

**APPLICATION FOR MORDERNIZATION IN CURRENT  
ENVIRONMENTAL CLEARANCE UNDER SECTION 7(II)(B) OF EIA NOTIFICATION  
2006**

**APPENDIX – I**

**FORM-1**

**FOR**

**AMENDMENT IN EXISTING ENVIRONMENT CLEARANCE OF JODA EAST IRON  
MINES NO.J-11015/215/2008-IA.II.(M)-11.03.2013. UNDER SECTION 7(II)(B)  
WITH RESPECT TO MODERNIZATION OF BENEFICIATION PROCESS BY SETTING  
UP A 4.6 MTPA WET BENEFICIATION PLANT AND REDUCING THE CAPACITY OF  
EXISTING WET PLANT TO 2.4 MTPA, THEREBY KEEPING THE OVERALL CAPACITY  
SAME AS APPROVED (7 MTPA) AT JODA EAST IRON MINE**

**IN**

**JODA, KAMARJODA, BANSPANI, KHUTPANI & BAITARINI REVENUE VILLAGES  
UNDER BARBIL TEHSIL, CHAMPUA SUBDIVISION,  
KEONJHAR DISTRICT  
OF  
ODISHA STATE**

*Submitted by:*

**Tata Steel Limited**

*Joda East Iron Mine, Joda,  
Barbil Tehsil, Keonjhar District  
Odisha-758034*

**March 2019**

**APPENDIX I**  
**FORM-1**

**(I) Basic Information**

<b>Sr. No.</b>	<b>Item</b>	<b>Details</b>									
1	Name of the project/s	Joda East Iron Mine									
2	Sr. No. in the schedule	Iron Ore Mining & beneficiation – Activity									
3	Proposed capacity/ area/ length/ tonnage to be handled/ command area/ lease area/ number of wells to be drilled	Existing and Proposed Details: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"><b>Particulars</b></th> <th style="width: 25%;"><b>Existing (MTPA)</b></th> <th style="width: 25%;"><b>Expansion (MTPA)</b></th> </tr> </thead> <tbody> <tr> <td>a) Mining: Iron Ore production 12 MTPA (ROM)</td> <td>Iron Ore production 12 MTPA (ROM)</td> <td>a) Nil</td> </tr> <tr> <td>b) Beneficiation Plant of 12 MTPA Throughput (Having 5 MTPA dry plant and 7 MTPA wet plant)</td> <td>b) Beneficiation Plant of 12 MTPA Throughput ((Having 5 MTPA dry plant and 7 MTPA wet plant)</td> <td>b) Nil</td> </tr> </tbody> </table> <p>Total Lease Area: 671.093 ha</p>	<b>Particulars</b>	<b>Existing (MTPA)</b>	<b>Expansion (MTPA)</b>	a) Mining: Iron Ore production 12 MTPA (ROM)	Iron Ore production 12 MTPA (ROM)	a) Nil	b) Beneficiation Plant of 12 MTPA Throughput (Having 5 MTPA dry plant and 7 MTPA wet plant)	b) Beneficiation Plant of 12 MTPA Throughput ((Having 5 MTPA dry plant and 7 MTPA wet plant)	b) Nil
<b>Particulars</b>	<b>Existing (MTPA)</b>	<b>Expansion (MTPA)</b>									
a) Mining: Iron Ore production 12 MTPA (ROM)	Iron Ore production 12 MTPA (ROM)	a) Nil									
b) Beneficiation Plant of 12 MTPA Throughput (Having 5 MTPA dry plant and 7 MTPA wet plant)	b) Beneficiation Plant of 12 MTPA Throughput ((Having 5 MTPA dry plant and 7 MTPA wet plant)	b) Nil									
4	New/Expansion	Amendment in existing Environment Clearance of Joda East Iron Mines No..J-11015/215/2008-IA.II.(M)-11.03.2013. under section 7(ii)(b) with respect to modernization of beneficiation process by setting up a 4.6 MTPA wet beneficiation plant and reducing the capacity of existing wet plant to 2.4 MTPA thereby keeping the overall capacity same as approved (7 MTPA)									
5	Existing Capacity/ Area etc.	<u>Existing Capacity:</u> Mining 12 MTPA(ROM) & Beneficiation Plant of 12 MTPA Throughput having 5 MTPA Dry plant and 7 MTPA wet plant.  <u>Area:</u> Total Mine Lease Area : 671.093 ha Total Forest Area : 625.480 Ha Non Forest Area : 45.613 Ha									
6	Category of Project i.e. 'A' or 'B'	Category 'A'									
7	Does it attract the general condition? If yes, please specify.	No									
8	Does it attract the specific condition? If yes, please specify.	No									

Sr. No.	Item	Details
9	Location	Village: Joda, Kamarjoda, Banspani, Khutpani & Baitarani. Tehsil/ Taluka: Barbil District : Keonjhar State : Odisha Latitude: Between 21059' N to 220 03' N Longitude: Between 850 25' E to 850 27' E Toposheet No. : 73 F/8 & 73 G/5 This being an operating mine since 1956, no alternative site under consideration. The index map and location map is presented in <b>Annexure-I &amp; Annexure-II.</b>
	Plot/ Survey/ Khasra No.	Enclosed as <b>Annexure-III</b>
	Villages	Joda, Kamarjoda, Banspani, Khutpani & Baitarani.
	Tehsil	Barbil
	District	Keonjhar
	State	Odisha
10	Nearest railway station/ airport along with distance in km	Nearest railhead - Banspani at a distance of 3 km Nearest Airport - Ranchi at a distance of 230 Km
11	Nearest Town, city, District Headquarters along with distance in km	Nearest town – Barbil Road at 20 km, Nearest city – Keonjhar at 70 km, Nearest district headquarters – Keonjhar at 70 km
12	Village Panchayats, Zila Parishad, Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	Joda, Kamarjoda, Banspani, Khutpani & Baitarani revenue villages under Barbil Tehsil, Champua Subdivision, Keonjhar District of Odisha State.
13	Name of the Applicant	Joda East Iron Mine M/s Tata Steel Ltd. P.O: Joda:758034 Dist: Keonjhar(Odisha) e-mail: gm.office@tatasteel.com
14	Registered Address	Regd Office: Bombay House, 24 Homi Mody Street, Mumbai-400 001. <a href="http://www.tatasteel.com">www.tatasteel.com</a>
15	Address for correspondence	
	Name	Mr. Manish Mishra
	Designation (Owner/Partner/CEO)	General Manager, Ore Mines & Quarries
	Address	Noamundi Iron Mine Tata Steel Ltd., P.O. - Noamundi Dist: West Singhbhum Jharkhand
	Pin Code	833217
	E-mail	Email: gm.office@tatasteel.com
	Telephone No.	Phone No-9238087049

Sr. No.	Item	Details
	Fax No.	NA
16	Details of Alternative Sites examined, if any. Location of these sites should be shown on a toposheet.	As Iron Ore at this specific site is being mined out since 1956. Hence, no alternative sites have been considered. Location map- refer <b>Annexure-II</b>
17	Interlinked Projects	<ol style="list-style-type: none"> <li>1. Tata Steel Limited, Jamshedpur</li> <li>2. Tata Steel Limited, Kalinganagar.</li> <li>3. Tata Sponge Iron Limited</li> <li>4. Tata Metaliks Limited</li> <li>5. TAYO Limited</li> <li>6. Other Steel Plants of Company</li> </ol>
18	Whether separate application of interlinked project has been submitted	Yes
19	If yes, date of submission	Tata Steel Jamshedpur, Tata Steel Kalinganagar, Tata Sponge Iron Limited, Tata Metalliks Limited, TAYO Limited & other Steel plants of company have already obtained Environmental Clearance.
20	If no, reason	NA
21	<p>Whether the proposal involves approval/clearance under:</p> <p>(a) The Forest (Conservation) Act, 1980</p> <p>(b) The Wildlife (Protection) Act, 1972</p> <p>(c) The C.R.Z Notification, 1991</p>	<p>Yes. MOEF accorded Stage-II Forest Clearance over an area 567.087 ha of land vide letter no. F. No. 8-32/1993-FC(vol.II) dated: 24<sup>th</sup> Sep 2007</p> <p>Yes. Site Specific Wild Life Conservation Plan has been approved by the PCCF (Wildlife) &amp; Chief Wildlife Warden, Odisha vide letter no. 3195 dated: 25.04.2016</p> <p>Not Applicable</p>
22	Whether there is any Government Order/Policy relevant/relating to the site	Government order from the Ministry of Environment & Forests (Ref.:J-11015/215/2008-IA.II(M) dated: 11.03.2013 -
23	Forest land involved (hectares)	Out of Total Mine Lease Area of 671.093 ha, the forest area is 625.480 Ha and non-forest area is 45.613 Ha.
24	<p>Whether there is any litigation pending against the project and/ or land in which the project is propose to be set up</p> <p>(a) Name of the Court</p> <p>(b) Case No.</p> <p>(c) Orders/ directions of the</p>	There are no litigations against the proposed project.

<b>Sr. No.</b>	<b>Item</b>	<b>Details</b>
	Court, if any and its relevance with the proposed project.	

**(II) Activity**

**Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)**

<b>Sr. No.</b>	<b>Information/Checklist Confirmation</b>	<b>Yes/No</b>	<b>Details thereof (with approximate quantities/ rates, wherever possible) with source of information data</b>
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	No	The land use is as per approved Mining Plan
1.2	Clearance of existing land, vegetation and building?	No	At present mining and allied activities is going on within the diverted forest land.
1.3	Creation of new land uses	No	Not envisaged
1.4	Pre-construction investigations e.g. bore holes, soil testing?	Yes	Soil testing will be done
1.5	Construction Works?	Yes	Proposed Beneficiation Plant shall be constructed
1.6	Demolition Works ?	No	Not envisaged
1.7	Temporary sites used for construction works or housing of construction workers?	No	Not envisaged. Housing for construction workers would be arranged outside the lease.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	No	The administrative buildings, workshop, offices, stores & other utilities of existing mines is being used. Cutting of earth for new structure would be done
1.9	Underground works including mining or tunneling?	No	No underground work is proposed.
1.10	Reclamation works?	Yes	Dumps are stabilized and rehabilitated by plantation. The rejects generated during mining are used for maintaining haul road, leveling of bench floor & for preparation of the floor for loading point of sized ore and fines. Reclamation work is going in phased manner. Since inception, 652050 nos. of sapling have already been planted till FY 17-18. After construction void would be filled.
1.11	Dredging?	No	Not Applicable
1.12	Offshore structures?	No	Not Applicable

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
1.13	Production and manufacturing Process?	Yes	<p>Production: Total Excavation of 13.90 MTPA {Feed to Plant - 12 MTPA} will be produced from open cast mining operation and Beneficiation of 12 MTPA throughput as already approved.</p> <p>The manufacturing/mining process includes:</p> <ul style="list-style-type: none"> <li>➤ The mine is worked with multiple benches of 9 mtr height &amp; 20 mtr width.</li> <li>➤ Overburden in the form of wastes (comprising of shale, BHJ, poor laterite &amp; yellow ochre etc.) and mineral rejects (laterite, shaly ore &amp; ore having Fe content &lt;58% &amp; Alumina &gt;7%) are handled by shovel-dumper combination separately.</li> <li>➤ Drilling is done using 150 mm dia drills with 10% sub grade drilling. Secondary drilling if required is done by Jackhammer.</li> <li>➤ The haul roads are maintained with a gradient of less than 1 in 16.</li> <li>➤ Blasting is carried out with the help of conventional explosives such as PGC, Spl. Gelatine, Adyne, Toeblast and Anfo. Site mix Slurry (SMS) are also used with NONEL system of initiation. Blasting is carried out as per the recommendation of CIMFR -Dhanbad.</li> <li>➤ The blasted material (Ore/ Waste/ Rejects) are excavated by shovel-Dumper combination.</li> <li>➤ The Iron ore from different mining faces (for blending different qualities of ore) are delivered to the wet/ dry processing plant.</li> <li>➤ Backfilling of the tailings from wet process plant in the mined out pits, which act as slime pond.</li> <li>➤ Waste rocks are used as a land fill for making parks, gardens &amp; constructions.</li> <li>➤ Mineral rejects are used for maintaining haul road, leveling of bench floor &amp; for preparation of the floor for loading point of sized ore and fines. The mineral rejects are stacked at designated non-mineralized areas, stabilized and afforested.</li> </ul>

<b>Sr. No.</b>	<b>Information/Checklist Confirmation</b>	<b>Yes/No</b>	<b>Details thereof (with approximate quantities/ rates, wherever possible) with source of information data</b>
			➤ Dispatch of finished product through railway wagons which are fed by stacker re-claimer, surge bins.
1.14	Facilities for storage of goods or materials?	No	No extra facilities are required for storage of goods or materials for current proposal.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	Tailing generated would be treated in Thickener and same shall be stored in existing tailing dam.
1.16	Facilities for long term housing of operational workers?	No	Not envisaged. Existing housing facility shall be used.
1.17	New road, rail or sea traffic during construction and operation?	No	Existing facilities will be utilized, which are sufficient during operation.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc.?	No	No alteration is required to divert the routes of the existing transport infrastructure. There are no ports and/ or airports in the vicinity/ buffer zone of the proposed expansion.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	No closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements is envisaged.
1.20	New or diverted transmission lines or pipelines?	No	No change in the route of existing electrical line passing through the ML area is being envisaged.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	No impoundment, damming, culverting, realignment are envisaged. Hence, there will be no change in the hydrology of watercourses or aquifers.
1.22	Stream crossings?	No	There is no stream crossing within the lease boundary.
1.23	Abstraction or transfers of water from ground or surface waters?	No	Not envisaged. Permission for Surface drawl exists.
1.24	Changes in water bodies or the land surface affecting drainage or run-off	No	No such change envisaged.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	No	Personnel or materials transportation from mine is being done by existing roads.

