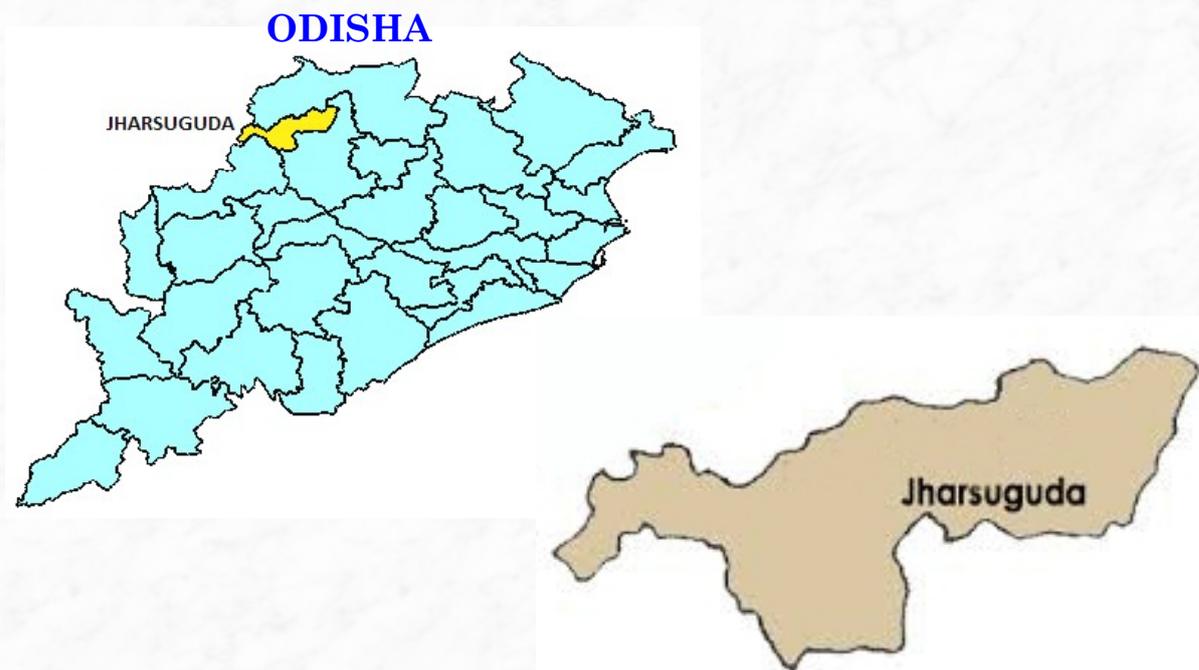




**DRAFT DISTRICT SURVEY REPORT (DSR)**  
**OF**  
**JHARSUGUDA DISTRICT, ODISHA**  
**FOR**  
**RIVER SAND**

**(FOR PLANNING & EXPLOITING OF MINOR  
MINERAL RESOURCES)**



As per Notification No. S.O. 3611(E) New Delhi,  
25<sup>th</sup> July, 2018  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE  
(MoEF & CC)

**COLLECTORATE, JHARSUGUDA**

## CONTENT

SL NO	DESCRIPTION	PAGE NO
1	INTRODUCTION	1
2	OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT	2
3	LIST OF LEASES WITH LOCATION, AREA AND PERIOD OF VALIDITY	2
4	DETAILS OF ROYALTY COLLECTED	2
5	DETAILS OF PRODUCTION OF SAND	3
6	PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS	3
7	GENERAL PROFILE	4
8	LAND UTILISATION PATTERN	5
9	PHYSIOGRAPHY	6
10	RAINFALL	6
11	GEOLOGY AND MINERAL WALTH	7

## LIST OF PLATES

DESCRIPTION	PLATE NO
INDEX MAP OF THE DISTRICT	1
MAP SHOWING TAHASILS	2
ROAD MAP OF THE DISTRICT	3
MINERAL MAP OF THE DISTRICT	4
LEASE/POTENTIAL AREA MAP OF THE DISTRICT	5

# INDEX MAP



## ODISHA



**MAP SHOWING THE TAHASILS OF JHARSUGUDA DISTRICT**



### MAP SHOWING THE MAJOR ROADS OF JHARSUGUDA DISTRICT



## PREFACE

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 the preparation of district survey report of road metal/building stone mining has been prepared in accordance with Clause II of Appendix X of the notification. Every effort has been made to cover river sand mining locations, future potential areas and overview of sand mining activities in the district with all its relevant features pertaining to geology and mineral wealth. This report will act as a compendium of available mineral resources, geological set up, environmental and ecological set up of the district and based on data of various departments like Revenue, Water Resources, Forest, Geology and Mining in the district as well as statistical data uploaded by various state Government departments for preparation for district survey report. The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

### 1. INTRODUCTION

**Jharsuguda** is a district in [Odisha, India](#) with [Jharsuguda](#) town as its headquarters. Mineral rich District, Jharsuguda is one of the most industrially developed District of Odisha. Jharsuguda District was established on 1st January, 1994, before which it was a part of Sambalpur District. It was created by amalgamation of the erstwhile Jamindars of Rampur, Kolabira, Padampur and Kudabaga. The district is surrounded by Sundargarh District in the North, Sambalpur district in the East, Bargarh District in the South and Chattisgarh state in the West. Jharsuguda District is situated at a distance of 515 km from Kolkata, 616 km from Nagpur, 48 km from Sambalpur and 372 km from state capital Bhubaneswar. Jharsuguda district covers a total area of 2, 081 sq km. The district once had an [airport](#) during [World War II](#). This region is rich in coal and other mineral reserves. Of late, many small and medium scale iron and steel units have been set up in the vicinity of Jharsuguda town, giving impetus to the industrial growth of the district.

### 2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

**Coal** : Coal, the major mineral resources of the district is confined to Ib-river coal field which was brought to light towards the later part of the last century and now it is supposed to be one of the major coal fields in India. Both Barakar and Karharbari formations of this coal field are major coal bearing horizons. Surface and sub-surface data reveal one coal seam in Karharbari and four coal seams in Barakar with a number of local seams. The coal seams are highly interbanded with high moisture and ash contents. A total reserve of 9361.26 million tonnes of power grade coal has been estimated for the district.

**Fire Clay:** Several occurrences of fire clay have been encountered within the Kamthi and Barakar formations of Ib-river coal field associated with coal seams. The important occurrences are located around Belpahar, Jurabag, Darliapali, Lakhanpur and Bholamal. The fire clay is very hard, fine grained with good plasticity, dirty white in colour and when burnt it neither cracks nor fuses at 1400°C. The fusion point varies from 1600° to 1640°C. A total reserve of 0.674 million tonnes of fire clay has been estimated for the district. Tata Refractories Ltd. (TRL) is a major refractory plant in the state which thrives on the produce of the Belpahar fireclay mine. Other occurrences are reported in the village Chandli, Soldia, Ganga, Belout, Bhatlaida, Bonaroi, Khinda & Talabira.

