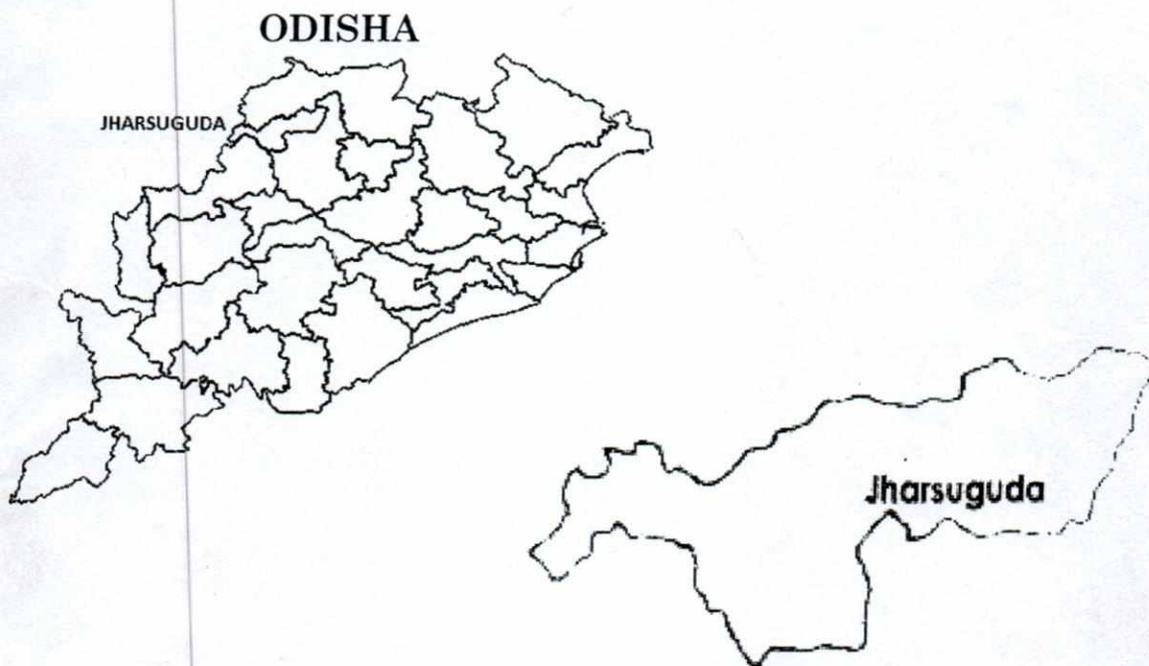


DEIAR



**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,
25th 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	3
4	DETAILS OF ROYALTY COLLECTED	4
5	DETAILS OF PRODUCTION OF SAND	4
6	PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS	4
7	GENERAL PROFILE	4
8	LAND UTILISATION PATTERN	9
9	PHYSIOGRAPHY	9
10	RAINFALL	10
11	GEOLOGY AND MINERAL WALTH	10

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

LIST OF ANNEXURES

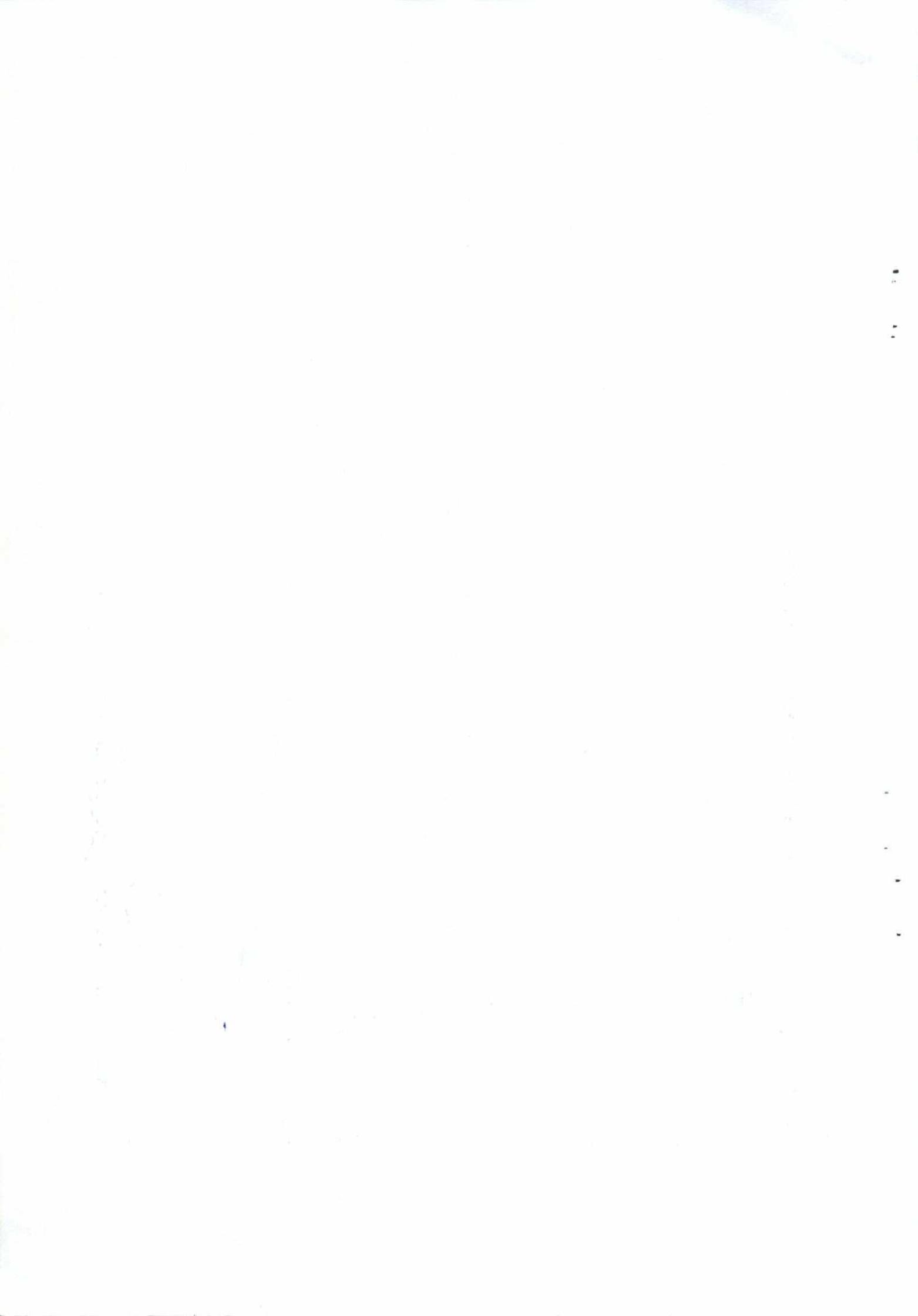
DESCRIPTION	ANNEXURE NO
LIST OF RUNNING LEASES	I
LIST OF POTENTIAL SOURCES OF THE DISTRICT	II


DFO, Jharsuguda(T)
Member DEIAA
Divisional Forest Officer
Jharsuguda Forest Division

