



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

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

ODISHA



ANGUL



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

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

COLLECTORATE, ANGUL

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INDEX MAP



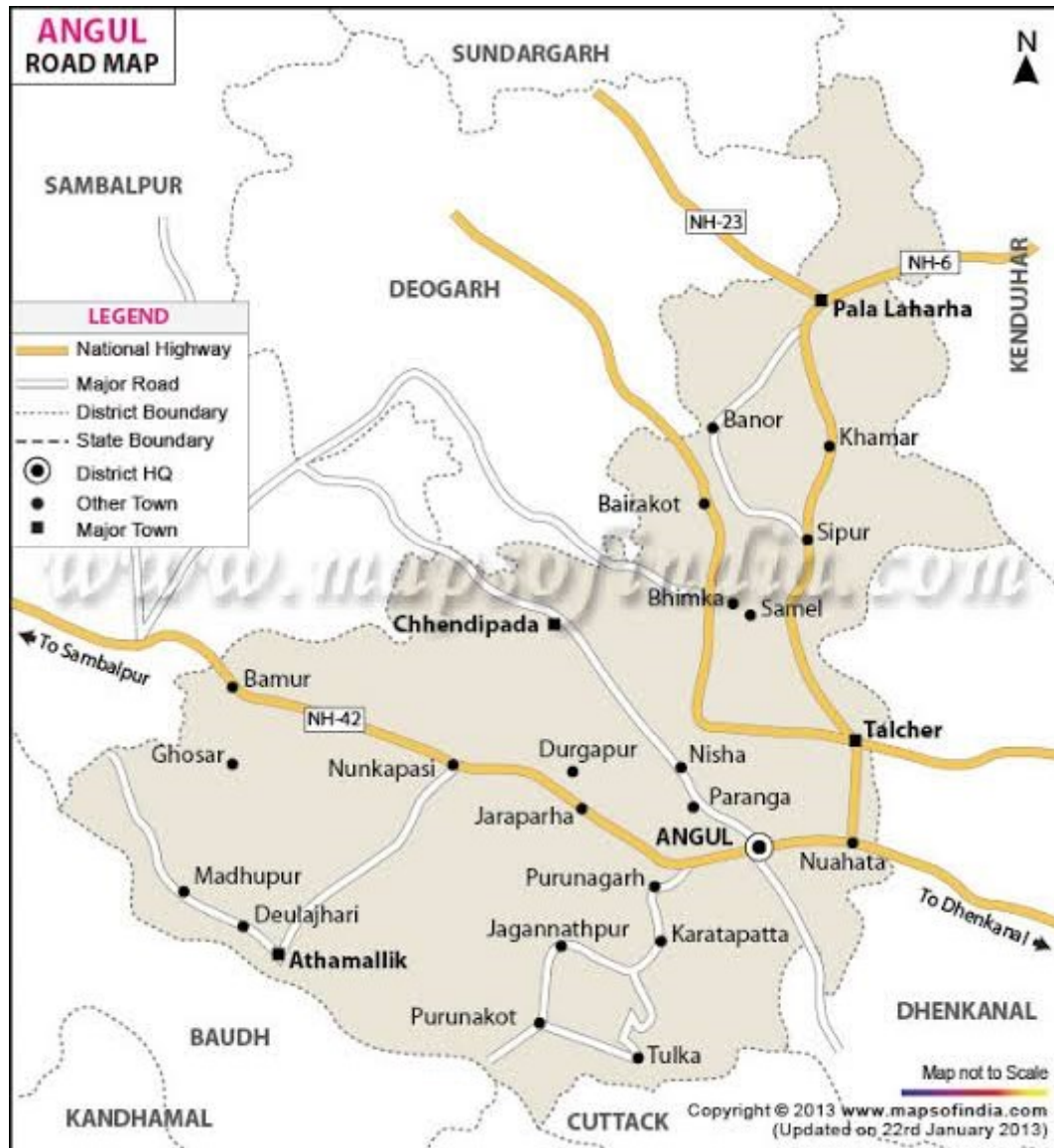
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MAP SHOWING THE TAHASILS OF ANGUL DISTRICT



MAP SHOWING THE MAJOR ROADS OF ANGUL 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

The district of Angul situated at the heart of Odisha was a part of Undivided Dhenkanal district till early March 1993, but for the administrative convenience, Dhenkanal District was divided into two parts i.e. Dhenkanal and Angul vide State Government Notification No. DRC-44/93/14218/R. dated 27 March 1993. Angul District came into existence as a separate district on April 1, 1993. The district is surrounded by Cuttack & Dhenkanal on the east, Sambalpur & Deogarh on the west, Sundargarh & Keonjhar on the north and Phulbani on the south. Covering an area of 6232 sq.km, Angul District is located at Latitude 20° 31' to 21°41' North to 84°16' to 85°23' East Longitude. The altitude of this place is 564 to 1187 mt. The district is abundant with natural resources. Angul, The district headquarters is about 150 kilometres (93 mi) from the state capital Bhubaneswar.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

Angul district is enriched with many valuable economic minerals like coal, Kyanite, graphite, fireclay, china clay, precious and semi-precious stones, dimension and decorative stones etc.

Coal:

Angul district occupies a significant position in the mineral map of India because of its vast resources of coal in the Talcher coalfield. A total reserve of 50,406 million tonnes of coal of all categories has been estimated in the district in Talcher coalfield. The Karaharbari and Barakar formations belonging to Damuda series are coal bearing. Coal produced in this area is mostly used for power generation purpose.

