DISTRICT SURVEY REPORT (DSR)

OF

CUTTACK 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, CUTTACK

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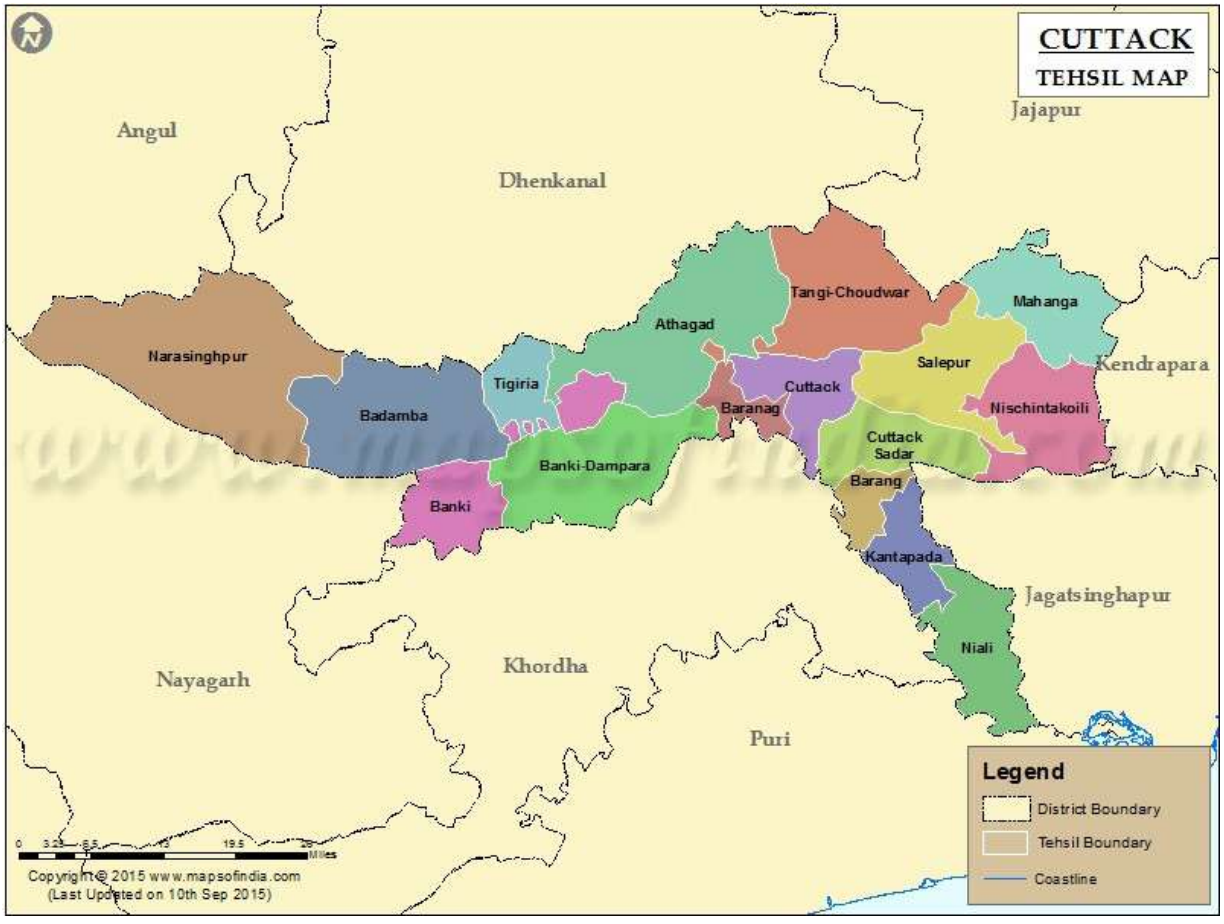