**Quartz & Quartzite:** The quartz deposit of Bhatlaira, Bonereai & quartzite of Kanjhaharan are amongst the notable ones. Besides, refractory / glass grade quartz occurs around Laikera, Pandrimal, Jhargaon – Kadamghat, Kolabira, Jangapera, Bhikhampur, Beldungri & Harpidungri.

**Red Oxide / Red Ochre:** An important deposit of red oxide occurring within Gondwanas is located in Patrapali – Malda and is under active exploitation.

**Gemstone:** Gem quality green tourmaline occurrences in the zoned pegmatites have been encountered within porphyritic granite gneiss, amphibolite & schists around Bagdihi. Incidences of semitransparent aquamarines have been reported from colluvial zone of the pegmatite body, located east of Pandrimal.

**Dolomite:** The river Sapai, flowing along the boundary of Sundargarh and Jharsuguda districts exposes sporadic occurrences of dolomite. These occurrences appear to be extension of limestone and dolomite deposits of Gangpur Synclitorium. The estimated reserve of dolomite along the Sapai river section in both Jharsuguda and Sundergarh district is 5.4 million tonnes.

**Other Minerals:** Minor occurrences of minerals like kyanite of Titheimal, sillimanite of Bhuliadihi, opaque beryl of Pandrimal and Kolabira, tourmaline of Kolabira, columbite –tantalite of Kolabira, feldspar of Bhatlaira and the Pyroxene granulites of Pandrimal area for dimension stone have also been reported.

Other than the above mentioned minerals, minor minerals such as river sand, laterite slabs, building stone/black stone/road metals, morrum, brick earth etc. are also available in the district.

### 3. LIST OF LEASES WITH LOCATION, AREA AND PERIOD OF VALIDITY

Enclosed as Annexure I

### 4. DETAILS OF ROYALTY COLLECTED (Rs)

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Jharsuguda	499000	567000	7758000	8017000
2	Kirmira	0	315438	720758	833490
3	Kolabira	0	111000	1639000	3505000
4	Laikera	0	208000	1160000	316000
5	Lakhanpur	0	0	0	0
<b>TOTAL</b>		<b>499000</b>	<b>1201438</b>	<b>11277758</b>	<b>12671490</b>

### 5. DETAILS OF PRODUCTION OF SAND (cum)

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Jharsuguda	120178.8	123440.6	152080.4	167874.4
2	Kirmira	0	11363	11370	11380
3	Kolabira	26033	46826	46966.25	169974.3
4	Laikera	4100	8400	8800	9000
5	Lakhanpur	0	6000	9000	15492
<b>TOTAL</b>		<b>150311.8</b>	<b>196029.6</b>	<b>228216.7</b>	<b>373720.7</b>

### 6. PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS

The drainage of the district is mainly controlled by rivers like IB & Beden. During rainy season the river water carries sand which is formed due to disintegration of rock bodies along with other suspensions. After recession of the water flow the sand gets deposited in the locations where there is less energy.

## 7. GENERAL PROFILE

### a. Administrative set up:

SI No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	84 <sup>0</sup> 01' East
	Latitude	Degree	21 <sup>0</sup> 82' North
2	Geographical area	Sq.Km.	2114
3	Sub-division	Numbers	1
4	Tahasils	Numbers	5
5	C D Blocks	Numbers	5
6	Municipalities	Numbers	3
7	NACs	Numbers	-
8	Police Stations	Numbers	11
9	Gram Panchayats	Numbers	78
10	Villages	Numbers	351
	Inhabited	Numbers	347
	Uninhabited	Numbers	4
11	Assembly constituencies	Numbers	2

### b. Area and Population:

Jharsuguda district covers a total area of 2,081 sq km. The district lies between 21.82 degree north latitude and 84.1 degree east longitude.

Total population of the District is 579505 consisting of 351 villages. Urban Population is 231165 and rural population is 348340. Total male population of the District is 296690 and female population is 282815. The District consists of total 104620 SC population and 176758 ST population. The total

literacy rate of the District is 78.86% comprising 86.61% male literacy rate and 70.73% female literacy rate.

**c. Climate :**

The district of Jharsuguda is characterized by a hot dry summer. The temperature in the month of May is 42 degree at the maximum. The average rainfall of the District is 1500 millimeter. From April to August the wind blows from south and southwest whereas from September onwards wind blows from North West.

**d. Economy:**

The economy of the Jharsuguda district can be judged through its natural resources. The District is rich in minerals like coals, quartzite and fire clay. Besides deposit of limestone, granite, white sand stone and laterite stone are also found in several places of Jharsuguda district that add to economy of the District. Several industrial units like Vendanta Alumina, Bhusan Steel and Power, TATA Refractories are operating in the district those contribute to the economic growth of the district. There are also some major forest products like Kendu leaves, wood, rice and leather that also contribute significantly to the economy of Jharsuguda district.

**e. Industry:**

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
1517	12335.47	463	466	2921	3850	151

**f. Agriculture:**

During the year 2017-18 the net area sown was 60 thousand hectares against 5356 thousand hectares of the state. The production of was as below:

Name	Paddy	Wheat	Maize	Mung	Biri	Kulthi	TilL	Groundnut	Mustard	Potatoes	Jute	Sugar cane
Production in 000 MT	116.52	0.15	2.87	0.69	0.39	1.37	1.22	1.00	1.24	0.00	4.80	27.04

During 2017-18, the total fertilizers used in the district was about

Type of fertiliser	Nitrogenous	Phosphatic	Pottasic	Total	Consumption per Ha
Quantity in MT	3372	1401	722	5495	67.27

**g. Power:**

Consumption of electricity in the district during the year covers 82 million units per month and villages so far electrified as on 30.08.2019 is 333 which constitutes almost 95% to the total villages of the district.

**h. Transport & Communication:**

Railway route length (14-15) km	66.62
No of Rly stations and PH(14-15)	9
Forest road (17-18) km	23.00
National Highway (16-17) km	105.60
State Highway (17-18) km	106.16
Major district road (17-18) km	40.37
Other dist road (17-18) km	942.75
Rural road(17-18) km	323.41
Inter village road (16-17) km	1024.64
Intra village road (16-17) km	1025.57

**i. Health:**

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

Sub divisional hospitals including mobile	2 No
Beds facilities	234 No
Homoeopathic dispensaries	9 No
Ayurvedic dispensaries	8 No

**j. Tourist places:**

Jharsuguda is one of the popular tourist destinations. The district is decorated with many tourist places. Koilighugar waterfall (Lakhanpur) and

Adyaswambhu are the picnic spots that attract lots of tourists every year. Likewise there are several places of historical importance like ruins of Hill Forts of Ulapgarh, rock painting and lithography of Bikramkhol, Ushakothi cave and Kolabira Fort. The district has number of temples namely Padmasini Temple of Padampur, Ancient Shiva Shrine of Jhadeswar Temple, Ramchandi, an ancient Shaktipitha, Shree Pahadeswar Temple, Shiva Shrine of Mahadebpali.