Fireclay:

Fireclay occurs sporadically within a stretch of 15 sq. km area in and around Badaganduri, Kansamunda and Telisinga villages of Kaniha Block, Angul district. In Talcher Lower Gondwana basin, the fireclay beds usually overly the coal seams.

Fireclay also occurs in Handapa area around Kakarpani, Ichhapur villages. The total fireclay resource of the district has been estimated at 1.22 million tonnes. This fireclay contains Lower Gondwana plant fossils like Glossopteris and Gangompteris.

Kyanite:

Kyanite occurrences are reported around Magarmuhan and Bankoli villages of Pallahara sub-division. In Magarmuhan, Kyanite occurs in association with quartzite-kyanite-schist and quartz-chlorite-kyanite schist extending over a length 1.5 km with an average width of 5 m. A reserve of 6000 tonnes of Kyanite has been inferred upto a depth of 1.5 m with Al_2O_3 content varying from 19.02% to 53.81% and silica content varying from 32.84% to 54.07%.

Graphite:

Incidence of graphite are recorded in the khondalite suite of rocks within a 25 km long and 10 km wide belt extending in NW-SE direction between Dondatopa and Patharkupa of Athmallik sub-division. The graphite occurs as flakes and disseminations. The important locations are Kamalpur, Dandatopa, Bhuasuninali, Adeswar, Girida, Akharkata, Sanrohila, Lanchi, Govindapur, Polamahal, Siariamalia, Cherkhandi, Karadagadia, Dhauragoth, Brahmanidei and Padmapokhari. Graphite occurrence near Dandatopa is high grade and pocket type where the F.C. content varies between 54% to 77%. In the remaining areas, graphite occurs as disseminations and flakes in khondalites with F.C. content ranging from 5% to 15%.

Besides the above, occurrences of graphite are reported around Badakantakul, Kanja and Talisara in Angul sub-division.

China clay:

China clay occurs in Panduripathar area of Athmallik sub-division. It extends over a strike length of 250 m with an average width of 150 m.

Precious and Semi-Precious Stones:

Garnet (pink, violet, red and honey yellow varieties), red corundum, moonstone, blue Kyanite etc. have been reported in Nuagaon, Parhang, Burubura, Kulad, Karanpal area of the district.

Manganese Ore:

Floats of Pyrolusite and psillomelane are strewn over the ground near Teleipathar, Pathartaila and Akharkata village

Decorative and Dimension stone:

Granite, granite-gneiss, porphyritic granite gneiss and charnockites exposed between Boinda and Athmallik along the roadside are suitable for decorative and dimension stone. 4800 cu. m of decorative and dimension stone has been estimated in Govinda Panasahi and Durgapur Panasahi.

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.

In the district of Angul, there are ten working mines and two non-working coal mines. Besides, one sand and one quartz mines are also operating in this district. Detailed of the working/non-working mines are given below.

Sl. No.	Name of working mines	Mineral	Area (in sq. km)	Production in million tonnes in 2007-08
1	Talcher Colliery	Coal	11.4	0.22
2	Nandira Colliery	Coal	17.06	0.22
3	Jagannath Colliery	Coal	5.12	5.31
4	Bharatpur OCP	Coal	17.67	8.63
5	Anata OCP	Coal	5.35	12.83
6	Lingaraj	Coal	12.48	11.09

7	Balaram OCP	Coal	11.17	4.91
8	Hingula OCP	Coal	10.64	9.89
9	Chhendipada OCP	Coal	0.24	0.37
10	Bhubaneswari	Coal	6.88	0.20
11	Kandapal Sand Mines	Sand	0.18	0.15
12	Phullpana Quartz Mines	Quartz	0.11	0.002

Name of the non-working Mines:

1. Deulabera Colliery Coal
2. Nandira Colliery Coal
3. Kahddi Sand Mines Sand
4. Bilinga/Bikser Sand Mines Sand
5. Telisinga F.C. Mines Fireclay

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	Atthamalik	224979	762239	924352	924672
2	Kishorenagar	415297	119821	0	0
3	Pallahara	0	29554	200806	180642
4	Talcher	10966344	7834495	4833791	4709150
5	Banarpal	0	0	0	0
6	Chhendipada	0	0	0	0
7	Kaniha	3983764	4307167	4270363	4077484
TOTAL		15590384	13053276	10229312	9891948

5. DETAILS OF PRODUCTION OF SAND

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Atthamalik	9158	9160	9163	9167
2	Kishorenagar	3945	4620	5295	5970
3	Pallahara	1200	1350	1500	1650
4	Talcher	113161.5	127967.5	90006	86427.5
5	Banarpal	0	0	0	0
6	Chhendipada	0	0	0	0
7	Kaniha	65418	65588	66887	64067
TOTAL		192882.5	208685.5	172851	167281.5

6. PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS

The drainage of the district is mainly controlled by rivers like Mahanadi, Brahamani, Tikira and their tributaries. 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:

Sl No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	84°16' to 85°23' East
	Latitude	Degree	20° 31' to 21°41' North
2	Geographical area	Sq.Km.	6375
3	Sub-division	Numbers	4
4	Tahasils	Numbers	8
5	C D Blocks	Numbers	8
6	Municipalities	Numbers	2
7	NACs	Numbers	1
8	Police Stations	Numbers	23
9	Gram Panchayats	Numbers	225
10	Villages	Numbers	1871
	Inhabited	Numbers	1654
	Uninhabited	Numbers	217
11	Assembly constituencies	Numbers	5

b. Area and Population:

The district has an area of 6375 sq. kms and 12.74 lakhs of population as per 2011 census. The district accounts for 4.09 percent of the states territory and shares 3.03 percent of the states population. The density population of the district is 200. per sq. kms. as against 270 person per sq. km. Of the state. It has 1910 villages (including 249 un-inhabited villages) covering 8 blocks. 8 Tahasils and 4 Subdivisions. As per 2011 census the schedule caste population is 239552 (18.8.%) and schedule tribe population is 179603 (14.1.%). The literacy percentage of the district constitutes 77.53 against 72.9 of the state.

c. Climate :

The climate condition of the district is generally hot and high humidity during April to May and cold during November to December The monsoon generally breaks during the month of July, Average annual rainfall of the district was 1581.6 m.m during 2014, which is higher than the normal rainfall 1401.9 m.m.

d. Economy:

Agriculture occupies a vital place in the economy of Angul District, as it provides direct and indirect employment to around 70 % of its total work force, as per the 2001 census. The total cultivable area of this District is 2, 16,403 hectares, covering 32.7 % of its total geographical area. The major crops of the Kharif season are paddy, maize, ragi, oilseeds, pulses, small millets and vegetables etc. Paddy, wheat, maize, field pea, sunflower, garlic, ginger, potato, onion, tobacco, sugarcane and coriander etc are the major Rabi crops.

The last decade has witnessed a tremendous improvement in the industrial scenario of Angul District. Many public sector undertakings have setup up plants and offices here, like National Aluminium Company Limited (NALCO), Mahanadi Coal Fields Limited (MCL), National Thermal Power Corporation (NTPC) and Talcher Thermal Power Station (TTPS). One of the major coalfields is the Talcher coalfield, which contains huge reserves of power grade non-coking coal. Engineering Units, Rice Mills, Hotels, Fly Ash Brick units, Stone

Crushers, Service Units, Bleaching units, Bread and Bakery units, Tyre Retreading units, Flour Mills and Spices Grinding units etc. are some of the small scale industries functioning here.

Dhokra casting works, Terracotta works, Wood carvings, Art textiles and Soft toys etc are some examples of the crafts that have been generating revenues for this District. The District Industries Center functioning in the District promotes its various industrial activities.

e. Industry:

The locational advantage and abundant stock of manpower and raw materials have played an important role in the industrial development of the district. The important PSUS of the district are the NALCO, the MCL. Besides, during the year 2014-15., 1011 nos of Micro Small and Medium Enterprises have been Established with total capital investment of about Rs 68386.94 lakhs with 7447 nos of Employment generated in Angul district. Apart from this a good number of Thermal power plants and sponge plants have been established within the district including NTPC and various private companies due to abundant availability of thermal grade coal. Besides various kinds of handicraft works like dhokra casting, bell metals, textile products have been developed by the skilled workers and artisans of the district.

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
2325	20936.67	2337	704	4175	7216	405

f. Agriculture:

During the year 2017-18 the net area sown was 197 thousand hectares against 5356 thousand hectares of the state. The production of was as below:

Name	Pad dy	Whe at	Maiz e	Mun g	Biri	Kulth i	TilL	Grou ndnu t	Musta rd	Potato es	Jute	Suga rcan e
Producti on in 000 MT	188.63	0.09	14.86	15.95	17.36	4.35	14.84	20.72	1.72	0.00	18.00	4.55

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	4354	2025	853	7232	25.45

g. Power:

Consumption of electricity in Angul district during the year 2013-14 covers 1167.05 million units and villages so far electrified as on 31.03.2014, 1618 revenue villages which constitutes 97.4% to the total revenue villages of the district.

h. Transport & Communication:

Railway route length (14-15) km	105.51
No of Rly stations and PH(14-15)	12
Forest road (17-18) km	449.54
National Highway (16-17) km	235.93
State Highway (17-18) km	186.13
Major district road (17-18) km	64.42
Other dist road (17-18) km	739.03
Rural road(17-18) km	1391.83
Inter village road (16-17) km	2093.93
Intra village road (16-17) km	2298.06

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	4 No
Beds facilities	392 No
Homoeopathic dispensaries	16 No
Ayurvedic dispensaries	19 No

j. Tourist places:

There are 13 nos. of tourist center such as Angul, Banarpal, Bhimkand, Binikei, Bulajhar, Deulajhari, Tikarapada, Talchar, Handapa patrapada, Hingulapitha, khuladi, Rengali and Derjanga as identified by Department of Tourism and culture, Odisha. During 2015 the number of Domestic tourists were 758273 and foreign tourists were 241 who visited the tourists sports of the district.

k. Forest areas:

Category of forest	Area in sq km
Reserve Forest	1760.76
Unclassified Forest	1.15
Demarcated Protected Forest (DRF)	273.21
Undemarcated Protected Forest	11.99
Other forest under Revenue Dept	669.71
Total	2716.82

l. Education:

Primary School (2017-18)	No. of Schools	1004
	Enrolment (No)	111635
	Pupil Teacher Ratio	21.41
Upper Primary School 2017-18	No. of Schools	680
	Enrolment (No)	63888
	Pupil Teacher Ratio	19.82
Gernerall College 2017-18	Junior	43
	Degree	23
Secondary School	No. of Schools	282
	Enrolment (No)	36666
	Pupil Teacher Ratio	25.71
Literacy Rate, 2011	Male	86.0
	Female	68.6
	Total	77.5

m. Culture & Heritage:

Angul district is very much rich in its fairs and festivals. Laxmi Puja is celebrated in the city of Angul. The celebration starts from Kumar Purnima and continues for long 11 days. Ganesh Puja of Talcher is one of the most famous festivals celebrated in the District. Amb Nua (fresh mango eating), Raja, Gammha

Purnima, and Push Punei are functions celebrated by the people with much enthusiasm. The number of fairs and festivals observed in the district showcase its varied culture vividly.

8. LAND UTILISATION PATTERN

SI No	Landuse	Area in '000Ha
1	Forest Area	272
2	Misc. trees & Grooves	23
3	Permanent Pasture	36
4	Culturable Waste	19
5	Land put to Non Agril Use	28
6	Barren & Unculturable Land	7
7	Current Fallow	19
8	Other Fallow	17
9	Net Area Sown	197
10	Mining	20
	Geographical	638

9. PHYSIOGRAPHY

The district can be broadly divided into five sectors such as central, northern, southern, eastern and north-central sectors. The Eastern Ghat Super-group of rocks occur in the southern sector, whereas the rocks of Gondwana Supergroup, Gorumahasani and Lower Bonai Groups occur in the central, north-central and northernmost sectors respectively. The Quaternary sediments overlie the above groups of rocks and occur in the south, central and eastern parts of the district.

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 45°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	37.04	39.93	218.86	343.29	224.64	142.20	16.38	0.23	31.85	0.63	24.98	42.59	1122.62
16-17	1.93	44.25	126.63	267.16	389.86	143.23	98.26	4.90	NIL	8.43	NIL	22.44	1107.09
17-18	1.23	35.76	201.05	213.38	213.05	143.69	109.87	16.90	NIL	NIL	NIL	0.10	935.03
18-19	74.34	80.10	123.42	333.20	299.31	295.03	114.29	2.70	50.95	0.40	27.00	24.60	1425.34
Avg.	28.63	50.01	167.49	289.25	281.72	181.04	84.70	6.18	20.70	2.36	13.00	22.43	1147.52

11. GEOLOGY AND MINERAL WALTH

The rocks of Eastern Ghat Supergroup, Gorumahasani Group and Lower Bonai Group are overlain by laterites (both in-situ and transported). The Eastern Ghat Super-group of rocks mainly comprises quartz - feldspar -garnet - sillimanite - graphite schist /gneiss, garnetiferous quartzite, charnockite, pyroxene granulite, leptynite and augen gneiss. The metasedimentaries of Gorumahasani Group constitute quartzite, gritty quartzite, quartz - mica schist. fuchsite quartzite, quartz - chlorite schist, hornblende schist, and metabasics. The Lower Bonai Group constitutes biotite gneiss, biotite-hornblende granite gneiss and granodiorite. Metasedimentaries of Lower Bonai Group consist of ferruginous shale, cherty shale, phyllite, sandstone and conglomerate. The Gondwana Supergroup consists of sandstone, shale, conglomerate and fire clay. The Quaternary sediments mainly consist of sandy clay with calcareous concretions, coarse to fine sand, silt and clay.

The geological succession in the district is as follows:

STRATIGRAPHY:

AGE	GROUP/SUPER GROUP	FORMATION	LITHOLOGY
Holocene	Quaternaries	Brahmani / Mahanadi formation	Alluvium
Upper Pleistocene to Holocene		Kaimundi formation	Gray sandy clay with calcareous concretions
Pleistocene	Tertiaries		Laterite / Latosol (in situ)
Permian to Triassic	Gondwana	Mahadeva Formation	Sandstone. shale
Permian		Barakar,	Conglomerate. sandstone, shale, coal

	Supergroup		
		Barren Measures. Raniganj & Damuda Formations (Unclassified)	
Carboniferous (?) to Permian		Talchir Formation	Sandstone. shale, tillite
Archaean to Palaeoproterozoic		Lower Bonai Group	Gabbro Metavolcanics Granite, biotite gneiss, biotite - hornblende granite gneiss, granodiorite
		Gorumahisani Group	Ferruginous shale, cherty shale with ash IBT and tuts, mangariferous shale/ phyllite Gritty sandstone, orthoquartzite, conglomerate Metabasics Quartzite, sericite schist, quartz schist, quartz -mica schist, mica schist, micaceous quartzite
Archaean	Eastern Ghat Supergroup	Granitoids	Actinolite quartzite, tremolite - actinolite schist Augen gneiss, garnetiferous gneiss, biotite gneiss, migmatized khondalite Leptynite
		Charnockite Group	Acid and intermediate charnockite Basic charnockite, pyroxene granulite
		Khondalite Group	Quartz-feldspar-garnet- sillimanite graphite schist/ gneiss Coarse crystalline quartzite, quartz-sillimanite schist. garnetiferous quartzite

- Detail of river/stream/other sand source- Sand mining in the district is confined to rivers like Mahanadi, Brahamani, Tikira and their tributaries.
- Availability of sand or gravel or aggregate resources- sand- 9,72,566 cum (Annexure II), Gravel- Nil, Aggregate- Nil
- 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 III.

