



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

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

ODISHA



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

COLLECTORATE, SAMBALPUR

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

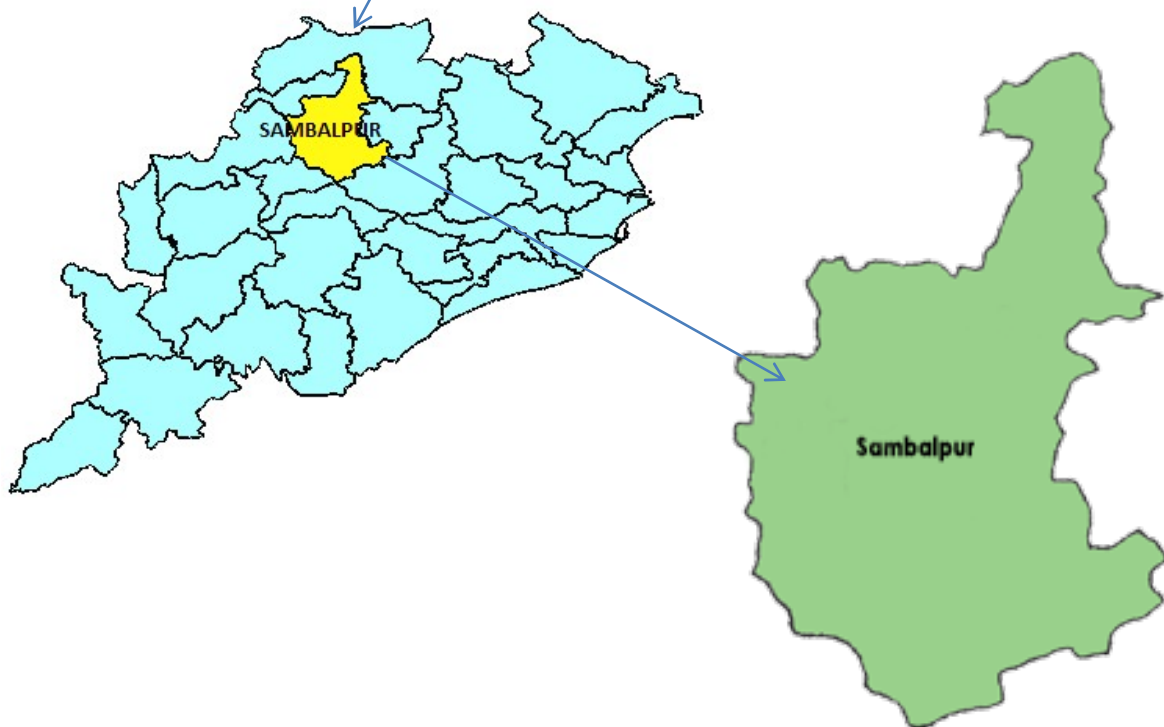
LIST OF PLATES

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



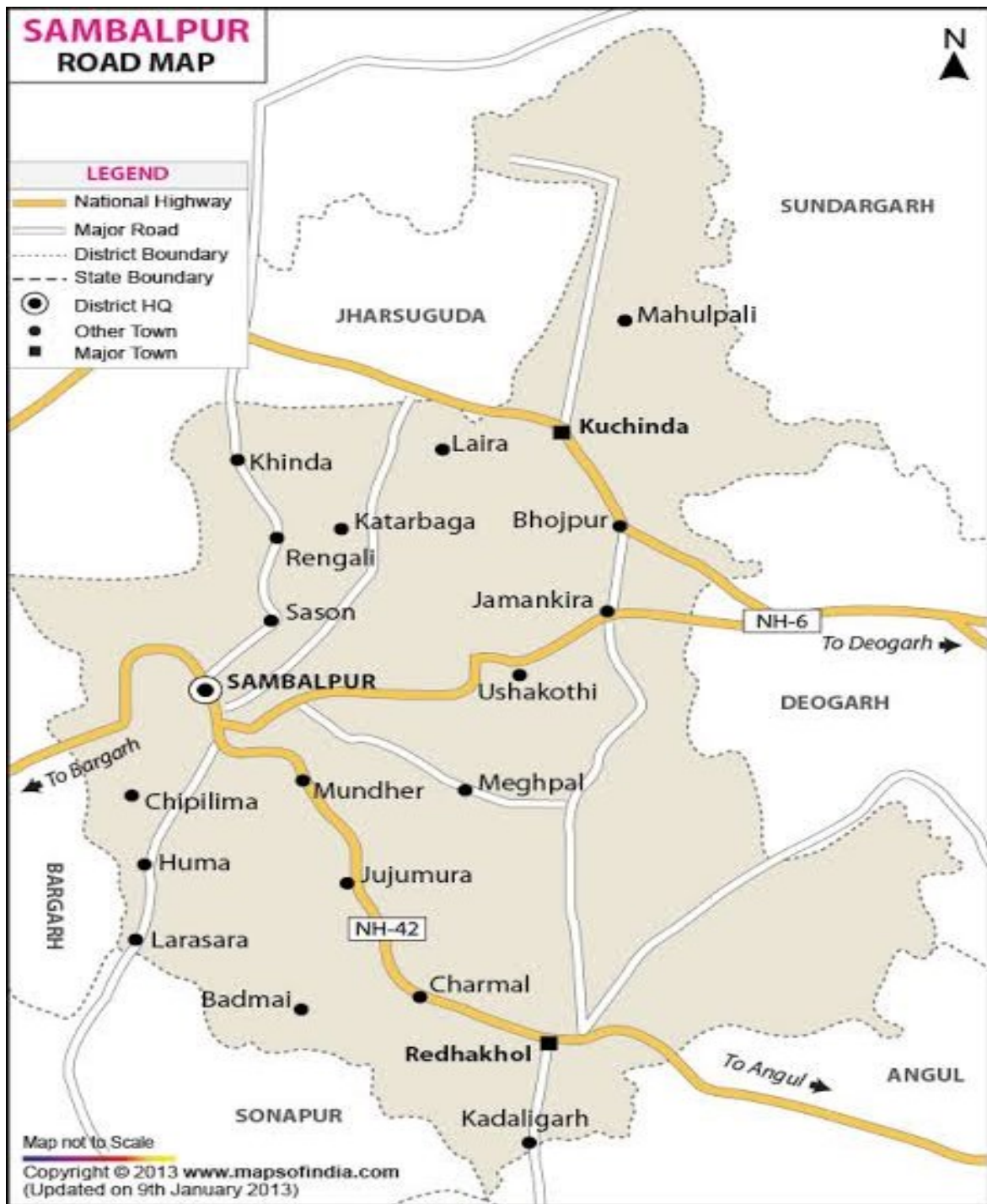
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MAP SHOWING THE TAHASILS OF SAMBALPUR DISTRICT



MAP SHOWING THE MAJOR ROADS OF SAMBALPUR 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

Sambalpur district is in the western part of state of Odisha, India. The historic city of Sambalpur is the district headquarters. The district is located in the Mahanadi River basin. Sambalpur City is the connecting city between Chhattisgarh and Odisha. Whereas it used to be known for its importance as a diamond trading centre, nowadays it is mainly known for its textiles, especially the Sambalpuri Saree. The district is surrounded by Deogarh district in the East, Bargarh district in the West, Jharsuguda district in the North and Sonepur and Angul districts in the South.

