DISTRICT SURVEY REPORT (DSR) 2024

OF

KEONJHAR DISTRICT, ODISHA

FOR

ORDINARY SOIL/EARTH

(FOR PLANNING & EXPLOITING OF MINOR MINERAL RESOURCES)

As per Notification No. S.O. 3611(E) New Delhi 25th July, 2018.

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (MoEF & CC)

COLLECTORATE, KEONJHAR

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PREFACE

The District Survey Report (DSR) of Keonjhar district of Odisha for Ordinary Earth/Soil mining is being prepared by the district administration in compliance to the notification issued by the Ministry of Environment and Forest and Climate Change Notification no. S.O.3611 (E) NEW DELHI dated 25-07-2018. Preparation of district survey report of Ordinary Earth/Soil mining has been prepared in accordance with Clause II of Appendix X of the notification. At present it was felt necessary to incorporate some new sources for Ordinary Earth/Soil to expedite the different govt. or private work in the district of Keonjhar. Hence step was taken by the district administration to prepare the district survey report afresh considering the present situation of the minor mineral mining. Every effort has been made to cover potential Ordinary Earth/Soil mining locations, future potential areas and over view of Ordinary Earth/Soil mining activities in the district with all its relevant features pertaining the geology and mineral wealth. This report will act as a compendium of available mineral sources, geological set up, environmental and ecological set up of the district.

1. INTRODUCTION

The Keonjhar district emerged as one of the districts of Odisha on 1st January, 1948. The district is bounded by Mayurbhanj district and Bhadrak district to the east, Jajpur district to the south, Dhenkanal district and Sundargarh district to the west and West Singhbhum district of Jharkhand State to the north. Covering a geographical area of 8303 sq km, the Keonjhar district lies between 21^0 1' N to 22^0 10' N latitude and 85^0 11' E to 86^0 22' E longitude.

The whole District of Keonjhar was a princely state before its merger with Odisha. From the history it reveals that a part of the old Khijjinga territory with headquarters at Khijjinga Kota, identified with modern Khiching. It became a separate state with Jyoti Bhanja as its ruling chief sometime during the first half of the 12th century A.D.

The then State of Keonjhar comprised only the northern half of the modern district for a long time prior to the incarnation of Jyoti Bhanja as King. During the latter part of the 15th century the southern half of the district was occupied by King Govinda Bhanja under whose rule Keonjhar was extended from Singbhum in the north to Sukinda in the South and from Mayurbhanj in the East to the borders of the States of Bonai, Pallahara and Anugul in the West.

During the rule of Pratap Balabhadra Bhanja (1764–1792 A.D.) two small areas of Tillo and Jujhpada were purchased from the Zamindar of Kantajhari and were added to the district. These were recognised as parts of Keonjhar in the Sanad granted by the East India Company to Raja Janardan Bhanja in 1804. Since then there had been no territorial changes of the district till its merger with the Province of Odisha. But after merger largely for the reasons of administrative expediency the areas of Tillo (7.51 sq.km) and Jujhpada (9.06sq.km.) were transferred to the districts of Balasore and Cuttack respectively, while a number of villages called Ambo group (14.84 sq.km.) of Balasore district were added to Keonjhar district.

Keonjhar is one of the major minerals producing districts of Odisha. Iron ore, Manganese ore, Chromite, Quartzite, Bauxite, Gold and Pyrite are the major minerals found in this district apart from minor minerals like dimension stone, Pyrophyllite, Talc-soapstone, China clay, River Sand, Road Metal and Ordinary Earth/Soil.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

Minerals:

IRON ORE:

The main iron ore deposits are found along the classic Bonai-Keonjhar Horse Shoe shaped synclinorium which spared over an area of about 60KmX25Km.

Hematite is the chief mineral resource of this district. Important deposits were found in Thakurani, Bolani, Joda east, Khandbhanda, Sidhmath, Belkundi, Kasia-Barapada, Bolani, Kiribura, Gurudia, Jharibahal, Dubuna, Bamebari, Murga, Palsa, Jajang, Malangtoli, Chamakpura, Gandhamardhan, Daitari, Tomka, Inganijaran, Horomoto Guali and Uliburu. Iron ore bands occur in layered BIF bands along with volcano-sedimentary rock piles known as Iron Ore Super Group. Usually, four types of ore are seen i.e. hard massive, laminated, lateritic and blue dust.

A total of 3142.70 million tonnes of iron ore resource of all categories have been assessed with 64-68% Fe in massive, 62-65% Fe in laminated, 65-68% Fe in powdery blue dust type of ore.

Besides, investigation of iron ore by the Directorate in Horomoto-Guali area has established a possible reserve of 46.75 million tonnes of iron ore of grade varying from 51.20% to 65.24% Fe.

MANGANESE: The Keonjhar manganese belt is a part and partial of Singhbhum Bonai belt and one of the most important manganese ore producing regions of India. this is confined to shale formation of Pre-Cambrian Iron Ore Super Group as stratiform, stratabound and lateritoid types.

Important deposits in the Keonjhar district are located in the areas of Roida-Bhadrasahi, Silijhora-Kalimati, Guruda, Chormalda, Sarkunda, Dubna Kolarudkela, Podadihi-Langini-Jharan, Lasarda, Pacheri, Balani, Baneikala, Kendudihi-Purulipada, Horomoto-Jajang, Katasahi, Joribahal, Joda west and Belkundi etc.

The reserve of manganese ore is estimated as 127.27 million tonnes.

The grade of the ore is variable from deposit to deposit as also from body to body within the same deposit. out of the total production, about 10% to 15% forms the High Grade (more than 46% Mn), 25% to 30% Medium Grade (36-45% Mn) and the rest Low (less than 30-35% Mn) and still lower (less than 30% on Mn)

CHROMITE: The chromite deposits of the district are associated with the ultramafic rocks of Nuasahi, Boula and Phuinjhorhuli area. The body extends for about 3Kms in an N-S direction. It is a dyke like body dipping steeply to the east and is widest in the centre and gradually tapering towards north and south. The ultrabasic occurs as intrusive in Precambrian metamorphites as well as differentiated layered igneous complex. It has a peridotite core with subordinate amount of chromite, peripheral pyroxenite and enstatite. the ultramafites include enstatite, bonzite, pyroxenite, serpentinised dunites, talc schist, silicified dunites and chromitites with chromite loads. The chrome ore available are mostly of lumpy type.

The estimated reserve is 11.43 million tonnes with Cr_2O_3 content varies from 40% to 45%.

BAUXITE: Industrial and chemical grade Bauxite occurs on Dholkata pahar area of the district. The area is represented by metavolcanites characterized by metatholeiitic basalt. The different flows are separated by tuffaceous shale. Outcrops of metagabbro have been noticed to the east and south east of Dholkata pahar. Apart from these minor occurrences of bauxite in pockety or poddy nature has been reported along Keonjhar-Banai belt. The occurrences has been located around Kodalia, Khajurdi Pahar, east of Kasiara and Jaladihi area.

The Dholkata Bauxite is of high alumina, high iron, low silica and low titanium grade having 60 to 70% tri-hydrated as gibbsite and rest bohemite. the predominant iron minerals are goethite and hematite occurring as colloidal bands.

A total of 5.986 million tonnes of bauxite reserve has been estimated around Dholkata pahar area of the district.

VANADIFEROUS MANGANESE: Deposits of vanadiferous magnetite occur in association with gabbro-anorthosite suite of rocks in the Precambrian metamorphic. A deposit of vanadiferous magnetite is seen near Phulinjhorhuli in Anandapur subdivision. The mineral occurs in a band of ultabasic rocks about 4Km long.