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	Atham allick	Khadrapada Sand Quarry Vill:- Khadarapada / Date:- 26.07.2016	Running	Khata No. 33 plotNo.-410 Area- 13.00	142.5	107.5	15318.75	15000
2	Atham allick	Puleswar Ghat River Sand Quarry Vill:- Puleswar / Date :- 02.07.2016	Running	Khata No. 88 plotNo.- 307/318 Area- 20.00	130	25	3250	3000
3	Atham allick	Bankapal Sand Quarry Vill:- Bankapal Date:- 24.01.2017	Running	Khata No. 54 plotNo.- 415 Area- 15.35	107.5	45	4837.5	25221
4	Atham allick	Ghodamara River Sand Quarry / Date:- 02.07.2016	Running	Khata No. 840 plotNo.- 3359 Area- 17.00	144	14	2016	2600
5	Kishore nagar	stream Vill- Raniakata	Running	Khata No.52 Plot No. 522 & 1	0.720	0.0088	74179	6405
6	Kishore nagar	stream Vill- Sanarohila	Running	Khata No.88 & 31 Plot No. 688/840, 244/834 & 374	1.03	0.0086	61189	20000
7	Pallah ar	River-Samakoi Vill- Kunjam Date of Regn-05.04.2017	Running	Khata No.187 Plot No. 1902, 1141 (Sketch Map attached)	1.40	0.04	55037	6000
8	Pallah ar	River-Samakoi Vill- Raipal, Jambua Date of Regn-20.09.2016	Running	Khata No.113, Plot No. 542/1399, 542(Raipal) , Khata No.84 Plot No. 684(Jambua) (Sketch Map attached)	0.51	0.13	59246	1500
9	Talcher	Gopinathpur 19.09.2015	Running	Khata No. 83 Plot No. 100/343	0.600	0.300	91054.350	38187.000
10	Talcher	Dhobapal 23.9.15	Running	Khata No. 22 Plot No. 181/186	0.300	0.200	72843.480	71338.000
11	Talcher	Nizgarhzami dt.23.09.15	Running	Khata No. 446 Plot No. 3695	0.600	0.280	100564.000	70005.000
12	Talcher	Sirigida	Running	khata No.142 Plot No.1791				17813.000
13	Talcher	Santhapada	Running	khata No.480Plot No.4198	0.550	0.170	72843.480	102851.000

14	Talcher	Haturipal	Running	khata No.39 Plot No.01	0.450	0.320	107241.800	60000.000
15	Talcher	Dasanali	Running	khata No.46 Plot No.298/1101	0.360	0.200	72843.480	21500.000
16	Talcher	Santhapada	Running	khata No.480 Plot No.4198(P)	0.480	0.270	113312.000	18900.000
17	Talcher	Kankili	Running	khata No.778 Plot No.7446/8031	-	-	72843.480	5000.000
18	Talcher	Jadiamba	Running	khata No.35 Plot No.01	-	-	105218.360	52100.000
19	Talcher	Banabaspur	Running	khata No.106 Plot No.61	-	-	69525.050	12500.000
20	Talcher	Baghabaspur	Running	khata No.53 Plot No.24	-	-	91054.350	12390.000
21	Talcher	Gopalprasad	Running	khata No.314 Plot No.1440, 1441	-	-	38040.480	45591.000
21	Talcher	Dighi		Khata No. 20 Plot No. 3/108	-	-		
20	Kaniha	Tikira Takua dt.11.09.2015 (Takua Sand Quarry)	Running	Lower Course 21°06'57.377"N to 21°07'15.352 N 85°02'30.820"E to 85°02'51.440"E K. No. 99 Plot No. 2207	0.250	0.200	87600	71638
21	Kaniha	Tikira Khajuria dt.31.08.2015 (Khajuria Sand Quarry)	Running	Lower Course 21°08'0.15" N to 21°08'17.57" N 85°01'02.35 E to 85°01'36.11" E K. No. 59 Plot No. 1000	1.140	0.07	60700	95328
22	Kaniha	Tikira Derenga dt.31.08.2015 (Derenga Sand Quarry)	Running	Lower Course 21°08'0.15" N to 21°08'13.95"N 85°01'7.40" E to 85°1'29.94" E K. No. 59 Plot No. 1000	0.6	0.1	60700	79788
23	Kaniha	SingidaRutubhuin Dt.31.08.2015 (Rutubhuin Sand Quarry)	Running	Lower Course 21°02'46.251"N to 21°03'00.856" N 85°04'52.339" E to 85°05'13.882" E K. No. 111 Plot No. 1/374	0.7	0.04	20800	20502
24	Kaniha	Brahmani Dangarabeda Dt.31.08.2015 (Dangarabeda Sand Quarry)	Running	Middle Course 21°04'44.404" N to 21°04'47.641" N 85°08'27.836" E to 85°08'31.383" E	0.13	0.1	8100	6406

				K. No. 106 Plot No. 1184/1				
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SAND ALREADY AUCTIONED BUT NOT EXECUTED (LOI ISSUED)