The district of Sambalpur has a history full of events including Indian freedom struggle representing the different sections of the society. Sambalpur is mentioned in the book of Ptolemy as Sambalaka on the river Manada. Sambalpur district was subsequently divided into four separate districts. Bargarh district was separated in 1993, and Jharsuguda and Deogarh districts were separated in 1994. The district covering a geographical area of 6702 sq km lies between 20 degree 54' to 22 degree 11' North Latitudes and 83 degree 49' to 84 degree 45' East Longitudes.

Sambalpur is mentioned in the book of Ptolemy (2nd century) as Sambalaka on the river Manada (the Mahanadi River). This gateway to the exotic charms of the western region of Odisha was the cradle of an ancient civilization and is an important landmark in India's cultural history.

Sambalpur State was a former princely state of British India. When its ruler died without a direct male heir in 1849, the British seized the state under the doctrine of lapse. It was attached to the British Bengal Presidency, but was transferred to the Central Provinces in 1862. The district was transferred back to Bengal in 1905, but the subdivisions of Phuljhar and Chandarpur-Padampur remained with the Central Provinces. Bengal's Odisha division became part of the new province of Bihar and Odisha in 1912, and in 1936 became the separate province of Odisha. After Indian Independence in 1947, Odisha became an Indian state.

1. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

The district constitutes a part of cratonic area which had been subjected to tectonic and thermal activities. Normally, cratons host a number of metallic as well as non metallic minerals. The following description gives an account of the mineral occurrences in the district.

Diamond: Winning of diamonds from the gravel beds exposed in the Hirakud Dam site is an age old process which is still going on by the local people. This is recovered along with gold panning. The history records that maximum weight of diamond is registered at 1 (one) carat (200 mg). The colour of the diamond normally is snow white, yellowish and brown colour. The source of these diamonds is yet to be explored.

Gold: Alluvial gold is being recovered from the recent gravel of all the creeks and rivers of this district. The activity can be seen in the River Mahanadi around Sambalpur, Tikra river in Redhakhol sub division and Kharla Nala in Kuchinda Sub- Division. An auriferous quartz vein is found to contain 0.08 gm per tonne which have been emplaced in Khondalite suite of rocks around Kuchinda.

Gem stone: The district is bestowed with rich potential of gem stones from Eastern Ghat Supergroup of rock : aquamarine, zircon, tourmaline and heliodor in Chabati-Beldihi belt, (ii) aquamarine, rhodonite, garnet, lolite, and amethyst in Bagdhapa-Tabloi belt (iii) corundum, lolite, green tourmaline and aquamarine are reported in the Meghpal-Ranchipada belt . Rare occurrence of alexandrite is reported from biotite schist at the contact of granite pegmatite and peridotite.

Chrysoberyl:- The known occurrence of chrysoberyl is located around Ranchipara- Meghpal area about 35 km from Sambalpur Town. Small incidence of chrysoberyl including Alexandrite is mineralized along the contact zone of pegmatite and ultrabasic rocks. The gem stones recovered are shattered and a very few pieces are found suitable for lapidary unit. Besides, few pieces of green beryl, tourmaline and garnets are also found. The occurrence has been extensively worked out by the local artisans.

Corundum:- Red and pink coloured massive and crystalline variety of corundum is recovered from the colluvial zones located around Meghpal village. Due to its opaque nature, few of them are found to be cabochon variety. In addition, stray occurrences of blue coloured corundums are also found around Redhakhhol area.

Aquamarine:-

Gem grade aquamarines are recovered from the extensively developed colluvial zones on either side of the pegmatites intruding into the older metamorphic rocks. The localities of aquamarine occurrences are Charbati, Shradhapur, Barkhol, Kandhal, Tabloi, Jujumura,, Bhimkhoj, Telighana and Badmal. Minor incidence of aquamarine is reported from Bansajal, Bhaluchua, Hatia Joypur, Palsamal, Burhiakata and Chamakhunda.

Heliodor:-

It is a variety of beryl of yellow colour is found along with the other aquamarine around Charbati.

Goshenite:-

Transparent, colourless beryl better known as Goshenite are found around Jaripani near Redhakhol and Charbati area in pegmatites intruding into khondalitic rocks. The incidence is erratic.

Zircon:-

Gem quality zircons are mineralized in the contact zone of pegmatite and khondalite around the east of Charbati. The colour of zircon is reddish brown.

Garnet:-

Different variety of gem garnet like rhodolite, almandine, pyrope are found to be associated with khondalite suite of rocks. Rhodolite garnets which are purplish red in colour but shattered are found as pockets around Baghdapa, Deojharan under Jujumura Block. Almandine garnets of red and deep red in colour are found to occur around Baghdapa, Deojharan, Badmal in the Redhakhol Sub Division. In addition to these garnets, small pockets of pyrope garnets are highly fractured and found unsuitable for lapidary units except a few pieces, although brilliant fire and colour are noticed.

Manganese:

Low grade manganese ores occur near Khandhal in Sagmalia Reserve Forest under Redhakhol Sub Division in association with khondalite. But it contains high phosphorous. Manganese ore is also reported to occur in Jamnakira area of Kuchinda Sub Division.

Iron Ore:-

Sporadic occurrences of iron ores are found around Lohakhanda in Kuchinda Sub Division. The iron ore is of low grade and not suitable for iron making on economic scale at present.

Ilmenite:-

Fine grained ilmenite is reported from the area around Mundher with traces of nickel in the Eastern Ghat Suite of rocks.

Coal:-

Coal seams are encountered in the Gondwana rocks around Rail and Koing area of Redhakhol Sub Division. Exploration data reveals three numbers of coal seams classified under E & F grade.

Fire clay:-

Fire clay is located about 0.5 km north east of Bindupur in Redhakhol Sub Division, extending intermittently over a distance of 1.5 km. The clay is grayish white to buff in colour. Besides, low grade fire clays are being mined out in Chandli Reserve Forest around Burla over an area of 25 acres.

Clay:-

Sporadic pockets of clay in the khondalitic suite of rocks are found and leased out around Jhankarpalli, Banjipalii, Choukitikra (Akharkhand Hill) in Kuchinda Sub Division.