**k. Forest areas:**

Category of forest	Area in sq km
Reserve Forest	35.53
Unclassified Forest	0.04
Demarcated Protected Forest (DRF)	109.97
Undemarcated Protected Forest	0
Other forest under Revenue Dept	56.9
<b>Total</b>	<b>202.44</b>

**l. Education:**

Primary School (2017-18)	No. of Schools	393
	Enrolment (No)	47042
	Pupil Teacher Ratio	20.50
Upper Primary School 2017-18	No. of Schools	323
	Enrolment (No)	28349
	Pupil Teacher Ratio	14.52
General College 2017-18	Junior	21
	Degree	10
Secondary School	No. of Schools	137
	Enrolment (No)	15858
	Pupil Teacher Ratio	21.60
Literacy Rate, 2011	Male	86.6
	Female	70.7
	Total	78.9

**m. Culture & Heritage:**

Jharsuguda district is very much rich in its cultural heritage. Various fairs and festivals are celebrated round the year that indicates its richness in culture and religion. There are many common fairs and festivals that are celebrated in the state. But there are few distinct and special festivals that

are celebrated in the District like Ranjta Festival, Ratha Jatra of Kukurjunga, Famous Gokulastami Jatra of Rajpur and Makar Ratha Jatra of Belpahar.

The District is a beautiful diaspora of different origins of people from across India which makes it unique & different from other cities in Odisha. Sambalpuri is the mother tongue of the district. Besides some ethnic groups have their own languages like Agrias, Lairias, Mundas, Kishans, Khadis and Turis.

## 8. LAND UTILISATION PATTERN

SI No	Landuse	Area in '000Ha
1	Forest Area	20
2	Misc. trees & Grooves	6
3	Permanent Pasture	20
4	Culturable Waste	15
5	Land put to Non Agril Use	39
6	Barren & Unculturable Land	17
7	Current Fallow	28
8	Other Fallow	3
9	Net Area Sown	60
10	Mining	
	Geographical Area	208

## 9. PHYSIOGRAPHY

The district exposes a wide spectrum of rock types. The Peninsular Gneiss comprising augen gneiss and migmatite represent the oldest rocks of Archaean to Lower Proterozoic age in the area. They occupy a gently undulating terrain east of Jharsuguda. A small body of massive granite, the Tamparkola granite, of Lower Proterozoic age occurs as an isolated exposure near Dulesra. A narrow linear strip of metasedimentary rocks consisting of quartzite, quartz-sericite schist, phyllite and mica schist occurring near Laikera belongs to Upper Bonai Group of Lower Proterozoic age. Well consolidated, soft and foliated rocks of Gangpur Group of Lower Proterozoic age

comprising phyllite and mica schist are well exposed here. An unmetamorphosed sedimentary sequence of rocks occur near the western corner of the district. This sedimentary sequence can be broadly divisible into a sequence of shale, calcareous shale and quartzite forming the Raipur Group and coarse sandstone and quartzite forming the Chandarpur Group of the Chattisgarh Super Group. The Gondwana Super Group of sedimentary rocks are confined to fault bounded basin and occur in the central part of the district around Belpahar, Brajarajnagar areas. Among Talchir and Barakar Formations of Lower Gondwanas, the latter is the store house of 'bituminous coal' in the region. Kamthi Formation consisting of conglomerate, sandstone, shale, red clay etc. represents the Upper Gondwanas in the area. Soil, alluvium and laterite are the younger formations in the area. Laterite occurs in small, isolated, irregular outcrops, spread almost all over the above rock types. The unclassified soil/alluvium of the Quaternaries occupies large area in the Mahanadi river valley and over the gneissic country, east of Jharsuguda.

#### 10. RAINFALL

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 46°C in the summer and up to 7<sup>o</sup>-8<sup>o</sup> C during peak winter.

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

Year/ Month	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	TOTAL
15-16	40.86	7.4	199.1	480.9	441.9	271.78	7.04	0	26.32	0	24.06	16.26	<b>1515.66</b>
16-17	0	22.44	85.72	259.2	406.1	253.24	43.88	0	0	7.5	0	4.69	<b>1082.75</b>
17-18	1	64.48	228.4	442.3	300.8	245.84	94.06	0	0	0	0	1.64	<b>1378.6</b>
18-19	27.94	113.8	176.1	421.2	399.5	122.26	6.6	0	90.54	0	44.04	13.9	<b>1415.96</b>

<b>AVG</b>	<b>17.45</b>	<b>52.03</b>	<b>172.3</b>	<b>400.9</b>	<b>387.1</b>	<b>223.28</b>	<b>37.895</b>	<b>0</b>	<b>29.22</b>	<b>1.875</b>	<b>17.03</b>	<b>9.1225</b>	<b>1348.24</b>
------------	--------------	--------------	--------------	--------------	--------------	---------------	---------------	----------	--------------	--------------	--------------	---------------	----------------

## 11. GEOLOGY AND MINERAL WALTH

The geological succession in the district is as follows:

<b>AGE</b>	<b>GEOLOGICAL UNIT</b>	<b>LITHOLOGY</b>
Pleistocene to Recent	Quaternary	Soil and alluvium
Cainozoic		Laterite
Permian to Triassic	Gondwana Super Group	Kamthi Formation Conglomerate, sandstone shale, red clay
Permian		Barakar Formation Sandstone, shale with coal seams
Carboniferous (?) Permian		Talchir Formation Green sandstone, needle shale, boulder bed
Upper Proterozoic		Gangpur granite
Middle to Upper Proterozoic	Chattisgarh Super Group	Raipur Group Shale, calcareous shale, quartzite
Lower Proterozoic		Chandarpur Group Coarse quartzite, sandstone
Lower Proterozoic		Gangpur Group Phyllite, mica schist
Lower Proterozoic		Tamparkola granite
		Upper Bonai Group Shale, phyllite, mica schist Quartzite, quartz-sericite schist
Archaean to Lower Proterozoic		Lower Bonai Group Metabasics

Archaean	Peninsular Gneiss (Younger phase) Peninsular Gneiss (Older phase)	Augen gneiss and migmatite Medium grained biotite granite gneiss
----------	--	---

- a. Detail of river/stream/other sand source- Sand mining in the district is confined to main rivers like IB & Beden.
- b. Availability of maximum sand or gravel or aggregate resources- sand- 21,25,147 cum (Annexure II), Gravel- Nil, Aggregate- Nil
- c. Detail of existing mining leases of sand and aggregates- For sand pl refer Annexure I. Aggregate- Nil

### DRAINAGE SYSTEM AND DESCRIPTION OF SALIENT FEATURES OF MAIN RIVERS AND STREAMS

Sl.no	Name of the River	Place of origin	Altitude at origin	Total length in the district (in km)	Area drained (sq km)	% area drained in the district	Process on deposition of sediments	Volume of sand deposited in last four years( Year wise)	Any important note related to leasing of sand quarry within the river
A	B	C	D	E	F	G	H	I	J
1	River IB	Pandarpapat Raigarh	21°51'N	52Km	12447sq km	14Km	Flood water enter and become sedimentation	35,00,000 Cum(Approx.)	Approaching road for leasing sand quarry
			83°56'E						
2	River Beden	Bamara	21°46'7" N	50Km	2120 sq km	50Km	Flood water enter and become sedimentation	50,00,000 Cum(Approx.)	Approaching road for leasing sand quarry
			84°14' 40"E						

Detail of the potential of river sand of the district is submitted as Annexure II.