<b>Sr. No.</b>	<b>Information/Checklist Confirmation</b>	<b>Yes/No</b>	<b>Details thereof (with approximate quantities/ rates, wherever possible) with source of information data</b>
1.26	Long-term dismantling or decommissioning or restoration works?	No	Mines at the end of the life will be closed as per Mine Closure Guidelines.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	No decommissioning/ closure activities is envisaged in near future
1.28	Influx of people to an area in either temporarily or permanently?	No	Not envisaged.
1.29	Introduction of alien species?	No	Not envisaged.
1.30	Loss of native species or genetic diversity?	No	Not envisaged
1.31	Any other actions?	No	
<b>2.0</b>	<b>Use of Natural resources for construction or operation of Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply).</b>		
2.1	Land specially undeveloped or agricultural land (ha)	No	No additional land is required for mining or extraction.
2.2	Water (expected source & competing users) unit KLD	Yes	Maximum water requirement is 17500 KLD and at present part of the same is being drawn from Kundra Nala.
2.3	Minerals (MT)	Yes	Total Iron Ore Reserve is 147.52 Million tonnes as on 01.04.2019
2.4	Construction material – stone, aggregates, and/soil (expected source-MT)	No	No construction material is envisaged.
2.5	Forests and timber (source-MT)	No	Timber will not be used.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	1. The supply of electrical energy for the mining complex is received from local electrical sub-station of GRIDCO. Power requirement for the Mining, Processing and auxiliary activities was 26268513 KWH during 2017-18.  2. Fuel: HSD from nearby dealer/ PSU oil company for running of equipment. Total 5591964 liters of HSD was consumed during 2017-18.
2.7	Any other natural resources (use appropriate standard units)	No	No other natural resource use is being envisaged.
<b>3.0</b>	<b>Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health</b>		
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or	Yes	Explosives for mine production activities are being stored in existing approved magazine.

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
	the environment (flora, fauna, and water supplies)		
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	No project related diseases are anticipated. The hospital and occupational health center at mine will be utilized for surveillance of workers health.
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	TSRDS (Tata Rural Development Society) CSR wing of Tata Steel is carrying out different welfare activities in field of education, health, drinking water and sustainable livelihood.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	No displacement has been envisaged as the production expansion has already been done.
3.5	Any other causes	No	No other causes are envisaged.
<b>4.0</b>	<b>Production of solid wastes during construction or operation or decommissioning (MT/month)</b>		
4.1	Soil, overburden or mine wastes	Yes	At present rate production of ~9.13 MTPA iron ore ROM, the waste generation is around 1.15 MTPA per annum and is being stored at earmarked area.
4.2	Municipal waste (domestic and or commercial wastes)	Yes	The organic waste/ municipal wastes are generated from the canteen is being used as organic manure in the green areas.
4.3	Hazardous wastes (as per hazardous waste management rules)	Yes	Used Oil & Grease is sold to authorized recyclers. Waste Containing Oil is being disposed in CHWTSDF of M/s Ramky. Used batteries are also returned to the authorized dealers.
4.4	Other industrial process wastes	No	Not envisaged.
4.5	Surplus product	No	No surplus product is envisaged
4.6	Sewage sludge or other sludge from effluent treatment	Yes	ETP has been provided for treatment of Canteen waste. Sludge produced is used as manure in afforestation/ greenbelt.
4.7	Construction or demolition wastes	No	Not envisaged
4.8	Redundant machinery or equipment	Yes	Only at mine closure stage.
4.9	Contaminated soils or other materials	No	Not envisaged
4.10	Agricultural wastes	No	Not envisaged
4.11	Other solid wastes	Yes	Scrap from stores/ workshop is envisaged during the operational phase of mining. These are given to authorized recyclers.
<b>5.0</b>	<b>Release of pollutants or any hazardous, toxic or noxious substances to air (kg/hr)</b>		
5.1	Emissions from combustion of fossil fuels from	Yes	Gaseous pollutant is released from mobile machinery on surface & DG sets in the mine. Mechanized method of open cast

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
	stationary or mobile sources		<p>mining has been adopted for mining of iron ore with the help of shovel dumper combination. Due to mining operation &amp; material handling through HEMM's, gaseous emissions have been envisaged. The various emission abatement measures employed in the mine are :</p> <ol style="list-style-type: none"> <li>Regular sprinkling of water along the haul roads through water tankers.</li> <li>Reduction of road transportation system and maximizing conveyor transportation.</li> <li>Installation of fixed sprinklers along certain stretches in haul roads.</li> <li>Water sprinkling at transfer points and strengthening of the existing systems.</li> <li>Water Mist Canon at Mineral Handling Plant.</li> <li>The crushers &amp; conveyors are enclosed and provided with necessary dust suppression (through sprays, extraction systems and dry fog system).</li> <li>Proper maintenance of the fuel injection system of the HEMM's, thus minimizing pollutant levels.</li> <li>Plantations along the periphery of the mining area.</li> <li>Use of diesel additive to reduce specific diesel consumption.</li> </ol> <p>Moreover regular monitoring of ambient air quality in the mines shows that the AAQ level is below the permissible limits.</p>
5.2	Emission from production processes	Yes	As per National Ambient Air Quality Standard AAQ parameters are being monitored in operational area.
5.3	Emissions from materials handling including storage or transport	Yes	As per National Ambient Air Quality Standard AAQ parameters are being monitored in operational area
5.4	Emissions from construction activities including plant and equipment	No	Not envisaged
5.5	Dust or odour from handling of materials including construction materials, sewage and waste	Yes	Suitable and necessary mitigative measures to control dust and odour are in place while carrying out said activities.
5.6	Emissions from incineration of waste	No	Not envisaged

<b>Sr. No.</b>	<b>Information/Checklist Confirmation</b>	<b>Yes/No</b>	<b>Details thereof (with approximate quantities/ rates, wherever possible) with source of information data</b>
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Not envisaged
5.8	Emissions from any other sources	No	Not envisaged
<b>6.0</b>	<b>Generation of Noise and vibration, and emissions of Light and heat</b>		
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	By opencast mine equipment. Noise is being generated from shovels, dumpers, drills, dozers. The noise level at source and is in range of 75 dB (A) to 110 dB (A). Installation of high noise absorbent padding between the foundation and base plate of vibrating equipment. Provision of ear muffs or plugs for the workmen are on the place.
6.2	From industrial or similar processes	Yes	The noise levels during blasting operations are likely to be in the range of 121-138 dB(A) at 50-200-m distance from the blast site. The noise levels tend to decrease with distance. Blasting is being carried out between 1.30 PM to 2.30 PM. As the blasting is likely to last for very short duration depending on the charge, the noise levels over this time would be instantaneous and short in duration. Controlled blasting techniques like use of NONEL is being used to reduce noise and vibration during blasting.
6.3	From construction or demolition	Yes	Noise may generate during construction activity.
6.4	From blasting or piling	Yes	Blasting, noise & ground vibration are kept within permissible limits in the existing operations by using appropriate techniques, equipments and methods. The same will be maintained. Controlled blasting techniques like use of NONEL is used to reduce noise and vibration during blasting.
6.5	From construction or operational traffic	No	Not envisaged
6.6	From lighting or cooling systems	No	Not envisaged
6.7	From any other sources	No	Not envisaged
<b>7.0</b>	<b>Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea</b>		
7.1	From handling, storage, use or spillage of hazardous materials	No	Use of hazardous material not envisaged in mining. Explosives are stored in approved magazine. Therefore, no contamination is envisaged. Other

<b>Sr. No.</b>	<b>Information/Checklist Confirmation</b>	<b>Yes/No</b>	<b>Details thereof (with approximate quantities/ rates, wherever possible) with source of information data</b>
			hazardous waste is kept in impervious lined pit under the shed to prevent any water contamination.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	No effluent is being generated from mining operation as Joda East Iron Mine is Zero Effluent Discharge Mine. Oil and Grease Separation pit has been provided for workshop. No contamination of ground water or land is envisaged.
7.3	By deposition of pollutants emitted to air into the land or into water	No	The incremental ground level concentrations of air pollutants (dust) are within the permissible limits. Hence, no impact on air is envisaged. Hence, no risk of contamination of air, land, or water is envisaged.
7.4	From any other sources	No	Not envisaged
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	Not envisaged
<b>8.0</b>	<b>Risk of accidents during construction or operation of the project, which could affect human health or the environment</b>		
8.1	From explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances	Yes	Supervision and safe work practices are being ensured during operation of existing open cast mine & beneficiation plant as per safety regulations. The same will be maintained.
8.2	From any other causes	No	Not envisaged
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloud burst etc.)?	No	There is no record of occurrence of floods, landslides, cloud bursts etc. The proposed project site comes under Seismic Zone-II as per IS 1893 (Part-I):2002 classification. Hence, seismically it is a stable zone.
<b>9.0</b>	<b>Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality</b>		
9.1	Lead to development of supporting, facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:		
	Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.)	No	No major supporting infrastructure is anticipated as operation is since 1956 and the growth has already been stabilized.
	Housing development	No	Not envisaged
	Extractive industries	No	No establishment of extractive industry is envisaged.
	Supply industries	Yes	Local small-scale industries will be benefited.

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
	Other	Yes	There will be overall enhancement of prosperity in the area due to increased development.
9.2	Lead to after use of the site, which could have an impact on the environment	Yes	At the end of the mining activity, area will be rehabilitated as per closure guidelines. Property will be supervised as per post mine closure guidelines. Finally, mining lease will be surrendered to the government.
9.3	Set a precedent for later developments	Yes	Surrender mine lease to govt. after closure.
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	There are operating mines close by including few underground mines. No cumulative effects experienced in past. Project being underground no cumulative effect envisaged.