Sl. No.	Name of Tahasil	Name of village/Date of registration	Name of Minor Mineral	Name of the Successful auction holder	Address & Contact No of Letter of Intent Holder	Letter of Intent Grant Order No. & date	Validity of Lol	Use (Captive/ Non-Captive)	Location of the Source recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Area of the mineral potential patch (in sq m)	Mineable mineral potential (in cum)
1	2	3	4	5	6	7	8	9	10	11	13
1	Kaniha	Sanatribida	Demphanala (Sanatribida Sand quarry)	-	-	-	3 months	Non-captive	Lower Course 21°02'22.1"N to 21°02'27.6 N 85°03'34.4"E to 85°03'20.1"E K. No. 241, Plot No. 2091	52600	71444
2	Kaniha	Tolakabedai	Tikira (Tolakabeda Sand Quarry)	-	-	-	3 months	Non-captive	Lower Course 21°06'22.82"N to 21°06'40.47 N 85°03'41.80"E to 85°03'53.09"E K. No. 111, Plot No. 1 & 1/3247	50500	32850
3	Kaniha	Gaunighasa	Somakoi (Gauni Ghasa Sand Quarry)	-	-	-	3 months	Non-captive	Lower Course 21°07'53.104"N to 21°07'56.544 N 85°11'04.829"E to 85°11'10.393"E K. No. 273, Plot No. 3175	8090	5694
4	Kaniha	Bajrakote	Brahamani (Bajrakote Sand Quarry)	-	-	-	3 months	Non-captive	Middle Course 21°12'25.6"N to 21°12'33.1 N 85°03'21.6"E to 85°13'30.2"E K. No. 519, Plot No. 2402	54600	13000
5	Kaniha	Sushaba	Brahamani (Susuba Sand Quarry)	-	-	-	3 months	Non-captive	Lower Course 21°13'43.59"N to 21°13'50.85 N 85°03'14.05"E to 85°03'21.67"E K. No. 240, Plot No. 2434/2752	50500	22100
6	Kaniha	Gadasila	Tikira (Gadasila Sand Quarry)	-	-	-	3 months	Non-captive	Lower Course 21°06'16.97"N 85°05'21.90"E K. No. 306, Plot No. 1	54600	6850