## SAND SAIRATS ALREADY LEASED OUT AND EXECUTED

Sl. No.	Name of Tahasil	River or stream and Name of Village & date of Registration of lease deed	Portion of the River or Stream leased for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Length of area leased for mineral concession (in km)	Average width of area leased for mineral concession (in km)	Area leased for mineral concession (in sq m)	Mineable mineral potential as per approved mining plan (in cum)
A	B	C	D	E	F	G	H
1	Jharsuguda	Basundhara Rajpur S/B A	Khata No.188/ Khata No. 535	0.483	0.117	56332.24	37422
2	Jharsuguda	Basundhara Rajpur S/B B	Khata No.188/ Khata No. 594	0.241	0.231	55846.6	24531
3	Jharsuguda	lb Tharkaspur S/B	Khata No.32/ Khata No. 534/646	0.201	0.302	60702.8	64027
4	Jharsuguda	lb Charbhati S/B	Khata No.122/ Khata No. 15 26	0.000	0.000	0	35000
5	Jharsuguda	Bheden Katikela S/B A	Khata No.244/ Khata No. 2062, 2063, 2064, 2065, 2066, 2125, 2135	0.664	0.121	80127.8	47828
6	Jharsuguda	Bheden Katikela S/B C	Khata No.244/ Khata No. 300/2143	0.684	0.089	60541	63215
7	Jharsuguda	Bheden Katikela S/B D 17.06.2019	Khata No.244/ Khata No. 300/2143	0.805	0.101	80937.1	9221
8	Jharsuguda	lb Talpatia S/B A 19.08.2016	Khata No.269/ Khata No. 1	0.604	0.201	121406	16872
9	Jharsuguda	lb Talpatia S/B B	Khata No.269/ Khata No. 1051 1187 1187/2567	1.609	0.121	194249	18501
10	Jharsuguda	Bheden Tumbekela S/B A 10.08.2016	Khata No.1/ Khata No. 743	0.604	0.101	60702.8	30000
11	Jharsuguda	lb	Khata No.1/ Khata No. 40/896	0.443	0.129	56979.7	65650

	uda	Jamera S/B C 11.08.2016					
12	Jharsug uda	Bheden Sripura S/B B 19.4.2017	Khata No.1/ Khata No. 32/2298	0.845	0.169	142773	65001
13	Jharsug uda	Bheden Sripura S/B C	Khata No.1/ Khata No. 1180	0.604	0.101	60702.8	13125
14	Jharsug uda	lb Lahandabud S/B C 11.08.2016	Khata No.176/ Khata No. 380	0.402	0.201	80937.1	21000
15	Jharsug uda	lb Panchpada S/B A 03.02.2018	Khata No.878/ Khata No. 530/3974	0.362	0.334	120920	26526
16	Jharsug uda	lb Panchpada S/B B 04.02.2017	Khata No.878/ Khata No. 530/3974	0.342	0.322	110074	150890
17	Jharsug uda	lb Panchpada S/B C 05.01.2017	Khata No.878/ Khata No. 530/3974	0.382	0.286	109184	148316
18	Jharsug uda	lb Panchpada S/B D 18.05.2017	Khata No.878/ Khata No. 530/3974	0.382	0.272	103802	114445
19	Jharsug uda	lb Panchpada S/B E	Khata No.878/ Khata No. 530/3974	0.563	0.107	60055.3	47460
20	Jharsug uda	Bheden Luhurenkachhar S/B A 19.08.2016	Khata No.5/ Khata No. 1	0.754	0.080	60702.8	15000
21	Jharsug uda	Bheden Luhurenkachhar S/B C	Khata No.5/ Khata No. 1	0.604	0.101	60702.8	14309
22	Jharsug uda	Bheden Katikela S/B B	Khata No.244/ Khata No. 2125 2135	0.744	0.109	80856.2	
23	Jharsug uda	lb Tangarpali S/B	Khata No.112/ Khata No. 1	1.006	0.080	80937.1	43480
24	Jharsug uda	lb Budhipadar S/B	Khata No.91/ Khata No. 838/939	0.402	0.201	80937.1	108741
25	Jharsug	Bheden	Khata No.1/ Khata No. 32/2298	1.308	0.093	121001	

	uda	Sripura S/B A					
26	Jharsug uda	lb Lahandabud S/B A	Khata No.176/ Khata No. 380/1838	0.282	0.290	81584.6	43516.2
27	Jharsug uda	lb Lahandabud S/B B	Khata No.176/ Khata No. 380/1838	0.348	0.282	98014.9	20000
28	Jharsug uda	Bheden Tumbekela S/B B (Kherual)	Khata No.1/ Khata No. 737	0.563	0.109	61188.5	14760
29	Kimiria	River-Safei, Village-Bhaunra, Source-Bhaunra Sand Bed-A, Date of registration of lease deed-12.04.2017 Lessee- Saroj Kumar Naik	Mouza-Bhaunra Khata No.271 Khata No.1016 Area- Ac. 12.50 Latitude 21° 59' 43.66''N21° 59' 43.97''N22° 00' 15.25''N22° 00' 15.21''N Longitude 84° 06' 31.55'' E84° 06' 29.67'' E84° 06' 41.04'' E84° 06' 43.85'' E	0.8	0.06	48000	18236
30	Kimiria	River-Safei, Village-Bhaunra, Source-Bhaunra Sand Bed-B, Date of registration of lease deed-24.03.2018 Lessee- Rebun Sahu	Mouza-Bhaunra Khata No.271 Khata No.38 Area- Ac. 12.50 Latitude 22° 00' 22.8'' 22° 00' 35.7'' 22° 00' 22.6'' 22° 00' 21.8'' Longitude 84° 06' 45.8'' 84° 06' 53.1'' 84° 06' 56.5'' 84° 06' 48.4''	1	0.06	60000	42228

31	Kolabir a	River-Bheden Vill- Bhograpali & Samasingha 12.10.2018 / Bhograpali & Samasingha Sand Bed	Bhograpali Samasingha <b><u>Latitude</u></b> 21°45'09.05''N to 21°45'29.97''N <b><u>Longitude</u></b> 84°10'42.73''E to 84°11'15.65''E Khata No.83 490 Plot No.638/112 (P) <u>1651 (P)</u> 2 Plots	1.160	0.080	93077.70	75215.00
32	Kolabir a	River-Bheden Vill- Guchhapali 01.11.2017/ Guchhapali Sand Bed	Guchhapali <b><u>Latitude</u></b> 21°45'43.8''N to 21°45'54.8''N <b><u>Longitude</u></b> 84°13'23.8''E to 84°13'46.7''E Khata No 153 Plot No. 2097 <u>2098</u> 2 Plots	0.720	0.750	50585.71	51001.00
33	Kolabir a	River-Telen Vill- Kolabira 06.03.2017/ Kolabira Sand Bed-B	Kolabira <b><u>Latitude</u></b> 21°49'33.8'' to 21°49'07.1'' <b><u>Longitude</u></b> 84°10'13.6'' to 84°10'13.2'' Khata No 217 Plot No. 1494/1986	1.200	0.045	50585.71	43993.00