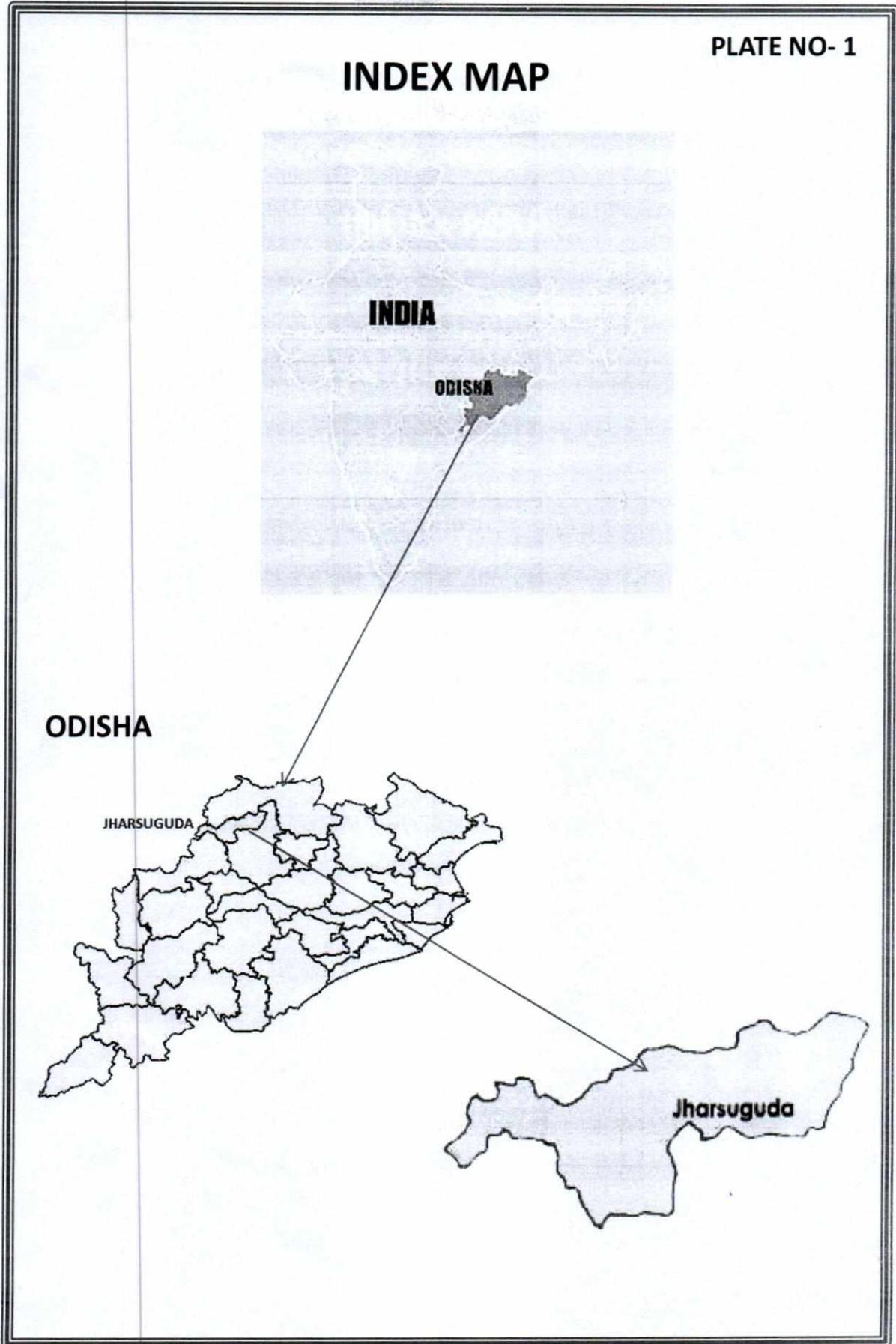

DR. Sarat Choudhary
Retd. Principal
Expert Member, DEIAA


SubCollector, Jharsuguda
Member secretary DEIAA

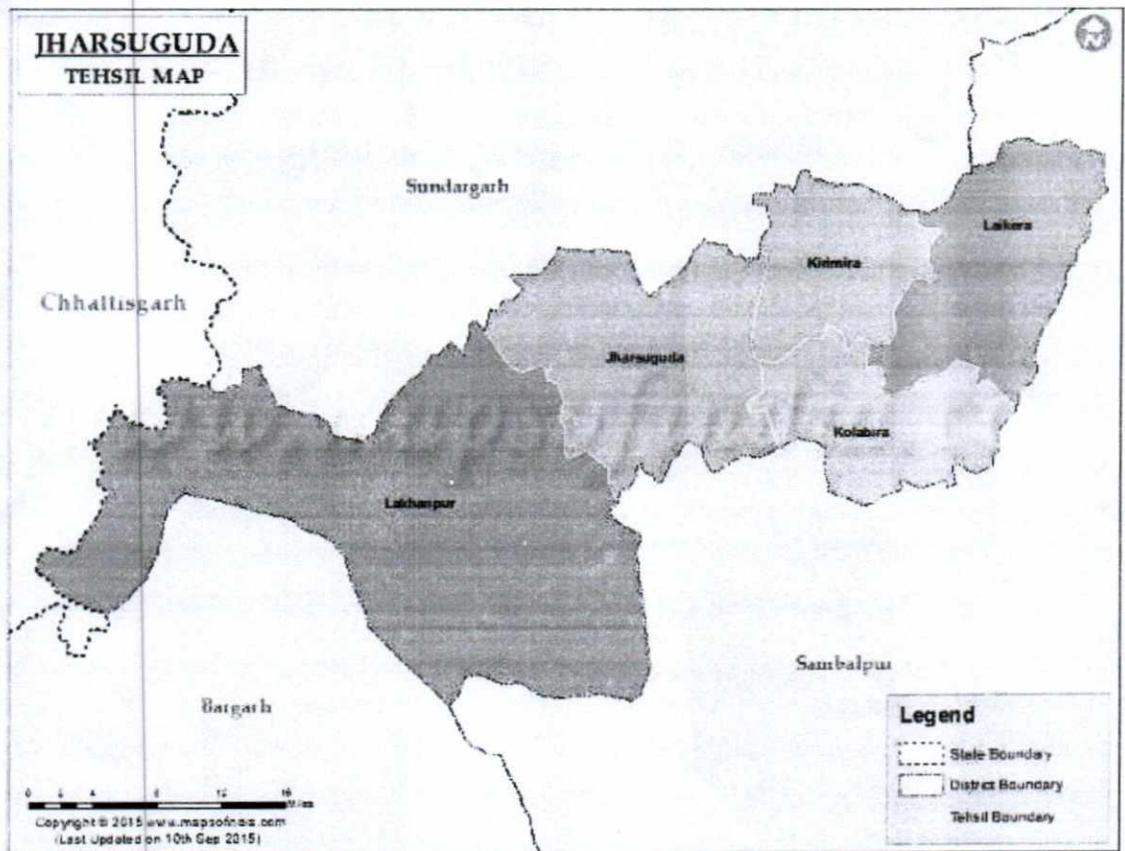

District Magistrate
& Collector, Jharsuguda
Chairman DEIAA



INDEX MAP



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 river sand 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.