ANNEXURE III

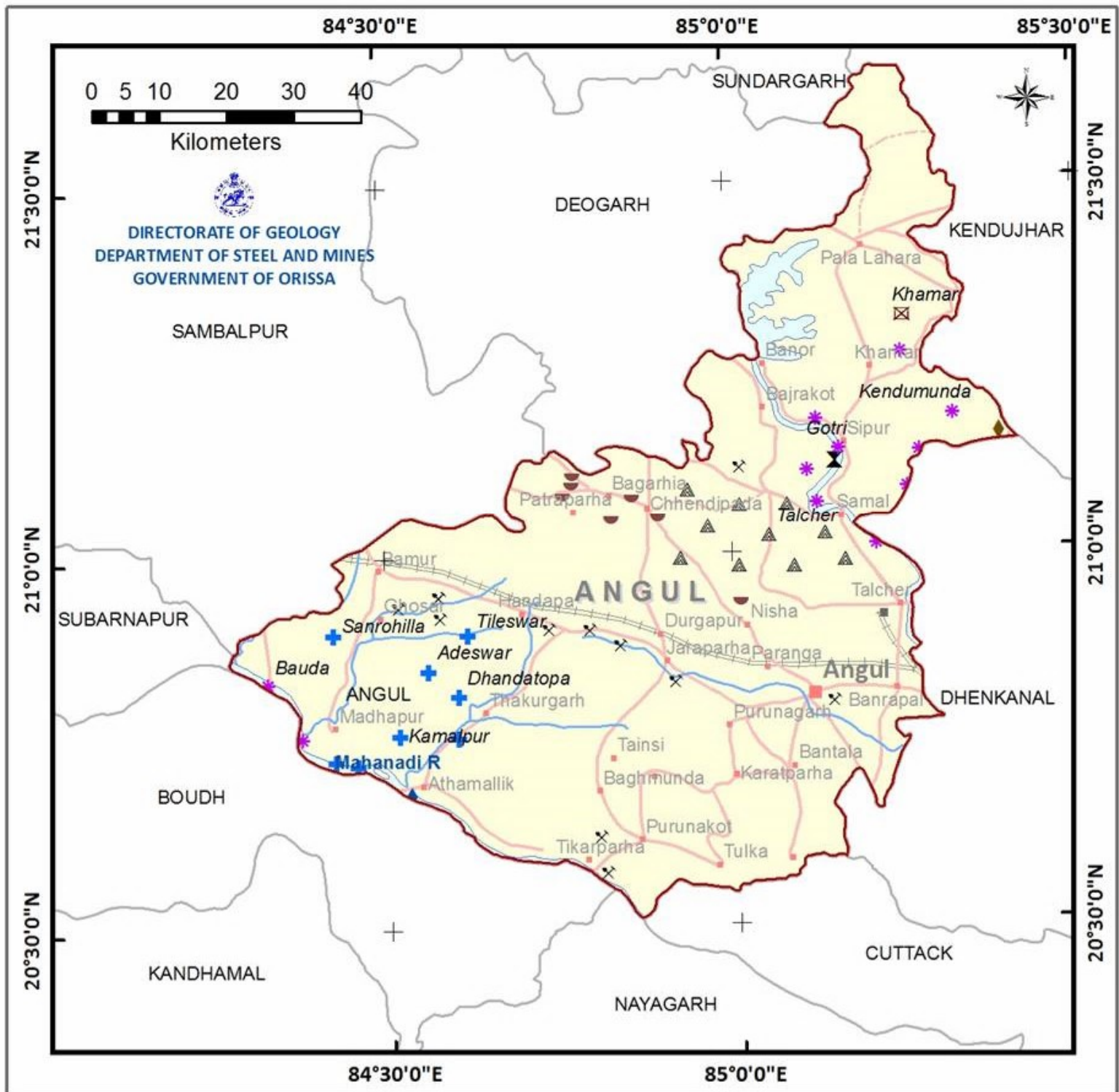
Potential SAND sources of the district

Sl. No.	Name of Tahasil	Status	River or stream and Name of Village / date of Registration of lease deed	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	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
1	Athamallick	Running	Khadrapada Sand Quarry Vill:- Khadarapada / Date:- 26.07.2016	Khata No. 33 plotNo.-410 Area- 13.00	142.5	107.5	15318.75	15000
2	Athamallick	Running	Puleswar Ghat River Sand Quarry Vill:- Puleswar / Date :- 02.07.2016	Khata No. 88 plotNo.- 307/318 Area- 20.00	130	25	3250	3000
3	Athamallick	Running	Bankapal Sand Quarry Vill:- Bankapal Date:- 24.01.2017	Khata No. 54 plotNo.- 415 Area- 15.35	107.5	45	4837.5	25221
4	Athamallick	Running	Ghodamara River Sand Quarry / Date:- 02.07.2016	Khata No. 840 plotNo.- 3359 Area- 17.00	144	14	2016	2600
5	Kishorenagar	Running	stream Vill- Raniakata	Khata No.52 Plot No. 522 & 1	0.720	0.0088	74179	6405
6	Kishorenagar	Running	stream Vill- Sanarohila	Khata No.88 & 31 Plot No. 688/840, 244/834 & 374	1.03	0.0086	61189	20000
7	Pallahar	Running	River-Samakoi Vill- Kunjam Date of Regn- 05.04.2017	Khata No.187 Plot No. 1902, 1141 (Sketch Map attached)	1.40	0.04	55037	6000
8	Pallahar	Running	River-Samakoi	Khata No.113, Plot No.	0.51	0.13	59246	1500










			Vill- Raipal, Jambua Date of Regn- 20.09.2016	542/1399, 542(Raipal) , Khata No.84 Plot No. 684(Jambua) (Sketch Map attached)				
9	Talcher	Running	Gopinathpur 19.09.2015	Khata No. 83 Plot No. 100/343	0.600	0.300	91054.350	38187.000
10	Talcher	Running	Dhobapal 23.9.15	Khata No. 22 Plot No. 181/186	0.300	0.200	72843.480	71338.000
11	Talcher	Running	Nizgarhzami dt.23.09.15	Khata No. 446 Plot No. 3695	0.600	0.280	100564.000	70005.000
12	Talcher	Running	Sirigida	khata No.142 Plot No.1791				17813.000
13	Talcher	Running	Santhapada	khata No.480Plot No.4198	0.550	0.170	72843.480	102851.000
14	Talcher	Running	Haturipal	khata No.39 Plot No.01	0.450	0.320	107241.800	60000.000
15	Talcher	Running	Dasanali	khata No.46 Plot No.298/1101	0.360	0.200	72843.480	21500.000
16	Talcher	Running	Santhapada	khata No.480 Plot No.4198(P)	0.480	0.270	113312.000	18900.000
17	Talcher	Running	Kankili	khata No.778 Plot No.7446/8031	-	-	72843.480	5000.000
18	Talcher	Running	Jadiamba	khata No.35 Plot No.01	-	-	105218.360	52100.000
19	Talcher	Running	Banabaspu	khata No.106 Plot No.61	-	-	69525.050	12500.000
20	Talcher	Running	Baghabaspu	khata No.53 Plot No.24	-	-	91054.350	12390.000
21	Talcher	Running	Gopalprasad	khata No.314Plot No.1440, 1441	-	-	38040.480	45591.000
22	Talcher		Dighi	Khata No. 20 Plot No. 3/108	-	-		
23	Kaniha	Running	Tikira Takua dt.11.09.2015 (Takua Sand Quarry)	Lower Course 21°06'57.377"N to 21°07'15.352 N 85°02'30.820"E to 85°02'51.440"E K. No. 99 Plot No. 2207	0.250	0.200	87600	71638
24	Kaniha	Running	Tikira Khajuria dt.31.08.2015 (Khajuria Sand Quarry)	Lower Course 21°08'0.15" N to 21°08'17.57" N 85°01'02.35 E to 85°01'36.11" E K. No. 59 Plot No. 1000	1.140	0.07	60700	95328
25	Athamallik	New	Khadarapada Mahanadi	Khata No. 33 plotNo.-410 Area- 13.00	142.5	107.5	15318.75	27574