Quartzite/ Quartz:-

Quartz and quartzite containing +97% SiO₂ occur around Bodmal ,Charbati and Bamra.

Dimension stones:-

Quarriable exposures of pink and grey colour granites and its variants are located around Badmal, Bhoipali of Kuchinda Sub Division and Sahaspur, Chhachanpalli, Salesingha area of Sambalpur Sub Division. A reserve of 1.17 million cubic meter of granite blocks has been estimated so far.

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

2. LIST OF LEASES WITH LOCATION, AREA AND PERIOD OF VALIDITY

Enclosed as Annexure I

3. DETAILS OF ROYALTY COLLECTED (Rs)

Sl.No	Name of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Bamra	0	917709	929437	785764
2	Jamankira	0	0	0	0
3	Jujomora	0	73000	86000	0
4	Kuchinda	0	737000	817000	0
5	Maneswar	188000	267000	290000	3000
6	Naktideul	128000	244000	471000	737000
7	Rairakhol	141100	362700	348700	122800
8	Rengali	0	0	1246000	912000
9	Sadar	0	0	0	0
TOTAL		457100	2601409	4188137	2560564

4. DETAILS OF PRODUCTION OF SAND (cum)

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Bamra	0	10100	10100	10100
2	Jamankira	0	0	0	0
3	Jujomora	2860.7	2860.7	2860.7	2860.7
4	Kuchinda	13000	13000	13000	13000
5	Maneswar	6150	6150	6150	6275
6	Naktideul	13598	19057	20158	21029
7	Rairakhol	9580	13058	12941	13056
8	Rengali	36249.5	37401	38459	40401
9	Sadar	0	0	0	0
TOTAL		81438.2	101626.7	103668.7	106721.7

5. PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS

The drainage of the district is mainly controlled by rivers like Mahanadi & Bheden and their tributaries like Bamphei Nadi, Sialjore Nadi, Malti Jore, Gadgadbahal jore etc. 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.

6. GENERAL PROFILE

a. Administrative set up:

SI No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	83 ⁰ 49' to 84 ⁰ 45'East

	Latitude	Degree	20° 54' to 22°11' North
2	Geographical area	Sq.Km.	6624
3	Sub-division	Numbers	3
4	Tahasils	Numbers	9
5	C D Blocks	Numbers	9
6	Municipalities	Numbers	1
7	NACs	Numbers	2
8	Police Stations	Numbers	24
9	Gram Panchayats	Numbers	138
10	Villages	Numbers	1313
	Inhabited	Numbers	1229
	Uninhabited	Numbers	84
11	Assembly constituencies	Numbers	4

b. Area and Population:

The district has an area of 6657 sq. km and 10 lakhs of population as per 2011 census. The district accounts for 4.28 percent of the states territory and shares 2.48 percent of the state's population. The density of population of the district is 157 per sq. km as against 2.70 person per sq.km of the state. It has 1322 villages (including 84 un-inhabited villages) covering 9 blocks, 9 tahasils and 3 Subdivisions. As per 2011 census the schedule caste population is 191827 (18.4 %) and schedule tribe population 355261 (34.1 %). The literacy percentage of the district covers 76.2 against 72.9 of the state.

c. Climate :

The climate condition of the district is generally hot with high humidity during March to September and cold during October to February The monsoon generally breaks during the month of 15th June. Average annual rainfall of the district was 1672.5 m.m in 2011 which is higher than the normal rainfall (1495.7 m.m).

d. Economy:

The economy of Sambalpur district is basically dependent on agriculture and secondly on forests. Forests play an important role in the economy in terms of contribution to revenue, Domestic Product as well as dependence of people for livelihood. In the past Sambalpur has been a great centre of diamond trade. Kendu leaf (*Diospyros Melanoxylon*) is also produced in Sambalpur. Tendu leaf is one of the most important non-wood forest products of Sambalpur and is also called as green gold of Odisha. Lately industrialisation has started in the district and the prime industries of power, alumina and steel have been established. The place is famous for its globally renowned textile bounded patterns and fabrics locally known as Baandha. Sambalpur is famous for its Hand loom textile works, popularly known as Sambalpuri Textile. It has earned international fame for its unique pattern, design and texture. Apart from textiles, Sambalpur has a rich tribal heritage and fabulous forestlands.

e. Industry:

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
3319	19961.98	2792	2902	6868	12562	4532

f. Agriculture:

During the year 2017-18 the net area sown was 192 thousand hectares against 5356 thousand hectares of the state. The production of was as below:

Name	Paddy	Wheat	Maize	Mung	Biri	Kulthi	Til	Groundnut	Mustard	Potatoes	Jute	Sugar cane
Production in 000 MT	229.47	0.16	9.92	12.96	8.20	0.84	7.01	3.46	2.24	0.00	12.00	3.27

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	19822	8803	4323	32948	132.48

g. Power:

Consumption of electricity in Sambalpur district during the year 2010-11 covers 307.619 million units and villages so far electrified as on 2010-11 is 1611 which constitutes 94 % to the total villages of the district.

h. Transport & Communication:

Railway route length (14-15) km	167.81
No of Rly stations and PH(14-15)	18
Forest road (17-18) km	739.10
National Highway (16-17) km	260.85
State Highway (17-18) km	58.53
Major district road (17-18) km	156.21
Other dist road (17-18) km	508.93
Rural road(17-18) km	1345.49
Inter village road (16-17) km	2730.64
Intra village road (16-17) km	2348.11

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	6 No
Beds facilities	1419 No
Homoeopathic dispensaries	15 No
Ayurvedic dispensaries	16 No

j. Tourist places:

There are 6 nos. of tourist center such as Hirakud dam, Huma temple, Samaleswari temple, Ghanteswari (Chipilima), Usakothi, and Deojharan identified by department of Tourism and Culture, Orissa. During 2011, the numbers of Domestic tourists were 848724 and foreign tourists were 348 who visited the tourists spots of the district.

k. Forest areas:

Category of forest	Area in sq km
Reserve Forest	2151.71
Unclassified Forest	1.18
Demarcated Protected Forest (DRF)	363.01
Undemarcated Protected Forest	0
Other forest under Revenue Dept	1115.87
Total	3631.77

l. Education:

Primary School (2017-18)	No. of Schools	899
	Enrolment (No)	86603
	Pupil Teacher Ratio	19.07
Upper Primary School 2017-18	No. of Schools	566
	Enrolment (No)	52953
	Pupil Teacher Ratio	18.06
General College 2017-18	Junior	51
	Degree	21
Secondary School	No. of Schools	236
	Enrolment (No)	28949
	Pupil Teacher Ratio	22.42
Literacy Rate, 2011	Male	84.4
	Female	67.9
	Total	76.2

m. Culture & Heritage:

The district experiences many beautiful festivals round the year. Sital Sasthi is observed in the month of June. This festival is the marriage ceremony of Lord Shiva and Parvati. Nuakhai is the most important social festival of the District. Bhajijuntia festival is celebrated on the Mahastami Day of Durga Puja. The Puajijuntia festival is observed by mothers to invoke the grace of Lord Dutibahana for the long life and prosperity of their sons. Other religious festivals which are observed include Shiva Ratri, Dola Yatra, Durga Puja, Janmanstami, Diwali, Ganesh Puja and Saraswati Puja.