In Jharsuguda district Coal extraction is done by Mahanadi Coalfields Limited (MCL.) a subsidiary of Coal India Limited. There are five numbers of Opencast Projects and nine numbers of underground leases in operation by MCL. The total area held by MCL for Mining Operation is 9255.267 Hectare in the district. Major Consumers of the IB Valley Area Coal across the Country are like NALCO, NTPC, Tamilnadu Electricity Board (TNEB), West Bengal Power Development Corporation (WPDCL), Aravali Power Co.(P) Ltd. T.P.P. Hariyana, Talwandi Saboo Power Ltd. Punjab, Tata Electric Power, Jharkhand, Vendanta Pvt. Ltd., OPGC Odisha, Mahagenco Akola, Maharashtra, Gopani Iron & Power, Chandrapura, Maharashtra, etc. The State Govt is earning revenue of 550-600 crores as royalty & around 150 crores as DMF from 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, Lakhampur 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.

Besides above mentioned coal mines, there are two numbers of Quartzite mines operating in the district. One is Chuinpali Quartzite mines of M/s TRL Krosaki Refractories Limited over 102.123 Hectare area situated at Chuinpali Village of Lakhanpur Tahasil and the other is Bhikampali Quartzite Mines of M/s OCL India Ltd. over 4.897 Hectare in Bhikamplai Village of Lakhanpur Tahasil of Jharsuguda District.

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 Synclinorium. 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	102900	431200	294000
5	Lakhanpur	0	360000	435460	705140
TOTAL		499000	1561438	11713218	13376630

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	0	46826	46966.25	169974.3
4	Laikera	0	1050	4400	3000
5	Lakhanpur	0	9000	10715	22322
TOTAL		150311.8	199029.6	229931.7	380550.7

6. PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS

The drainage of the district is mainly controlled by rivers like IB & Bheden. 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 flood water flow the sand gets deposited in the locations where there is less energy.

7. GENERAL PROFILE

a. Administrative set up:

Sl No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	84°01' East
	Latitude	Degree	21° 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	Sugarcane
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.

Allopathic Govt medical institutions	93 No
Beds facilities	DHH- 300 beds- 1No CHCs- 60 beds- 6 Nos OH- 10 beds- 1No
Homoeopathic dispensaries	7 No
Ayurvedic dispensaries	9 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
Total	202.44

I. 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	19
6	Barren & Unculturable Land	27
7	Current Fallow	28
8	Other Fallow	3
9	Net Area Sown	60
10	Mining	10
	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, Brajaraj Nagar 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^o-8^o 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	1515.66
16-17	0	22.44	85.72	259.2	406.1	253.24	43.88	0	0	7.5	0	4.69	1082.75
17-18	1	64.48	228.4	442.3	300.8	245.84	94.06	0	0	0	0	1.64	1378.6
18-19	27.94	113.8	176.1	421.2	399.5	122.26	6.6	0	90.54	0	44.04	13.9	1415.96
AVG	17.45	52.03	172.3	400.9	387.1	223.28	37.895	0	29.22	1.875	17.03	9.1225	1348.24

11. GEOLOGY AND MINERAL WALTH

The geological succession in the district is as follows:

AGE	GEOLOGICAL UNIT	LITHOLOGY
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
		{ 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
	{ Peninsular Gneiss (Younger phase)	Augen gneiss and migmatite
Archaean	Peninsular Gneiss (Older phase)	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 & Bheden.
- b. **Availability of maximum sand or gravel or aggregate resources-** sand- 77,51,362 cum (Annexure II). This is the maximum quantity of river sand which can be made available for extraction, calculated on the basis of existing stipulations. The calculation of present sand deposit of the district could not be made due to cover of maximum portion of sand bed under flowing water of the monsoon.
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	Pandarapat Raigarh	21°51'N 83°56'E	52Km	12447sq km	14Km	Sediments get deposited along with sand after receding of flood water.	35,00,000 Cum(Approx.)	-
2	River Bheden	Bamara	21°46'7" N 84°14' 40"E	50Km	2120 sq km	50Km	-do-	50,00,000 Cum(Approx.)	-

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)	Longitude			Latitude			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)	Period of validity	
				Degree	Minute	Second	Degree	Minute	Second					From	To
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Jharsuguda	Basundhara Rajpur S/B A	Khata No.188/ Plot No. 535	83	55	45.70	21	53	44.0	0.483	0.117	56511	37422	15-16	19-20
2	Jharsuguda	Basundhara Rajpur S/B B	Khata No.188/ Plot No. 594	83	55	47.70	21	54	22.15	0.241	0.231	55671	24531	15-16	19-20
3	Jharsuguda	lb Tharkaspur S/B	Khata No.32/ Plot No. 534/646	83	58	18.70	21	53	29.30	0.201	0.302	60702	64027	15-16	19-20
4	Jharsuguda	lb Charbhati S/B	Khata No.122/ Plot No. 15, 26	83	56	55.30	22	03	44.70	0.149	0.302	44998	35000	15-16	19-20
5	Jharsuguda	Bheden Katikela S/B A	Khata No.244/ Plot No. 2062, 2063, 2064, 2065, 2066, 2125, 2135	84	5	13.79	21	46	29.69	0.664	0.121	80344	47828	15-16	19-20
6	Jharsuguda	Bheden Katikela S/B C	Khata No.244/ Plot No. 300/2143	84	4	3	21	46	4	0.684	0.089	60876	63215	15-16	19-20
7	Jharsuguda	Bheden Katikela S/B D 17.06.2019	Khata No.244/ Plot No. 300/2143	84	3	59	21	46	30.74	0.805	0.101	81305	9221	17-18	21-22
8	Jharsuguda	lb Talpatia S/B A	Khata No.269/ Plot No. 1	84	1	7	21	56	24.9	0.604	0.201	121404	16872	15-16	19-20