GOLD: The occurrence of gold is reported in Telkoi and Banspal block of Keonjhar district. Several old workings of the gold in the shape of elongated trenches, deep circular pits, wells and tunnels have been recognised around Saleikena, Sirisbahal, Dublapal, Bangadiha, Odal, Gopur, Gajipur and Kusuguda etc. The area covering the gold deposits constitute the rock units belonging to Iron Ore Super Group comprising of basic lava, tuffites, basic intrusive, metagabbro, metadiorite, amphibolites, quartzite and chlorite schist. The granitic suites of rocks are intrusive into the above rock types and are represented by micro granites, fracture, shear zone and faults might have acted both as channel ways and receptacles for gold deposition in the vein quartz bodies.

Few important fire assay result done by Hutti Gold Mines shows gold values ranging from 1.8gm/tonne to 18.68gm/tonne in Gopur, traces to 5.3gm/tonne in Odal, traces to 2gm/tonne in Gajipur.

PYROPHYLLITE: The occurrences of pyrophyllite are stretched over a 90Km long belt extending from Rebna-Palasbahal in the south to Dhobakuchuda-Balabhadrapurr in the north. These are associated with the border area of Singhbhum Granite and quartzite hills such as Madrangajori, Macchakandana, Jodiaghat and south of Uchakabeda, eastern slope of Chantrabhangapahar, Dalimpur and Sidhamath area. The Pyrophyllite occurrences mentioned above are in the form of very fine flakes, typically soapy feel and associated with pyrophyllite quartz schist, quartz tourmaline pyrophyllite rocks and quartz tourmaline pyrophyllite schist as irregular patches.

A total reserve of 12.28 million tonnes have been assessed in Keonjhar district. The average percentage of Al_2O_3 is 20-23%, SiO_2-65-75%, Fe_2O_3-0.77% and LOI-3-4%.

QUARTZITE: High grade quartzite mining activities are continuing near Barapada, Barang, Paharpur, Parsala area of the district. Besides, cherty and massive quartzite with 99% SiO_2 are marked intermittently in the iron ore series near Rebna-Palaspal, Magarmuhan, Jaypur, Dalmaposi, Chauthia and Nawabeda area.

A total reserve of 45.68 million tonnes of quartzite has been estimated in the district. the average SiO_2 content varies from 95 to 99.66%.

CHINA CLAY: Pockets of china clay are encountered near Judiapahar, Tarreni pokhari, Aupura, Fakirpur, Padmakesharpur, Jaypur, Kankadajodi, Adakata, Govindpur area of the district. The clay is yellowish white, gritty and occurs as pocket type.

The reserve of china clay has been estimated as 1.41 million tonnes in the area. The Al_2O_3 content varies from 18.25% to 22.77%.

DIMENSION STONE: Singhbhum granite, dolerite dykes and ultrabasic rocks of the district are suitable for dimension stone/ decorative stones. The 150Km long Palaspanga dyke from Keonjhar to Chainbasa, the longest dyke in Asia is being used for the above purpose in veiw of its colour, texture, composition and hardness. These are quarried at number of places around Dhurpada and Keonjhar. A part of dyke to the east of Kaliaprasad village has been estimated to contain 500Cu.m. of dimension stone of block size 0.5mx0.5mx0.5m. Lower shale formations found near village Lunagothani was found to be suitable for decorative purpose. However, 1606900Cu.m. of black granite, 18044200Cu.m. of grey granite and 8379000Cu.m. of green granite have been reported in the district.

TALC-SOAPSTONE: This is reported from the northern slope of hill ranges immediately south and west of Kendujhargarh and Dalimpur. The talc-schist occurs as gently undulating slabby layers underlying the Kolhan sandstone. The highly foliated talc-schist are traversed by veins of quartz as impurities. Besides these, soapstone occurrence is encountered near Dholkata, Dalangpur, NE of Sayedmulia, Suramundi, Kuladhamkuni, Sapghosara, Pithagola, Alanga area. These are locally utilized for preparation of stone ware and statues. The MgO content varies from 11.397 to 22%.

PYRITE: Pyrite crystals have been recorded in dark grey shaly formation underlying the Kolhan sandstone west of Balibandha on the Keonjhar-Chainbasa road. The occurrence is of no economic importance.

GLASS SAND: Some of the Kolhan sandstones in the northern portion of the district (near Barangam) is suitable for glass industry.

BUILDING STONE & ROAD MATERIAL: Granite gneisses, aplites, dolerites and quartzite are being used as road metal and in concrete mixtures. Laterite blocks are extensively used as a very common building material. All these materials are found in plenty.

OTHER MINERALS: A few occurrences of asbestos are encountered near Gopalpur and Ranki. Thin bands of slip fibres were marked in the peridotite body, but the economic aspect of this occurrence appears not to be viable. A patch of travertine limestone is also encountered near Asurkhol area.

The district is the major producer of iron and manganese ore of the state. Other than the above-mentioned minerals, minor minerals such as river sand, laterite slabs, building stone/black stone/road metals, Ordinary Earth/Soil, brick earth etc. are also available in the district.

3. GENERAL PROFILE

a. Administrative set up:

Sl. No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	85° 11' E to 86° 22' E
	Latitude	Degree	21° 1' N to 22° 10' N
2	Geographical area	Sq.Km.	8303
3	Sub-division	Numbers	3
4	Tahasils	Numbers	13
5	C D Blocks	Numbers	13
6	Municipalities	Numbers	4
7	NACs	Numbers	1
8	Police Stations	Numbers	25

9	Gram Panchayats	Numbers	297
10	Villages	Numbers	2123
	Inhabited	Numbers	2064
	Uninhabited	Numbers	59
11	Assembly constituencies	Numbers	6

b. Area and Population:

The district has an area of 8303 sq. km and 18.02 lakh of population as per 2011 census. The district accounts for 4.09 percent of the states territory and shares 3.03 percent of the state's population. The density population of the district is 217. per sq. kms. as against 270 person per sq. km. of the state.

c. Climate:

The climate condition of the district is generally hot and high humidity during April to May and cold during November to December. The monsoon generally breaks during the month of July, Average annual rainfall of last four years in the district was 1489.69 mm during 2017, which is slightly more than the normal rainfall 1487.7 mm.

d. Agriculture:

The production of different agriculture products during last five years is given below (in MT)

Year	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Paddy	405646	405997	519403	465015	506300	515701
Wheat	419	360	317	428	414	486
Maize	39987	40625	61605	60534	50536	72360
Mung	6311	6079	5796	4861	4246	4323
Biri	7275	7445	6518	6335	8456	8680
Kulthi	6131	6719	6846	7740	5469	9820
Til	1955	1862	2019	1880	2032	2572

Groundnut	4644	3529	5963	5921	4995	4220
Mustard	2306	2707	4032	4495	3258	4367
Potato	26135	28078	33780	37236	28900	37296
Jute	2984	2984	2662	4412	3354	3575
Sugarcane	556	316	446	805	302	453

During last five years, the total fertilizers used in the district was about

Type of fertilizer consumed/Used (MT)	**Nitrogenous**	**Phosphatic**	**Pottasic**	**Total**	**Consumption in kg per Ha**
2019-20	9230.635	5227.914	1468.990	15927.539	42.74
2020-21	9298.907	5117.283	1509.340	15985.530	43.13
2021-22	7956.879	5373.939	1669.106	14999.924	41.14
2022-23	8420.544	4480.403	1081.621	13982.567	36.76
2023-24	10322.882	5706.882	1226.048	17255.812	42.97

e. Power:

Consumption of electricity in the district during the year five years (upto July 24) and villages so far electrified during last five years is given below.