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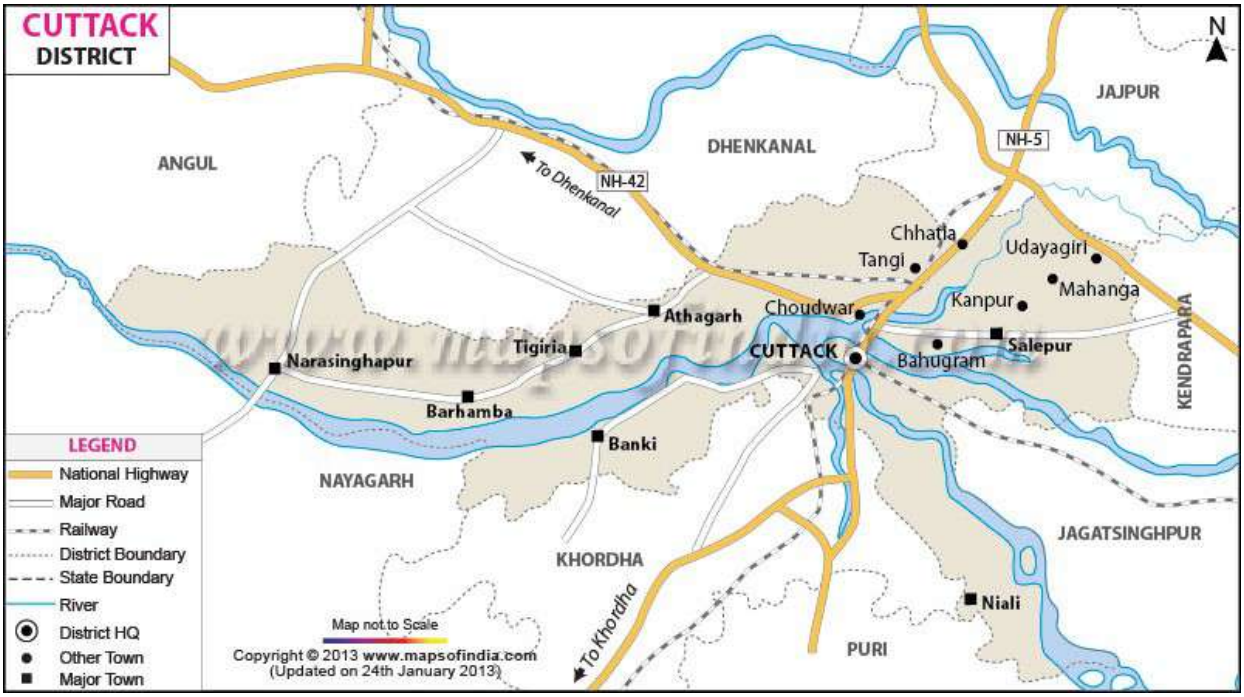


PREFACE

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 bed 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

Cuttack District is one of the oldest districts of Odisha. It is an important city and district headquarters. Cuttack, which lends its name to the district, is known as the business capital of Odisha. The word Cuttack derives its name from the anglicized sanskrit word Kataka, which has two meanings- one being military camp and the other being the seat of government, protected by the army. Literally, it also means the fort, referring to the ancient Barabati Fort, around which the city developed.

Cuttack district is located in the eastern part of Odisha state. It is bounded by latitude 20^0 03' to 20^0 40' N and longitude 84^0 5' - 86^0 20'E. It covers an area of 3628 sq. km. Angul, Dhenkanal and Jajpur districts are the neighboring districts to the north, Kendrapara and jagatsinghpur districts are located in the eastern side. Puri and Khordha districts bound the south side while Nayagarh district is at the west of Cuttack district.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

As far as specified minor mineral is concerned, the district is bestowed with best quality fireclay and dimension stone deposits. Fireclay deposits are located around Talabasta village in Dampada tahasi and dimension stone (khondalite) occurrences are confined to the Narasinghpur and Athagad tahasils. Due to Chandaka wildlife sanctuary, all fireclay concessions are temporaily stopped at the moment. Although one ML for dimension stone has been granted in Narasinghpur tahasil is yet to start its operation.

