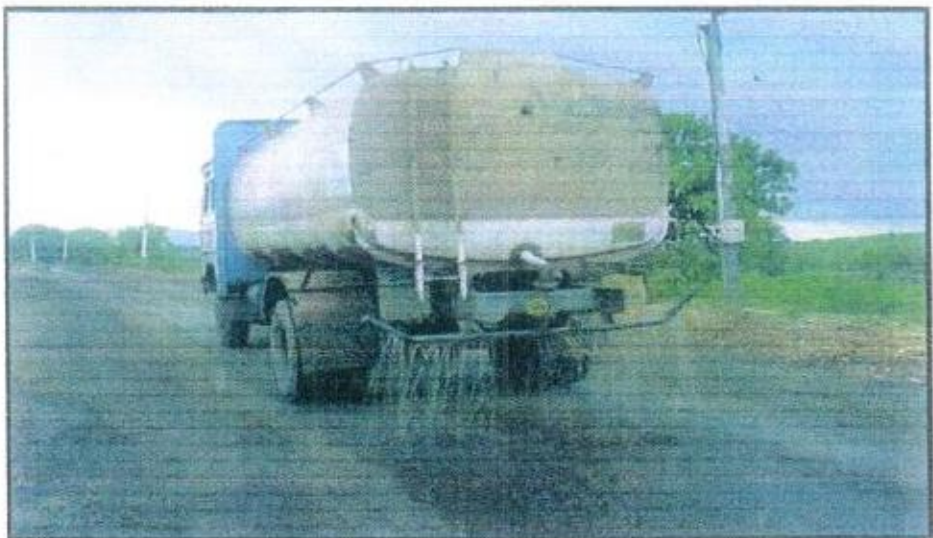
No effort to protect wildlife and its habitat shall succeed without active involvement of mining officials and work force. Hence it is important to create awareness among them. For this purpose, lectures, observation of different functions like wildlife week, competitions like debate, essay and quiz, film show, printing and

distribution of literature can be taken up. Suggestion to better conserve wildlife will be invited and suitable reward given as encouragement to the person. Besides, visit to protected areas shall be quite useful. The youth including children should particularly be targeted for the purpose.

5.2.0 Measures for the buffer zone:

5.2.1 Dust Control:

All transport roads of the project passing through buffer zone shall be kept wet by sprinkling of water at required interval. The frequency of watering will be based on season and weather conditions. This will reduce dust and minimize the impact on flora/fauna.



Mobile Sprinklers - for effective dust suppression



Auto sprinklers for better dust control

5.2.2 Noise Control:

Major noise contribution, seriously affecting the fauna in opencast mine is blasting. In this mine NO BLASTING is envisaged. Therefore in the buffer zone there is hardly any likely impact. The silencer and other noise controlling ancillaries in transport vehicle shall be maintained at the highest level. This will minimize the impact to great extent.

5.2.3 Protection and improvement of habitat:

The patches of forest that forms the habitat of wildlife is threatened due to anthropogenic pressure generated due to the coal mining, industries and all other ancillary activities. Hence, concerted and vigorous efforts would be made to protect such forest patches. Besides, improvement of vegetation cover on non-forest land in the buffer zone shall be tried. For this purpose, the forest field unit formations shall be strengthened with support of **4 Bana Sahayaks** (preferably Retd. F.G. / Ex-Army Jawan), to be engaged with the funds placed by HINDALCO. About one hundred hectares of plantation in the degraded forest land would be done. Some waste land contiguous to forest would also form part of plantation. Two year old healthy seedlings of species like Gambhar, Gohira, Bamboo, Moi, Simili, Bara, Bela, Tentera, Dhaman, Gohira, Kumbhi, Aswatha, Jari, Sisoo (through not local) Barakoli (zizyphus), Aanla, Neem, Kala and Dhala Siris, Bankapasia and edible grasses can be planted in pits of 0.5m³ filled with valley soil mixed with bio fertilizer. Bio-insecticide like neem oil cake can be used for preventing pests. Along with edible species, non-edible species like Karada, Karanja, Chhatian, Sidha, Jamu, Mahul, Kusum etc. will be intermixed with edible species mentioned above in 1:2 ratios respectively. For this purpose, 50cm x 50cm x 50cm pits shall be dug for the purpose and filled with borrowed valley soil, farm yard manure and bio-insecticide like neem oil cake. Saucer shaped mounds shall be provided around plants on flat ground and half moon trenches may be provided on slopes for better moisture retention. Casualty replacement should be done with healthy seedlings during 2nd half of July in the 1st year and early July in next 2 years, if required. Weeding should be done every year up to 5 years. Clod mulching around the saplings will be done after rains during 1st, 2nd and 3rd years.



Fire should be completely prevented in the plantation through the Bana Sahayaks. Fire lines may be laid internally and surrounding the plantation, Seeds of edible grasses, legumes and berries of Themeda triandra, Heteropogon, Chrysopogon, Isielema laxum, Dendrocalamus, Albizzia, Dalbergia, Mitragyna, Zizyphus ocnoplia, Carissa spinarum, Sterculia Colorata, Grewia tiliaefolia etc. embedded in cow dung/ soil pellets may be broadcast in the openings after first monsoon shower, preferably after deweeding, winter control burning and hoeing.

The habitat requirement of food, cover, water, interspersed and juxtaposition will be adequately met. The first three are quantitative and qualitative. The later two are the pattern of arrangement. By interspersed is meant arrangement of cover types, successional stages, browse and grass land, water bodies well distributed all over the area so that each unit of habitat within the cruising radius remains optimally productive in terms of numbers of wild animals with the limit set by the saturation point of each species while juxtaposition is maintenance/creation of all habitat requirements within the normal cruising radius of animal having the least home range and in relation to each other. While attempting habitat improvement, the above principles should be kept in view.

Unique habitats like grass land, wet wallow, riparian forests, caves, rock out crops, salt licks, snags (hollow standing and dead trees or tree having nesting holes) and talus (fallen logs), springs, water holes, climber thickets (wallowing and ambush

cover) will be enumerated, plotted on the map and well secured from the poacher.

Attempt will be made to develop multi-tier vegetation with sufficient ground cover and under growth, which really is vital for food and cover for most animals. Tree growth is essential for thermal cover and availability of the former on sustained basis.

This 100Ha will cover total forest land in the area west of Sambalpur - Jharsuguda rail and road corridor. Beside, some waste land will also get covered in this proposed area of 100 Ha.



5.2.4 **Improvement of water availability:**

The seasonal streams that dry after the monsoon can be banded with rubble check dams at intervals of 50 to 200 meters depending on slope, so as to keep the crest of one below at a level with the bottom of one up, not only to store water for longer time, but also to improve the subsoil moisture regime and help growth of vegetation, so essential for small ground dwelling animals. This provides them food and cover.

Two game tanks of 50m x 40m x 5m may be dug at suitable points in valleys to store a minimum of 1.5 m deep water for the pinch period and to recharge ground water.

5.2.5 Salt licks:

As natural salt is very scarce in the area and salt is a very essential requirement for the wild animals particularly the herbivores, five such salt licks may be created artificially and maintained for use of wild animals near the water hole and grass land. Clay soil will be mixed with salt mixture in 3 : 1 ratio. Salt mixture will be prepared by mixing of 95 kg common salt, 3 kg rock salt and 2 kg trace mineral mixture.

5.2.6 Forest fire:

Fire is a menace for the natural vegetation of the area. Uncontrolled fire lit for collection of mohwa and other NTFP etc spreads to forest areas in hot dry months destroying forest cover, causing shortage of food, killing wild animals and burning their nests/eggs. This can be checked through fire lines (10m wide) cut and kept cleared along paths, streams, ridges, boundaries etc. Four fire watchers can be engaged for 5 months every year to prevent spreading of such fires. Villages coming within fire prone areas can be incentivised to religiously secure fire protection and take up fire fighting measures. A fire watch tower will be constructed at a suitable location to assist early detection of forest fire for organizing fire fighting.

5.2.7 Measures to reduce dependence on forest:

The local people are heavily dependant on forest and deplete the same for meeting their requirement of fuel, fodder, agricultural implements, house construction, NTFP and for sale in nearby townships. Hence alternate employment in diary, poultry, piggery, horticulture, vegetable and mushroom cultivation, handicraft, tailoring, knitting, making *agarbattis*, setting up shops and eateries and small technical jobs can be provided to those not finding suitable employment in mine or otherwise. This can be done through capacity building and linking up with financial institutions and formation of Self Help Groups. The avocation can depend on aptitude of individuals, marketing facilities and

availability of raw materials. A few youth will be trained in alternative eco-tourism activity.

5.2.8 Man-wild animal conflict:

Following measures are to be taken to minimize such conflict or to reduce its adverse impact.

5.2.8.1 Corpus fund:

A corpus fund of Rs.5.00 lakhs shall be placed with DFO, Sambalpur, South Division to pay compassionate grant in case of any damage to life or property for replenishing the same when funds are made available through budget allotment. As it is a 'corpus fund' meant to meet exigencies, this should be made available to the D.F.O. through appropriate mechanism instead of being deposited in the general pool.

5.2.8.2 Anti-depredation measures:

The VSS of the area should be trained and equipment like sealed beam heavy duty torch lights, fire crackers and sirens provided to them for driving away wild animals smoothly in case of such depredation, without injury to the animals or harm to people. They should inform the Forest Department for required support. VSS and F.D. can work in tandem in crisis management related to depredation. Community storage godown and metal bins are options which will be tried for storage of paddy beyond the reach of stray elephants.

5.2.8.3 Sensitizing people:

Bear attack is quite common particularly during mohwa season. This happens accidentally in foggy mornings when bears and gatherers converge under the mohwa trees. Hence people should be sensitized to take adequate precaution and go in small groups after dawn. Such sensitization may also be required in case of other animals also.