		19.08.2016													
9	Jharsugu da	lb Talpatia S/B B	Khata No.269/ Plot No. 1051, 1187, 1187/2567	84	0	31.95	21	55	34.95	1.609	0.121	194689	18501	15-16	19-20
10	Jharsugu da	Bheden Tumbekela S/B A 10.08.2016	Khata No.1/ Plot No. 743	84	0	24.25	21	46	40.25	0.604	0.101	61004	30000	15-16	19-20
11	Jharsugu da	lb Jamera S/B C 11.08.2016	Khata No.1/ Plot No. 40/896	83	56	50	21	50	20	0.443	0.129	57147	65650	15-16	19-20
12	Jharsugu da	Bheden Sripura S/B B 19.4.2017	Khata No.1/ Plot No. 32/2298	84	2	26.6	21	47	4	0.845	0.169	142805	65001	15-16	19-20
13	Jharsugu da	Bheden Sripura S/B C	Khata No.1/ Plot No. 1180	84	2	53.6	21	46	47.2	0.604	0.101	61004	13125	15-16	19-20
14	Jharsugu da	lb Lahandabud S/B C 11.08.2016	Khata No.176/ Plot No. 380	83	58	48	21	54	20.15	0.402	0.201	80802	21000	15-16	19-20
15	Jharsugu da	lb Panchpada S/B A 03.02.2018	Khata No.878/ Plot No. 530/3974	83	59	1.8	21	54	28.3	0.362	0.334	120908	26526	15-16	19-20
16	Jharsugu da	lb Panchpada S/B B 04.02.2017	Khata No.878/ Plot No. 530/3974	83	59	15.95	21	54	33.05	0.342	0.322	110124	150890	15-16	19-20
17	Jharsugu da	lb Panchpada S/B C 05.01.2017	Khata No.878/ Plot No. 530/3974	83	59	29.5	21	54	41.25	0.382	0.286	109252	148316	15-16	19-20
18	Jharsugu da	lb Panchpada S/B D 18.05.2017	Khata No.878/ Plot No. 530/3974	83	59	18.5	21	54	33	0.382	0.272	103904	114445	15-16	19-20
19	Jharsugu da	lb Panchpada S/B E	Khata No.878/ Plot No. 530/3974	83	59	51	21	55	20.3	0.563	0.107	60241	47460	15-16	19-20
20	Jharsugu	Bheden	Khata No.5/ Plot	83	59	0	21	45	23.8	0.754	0.080	60320	15000	15-16	19-20

	da	Luhurenkach har S/B A 19.08.2016	No. 1												
21	Jharsugu da	Bheden Luhurenkach har S/B C	Khata No.5/ Plot No. 1	83	59	16. 34	21	45	40.4 3	0.604	0.101	61004	14309	17-18	21-22
22	Jharsugu da	Bheden Katikela S/B B	Khata No.244/ Plot No. 2125, 2135							0.744	0.109	81096		17-18	21-22
23	Jharsugu da	Ib Tangarpali S/B	Khata No.112/ Plot No. 1	84	1	27. 13	21	56	49.1 5	1.006	0.080	80480	43480	17-18	21-22
24	Jharsugu da	Ib Budhipadar S/B	Khata No.91/ Plot No. 838/939	83	57	53. 8	21	51	29.6 7	0.402	0.201	30802	108741	17-18	21-22
25	Jharsugu da	Bheden Sripura S/B A	Khata No.1/ Plot No. 32/2298							1.308	0.093	121644		15-16	19-20
26	Jharsugu da	Ib Lahandabud S/B A	Khata No.176/ Plot No. 380/1838	83	58	22. 45	21	54	1.10	0.282	0.290	81780	43516.2	15-16	19-20
27	Jharsugu da	Ib Lahandabud S/B B	Khata No.176/ Plot No. 380/1838	83	58	35. 60	21	54	14	0.348	0.282	98136	20000	15-16	19-20
28	Jharsugu da	Bheden Tumbekela S/B B (Kherual)	Khata No.1/ Plot No. 737	84	56	44. 17	21	47	32.1 4	0.563	0.109	61367	14760	15-16	19-20
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 Plot 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	84	06	31 .5 5	21	59	43.6 6	0.8	0.06	50587	18236	17-18	21-22

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 Plot 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''	84	06	45 .8	22	00	22.8	1	0.06	50587	42228	18-19	22-23
31	Kolabira	River-Bheden Vill- Bhograpali & Samasingha 12.10.2018 / Bhograpali & Samasingha Sand Bed	Bhograpali Samasingha Latitude 21°45'09.05''N to 21°45'29.97''N Longitude 84°10'42.73''E to 84°11'15.65''E Khata No.83 490 Plot No.638/112 (P) 1651 (P) 2 Plots	84	10	42 .7 3	21	45	09.0 5	1.160	0.080	93077.70	75215.00	18-19	22-23
32	Kolabira	River-Bheden Vill- Guchhapali 01.11.2017/ Guchhapali Sand Bed	Guchhapali Latitude 21°45'43.8''N to 21°45'54.8''N Longitude 84°13'23.8''E to 84°13'46.7''E Khata No 153 Plot No. 2097 <u>2098</u> 2 Plots	84	13	23 .8	21	45	43.8	0.720	0.750	50585.71	51001.00	16-17	20-21

33	Kolabira	River-Telen Vill- Kolabira 06.03.2017/ Kolabira Sand Bed-B	Kolabira <u>Latitude</u> 21°49'33.8'' to 21°49'07.1'' <u>Longitude</u> 84°10'13.6'' to 84°10'13.2'' Khata No 217 Plot No. 1494/1986	84	10	13 .6	21	49	33.8	1.200	0.045	50585.71	43993.00	15-16	19-20
34	Kolabira	River-Bheden Vill- Kulihamal 01.11.2017/ Kulihamal Sand Bed	Kulihamal <u>Latitude</u> 21045'52.3''N to 21045'57.3''N <u>Longitude</u> 84013'13.8''E to 84013'37.7''E Khata No 226 Plot No. 2605	84	13	13 .8	21	45	52.3	0.660	0.075	50585.71	19800.00	15-16	19-20
35	Kolabira	River-Telen Vill- Raghunathpali & Kolabira 05.01.2019/ Raghunathpali & Kolabira Sand Bed	Raghunathpali Kolabira <u>Latitude</u> 21047'36.78''N to 21048'14.63''N <u>Longitude</u> 84008'58.83''E to 84009'27.99''E Khata No 272, 217 Plot No. 2102, 4, 40, 41, 4 Plots	84	8	58 .8 3	21	47	36.7 8	2.080	0.050	109588.8 7	23058.00	18-19	22-23
36	Kolabira	River- Telen Vill- Salhepali 13.09.2017/ Salhepali Sand Bed	Salhepali <u>Latitude</u> 21047'55.79'' to 21047'37.71'' <u>Longitude</u> 84007'40.06'' to 84007'24.92'' Khata No 113 Plot No. 1	84	7	40 .0 6	21	47	55.7 9	1.270	0.045	50585.71	42421.50	15-16	19-20

37	Kolabira	River-Bheden Vill- Sodamal 12.10.2018/ Sodamal Sand Bed	Sodamal Latitude 21°45'36.33" to 21°46'03.15" Longitude 84°09'32.93" to 84°10'13.03" Khata No 491 Plot No. 423(P), 913, <u>3361(P)</u> 3 Plots	84	9	32 .9 3	21	45	36.3 3	1.450	0.090	131927.5 0	49740.00	18-19	22-23
38	Kolabira	River-Bheden Vill- Sodamal 18.03.2017/ Sodamal Sand Bed-C	Sodamal Latitude 21°45'13.2"N to 21°45'28.0"N Longitude 84°11'49.7"E to 84°12'03.5"E Khata No 491 Plot No. 3424(P)	84	11	49 .7	21	45	13.2	0.500	0.080	50585.71	52874.00	16-17	20-21
39	Kolabira	River-Bheden Vill- Sodamal 06.03.2017/ Sodamal Sand Bed-D	Sodamal Latitude 21°46'51.08"N to 21°46'06.09"N Longitude 84°09'25.00"E to 84°09'02.03"E Khata No 491 Plot No. 1	84	9	25	21	46	51.8	0.490	0.100	50585.71	44026.25	15-16	19-20