Apart from these specified minor minerals river sand and road metal occurrences are there within the district. Being a coastal district the river basins are much wider and the sand sources are very much suitable for construction purposes. The road metal deposits are spread over tahasils like Athagad, Tigiria, Badamba & Narasinghpur. As the rocks are fractured and jointed these are not suitable for decorative purpose and hence used as building stone.

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	2018-19	2017-18	2016-17
1	Cuttack Sadar	18180798	9616073	8294070	1598358
2	Baranga	0	0	30377000	0
3	Tangi - Choudwar	1005000	1005000	2000000	1415000
4	Salipur	2075384	1476997	1600348	1957523
5	Nischintakoili	1555356	119750	699936	0
6	Mahanga	498915	815550	653885	692039
7	Kishorenagar	3617748	4215330	4099830	4099830
8	Niali	1634301	2174305	2674440	0
9	Kantapada	1214497	1402827	1713975	0
10	Athagarh	2250000	225000	225000	1125000
11	Tigiria	587273	422797	300000	482048
12	Badamba	2981599	3182394	3135413	0
13	Narasinghpur	608069	648556	608435	640900
14	Banki	1645344	1622376	1595928	0
15	Dompada	0	2495953	17450251	0
TOTAL		**37854284**	**29422908**	**75428511**	**12010698**

5. DETAILS OF PRODUCTION OF SAND (cum)

Sl.No.	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Cuttack Sadar	158592	158592	158592	158592

2	Baranga	0	318846	243430	0
3	Tangi - Choudwar	39162	39617	39191	39660
4	Salipur	35823	35984	36146	36296
5	Nischintakoili	10000	10350	10700	0
6	Mahanga	108986	19499	19605	19659
7	Kishorenagar	100338	100338	108075.5	108213.5
8	Niali	56436	56676	57200	0
9	Kantapada	31877	31977	31827	0
10	Athagarh	3000	3000	0	3000
11	Tigiria	3729	4101	4512	4962
12	Badamba	18703	20090	20996	0
13	Narasinghpur	10745	12120	13220	14390
14	Banki	28368	27872	27516	0
15	Dompada	0	48450	48450	0
TOTAL		**605759**	**887512**	**819460.5**	**384772.5**

6. PROCESS OF DEPOSIT OF SEDIMENTS IN THE RIVERS

The drainage of the district is mainly controlled by rivers like Mahanadi, Kathajodi, Kuakhai, Birupa, Chitraptala, Sidua, Luna and Devi. Being a coastal district the river basins are much wider and the sand sources are very much suitable for construction purposes. Being highest order of streams the energy of the streams is less and the suspensions including the river sand are deposited through sedimentation. Generally, it is observed that river sand gets deposited after high flood within the rivers.

7. GENERAL PROFILE

Geographical position	Longitude -84^0 58' to 86^0 20' E Latitude- 20^0 03' to 20^0 40' N
Area & Population	Cuttack city is flanked by Mahanadi river on the north and Kathajodi river on the south. Covering a geographical area of 3932 sq K.Ms as per 2011 census. total population of the district is 2624470 which consists of 1352760 (Male) and 1271710 (Female). The population density of the district is 667 per Sq. Km. and the Literacy Rate is 85.5 percent. Sex ratio of the district is 940 female per 1000 male.. Cuttack district is divided into three Sub-divisions namely: Cuttack, Athagarh and Banki. It has 15 Tahasils 14 Blocks, one Municipal Corporation, 373 Gram Panchayats & 1950 villages. Established as a Municipality in the year 1876, Cuttack City became the Municipal