5.2.8.4 Solar fencing:

In most vulnerable areas 10 kms of 5 strand solar fencing can be provided along the forest fringes to prevent animals attacking crops. This will also prevent the likely conflicts between fauna village dwellers.



5.2.9 Awareness promotion:

No conservation programme shall be successful without involvement of people. For this purpose their awareness should be improved. This can be done through observation of different conservation functions like wildlife week and talks by eminent persons in the field, film shows, street plays, audio-visual aids, posters, brochures, organizing competitions like essay, debate, photography, sit and draw etc. Visit of select groups to protected areas may also help in creation of such awareness.

5.3.0 Duration and Monitoring of the Scheme:

5.3.1 Plan Period:

The plan period shall be 10 years. This can be revised thereafter based on experience gained, prevailing cost of different component of work and new methodologies evolved by then.

5.3.2 Monitoring:

Unless the programme is continuously monitored, the short comings can not be rectified. In order to do this a committee headed by the DFO, Sambalpur south may be formed with local BDOs, ACF, Range Officers, Chairman VSS and representative of HINDALCO. This committee should sit at least twice every year to review the progress and remove short comings. In case similar activities are taken up by line departments of the government, it should be ensured that there is no duplication, while its benefit should accrue to the community and the ecosystem.

5.3.3 Field monitoring:

It will be difficult to assess the result of this plan unless the status of wild animals and flora is monitored on annual basis. This can be done through experienced wildlife personnel or competent institutions and result submitted to the monitoring committee for bringing about course correction if required. This can be preferably done in dry season i.e. April or May every year.

5.3.4 Indicators of Success:

Following factors will be taken as measurable indicators of success of the plan.

- i) Increase in forest density and horizontal cover.
- ii) Increase in relative abundance of wild animals and sighting success.
- iii) Reduction in depredation.
- iv) Number of persons taking up alternate income generating activities.
- v) Reduction in number and extent of forest fire.
- vi) Overall health of the areas eco-system.

5.4. Interventions under legal frame work:

While implementing this plan care should be taken to see that the provisions of different national or state laws like Wildlife (Protection) Act, 1972, Orissa (Forest) Act, 1972, Forest

(Conservation) Act, 1980, Environment (Protection) Act, 1986, rules made there under and instructions of different statutory bodies like State Pollution Control Board are not violated.

5.5. Plan Cost:

The total cost of the project has been worked out be **Rs.210.00 Lakhs** according to the Chapter-VI. Out of this **Rs.53.00 Lakhs** shall be utilized by M/s. HINDALCO through its own agency within their lease area. **Rs.138.00 lakhs** shall be deposited by the lessee with the DFO, Sambalpur (South) Division for measures to be taken in the Buffer zone of the Project area. In addition, **Rs.19.00 lakhs** worth of infrastructure shall be provided by the lessee to the DFO Sambalpur (South) Division in shape of Vehicle, cost of running, maintenance, driver wages, Computer for office & G.P.S over the plan period (Ref. Chapter-6, Sec.6.3.1).

Chapter - VI
Financial Forecast

CHAPTER -VI
FINANCIAL FORECAST

6.4.0. Based on activities suggested in the Chapter-V broad financial estimate for activities within the lease hold area and in the adjoining forest etc. areas.

6.5.0 The following table indicates the cost estimate for measures to be taken inside & outside the project area within 10-years. The cost of these measures shall be deposited with the Forest Department to be utilized by the Divisional Forest Officer, Sambalpur (South) Division for execution of works as per details given below under the guidance of Conservator of Forests, Sambalpur Circle.

Sl. No.	Item of work	Estimated cost (Rs. in Lakhs)
A	Activities to be taken up by the Divisional Forest Officer inside lease hold area.	
1	a) Plantation preferably with fodder, bamboo, fruit bearing species Including watch and ward for 10 years. At least 70 ha. @ Rs.30,000 per ha.	21.00
2	Provision of Salt lick with maintenance	1.00
3	Moisture conservation measures and water harvesting structures along the existing nallas and water channels for 10-years	2.00
4	Photo voltaic (Solar fencing) to avoid straying of wild animals into mining area	5.00
5	Public awareness about mining and wildlife protection	3.00
6	Watch & ward for fire prevention.	1.00
B	Activities to be taken by the Divisional Forest Officer outside the lease hold area within Buffer Zone.	
	a) Creation of water source by digging game tanks (4 game tanks @ Rs.6.00 Lacks each)	24.00
	b) Maintenance to game tanks (old)	10.00
	c) Provision of Salt lick /maintenance	3.00
12	a) Large scale plantation preferably with with fodder, bamboo, fruit bearing species and development of grass land Including watch and ward for 5 year, at least 150 ha. @ Rs.30,000.per ha.	45.00
	b) Deweeding, Control burning, hoeing and sowing of pelletised seeds to improve grass and browse including watch and ward in degraded area for 10-years at least 100 ha. @ 10,000 per ha.	20.00

03	2 Bana Sahayaks @ 2,500 X 4 X12 X 10	12.00
04	Moisture conservation measures and water harvesting structures along the existing nallas and water channels for 10-years	8.00
05	Public awareness / Capacity Building	4.00
06	Fire protection for 10-years including wages of fire watchers @ 2100/- per month for 5 months	6.00
07	Watch Tower 1 No. at strategic location/ near Protection camps	3.00
08	Anti-depredation, squad with cost equipment, incentives etc. @ 0.60 Lakh per year.	6.00
09	Corpus fund for paying compensation at the time of exigencies on man wild animal conflict	5.00
10	Livelihood improvement and incentives to VSS	8.00
11	Alternate avocation to people not able to joining mining	8.00
12	Community Storage godowns / metal bins to save crop raid by elephant	5.00
13	Solar fencing its maintenance	20.00
14	One fast moving vehicle .	7.00
15	One Computer with accessories	0.50
16	One G.P.S.	0.20
17	Salary of one driver @ Rs.4000/- per month for 10-years.	4.80
18	Fuel for the vehicle @ 100 liters per month for 10 years and maintenance	6.50
19	Development of communication network / GIS based maps Satellite maps on GIS domain should be procured every year to know the changing profile of the project area in both dry season and wet season for 10 years preferably using the GIS lab of PCCF(WL), Orissa	10.00
20	Pollution control and monitoring mechanism to be developed in consultation with State Pollution Control Board	5.00
21	Unforeseen & miscellaneous	3.00
	Total	257.00

(Rupees Two Crore Fiftyseven Lakhs) only.

Item No.14, 15 and 16 shall be purchased by the User Agency and to provide the same to Principal C.C.F. (WL) & Chief Wildlife Warden, Orissa / D.F.O., Sambalpur (South) Division immediately. Item No. 17, 18 & 19 shall be deposited by the User Agency along with vehicle with PCCF(WL)/DFO.

N.B.: All measures for dump reclamation should be taken up including retaining walls, plantation etc. as per the reclamation plan to be prepared in terms of the approved mining plan and other guidelines. This component is to be dealt separately as per the above guidelines. Hence no financial forecast on this account is indicated in the conservation plan.

Approved

SSA
Principal Chief Conservator of Forests
(Wildlife) & Chief Wildlife Warden
Odisha, Bhubaneswar

References

REFERENCE

- Working Plan of Sambalpur (South) Forest Division by Sri P.K.Sethi, O.F.S. from 2007-08 to 2016-17.
- District Statistical Hand Book of Sambalpur District.
- Forest Diversion Proposal Prepared by the User Agency.
- Environmental Impact Assessment & Environment Management Plan Prepared for this Coal Mine.
- District Gazetteer of Sambalpur District.
- National Wildlife Action Plan Prepared by Govt. of India.
- Orissa Forest Act, 1972 with latest amendment.
- Wildlife (Protection) Act, 1972.
- Forest (Conservation) Act, 1980 Amended up to 2004.
- Mammals of India by S.H. Prater
- Indian Birds by Salim Ali
- Reptiles of India by J. C. Daniel.
- Wildlife Wealth of Orissa (Govt. Publication).
- Notes on Forest Protection.
- Flora of Orissa – Saxena & Brahman (OFDC Ltd.).
- Wild Orissa (2004)-Wildlife Wing, F.D.,Orissa.