### (III) Environmental Sensitivity

Sr. No.	Areas	Name/I identity	Aerial distance (within 15 km) Proposed project location boundary																																												
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value.	Nil	There is no national park, wild life sanctuary. eco sensitive area, CRZ or areas protected under international conventions. Map showing Location of Joda East Iron Mine of M/s Tata Steel and its distance from the Sanctuaries/ National parks, Tiger/ Elephant reserves and corridors is attached as <b>Annexure-V</b> .																																												
2	Areas which are important or sensitive of ecological reasons – wetlands, water courses or other water bodies, coastal zone, biospheres, mountains, forests	<b>Water bodies:</b> <table border="1"> <tr><td>1.Baitairani River</td><td>3 km, SE</td></tr> <tr><td>2.Kundra Nallah</td><td>0.2 km, W</td></tr> <tr><td>3.Karo River</td><td>13 km, W</td></tr> <tr><td>4.Betlata Nallah</td><td>12 km, N</td></tr> <tr><td>5.Kasia Nadi</td><td>13.1 km, SE</td></tr> <tr><td>6.Kakrapani Nallah</td><td>13.6 km, SW</td></tr> <tr><td>7.Gamlei Nallah</td><td>12.2 km, W</td></tr> <tr><td>8.Tapakari Nallah</td><td>10.5 km, W</td></tr> <tr><td>9.Kundura Nallah</td><td>9.5 km, SW</td></tr> <tr><td>10.Mahadev Nallah</td><td>4 km, NE</td></tr> </table> <b>Forests:</b> <table border="1"> <tr><td>1.Baitarini RF</td><td>Core</td></tr> <tr><td>2.Siddhamath RF</td><td>0.6 km, NW</td></tr> <tr><td>3.Lakrghat RF</td><td>10.6 km, W</td></tr> <tr><td>4.Karo RF</td><td>14.5 km, W</td></tr> <tr><td>5.Uliburu RF</td><td>10.2 km, W</td></tr> <tr><td>6.Pandrasali RF</td><td>11.9 km, N</td></tr> <tr><td>7.Kurta RF</td><td>10.6 km, NE</td></tr> <tr><td>8.Jampani PF</td><td>11.9 km, NE</td></tr> <tr><td>9.Rengabera PF</td><td>14.5 km, NE</td></tr> <tr><td>10.Chamakpur RF</td><td>3.9 km, SE</td></tr> <tr><td>11.Thakurani RF</td><td>4.5 km, N</td></tr> <tr><td>12.Noamundi RF</td><td>10.5 km, NE</td></tr> </table>		1.Baitairani River	3 km, SE	2.Kundra Nallah	0.2 km, W	3.Karo River	13 km, W	4.Betlata Nallah	12 km, N	5.Kasia Nadi	13.1 km, SE	6.Kakrapani Nallah	13.6 km, SW	7.Gamlei Nallah	12.2 km, W	8.Tapakari Nallah	10.5 km, W	9.Kundura Nallah	9.5 km, SW	10.Mahadev Nallah	4 km, NE	1.Baitarini RF	Core	2.Siddhamath RF	0.6 km, NW	3.Lakrghat RF	10.6 km, W	4.Karo RF	14.5 km, W	5.Uliburu RF	10.2 km, W	6.Pandrasali RF	11.9 km, N	7.Kurta RF	10.6 km, NE	8.Jampani PF	11.9 km, NE	9.Rengabera PF	14.5 km, NE	10.Chamakpur RF	3.9 km, SE	11.Thakurani RF	4.5 km, N	12.Noamundi RF	10.5 km, NE
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Sr. No.	Areas	Name/I dentity	Aerial distance (within 15 km) Proposed project location boundary
		<b>Mountain :</b>	
		1.Kala Parbat	2.5 km , NW
		2.Bholiathori Pahar	4.5 km, W
		3.Thakurani Pahar	6.9 km, N
		4.Sidhamath Pahar	10.5 km, SW
		5.Goduru Pahar	7.9 km, SW
		6.Mahaburu Pahar	6.9 km, S
		7.Danda Pahar	6.5 km, SE
		8.Rangrung Pahar	8.4 km, SE
		9.Sarinda Pahar	12 km, SE
		10.Banshapani Pahar	4.1 km, S
		11.Sanwari Pahar	2 km, E
		12.Bara Parbat	2 km, S
		Nallahs and ground water	Mining is not intersecting the ground water as the Ground water being at lower level in comparison to existing maximum quarry depth.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Nil	There are no protected or important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration.
4	Inland, coastal, marine or underground waters		There are no coastal/marine water bodies. The inland surface water bodies include: Baitarini (3.5 km, E)
5	State, national boundaries	Nil	-
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	National Highway No.215 Banspani Railway Station (SER)	3.5 km, W 5.0 km, S
7	Defense installations	Nil	-
8	Densely populated or built-up area	Joda Barbil Noamundi	5.0 km, S 10.0 km, NW 13.5 km, NE-
9	Areas occupied by sensitive man made land uses ( <i>hospitals, schools, places of worship, community facilities</i> )	1.Hospital,Joda 2.High School, Joda 3.Joda,Women's College 4.Hospital,Noamundi 5.Dispensary,Barbil 6.Hospital, Jamda 7.Dispensary, Bichakundi 8. Dispensary, Bileipada 9. Dispensary, Bamebari 10. Dispensary, Bolani	5.0 km, SW 5.0 km, SW 3.0 km, W 13.5 km, NE 10.0 km, NW 14.5 km, N 6.6 km, SW 4.0 km, NE 14.5 km, SW 13.5 km, NW

<b>Sr. No.</b>	<b>Areas</b>	<b>Name/I identity</b>	<b>Aerial distance (within 15 km) Proposed project location boundary</b>
10	Areas containing important, high quality or scarce resources ( <i>ground water resource, surface resources, forestry, agriculture, fisheries, tourism, minerals</i> )	Same as Point No.-2	
11	Areas already subjected to pollution or environmental damage. ( <i>those where existing legal environmental standards are exceeded</i> )	Yes	Keonjhar district is iron and Manganese rich zone where different mining leases are operating like OCL, OMC, Serajuddin, SAIL, ESSEL Mining, Rungta and Tata Steel. Ambient Air Quality is monitored twice per week. Similarly water quality is also being measured and all parameters are under prescribed limit. All safeguard measures are in place to control air, water and noise pollution.
12	Areas susceptible to natural hazard which could cause the project to present environmental problems ( <i>earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions</i> )	No	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is a stable zone.

#### **List of Annexure**

<b>Sl. No</b>	<b>Details</b>	<b>Annexure. No</b>
1	Index map of the area	I
2	Location map of the area	II
3	Survey Khasra numbers	III(Separately attached)
4	The letter no. J-11015/215/2008-IA.II(M) dated: 11.03.2013 from the Ministry	IV(separately attached)
5	Map showing Location of Joda East Iron Mine of M/s Tata Steel and its distance from the Sanctuaries/ National parks, Tiger/ Elephant reserves and corridors	V

I hereby give an undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any, to the project will be revoked at our risk and cost:



**Date: 28<sup>th</sup> March 2019**  
**Place: New Delhi**

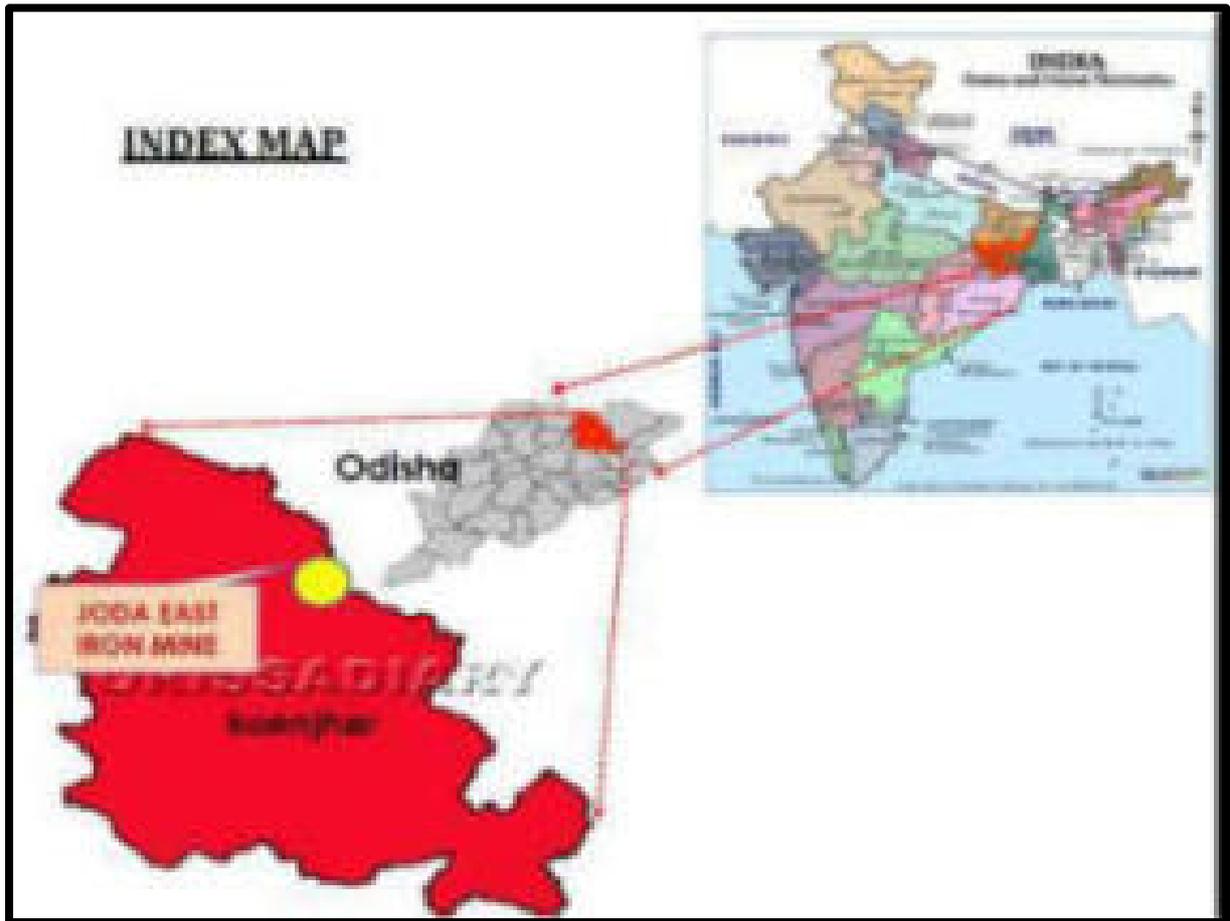
NOTE:

1. The projects involving clearance under coastal Regulation zone Notification, 1991 shall submit with the application a C.R.Z map duly demarcated by one of the authorized agencies, showing the project activities, w.r.t. C.R.Z (at the stage of ToR) and the recommendations of the State Coastal Zone Management Authority (at the stage of EC). Simultaneous action shall also be taken to obtain the requisite clearance under the provisions of the C.R.Z Notification, 1991 for the activities to be located in the CRZ.

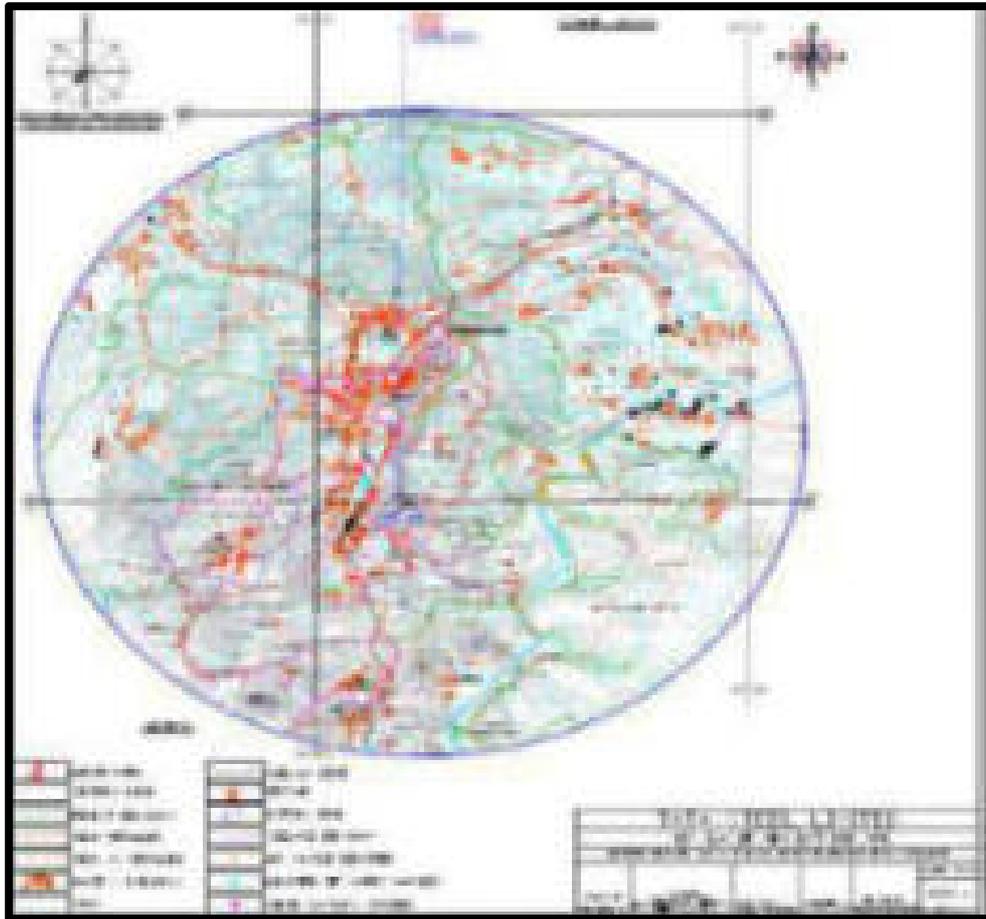
2. The projects to be located within 10 km or the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-a-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon (at the stage of EC)."