40	Kolabira	River- Bheden Vill- K. Samasingha/ K. Samasingha Sand Bed	Samasingha <u>Latitude</u> 21°45'34.95'' to 21°45'58.39'' <u>Longitude</u> 84°09'59.62'' to 84°10'24.76'' Khata No 490 Plot No. 1650(P), 1651(P) 2 Plots	84	9	59 .6 2	21	45	34.9 5	1.110	0.080	105218.0 0	59315.00	18-19	22-23
41	Kolabira	River- Bheden Vill- Paramanpu/ Paramanpur Sand Bed	Paramanpur <u>Latitude</u> 21°47'18.45''N to 21°47'57.96''N <u>Longitude</u> 84°06'29.37''E to 84°07'38.49''E Khata No 268 Plot No. 3623, 3648 3703(P) 3 Plots	84	6	29 .3 7	21	47	18.4 5	2.560	0.056	133950.9 0	62466.00	18-19	22-23
42	Laikera	River Muradipali 07-01-2017	Khata-111 plot-337, 640(p), 501(p)	84	11	11 .2 2	21	51	5.12	1.8	0.08	128285.3	150000	15-16	19-20
43	Lakhanpur	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 Longitudes of 83°28'47.5" E to 83°28'57.6"E.	83	28	47 .5	21	45	53.6	370 mt	80 mt	29600 SQM	8528 cum	17-18	20-21

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.	83	29	44.3	21	45	11.6	380 mtr	152 mtr	57760 sqm	25501 cum	18-19	22-23
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.	83	56	6.19	21	45	18.76	265 mtr	183 mtr	48760 sqm	180405 cum	16-17	20-21
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.	83	56	06.50	21	45	16.76	293 mtr	165 mtr	48345 sqm	14300.5 cum	16-17	20-21
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.	83	56	06.35	21	45	21.34	280 mtr	173 mtr	48440 sqm	20340.6 cum	16-17	20-21
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.	83	55	57.39	21	45	23.07	260 mtr	184 mtr	47840 sqm	24743.2 cum	18-19	20-21
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.	83	27	08.1	21	39	32.1	180 mtr	155.9 mtr	28062 sqm	16167 cum	18-19	22-23

Tdr

TAHASILDAR
KOLABIRA


TAHASILDAR
KIRMIBA


Tahasildar
Laikera


TAHASILDAR
LAKHANPUR


TAHASILDAR
JHARSUGUDA

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)	Longitude			Latitude			Name of village	Status	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)
				De gre e	Min ute	Sec ond	Degr ee	Min ute	Sec ond						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Jharsuguda	Basundhara Rajpur S/B B	Khata No.188/ Plot No. 594	83	55	47. 70	21	54	22. 15	Rajpur	Runnin g	0.241	0.231	55671	100207.8
2	Jharsuguda	lb Tharkaspur S/B	Khata No.32/ Plot No. 534/646	83	58	18. 70	21	53	29. 30	Tharkasp ur	Runnin g	0.201	0.302	60702	109263.6
3	Jharsuguda	lb Charbhati S/B	Khata No.122/ Plot No. 15 26	83	56	55. 30	22	03	44. 70	Charbh ati	Runnin g	0.149	0.302	44998	80996.4
4	Jharsuguda	Bheden Katikela S/B A	Khata No.244/ Plot No. 2062, 2063, 2064, 2065, 2066, 2125, 2135	84	5	13. 79	21	46	29. 69	Katikela	Runnin g	0.664	0.121	80344	144619.2
5	Jharsuguda	Bheden Katikela S/B C	Khata No.244/ Plot No. 300/2143	84	4	3	21	46	4	Katikela	Runnin g	0.684	0.089	60876	109576.8
6	Jharsuguda	Bheden Katikela S/B	Khata No.244/ Plot No.	84	3	59	21	46	30.	Katikela	Runnin g	0.805	0.101	81305	146349

		D	300/2143						74						
7	Jharsuguda	Ib Talpatia S/B A	Khata No.269/ Plot No. 1	84	1	7	21	56	24. 9	Talpatia	Runnin g	0.604	0.201	121404	218527.2
8	Jharsuguda	Ib Talpatia S/B B	Khata No.269/ Plot No. 1051 1187 1187/2567	84	0	31. 95	21	55	34. 95	Talpatia	Runnin g	1.609	0.121	194689	350440.2
9	Jharsuguda	Bheden Tumbekela S/B A	Khata No.1/ Plot No. 743	84	0	24. 25	21	46	40. 25	Tumbek ela	Runnin g	0.604	0.101	61004	109807.2
10	Jharsuguda	Ib Jamera S/B C	Khata No.1/ Plot No. 40/896	83	56	50	21	50	20	Jamera	Runnin g	0.443	0.129	57147	102864.6
11	Jharsuguda	Bheden Sripura S/B B	Khata No.1/ Plot No. 32/2298	84	2	26. 6	21	47	4	Sripura	Runnin g	0.845	0.169	142805	257049
12	Jharsuguda	Bheden Sripura S/B C	Khata No.1/ Plot No. 1180	84	2	53. 6	21	46	47. 2	Sripura	Runnin g	0.604	0.101	61004	109807.2
13	Jharsuguda	Ib Lahandabud S/B C	Khata No.176/ Plot No. 380	83	58	48	21	54	20. 15	Lahand abud	Runnin g	0.402	0.201	80802	145443.6
14	Jharsuguda	Ib Panchpada S/B A	Khata No.878/ Plot No. 530/3974	83	59	1.8	21	54	28. 3	Jsg T U 9	Runnin g	0.362	0.334	120908	217634.4
15	Jharsuguda	Ib Panchpada S/B B	Khata No.878/ Plot No. 530/3974	83	59	15. 95	21	54	33. 05	Jsg T U 9	Runnin g	0.342	0.322	110124	198223.2
16	Jharsuguda	Ib Panchpada S/B C	Khata No.878/ Plot No. 530/3974	83	59	29. 5	21	54	41. 25	Jsg T U 9	Runnin g	0.382	0.286	109252	196653.6
17	Jharsuguda	Ib Panchpada	Khata No.878/ Plot No.	83	59	18. 5	21	54	33	Jsg T U 9	Runnin g	0.382	0.272	103904	187027.2