Plates

TALABIRA - I COAL MINE

PLATES

SL. NO.	DESCRIPTION	PLATES
01	Location Map of the Talabira-I Coal Mine	Plate-I
02	Location Map of Talabira-I Coal Mine w.r.t. Proposed Elephant Corridor	Plate-II
03	Satellite Imagery showing Coal Mines & Industries Around the Talabira Coal Mines	Plate-III

Location Map of the Talabira-I Coal Mine

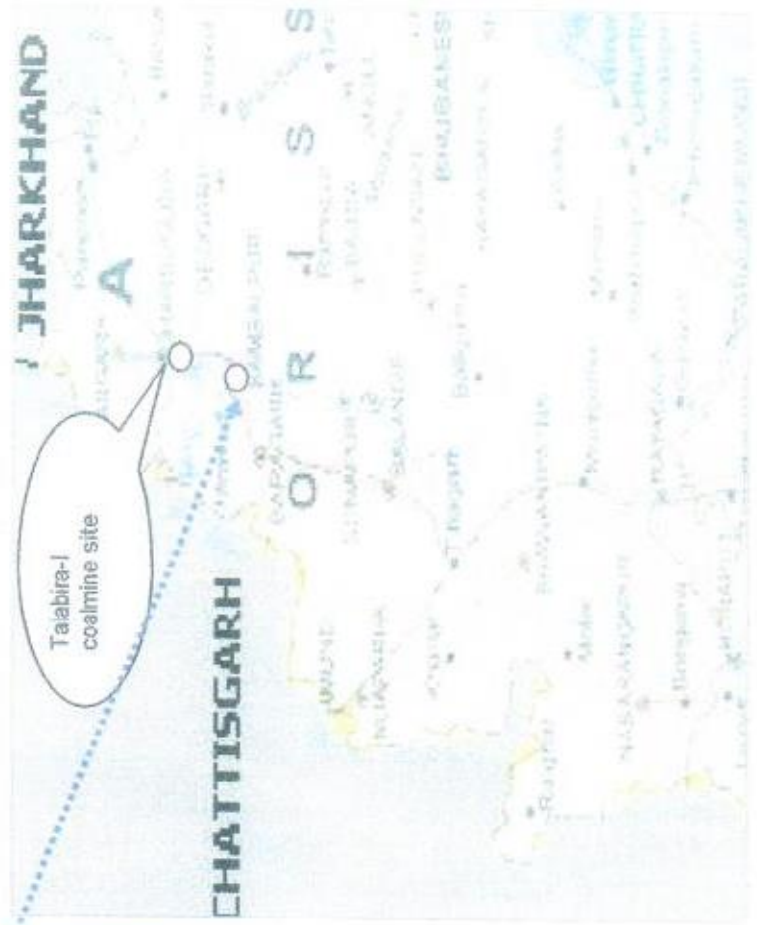
LOCATION

Sambalpur, Orissa

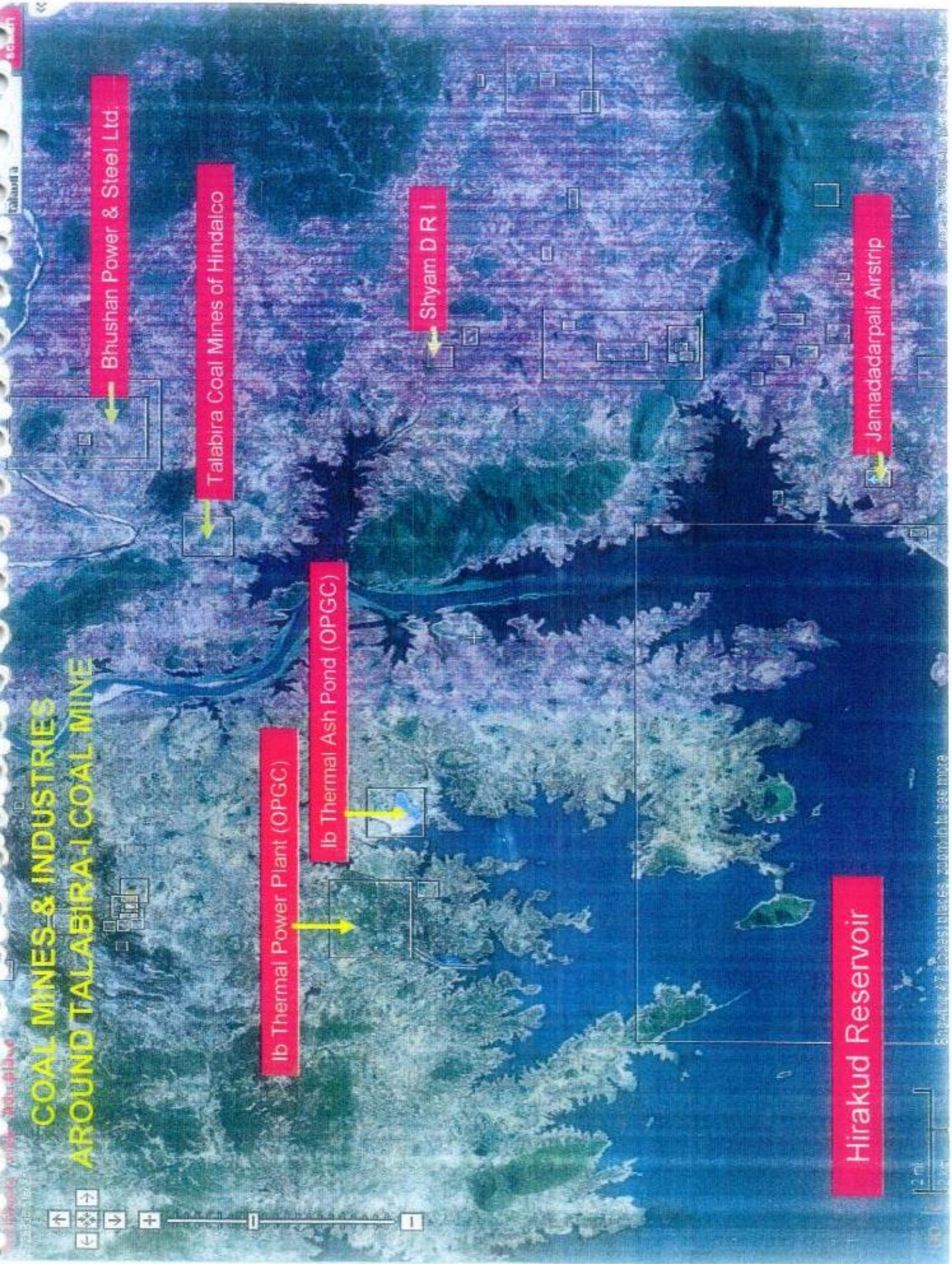
Toposheet No : 64 O/14

Latitude : $21^{\circ} 42' 58'' - 21^{\circ} 44' 37''$ (N)

Longitude : $83^{\circ} 58' 51'' - 84^{\circ} 00' 39''$ (E)



SATELLITE IMAGERY SHOWING COAL MINES & INDUSTRIES
AROUND TALABIRA - I COAL MINE



COAL MINES & INDUSTRIES
AROUND TALABIRA-I COAL MINE

Bhushan Power & Steel Ltd.

Talabira Coal Mines of Hindalco

Shyam DRI

Jamadadarpali Airstrip

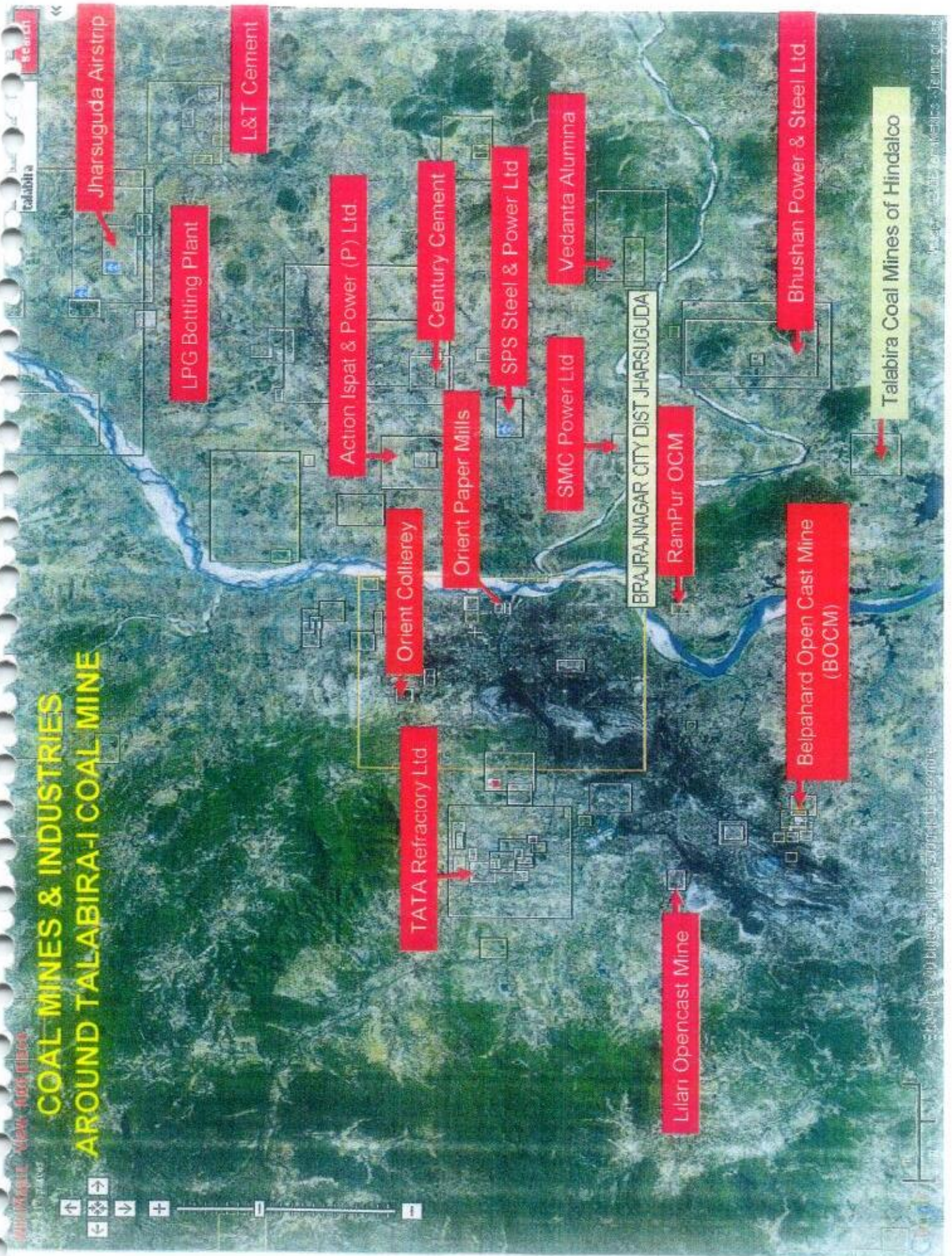
Ib Thermal Power Plant (OPGC)

Ib Thermal Ash Pond (OPGC)