3. All correspondence with the Ministry of Environment & Forests including submission of application for TOR/Environmental Clearance, subsequent clarifications, as may be required from time to time, participation in the EAC Meeting on behalf of the project proponent shall be made by the authorized signatory only. The authorized signatory should also submit a document in support of his claim of being an authorized signatory for the specific project."

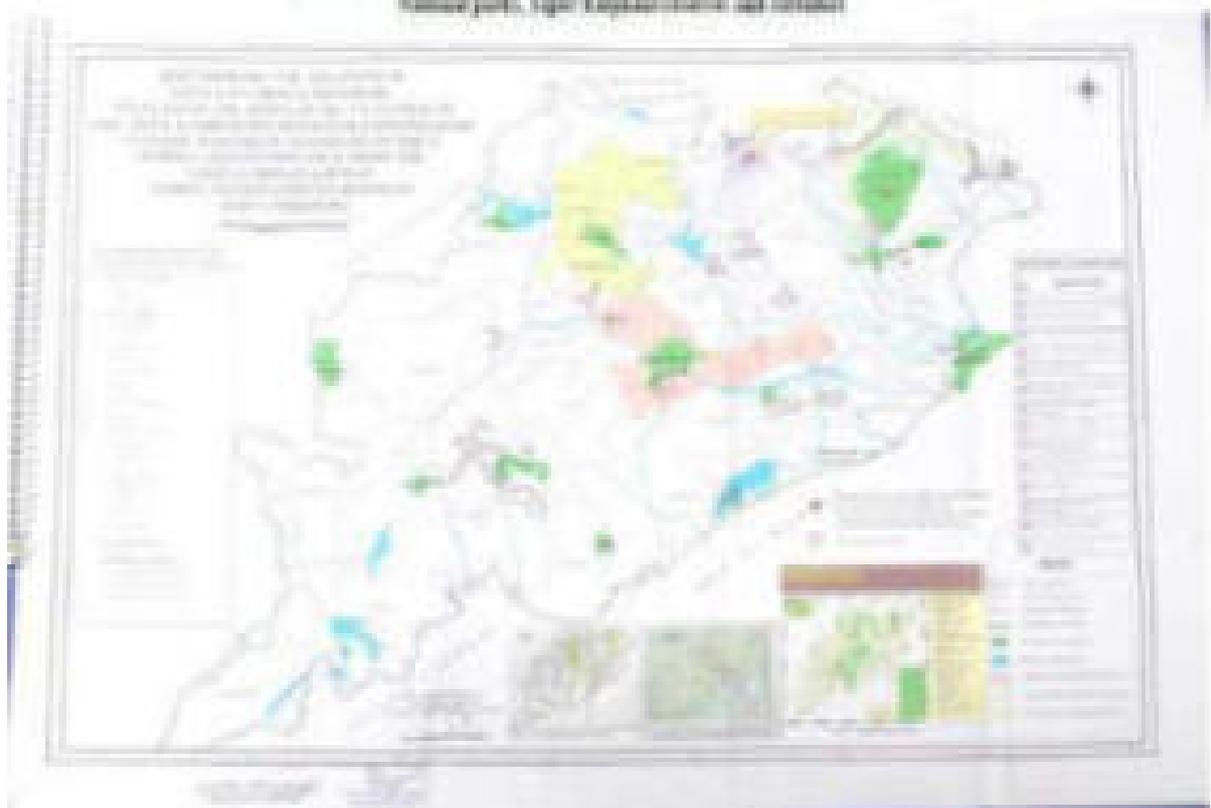
Annexure-1  
Index Map



## Annexure-2 Location Plan



**Figure 10: Map showing Location of Asha Kar Bird Sanctuary, Mithi Forest and its distance from the Government  
Railway paths, Tiger Elephant reserves and corridor**



LAND SCHEDULE OF JODA EAST IRON MINE OVER 1657.600 ACRES OR 671093 HECTARES APPLIED FOR 3RD RENEWAL OF MINING LEASE FOR IRON ORE IN VILLAGES - JODA, UNIT NO.2 (THANA NO. 32), KAMARJODA, UNIT NO.3 (THANA NO. 33), BAUNSHAPANI, UNIT NO.5 (THANA NO. 34), KHUNTAPANI, UNIT NO.6 (THANA NO.35) AND BAITARANI RESERVE FOREST UNDER BARHIL TALUK OF KEONJHAR DISTRICT BY THE TATA IRON AND STEEL COMPANY LIMITED.

VILLAGE JODA ( UNIT No. 2 )					
Plot No.	Khata No.	Name of the tenant	Kinam of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
634(P) ✓	115 ✓	Anabadi ✓	Pait ✓	4.788	3.500
689(P) ✓	115 ✓	Anabadi ✓	Rasta ✓	0.988	0.705
714(P) ✓	115 ✓	Anabadi ✓	Pait ✓	16.855	8.480
715(P) ✓	115 ✓	Anabadi ✓	Jungle ✓	3.490	8.037
716(P) ✓	115 ✓	Anabadi ✓	Jungle ✓	1.488	0.212
725(P) ✓	115 ✓	Anabadi ✓	Pait ✓	2.050	8.720
726(P) ✓	115 ✓	Anabadi ✓	Nayanjori ✓	0.345	8.140
727(P) ✓	115 ✓	Anabadi ✓	Rasta ✓	0.365	8.130
728(P) ✓	115 ✓	Anabadi ✓	Nayanjori ✓	0.365	8.140
729(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	9.000	7.800
730(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	22.480	14.800
731(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	26.125	18.635
732(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	16.900	13.520
733(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	25.375	20.910
734(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	20.625	15.035
735(P) ✓	115 ✓	Anabadi ✓	Pahad ✓	21.250	17.910
736(P) ✓	115 ✓	Anabadi ✓	Pait ✓	19.500	5.550
					143.553

Plot No.	Khata No.	Name of the tenant	Khasm of the land.	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	115.553
737(P)	115	Anabadi	Patil	15.150	9.880
738	115	Anabadi	Rasta	0.325	0.325
739	115	Anabadi	Patil	1.735	1.735
740	115	Anabadi	Rasta	0.218	0.218
741(P)	115	Anabadi	Patil	9.638	7.938
746(P)	34	Tata Iron & Steel Co.Ltd	Patil	1.150	0.100
807(P)	34	Tata Iron & Steel Co.Ltd	Patil	3.888	0.650
809(P)	115	Anabadi	Patil	3.500	3.100
810(P)	115	Anabadi	Rasta	0.670	0.367
811	115	Anabadi	Gharshari - I	0.025	0.025
812(P)	115	Anabadi	Patil	1.278	1.258
813(P)	115	Anabadi	Nayanjori	0.675	0.490
814(P)	115	Anabadi	Rly. Rasta	0.470	0.440
815(P)	115	Anabadi	Nayanjori	0.463	0.338
816(P)	115	Anabadi	Patil	11.525	11.425
817	115	Anabadi	Rasta	1.248	1.248
818	115	Anabadi	Patil	13.925	13.925
819	115	Anabadi	Nayanjori	0.870	0.870
820	115	Anabadi	Rly. Rasta	0.655	0.655
821	115	Anabadi	Nayanjori	1.665	1.665
					172.205

Plot No.	Khata No.	Name of the tenant	Khasm of the land.	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	172.205
822 ✓	115 ✓	Anubadi ✓	Pahad ✓	9.800	9.800
823 ✓	115 ✓	Anubadi ✓	Pahad ✓	14.675	14.675
824 ✓	115 ✓	Anubadi ✓	Pahad ✓	10.500	10.500
825 ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.188	0.188
826(P) ✓	115 ✓	Anubadi ✓	Rly. Rasta ✓	0.205	0.165
827 ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.201	0.201
828 ✓	115 ✓	Anubadi ✓	Patil ✓	1.260	1.260
829 ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.198	0.198
830 ✓	115 ✓	Anubadi ✓	Rasta ✓	0.148	0.148
831(P) ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.455	0.305
832(P) ✓	115 ✓	Anubadi ✓	Rly. Rasta ✓	0.455	0.350
833 ✓	115 ✓	Anubadi ✓	Pahad ✓	13.425	13.425
834 ✓	115 ✓	Anubadi ✓	Pahad ✓	18.563	18.563
729/842 ✓	115 ✓	Anubadi ✓	Patil ✓	8.775	8.775
729/843 ✓	115 ✓	Anubadi ✓	Patil ✓	10.550	10.550
729/844(P) ✓	115 ✓	Anubadi ✓	Patil ✓	10.763	9.643
732/848(P) ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.500	0.200
732/849(P) ✓	115 ✓	Anubadi ✓	Rasta ✓	0.630	0.190
732/850(P) ✓	115 ✓	Anubadi ✓	Nayanjori ✓	0.725	0.219
				<b>TOTAL</b>	<b>271.563</b>

ABSTRACT OF VILLAGE JODA (UNIT NO.2)		
1	Khasra Forest	0.219 Acres
2	Government Land	270.563 Acres
3	Trusted Land	0.780 Acres
	<b>Total:</b>	<b>271.562 Acres</b>

Registered with  
reference to  
D.O. No. 100  
and 1000.

D  
by Joda

Confidential

*[Signature]*

**TANASUDAN**  
Barid

No.	Khata No.	Name of the tenant	Khasm of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
264(P)	65	Dubita Naik & Others	Sarad - III	0.935	0.292
266(P)	71	Narasingh Patra & others	Sarad - III	0.230	0.130
283	178	Anabadi	Patil	1.415	1.415
310(P)	101	Budhani Patra	Sarad - III	0.308	0.069
341(P)	62	Dulav Patra & Others	Taila I	0.245	0.030
481	178	Anabadi	Patil	1.033	1.033
482	178	Anabadi	Patil	0.305	0.305
690(P)	127	Raya Munda	Sarad - III	0.710	0.340
891	178	Anabadi	Patil	0.323	0.323
892	178	Anabadi	Patil	1.003	1.003
914(P)	157	Srihari Agot & Others	Taila II	0.755	0.005
938(P)	170	Hari Naik & Others	Biali	1.530	0.010
946	178	Anabadi	Patil	0.725	0.725
947	178	Anabadi	Patil	0.275	0.275
978(P)	91	Baraju Munda & others	Biali	0.550	0.015
911(P)	178	Anabadi	Patil	0.108	0.050
914(P)	78	Panchu Munda & others	Taila II	0.058	0.020
					6.040

VILLAGE KAMARJODA ( UNIT No. 3 )				Page - 05	
Plot No.	Khata No.	Name of the tenant	Khasm of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	6.040
914 ✓	178 ✓	Anabadi	Patt ✓	0.078	0.078
915 ✓	78 ✓	Pancha Munda & others	Tala I ✓	0.065	0.065
916(P) ✓	78 ✓	Pancha Munda & others	Tala I ✓	0.798	0.450
917 ✓	53 ✓	Tata Iron & Steel Co.Ltd.	Rasta ✓	0.225	0.225
918(P) ✓	53 ✓	Tata Iron & Steel Co.Ltd.	Patt ✓	0.308	0.200
919(P) ✓	53 ✓	Tata Iron & Steel Co.Ltd.	Rasta ✓	0.135	0.100
920(P) ✓	53 ✓	Tata Iron & Steel Co.Ltd.	Rasta ✓	0.325	0.083
				<b>TOTAL</b>	<b>7.241</b>

ABSTRACT OF VILLAGE KAMARJODA (UNIT No.3)		
1	Khasara Forest	-
2	Government Land.	5.207 Acres
3	Tenanted Land.	2.034 Acres
<b>Total:</b>		<b>7.241 Acres</b>

*Verified with reference to the old records and approved.*  
*[Signature]*

*Confirmed*  
*[Signature]*  
 27/10/2015  
 [Stamp]