		S/B D	530/3974												
18	Jharsuguda	Ib Panchpada S/B E	Khata No.878/ Plot No. 530/3974	83	59	51	21	55	20. 3	Jsg T U 9	Runnin g	0.563	0.107	60241	108433.8
19	Jharsuguda	Bheden Katikela S/B B	Khata No.244/ Plot No. 2125 2135							Katikela	Runnin g	0.744	0.109	81096	145972.8
20	Jharsuguda	Ib Tangarpali S/B	Khata No.112/ Plot No. 1			27. 13	21	56	49. 15	Tangarp ali	Runnin g	1.006	0.080	80480	144864
21	Jharsuguda	Ib Budhipadar S/B	Khata No.91/ Plot No. 838/939	83	57	53. 8	21	51	29. 67	Budhipa dar	Runnin g	0.402	0.201	80802	145443.6
22	Jharsuguda	Ib Lahandabud S/B A	Khata No.176/ Plot No. 380/1838	83	58	22. 45	21	54	1.1 0	Lahand abud	Runnin g	0.282	0.290	81780	147204
23	Jharsuguda	Ib Lahandabud S/B B	Khata No.176/ Plot No. 380/1838	83	58	35. 60	21	54	14	Lahand abud	Runnin g	0.348	0.282	98136	176644.8
24	Jharsuguda	Ib Loisingh S/B	Khata No.63/ Plot No. 838/1031	21	54	06. 47	83	57	35. 11	Losingh	New	0.226	0.174	39324	70783.2
25	Jharsuguda	Ib Charbhati S/B B	Khata No.122/ Plot No. 1731	21	53	45. 96	83	56	54. 22	Charbh ati	New	0.312	0.104	32448	58406.4
26	Jharsuguda	Ib H.Katapali S/B F	Khata No.465/ Plot No. 1647/5825	21	53	13. 64	83	56	56. 84	H.Katap ali	New	0.437	0.162	70794	127429.2
27	Jharsuguda	Ib H.Katapali S/B G	Khata No.465/ Plot No. 41/5808	21	53	54. 32	83	58	17. 90	H.Katap ali	New	0.364	0.243	88452	159213.6
28	Kolabira	River-Bheden Vill-Bhograpali &	Bhograpali Samasingha Latitude 21°45'09.05''N to 21°45'29.97''N	84	10	42.7 3	21	45	09.0 5	Bhograp ali & Samasin gha	Runnin g	1.160	0.080	93077.70	45129

		Samasingha 12.10.2018 / Bhograpali & Samasingha Sand Bed	Longitude 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													
29	Kolabira	River- Bheden Vill- Guchhapali 01.11.2017/ Guchhapali Sand Bed	Guchhapali Latitude 21°45'43.8"N to 21°45'54.8"N Longitude 84°13'23.8"E to 84°13'46.7"E Khata No 153 Plot No. 2097, <u>2098</u> 2 Plots	84	13	23. 8	21	45	43. 8	Guchha pali	Runnin g	0.720	0.750		50585.71	30600.60
30	Kolabira	River-Telen Vill- Kolabira 06.03.2017/ Kolabira Sand Bed-B	Kolabira Latitude 21°49'33.8" to 21°49'07.1" Longitude 84°10'13.6" to 84°10'13.2" Khata No 217 Plot No. 1494/1986	84	10	13. 6	21	49	33. 8	Kolabira	Runnin g	1.200	0.045		50585.71	26395.80
31	Kolabira	River- Bheden Vill- Kulihamal 01.11.2017/ Kulihamal Sand Bed	Kulihamal Latitude 21°45'52.3"N to 21°45'57.3"N Longitude 84°13'13.8"E to 84°13'37.7"E Khata No 226	84	13	13. 8	21	45	52. 3	Kuliham al	Runnin g	0.660	0.075		50585.71	11880

32	Kolabira	River-Telen Vill- Raghunath pali & Kolabira 05.01.2019/ Raghunath pali & Kolabira Sand Bed	Plot No.2605 Raghunathpali Kolabira Latitude 21047'36.78''N to 21048'14.63''N Longitude 84008'58.83''E to 84009'27.99''E Khata No 272, 217 Plot No. 2102, 4, 40, 41 4 Plots	84	8	58.83	21	47	36.78	Raghunathpali & Kolabira	Running	2.080	0.050		
33	Kolabira	River- Telen Vill- Salhepali 13.09.2017/ Salhepali Sand Bed	Salhepali Latitude 21047'55.79'' to 21047'37.71'' Longitude 84007'40.06'' to 84007'24.92'' Khata No 113 Plot No. 1	84	7	40.06	21	47	55.79	Salhepali	Running	1.270	0.045		
34	Kolabira	River- Bheden Vill- Sodamal 12.10.2018/ Sodamal Sand Bed	Sodamal Latitude 21045'36.33'' to 21046'03.15'' Longitude 84009'32.93'' to 84010'13.03'' Khata No 491 Plot No. 423(P), 913, 3361(P) 3 Plots	84	9	32.93	21	45	36.33	Sodamali	Running	1.450	0.090		
35	Kolabira	River- Bheden Vill- Sodamal 18.03.2017/	Sodamal Latitude 21°45'13.2''N to 21°45'28.0''N Longitude	84	11	49.7	21	45	13.2		Running	0.500	0.080		
														109588.87	13834.80
														50585.71	25452.90
														131927.50	29844
														50585.71	31724.40

		Sodamal Sand Bed-C	84°11'49.7''E to 84°12'03.5''E Khata No 491 Plot No. 3424(P)												
36	Kolabira	River-Bheden Vill- Sodamal 06.03.2017/ Sodamal Sand Bed-D	Sodamal Latitude 21°46'51.08''N to 21°46'06.09''N Longitude 84°09'25.00''E to 84°09'02.03''E Khata No 491 Plot No. 1	84	9	25	21	46	51.8	Sodamali	Runnig	0.490	0.100	50585.71	26415.75
37	Kolabira	River-Bheden Vill- K. Samasingha/ K. Samasingha Sand Bed	Samasingha Latitude 21°45'34.95'' to 21°45'58.39'' Longitude 84°09'59.62'' to 84°10'24.76'' Khata No 490 Plot No. 1650(P),1651(P) 2 Plots	84	9	59.62	21	45	34.95	K. Samasingha	Runnig	1.110	0.080	105218	35598
38	Kolabira	River-Bheden Vill- Paramanpu / Paramanpu r Sand Bed	Paramanpur Latitude 21°47'18.45''N to 21°47'57.96''N Longitude 84°06'29.37''E to 84°07'38.49''E Khata No 268 Plot No. 3623, 3648, 3703(P) 3 Plots	84	6	29.37	21	47	18.45	Paramanpu	Runnig	2.560	0.056	133950	37479.60
39	Kolabira	River-Bheden Vill- S. Pandkimal/ S. Pandkimal	S. Pandkimal Latitude 21°45'29.36''N to 21°45'33.75''N Longitude 84°12'16.94''E to	84	12	16.94	21	45	29.36	S. Pandkimal	New	0.7	0.07	49000	88200

		Sand Bed	84°12'38.83"E Khata No. 113 Plot No. 1317 (P)												
40	Laikera	Telen river	21°51'05.12 to 21°51'00.14 N 84°11'11.22 to 84°11'02.82 E Khata-111 plot 640(p).337(P),50 1	84	11	22	21	51	5.1 2	Muradip ali	NEW	1.8 KM	0.8 KM	123285.30	0
41	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	84	06	31.5 5	21	59	43.6 6	Bhaunra	Runnin g	0.8	0.06	50587	10942
42	Kimiria	River-Safei, Village- Bhaunra, Source- Bhaunra Sand Bed-B, Date of registration of lease deed- 24.03.2018 Lessee- RebunSahu	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''	84	06	45.8	22	00	22.8	Bhaunra	Runnin g	1	0.06	50587	25336
43	Lakhanpur	Kelo River	Latitudes of 21°.45'53.6" N to 21°46'14.3" N	83	28	47. 5	21	45	53. 6	Kanktor a	Runnin g	0.657	0.08	52610	25366