Hirakud Reservoir

SATELLITE IMAGERY SHOWING COAL MINES & INDUSTRIES
AROUND TALABIRA - I COAL MINE

COAL MINES & INDUSTRIES
AROUND TALABIRA-I COAL MINE



Search

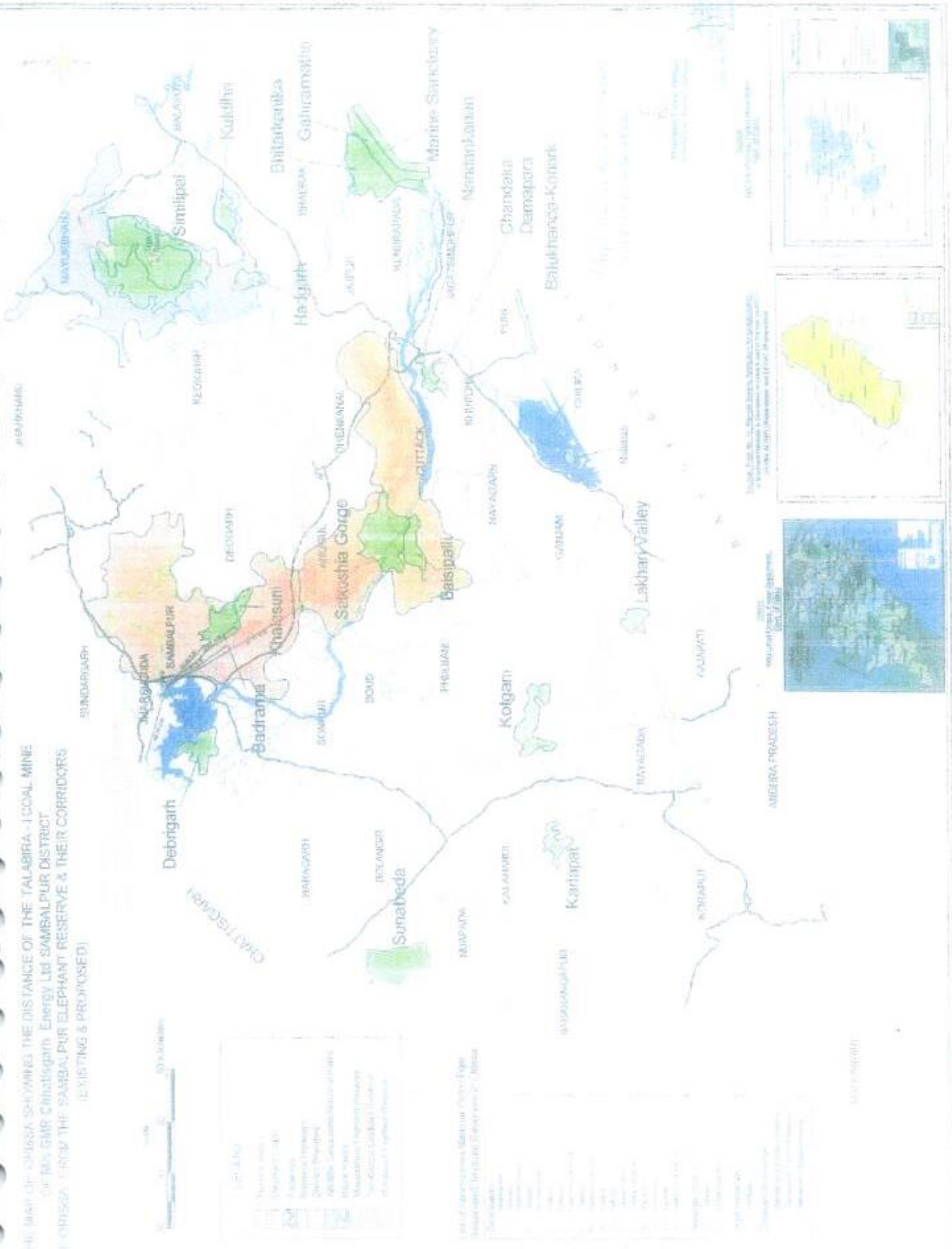
Jharsuguda

Map data © OpenStreetMap contributors, Imagery © Mapbox

© 2024 Google

© 2024 Google

THE MAP OF ORISSA SHOWING THE DISTANCE OF THE TALABIRA - I COAL MINE OF IJSR GMR Chhatargarh Energy Ltd SAMBALPUR DISTRICT OF ORISSA FROM THE SAMBALPUR ELEPHANT RESERVE & THEIR CORRIDORS (EXISTING & PROPOSED)



Legend	
—	Proposed Corridor
—	Existing Corridor
—	Proposed Elephant Reserve
—	Existing Elephant Reserve
—	Proposed Elephant Corridor
—	Existing Elephant Corridor
—	Proposed Elephant Reserve
—	Existing Elephant Reserve
—	Proposed Elephant Corridor
—	Existing Elephant Corridor
—	Proposed Elephant Reserve
—	Existing Elephant Reserve
—	Proposed Elephant Corridor
—	Existing Elephant Corridor

List of Elephant Reserves and Corridors	
1.	Sambalpur Elephant Reserve
2.	Debagarh Elephant Reserve
3.	Sunandha Elephant Reserve
4.	Koraput Elephant Reserve
5.	Lakshar Valley Elephant Reserve
6.	Proposed Elephant Corridor
7.	Existing Elephant Corridor
8.	Proposed Elephant Reserve
9.	Existing Elephant Reserve
10.	Proposed Elephant Corridor
11.	Existing Elephant Corridor
12.	Proposed Elephant Reserve
13.	Existing Elephant Reserve
14.	Proposed Elephant Corridor
15.	Existing Elephant Corridor



Scale 1:50,000

Date 1/1/2000

Author 1/1/2000

Editor 1/1/2000

Printer 1/1/2000

Sheet 1/1/2000

Scale 1:50,000

Date 1/1/2000

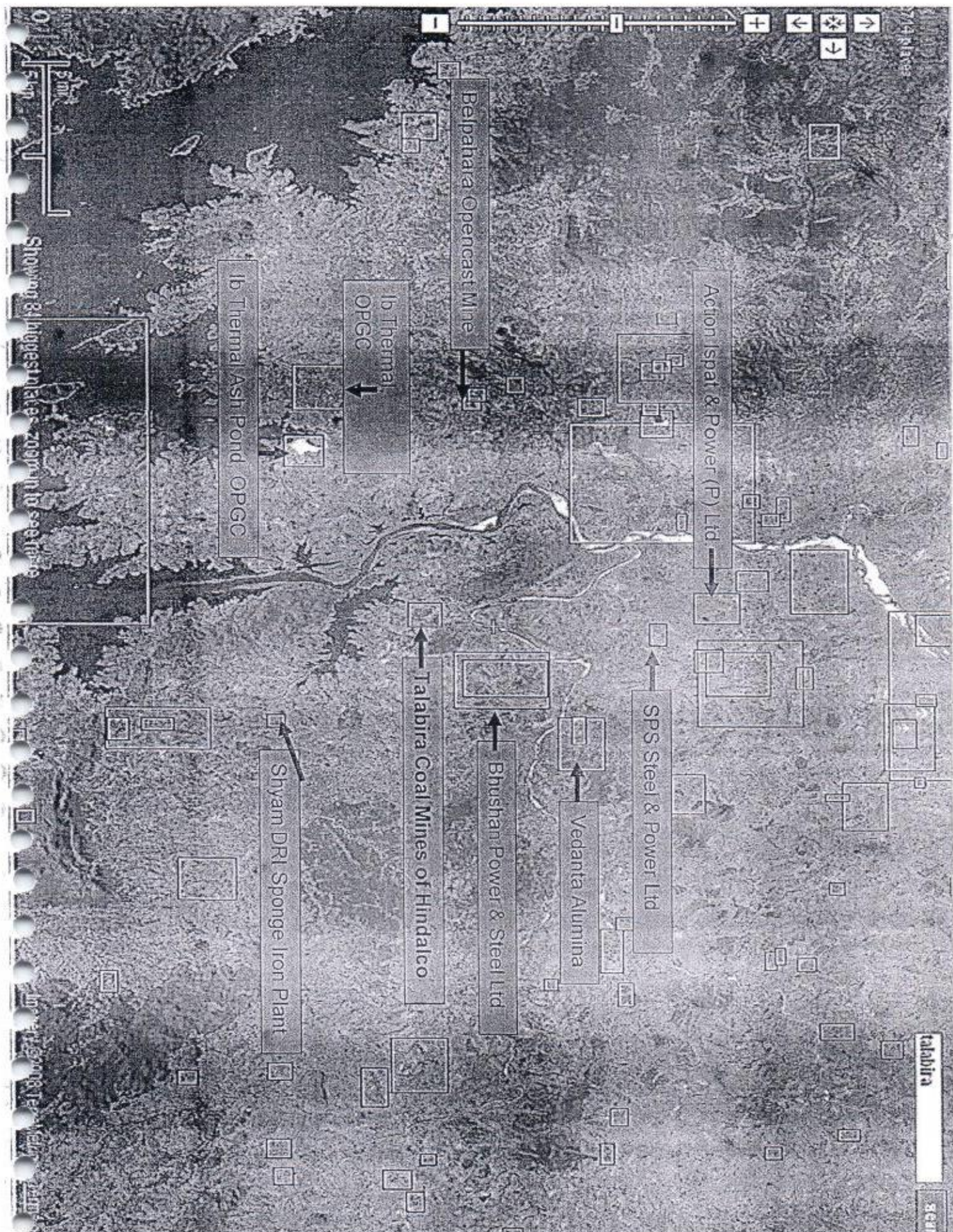
Author 1/1/2000

Editor 1/1/2000

Printer 1/1/2000

Sheet 1/1/2000

SATELLITE IMAGERY SHOWING COAL MINES & INDUSTRIES
AROUND TALABIRA - I COAL MINE



Annexures

ANNEXURE

SL. NO.	DESCRIPTION	ANNEXURE
01	Copy of Consent Letter from Ministry of Coal Regarding Approval of Revised Mining Plan OF 1.5 MTPA	ANNEXURE I
02	Vesting order No.104/2/2015 dt. 23/03/2015	ANNEXURE - II
03	Copy of Consent to operate from Pollution Control Board for the mine under both Water & Air Act	ANNEXURE : III
04	Copy of Environmental Clearance for 3.0 MTPA Open Coal Mine Project	ANNEXURE : IV
05	List of Industries around the Mine	ANNEXURE : V
06	Yearwise break-up of works to be taken up inside the Project area of 170.305 Ha by M/s GMR Chhattisgarh Energy Ltd	ANNEXURE : VI
07	Yearwise break-up of works to be taken up in the Buffer Zone of 10 km radius by Govt. Authority	ANNEXURE : VII,

Government of India
Ministry of Coal

New Delhi, dated 14.7.2006

To

M/s Hindalco Industries Ltd
UCO Bank Building, 4th Floor,
Parliament Street,
New Delhi-110001

Subject :- Approval of revised mining plan in respect of Talabira-I coal mine for enhancement of production capacity from 0.6 mtpa to 3.5 mtpa.