Plot No.	Khata No.	Name of the tenant	Khata of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
310(P)	140	Anabadi	Patti	0.913	0.713
311(P)	140	Anabadi	Gharabari - I	2.200	1.330
312	140	Anabadi	Gharabari - I	5.000	3.000
313	100	Rama Chandra Agot & others	Talla - I	0.750	0.750
314	26	Chandrika prasad sahu	Gharabari - III	0.048	0.048
315	100	Rama Chandra Agot & others	Gharabari - III	0.030	0.030
316	51	Nitambar Thapa	Gharabari - III	0.080	0.080
317	100	Rama Chandra Agot & others	Gharabari - III	0.080	0.080
318	100	Rama Chandra Agot & others	Gharabari - III	0.065	0.065
319	100	Rama Chandra Agot & others	Talla - I	0.143	0.143
320	131/46	Kandhwaia Moharana	Gharabari - III	0.110	0.110
321	100	Rama Chandra Agot & others	Talla - I	1.560	1.560
322	19	Gurahari Munda	Gharabari - III	0.100	0.100
323	100	Rama Chandra Agot & others	Gharabari - III	0.313	0.313
324	140	Anabadi	Patta	0.180	0.180
325	11	Om Prakash Tarja	Gharabari - III	0.260	0.260
326	6	Amkul Charan Bihari	Talla - I	0.080	0.080
327	140	Anabadi	Parbat - III	4.250	4.250
328	100	Rama Chandra Agot & others	Talla - II	0.043	0.043
329	50	Bal Mohan singh	Gharabari - III	0.100	0.100
330	85	Mansurjan Gaha	Gharabari - III	0.188	0.188
331	114	Sandhya Biswas	Gharabari - III	0.155	0.155
332	131/47	Chaitanya Saha	Gharabari - III	0.100	0.100
333	131/51	Sudhendu Kumar Nalik	Gharabari - III	0.100	0.100
334	126	Sudip krishna Banerjee	Gharabari - III	0.155	0.155
335	16	Kartik Chandra Das	Gharabari - III	0.108	0.108
336	140	Anabadi	Parbat	0.110	0.110
337	140	Anabadi	Parbat	0.933	0.933
					17.086

Plot No.	Khata No.	Name of the tenant	Khasm of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	17.885
338 ✓	55 ✓	Parayottam Mohanty ✓	Gharabari - II ✓	0.230	0.230
339 ✓	106 ✓	Ram Chandra Apot & others ✓	Gharabari - III ✓	0.038	0.038
340 ✓	106 ✓	Ram Chandra Apot & others ✓	Gharabari - III ✓	0.050	0.050
341 ✓	111 ✓	Sanyasi Mohanty ✓	Gharabari - III ✓	0.160	0.160
342 ✓	17 ✓	Kalidar Maitra ✓	Gharabari - III ✓	0.160	0.160
343 ✓	107 ✓	Bunga Mines Pvt. Ltd. ✓	Gharabari - II ✓	0.109	0.109
344 ✓	140 ✓	Anubadi ✓	Well ✓	0.013	0.013
345 ✓	140 ✓	Anubadi ✓	Rasta ✓	0.158	0.158
346 ✓	106 ✓	Ram Chandra Apot & others ✓	Gharabari - III ✓	0.180	0.180
347 ✓	108 ✓	Ram Chandra Apot & others ✓	Gharabari - III ✓	0.438	0.438
348 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.045	0.045
349 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.070	0.070
350 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.283	0.283
351 ✓	140 ✓	Anubadi ✓	Parbat - III ✓	8.000	8.000
352 ✓	39 ✓	Dipjan Singh ✓	Gharabari - I ✓	0.215	0.215
353 ✓	140 ✓	Anubadi ✓	Parbat - III ✓	0.180	0.180
354 ✓	140 ✓	Anubadi ✓	Pahad ✓	0.030	0.030
355 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.035	0.035
356 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.050	0.050
357 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.170	0.170
358 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.055	0.055
359 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.073	0.073
360 ✓	140 ✓	Anubadi ✓	Parbat ✓	0.220	0.220
361 ✓	140 ✓	Anubadi ✓	Pate ✓	0.120	0.120
362 ✓	41 ✓	Durga Charan Mohanty & others ✓	Taila - II ✓	0.200	0.200
364(P) ✓	140 ✓	Anubadi ✓	Pate ✓	11.263	1.000
365 ✓	101/20/140 ✓	Dilip Kumar Mohanty & others (Sona Kishore Mohanty) ✓	Gharabari - II ✓	0.254	0.254
366 ✓	47 ✓	Narasingh Apot ✓	Taila - I ✓	0.215	0.215
					31.830

Plot No.	Khata No.	Name of the tenant	Kinam of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	31.830
367 ✓	140 ✓	Anahadi	Parbat ✓	0.175	0.175
368 ✓	140 ✓	Anahadi	Parbat ✓	0.080	0.080
369 ✓	140 ✓	Anahadi	Parbat ✓	0.045	0.045
370 ✓	140 ✓	Anahadi	Parbat ✓	0.020	0.020
371 ✓	140 ✓	Anahadi	Parbat ✓	0.038	0.038
372 ✓	140 ✓	Anahadi	Parbat ✓	0.038	0.038
373 ✓	140 ✓	Anahadi	Parbat ✓	0.093	0.093
374 ✓	140 ✓	Anahadi	Parbat ✓	0.053	0.053
375(P) ✓	97 ✓	✓ Raha Munda & Others ✓	Tala - II ✓	0.425	0.390
376 ✓	97 ✓	✓ Raha Munda & Others ✓	Chandari - II ✓	0.040	0.040
377 ✓	140 ✓	Anahadi	Parbat ✓	0.115	0.115
378 ✓	140 ✓	Anahadi	Parbat ✓	0.105	0.105
379 ✓	97 ✓	✓ Raha Munda & Others ✓	Sarad - I ✓	0.333	0.333
380(P) ✓	140 ✓	Anahadi	Add ✓	0.240	0.200
381(P) ✓	140 ✓	Anahadi	Jalaxy - I ✓	1.113	0.150
382(P) ✓	140 ✓	Anahadi	Jalaxy - I ✓	0.345	0.260
383(P) ✓	140 ✓	Anahadi	Add ✓	0.133	0.100
384 ✓	140 ✓	Anahadi	Pati ✓	0.175	0.175
385(P) ✓	140 ✓	Anahadi	Pathbari ✓	20.000	19.960
386(P) ✓	140 ✓	Anahadi	Pati ✓	0.140	0.090
387(P) ✓	140 ✓	Anahadi	Pati ✓	0.165	0.163
390(P) ✓	140 ✓	Anahadi	Pati ✓	0.483	0.443
399 ✓	140 ✓	Anahadi	Pati ✓	0.325	0.325
400 ✓	97 ✓	✓ Raha Munda & Others ✓	Sarad - II ✓	1.145	1.145
401 ✓	117 ✓	✓ Shyama Munda & others ✓	Sarad - II ✓	0.490	0.490
402 ✓	90 ✓	✓ Madhu Munda & others ✓	Sarad - II ✓	0.265	0.265
403(P) ✓	84 ✓	✓ Madhu Munda & others ✓	Sarad - II ✓	1.265	0.915
403(P) ✓	84 ✓	✓ Madhu Munda & others ✓	Sarad - II ✓	1.188	0.955
					59.198

Plot No.	Khata No.	Name of the tenant	Kinam of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.T.	29.191
406	7	Abhi Patra & Others	Sarad - II	0.190	0.190
407(P)	117	Shyama Mondal & Others	Sarad - II	0.623	0.483
408(P)	84	Machhu Mondal & others	Sarad - II	0.555	0.380
409(P)	7	Abhi Patra & Others	Sarad - II	1.095	0.683
410(P)	140	Anabadi	Parbat	1.863	0.700
411(P)	123	Machhu Mondal & others	Talla - II	0.838	0.650
412(P)	90	Machhu Mondal & others	Talla - II	0.668	0.328
359/750	88	Mayadhar Baigya	Talla - II	0.833	0.833
318/766	73	Bhakra Bahadar	Gharshari - III	0.950	0.950
328/768	140	Anabadi	Parbat	0.855	0.855
332/770	140	Anabadi	Parbat	0.315	0.315
333/769	106	Ram Chandra Apat & others	Gharshari - III	0.088	0.088
343/771	131/111	Rajendra Prasad Prasad Suresh Chandra Ghosh	Raja land-II	0.108	0.108
345/772	140	Anabadi	Parbat	0.083	0.083
362/773	41	Durga Charan Mohanty	Gharshari - II	0.838	0.838
364/774	41	Durga Charan Mohanty	Talla - II	0.258	0.258
365/775	41	Sahu Kishore Mohanty	Gharshari - II	0.843	0.843
365/776	41	Sahu Kishore Mohanty	Gharshari - II	0.813	0.813
373/773(P)	47	Narsingh Apat	Sarad - II	0.148	0.148
401/778	140	Anabadi	Parbat	0.890	0.890
408/779	7	Abhi Patra & Others	Sarad - II	0.103	0.103
409/780	140	Anabadi	Parbat	0.130	0.130
407/857(P)	33	Daka Mondal	Sarad - II	0.400	0.300
401/858	34	Durga Mondal	Sarad - II	0.180	0.180
				TOTAL:	64.826

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1	Chitani Forest	
2	Government Land.	49.233 Acres
3	Tenanted Land.	14.821 Acres
		<b>Total:</b> 64.854 Acres

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 TAPASWATI  
 Barbi

Plot No.	Khata No.	Name of the tenant	Kind of the land	Full area of the Plot (Acres)	Area applied for removal (Acres)
1 ✓	63 ✓	Anubadi ✓	Pahad ✓	8.135	8.135
2(P) ✓	34 ✓	Bainsakha patra ✓	Sand - 1 ✓	0.105	0.040
10(P) ✓	29 ✓	Baidhar Barik & others ✓	Tala - 1 ✓	0.265	0.080
11(P) ✓	29 ✓	Baidhar Barik & others ✓	Tala - 1 ✓	0.255	0.040
12(P) ✓	29 ✓	Baidhar Barik & others ✓	Tala - 1 ✓	0.200	0.060
13(P) ✓	29 ✓	Baidhar Barik & others ✓	Tala - 1 ✓	0.180	0.065
13(P) ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal - 1 ✓	0.100	0.065
16 ✓	63 ✓	Anubadi ✓	Jungle ✓	0.060	0.060
17 ✓	63 ✓	Anubadi ✓	Jungle ✓	0.330	0.330
18(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - II ✓	0.340	0.110
20(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.023	0.001
21 ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.100	0.100
23(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.208	0.208
24 ✓	63 ✓	Anubadi ✓	Jungle ✓	0.155	0.155
25 ✓	63 ✓	Anubadi ✓	Jungle ✓	0.150	0.150
26(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.200	0.190
27(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.115	0.110
28 ✓	63 ✓	Anubadi ✓	Jungle ✓	0.085	0.080
29 ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal I ✓	0.085	0.088
30(P) ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.110	0.106
31 ✓	26 ✓	Darodhar Barik ✓	Charabari - III ✓	0.055	0.055
32 ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal - 1 ✓	0.180	0.180
33 ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal - 1 ✓	0.055	0.055
34 ✓	29 ✓	Baidhar Barik & others ✓	Charabari - III ✓	0.023	0.023
35 ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal - 1 ✓	0.045	0.045
36 ✓	29 ✓	Baidhar Barik & others ✓	Baje fasal - 1 ✓	0.053	0.053
					18.587

Plot No.	Khata No.	Name of the tenant	Kinam of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				0.7	10.587
37 ✓	62/12 ✓	✓ Jogenra Pali ✓	Baje fasal - I ✓	0.060 ✓	0.060 ✓
38(P) ✓	62/12 ✓	✓ Jogenra Pali ✓	Gharabari - III ✓	0.040 ✓	0.035 ✓
39 ✓	29 ✓	✓ Baidhar Barik & others ✓	Gharabari - III ✓	0.050 ✓	0.050 ✓
40 ✓	29 ✓	✓ Baidhar Barik & others ✓	Baje fasal - I ✓	0.035 ✓	0.033 ✓
41 ✓	63 ✓	Anabadi ✓	Pahad ✓	3.270 ✓	3.270 ✓
42 ✓	29 ✓	✓ Baidhar Barik & others ✓	Rasta ✓	0.190 ✓	0.190 ✓
49(P) ✓	29 ✓	✓ Baidhar Barik & others ✓	Rasta ✓	0.170 ✓	0.030 ✓
203 ✓	24 ✓	✓ Barju Pali & others ✓	Gharabari - III ✓	0.080 ✓	0.080 ✓
208 ✓	24 ✓	✓ Barju Pali & others ✓	Baje fasal - I ✓	0.170 ✓	0.170 ✓
209 ✓	24 ✓	✓ Barju Pali & others ✓	Baje fasal - I ✓	0.250 ✓	0.250 ✓
210 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.100 ✓	0.100 ✓
211 ✓	63 ✓	Anabadi ✓	Begaym ✓	0.030 ✓	0.030 ✓
212(P) ✓	31 ✓	✓ Bita Bchera & others ✓	Tails - II ✓	0.080 ✓	0.080 ✓
693(P) ✓	63 ✓	Anabadi ✓	Jungle ✓	0.070 ✓	0.070 ✓
694(P) ✓	60 ✓	✓ Sukram Munda ✓	Tails - I ✓	0.130 ✓	0.002 ✓
702(P) ✓	13 ✓	✓ Dasa Munda & others ✓	Tails - II ✓	0.275 ✓	0.002 ✓
703(P) ✓	47 ✓	✓ Murnam Munda & others ✓	Tails - II ✓	0.315 ✓	0.290 ✓
704 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.255 ✓	0.255 ✓
705 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.260 ✓	0.260 ✓
706 ✓	63 ✓	Anabadi ✓	Pahad ✓	3.810 ✓	3.810 ✓
707 ✓	63 ✓	Anabadi ✓	Pahad ✓	1.125 ✓	1.125 ✓
708(P) ✓	63 ✓	Anabadi ✓	Pahad ✓	3.625 ✓	3.525 ✓
709(P) ✓	63 ✓	Anabadi ✓	Pahad ✓	3.325 ✓	0.000 ✓
27/1019(P) ✓	63 ✓	Anabadi ✓	Rasta ✓	0.060 ✓	0.060 ✓
212/1021(P) ✓	31 ✓	✓ Bita Bchera & others ✓	Tails - I ✓	0.630 ✓	0.630 ✓
702/1023(P) ✓	13 ✓	✓ Dasa Munda & others ✓	Tails - II ✓	0.525 ✓	0.495 ✓
1/1024 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.030 ✓	0.030 ✓
					17.337