Financial Year	**Consumption of Electricity (in Units)**
Fy 2020-21	925.30 $x10^6$
Fy 2021-22	1057.46 $x10^6$
Fy 2022-23	1754.74 $x10^6$
Fy 2023-24	1856.49 $x10^6$
Fy 2024-25(April to July 24)	686.37 $x10^6$

Village Electrification during last five years

Item	No. of Villages
Electrification in completely unelectrified villages	36
Electrification in partially electrified villages	1968

f. Transport & Communication:

Railway route length (14-15) km	158.06
No of Rly stations and PH (14-15)	16
Forest road (17-18) km	249.98
National Highway (16-17) km	341.30
State Highway (17-18) km	52.74
Major district road (17-18) km	34.29
Other dist. road (17-18) km	885.98
Rural road (17-18) km	1945.90
Inter village road (16-17) km	3912.49
Intra village road (16-17) km	3143.74

g. Health:

The medical facilities are provided by different agencies like Govt., Private individuals and voluntary organizations in the district.

No of Hospitals	26 No.
Beds facilities	832 No.
Homoeopathic dispensaries	48 No.
Ayurvedic dispensaries	34 No.

Detail of the Allopathic hospitals is as below:

Sl. No	Name of the Institutions	No. of hospital beds
1	DHH Keonjhar	330
2	SDH Anandapur	128
3	SDH Champua	102
4	CHC Fakirpur	6
5	CHC Banspal	16
6	CHC Jhumpura	16
7	CHC Bhanda	16
8	CHC Siankul	16
9	CHC Ghatgaon	30
10	CHC Harichandanpur	16
11	CHC Salania	16
12	CHC Basudevpur	16
13	CHC Padampur	16
14	CHC Patna	16
15	CHC Udaypur	6
16	CHC Telkoi	16
17	CHC Barbil	16
18	CHC Joda	6
19	CHC Bhagamunda	6
20	Kesudarapal CHC	6
21	Hadagada OH	6
22	Hatadihi OH	6
23	Ukhunda OH	6
24	Dumuria OH	6
25	Sirigida OH	6
26	Kaliahata OH	6
	Total	**832**

h. Tourist places:

Kushaleswar Temple, Kanjipani Ghati, Keshari Kunda, Murga Mahadev Temple, Gonasika Temple, Hadagada Reservoir, Handibhanaga, Ghagra & Gundichaghagi waterfalls are the tourist spots of the district.

i. Forest areas:

Category of forest	Area in sq km
Reserve Forest	1834.09
Unclassified Forest	0.26
Demarcated Protected Forest (DRF)	273.64
Undemarcated Protected Forest	220.79
Other forest under Revenue Dept	768.40
Total	**3097.18**

j. Education:

Primary School (2023-24)	No. of Schools	1530
	Enrolment (No)	129573
	Pupil Teacher Ratio	35.70
Upper Primary School (2023-24)	No. of Schools	745
	Enrolment (No)	72172
	Pupil Teacher Ratio	48.4
General College	Junior	80
	Degree	38
Secondary School	No. of Schools	410
	Enrolment (No)	73866
	Pupil Teacher Ratio	----
Literacy Rate, 2011	Male	79.6
	Female	60.7
	Total	68.24

k. Culture & Heritage:

Keonjhar district is very much rich in its fairs and festivals like Sarhul, Sohrai, Karmapuja, Bodam, Chaitra parab or Uda parab, Makara sankranti, Nuakhai, Raja parab, Baruni jatra, Ratha jatra, Sivaratri etc. Famous folk dances are CHANGU, CHHAU, JUANG, HO etc.

4. GEOLOGY

The district can be broadly divided into seven geological units viz.: (i) The patchy occurrences of metamorphites belonging to Older metamorphics of Archaean age (ii) Huge batholiths of Singhbhum Granite with swarms of newer dolerites dykes in the eastern part of the district, (iii) Meta-sedimentary rocks belonging to Gorumahisani Group of Archean age in the southwestern part of the district (iv) Volcano-sedimentary sequence intruded by Bonai granite belonging to Lower Bonai group of age ranging between Archean to Paleo-Proterozoic in the south-west and on the north-west (v) Intrusives like chromiferous ultramafics, gabbro-anorthosite, dolerite and quartz veins of Archaean to Proterozoic age (vi) Sedimentary and meta-sedimentary rocks belonging to Kolhan Group ranging in age from lower to middle Proterozoic (vii) Laterites of Cenozoic age and (viii) Quaternary sediments represented by Kaimundi formation and un classified alluvium. The Singhbhum granite shows wide variation from highly foliated biotite-epidote granodiorite to grayish white medium grained weakly foliated to nearly massive muscovite-biotite granodiorite. It contains enclaves of Older metamorphics represented by hornblende schist, chlorite schist and meta-gabbros. However, the Keonjhar granite has more feldspar content than Mayurbhanj granite. Gorumahisani Group consists of sheared pebbly quartzite, hornblende schist and BHQ. The Volcano-sedimentary rocks of lower Bonai Group comprise of Basic Volcanics, BHQ, BHJ, ferruginous shale, quartzite,

iron ore bodies and tuff with or without manganese. The chromiferous ultra-basics of Nuasahi and the mafic-ultramafic complex of Baula are rich in Cr-Fe-Ni and is probable locale for PGE. This is followed by late magmatic gabbro-anorthosite suite of rocks. The dolerite and gabbro occur as the younger intrusives. The Kolhan Group of rocks comprise of conglomerate, sandstone, shale and quartzite. The insitu laterites are wide spread in the area. The Kaimundi formation consists of sandy sticky clay impregnated with caliche and unclassified Quaternary sediments represented by black to brown clay and coarse to fine sand.

STRATIGRAPHY:

The geological succession in the district is as follows:

Age	Formation/Group	Lithology
Holocene		Alluvium
Late Pleistocene to Early Holocene	Kaimundi Formation	Clay with Calcareous concentration
Cainozoic		Laterite and lateritic bauxite (Lbx)
Palaeo to Meso Proterozoic	Kolhan Group	Conglomerate, sandstone and shale
Palaeo Proterozoic		Dangoaposi lava
Proterozoic (Undifferentiated)		Granophyre/gabbro/anorthosite
Archaean to Proterozoic		Newer Ddolerite
		Ultramafic rocks+Chromite
Archaean to Palaeo Proterozoic	Lower Bonai Group	Basalt, tuff, meta gabbro
		Granite
		Shale, tuff and manganese
		BHQ, BHJ, ferruginous shale and quartzite
		Gritty sandstone, orthoquartzite,

		conglomerate
Archaean	Gorumahishani Group	Hornblende schist, chlorite schist, amphibolite and meta-gabbro
		Quartzite, quartz sericite schist, cherty quartzite, fuchsite quartzite and black chert
		Quartzite, chert
		BHQ, BMQ, BCQ, BJQ
		Ferrugineous shale,carbonaceous shale phyllite and mica schist
		Pebbly quartzite, gritty quartzite and quartzite
	Older Metamorphic Group	Singhbhum granite/ Hornblende Granite
		Pellitic schist, quartzite and amphibolite

5. DRAINAGE AND IRRIGATION PATTERN.

The district is mainly drained by the river Baitarani and tributaries barring a very small patch in the extreme south –western part, falling in Brahmani basin. The major tributaries are Kanjhari, Sita Nadi, Salandi, Mushala Nadi, Orali Nadi, Remal, Kusei, Deo Nadi, etc and these are the mostly perennial. The drainage pattern is mostly dendritic in nature. Sub-parallel drainage pattern is well developed in south-eastern part of the district. The drainage density is moderately high in western part of the district representing high hill ranges constituted mostly by iron ore group of rocks and volcanic which suggest high run off and low infiltration. Hydro geological survey and remote sensing studies have revealed that the drainage pattern in the

district is controlled by the fracture system which is developed due to tectonic deformation occurred in the area in several phases.