Sir,

I am directed to refer to your letter dated 13.1.2006 on the above subject and to state that the revised mining plan of Talabira-I coal block has been considered and approved by Government in exercise of the power conferred by Section 5(2) of the Mines & Minerals (Development & Regulation) Act, 1957 subject to the condition that the approval of the mining plan is without prejudice to the requirement of approvals from competent/prescribed authority under the relevant rules/regulations etc. Two copies of the revised mining plan are also returned herewith.

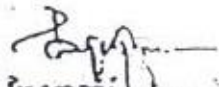
Yours faithfully,


(V.S. Rana)

Under Secretary to the Govt. of India

Encl: As above.

N:8. A copy of the revised mining plan may be submitted to the coal controller, Kolkata, who has been assigned the work of monitoring progress of surface plants and captive mine.


(P. Srinivas)
Section Officer

REVISED MINE PLAN

(1.5 Million Tonnes Per Annum)
of

TALABIRA-I COAL MINE,
B Valley Coalfield

DISTRICT SAMBALPUR, ORISSA

October 2005

**Prepared Under Section 22-B
Of Mineral Concession Rules, 1960**

Kane
वी.एस. राणा - २३ भाई
असि सचिव / In-charge Secretary
मंत्रालय / Ministry
भारत सरकार / Govt. of India
नई दिल्ली / New Delhi

R. P. GIRI
R O P

No. 34011/21/2004 (P.P.)
Dated 3. 10. 2005

Government of India
Ministry of Coal
O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014

Vesting order under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Talabira-I Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 104/2/2015/NA

Date: March 23, 2015

In favour of: **GMR Chhattisgarh Energy Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40108KA2008PLC047974, whose registered office is at Skip House, 25/1, Museum Road, Bangalore, Karnataka – 560025, India and principal place of business is at New Shakti Bhavan, No. 302, New Udaan Bhavan Complex, Opposite Terminal 3, IGI Airport, New Delhi- 110037 (the "successful bidder")

For utilisation in: End Use Plant situated at Village Raikheda, District-Raipur, Chhattisgarh – 493225, India, as more particularly described below (the "End Use Plant"):

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity	Coal Entitlement
1.	GMR Chhattisgarh Energy Ltd.	Village Raikheda, District - Raipur, Chhattisgarh 493225	2 X 685 MW	1370 MW	297.06 MT

MW: Mega Watt; MT: Million Tonne

WHEREAS, the nominated authority has, in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 (the "Ordinance") and the Coal Mines (Special Provisions) Rules 2014 (the "Rules") conducted the auction of the mine;

AND WHEREAS the successful bidder is eligible to receive this vesting order with respect to the mine including, inter-alia, -

(a) the coal bearing land acquired by the prior allottee and the lands, in or adjacent to the coal mines used for coal mining operations acquired by the prior allottee; and

(b) any existing mine infrastructure as defined in clause (j) of sub-section (1) of section 3 of the Ordinance;

AND WHEREAS the successful bidder has furnished a performance bank guarantee dated March 19, 2015 for an amount equal to INR 1,59,33,87,000 (Indian Rupees One Hundred Fifty Nine Crore Thirty Three Lakh and Eighty Seven Thousand) issued by Axis Bank in accordance with the tender document and in accordance with the provisions of sub-section (6) of section 8 of the Ordinance and sub-rule (4) of rule 13 of the rules.

AND WHEREAS the successful bidder has entered into a Coal Mine Development and Production Agreement dated March 2, 2015 ("CMDPA") (as amended) with the nominated authority in accordance with the provisions of sub-rule (5) of rule 13.

NOW, THE NOMINATED AUTHORITY DOES ORDER:

1. On and from April 1, 2015 ("vesting date") and in accordance with the provisions of sub-section (4) of section 8 of the Ordinance, with respect to the mine, the following shall stand fully and absolutely transferred and vested in the successful bidder, namely: -
 - (a) all the rights, title and interest of the prior allottee in and over the land and mine infrastructure free from all encumbrances;
 - (b) entitlement to a mining lease to be granted by the State Government with the terms and conditions of CMDPA forming a part of it on making an application;
 - (c) all statutory licences, permits, permissions, approvals or consents as per rules, required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 2**;
 - (d) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 3**;
 - (e) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the State Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 4**;
 - (f) rights appurtenant to the approved mining plan of the prior allottee;
 - (g) any subsisting contract in relation to coal mining operations, to which the prior allottee was a party and which is assumed, adopted and continued by the successful bidder and listed in the **Annexure 5** shall stand novated (by virtue of a deemed consent from the relevant party(ies)), in accordance with the provisions of sub-section (1) of section 11 of the Ordinance in favour of the

successful bidder for the residual term or residual performance of such contract;

2. The successful bidder may seek any change in the terms and conditions attached to such licence, permit, permission, approval or consent by making an application in accordance with applicable laws;
3. Hereinafter, the successful bidder shall be entitled to take possession of the mine as specified in Annexure 1 without let or hindrance;
4. This vesting order is liable to be cancelled in accordance with the provisions of sub-rule (6) of rule 13.

Vivek Bharadwaj

(By the nominated authority)

WB

Annexures

Annexure 1: Particulars of the mine

Part A – Description of the mine

Name of Coal Mine	Talabira-I
Coal Field	Ib Valley Coalfield
Latitude	21 ⁰ 42'37'' N to 21 ⁰ 44'58'' N
Longitude	84 ⁰ 58'51'' E to 84 ⁰ 00'39'' E
Villages	Khinda
Tehsil/ Taluka	Rengali/ Katerbaga
District	Sambalpur
State	Odisha

Part B – Description of Land in relation to the mine

Type of Land: Freehold Land for Mining as per Mining Lease

Nil

Type of Land: Leasehold Land for Mining as per Mining Lease

Nature	Area (Hectares)
Government Land	31.70
Private Land	78.74
Forest Land	49.62

Part C – Description of Mine Infrastructure in relation to the mine

C1- Mine Infrastructure: Immovable Assets

S. No.	Head of Assets	Description (Nature of Assets)
1	Building	Residential Building
2	Building	Community Centre
3	Building	Health Centre - Renovation
4	Building	Primary School
5	Roads & Drains	Colony Road
6	Roads & Drains	Artery Road
7	Building	Ponds & Tube Well
8	Building	Borewell
9	Building	Statutory Building
10	Building	Work Shop / Garage
11	Building	Statutory Building



S. No.	Head of Assets	Description (Nature of Assets)
12	Building	Adminstrative Building
13	Building	Work Shop
14	Building	Mines Manager Statutory Residence
15	Building	Additional Store Building
16	Building	Visitor's Room
17	Building	Boundary Wall Trench II Area
18	Building	Vocational Training Center - Talabira
19	Building	First Aid Center - Talabira
20	Building	Lab. Building of Talabira
21	Building	Construction of Damaged Adminstrative Building
22	Building	Open Well
23	Building	Plant Building
24	Building	Boundary Wall
25	Building	Garland Drain
26	Building	Garland Drain
27	Building	Settling Tank & Discharge Pit
28	Roads & Drains	Roads & Drain
29	Roads & Drains	Approch Road - Part
30	Roads & Drains	Approch Road
31	Roads & Drains	Embakment Road
32	Roads & Drains	Embakment Road
33	Weigh Bridge	Weigh Bridge - Structure
34	Weigh Bridge	Weigh Bridge - Electronic Components
35	Plant & Machinery	Effluent Treatment Plant - For Talabiara
36	Electrical Equipments & Fittings	Mines Electrification (Extension)
37	Building	Fabrication of Tower for Lighting
38	Electrical Equipments & Fittings	Addition to Power Line
39	Electrical Equipments & Fittings	New Power Line
40	Electrical Equipments & Fittings	New Power Line
41	Plant & Machinery	Automatted Water Sprinking System
42	Plant & Machinery	1 Serge Arrestor + 2 Protectors
43	Electrical Equipments & Fittings	100 KVA Copper wounded Transformer
44	Electrical Equipments & Fittings	100 KVA Copper wounded Transformer
45	Electrical Equipments & Fittings	Miscelleneous Electricals



S. No.	Head of Assets	Description (Nature of Assets)
46	Weigh Bridge	Weigh Bridge make Essae Digitronics (100 MT)
47	Building	Construction of Boundary Wall 4 Mtr Height at North West Corner
48	Roads & Drains	Diversion of Road for OB Dump at Talabira Mine
49	Roads & Drains	Mines Boundary Wall (R & R colony side)

C2- Mine Infrastructure: Land for Compensatory Afforestation

Type of Land: Freehold Land for Compensatory Afforestation

Nil

Type of Land: Leasehold Land for Compensatory Afforestation

Nature	Area (Hectares)
Government Land	50.10
Private Land	-
Forest Land	-

C3- Mine Infrastructure: Resettlement and Rehabilitation Land

Type of Land: Resettlement and Rehabilitation Freehold Land

Nil

Type of Land: Resettlement and Rehabilitation Leasehold Land

Nature	Area (Hectares)
Government Land	9.08
Private Land	-
Forest Land	-



Annexure 2: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government which are being transferred alongwith this vesting order.