			sand Quarry					
26	Athamallik	New	Puleswar Mahanadi sand Quarry	Khata No. 88 plotNo.- 307/318 Area- 20.00	130	25	3250	5850
27	Athamallik	New	Bankapal Mahanadi sand Quarry	Khata No. 54 plotNo.- 415 Area- 15.35	107.5	45	4837.5	8708
28	Athamallik	New	Kaintragarh Mahanadi sand Quarry	Khata No. 840 plotNo.- 3359 Area- 17.00	144	14	2016	3629
29	Kaniha	LOI issued	Demphanala (Sanatribida Sand quarry)	LOI issued	-	-	52600	71444
30	Kaniha	LOI issued	Tikira (Tolakabeda Sand Quarry)	LOI issued	-	-	50500	32850
31	Kaniha	LOI issued	Somakoi (Gauni Ghasa Sand Quarry)	LOI issued	-	-	8090	5694
32	Kaniha	LOI issued	Brahamani (Bajrakote Sand Quarry)	LOI issued	-	-	54600	13000
33	Kaniha	LOI issued	Brahamani (Susuba Sand Quarry)	LOI issued	-	-	50500	22100
34	Kaniha	LOI issued	Tikira (Gadasila Sand Quarry)	LOI issued	-	-	54600	6850

MINERAL MAP OF ANGUL DISTRICT



Legend

- | | | | |
|---|----------------------|---|------------------|
|  | District Boundary |  | National Highway |
|  | Village/ Town |  | Major Road |
|  | District headquarter |  | Minor Road |
|  | Drainage |  | Railway |
| | |  | Waterbody |

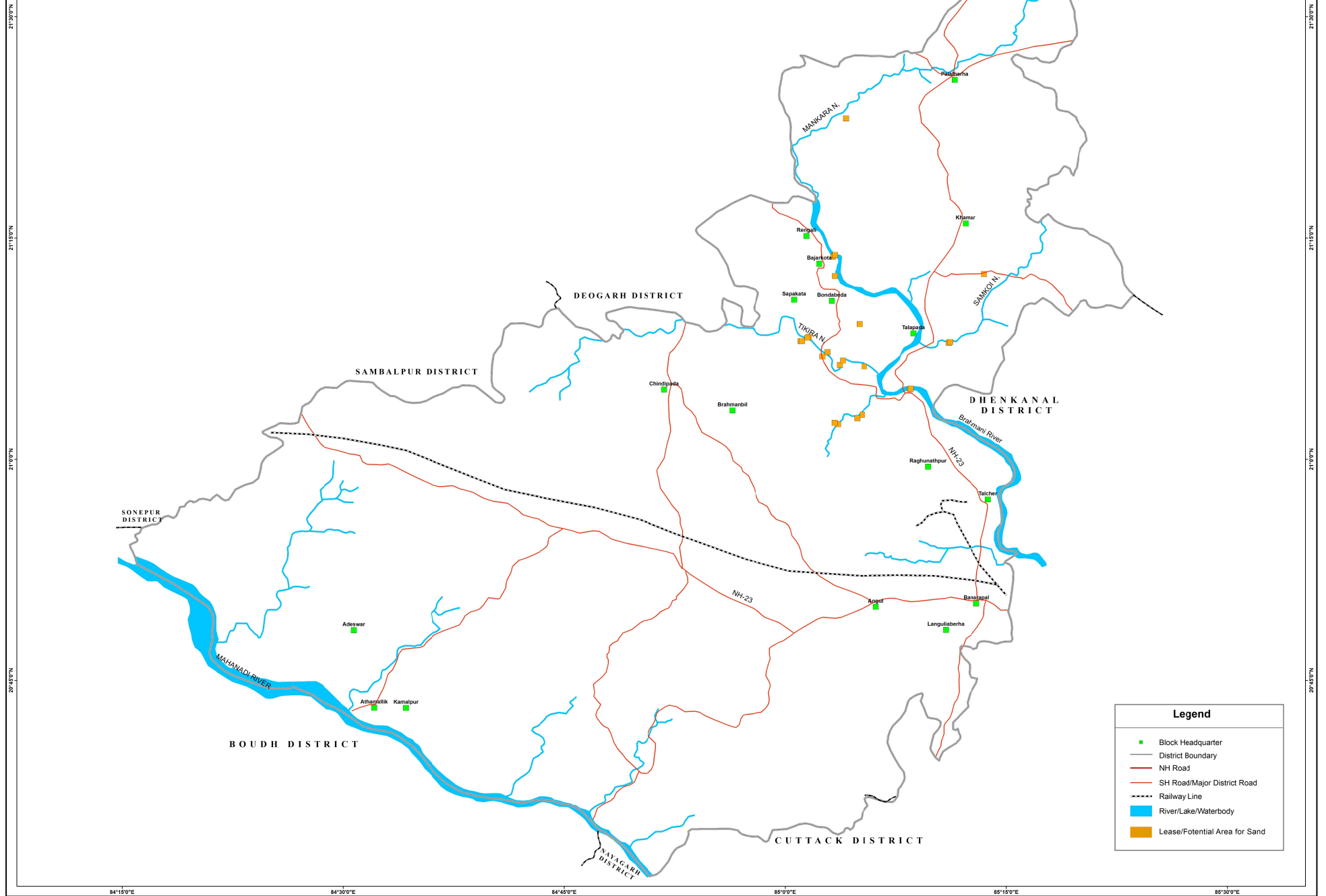
Mineral Occurrence








- | | |
|---|-----------------|
|  | Coal |
|  | Dimension Stone |
|  | Gemstone |
|  | Gold |
|  | Graphite |
|  | Fireclay |

LEASE/POTENTIAL MAP OF SAND IN ANGUL 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