SI. No	Name of the River	Place of Origin	Altitude at Origin	Total length in the district (in Km) (Total length)
1	2	3	4	5
1	Baitarani	Gonasika	Longitude- 21^0-31'-00" N Longitude- 85^0-33'-00"E	240Km upto Anandapur
2	Kangira	Haladi Pokhari		40Km
3	Aradei	Sidha Matha	Longitude- 22^0-009'-00" N Longitude- 85^0-68'-00"E	72.40Km
4	Khairibandhan	Smimlipal R.F.	Longitude- 21^0-924'-00" N Longitude- 85^0-794'-00"E	152Km
5	Deo	Sidha Matha	Longitude- 21^0-804'-00" N Longitude- 85^0-826'-00"E	80Km
6	Kanjhari	Kanjharibani Pira	Longitude- 21^0-685'-00" N Longitude- 85^0-851'-00"E	60Km
7	Sita	Barabanki Hill	Longitude- 21^0-497'-00" N Longitude- 86^0-017'-00"E	26Km
8	Musal	Rebana R.F.	Longitude- 21^0-32'-00" N Longitude- 86^0-066'-00"E	60Km
9	Kusei	R. Bera R.F.	Longitude- 21^0-139'-00" N Longitude- 86^0-178'-00"E	80Km
10	Salandi	Banjhi Kusaghat R.F.	Longitude- 20^0-79'-00" N Longitude- 86^0-678'-00"E	144Km
11	Bhirol		Longitude- 21^0-606'-00" N Longitude- 85^0-945'-00"E	
12	Mermenda		Longitude- 21^0-958'-00" N Longitude- 85^0-775'-00"E	

6. LANDUSE PATTERN

Sl. No	Land use	Area in '000Ha
1	Forest Area	310
2	Misc. trees & Grooves	6
3	Permanent Pasture	20
4	Culturable Waste	26
5	Land put to Non Agril Use	70
6	Barren & Unculturable Land	93
7	Current Fallow	10
8	Other Fallow	0
9	Net Area Sown	288
10	Mining	7
	Geographical Area	**830**

7. SURFACE WATER & GROUND WATER SCENARIO

The drainage systems i.e. rivers of the district get filled with water during the monsoon and the gradually it decreases from the month of January to June of each year. In the summer season all rivers become almost dry excepting narrow flow of water within the basin.

The variation of ground water table in the district is as follows:

Depth of water level (mbgl)/ Period	April	August	November	January
Minimum	4.0	0.60	1.48	0.3
Maximum	10.4	5.09	7.01	13.1

8. RAINFALL & CLIMATIC CONDITION

The district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of July and continues till end of October. The temperature goes as high as up to 41.8^{0}C in the summer and up to 6.4^0 C during peak winter.

The rainfall statistics of the district for last four years is given below:

Year	**2021-22**	**2022-23**	**2023-24**	**2024-25 (30.8.24)**
MONTH	**(mm)**	**(mm)**	**(mm)**	**(mm)**
APRIL	37.32	17.94	68.44	7.5
MAY	342.68	90.88	60.83	96.94
JUNE	154.15	137.65	212.52	109.64
JULY	232.85	326.95	274.4	208.21
AUGUST	178.73	404.79	392.42	299.73
SEPT	361.19	175.46	266.13	0
OCT	88.15	87.35	128	0
NOV	27.8	0	10.28	0
DEC	60.21	0	25.52	0
JAN	32.66	0.61	29.3	0
FEB	17.58	0	6.13	0
MARCH	0.43	51.86	49.06	0
TOTAL	**1533.75**	**1293.04**	**1523.03**	**722.02**

9. DETAILS OF MINING LEASES

Attached as Annexure A

10. DETAILS OF ROYALTY COLLECTED

There is no production of Ordinary Earth/Soil during last three years in keonjhar district. So, the collection of royalty is nil.

Sl.No	Name of Tahasil	2021-22	2022-23	2023-24
Nil	Nil	Nil	Nil	Nil
Nil	Nil	Nil	Nil	Nil

11. DETAILS OF PRODUCTION OF MINOR MINERAL

Sl.No	Name of Tahasil	2021-22	2022-23	2023-24
Nil	Nil	Nil	Nil	Nil
Nil	Nil	Nil	Nil	Nil

12. MINERAL MAP OF THE DISTRICT

Attached as Plate No 4.

13. LIST OF LOI HOLDERS ALONG WITH VALIDITY

Attached as Annexure A

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of Ordinary Earth/Soil in the district is 2,04,048 cum which may increase after detail investigation.

Details of the potential areas submitted as Annexure II.

15. QUALITY/GRADE OF MINERAL

Ordinary Earth/Soil of the district is very much suitable for filling purposes particularly of road.

16. USE OF MINERAL

Ordinary Earth/Soil of the district is used mainly in the road construction purpose apart from some domestic constructions.

17. DEMAND & SUPPLY OF THE MINERAL

The tentative annual demand is to the tune of 50,000 cum of Ordinary Earth/Soil and is mainly supplied from different tahasils of the district and adjoining districts of Mayurbhanj and Sundergarh dist.

18. MINING LEASES MARKED ON THE MAP OF THE DISTRICT.

Attached as Plate No 4.

19. DETAILS OF AREAS WHERE THERE IS A CLUSTER OF MINING LEASES

Not applicable

20. DETAILS OF ECO-SENSITIVE AREA

Eco-sensitive Zone has been identified around Hadagarh Wildlife Sanctuary and submitted to the Ministry of Environment & Forests and Climate Change, Govt. of India, New Delhi through Govt. of Odisha, Forest & Environment Department for final Notification which is being awaited. In absence of Notification of Eco-sensitive Zone as per Hon'ble Supreme Court of India direction the 10 km. radius from boundary of Hadagarh Wildlife Sanctuary is being treated as Eco-sensitive Zone.

Further, as per direction of the Hon'ble Supreme Court of India, no mining and quarry activities will be allowed within 1 km. radius of Hadagarh Wildlife Sanctuary.

21.IMPACT ON THE ENVIRONMENT (AIR, WATER, NOISE, SOIL FLORA & FAUNAL, LAND USE, AGRICULTURE, FOREST ETC.) DUE TO MINING

Activities attributed to Mining: -

Generally, the environment impact can be categorized as either primary or secondary. Primary Impacts are those, which are attributed directly by the project. Secondary impacts are those which are indirectly induced and typically include the associated investment and changed pattern of social and economic activities by the proposed action.

The impact has been ascertained for the project assuming that the pollution due to mining activity has been completely spelled out under the base line environmental status for the entire ROM which is proposed to be exploited from the mines.

Impact on Ambient Air

Mining operation are carried out by opencast manual, semi mechanized/ mechanized methods generating dust particles due to various activities likes, excavation, loading, handling of mineral and transportation. The air quality in the mining areas depends upon the nature and concentration of emissions and meteorological conditions.

The major air pollutants due to mining activities include: -

Particulate matter (dust) of various sizes.
Gases, such as sulphur dioxide, oxides of nitrogen, carbon monoxide etc from machine & vehicular exhaust.