34	Kolabir a	River-Bheden Vill- Kulihamal 01.11.2017/ Kulihamal Sand Bed	Kulihamal <b>Latitude</b> 21045'52.3''N to 21045'57.3''N <b>Longitude</b> 84013'13.8''E to 84013'37.7''E Khata No 226 Plot No. 2605	0.660	0.075	50585.71	19800.00
35	Kolabir a	River-Telen Vill- Raghunathpali & Kolabira 05.01.2019/ Raghunathpali & Kolabira Sand Bed	Raghunathpali Kolabira <b>Latitude</b> 21047'36.78''N to 21048'14.63''N <b>Longitude</b> 84008'58.83''E to 84009'27.99''E Khata No 272 217 Plot No. 2102 4 40 <u>41</u> 4 Plots	2.080	0.050	109588.87	23058.00
36	Kolabir a	River- Telen Vill- Salhepali 13.09.2017/ Salhepali Sand Bed	Salhepali <b>Latitude</b> 21047'55.79'' to 21047'37.71'' <b>Longitude</b> 84007'40.06'' to 84007'24.92'' Khata No 113 Plot No. 1	1.270	0.045	50585.71	42421.50

37	Kolabir a	River-Bheden Vill- Sodamal 12.10.2018/ Sodamal Sand Bed	Sodamal <b><u>Latitude</u></b> 21045'36.33'' to 21046'03.15'' <b><u>Logitude</u></b> 84009'32.93'' to 84010'13.03'' Khata No 491 Plot No. 423(P) 913 <u>3361(P)</u> 3 Plots	1.450	0.090	131927.50	49740.00
38	Kolabir a	River-Bheden Vill- Sodamal 18.03.2017/ Sodamal Sand Bed-C	Sodamal <b><u>Latitude</u></b> 21°45'13.2''N to 21°45'28.0''N <b><u>Longitude</u></b> 84°11'49.7''E to 84°12'03.5''E Khata No 491 Plot No. 3424(P)	0.500	0.080	50585.71	52874.00
39	Kolabir a	River-Bheden Vill- Sodamal 06.03.2017/ Sodamal Sand Bed-D	Sodamal <b><u>Latitude</u></b> 21°46'51.08''N to 21°46'06.09''N <b><u>Longitude</u></b> 84°09'25.00''E to 84°09'02.03''E Khata No 491 Plot No. 1	0.490	0.100	50585.71	44026.25

40	Kolabir a	River- Bheden Vill- K. Samasingha/ K. Samasingha Sand Bed	Samasingha <b>Latitude</b> 21°45'34.95'' to 21°45'58.39'' <b>Longitude</b> 84°09'59.62'' to 84°10'24.76'' Khata No 490 Plot No. 1650(P) <u>1651(P)</u> 2 Plots	1.110	0.080	105218.00	59315.00
41	Kolabir a	River- Bheden Vill- Paramanpu/ Paramanpur Sand Bed	Paramanpur <b>Latitude</b> 21°47'18.45''N to 21°47'57.96''N <b>Longitude</b> 84°06'29.37''E to 84°07'38.49''E Khata No 268 Plot No. 3623 3648 <u>3703(P)</u> 3 Plots	2.560	0.056	133950.90	62466.00
42	Laikera	River Muradipali 07-01-2017	Khata-111 plot-337 640(p) 501(p)	1.8	0.08	128285.3	150000
43	Lakhan pur	Kelo River, Kanaktora, 07.04.2017	196, 1115/2081(P), Ac 13.00 Latitudes of 21°.45'53.6" N to 21°46'14.3" N And Langitudes of 83°28'47.5" E to 83°28'57.6"E.	370 mt	80 mt	29600 SQM	8528 cum

44	Lakhanpur	Kelo River, Amapali, 11.07.2018	Latitudes of 21°.45'11.6" N to 21°45'22.6" N And Longitudes of 83°29'44.3" E to 83°29'57.8"E.	380 mtr	152 mtr	57760 sqm	25501 cum
45	Lakhanpur	IB River, Dudolisingha-1	Latitudes of 21°.45'18.76" N to 21°45'20.14" N And Longitudes of 83°56'06.19" E to 83°56'10.60"E.	265 mtr	183 mtr	48760 sqm	180405 cum
46	Lakhanpur	IB River, Dudolisingha-2	Latitudes of 21°.45'16.76" N to 21°45'19.27" N And Longitudes of 83°56'06.50" E to 83°56'11.22"E.	293 mtr	165 mtr	48345 sqm	14300.5 cum
47	Lakhanpur	IB River, Dudolisingha-3	Latitudes of 21°.45'21.34" N to 21°45'30.31" N And Longitudes of 83°56'06.35" E to 83°56'11.78"E.	280 mtr	173 mtr	48440 sqm	20340.6
48	Lakhanpur	IB River, Dudolisingha-4	Latitudes of 21°.45'23.07" N to 21°45'36.20" N And Longitudes of 83°55'57.39" E to 83°56'07.06"E.	260 mtr	184 mtr	47840 sqm	24743.2 cum
49	Lakhanpur	Mahanadi River Kandheikela	Latitudes of 21°.39'32.1" N to 21°39'37.9" N And Longitudes of 83°27'08.1" E to 83°27'18.5"E.	180 mtr	155.9 mtr	28062 sqm	16167 cum
50	Laikera	River	Muradipali Kh-111 Plot-640(p) 337(p) 501 07/01/2017	1.8	0.08	128285.3	150000.00

## Annexure II

## POTENTIAL SAND SAIRATS IN THE DISTRICT

Sl. No.	Name of Tahasil	River or stream	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Name of village	Length of area recommended for mineral concession (in km)	Average width of area recommended for mineral concession (in km)	Area recommended for mineral concession (in sq m)	Maximum Mineable sand (in cum) (60% of total potential)
A		B	C	D	E	F	G	H
1	Jharsuguda	Basundhara Rajpur S/B A	Khata No.188/ Khata No. 535		0.483	0.117	56332.24	37422
2	Jharsuguda	Basundhara Rajpur S/B B	Khata No.188/ Khata No. 594		0.241	0.231	55846.6	24531
3	Jharsuguda	Ib Tharkaspur S/B	Khata No.32/ Khata No. 534/646		0.201	0.302	60702.8	64027
4	Jharsuguda	Ib Charbhati S/B	Khata No.122/ Khata No. 15 26		0.000	0.000	0	35000
5	Jharsuguda	Bheden Katikela S/B A	Khata No.244/ Khata No. 2062 2063 2064 2065 2066 2125 2135		0.664	0.121	80127.8	47828
6	Jharsuguda	Bheden Katikela S/B C	Khata No.244/ Khata No. 300/2143		0.684	0.089	60541	63215
7	Jharsuguda	Bheden Katikela S/B D 17.06.2019	Khata No.244/ Khata No. 300/2143		0.805	0.101	80937.1	9221
8	Jharsuguda	Ib Talpatia S/B A	Khata No.269/ Khata No. 1		0.604	0.201	121406	16872