S. No	Statutory Clearance	Ministry	Letter No.	Date
1.	Approval of Mining Plan a) (i) Mining plan of M/s Indian Aluminium Company Limited in respect of Talabira-I captive coal mining block-Approval Reg.	Ministry of Coal	13016/11/1996-CA;	28.05.1997
	a) (ii) Revised mining plan of M/s Indian Aluminium Company Limited in respect of Talabira-I captive coal mining block-Approval Reg.		13016/11/1996-CA	10.12.1998
	a) (iii) Approval of revised mining plan in respect of Talabira -I coal mine for enhancement of production capacity from 0.4 MTY to 1.5 MTY		13016/8/2006-CA	14.07.2006
	a) (iv) Approval of revised mining plan 2 nd revision (October 2009) for 3.0 MTPA in respect of Talabira -I coal mine		13016/8/2006-CA	3/4.2.2010
	b) Mine Closure Plan		34011-29-2011-CPAM	6.2.2012
2.	Mining Lease -- Administrative Approval of the Central Government under Section 5 (1) and/ or Section 6 (1) of MMDR Act, 1957	Ministry of Coal	13016/11/1996-CA	



Annexure 3: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government to be obtained on application by the successful bidder.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Environment Clearance Expansion of Talabira-I opencast coal mine project (1.5 MTPA to 3.0 MTPA in an ML area of 170.30 ha) of M/s Hindalco Industries limited, located in village Khinda, Tehsil Rengali, Dist. Sambalpur, Odisha- Environmental Clearance-Reg.	Ministry of Environment and Forests	J- 11015/58/2009 -JA.II (M)	08.11.2011
2.	Forest Clearance – Stage 1 and Stage 2 a) Diversion of 45.46 ha of forest land for Talabira Block-I Coal mine in Sambalpur District of Orissa in favour of M/s India Aluminium Company Limited	Ministry of Environment and Forests	8-89/98-FC	16.05.2002
	b) Diversion of 4.16 ha (including safety zone of 0.11 ha) of forest land in addition to 45.46 ha of forest land already diverted in Talabira-I coal mine the mining lease area of 170.305 ha by M/s Hindalco Industry limited in Sambalpur forest division of Sambalpur district of Odisha during original lease period		8-89/98-FC (Vol.)	13.08.2014
3.	Mine opening	Ministry of Coal –		20.02.2006

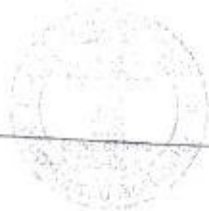
S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
	permission – Rampur Top & Bottom seams Nos. I, II and III	CCO		
4.	Opening of Escrow Account	Ministry of Coal – CCO	--	10.03.2014
5.	Permission from DGMS for Mine Opening	Ministry of Labour – DGMS		
6.	Permission of installation/ Trial Operation of Equipments	Ministry of Labour – DGMS		
7.	Ground water clearance	Ministry of Environment and Forests – Central Ground Water Board		
8.	Railway Siding Approvals	Ministry of Railway		
9.	Explosive Licenses	Ministry of Commerce, DIPP		
10.	Diesel Storage Tank	Ministry of Commerce, DIPP		
11.	(Any Other clearance)			

Annexure 4: Particulars of statutory licences, permits, permissions, approvals or consents issued by the State Government to be obtained on application by the successful bidder.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Consent to establish	State Pollution Control Board		
2.	Project Import Benefit	State Mineral Resource Department		
3.	Grant of Mining Lease	State Government		
4.	Land Mutation	State Government		
5.	Power Line from State Electricity Board	State Electricity Board		
6.	<i>(Any Other clearance)</i>			

Annexure 5: Particulars of the contracts adopted by the successful bidder.

S. No.	Description	Name of Contractor/ Service Provider
1	Operational Support to the e-Mining Software	CSM Technologies Pvt. Ltd.





CONSENT ORDER
TALABIRA-1 COAL MINE OF M/S. GMR CHHATTISGARH ENERGY LTD

Page 1 of 14

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospboard.org, Website: www.ospboard.org

CONSENT ORDER

No. 10225 / IND-I-CON- 2707

Dt. 22.06.2015

CONSENT ORDER NO. 1260

Sub : Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.

Ref : Your online application No. 254773, Dated 30.04.2015

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: TALABIRA-1 COAL MINE OF M/S. GMR CHHATTISGARH ENERGY LTD.

Name of the Occupier & Designation: TARUN KUMAR GHOSH, MINE AGENT

Address: AT: KHINDA, P.S: KATARBAGA, TEHSIL: RENGALI, DIST: SAMBALPUR

This consent order is valid for the period up to 31.03.2016

Details of Products Manufactured

Sl. No.	Product	Quantity
1.	Coal	3.0 MTPA

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.



A. Discharge permitted through the following outlet subject to the standard

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard				
				pH	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)	COD (mg/l)
01	Septic tank (Domestic effluent)	Soak pit	--	5.5 to 9.0	200	--	100	--
02	Mine drainage water / surface run off / other wastewater	Nearby land / inland surface water	21720	5.5 to 9.0	100	10	--	250

B. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard			
					PM (mg/Nm ³)	SO ₂	NO _x
							--

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site(TPD)	Quantity to be reused off site(TPD)	Quantity disposed off (TPD)	Description of disposal site.
	Top soil/over burden	As per approved mining plan	--	--	--	As per approved mining plan



D. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity / quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
 - a) Industrial cooling, spraying in mine pits or boiler feed,
 - b) Domestic purpose
 - c) Process
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.



CONSENT ORDER

TALABIRA-1 COAL MINE OF M/S. GMR CHHATTIS GARH ENERGY LTD

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25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as not to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
 - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
 - ii) Controlled incineration, wherever possible in case of combustible organic material.
 - iii) Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate

GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

1. The applicant shall analyse the emissions every month for the parameters indicated in TABLE .B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10th of the succeeding month.
2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphor Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.



CONSENT ORDER
TALABIRA-1 COAL MINE OF M/S. GMR CHHATTIS GARRH ENERGY LTD

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4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Orissa, Bhubaneswar regularly.
 - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
 - b. Progress on planting of trees quarterly.
5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.
6. The following information shall be forwarded to the Member Secretary on or before 10th of every month.
 - a. Performance / progress of the treatment plant.
 - b. Monthly statement of daily discharge of domestic and/or trade effluent.

7. Non-compliance with effluent limitations

- a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
 - i) Causes of non-compliance
 - ii) A description of the non-compliance discharge including its impact on the receiving waters.
 - iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
 - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
 - v) Steps to be taken by the applicant too prevent the condition of non-compliance.
- b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
- c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.

8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.
9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalis arbitrarily and utilizing poles for stirring etc. should not be resorted to.
10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for:
 - Rotation of crops
 - Change of point of application of effluent on land
 - A portion of land kept fallow.
11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.
12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royats in the surrounding areas as a result of discharge of sewage or trade effluent if any.
13. Proper housekeeping shall be maintained by a dedicated team.
14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned. Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.



E. SPECIAL CONDITIONS:

- 1) Excavation of coal shall be done using surface miners.
 - 2) The annual coal production and compliance status report of the stipulated conditions shall be submitted to the Board latest by 30th April every year.
 - 3) The environmental statement report for the financial year ending 31st March shall be submitted to the Board in form V on or before 30th September every year.
 - 4) Check dams shall be constructed at strategic points in order to guide all surface run-off water containing sediments for settlement of suspended solids before discharge on land or into any surface water body during monsoon after meeting the standards prescribed.
 - 5) Water generated during the process of dewatering of mine shall be used for sprinkling purposes on haulage roads and other dust generating areas instead of discharging the same to outside and excess water if any shall be pumped to the non-mining or abandoned pit/quarry so as to recharge the ground of the area. In case of non-existence of abandoned/ non-working pit/quarry, excess water shall be discharged to outside after adequate treatment and meeting the standards prescribed.
 - 6) A water reservoir of adequate capacity shall be created for storage of the mine drainage water and surface runoffs so that the same can be used for industrial purposes.
 - 7) Service centers i.e. auto shops, HEMM shops, and other areas, wherein, water pollution due to wash outs of oil and grease and suspended solids is expected, effluent treatment plant shall be provided. Action shall also be taken to reuse the workshop effluent instead of discharging to outside.
 - 8) The top soil and external overburden shall be removed separately and stored it in a separate heap, duly covered with grass and vegetation or utilized for reclamation of mined out area.
-



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TALABANA-1 COAL MINE OF M/S. GMR CHHATTIS GARH ENERGY LTD

- 9) Internal overburden shall be utilized for backfilling of mined out area. The backfilled area shall be biologically reclaimed.
- 10) Deep garland type trenches shall be provided all around the top soil dumps/overburden dumps/waste heaps terminating at sedimentation pond to prevent flow of silt directly to outside environment. The treated wastewater discharged to outside shall meet the prescribed standards.
- 11) Acid mine drainage water if any, shall be treated adequately before disposal to surrounding environment.
- 12) Discharge of inadequately treated wastewater of the mine to nearby surface water body shall not be allowed under any circumstances. Appropriate measures shall be taken to prevent pollution of nearby surface water bodies.
- 13) Domestic effluents of the township shall be treated in suitable and well-designed sewage treatment plant or shall be discharged to soak pit via septic tank constructed as BIS specifications.
- 14) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Board.
- 15) Action shall be taken for removal of residual coal going along with over burden so that spontaneous fire in the dump site can be eliminated.
- 16) Ambient air quality measured at a distance of 500m from the dust generating sources in the down wind direction shall meet the following standards.