Dust is the single air pollutant observed in the open cast mines. Diesel operating machines, movement of machineries/ vehicles produce NOx, SO2 and CO emissions, usually at low levels. Dust can be of significant nuance surrounding land user and potential health risk in some circumstances.

Water Impact

Sometimes the mining operation leads to intersect the water table causing ground water depletion. Due to the interference with surface water sources like river, nallah etc drainage pattern of the area is altered.

Noise Impact

Noise pollution mainly due to operation of machineries and occasional plying of machineries. These actives will create noise pollution in the surrounding area.

Impact on Land environment

The topography of the area will change certain changes due to mining activity which may cause some alteration to the entire eco system.

Impact on Flora & Fauna

The impact on biodiversity is difficult to quantify because of it's diverse and dynamic characteristics.

Mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and flora status of the project area.

However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved.

22. REMEDIAL MEASURES TO MITIGATE THE IMPACT OF MINING ON THE ENVIRONMENT: -

Air

Mitigation measures suggested for air pollution controls are to be based on the baseline ambient air quality of the project/cluster area and would include measures such as:

- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be undertaken.
- Transport of materials in trucks are to be covered with tarpaulin.
- The mine pit water, if any can be utilized for dust suppression in and around mine area.
- Information on wind diction and meteorology are to be considered during planning, so that pollutants, which cannot be

fully suppressed by engineering techniques, will be prevented from reaching the nearby agricultural land, if any.

- Comprehensive greenbelt around overburden dumps and periphery of the mining projects/clusters has to be carried out to reduce to fugitive dust transmission from the project area in order to create clean & healthy environment.

Water

- Construction of garland drains and settling tanks to divert surface run –off of the mining area to the natural drainage.
- Construction of checks dams/ gully plugs at strategic places to arrest silt wash off from broken up area, if required.
- Retaining walls with weep hole are to be constructed around the mine boundaries to arrest silt wash off in case of big quarries.
- The mined-out pits can be converted in to the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Periodic analysis of mine pit water and ground water quality in nearby villages are to be undertaken, if required.
- Domestic sewage from site office & urinals/latrines, if any provided within ML/QL areas is to be discharged in septic tank followed by soak pits.

NOISE

- Periodic maintenance of machineries, equipment shall be ensured to keep the noise generated within acceptable limit.
- Development of thick green belt around mining/cluster area, haul roads to reduce the noise.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise related effects.

- Periodic noise monitoring at locations within the mining area and nearby habitations are to be undertaken for big QL areas to assess efficacy of adopted control measures.

Biological Environment

- Development of green belt/gap filling saplings in the safety barrier left around the quarry area/ cluster area, if the safety zone areas are barren.
- Carrying out thick greenbelt with local flora species predominantly with long canopy laves on the inactive mined out upper benches.
- Development of dense poly culture plantation using local floral species in the mining areas at conceptual stage if the mine is not continued much below the general ground level.
- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.

23. RECLAMATION OF MINED OUT AREA (BEST PRACTICE ALREADY IMPLEMENTED IN THE DISTRICT, REQUIREMENT AS PER RULES AND REGULATION, PROPOSED RECLAMATION PLAN):-

As per statute all mines/quarries are to be properly reclaimed before final closure of the mine. Reclamation of exhausted mines are planned to be undertaken in below three possible means:

1. If, substantial amount of waste is there, the exhausted quarry can be fully or partly backfilled using the stored waste. The backfilled areas are to be brought under plantation of local species.
2. If the generation of waste is much less as in the case of minor mineral mining, the exhausted quarries can be reclaimed by

a. Plantation on the broken up surface if the depth of quarry is not much below the surrounding surface level.
b. Converted to water reservoir after stabilization of the slopes if the exhausted quarry continues much below the surrounding surface level. It is preferred to cordon the water reservoir either through wire fencing or retaining wall with plantation from the safety point of view.

Most of the quarry/mining lease areas are yet to be exhausted from ore point of view. Hence, reclamation would be taken up only after exhaustion of the ore/mineral content from these areas. The exhausted minor mineral quarries of the district have been converted to water reservoirs.

24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The only risk involved related to mining of minor mineral excepting natural calamities is slope failure and probable accidents due to high and ill maintained bench walls. This can only be addressed through making of regular benches and undertaking mining in benching pattern.

The disaster management plan (DMP) is supposed be a dynamic, changing, document focusing on continual improvement of emergency response planning and arrangements.

The disaster management plan is to be aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and savage operations in this same order of priorities. For effective implementation of the disaster management plan, it should be widely circulated through rehearsal/induction conducted by the respective department from time to time.

General responsibilities of employees' during an emergency:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the worker in charge, should adopt safe and emergency shut down and attend to any prescribed duty. If no such responsibility is assigned, the workers should adopt a safe course to assembly point and wait instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

Co-ordination with local authorities:

The Mine Manger who is responsible for emergency will always keep a jeep ready at site. In case of any eventuality, the victim will be taken to the nearby hospitals after carrying out the first aid at the site. The Manger should collect and have adequate information of the nearby hospitals, fire station, police station, village panchayat heads, taxi stands, medical shops, district revenue authorities etc. and use them efficiently during the case of emergency.

25. DETAILS OF THE OCCUPATION HEALTH ISSUES IN THE DISTRICT. (LAST FIVE- YEAR DATA OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED):-

As per the guidelines of the Mine Rules 1995, occupational health safety has been stipulated by the ILO/WHO. The proponent's will take necessary precautions to fulfil the stipulations. Normal sanitary facilities have to be provided within the lease area. The management will carry out periodic health checkup of workers.

Occupational hazards involved in mines are related to dust pollution, noise pollution, blasting and injuries from moving machineries & equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management has to strictly follow these guidelines.

All necessary first aid and medical facilities are to be provided to the workers. The mine shall be well equipped with personal protective equipment (PPE). Further, all the necessary ported equipment such as helmet, safety goggles, earplugs, earmuffs etc. are to be provided to mine workers as per Mines Rules. All operators and mechanics are to be trained to handle firefighting equipment.

Details of occupational health issues in the district since last 5 years.

Incidence of Patients of Tuberculosis.

Year	Total TB Cases Notified	Total Silicosis Notified
2019	2,675	0
2020	2,646	0
2021	2,854	0
2022	3,422	0
2023	3,477	0
Total	**15,074**	**0**

There is no case of Silicosis found in the district within the time frame mentioned above.

26. PLANTATION OF GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT

As most of the minor mineral mines/quarries of the district are yet to be exhausted of their mineral content no sort of reclamation measures including plantation has been undertaken excluding gap plantation of local species in the peripheral safety zones of the quarries/ clusters and in some of the haul roads.

27. CONCLUSION:

To meet the requirement of minerals in the present scenario, it is proposed to identify such potential areas at certain interval and get the data bank of DSR to be updated regularly. The mining activity in any area is on one hand bring revenue and employment (Direct and indirect) and on other hand if not done properly potential pollution and ecological imbalance increases, the ability of the ecosystem can also be reduced. Particulate matter transported by the wind as a result of excavations, blasting, transportation of materials, heavy equipment used raise these particulate levels; and Gas emissions from the combustion of fuels in stationary and mobile sources, explosions, and mineral processing. All these activities indirectly affected the biodiversity of area. Larger potential and smaller areas have been identified in Keonjhar District on the basis of geological study carried out during field observation, which can be considered for mining concession after all the parameters for statutory clearances are verified by consulting with concerned authorities.