Plot No.	Khata No.	Name of the tenant	Kinam of the land	Full area of the Plot (Acres)	Area applied for renewal (Acres)
				B.F.	27.357
11/1029 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.240 ✓	0.240
12/1030 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.100 ✓	0.100
13/1033 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.100 ✓	0.100
15/1035 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.050 ✓	0.050
18/1036 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.048 ✓	0.048
21/1038 ✓	63 ✓	Anabadi ✓	Jungle ✓	0.035 ✓	0.035
22/1039 ✓	63 ✓	Anabadi ✓	Rama ✓	0.020 ✓	0.020
703/1160(P) ✓	62.47 ✓	Munda & others ✓	Taila - II ✓	0.318 ✓	0.318
<b>TOTAL:</b>					<b>28.000</b>

1	Khesara Forest	2.042 Acres
2	Government Land.	21.796 Acres
3	Tenanted Land.	4.162 Acres
<b>Total</b>		<b>28.000 Acres</b>

visited with reference to R.O.R. and Board cases  
 P. P. P.

Confirmed  
 P. P. P.  
 P. P. P.

Village	Forest			Non-forest			Grand Total (Acres)
	R.F. (Acres)	N.F. (Acres)	Total (Acres)	Govt Land (Acres)	Tenanted Land (Acres)	Total (Acres)	
Joda (Unit No. 2)	-	0.249	0.249	270.963	0.750	271.313	271.562
Kamarpada (Unit No. 3)	-	-	-	8.297	2.034	7.241	7.241
Baunsihpada (Unit No. 5)	-	-	-	49.233	14.821	64.054	64.054
Bhaukipada (Unit No. 6)	-	2.042	2.042	21.798	4.982	25.958	28.000
Natural Reserve Forest	1286.743	-	1286.743	-	-	-	1286.743
	1286.743 Acres or 529,737 ha.	2,291 Acres or 0,927 ha.	1289,034 Acres or 521,864 ha.	340,789 Acres or 140,830 ha.	21,787 Acres or 8,929 ha.	362,576 Acres or 148,429 ha.	1957,609 Acres or 871,093 ha.
<b>GRAND TOTAL</b>							

**Prepared on behalf of**  
**The Tribes Development Co. Ltd.**  
 by their Constituent Members  
*B. K. Singh*  
 B. K. Singh  
 Chief (Forest)

**APPLICATION FOR MORDERNIZATION IN CURRENT ENVIRONMENTAL  
CLEARANCE UNDER SECTION 7(II)(B) OF EIA NOTIFICATION 2006**

**ANNEXURE-1**

**FOR**

**AMENDMENT IN EXISTING ENVIRONMENT CLEARANCE OF JODA EAST IRON  
MINES NO.J-11015/215/2008-IA.II.(M)-11.03.2013. UNDER SECTION 7(II)(B)  
WITH RESPECT TO MODERNIZATION OF BENEFICIATION PROCESS BY SETTING  
UP A 4.6 MTPA WET BENEFICIATION PLANT AND REDUCING THE CAPACITY  
OF EXISTING WET PLANT TO 2.4 MTPA, THEREBY KEEPING THE OVERALL  
CAPACITY SAME AS APPROVED (7 MTPA) AT JODA EAST IRON MINE**

**IN**

**JODA, KAMARJODA, BANSPANI, KHUTPANI & BAITARINI REVENUE VILLAGES  
UNDER BARBIL TEHSIL, CHAMPUA SUBDIVISION, KEONJHAR DISTRICT OF  
ODISHA STATE**

Submitted by:

**Tata Steel Limited**

Joda East Iron Mine,  
Barbil Tehsil, Keonjhar District  
Odisha

**March'19**

## **ANNEXURE-I**

### **I. PROJECT DETAILS**

1. Name of the Project: Joda East Iron Mine
2. Name of the Company: M/s TATA Steel Ltd.  
Address Tele No. & E-mail Head of organization:

Joda East Iron Mine  
M/s Tata Steel Ltd.  
At/ PO: Joda, Tehsil: Barbil  
Dist: Keonjhar (Odisha)  
e-mail: [gm.office@tatasteel.com](mailto:gm.office@tatasteel.com)  
Phone No (M): 9238087049  
Website: [www.tatasteelindia.com](http://www.tatasteelindia.com)

3. If a Joint venture, the names & addresses of the JV partners including their share

Not any such. Joda East Iron Mine is one of the Captive iron ore mines of TATA Steel Ltd.

4. Latitude and Longitude of the project:

Toposheet No.: 73 F/8 & 73 G/5  
Latitude: Between 21° 59'N and 22° 03'N  
Longitude: Between 85° 25'E and 85° 27'E

5. Whether the project is in the Critically Polluted Area (CPA): Not Applicable

6. Cost of the project

Capital Cost for proposed Beneficiation Plant is Rs 900 Crores

7. Whether new or expansion project. If expansion: Not Applicable

- (i) from ..... MT to ..... MT
- (ii) What is the % of expansion

8. If for expansion, whether the application is under 7(ii) of the EIA Notification, 2006.

Yes, The application is applied under 7(ii) of the EIA Notification, 2006

9. No. and Date of the TOR/ and revised TOR, if any, letter issued by MoEF (If this is the case for EC) : Not Applicable

10. No. and Date of the EC and the revised EC letter issued by the MoEF (if this is a case for reconsideration. If so, what specific reconsideration(s) being sought by the proponent).

Joda East Iron Mine was granted Environmental Clearance vide MoEF&CC letter no. J-11015/215/2008-IA.II(M) dated 11.03.2013 for iron ore production 12 MTPA (ROM) and Beneficiation Plant capacity of 12 MTPA throughput. Based on the disposition of the ore as per the geological model of Joda East Iron Mine, the low Fe high Alumina ores will require to be mined in future for sustained mining activity. The existing dry and wet plants cannot process these ore types due to process constraint. Company wants to install beneficiation plant of 4.6 MTPA keeping overall beneficiation throughput capacity of 12 MTPA, the dry plant capacity of 5 MTPA and reducing the current wet plant capacity from 7 MTPA to 2.4 MTPA. There is no change in lease area, no expansion, no lease renewal, no enhancement of pollution load etc.

11. If the project was considered in EAC, Pl. give dates of the meeting (s).

Yes, the proposal was placed before the EAC in its meeting held during September 28-19, 2018

12. Type of Mine: (Open cast/Underground/mixed):

Opencast Iron Ore Mine

13. Capacity of the mine applied for

There is no change in approved capacity.

14. ML Area

- (i) As per block allotment
- (ii) As per approved mine plan

Total Lease Area: 671.093 ha

15. Date of approval of mine plan, mine closure plan, status & date

Mine Plan along with Progressive Mine Closure Plan is approved by Indian Bureau of Mines, Ministry of Mines, Govt. of India vide letter no. MSM/FM/41-ORI/BHU/2017-18, dated 21<sup>st</sup> February 2018.

16. Date of Board's approval:

- 1) Consent to Establish was granted by Odisha State Pollution Control Board for 12 MTPA (ROM) production with Iron ore beneficiation plant (wet circuit) of capacity 7 MTPA and dry circuit plant of capacity 5 MTPA ;vide letter no: 11271/IND-II-NOC-5144 dated 11.07.2011
- 2) Consent to Operate was granted by Odisha State Pollution Control Board for 12 MTPA ;vide letter no: 2523/IND-I-CON-184 dated 22.02.2017

17. Date of Ground water clearance and surface water approval.

- 1) Surface water withdrawal permission was granted for 18.75 LGPD ;vide letter no:423 dated :16.02.1996 from the office of tahasildar, Barabil, dist: Keonjhar (Odisha)

2) Ground water permission for 460 m<sup>3</sup>/day was granted by CGWA ;Vide letter no: CGWA/NOC/MIN/ORIG/2018/4245 ; dated 15<sup>th</sup> Nov 2018.

18. Existing Ground water level in (M)

Not applicable.

19. Date of mine closure approval

Mine Plan along with Progressive Mine Closure Plan is approved by Indian Bureau of Mines, Ministry of Mines, Govt. of India vide letter no. MSM/FM/41-ORI/BHU/2017-18, dated 21<sup>st</sup> February 2018.

20. Any river/Nallah flowing near or adjacent to the proposed mine. If yes, please give details.

Mining lease area has a general topographical slope towards partly northern side and partly southern side; and surface runoff flows along the natural slopes through valleys and seasonal nallas which finally meets northerly flowing Betlata nala & southerly flowing Mahadev nala at several points respectively. Mahadev nala further joins Suna nala, one of the perennial river and finally meets Baitarani River. Baitarani River is the major river in the study area. The details of waterbody in and around the lease are as follows:

Water body	Distance from lease	Water body	Distance from lease
1. Baitairani River	3 km, SE	5. Betlata Nallah	12 Km,N
2. Kundra Nallah	0.2 km, W	6. Kasia Nadi	13.1 km, SE
3. Karo River	13 km, W	7. Kakrapani Nallah	13.6 km, SW
4. Gamlei Nallah	12.2 Km,W	8. Tapakari Nallah	10.5 Km,W
		9. Mahadev Nallah	4 Km,NE

Details of mine lease:-

Lease Granted in 1925 for a period of 30 years	Date of 1st lease Renewal	Date of 2 <sup>nd</sup> lease Renewal	Date of 3 <sup>rd</sup> lease renewal
	The same was renewed on 01.07.1955 for a period of 30 years.	The 2 <sup>nd</sup> renewal of lease was done on 01.07.1985 for a years of 20 years	Third mine lease renewal was applied on 27.04.2004 new MMDR Act 2015 the lease period has been extended upto 31.03.2030. vide letter no. III(A)SM-13/2012/3283/SM, Bhubaneswar, dated 18 <sup>th</sup> April, 2015 by Steel & Mines Dept. Govt. of Odisha.

## II. TECHNICAL DETAILS

No change in any details as submitted to MoEF & CC office while processing the current EC granted on vide letter no. J-11015/215/2008-IA.II(M) dated 11.03.2013.

However as per latest technical data as submitted to regulatory agencies following details are updated.

### 21. Geological Reserve:

- (i) Total geological reserve : 147.52 Million tonnes (as on 01/10/2018)\*
- (ii) Mineable reserve : 147.52 Million tonnes#  
# Total mineral reserve (UNFC 111, 121, 122).
- (iii) Extractable reserve : 147.52 Million tonnes\$  
\$ Proved mineral reserve (UNFC 111).
- (iv) Per cent (%) of extraction : 100%
- (v) Range of ground water level : Nil
- (vi) Total estimated water requirement: Nil
- (vii) Details of intersecting ground water level: Nil  
(Mining operation is restricted above the ground water table)

### 22. Details of Deposits:

- (i) Depth of over body : Shallow depth
- (ii) Grade of ore : Various grade as per Fe%.
- (iii) Stripping ratio : 1:0.20

23. Method of mining: Opencast mechanized with drilling & blasting technology

24. Life of mine : 11 years (as per current approved mine plan).  
However, due to future explorations mine life will further increase.

25. Whether ambient air quality seasonal data has been monitored. If so, from which season to which season and whether the results are within the prescribed limits.