	Corporation during in 1994. There are Two NACs like Athagarh & Banki and one Municipality i.e. Choudwar Municipality. Cuttack has 9 Assembly Constituencies. 87-Baramba, 88-Banki, 89-Athagarh, 90-Barabati-Cuttack,91-Chudwar-Cuttack, 92-Niali, 93-Cuttack Sadar,94-Salepur & 95-Mahanga.
Climate	The climate condition of 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
Industry & Mining	With limited industrialization, the people of this District depend upon agriculture as their main source of livelihood, with about 76 percentage of the population being dependent on it. Agriculture in this District is sustained by the numerous rivers and canals flowing through it. Rice, pulses, oil seeds, jute, sugarcane, coconut and turmeric are the major crops grown here. This District is a major exporter of cash crops, which in turn contributes immensely towards its economic growth. A number of reforms have been implemented in this agricultural sector by the government. Example of some of these reforms are broad basing of agriculture & allied sectors by bringing stake holders to a common platform and empowering farmers' organization & utilizing farmers' input into programme planning and resource allocations etc. National Rice Research Institute (NRRI) located at Bidyadharpur village on the Cuttack-Paradeep Road,is one of the premier national research institute under the Indian Council of Agricultural Research. Among other industries, the District has a rich tradition of handicraft and cottage industries. The District is famous for its silver filigree works. Horn works, Patta Chitra, Dokra Casting, Terra Cota, Wood Carving, Art Leather and Brass/Bell Metal works are also quite evolved here. The District also generates substantial revenues from the exports of these handicraft products. The presence of a number of handicraft cooperatives and handicraft training institutes gives a boost to

	this handicraft industry. Silver filigree work of Cuttack city attracts the visitors from near and abroad. Among others wood carving work is mostly practised in the Cuttack town as well as in Salipur Block. Banki-Dampada and Jilinda Narsinghpur is famous for cane and Bamboo work. Terracotta work in Banki and Jute craft in Nischintkoili and Salipur Block is famous. Dhokra casting in Baramba Narsinghpur. Bhatimunda of Tangi Choudwar is famous for Brass and Bell Metal. Mahanga is known for stone carving. Applique work is also followed as occupation in Banki as well as in Cuttack City. Baranga is for art leather. Athagarh is famous for Patta Chitta work and Palm leaf products of Cuttack Sadar Block is famous. Artisans do Jarimali works and also horn works in Cuttack Town too. There are a number of other large and medium industries functioning in this District as well. Some of the prominent among them are Indian Metals and Ferro Alloys (IMFA), Paradeep Oxygen and Odisha Magnetics etc. The micro and small industries functioning here are chemical based, textile based, leather based or any other category based. The most important aspect as regards the industrial growth of the District is the presence of industrial estates.Many enterprises are also in the pipeline, prominent among them being Odisha Cement Ltd, Tata Power, Visa Power, Nilachal Power, Arati Steel etc. The district is also important for mining of minerals like decorative stone (Khondalite), building stone & earth.
Tourist Places	Tourism of Cuttack District occupies a profound place in the State of Odisha. The ruins of Barabati Fort with its moat and gate and the earthen mounded of the nine-storied palace of the Ganga dynasty lie on the bank of the river Mahanadi as the silent witness of the vicissitudes of Odishan history. Another item of interest is the Barabati stadium adjacent to the fort. The stadium with its impressive structures covers an area of twenty-

	five acres and affords sitting capacity for thirty-five thousand persons. Its delightful soft green turn hums almost daily with programmes of sport events and cultural functions. The installation of Flood light system is another attraction of Barabati Stadium. Nearly is the Jawaharlal Nehru Air-conditioned Indoor Stadium having a sitting capacity for 6,000 person. Goddess Katak Chandi and Gadachandi are presiding deities of Cuttack City. Besides there are many Hindu temples we find many Musjids, Churches, Jain temples, Gurudwara in Cuttack City. Surrounded by the holy river Mahanadi , Kathajodi, it is the scenic beauty of water at Jobra Bride, Mahanadi Bridge and Naraj Bridge which attracts the Tourists. The famous Ansupa lake coming under Banki Sub-Division in opposite side of Banki And Mahanadi, is a source of attraction to the tourists. Though it is a small, a picturesque freshwater lake that offers asylum to migratory birds in winter. The water spread is ideal for fishing and boating. All effort has been taken by Tourism department with regard to eco tourism in Ansupa. Since last few years Anshupa Mahotsav and Pallishree Mela is being organised with support of District administration and local people to promote tourism and development of Ansupa. Banki, which is situated at a distance of 52 Kms from Cuttack and also about 82 KMs from near by airport Bhubaneswar is the nearest airport is famous for Sakti Pitha "Goddess Charchika". There are also the famous Ramnath Deva and Singhanath Dev Temples which are situated at Baideswar of Banki Sub Division and is about 18 KMs from Banki. A picturesque island in Mahanadi, the place named after its is the presiding deity Lord Sree Dhabaleswar(Shiva) is also a great source of attraction to devotees as well as tourist. The