The District Survey Report for Ordinary Earth/Soil (Minor Mineral) in respect of Keonjhar District in accordance with Appendix-X, Para-7 (iii) (a) of S.O. 3611(E) dt. 25.07.2018 of Ministry of Environment, Forest and Climate Change, New Delhi, Enforcement & Monitoring Guideline for Sand Mining-2020, the DSR is being submitted to SEIAA, Odisha, Bhubaneswar for necessary evaluation and approval.

PLATE NO. -1

INDEX MAP

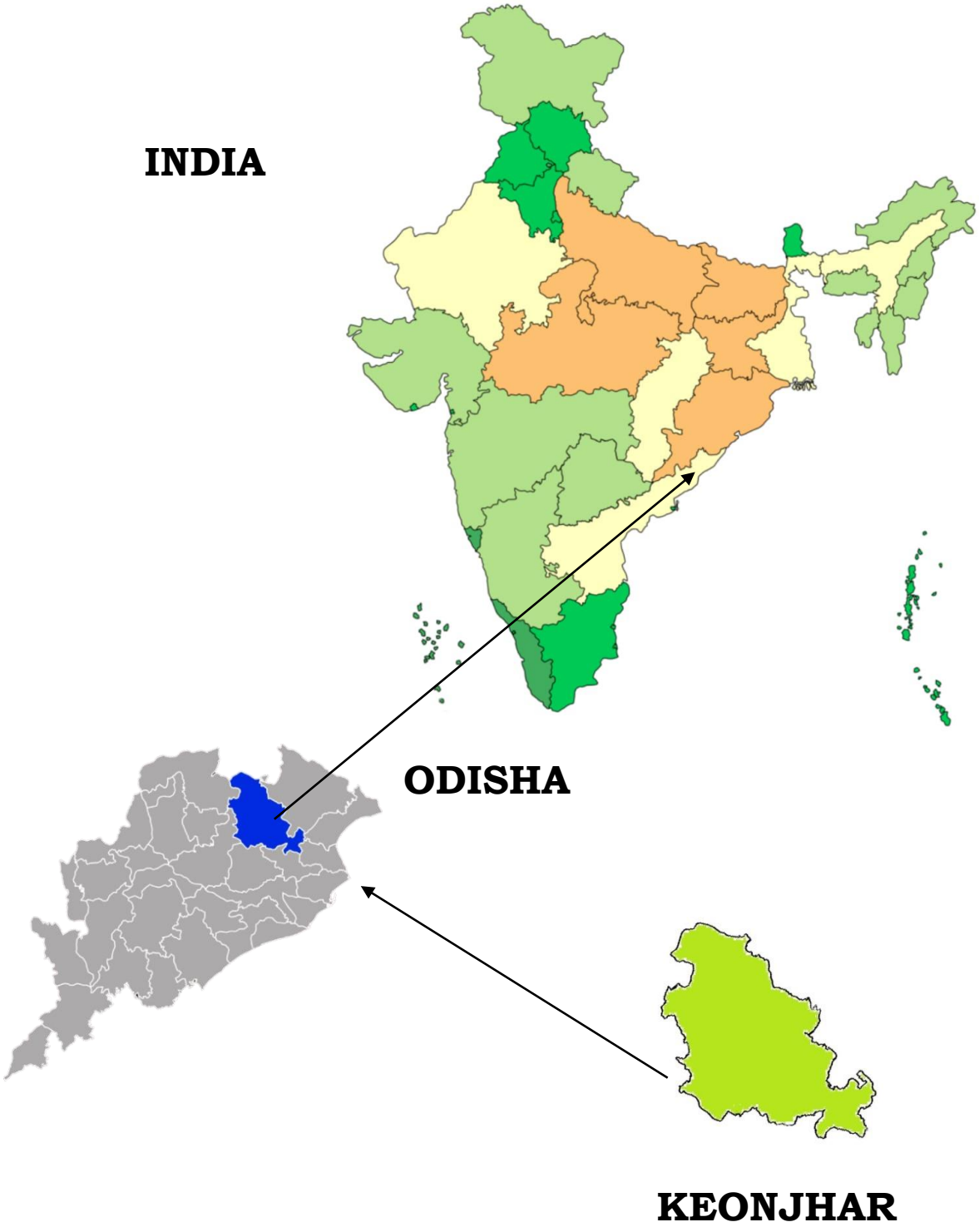


PLATE NO. - 2

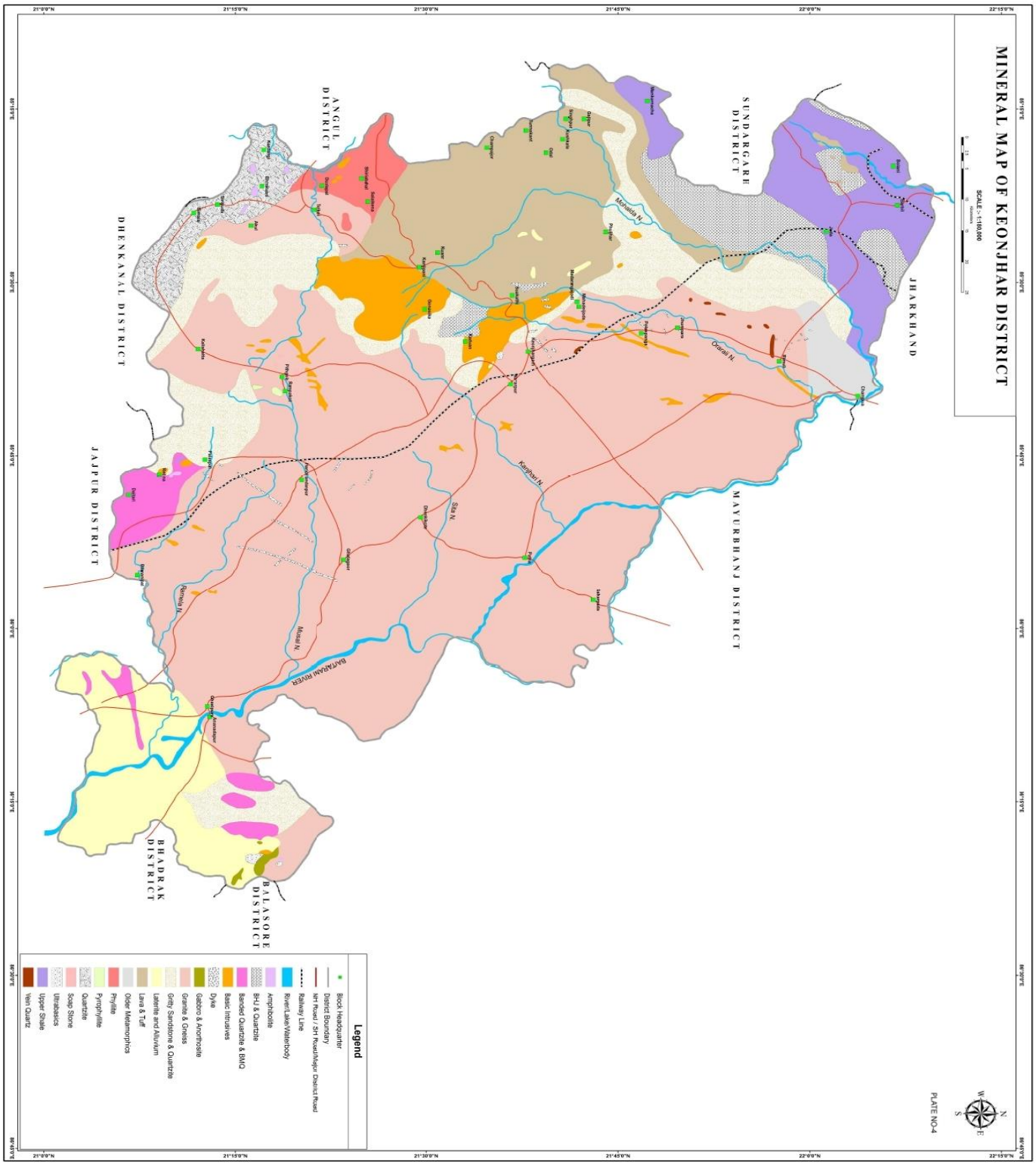
MAP SHOWING THE TAHASILS OF KEONJHAR DISTRICT.