Yes. Ambient air quality is continuously being monitored and results are regularly being submitted to regulatory agency (State Pollution Control Board, MoEF & CC etc). In line above two continuous online ambient air quality stations (CAAQMS) are also installed in Joda East Iron Mine. The PM10, PM2.5, SO<sub>x</sub>, NO<sub>x</sub> & CO air quality data of the same is also been submitted via online. All the results are well within permissible limits.

26. Whether the monitoring report of earlier EC from MoEF&CC Regional Office has been obtained, in case the proposal is for expansion.

The current proposal is amendment to existing EC for installation of 4.6 MTPA capacity keeping overall Beneficiation throughput capacity of 12 MTPA, which consist of the dry

plant of capacity 5 MTPA and total wet plant of capacity 7 MTPA (consist of both existing wet processing plant and proposed 4.6 MTPA beneficiation plant) as per existing environmental clearance. However, EC compliance is regularly being submitted to MOEF & CC, Regional office for regular monitoring & compliance of EC conditions. Existing EC compliance certificate has also been obtained from Regional Office MOEF&CC, Bhubaneshwar office vide letter no: 101-529/EPE/446 dated: 5.03.2019

## 27. Details of O.B.

No change in as mentioned in earlier EC. However as per revised mine plan details are attached herewith:

- (i) External OB dumps Nil
  - (ii) No of OB dumps Two
  - (iii) Area of each dump
  - (iv) Height of each dump
  - (v) Quantity (in MCm) of OB in each dump
- } Attached per Mine Plan

Ultimate dimension of dump at conceptual stage

Details of Dump	Waste Dump No.1	Waste Dump No.2	Waste dump No.3	Waste dump No.4	Waste dump no.5	Waste dump no.6
Dump area at the base	7.69 Ha	18.3 Ha	10.1 Ha	3.65 Ha	14.3 ha	2.3 Ha
RL at the base of the Dump	540	584	524	486	486	585
RL at the top of the dump	600	675	588	516	575	615
Height of the dump (Overall)	60 m	90m	60m	45m	90m	30m
No.of terraces	4	6	4	3	6	2
Overall slope at conceptual stage	<27°	<27°	<27°	<27°	<27°	<27°
Total capacity of Dump(mcum)	2.0	5	0.65	1.63	3.8	0.12

- (vi) Year of back filling
- (vii) No. of OB dumps reclaimed
- (viii) If garland drains and settlement facility for runoff created
- (ix) Whether runoff water being utilized

At present, the mine has two waste dump named as Waste Dump-1, the total quantity of waste is 13.0 million cum) as on 31.10.2018. As per revised mine plan at the conceptual level there shall be six waste dumps.

## 28. Details of Internal Dumps

- (i) Number of internal dumps
- (ii) Area of each dump



7	Railways	1.88	6.01	7.89
8	Effluent Treatment Plant	0	0	0
10	Mineral Separation unit	38.911	1.862	40.773
11	Township area	0	0	0
12	Others(Magazine)	6.569	0	6.569
	TOTAL UTILIZED AREA	576.459	42.795	619.254
	Safety zone	8.578	1.201	9.779
	Greenery	0.826	0	0.826
	TOTAL UNUTILIZED AREA	39.617	1.617	41.234
	TOTAL LEASE AREA	625.48	45.613	671.093

Proposed Land Use Area at Conceptual Stage  
(Ref: Mine Plan 2017-18)

(Area in Hectors)

Sl. No.	Description	Forest(Ha)	Non-Forest(Ha)	Total(Ha)
1	Area under Mining	162.021	8.585	170.606
2	Storage of top soil	0	0	0
3	Waste dump site	104.604	0	104.604
4	Mineral Storage	91.273	24.183	115.456
5	Infrastructure (Workshop, administrative building, storing tools & machinery etc)	14.354	0	14.354
6	Roads, conveyer, Pipe line, electric line etc	16.843	3.256	20.099
7	Railways	1.88	6.01	7.89
8	Tailing pond	127.998	0	127.998
9	Effluent Treatment Plant	0.04	0	0.04
10	Mineral Separation unit	71.264	2.378	73.642
11	Township area	0	0	0
12	Others (Magazine & Rain water harvesting)	25.799	0	25.799
	TOTAL UTILIZED AREA	616.076	44.412	660.488
	Safety zone	8.578	1.201	9.779
	Greenery	0.826	0	0.826
	TOTAL UNUTILIZED AREA	0	0	0
	TOTAL LEASE AREA	625.48	45.613	671.093

33. Details of Forest issues

(i) Total forest area involved (in ha) for mining lease.

The mine lease area of Joda East Iron Ore Mine is 671.093 ha, out of which total forest area is 625.48 ha and 45.613 ha is non-forest area.

(ii) Total broken forest area.

Entire Stage-II approved area over 567.087 ha is already been broken.

(iii) Status of Forest Clearance and extend of forest land diverted in ha.

The mining lease area involves 625.48 ha of forest land. At present, mining operation is restricted within 567.087 ha of forest area for which Stage-II approval for diversion has already been obtained. In addition, we have also submitted fresh DRP for remaining forest area of 58.393 ha.

(iv) Is there any National Park, eco-sensitive Zones, within 10 km radius? If so, give the details.

There is no National Park, eco-sensitive Zones, within 10 km radius

(v) Extent of forest land in the project (including safety zone and all types of forest land) (in ha)

At present, mining operation is restricted within 567.087 ha of forest area for which Stage-II approval for diversion has already been obtained. In addition, we have also submitted fresh DRP for remaining forest area of 58.393 ha.

(vi) Total forest land for which Stage-1 FC is available (give area in ha), provide breakup of this area in following format:

Area (in ha)	Stage-II FC issued vide letter no. & date	Validity period of earlier FC granted
567.087	8-32/1993-FC (Vol.II)	31.03.2030

Forest Clearance has been obtained for diversion of 567.087 ha of forest land (Vide MoEF letter no 8-32/1993-FC (Vol.II) dated 24th September 2007) and fresh diversion proposal for 58.393 ha (2 proposals) is under active consideration by the state Government.

(viii) Balance forest land for which Stage-1 FC is not available (give area in ha)

(ix) Details of wild life issues involved, if any. If so, whether WL management plan has been prepared; pl. indicate the status.

Joda East Iron Mine of TATA Steel Ltd., is been operational from last seven decades (Since 1925), thus the mine doesn't have any wildlife, however a site specific wild life conservation plan has already been prepared and approved by PCCF Cum Chief Wild Life Warden, Govt of Odisha vide letter no. 3195/1WL(C)SSP-97/2016, dated 25<sup>th</sup> April, 2016. Various conservation measures for flora & fauna are also been made in area including, forest fire protection, dust suppression, soil & moisture conservation, forest guards for protection, minimum noise in the area, avoiding vehicle movement in the night etc.

(x) Whether schedule -I species, if yes conservation plan is approved by CWLW?

The Site Specific Wild Life Conservation Plan has already been prepared and approved by PCCF cum Chief Wild Life Warden, Govt of Odisha vide letter no. 3195/1WL(C)SSP-97/2016, dated 25<sup>th</sup> April 2016.

34. Costs of the project:

- (i) Total capital Cost: -(900 Cr for Proposed 4.6 MTPA Beneficiation plant)
- (ii) Cost of Production: --
- (iii) Sale Price: Not Applicable as it's a captive mine
- (iv) CSR cost: 1.0 Cr
- (v) R&R Cost: -
- (vi) No of PAFs: --
- (vii) Cost for implementing EMP: Capital proposed 13.5 Cr & the recurring proposed is 1.5 Cr.

35. Details of villages/habitation in mine lease area

- (i) Inside the lease: Nil
- (ii) Surrender by lease: Joda,
- (iii) Extent of cropland acquired/ being acquired in ha. Nil

36. Details of transportation of mineral

- (i) In pit: By dumpers
- (ii) Surface to siding: --do--
- (iii) Siding to loading: By dumpers, trucks, conveyors etc
- (iv) Quantity being transported by Road/Rail/conveyer /ropeway

Entire excavated material (mineral) is being transported by various ways as mentioned in previous EIA-EMP & revised mine plan and progressive mine closure plan

- (v) Proposed change in transportation means if any, give details Nil

37. Details of reclamation:

- a. Afforestation shall be done covering an area of: ..... ha at the end of mining. This will include:
  - (i) Reclaimed external OB dump (in ha):
  - (ii) Internal dump (in ha),
  - (iii) Green belt (in ha)
  - (iv) Density of tree plantation (in no of plants):
  - (v) Void (in ha) at a depth of (in m) which is proposed to be converted into water body
  - (vi) Others in ha (such as excavation area along ML boundary, along roads and infrastructure, embankment area and in township located outside the lease etc).
  - (vii) Agriculture and horticulture
  - (viii) Fisheries
  - (ix) ECO Tourist/recreation spot

As per revised mine plan, reclamation of mined out area is as follows:

Activity	Conceptual land Degradation by mining	Reclamation measures	
	Area (ha)	Area (ha)	Measures
Mining Excavation	388.655	170.606	Top benches will be reclaimed by afforestation.
		19.230	Bottom benches forming a pit shall be converted for water storage or rain water harvesting
		198.819	Back filling by OB, slime & mineral rejects and subsequent afforestation.

III. LEGAL ISSUES

Not any such

38. Any court case pending. If so, please provide a list with details as annexure.

- (i). Environment (Protection) Act
- (ii). Air (P&CP) Act
- (iii). Water (P&CP) Act
- (iv). MMRD Act
- (v). The Factories Act
- (vi). Other land R&R related cases

39. Any violation cases pending. If so, please provide a list with details as annexure

Not any such

40. Give details of actual production vis-à-vis sanctioned capacity since the inception of mine in following format or since 1994-95 as applicable:

Year	EC Sanctioned Capacity (MTPA)	Actual Production (MTPA)	Excess production beyond the EC (MTPA) sanctioned capacity
1993-94	0.794	0.746	-0.048
1994-95	2.000	0.751	-1.249
1995-96	2.000	1.138	-0.862
1996-97	2.000	1.743	-0.257
1997-98	2.000	1.837	-0.163
1998-99	2.000	1.965	-0.035
1999-00	2.000	2.122	0.122
2000-01	2.000	2.385	0.385
2001-02	2.000	2.591	0.591
2002-03	2.000	3.057	1.057
2003-04	2.000	3.457	1.457
2004-05	2.000	4.092	2.092
2005-06	4.500	3.557	-0.943

2006-07	4.500	3.677	-0.823
2007-08	4.500	3.804	-0.696
2008-09	6.000	4.287	-1.713
2009-10	6.000	4.985	-1.015
2010-11	6.000	5.217	-0.783
2011-12	6.000	4.951	-1.049
2012-13	12.000	6.072	-5.928
2013-14	12.000	8.286	-3.714
2014-15	12.000	7.753	-4.247
2015-16	12.000	8.340	-3.660
2016-17	12.000	9.211	-2.789
2017-18	12.000	9.133	-2.867

#### IV. PUBLIC HEARING ISSUES

Public hearing was conducted on 18<sup>th</sup> August 2011 with respect to production enhancement from 6.0 MTPA to 12.0 MTPA. For current project, it is not applicable It is proposed for installation of 4.6 MTPA capacity keeping overall throughput capacity of 12 MTPA, which consist of the dry plant of capacity 5 MTPA and total wet plant of capacity 7 MTPA (consist of both existing wet processing plant and proposed 4.6 MTPA beneficiation plant) as per existing environmental clearance). However, previous details are mentioned as follows:

##### 41. Date and Place of public hearing:

Date of Public Hearing : 18<sup>th</sup> August 2011  
Place of Public Hearing : Bachhu Hutting at Joda, Dist: Keonjhar (Odisha)

##### 42. The designation of officer presided the PH:

The public hearing was presided Shri Braja Kishore Nayak Additional District Magistrate of the Keonjhar district and Shri Bishi Keshan Nayak Regional officer of Orissa State Pollution Control Board participated on the day.

##### 43. Issues raised during Public Hearing and assurance given along with the financial provisions and action plan, if any, by the project proponent. (Please attach as an annexure in a tabular form.)

All details issues raised and reply was enclosed in Final EIA report.

##### 44. Number of representation received in writing from the district and outside of district, please give details

24 nos.

#### V. Consultant;

Yes, M/s Vimta Labs Limited, Hyderabad.

##### 45. Name of the EIA consultant who prepared the EIA/EMP report.

Addendum study report has been prepared by M/s Vimta Labs Limited, Hyderabad

46. Whether the consultant has been accredited by the QCI and NABET as per the MoEF OM dated 2<sup>nd</sup> December, 2009.

Yes.