			And Longitudes of 83°28'47.5" E to 83°28'57.6"E.												
44	Lakhanpur	Kelo River	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.	83	29	44.3	21	45	11.6	Amapali	Runnig	0.372	0.15	56657	101982.6
45	Lakhanpur	IB River	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.	83	56	6.19	21	45	18.76	Dudolsin gha-1	Runnig	0.265	0.18	48563	87413.4
46	Lakhanpur	IB River	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.	83	56	06.50	21	45	16.76	Dudolsin gha-2	Runnig	0.294	0.17	48563	87413.4
47	Lakhanpur	IB River	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.	83	56	06.35	21	45	21.34	Dudolsin gha-3	Runnig	0.28	0.17	48563	87413.4
48	Lakhanpur	IB River	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.	83	55	57.39	21	45	23.07	Dudolsin gha-4	Runnig	0.263	0.18	48563	87413.4
49	Lakhanpur	Mahanadi River	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.	83	27	08.1	21	39	32.1	Kandhei kela	Runnig	0.181	0.16	28328	50990.4
50	Lakhanpur	Mahanadi River	Latitudes of 21°.40'59.9" N to	21	40	59.9	83	25	25.4	Sukhasoda	New	0.185	0.15	28328	50990.4

			21°41'07" N And Longitudes of 83°25'25.4" E to 83°25'34.1"E.												
51	Lakhanpur	Mahanadi River	Latitudes of 21°.46'33.86" N to 21°46'55'00" N And Longitudes of 83°32'57'13" E to 83°33'10'.19"E.	21	46	33.8 6	83	32	57.1 3	Chhuipali	New			59004	
												0.513	0.12		106207.2