	enchanting water spares of Mahandi her provie ample opportunities for boaring. There is a hanging bridge connecting the island from its northern side to Mancheswar. One can go From Cuttack to Mancheswar via Choudwar from Cuttack covering about 30kms by taxi or auto. From the northern side of Cuttack boats ply on the Mahanadi river straight to the island of Dhabaleswar, Maa Bhattarika Sakti Pitha of Badamba, Sri Sri Singhanath Dev Pitha Baramba, in the Sri Sri Champanath Temple at Champeswar, Narsinghpur, Maa Mahakali Temple of Kharod, Baramba, Maa Pragala Pitha, Baramba, Sri Sri Singhanath dev Pitha, Sri Sri Radha Gobinda Dev Temple of Athagarh are major source of attraction for tourists. Coming to Cuttack Sadar Sub Division one can find the Famous Madhab Temple and Sobhaneswar Temple in Niali, Sri Sri Achutananda Pitha of Nishcintkoili, Sri Sri Gangeswar Mahadev Temple at Dharmagatpur, Salipur, Sri Sri Baladevjew and Sri Sri Hanuman temple of Umar, Mahanga , Sri Sri Harachandi Temple at Nishcintkoili, Dhakulei Pitha of Pratap Nagari and Sri Sri Paramhansha Mahadev Temple at Cuttack Sadar Block are some of the places of tourism and Cultural importance in Cuttack District. Situtated on the Origin of river Kathajori, a tributary of Mahanadi, gives panaromic view of the vast expanse of the river Mahanadi. There are many Buddhist images found. The place is frequented by devotees offereing prayers at Lord Sidheswar. This is also a beautiful picnic spot. The Odisha Maritime Museum, at Jobra now has been a source of attraction for the tourists, where one can find the show case of our glorious past of maritime activities, placed in 10 gallaries beautiful aquarium having over 60 aquatic species and4Dimension SFX hall which can accommodate 48 persons.
Education	Secondary Board High School, Ravenshaw University, Ravenshaw Collegiate School,SCB Medical College, National

	Law University (NLU) , Shri Shri University, Madhusudan Law College are some of the premier educational institutions of the District. It has also a number of technical institutes like Bhubanananda Odisha School of Engineering (BOSE), IPSAR, Institute of Textile Technology (ITT),) etc. National Institute of Rehabilitation and Training (NIRTAR), Regional Spinal Injury Centre (RSIC) and Acharya Harihar Regional Cancer Research Centre (AHRCRC) are the pioneer research institutes functioning here. Netaji Subash Chandra Bose, Utkal Gourav Madhusudan Das, Karma Veera Gouri Shankar Ray, Dr. Radhanath Rath, Dr. Harekrushna Mahatab, Biju patnaik, Pyarimohan Acharya were some of the prominent personalities this District who have earned name and fame in world abroad due to their noble did for their contribution to Odisha as well as for our Country.
Health	The medical facilities are provided by different agencies like Govt., Private individuals and voluntary organizations in the district. There are 97 nos. of the govt. Allopathic medical institutions with 768 beds facilities, 20 nos. of Homoeopathic dispensaries and 27 nos. of Ayurvedic dispensaries in the district.