Many eminent personalities have taken birth on the soil of the Sambalpur District. Bir Surendra Sai (freedom fighter), Gangadhar Meher (Poet of nature), Bhama Bhoi (celebrated religious and poet), Satya Narayan

Bohidar (Pioneer of Sambalpuri language and grammer), Swapneswar Das (accomplished poet and eminent journalist), Gokulanand Panda (Poet of extraordinary caliber), Sunil Mishra (renowned writer of humour and social satire), Braja Mohan Panda (Educationist of repute) and Laxmi Narayan Mishra (Eminent freedom fighter) are the famous personalities of this soil.

7. LAND UTILISATION PATTERN

SI No	Landuse	Area in '000Ha
1	Forest Area	363
2	Misc. trees & Grooves	4
3	Permanent Pasture	13
4	Culturable Waste	19
5	Land put to Non Agril Use	33
6	Barren & Unculturable Land	18
7	Current Fallow	2
8	Other Fallow	17
9	Net Area Sown	192
10	Mining	5
	Geographical Area	666

8. PHYSIOGRAPHY

The Sambalpur district houses a wide variety of rock types of different ages. They can broadly be classified into Eastern Ghat Supergroup, Bonai Group, Gangpur Group, Chattisgarh Group, intrusive nepheline syenite, Gondwana Supergroup and Quaternary sediment. The rocks belonging to Eastern Ghat Supergroup are mostly quartz-garnet-graphite-sillimanite gneiss and quartzite of Khondalite Group and acid/intermediate charnockite, pyroxene granulite and leptynite of Charnockite Group. The khondalite suite of rocks are found mostly in the southern parts of the district, west of the central Gondwanic graben. The charnockite occurs in the form of massive plutonic massif confined to the central part of the district.

9. RAINFALL

10. 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.

11. 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	534.1	29	2281.4	3935.1	3578.3	1366.8	93.6	0	180.4	44.3	59.8	96.6	12199.4
16-17	62.6	281.5	782.8	2109.1	4471.2	2323.2	452.9	2	0	156.2	0	110.2	10751.7
17-18	7.1	300.6	2488	3524.2	2311.2	1814	559.4	73.2	0	0	0	8.8	11086.5
18-19	428.2	948.8	1580.2	4763.4	4615.2	1634.3	124.5	9.8	830.4	6.3	235.8	257	15433.9
AVG	258	389.975	1783.1	3582.95	3743.98	1784.58	307.6	21.25	252.7	51.7	73.9	118.15	12367.9

12. GEOLOGY AND MINERAL WALTH

The trend of gneissosity in the Eastern Ghat belt swerves from northeasterly in the western part to northwesterly in the eastern part of the district. Granite gneiss, migmatite and augen gneiss form the most conspicuous country rocks in the district, stretching from Panikhimal in the south to as far as Govindpur in the north. It is essentially biotite granite, with composition ranging from granodiorite to occasional alkali granite. Bonai Group is represented by meta-volcanics and sericite quartzite in stratigraphically lower horizons and shale, phyllite, mica schist, quartz sericite schist in the upper horizons. They are mostly found in the northeastern part of the district. Metabasic bodies are occasionally found as intrusives within the metasedimentaries of Bonai Group. A very thin strip of sedimentary rocks belonging to Gangpur Group are found near the northern tip of the district. The rock types are basal

conglomerate, quartzite, phyllite and mica schist. An isolated outcrop of Chattisgarh Supergroup of rocks occurs west of Mahanadi River. It runs in a N-S direction. A cluster of nepheline syenite bodies are intruded into the Eastern Ghat Supergroup of rocks near Rairakhol which is responsible for the formation of gemstones in the region. The swarm of NW-SE trending dolerite dykes traverse the gneisses near Badarama Reserve Forest. Rocks of Gondwana Supergroup are hosted in the fault bounded basins occupying the central portion of the district with a NW-SE trend. They are represented by Talchir Formation, Barakar Formation and Mahadeva Formation. Coal bearing horizons are yet to be reported from the Barakars, present in the district. Quaternary sediments are sporadically distributed district. They occur as soil/alluvium in the pediplains and flood plains. Cenozoic laterites occur as small cappings over the altered bedrocks.

STRATIGRAPHY: The geological succession in the district is as follows:

Age	Geological Unit		Litho unit
Pleistone to recent	Quaternary		Soil/ Alluvium
Cenozoic			Laterite
Permian-Triassic	Gondwana Super Group	Mahadev Formation	Red sandstone/ clay
		Barakar Formation	Sandstone & shale
		Talchir Formation	Boulder bed, sandstone, needle shale
			Quartz Vein/ Dolerite dyke
Proterozoics (Undiff.)			Nepheline syenite
Middle- Upper proterozoic	Chhatishgarh Super Group	Chandarpur Formation	Sandstone , quartzite, clay, shale)
			Intrusive granite (equivalent to Gangpur granite)
			Phyllite, mica schist
Lower Proterozoics		Gangpur Group	Basal Conglomerate & quartzite
			Metabasic rocks(Intrusive)
		Upper Bonai Group	shale, mica-schist, phyllite
			sericite quartzite)
Archaean to Lower Proterozoic			Metabasics/metavolcanics
		Lower Bonai Group	Quartzite & Sericite quartzite
			Granite gneiss, Augen gneiss, migmaite
			Acid/intermediate Charnockite
		Charnockite group	Pyroxene granulite
Archaean	Eastern Ghat Super Group		Leptynite
		Khondalite Group	Quartz-garnet-sillimanite gneiss
			Quartzite

- a. Detail of river/stream/other sand source- Sand mining in the district is confined to main rivers like Mahanadi & Bheden and their tributaries like Bamphei Nadi, Sialjore Nadi, Malti Jore, Gadgadbahal jore etc.
- b. Availability of maximum sand or gravel or aggregate resources- sand- 20,26,372 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