47. Name of specialists/consultants involved in making EIA report and in collecting data.

M/s Vimta Labs Limited was involved in collecting the data and preparation of Addendum Study report.

#### VI. Other Information

48. One page summary for TOR and EC separately as applicable.

Joda East Iron Ore Mine (JEIM) was granted EC for enhancement of ROM production from 6 MTPA to 12 MT of ROM & Beneficiation throughput capacity of 12 MTPA vide EC NO J-11015/215/2008-IA. II(M) dated 11th March 2013.

It was envisaged that out of 12 MTPA, 5 MTPA ROM would be processed through a dry processing plant and rest 7 MTPA would be processed in a wet processing facility.

Joda East iron deposit has different lithologies like hard ore, lateritic ore, friable ore, powdery ore of variable grades forming the Run of Mine (ROM). Geological ore body model is the basis for evaluating the ore types using Fe & Alumina grades to determine the feed of ROM destined for dry and wet processing to optimize the extraction. The products of these two plants are blended to meet the product quality requirements from our captive steel plants. The flexibility to feed suitable material based on ore body model also ensures optimized extraction resulting in conservation of natural resource.

Based on the disposition of the ore as per the geological model of Joda East Iron Mine, the low Fe high Alumina ores will require to be mined in future for sustained mining activity. The existing dry and wet plants cannot process these ore types due to process constraint. Tata Steel envisages to construct a state of the art wet processing facility of 4.6 MTPA capacity with technology suitable to beneficiate such low-grade Fe containing ROM expected to be encountered in the future.

Consequent to the establishment of new beneficiation facility (for low Fe high alumina ROM) the overall feed to the existing wet plant plus proposed new beneficiation plant will be within 7 MTPA as per existing EC capacity. The flexibility to feed suitable quality of ores to the respective wet processing facility will ensure optimum extraction and conservation of the natural resources.

Based on the quality (grade) of ROM the feed of the present and proposed wet plant will be varied maintaining the overall wet processing EC limit of 7 MTPA throughput. This will enable Tata Steel to mine and process 12 MTPA ROM in a sustainable manner going forward.

The present proposal for EC amendment of Joda East Iron Mines as mentioned above in which overall throughput capacity will remain 12 MTPA (ROM) Under which dry plant

capacity will be 5 MTPA and from Wet Plant over all capacity will remain same as 7 MTPA consisting of both existing wet processing plant and proposed 4.6 MTPA beneficiation plant.

There will not be any increase in the Pollution Load due to the requested amendments as there would be no lease renewal, no expansion and all the Environment Protection and mitigations measures are well in place which was duly considered by the EAC and MoEF & CC, Govt. of India while granting the existing Environmental Clearance.

49. Brief Background of the Project as per table:

1.	<p>Details of PP and Group companies  (a)Financial Position  (b)Group companies  (c)Legal issues  (d) Past and current litigations</p>	<p>a) Joda East Iron Mines is the captive iron ore mine of Tata Steel Ltd.  b) Joda East Iron Mines, At-joda, Keonjhar Odisha comes under the Ore Mines &amp; Queries Division of Tata Steel Ltd.  c) No legal issues  d) No</p>
2.	<p>Social, economic and environmental aspects of the project in brief.</p>	<p>To make aware the people about the interrelationships between the environment and their actions, the company formed Tata Steel Rural Development Society (TSRDS), in its commitment to effectively discharge its social responsibility. The objective of TSRDS is to facilitate the village people so that they literate themselves for their self-growth, self-employment and to avoid the environmental damages.</p> <p>As a present practice, Pre-placement medical examination and periodical medical examination (PME) are being conducted regularly for the employees of Joda East Iron Mine. The schedule of PME is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees less than 40 years. Further, the prevailing practice of occupational health care of the miners in respect of pulmonary tests, vision and audio metric tests are also conducted. The occupational health care and safety standards of the mine operation are in line with the requirement of international standard of OHSAS: 18001. Moreover,</p>

		<p>necessary counseling on the health care to the mine workers as is being practiced will also be continued.</p> <p>Environmental Management Plan has been developed to minimize the impacts if any or in a view to bring down the levels of impacts within permissible limits.</p>
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## **JODA EAST IRON MINE**

### **Introduction**

The Joda East lease of M/s Tata Steel was granted in 1925 for a period of 30 years. The lease was renewed for a further period of 30 years with effect from 1st July, 1955 and mining operations started in 1956 to partially meet the requirements of the company's steel plant at Jamshedpur. The second renewal for a period of 20 years with effect from 01.07.1985 was executed on 18.12.97 over an area of 671.093 ha. The steel company has applied for third renewal of lease on 19.04.2004 over an area of 671.093 ha.

However, as per the MMDR Amendment Act 2015, the lease period has now been extended upto 31.03.2030 over entire mining lease area of 671.093 ha and Supplementary Lease Deed has been executed and registered.

### **Location**

Joda East Iron Mine is located near village Joda, Kamarjoda Banspani, Khuntpani and Baitarini RF and is in Keonjhar District of Orissa. The nearest Post office is in Joda. The nearest airport is at Bhubaneswar which is about 290 km from the project site. The Banspani railway station is located about 5 km from the lease. The public road is about 0.5 km from the lease boundary. A part of railway line is passing through northern part of the lease.

The deposit is covered under Survey of India toposheet nos. 73 F/8 and 73 G/5 and Between 21°59'N and 22°03'N and longitudes Between 82°25'E and 85°27'E respectively

### **Geology:**

Joda East iron deposits lies in the western portion of Singhbhum – Orissa craton. The Iron ore group (IOG) surrounds the batholithic complex and consists of low grade meta sediments, acid intermediate and mafic volcanoes and sills. The IOG rocks are exposed in three major basins around the Singhbhum granite batholith. The eastern basin extends from south of Jamshedpur through Gorumahisani-badamphar and extends southward up to near Nausahi. The Southern basin lies between Daitari – Tomka, while the northern-western basin is represented by the western Singhbhum – Bonai – Keonjhar Iron ore basin which extends for about 100km in length 20 to 30km width in NNE-SSW direction from Chakradharpur to south of Koira.

### **Mining Technology**

The Joda East Iron Mine is an opencast mechanized mine of Tata Steel Limited. The mine is in operation since 1956 to meet partial requirement of company's steel plant. The mine is presently producing at an average rate of ~12 MTPA of ROM.

Mechanized method of open cast mining has been adopted for mining iron ore in a series of 9m high benches with the help of shovel-dumper combination. The minimum bench width in the working benches shall be maintained at 25 m while in the ultimate stage, the bench width shall be reduced to 9 m thus having a final pit slope of 45 degrees. Drilling is done using 150mm diameter drills with 10% sub grade drilling. Blasting is done by adopting the State of Art technology by using mostly SME (Site Mixed Emulsion Explosives). Both Nonel (non-electric initiation) and electronic detonators are used for controlled blasting. The boulders generated during the course of blasting will be either broken by the use of rock breaker or hydraulic splitters. Secondary blasting (if required) will be done by using 100mm diameter drills. The blasted material is excavated by shovels of 5.7/5.9 cum capacity and loaded onto 50/60/100 tonne dumpers for transportation of the ROM, subgrade and waste.

At present, Joda East Iron Mine is having one Wet and one Dry Circuit Plant. The existing capacity of dry plant is 5 MTPA whereas that of wet plant is 5 MTPA.

### **Statutory Clearances**

Joda East Iron Mine is having all statutory approval as given below:

- a) Environmental Clearance granted by MoEF, Govt. of India vide Ref. No J-11015/215/2008-IA.II(M) dated 11<sup>th</sup> March, 2013.
- b) Consent to Operate under Air & Water Act for Joda East Iron Mine granted vide Consent Order No. 2523/IND-I-CON-184, dt.22.02.2017
- c) Modification to Mining Plan is approved vide No. MSM/FM/41-ORI/BHU/2017-18/2890, dated 21<sup>st</sup> Feb' 2018 by Indian Bureau of Mines, Ministry of Mines, Govt. of India
- d) Stage-II Forest Clearance granted vide F. No. 8-32/1993-FC (vol. II) dt 24.09.2007 over an area of 567.087 ha. of forest land

### **Present Proposal:**

Joda East Iron Ore Mine (JEIM) was granted EC for enhancement of ROM production from 6 MTPA to 12 MTPA of ROM and beneficiation of 12 MTPA (5 MTPA Dry Processing and 7 MTPA Wet Processing) vide Ministry Letter no. J-11015/215/2008-IA. II(M), dated 11<sup>th</sup> March 2013.

As per the Environmental Clearance, we had set up the beneficiation plants for 12 MTPA, 5 MTPA ROM to be processed through a dry processing plant and 7 MTPA to be processed in a wet processing facility.

Joda East iron deposit has different lithologies like hard ore, lateritic ore, friable ore, powdery ore of variable grades. Geological ore body model is the basis for evaluating the ore types using Fe & Alumina grades to determine the feed of Run of Mine (ROM) for dry and wet processing to optimize the extraction. The products of these two plants are blended to meet the product quality requirements from our captive steel plants. The flexibility to feed suitable material based on ore body model also ensures optimized extraction resulting in conservation of natural resource.

Based on the disposition of the ore as per the geological model of Joda East Iron Mine, the low Fe high Alumina ores will require to be mined in future for sustained mining activity. The existing dry and wet plants cannot process these ore types due to process constraint. Tata Steel envisages to set up a wet processing facility of 4.6 MTPA capacity suitable to beneficiate such low-grade Fe.

We had applied for EC amendment to EC of Joda East Iron Mines, for setting up a 4.6 MTPA wet beneficiation plant by reducing the capacity of the present wet beneficiation plant to 2.4 MTPA, thereby keeping the overall wet beneficiation throughput capacity same as approved(7 MTPA) to cater the change in ore characteristics vide Letter no:MD/ENV/216/100/18 dated 16.08.2018

Our proposal was placed before the EAC in its meeting held during Septemeber 28-19,2018 wherein the committee deliberated the proposal and is of the view that the PP first needs to conduct the addendum study on pollution load w.r.t modernization of beneficiation plant for further consideration.

Further during the deliberations, the committee suggested that since we have applied under section 7(ii),online( MOEF&CC letter dated 22.10.2018 to Joda East Iron Mines of M/s Tata Steel Ltd.located

at village-Joda,Kamarjoda, banspani, Khuntpani& Baitarni,tehsil-Barbil, district-Keonjhar, Odisha(MLA-671.093 ha)(J-11015/215/2008-IA.II(M)-Consideration of amendment in EC w.r.t modernization of EC dated 11.03.2013 in respect of beneficiation plant) .Therefore we have now submitted our proposal online with the addendum study conducted for the impact of pollution load w.r.t to modernization of beneficiation plant under clause 7(ii) of EIA notification 2006 .

Consequent to the establishment of new proposed beneficiation facility (for low Fe high alumina ROM) the overall feed to the existing wet plant plus proposed new 4.6 MTPA beneficiation plant will be within 7 MTPA as per existing EC capacity. The flexibility to feed suitable quality of ores to the respective wet processing facility will ensure optimum extraction and conservation of the natural resources.

Based on the quality (grade) of ROM the feed of the present and proposed wet plant will be varied maintaining the overall wet processing EC limit of 7 MTPA throughput. This will enable Tata Steel to mine and process 12 MTPA iron ore ROM in a sustainable manner going forward.

**Deceleration of Undertaking**

I hereby give an undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any, to the project will be revoked at our risk and cost



Signature of the applicant  
**Sanjit Kumar Adhya**  
**Head(Planning), OMQ**  
**Tata Steel Ltd.**

**Note:**

- a. The projects involving clearance under coastal regulations zone notification, 1991 shall submit with the application a C.R.Z map duly demarcated by one of the authorized agencies, showing the project activities w.r.t. CRZ(at the stage of TOR) and the recommendations of the state coastal zone management authority(at the stage of EC). Simultaneous action shall also be taken to obtain the requisite clearance under the provisions of the CRZ notification,1991 for the activities to be located in the CRZ.
- b. The projects to be located within 10 km or the national parks, sanctuaries, biosphere reserves, migratory corridors of wild animals, the project proponent shall submit the map dully authenticated by chief wildlife warden showing these features vis-à-vis the project location and the recommendation or comments of the chief wildlife warden there on(at the stage of EC).
- c. All correspondence with the ministry of environment &Forest including submission of application for TOR/EC, subsequent clarifications, as may be required from time to time in the EAC meeting on behalf of the project proponent shall be made by the authorized signatory only. The authorized signatory should also submit a document in support of his claim of being an authorized signatory for the specific project.

Lay out plan for proposed 4.6 MTPA beneficiation plant