<u>Pollutant</u>	<u>Concentration in (microgram/m³) (24 hourly)</u>
SPM	- 500
RPM	- 250
SO ₂	- 120
NO _x	- 120



In case any residential or commercial or industrial place falls within 500 metres of any generating sources, the National Ambient Air Quality Standards for industrial area notified shall be applicable.

- 17) Adequate Ambient Air Quality Monitoring Stations (at least six numbers) shall be established and location of the monitoring stations shall be decided in consultation with the Regional Officer, State Pollution Control Board.
- 18) **Monitoring of Ambient Air Quality** of the mine shall be done once in a fortnight (24 hourly) at 500 metres from the dust generating sources, {Loading or un-loading, haul road, coal transportation road, coal handling plant (CHP), Railway siding, Blasting, Drilling, overburden dumps or any other dust generating external sources like nearby roads etc.} and data shall be submitted to the State Pollution Control Board once in six months.
- 19) Adequate measures shall be taken to control noise levels below the prescribed standards;
- | | | | |
|--------------|-------------|---|----------|
| Noise level- | 6 AM- 10 PM | - | 75 dB(A) |
| | 10 PM-6 AM | - | 70 dB(A) |
- (Monitoring frequency for noise level shall be once in a fortnight)*
- 20) Instant water shower system at the exit point of the quarry shall be provided and all heavy vehicles shall move through the instant shower system.
- 21) Coal handling plant, if any shall be provided with adequate dust extraction or dry fog system. Loading, unloading areas, coal stack yard and conveyor systems including all transfer points shall have adequate dust suppression measures. The pollution control systems shall be properly maintained and operated.
- 22) Adequate dust suppression measures shall be provided at railway siding to minimize the generation of fugitive dust emission during loading of coal.
- 23) All transportation roads shall be maintained properly to avoid creation of ruts and potholes.
-



- 24) All permanent haulage roads shall be black topped and shall have fixed water sprinklers on both sides. The system shall be properly maintained and operated to suppress the dust generated during transportation. Plantation of thick leaf trees on both sides of the road shall be done.
 - 25) Mobile water sprinkling shall be provided for dust suppression on the temporary haulage roads and sprinkling of water shall be done at desired intervals to subside the dust.
 - 26) All necessary precaution shall be taken to prevent fire in coal stack yards and coal seams. Necessary precautionary measures, inter alia, maintaining a minimum stock shall be taken to avoid fire hazards in the coal stack yard.
 - 27) Monitoring data on air quality, water/wastewater quality and noise quality shall be electronically displayed at the entry of the mine or at any other suitable location of the mine.
 - 28) The mine shall take appropriate action for providing drinking water in the peripheral villages.
 - 29) Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, OB dumps, back filled areas, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The density of the plantation shall be around 2500 plants per hectare. Nursery shall also be developed for plantation activities within the ML area and free distribution of seedlings to nearby villagers. The annual statements pertaining to the number of trees planted areas where plantation has been done, survival percentage and area in Ha. covered under plantation shall be submitted to the Board, every year in prescribed format.
 - 30) The mine shall take steps for fulfillment of all the stipulations and necessary measures to check pollution
 - 31) Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules.
-



- 32) The mine shall submit a declaration by 30th of April every year that all pollution control systems are in good condition, operated and ambient air quality as well as wastewater quality conforms to the prescribed standards.

MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

To,
THE MINE AGENT,
TALABIRA - 1 COAL MINE,
M/S. GMR CHHATTISGARH ENERGY LTD.
AT-KHINDA, P.S.-KATARBAGA,
DIST-SAMBALPUR, ODISHA

Memo No. _____ /Dt.

Copy forwarded to :

- i) Regional Officer, State Pollution Control Board, Sambalpur. He is requested to inspect the mines within 15 days of operation, verify the adequacy of surface runoff management facility, functioning of pollution control systems and submit detail report along with air and water monitoring reports.
- ii) District Collector, Sambalpur
- iii) Director of Mines, Govt. of Odisha, Bhubaneswar
- iv) Director, Environment-cum-Special Secretary, F & E. Deptt. Govt. of Odisha, Bhubaneswar.
- v) D.F.O, Sambalpur
- vi) Deputy Director of Mines, Sambalpur
- vii) Sr. Env. Engineer-L-I (C) (Hazardous waste cell)
- viii) Cess Section (Head Office)
- ix) Consent Register

SR. ENV. SCIENTIST (MINES)
STATE POLLUTION CONTROL BOARD, ODISHA



**GENERAL STANDARDS FOR DISCHARGE OF
ENVIRONMENTAL POLLUTANTS**



GENERAL STANDARDS FOR DISCHARGE OF
ENVIRONMENTAL POLLUTANTS PART -A : EFFLUENTS

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/Odourless as far as practicable	-----	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	-----	-----	
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5°C above the receiving water temperature	-----	-----	Shall not exceed 5°C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	---	-----	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	-----	50
10.	Total Kajeldahl nitrogen (as NH ₃) mg/1 max.	100	---	-----	100
11.	Free ammonia (as NH ₃) mg/1 max.	5.0	---	-----	5.0
12.	Biochemical Oxygen Demand (5 days at (20°C) mg/1 max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/1 max.	250	---	-----	250
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/1 max.	0.01	0.01	-----	0.001
16.	Lead (as pb) mg/1 max.	01.	1.0	-----	2.0



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TALABIRA-1 COAL MINE OF M/S. GMR CHHATTIS GARH ENERGY LTD

17.	Cardmium,(as Cd) mg/l max.	2.0	1.0	-----	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	-----	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	-----	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	-----	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	-----	15
22.	Selenium (as Sc) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Nil) mg/l max.	3.0	3.0	-----	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride (as F) mg/l max.	2.0	15	-----	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-----	-----	-----
27.	Sulphide (as S) mg/l max.	2.0	-----	-----	5.0
28.	Phenolic compounds as (C ₆ H ₅ OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10 ⁷ 10 ⁶	10 ⁷ 10 ⁶	10 ⁸ 10 ⁷	10 ⁷ 10 ⁶
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l



NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO ₂), µg/m ³	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual * 24 Hours **	60 100	60 100	-Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual * 24 Hours **	40 60	40 60	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O ₃) µg/m ³	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) µg/m ³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m ³	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH ₃) µg/m ³	Annual* 24 Hours**	100 400	100 400	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C ₆ H ₆) µg/m ³	Annual *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)- Particulate phase only, ng/m ³	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m ³	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni),ng/m ³	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

** Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Government of India
Ministry of Environment, Forest & Climate Change

Indira Paryavaran Bhawan
Aliganj Road,
Jor Bagh, New Delhi

No. J-11015/58/2009-IA-II(M)

Dated: 16th April, 2015

To,

The General Manager (Mines)
GMR Chhattisgarh Energy Limited
Skip House, 25/1,
Museum Road
Bangalore
Karnataka-560025

E-mail: ranjitsingh.matharoo@gmrgroup.in

Subject: Transfer of Environmental Clearance of Talabira-I Opencast Coalmine Project (3.0MTPA) in an ML area of 170.30 ha at village Khinda, Tehsil Rengali, District Sambalpur Odisha from M/s HINDALCO Industries Ltd. to M/s GMR Chhattisgarh Energy Limited, Bangalore, Karnataka- reg.

The Ministry of Environment, Forest and Climate Change (MoEFCC), in accordance with the Environmental Impact Assessment (EIA) Notification, 2006 and subsequent amendment thereto had accorded Environmental Clearance (EC) for expansion of Talabira-I Opencast Coal mine Project (1.5 MTPA to 3.0 MTPA in an ML area of 170.30 ha at village Khinda, Tehsil Rengali, District Sambalpur, Odisha to M/s Hindalco Industries Ltd. subject to compliance of terms and conditions stipulated in the EC letter No. J-11015/58/2009-IA.II (M) dated November 8, 2011.

WHEREAS the Supreme Court of India vide judgment dated 25th August, 2014 read with its order dated 24th September, 2014 has cancelled the allocation of 204 coal blocks and issued directions with regard to such coal blocks wherein the Central Government in pursuance of the said directions has to take immediate action to implement the said order.

WHEREAS in pursuance of the judgment and order of the Supreme Court, the nominated authority has, in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 and the Coal Mines (Special Provisions) Rules 2014 conducted the auction of the mines.



WHEREAS Ministry of Coal (MOC) vide its O.M. letter no. 43020/20/2014-CPAM dated 16th March, 2015 has informed MoEFCC that MOC has recently approved 23 coal blocks (15 coal blocks from Schedule II and 8 coal blocks from Schedule III of the Ordinance) through bidding to different successful bidders/ companies. MOC has requested this Ministry to facilitate transfer of the Environment Clearance and Forest Clearance of these blocks to the new successful bidders before 31.03.2015.

WHEREAS Ministry of Coal vide Vesting Order under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13 and Order no. 104/2/2015/NA dated 23rd March, 2015 has allocated the Talabira-I Coal Mines located in village Khinda, Tehsil Rengali, District Sambalpur, Odisha, to M/s GMR Chhattisgarh Energy Limited, Registered Office at Skip House, 25/1, Museum Road, Bangalore, Karnataka - 560025 as the successful bidder.