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

ANNEXURE I

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	Status	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)
1	2	3	4	5	6	7	8	9
1	Bamra	Mahulpali Sand bed /Sialjore Nadi, Bheden Nadi	Running	Mahulpali Khata No-159, Plot No.1693(P), UTM(232814.4E,2420079.2N) Chhatiposh Khata No.128, plot No.2;UTM(233795.0E,2421237.3N) Jhagadatikra Khata No.65, Plot No.758;UTM(233790.8E,2421269.1N) Chhatabar Khata No.60,Plot No.699(P);UTM(231731.8E,2418140.4N) Rajbandh Khata No.103, Plot No.95(P); UTM(231125.9E,2416378.2N)	1.2	0.06	62807	15500
2	Bamra	Bheden Nadi/Jarabaga Sand Bed	Running	Jarabaga Khata No.174, Plot No.1047(P),1053,1329;UTM (236447E,2431034N) Lapada Kh No.125:-PI No.170/1620(P),214/1621(P),1329;UTM(238214E,2428778N)	1.16	0.04	53458	17500
3	Bamra	Bamphei Sand Bed /Bamphei Nadi	Running	Bamphei Khata no.224,Plot no- 1,1/2531,1015/2530;UTM(218965.5E,2447438.7N) Tataranga Khata No.66, Plot No.1(P);UTM(219191.1E,2449037.7N)	1.16	0.04	53458	17500
4	Jujomura	Malti Jore,		La:21 23'33.7"-21 23'58.5" N Lo:84 13'01.3"-84 13'24.2"	1	0.3	57182.08	5499

		Gudapal, dt.03.03.17						
5	Jujomura	Malti Jore, Dangarpada, dt.03.03.17		La:21 25'56.9"-21 26'04.1" N Lo:84 10'39.8"-84 11'08.1"	0.6	0.15	51637.88	5992
6	Jujomura	Gadgadbahal jore, Gadgadbahal, Dt.28.12.17		La:21 17'54.316"-21 18'02.843" N Lo:84 07'15.049"-84 07'36.084"	1.4	0.41	53944.59	2812.5
7	Kuchinda	Saida		River-Veden K.No-275 Plot No-3954,3746,3962	0.87 km	0.06 km	52610.00	3000
8	Kuchinda	Mahuldihi		River-Veden K.No-86 Plot No-01(p),469(p)	0.52 km	0.10 km	52610.00	4000
9	Kuchinda	Kuleigarh		River-Veden K.No-236 Plot No-2653(p)	0.41 km	0.12 km	50586.80	4000
10	Kuchinda	Satkama		River-Veden K.No-250 Plot No-3648(p)	0.41 km	0.12 km	50586.80	2000
11	Maneswar	Jore, Nuagaon, Balpur, Sand 15.12.15		Ac 12.50 kh 40, 181, 107, Pl 1 (P), 482 (P), 230 / 634	0.7	0.08	ac. 12.50	5000.00
12	Maneswar	jore, Nuagaon sand quarry 15.12.15		Ac. 12.50 Kh 40, Pl 01,	0.8	0.05	ac. 12.50	7500.00
13	Maneswar	Jore, Temesingha Sand quarry 21.06.2016		Ac. 12.35, Kh 91, pl 01 (P), 145	1.05	0.05	Ac. 12.35	3000.00
14	Maneswar	Khandual Sand quarry 15.12.15		Ac. 12.50, Kh 291, pl 188 (P)	0.7	0.06	Ac. 12.50	5000.00
15	Maneswar	Jore Tangarpali sand quarry 05.12.16		Ac. 12.35 Kh 63, Pl 374 (P)	1.09	0.06	Ac. 12.35	3025.00
16	Maneswar	Mahanadi Sajya Haldi Sand quarry 02.07.2016		Ac 12.35	0.7	0.1	ac 12.35	7500.00
17	Naktideul	Tikira, Naktideul, 07.09.2015		Lat 210 15' 36.4" N to 210 15' 36.4" N Long 840 32'13.2" E to 840 32'25.7" E and Mouza- Naktideul Khata no- 174 Kisam-Nadi Pl. No. - 174 Area 12.5 Ac	0.8	0.013	50884	41888
18	Naktideul	Tikira, Baghbar, 01.12.2017		Lat 210 14' 17.96" N to 210 17' 05.63" N Long 840 44'01.29" E to 840 44'14.46" E and Mouza- Baghbar Khata no- 115 Kisam- Nadi pl- No. 197 Area 8.98, Pl. No. 218 Area 3.37 Ac	0.3	0.05	30000	22500
19	Naktideul	Tikira, Pitasiari, 01.12.2017		Lat 210 17' 39.6" N to 210 17' 42" N Long 840 24'17.6" E to 840 24'24.4" E and Mouza- Pitasiary Khata no- 17 Kisam-Nadi pl - 360 Area 12.35 Ac	0.06	0.05	42042	25356
20	Naktideul	Tikira, Ghosaramal,		Lat 210 10' 0.69" N to 210 10' 0.72" N Long 840 30'6.42" E to 840 30'7.18" E and Mouza- Ghosaramal Khata no- 87 Kisam-	0.66	0.047	25302	20241

		Bahaljharan, 26.10.2016		jora Area 6.15, 1971- 2.10 Ac, 297- 4.1 Ac (total 12.35 Ac)				
21	Naktideul	Tikira, Jamujori, 01.11.2017		Lat 210 14' 8.93'' N to 210 14'8.05'' N Long 840 42'00.01'' E to 840 42'0.66'' E and Mouza- Jamujori Khata no-171 Kisam- Nadi Pl No.- 1 Area 12.35Ac	0.6	0.03	50604	40443
22	Rairakhol	Kerandijore , sand, Rampur, 03.11.2015		21° 04' 29.9" N to 21° 05' 08.7" N and 84° 20' 44.1" E to 84° 21' 15.0" E.	1.5	0.033	5000 (12.50 acre)	2892
23	Rairakhol	Harihar Jore, Badmal, 04.09.15		21° 06' 21.5" N to 21° 07' 04.40" N and 84° 03' 22.80 " E to 84° 03' 41.70" E.	2	0.071	143200(35.80 acre)	19600
24	Rairakhol	SukhaJore sand, Charmal 03.01.2017		21° 06' 08.7" N to 21° 06' 10.9" N and 84° 15' 09.8 " E to 84° 15' 28.03" E.	1.2	0.042	51240(12.50 acre)	5000
25	Rairakhol	Surubali Jore 'B',Chudapudug 21.11.2016		21° 02' 0.53" N to 21° 02' 07.41" N and 84° 14' 30.23 " E to 84° 14' 14.52" E.	0.5	0.12	6000 (15.48 acre)	7500
26	Rairakhol	Surubali Jore C'' Bansajal, 27.05.2016		21° 04' 26" N to 21° 04' 35" N and 84° 12' 28 " E to 84° 12' 39" E.	0.32	0.14	0.0506 (12.50 acre)	26570
27	Rengali	Ghichamura Sand quarry, 01.12.2017 Bheden River		Khata No.331 Plot No.2563 Area – Ac.42.07	1.6	0.10	168280	75316
28	Rengali	Gumkarama Sand quarry, 10.11.2017 Bheden River		Khata No.196 Plot No.759/999 Area – Ac.13.85	0.65	0.08	55400	13529
29	Rengali	Khinda Sand quarry, 01.12.2017 Bheden River		Khata No.248 Plot No.75/2117, 22 Total area Ac.15.00	0.6	0.085	60000	52039
30	Rengali	Theikoloi Sand quarry – 1 (08.12.2017) Bheden River		Khata No.1 Plot No.1 Area – Ac.12.50	0.47	0.09	50000	20872