		19.08.2016						
9	Jharsuguda	Ib Talpatia S/B B	Khata No.269/ Khata No. 1051 1187 1187/2567		1.609	0.121	194249	18501
10	Jharsuguda	Bheden Tumbekela S/B A 10.08.2016	Khata No.1/ Khata No. 743		0.604	0.101	60702.8	30000
11	Jharsuguda	Ib Jamera S/B C 11.08.2016	Khata No.1/ Khata No. 40/896		0.443	0.129	56979.7	65650
12	Jharsuguda	Bheden Sripura S/B B 19.4.2017	Khata No.1/ Khata No. 32/2298		0.845	0.169	142773	65001
13	Jharsuguda	Bheden Sripura S/B C	Khata No.1/ Khata No. 1180		0.604	0.101	60702.8	13125
14	Jharsuguda	Ib Lahandabud S/B C 11.08.2016	Khata No.176/ Khata No. 380		0.402	0.201	80937.1	21000
15	Jharsuguda	Ib Panchpada S/B A 03.02.2018	Khata No.878/ Khata No. 530/3974		0.362	0.334	120920	26526
16	Jharsuguda	Ib Panchpada S/B B 04.02.2017	Khata No.878/ Khata No. 530/3974		0.342	0.322	110074	150890
17	Jharsuguda	Ib Panchpada S/B C 05.01.2017	Khata No.878/ Khata No. 530/3974		0.382	0.286	109184	148316
18	Jharsuguda	Ib Panchpada S/B D 18.05.2017	Khata No.878/ Khata No. 530/3974		0.382	0.272	103802	114445
19	Jharsuguda	Ib Panchpada S/B E	Khata No.878/ Khata No. 530/3974		0.563	0.107	60055.3	47460

20	Jharsuguda	Bheden Luhurenkachh ar S/B A 19.08.2016	Khata No.5/ Khata No. 1		0.754	0.080	60702.8	15000
21	Jharsuguda	Bheden Luhurenkachh ar S/B C	Khata No.5/ Khata No. 1		0.604	0.101	60702.8	14309
22	Jharsuguda	Bheden Katikela S/B B	Khata No.244/ Khata No. 2125 2135		0.744	0.109	80856.2	
23	Jharsuguda	Ib Tangarpali S/B	Khata No.112/ Khata No. 1		1.006	0.080	80937.1	43480
24	Jharsuguda	Ib Budhipadar S/B	Khata No.91/ Khata No. 838/939		0.402	0.201	80937.1	108741
25	Jharsuguda	Bheden Sripura S/B A	Khata No.1/ Khata No. 32/2298		1.308	0.093	121001	
26	Jharsuguda	Ib Lahandabud S/B A	Khata No.176/ Khata No. 380/1838		0.282	0.290	81584.6	43516.2
27	Jharsuguda	Ib Lahandabud S/B B	Khata No.176/ Khata No. 380/1838		0.348	0.282	98014.9	20000
28	Jharsuguda	Bheden Tumbekela S/B B (Kherual)	Khata No.1/ Khata No. 737		0.563	0.109	61188.5	14760
29	Kimiria	River-Safei, Village- Bhaunra, Source- Bhaunra Sand Bed-A, Date of registration of lease deed- 12.04.2017 Lessee- Saroj Kumar Naik	Mouza-Bhaunra Khata No.271 Khata No.1016 Area- Ac. 12.50 Latitude 21° 59' 43.66''N21° 59' 43.97''N22° 00' 15.25''N22° 00' 15.21''N Longitude 84° 06' 31.55'' E84° 06' 29.67'' E84° 06' 41.04'' E84° 06' 43.85'' E		0.8	0.06	48000	18236

30	Kimiria	River-Safei, Village- Bhaunra, Source- Bhaunra Sand Bed-B, Date of registration of lease deed- 24.03.2018 Lessee- Rebun Sahu	Mouza-Bhaunra Khata No.271 Khata No.38 Area- Ac. 12.50 Latitude 22° 00' 22.8'' 22° 00' 35.7'' 22° 00' 22.6'' 22° 00' 21.8'' Longitude 84° 06' 45.8'' 84° 06' 53.1'' 84° 06' 56.5'' 84° 06' 48.4''		1	0.06	60000	42228
31	Kolabira	River-Bheden Vill- Bhograpali & Samasingha 12.10.2018 / Bhograpali & Samasingha Sand Bed	Bhograpali Samasingha <b>Latitude</b> 21°45'09.05''N to 21°45'29.97''N <b>Longitude</b> 84°10'42.73''E to 84°11'15.65''E Khata No.83 490 Plot No.638/112 (P) <u>1651(P)</u> 2 Plots		1.160	0.080	93077.70	75215.00
32	Kolabira	River-Bheden Vill- Guchhapali 01.11.2017/ Guchhapali Sand Bed	Guchhapali <b>Latitude</b> 21°45'43.8''N to 21°45'54.8''N <b>Longitude</b> 84°13'23.8''E to 84°13'46.7''E Khata No 153 Plot No. 2097 <u>2098</u> 2 Plots		0.720	0.750	50585.71	51001.00

33	Kolabira	River-Telen Vill- Kolabira 06.03.2017/ Kolabira Sand Bed-B	Kolabira <b>Latitude</b> 21°49'33.8'' to 21°49'07.1'' <b>Longitude</b> 84°10'13.6'' to 84°10'13.2'' Khata No 217 Plot No. 1494/1986		1.200	0.045	50585.71	43993.00
34	Kolabira	River-Bheden Vill- Kulihamal 01.11.2017/ Kulihamal Sand Bed	Kulihamal <b>Latitude</b> 21°45'52.3''N to 21°45'57.3''N <b>Longitude</b> 84°13'13.8''E to 84°13'37.7''E Khata No 226 Plot No. 2605		0.660	0.075	50585.71	19800.00

35	Kolabira	River-Telen Vill- Raghunathpali & Kolabira 05.01.2019/ Raghunathpali & Kolabira Sand Bed	Raghunathpali Kolabira <b><u>Latitude</u></b> 21047'36.78"N to 21048'14.63"N <b><u>Longitude</u></b> 84008'58.83"E to 84009'27.99"E Khata No 272 217 Plot No. 2102 4 40 <u>41</u> 4 Plots		2.080	0.050	109588.87	23058.00
36	Kolabira	River- Telen Vill- Salhepali 13.09.2017/ Salhepali Sand Bed	Salhepali <b><u>Latitude</u></b> 21047'55.79" to 21047'37.71" <b><u>Longitude</u></b> 84007'40.06" to 84007'24.92" Khata No 113 Plot No. 1		1.270	0.045	50585.71	42421.50