WHEREAS vide Gazette Notification S.O. 811 (E) Notification dated 23.03.2015, MOEFCC has made amendments to paragraph 11 in the Gazette Notification S.O.1533 (E) dated 14th September, 2006. Vide the said amendment; where an allocation of coal block is cancelled in any legal proceeding; or by the Government in accordance with law, the environmental clearance granted in respect of such coal block may be transferred, subject to the same validity period as was initially granted, to any legal person to whom such block is subsequently allocated, and in such case, obtaining of "no objection" from either the holder of environment clearance or from the regulatory authority concerned shall not be necessary and no reference shall be made to the Expert Appraisal Committee or the State Level Expert Appraisal Committee concerned.

WHEREAS pursuant to the MOC vesting Order no. 104/2/2015/NA dated 23rd March, 2015 and MoEFCC Gazette Notification S.O. 811(E) Notification dated 23.03.2015, the EC granted vide letter no. J-11015/58/2009-IA.II (M) dated 8th November, 2011 to M/s HINDALCO Industries Ltd., for Expansion of Talabira-I Opencast Coalmine project (1.5 MTPA to 3.0MTPA) in an ML area of 170.30 ha at village Khinda, Tehsil Rengali, District Sambalpur, Odisha is hereby transferred to M/s GMR Chhattisgarh Energy Limited, Registered Office at Skip House, 25/1, Museum Road, Bangalore, Karnataka - 560025 subject to the following conditions:

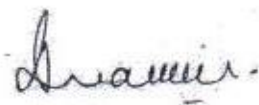
- (i) Any change in scope of work will attract the provisions of Environment Protection Act (EPA), 1986 and Environmental Impact Assessment Notification, 2006 in conjunction with the subsequent amendments / circulars.

- (ii) All conditions stipulated in the EC letter No. J-11015/58/2009-IA.II (M) dated 8th November, 2011 shall remain unchanged.
- (iii) The successful bidder shall be liable, if any, for any act of violation of the EPA 1986 / EIA Notification 2006 /subsequent amendments and circulars which it has inherited during the transfer.
- (iv) Successful bidder shall be liable for compliance of all court directions, if any.


(Dr R Warriar)
Director

Copy to :

1. Secretary, Ministry of Coal, New Delhi.
2. Secretary, Department of Environment & Forest, Government of Orissa, Secretariat, Bhubaneswar.
3. PCCF (WL), Govt. of Orissa in regard to implementation of WL Conservation Plan.
4. Chief Conservator of Forest, Regional Office (EZ), Ministry of Environment & Forest, A-Chadrashekarpur, Bhubaneswar -751023
5. Chairman, Orissa State Pollution Control Board, Parivesh Bhawan, A/118, Nilkanthanagar, Unit VIII, Bhubaneswar-751012.
6. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi
7. Member Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3, Kasturba Gandhi Marg, New Delhi.
8. District Collect, Sambalpur, Government of Orissa.
9. Monitoring File 10. Guard File 11 Record File.


(Dr R Warriar)
Director

Sr. No.	Name of the Industry	Location	Nature
1	Aditya Aluminium Limited	At Rengali, Dist. Sambalpur	Aluminium Smelter & d CPP
2	Bhushan Steels Ltd.	At Theikuli, Dist. Sambalpur	Steel and Power Plant
3	SMC Power generation Ltd.	At Hirma, Dist. Jharsuguda	Integrated Steel and Power Plant
4	Shree Madhab Ispat (P) Ltd.	At Siriapalli, P.O. Paramanpur Dist. Jharsuguda	Sponge Iron
5	Singhal Enterprisers (P) Ltd.	At hirma, Dist. Jharsuguda	Sponge Iron
6	S.P.S Steel and Power Ltd.	At Kukurjanga, Via Badmal, Dist. Jharsuguda	Sponge Iron
7	Pawansut Sponge (P) ltd.	At Badmal, Dist. Jharsuguda	Sponge Iron
8	Bhagawati Steel (P) Ltd.	At badmal, Dist. Jharsuguda	Sponge Iron
9	L.N.Metallinks Ltd.	At Siripura, P.O. Telkuli, dist. Jharsuguda	Sponge Iron
10	Sevenstar Steels Ltd	At gudigaon, P.O:Kelandamal, Dist. Jharsuguda	Sponge Iron
11	Jaya Hanuman Udyog Ltd.	At Raghunathpalli, Dist. Jharsuguda	Sponge Iron
12	Eastern Steel and Power Ltd	At Lahandabud, P.O:H.Katapali, Dist.Jharsuguda	Steel and Power
13	Action Ispat & Power (P) Ltd.	At Marakuta, Dist. Jharsuguda	Steel and Power
14	Samaleswari Ferro Metals (P) Ltd.	At Bishalkhinda, Via Sason, Dist. Sambalpur	Sponge Iron
15	Samaleswari Industries (P) Ltd.	At Lapanga, Dist. Sambalpur	Sponge Iron
16	Shyam DRI Power Ltd.	At Pondloi, Via. Rengali, Dist. Sambalpur	Sponge Iron, Liquid Steel, Ferro Manganese, Power
17	Viraj Steel and Energy Ltd.	At Gurupali, Rengali, Dist. Sambalpur	Integrated Steel and Power
18	Aryan Ispat & Power (P) ltd.	At Bamaloi, Dist. Sambalpur	Sponge iron

List of Industries

Sr. No.	Name of the Industry	Location	Nature
19	R.B.Sponge Iron (P) ltd.	At Khengali, P.O.:Jayantpur, Dist. Sambalpur	Sponge Iron
20	Rathi Steel and Power Projects Ltd.	At Potapali, Dist Sambalpur	Integrated Steel and Power
21	Ravi Metallics Pvt. Ltd	At Sansinghari, Sambalpur dist	Integrated Steel and Power
22	Kamadehunu Ispat Ltd.	At Dabra, Sambalpur Dist.	Integrated Steel and Power
23	Sri Krishna Ispat Pvt Ltd.	At Parmanpur, Sambalpur Dist.	Sponge Iron
24	T.R.Chemicals	At Belpada, Sambalpur dist.	Sponge Iron
25	Samaleswari Sponge Iron ltd	At katarbaga, Rengali	Sponge Iron
26	IB Thermal Power Station	At Banaharpali, Dist. Jharsuguda	Power generation
27	TATA Refractories Ltd	At belpahar, Dist. Jharsuguda	Manufacturing Process
28	Mahanadi Coal Fields Ltd	At Jagrutivihar, P.O.Burla, Dist. Sambalpur	Coal Mining
29	Ultra Tech Cement Ltd.	At Arda, Dist.Jharsuguda	Cement Production

PROJECT AREA : YEAR WISE REQUIREMENT OF FUNDS (In Lakh Rs.)

Works to be taken up in M.L. area : Annual phasing over 10 years

Sl.No.	Item of Work	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9	Year-10	TOTAL
1	Plantation over 70 ha *	3.50	9.80	2.80	2.10	1.40	1.40					21.00
2	Salt licks	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.00
3	Forest Protection : Ban Sahayaks - 2 @ Rs. 5000x12x10	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	12.00
4	Moisture Cons. & WHS	3.00				1.00				1		5.00
5	Photo voltaic Solar fencing	2.00		0.20		0.20		0.20		0.2	0.2	3.00
6	Public Awareness	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.00
7	Watch & Ward for fire prevention	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	5.00
8	Weed Control	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.00
	TOTAL	10.90	12.20	5.40	4.50	5.00	3.80	2.60	2.40	3.60	2.60	53.00

BUFFER ZONE (10 KM RADIUS) : YEAR WISE REQUIREMENT OF FUNDS (In Lakh Rs.)

Works to be taken up in the Buffer Zone : Annual phasing over plan period

Sl. No.	Ref. to Para	Item of work	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9	Year-10	TOTAL
1	5.2.4	a) Game tank (GT) - 2	6.00	6.00									12.00
		b) Maintenance G.T.					1.00		1.00			1.00	3.00
	5.2.5	c) Salt lick	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	2.00
2	5.2.3	a) Plantation for 100 ha (Food & Coverage)	5.00	14.00	4.00	3.00	2.00	2.00					30.00
		b) Seeding of grass 100 ha	2.00	2.00	2.00	1.00	1.00	1.00	1.00				10.00
3	5.2.3	Ban Sahayaks - 2	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	12.00
4	5.2.4	Moisture Conservation (Contor trench & Check dams)	3.00	3.00				1.00				1.00	8.00
5	5.2.8.3 & 5.2.9	Public Awareness & Capacity building	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	4.00
6	5.2.6	Fire Prevention (5 watchers for 5 months) & incentives to VSS	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	6.00
7	5.2.6	Watch Tower-1		3.00									3.00
8	5.2.8.2	Antidepredation squad	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	6.00
9	5.2.8.1	Corpus fund	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	5.00
10	5.2.7	Livelihood Improvement & micro credit to VSS / SHG	0.50	0.80	1.20	1.50	1.00	1.00	0.50	0.50	0.50	0.50	8.00
11	5.2.7	Alternate Avocation (Eco-tourism)	3.00	2.00	0.30	0.30	0.35	0.35	0.40	0.40	0.40	0.50	8.00
12	5.2.8.2	Community Storage/ godowns/metal bins	3.00	2.00									5.00
13	5.2.8.4	Solar fencing & maintenance (10 km)	5.00	5.00	0.30	0.30	0.35	0.35	0.40	0.40	0.40	0.50	13.00
14		Unforeseen & misc.	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.00
		TOTAL	31.30	41.60	11.60	9.90	9.50	9.50	7.10	5.10	5.10	7.30	138.00