31	Rengali	Thelkoloji Sand quarry – 2 (8.12.2019) Bheden River		Khata No.1 Plot No.1/3294 Area – Ac.19.55	0.70	0.10	78200	32987.5
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ANNEXURE II

POTENTIAL SAND SAIRATS IN THE DISTRICT

Sl. No.	Name of Tahasil	Status	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)
1	2	3	4	5	6	7	8	9	10
1	Bamra	Running	Sialjore Nadi, Bheden Nadi	Mahulpali Khata No-159, Plot No.1693(P), UTM(232814.4E,2420079.2N) Chhatiposh Khata No.128, plot No.2;UTM(233795.0E,2421237.3N) Jhagadatikra Khata No.65, Plot No.758;UTM(233790.8E,2421269.1N) Chhatabar Khata No.60,Plot No.699(P);UTM(231731.8E,2418140.4N) Rajbandh Khata No.103, Plot No.95(P); UTM(231125.9E,2416378.2N)	Mahulpali Sand bed /	1.2	0.06	62807	15500
2	Bamra	Running	Bheden Nadi/Jarabaga Sand Bed	Jarabaga Khata No.174, Plot No.1047(P),1053,1329;UTM (236447E,2431034N) Lapada	Bheden Nadi/Jarabaga Sand Bed	1.16	0.04	53458	17500

				Kh No.125:-PI No.170/1620(P),214/1621(P),1329; UTM(238214E,2428778N)					
3	Bamra	Running	Bamphei Sand Bed /Bamphei Nadi	Bamphei Khata no.224,Plot no- 1,1/2531,1015/2530;UTM(218965.5 E,2447438.7N) Tataranga Khata No.66, Plot No.1(P);UTM(219191.1E,2449037.7 N)	Bamphei Sand Bed /Bamphei Nadi	1.16	0.04	53458	17500
4	Jamanki ra	New	Sankhabhan guni	Kh. No.88 Plot -1,422	Gariabahal	1.4	0.040	0.053	3000
5	Jamanki ra	New	Maltijor	Bhejikud Kh. No. 18 Plot-318 Tangarpali Kh. No. 40 Plot- 10/435	Bhejikud	1.1	0.070	0.049	8820-
6	Jujomor a	Running	Malti Jore	La:21 23'33.7"-21 23'58.5" N Lo:84 13'01.3"-84 13'24.2"	Gudapal (Gudapal Sand Quarry)	1	0.3	57182.08	102927
7	Jujomor a	Running	Malti Jore	La:21 25'56.9"-21 26'04.1" N Lo:84 10'39.8"-84 11'08.1"	Dangarpada (Dangarpad a Sand Quarry)	0.6	0.3	51637.88	92946
8	Jujomor a	Running	Gadgadbah al jore	La:21 17'54.316"-21 18'02.843" N Lo:84 07'15.049"-84 07'36.084"	Gadgadbah al (Gadgadbah al Sand Quarry)	1.4	0.25	53944.59	97099
9	Jujomor a	New	Barloi Jore	La:21 28'27.18"-21 28'31.60" N Lo:84 08'05.94"-84 08'27.63"	Barloi (Barloi Sand Quarry)	1.3	0.04	79925.41	143865
10	Jujomor a	New	Malti Jore	La:21 28'22.52"-21 28'30.40" Lo:84 08'07.50"-84 08'23.35"	Kusanpuri (Kusanpuri	1.3	0.06	54511.15	98119