PLATE NO. - 3

MAP SHOWING THE MAJOR ROADS OF KEONJHAR DISTRICT

PLATE NO. -4

MINERAL MAP OF KEONJHAR DISTRICT



ANNEXURE I

SL NO	NAME OF TAHASIL	NAME OF SOURCE	STATUS	CAPTIVE/NON-CAPTIVE	KHATA NO	PLOT NO	AREA IN AC	NAME OF MINOR MINERAL	NAME OF PROJECT PROPONENT	ADDRESS & CONTACT NO OF PROJECT PROPONENT	DATE OF REGISTRATION OF		DATE OF COMMENCEMENT OF MINING OPERATION	ENVIRONMENT CLEARANCE NO. WITH DATE	LOCATION						METHOD OF MINING	GEOLOGICAL RESERVE(MT/CUMS)	MINEABLE RESERVE(MT/CUMS)	ROYALTY/REVENUE RECEIVED IN LAST 3 YEARS(In Rs)			PRODUCTION OF MINERALS IN LAST 3 YEARS(In			RESERVE IN CUM AS PER MINING PLAN
															LONGITUDE			LATITUDE												
											FROM	TO			DEGREE	MINUTE	SECOND	DEGREE	MINUTE	SECOND				2021-22	2022-23	2023-24	2021-22	2022-23	2023-24	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BANSPAL TAHASIL																														
1	BANSPAL	SUKADALA SOIL QUARRY-1	NEW	NON-CAPTIVE	92(AJA)	296	6.42	ORDINARY SOIL/EARTH	ArcelorMittal Nippon Steel India Ltd.	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758034	N/A	N/A	N/A	N/A	85	21	50.98	21	41	34.46	O/C	50380.00	29766.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mining Plan Approved
2	BANSPAL	SAPAKANTA SOIL QUARRY-2	NEW	NON-CAPTIVE	89(AJA)	440	8.686	ORDINARY SOIL/EARTH	ArcelorMittal Nippon Steel India Ltd.	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758035	N/A	N/A	N/A	N/A	85	23	52.74	21	37	41.08	O/C	29020.00	19382.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mining Plan Approved
3	BANSPAL	SAPAKANTA SOIL QUARRY-1	NEW	NON-CAPTIVE	89(AJA)	862 ,863 ,864	11.196	ORDINARY SOIL/EARTH	ArcelorMittal Nippon Steel India Ltd.	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758036	N/A	N/A	N/A	N/A	85	22	58.59	21	38	55.01	O/C	47118.00	38816.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mining Plan Approved

8	7	6	5	4
BANSPAL	BANSPAL	BANSPAL	BANSPAL	BANSPAL
PODADIHI SOIL QUARRY -3	UPER RAIGODA SOIL QUARRY-1	UPER RAIGODA SOIL QUARRY-2	BADAKUDA SOIL QUARRY-1	BADAKUDA SOIL QUARRY-2
NEW	NEW	NEW	NEW	NEW
NON-CAPTIVE	NON-CAPTIVE	NON-CAPTIVE	NON-CAPTIVE	NON-CAPTIVE
66(AJA)	160(AJA)	160(AJA)	59(AJA)	59(AJA)
657	1685 , 1690	1690	585	585
4.583	7.91	2.058	3.55	3.882
ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH
ArcelorMittal Nippon Steel India Ltd.	ArcelorMittal Nippon Steel India Ltd.	ArcelorMittal Nippon Steel India Ltd.	ArcelorMittal Nippon Steel India Ltd.	ArcelorMittal Nippon Steel India Ltd.
Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758041	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758040	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758039	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758038	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758037
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
85	85	85	85	85
24	24	24	22	23
9.33	27.22	34.00	51.51	8.87
21	21	21	21	21
41	39	40	40	40
31.88	54.11	16.24	35.47	25.81
O/C	O/C	O/C	O/C	O/C
36082.00	61638.00	15266.00	28740.00	29690.00
15284.00	25940.00	2892.00	18110.00	10962.00
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
Mining Plan Approved	Mining Plan Approved	Mining Plan Approved	Mining Plan Approved	Mining Plan Approved

13	12	11		10	9
KEONJHAR SADAR	KEONJHAR SADAR	KEONJHAR SADAR		BANSPAL	BANSPAL
NARSHINGPUR SOIL QUARRY 1	POIPANI SOIL QUARRY 1	POIPANI SOIL QUARRY 2		PODADIHI SOIL QUARRY -1	PODADIHI SOIL QUARRY -2
NEW	NEW	NEW		NEW	NEW
NON-CAPTIVE	NON-CAPTIVE	NON-CAPTIVE		NON-CAPTIVE	NON-CAPTIVE
97(AJA)	102(AJA)	102(AJA)		66(AJA)	66(AJA)
394, 394, 402, 402	1,56	95		528	526
4.421	5.666	9.224		5.268	3.279
ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH		ORDINARY SOIL/EARTH	ORDINARY SOIL/EARTH
N/A	N/A	N/A		ArcelorMittal Nippon Steel India Ltd.	ArcelorMittal Nippon Steel India Ltd.
N/A	N/A	N/A	KEONJHAR SADAR TAHASIL	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758043	Beneficiation Plant,Dabuna, Via-Joda,Dist-Keonjhar,PIN-758042
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		85	85
N/A	N/A	N/A		23	23
N/A	N/A	N/A		36.87	56.36
N/A	N/A	N/A		21	21
N/A	N/A	N/A		41	41
N/A	N/A	N/A		26.06	27.70
N/A	N/A	N/A		O/C	O/C
N/A	N/A	N/A		39336.00	26540.00
N/A	N/A	N/A		25220.00	17676.00
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		N/A	N/A
N/A	N/A	N/A		Mining Plan Approved	Mining Plan Approved

14	KEONJHAR SADAR	NARSHINGPUR SOIL QUARRY 2	NEW	NON-CAPTIVE	97(AJA)	476, 477, 465, 465	7.653	ORDINARY SOIL/EARTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	KEONJHAR SADAR	BADABIL	NEW	NON-CAPTIVE	54(AJA)	346	3.941	ORDINARY SOIL/EARTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	KEONJHAR SADAR	PATANA	NEW	NON-CAPTIVE	51(AJA)	339	12.222	ORDINARY SOIL/EARTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ANNEXURE-II

A) Final List Of Potential Mining Lease(Existing & Proposed)