37	Kolabira	River-Bheden Vill- Sodamal 12.10.2018/ Sodamal Sand Bed	Sodamal <b>Latitude</b> 21°45'36.33" to 21°46'03.15" <b>Longitude</b> 84°09'32.93" to 84°10'13.03" Khata No 491 Plot No. 423(P) 913 <u>3361(P)</u> 3 Plots		1.450	0.090	131927.50	49740.00
38	Kolabira	River-Bheden Vill- Sodamal 18.03.2017/ Sodamal Sand Bed-C	Sodamal <b>Latitude</b> 21°45'13.2"N to 21°45'28.0"N <b>Longitude</b> 84°11'49.7"E to 84°12'03.5"E Khata No 491 Plot No. 3424(P)		0.500	0.080	50585.71	52874.00
39	Kolabira	River-Bheden Vill- Sodamal 06.03.2017/ Sodamal Sand Bed-D	Sodamal <b>Latitude</b> 21°46'51.08"N to 21°46'06.09"N <b>Longitude</b> 84°09'25.00"E to 84°09'02.03"E Khata No 491 Plot No. 1		0.490	0.100	50585.71	44026.25

40	Kolabira	River- Bheden Vill- K. Samasingha/ K. Samasingha Sand Bed	Samasingha <b>Latitude</b> 21°45'34.95'' to 21°45'58.39'' <b>Longitude</b> 84°09'59.62'' to 84°10'24.76'' Khata No 490 Plot No. 1650(P) <u>1651(P)</u> 2 Plots		1.110	0.080	105218.00	59315.00
41	Kolabira	River- Bheden Vill- Paramanpu/ Paramanpur Sand Bed	Paramanpur <b>Latitude</b> 21°47'18.45''N to 21°47'57.96''N <b>Longitude</b> 84°06'29.37''E to 84°07'38.49''E Khata No 268 Plot No. 3623 3648 <u>3703(P)</u> 3 Plots		2.560	0.056	133950.90	62466.00
42	Kolabira	River- Bheden Vill- S. Pandkimal/ S. Pandkimal Sand Bed	S. Pandkimal <b>Latitude</b> 21°45'29.36''N to 21°45'33.75''N <b>Longitude</b> 84°12'16.94''E to 84°12'38.83''E Khata No. 113 Plot No. 1317 (P)					

43	Laikera	Telen river	21°85'19.8184°19'68.61 Khata-111 plot 640(p),337(P),501	Muradipali	1.8 KM	0.8 KM	128285.3	90000
44	Lakhanpur	Kelo River	Latitudes of 21°45'53.6" N to 21°46'14.3" N And Langitudes of 83°28'47.5" E to 83°28'57.6"E.	Kanktora	370 mtr	80mtr	29600 sqm	5116.80 sqm
45	Lakhanpur	Kelo River	Latitudes of 21°45'11.6" N to 21°45'22.6" N And Langitudes of 83°29'44.3" E to 83°29'57.8"E.	Amapali	380mtr	152 mtr	57760 sqm	15300 sqm
46	Lakhanpur	IB River	Latitudes of 21°45'18.76" N to 21°45'20.14" N And Langitudes of 83°56'06.19" E to 83°56'10.60"E.	Dudolsingh a-1	265 mtr	183 mtr	48760 sqm	108243 sqm
47	Lakhanpur	IB River	Latitudes of 21°45'16.76" N to 21°45'19.27" N And Langitudes of 83°56'06.50" E to 83°56'11.22"E.	Dudolsingh a-2	293 mtr	165 mtr	48345 sqm	10380.3 sqm
48	Lakhanpur	IB River	Latitudes of 21°45'21.34" N to 21°45'30.31" N And Langitudes of 83°56'06.35" E to 83°56'11.78"E.	Dudolsingh a-3	280 mtr	173 mtr	48440 sqm	12204.36 sqm
49	Lakhanpur	IB River	Latitudes of 21°45'23.07" N to 21° 45'36.20" N And Langitudes of 83°55'57.39" E to	Dudolsingh a-4	260 mtr	184 mtr	47840 sqm	16645.92 sqm

			83°56'07.06"E.					
50	Lakhanpur	Mahanadi River	Latitudes of 21°.39'32.1" N to 21°39'37.9" N And Langitudes of 83°27'08.1" E to 83°27'18.5"E.	Kandheikel a	180 mtr	155.9 mtr	28062 sqm	9700.2 sqm
51	Lakhanpur	Mahanadi River	Latitudes of 21°.40'59.9" N to 21°41'07" N And Langitudes of 83°25'25.4" E to 83°25'34.1"E.	Sukhasoda	185 mtr	153 mtr	28305 sqm	14346.6 sqm

# MINERAL MAP OF JHARSUGUDA DISTRICT

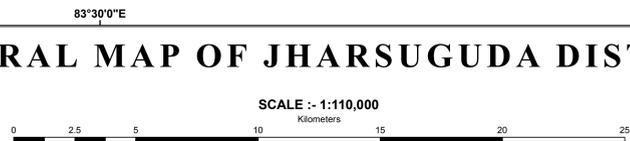
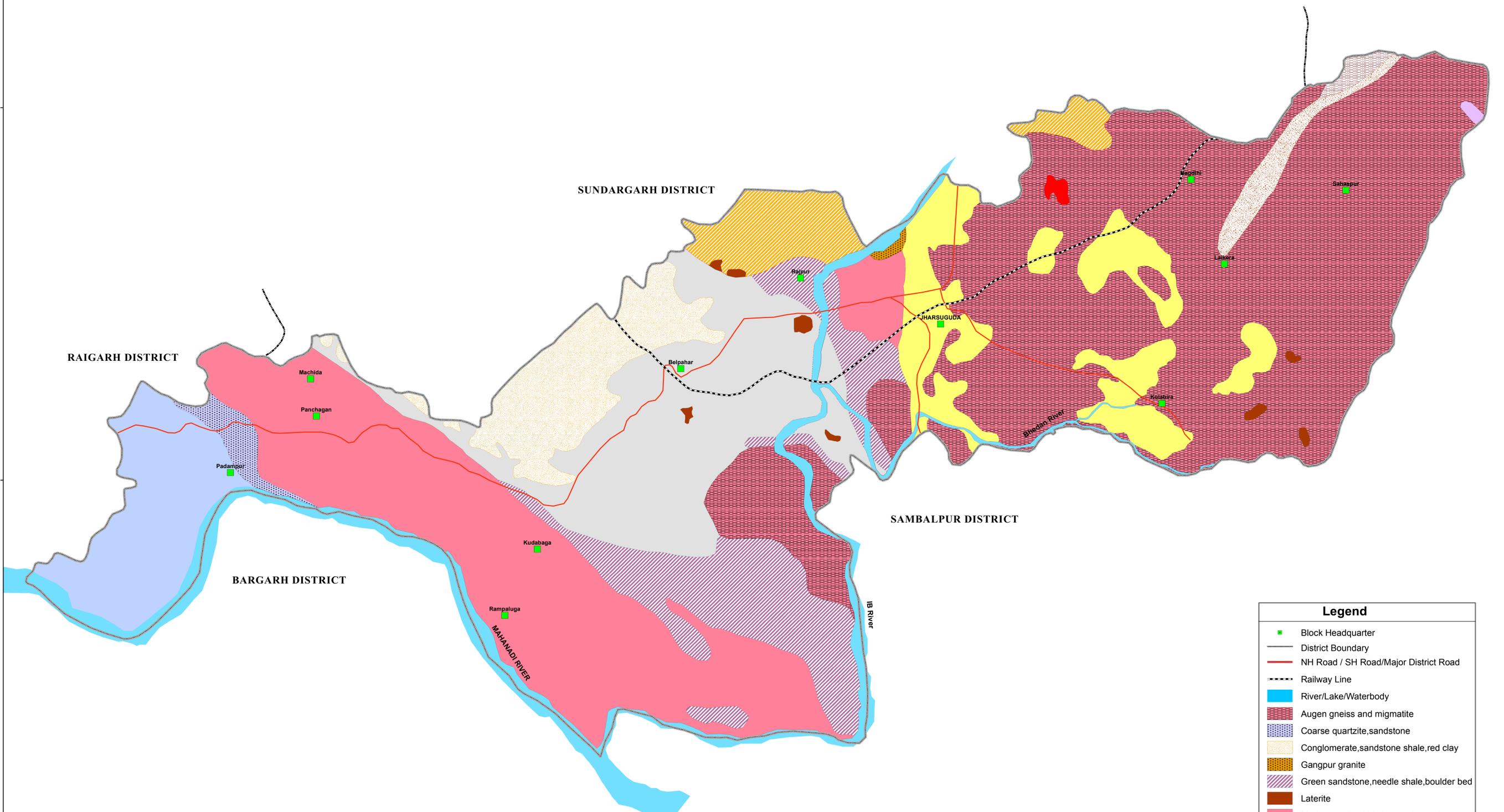