Tdr. Kolabira.
TAHASILDAR
KOLABIRA


Tdr. Kirmira.
TAHASILDAR
KIRMIRA


Tdr. Laikera.
Tahasildar
Laikera


Tdr. Lakhanpur
TAHASILDAR
LAKHANPUR


TAHASILDAR
JHARSUGUDA

100

100

100

100

100

100

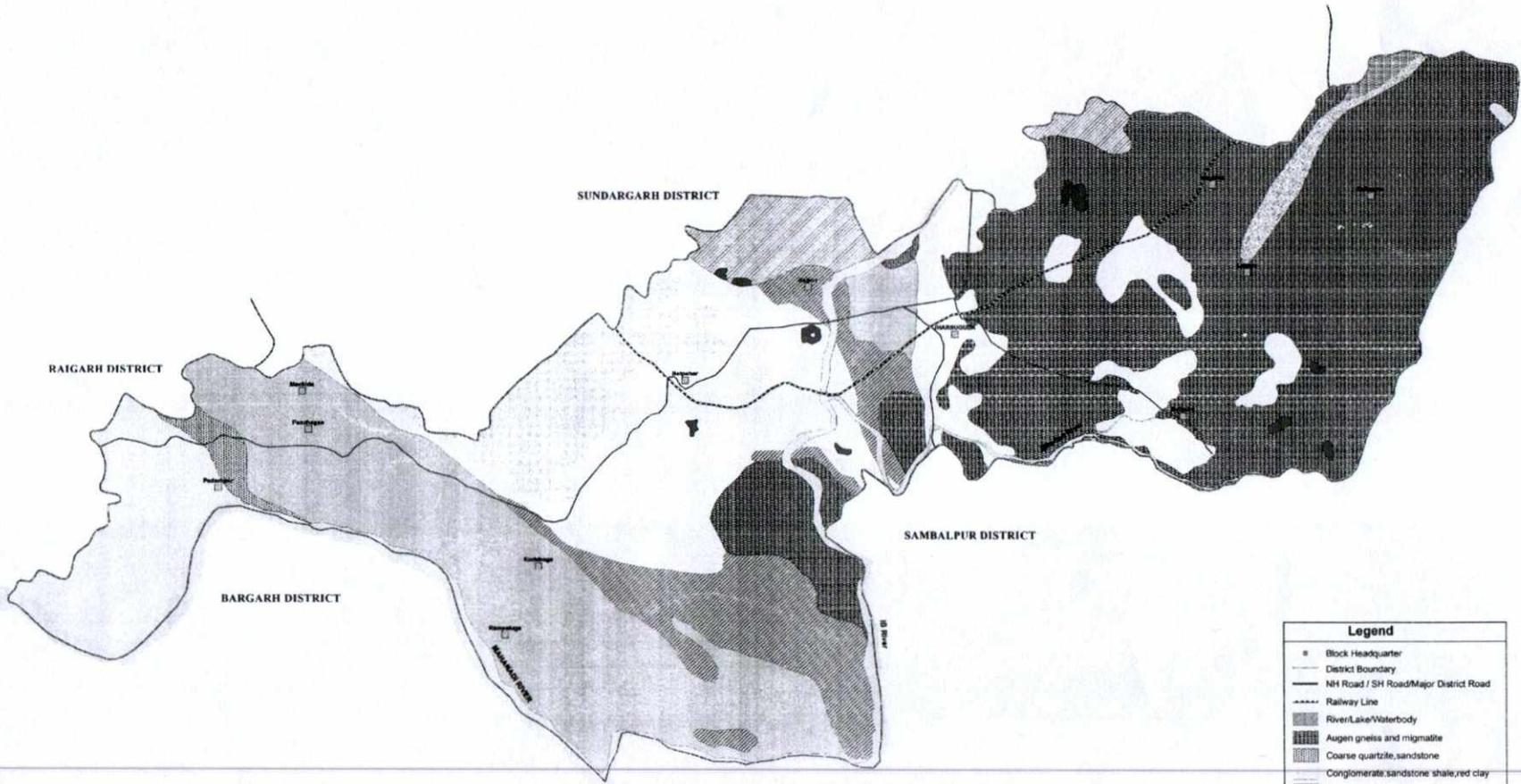
100

MINERAL MAP OF JHARSUGUDA DISTRICT

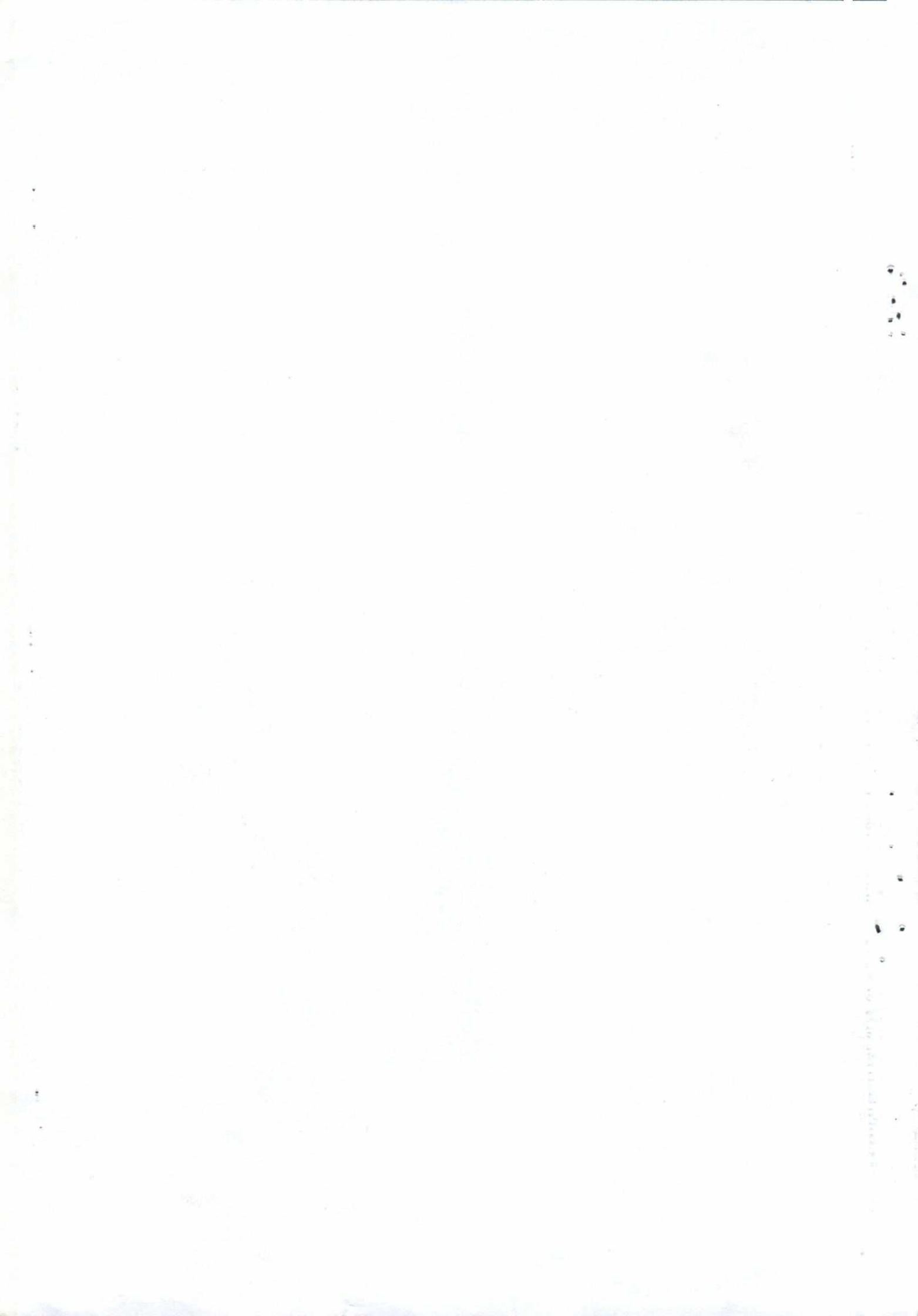
SCALE - 1:110,000



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

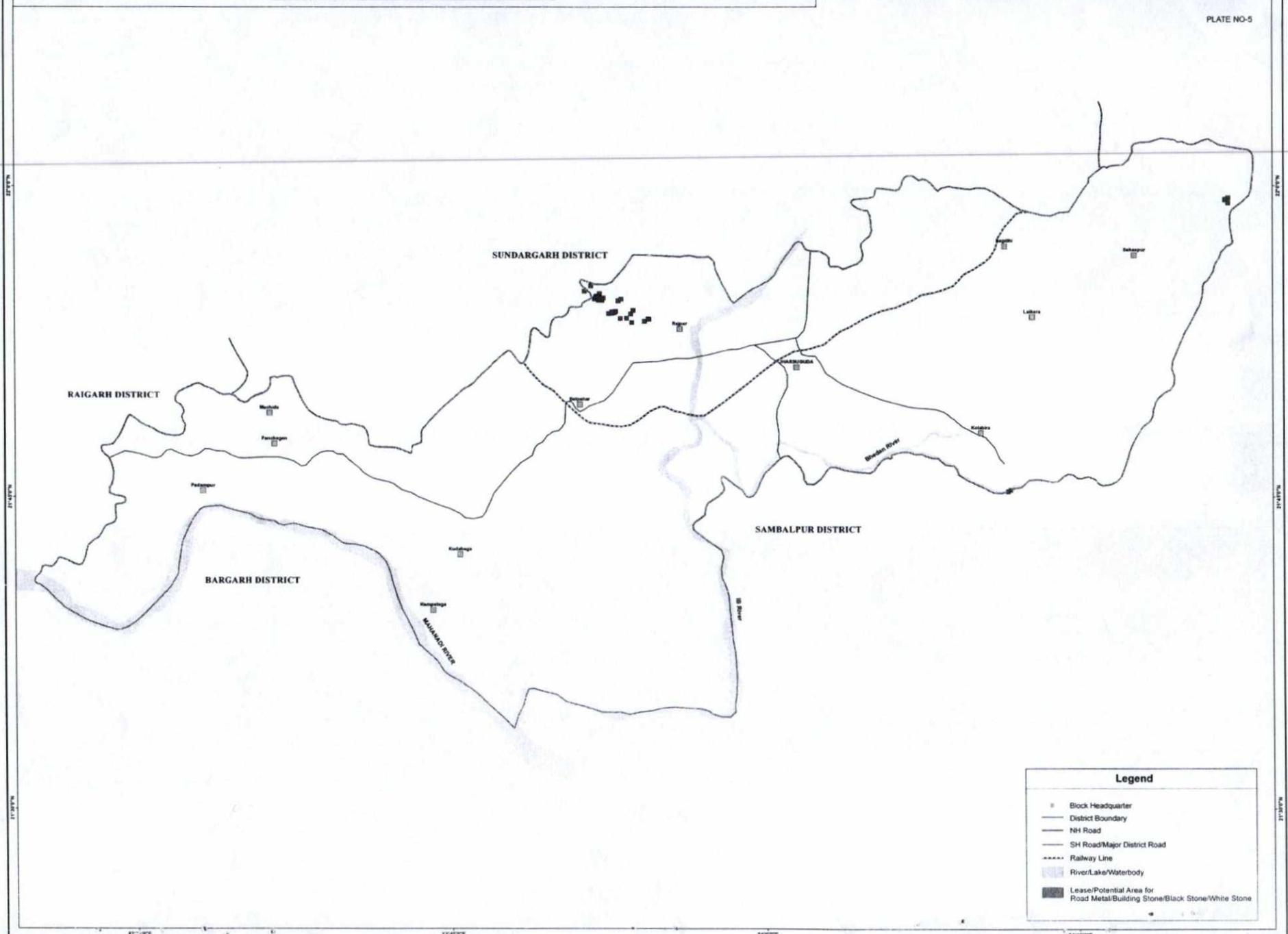


LEASE/POTENTIAL MAP OF ROAD METAL/BUILDING STONE/BLACK STONE/WHITE STONE
IN JHARSUGUDA DISTRICT

SCALE: 1:110,000



PLATE NO-5



Legend

- Block Headquarter
- District Boundary
- NH Road
- SH Road/Major District Road
- Railway Line
- River/Lake/Waterbody
- Lease/Potential Area for Road Metal/Building Stone/Black Stone/White Stone