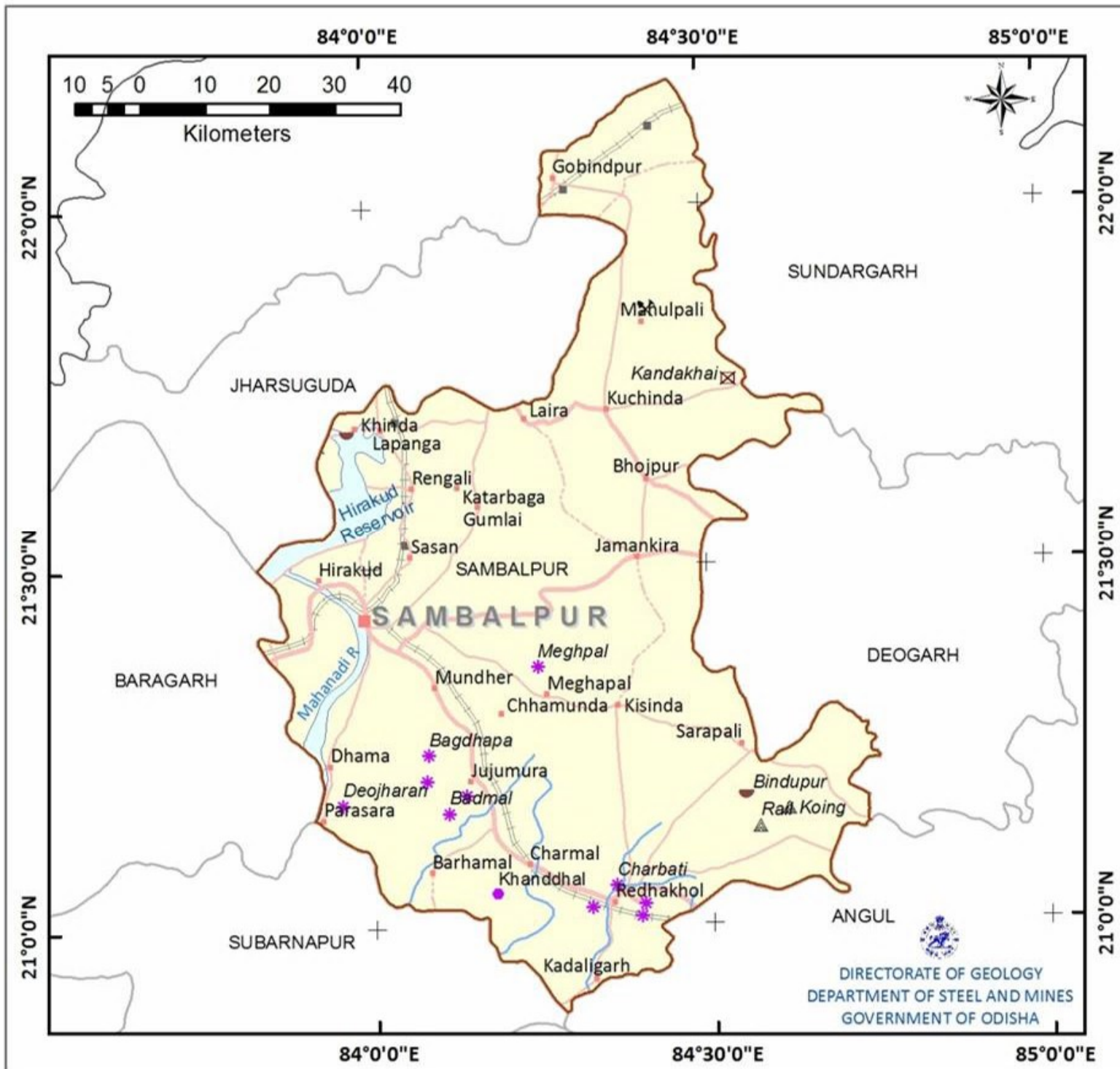
					Sand Quarry-1)				
11	Jujomora	New	Malti Jore	La:21 28'33.26"-21 28'44.49" Lo:84 05'45.86"-84 06'07.43"	Kusanpuri (Kusanpuri Sand Quarry-2)	1.2	0.05	50585.71	91053
12	Jujomora	New	malti jore	La:21 28'27.18"-21 28'31.60" N Lo:84 08'05.94"-84 08'27.63" E	Baham(Baham sand Quarry)	1.2	0.04	54632.56	98337
13	Jujomora	New	malti jore	La:21 27'06.56"-21 27'30.97" N Lo:84 02'51.79"-84 03'18.91" E	Kendghati (Kendghati Sand Quarry)	1.2	0.04	50585.71	91053
14	Jujomora	New	malti jore	La:21 28'38.6"-21 28'41.00" N Lo:84 05'41.00"-84 06'20.00" E	Kuturajori (Kuturajori Sand Quarry)	1.2	0.04	50990.39	91782
15	Jujomora	New	Nuamahulp ali Jore	La:2117'25.46"-2117'32.25" Lo:8404'53.99"-8405'41.47"	Nuamahulp ali (Nuamahulp ali Sand Quarry-1)	1	0.05	50585.71	91053
16	Jujomora	New	Nuamahulp ali Jore	La:2118'05.68"-2117'23.76" Lo:8404'41.42"-8404'53.99"	Nuamahulp ali (Nuamahulp ali Sand Quarry-2)	1.3	0.05	63535.65	114363
17	Jujomora	New	malti jore	La:2122'40.50"-2123'39.90" N Lo:8404'59.10"-8410'21.10"	Hiro (Hiro Sand Quarry)	1.5	0.2	51030.85	91854
18	Kuchinda	New	River	K.No-163 Plot No-141(p)	Purnapani	0.24 km	0.10 km	24793.00	305
19	Kuchinda	Running	River	K.No-275 Plot No-3954,3746,3962	Saida	0.87 km	0.06 km	52610.00	2000
20	Kuchinda	Running	River	River-Veden K.No-86 Plot No-01(p),469(p)	Mahuldihi	0.52 km	0.10 km	52610.00	9469
21	Kuchinda	Running	River	River-Veden K.No-236 Plot No-	Kuleigarh	0.41 km	0.12 km	50586.80	4000

	a			2653(p)					
22	Kuchinda	Running	River	River-Veden K.No-250 Plot No-3648(p)	Satkama	0.41 km	0.12 km	50586.80	3000
23	Kuchinda	New	River	K.No-89,plot No-4(p)& K.No-188 Plot No-2783(p)	Kalhapada, Gochhara	0.60 km	0.10 km	38445.00	592
24	Manesar	Running	Jore	Ac. 12.50 kh 40, 481, 107, Pl 1 (P) 1/401 230/ 634	Nuagaon, Huma Balpur	0.07	0.08	Ac 12.50	91056
25	Manesar	Running	Jore	Ac 12.50 kh 40, Pl 1	Nuagaon	0.8	0.05	Ac 12.50	91056
26	Manesar	Running	Jore	Ac 12.35 kh 91 Pl 01 (P) , 145	Tumesingha	1.05	0.05	Ac. 12.35	89963
27	Manesar	Running	Jore	Ac 12.50 Kh 291, Pl 1188 (P)	Khandual	0.7	0.06	Ac 1250	91056
28	Manesar	Running	Jore	Ac 12.35 Kh 63 Pl 374 (P)	Tangarpali	1.09	0.06	Ac. 12.35	89963
29	Manesar	Running	Mahanadi Sajya	Ac. 12.35	Haldi	0.7	0.1	Ac . 12.35	89963
30	Naktideul	Running	Tikira	Lat 210 15' 36.4'' N to 210 15' 36.4'' N Long 840 32'13.2" E to 840 32'25.7" E and Mouza- Naktideul Khata no- 174 Kisam-Nadi Pl- 174 Area 12.5 Ac	Naktideul	0.8	0.013	50884	25133
31	Naktideul	Running	Tikira	Lat 210 14' 17.96'' N to 210 17' 05.63'' N Long 840 44'01.29" E to 840 44'14.46" E and Mouza- Baghbar Khata no- 115 Kisam-Nadi pl- 197 Area 8.98, 218 Area 3.37 Ac	Baghbar	0.3	0.05	30000	13500
32	Naktideul	Running	Tikira (Pitasiary)	Lat 210 17' 39.6'' N to 210 17' 42'' N Long 840 24'17.6" E to 840 24'24.4" E and Mouza- Pitasiary Khata no- 17 Kisam- Nadi pl - 360 Area 12.35 Ac	Pitasiary	0.06	0.05	42042	6750
33	Naktide	Running	Tikira	Lat 210 10' 0.69'' N to 210 10' 0.72''	Ghosramal ,	0.66	0.047	25302	4566