Lease Details

SL NO	NAME OF TAHASIL	NAME OF SOURCE	KHATA NO	PLOT NO	AREA IN AC	Distance (in K.M) from PA/BR/WC	Distance from forest area (in K.M)	Mining lease within 500 metres (if yes cluster area	Total excavation in Cum/ Annum considering digging depth max as 6 metres	Mineral to be mined (sand/Bajri/RBM etc.)	Existing/ proposed
1	2	3	6	7	8	9	10	11	12	13	14
1	BANSPAL	SUKADALA SOIL QUARRY-1	92(AJA)	296	6.42	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
2	BANSPAL	SAPAKANTA SOIL QUARRY-2	89(AJA)	440	8.686	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
3	BANSPAL	SAPAKANTA SOIL QUARRY-1	89(AJA)	862 ,863 ,864	11.196	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
4	BANSPAL	BADAKUDA SOIL QUARRY-2	59(AJA)	585	3.882	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
5	BANSPAL	BADAKUDA SOIL QUARRY-1	59(AJA)	585	3.55	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
6	BANSPAL	UPER RAIGODA SOIL QUARRY-2	160(AJA)	1690	2.058	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
7	BANSPAL	UPER RAIGODA SOIL QUARRY-1	160(AJA)	1685 , 1690	7.91	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
8	BANSPAL	PODADIHI SOIL QUARRY -3	66(AJA)	657	4.583	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
9	BANSPAL	PODADIHI SOIL QUARRY -2	66(AJA)	526	3.279	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
10	BANSPAL	PODADIHI SOIL QUARRY -1	66(AJA)	528	5.268	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed

11	KEONJHAR SA	POIPANI SOIL QUARRY 2	102(AJA)	95	9.224	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
12	KEONJHAR SA	POIPANI SOIL QUARRY 1	102(AJA)	1,56	5.666	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
13	KEONJHAR SA	NARSHINGPUR SOIL QUARRY 1	97(AJA)	394, 394, 402, 402	4.421	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
14	KEONJHAR SA	NARSHINGPUR SOIL QUARRY 2	97(AJA)	476, 477, 465, 465	7.653	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
15	KEONJHAR SA	BADABIL	54(AJA)	346	3.941	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed
16	KEONJHAR SA	PATANA	51(AJA)	339	12.222	Similipal Wildlife santuary is more than 20Kms	Similipal Wildlife santuary is more than 20Kms	N/A	N/A	ORDINARY SOIL/EARTH	Proposed

B) Patta Land /khatedari Land :(existing & proposed)

Owner	SL.No	Area	District	Tahasil	Village	Total Reserve(MT)	Total Mineral to be mined (MT)	Existing / Proposed
Not Applicable for Keonjhar District								

C) De-Siltation Location:(Lakes/Ponds/Dams etc.) (Existing & Proposed)

Name of Reservoir/ Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tahasil	Village	Size(Ha)	Quantity MT/Year	Existing / Proposed
Not Applicable for Keonjhar District								

D) M-Sand Plants:(Existing & Proposed)

Plant Name	Owner	District	Tahasil	Village	Geo-location	Quantity Tonnes /Annum	Existing / Proposed
Not Applicable for Keonjhar District							

ANNEXURE-III

Final Transportation Routes For Individual Leases and Leases In Cluster

Name of the tahasil	Lease No.	Transportation Route No.	No. of tippers/day of lease	No of tippers/day of all the lease on route	Length of route in Km.	Type of road (black topped/unpaved)	Recommendation for road (black topped/unpaved)	The road will be constructed by Govt/Lease Owner	Route Map and Location
1	2	3	4	5	6	7	8	9	10
BANSPAL	SUKADALA SOIL QUARRY-1	Govt. Land	8	8	0.8	Unpaved	Unpaved	Lease Owner	
BANSPAL	SAPAKANTA SOIL QUARRY-2	Govt. Land	6	6	0.7	Unpaved	Unpaved	Lease Owner	
BANSPAL	SAPAKANTA SOIL QUARRY-1	Govt. Land	5	5	0.6	Unpaved	Unpaved	Lease Owner	
BANSPAL	BADAKUDA SOIL QUARRY-2	Govt. Land	4	4	1.2	Unpaved	Unpaved	Lease Owner	
BANSPAL	BADAKUDA SOIL QUARRY-1	Govt. Land	9	9	1.3	Unpaved	Unpaved	Lease Owner	
BANSPAL	UPER RAIGODA SOIL QUARRY-2	Govt. Land	7	7	0.9	Unpaved	Unpaved	Lease Owner	
BANSPAL	UPER RAIGODA SOIL QUARRY-1	Govt. Land	6	6	0.8	Unpaved	Unpaved	Lease Owner	
BANSPAL	PODADIHI SOIL QUARRY -3	Govt. Land	4	4	0.6	Unpaved	Unpaved	Lease Owner	
BANSPAL	PODADIHI SOIL QUARRY -2	Govt. Land	8	8	1.5	Unpaved	Unpaved	Lease Owner	
BANSPAL	PODADIHI SOIL QUARRY -1	Govt. Land	8	8	1.6	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	POIPANI SOIL QUARRY 2	Govt. Land	3	3	1.1	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	POIPANI SOIL QUARRY 1	Govt. Land	2	2	1.2	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	NARSHINGPUR SOIL QUARRY 1	Govt. Land	6	6	1.4	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	NARSHINGPUR SOIL QUARRY 2	Govt. Land	4	4	1.6	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	BADABIL	Govt. Land	2	2	0.8	Unpaved	Unpaved	Lease Owner	
KEONJHAR SADAR	PATANA	Govt. Land	3	3	0.6	Unpaved	Unpaved	Lease Owner	

Cluster No.	Transportation Route No.	No. of tippers/day of lease	No of tippers/day of all the lease on route	Length of route in Km.	Type of road (black topped/unpaved)	Recommendation for road (black topped/unpaved)	The road will be constructed by Govt/Lease Owner	Route Map and Location
No cluster approach of Ordinary Soil/Earth sources in keonjhar District								

Cluster & Contigunous Cluster Details:

Clusters:

River Name	Cluster No.	Lease No	Location(River Bed/Patta Land)	Village	Area(in Ha)	Total excavation(Ton)	Total Mineral excavation(Ton)
No Ordinary Soil/Earth cluster mining in keonjhar district							

Contiguous Cluster :

River Name	Contiguous Cluster no.	Cluster No.	Number of leases in the cluster	Location(River Bed/Patta Land)	Distance between clusters	Village	Area of Cluster(Ha)	Total Mineral excavation(Ton)
No contiguous Cluster situation available in keonjhar district								

Details of Sand /M-Sand Sources

a)

Rivers:

River Name/M-Sand plant	Total Stretch of River(In KM)	Type of River (perennial or Non -Perennial
Not Apllicable in Keonjhar District		

b)De-Siltation Location :(Lake/pond/Dams etc.)

Name	Maintain/controlled by State	Location	District	Tahasil	village	Size(Ha)
Not Apllicable in Keonjhar District						

c) Patta Lands/Khatedari Land:

Owner	Sy.No	Area(Ha)	District	Tahasil	village	Agricultural land (Yes/No)
Not Apllicable in Keonjhar District						

d) M-Sand Plants:

Plant	Owner	District	Tahasil	village	Geo-location	Quantity Tonnes/Annum
Not Apllicable in Keonjhar District						

Executive Engineer, Irrigation Division
Keonjhar

Superintendent Engineer, Irrigation Division
Anandapur

Mining Officer Cum Competent Authority
Keonjhar Sub-division (Member Convenor)

Mining Officer Cum Competent Authority
Anandapur Sub-Division

Mining Officer Cum Competent Authority
Champua Sub-Division

Geologist
JDG Office, Keonjhar

Deputy Director of Mines
Joda

Deputy Director of Mines
Keonjhar

ACF
~~Sadar Sub-Division~~ Keonjhar

ACF
Anandapur Sub-Division Keonjhar

ACF
Champua Sub-Division Keonjhar

Regional Officer
SPCB, Keonjhar

Sub Collector
Anandapur

Sub Collector
Keonjhar

Sub Collector
Champua

Collector Cum District Magistrate
Keonjhar