PLATE NO-4



Legend	
	Block Headquarter
	District Boundary
	NH Road / SH Road/Major District Road
	Railway Line
	River/Lake/Waterbody
	Augen gneiss and migmatite
	Coarse quartzite, sandstone
	Conglomerate, sandstone shale, red clay
	Gangpur granite
	Green sandstone, needle shale, boulder bed
	Laterite
	Medium grained biotite granite gneiss
	Metabasics
	Phyllite, mica schist
	Quartzite, quartz-sericite schist
	Sandstone, shale with coal seams
	Shale, calcareous shale, quartzite
	Shale, phyllite, mica schist
	Soil and alluvium
	Tamparkola granite

83°30'0"E

83°45'0"E

84°0'0"E

84°15'0"E

21°30'0"N

21°30'0"N

21°45'0"N

21°45'0"N

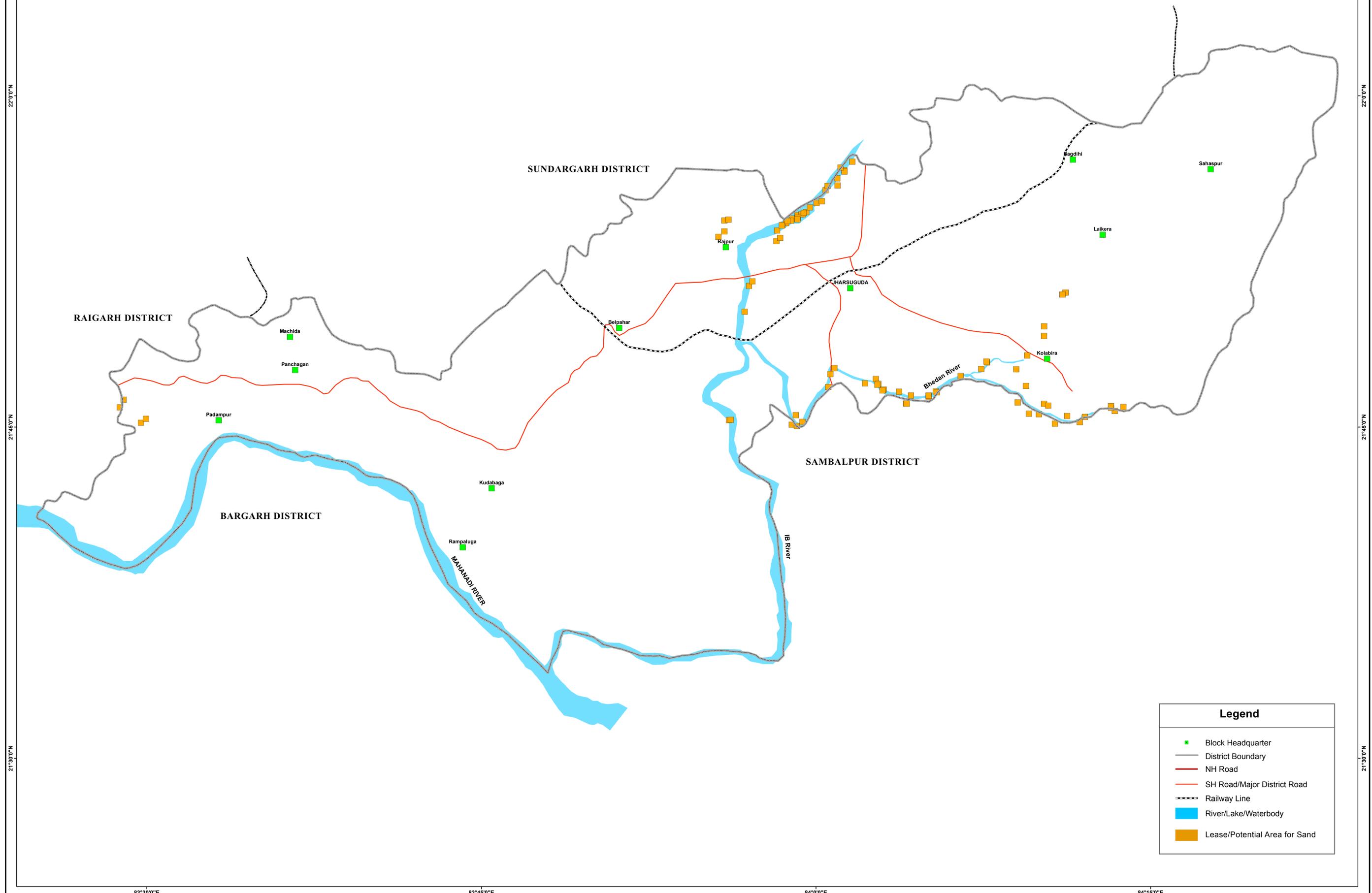
22°0'0"N

22°0'0"N

# LEASE/POTENTIAL MAP OF SAND IN JHARSUGUDA DISTRICT



PLATE NO-5



Legend	
	Block Headquarter
	District Boundary
	NH Road
	SH Road/Major District Road
	Railway Line
	River/Lake/Waterbody
	Lease/Potential Area for Sand