	ul			N Long 840 30'6.42" E to 840 30'7.18" E and Mouza- Ghoaramal Khata no- 87 Kisam- jora Area 6.15, 1971- 2.10 Ac, 297- 4.1 Ac (total 12.35 Ac)	Bahaljharan				
34	Naktide ul	Running	Tikira	Lat 210 14' 8.93" N to 210 14'8.05" N Long 840 42'00.01" E to 840 42'0.66" E and Mouza- Jamujori Khata no-171 Kisam- Nadi pl- 1 Area 12.35Ac	Jamujori	0.6	0.03	50604	10800
35	Rairakh ol	Running	KerandiJore , Rampur	21° 04' 29.9" N to 21° 05' 08.7" N and 84° 20' 44.1" E to 84° 21' 15.0" E.	Rampur	1.5	0.033	5000 (12.50 acre)	9000
36	Rairakh o	Running	Harihar Jore, Badmal	21° 06' 21.5" N to 21° 07' 04.40" N and 84° 03 '22.80 " E to 84° 03' 41.70" E.	Badmal	2	0.071	143200 (35.80 acre)	25776
37	Rairakh o	Running	SukhaJore, Charmal	21° 06' 08.7" N to 21° 06' 10.9" N and 84° 15 ' 09.8 " E to 84° 15' 28.03" E.	Charmal	1.2	0.042	51240 (12.50 acre)	92232
38	Rairakh o	Running	Surubali Jore 'B'sand quarry, Chudapudug	21° 02' 0.53" N to 21° 02' 07.41" N and 84° 14 ' 30.23 " E to 84° 14' 14.52" E.	Chudapudug	0.5	0.12	6000 (15.48 acre)	10800
39	Rairakh o	Running	Surubali Jore Ç'' sand,quarry, Bansajal	21° 04' 26" N to 21° 04' 35" N and 84° 12 ' 28 " E to 84° 12' 39" E.	Bansajal	0.32	0.14	44800 (12.50 acre)	80640
40	Rengali	Running	Ghichamura Sand quarry, 01.12.2017 Bheden River	Khata No.331 Plot No.2563 Area – Ac.42.07	Ghichamura	1.6	0.1	168280	45189.6
41	Rengali	Running	Gumkarama	Khata No.196	Gumkarama	0.65	0.08	55400	8117.4

			Sand quarry, 10.11.2017 Bheden River	Plot No.759/999 Area – Ac.13.85					
42	Rengali	Running	Khinda Sand quarry, 01.12.2017 Bheden River	Khata No.248 Plot No.75/2117, 22 Total area Ac.15.00	Khinda	0.6	0.085	60000	31223.4
43	Rengali	Running	Thelkoloji Sand quarry – 1 (08.12.2017) Bheden River	Khata No.1 Plot No.1 Area – Ac.12.50	Thelkoloji	0.47	0.09	50000	12523.2
44	Rengali	Running	Thelkoloji Sand quarry – 2 (8.12.2019) Bheden River	Khata No.1 Plot No.1/3294 Area – Ac.19.55	Thelkoloji	0.7	0.1	78200	19792.5

MINERAL MAP OF SAMBALPUR DISTRICT



Legend

- | | | | |
|---|-------------------|---|-----------------|
|  | District Boundary |  | Railway Line |
|  | National Highway |  | Railway Station |
|  | Minor Road |  | River |
|  | Major Road |  | Waterbody |

Mineral Occurrence

- | | |
|---|-----------------|
|  | Coal |
|  | Dimension Stone |
|  | Fireclay |
|  | Gemstone |

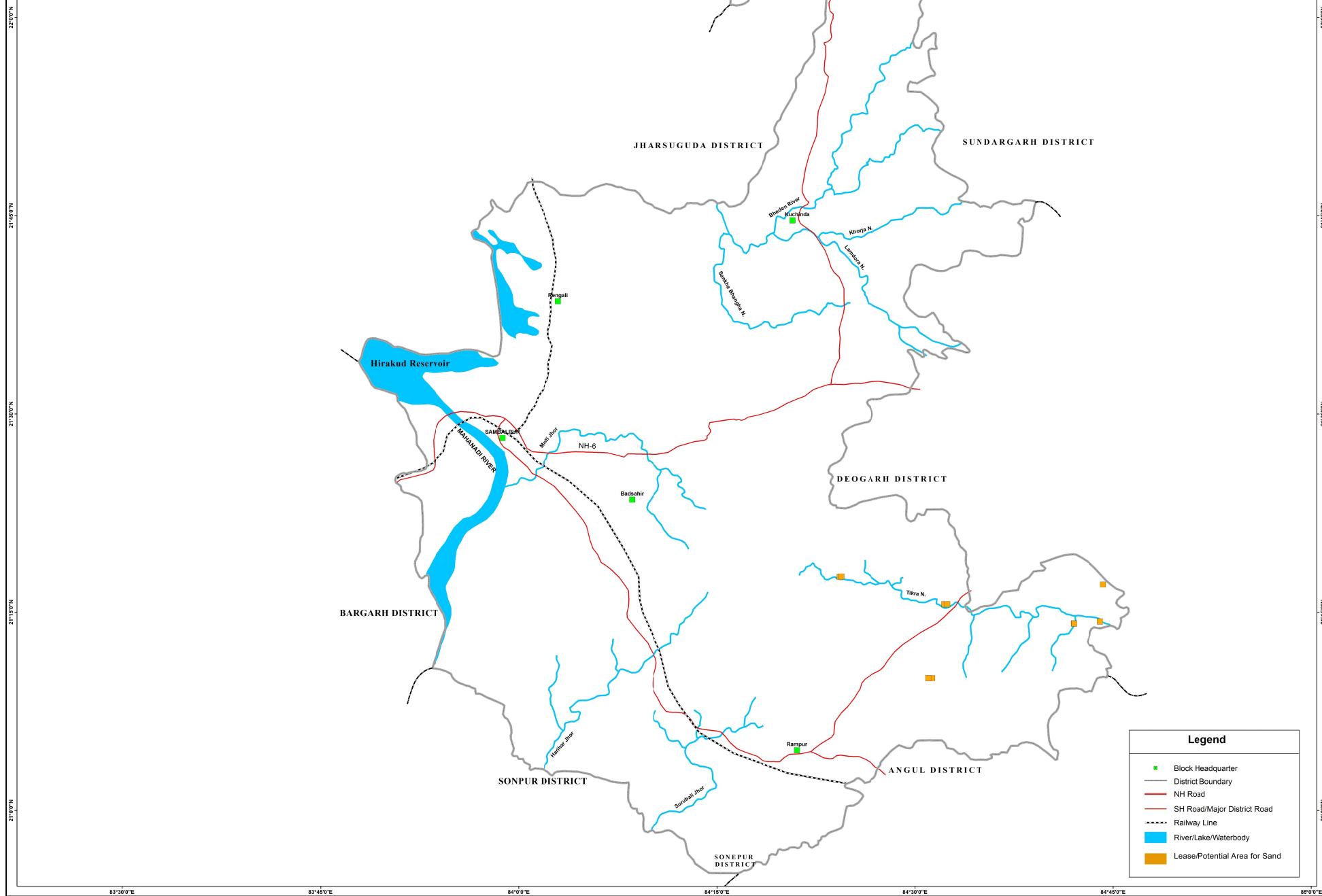
DIRECTORATE OF GEOLOGY
DEPARTMENT OF STEEL AND MINES
GOVERNMENT OF ODISHA

LEASE/POTENTIAL MAP OF SAND IN SAMBALPUR DISTRICT

SCALE :- 1:80,000
0 2.5 5 10 15 20 25
Kilometres



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