8. LAND UTILISATION PATTERN

Sl No	Landuse	Area in '000Ha
1	Forest Area	36
2	Misc. Tree & Groves	54
3	Permanent Pasture	11
4	Culturable Waste	10
5	Land Put to Non Agril Use	83
6	Barren & Unculturable Land	9
7	Current Fallow	31
8	Other Fallow	1
9	Net Area Sown	157

10	Mining	1
	Geographical Area	393

9. PHYSIOGRAPHY

Western and north western part of this district is occupied by Archaean hilly terrain intervened by narrow valleys. Maximum height is 687 m. From west to east the district is gently sloping towards east, occupied by plainland and drained by Mahanadi river, its tributaries and distributaries. At the northern boundary a narrow fringe is occupied by upland comprising khondalite group of rocks. In Cuttack district Mahanadi river, its tributaries and distributaries constitute the drainage system. Cuttack town is located at the vertex of Mahandi delta, from where distributaries like birupa, Chitrotpala, Nuna, Sarua and Kuakhai, etc branch away.

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally (vi) present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

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 45^0C in the summer and up to 7^0-8^0 C during peak winter.

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

MONTH – WISE RAINFALL (mm) DATA OF CUTTACK DISTRICT (LAST 4 YEARS)													
Year/ Month	**April**	**May**	**June**	**July**	**August**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**March**	**Total**
15-16	72.2	14.7	135.2	225.1	252.9	198.9	43.3	4.8	3.6	0.6	3.5	9.2	**964**
16-17	0.7	87.9	138.64	262.83	291.25	299.37	75.9	15.4	0	0.7	0	52.7	**1225.39**
17-18	10.26	17.58	164.93	402.23	313.31	239.07	249.3	59.96	20.02	0	0	0	**1476.66**
18-19	51.89	136.37	162.23	577.66	296.79	333.66	234	2	17.02	11	8.6	11.8	**1841.02**

Avg.	**33.8**	**64.1**	**150.3**	**367.0**	**288.6**	**267.8**	**150.6**	**20.0**	**10.2**	**3.1**	**3.0**	**18.4**	**1376.8**

11. GEOLOGY AND MINERAL WALTH

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

Upper Gondwana formation, covering an area of approximately 1100 sq km occupies either side of river Mahanadi. The principal lithological units representing Gondwanas are sandstone of various grain size, colour 7 composition, Red shale, silt stone, clay and conglomerate.

Cuttack district comprises rocks from Archaean to Late Holocene age, distributed more or less from west to east. Eastern Ghat Supergroup forms the oldest suit of rocks in this area. It occupies western high land and can be classified into Khondalite and Charnockite group. Khondalite group contains quartz-feldspar-garnet-sillimanite graphite schist gneiss and granetiferous quartzite. Charnockite group comprises acid to intermediate charnockite, basic charnockite and pyroxene granulite.

Gondwana Supergroup is represented by Athgarh formation which occupies patches in central and southern part of this district. It contains sandstone, conglomerate, shale and clay. Laterite and latosol of Bolgarh formation occupies northern part of this district with fringe of charnockite at its northern boundary. Other formations in descending antiquity are Kaimundi, Brahmani, Bankigarh and present day deposits. Brahmani formation contains residual soil of Pleistocene to Holocene age. Kaimundi formation comprises caliche bearing greyish white clay. Bankigarh formation includes upper and lower deltaic facies represented by brownish silty clay and black clay. Present day deposits contain sand to silt in flood plains, point bars and meander scrolls.

STRATIGRAPHY:

Age	Formation	Lithology
Late Holocene	Present day coastal/flood plain deposit	Sand & Silt (point & lateral bars & meander scrolls)
Middle to Late Holocene	Bankigarh	Black Clay (Lower Deltaic Facies)
		Brownish Silty Clay (Upper Deltaic Facies)
Pleistocene to Holocene	Brahmani/ Mahanadi	Residual Soil and Alluvium
Late Pleistocene to Early Holocene	Kaimundi	Clay with calcareous concretions
Pleistocene	Bolgarh	Laterite/ Latosol (Insitu)
Jurassic to Cretaceous	Athagarh	Sandstone, Shale
Archaean		Granite gneiss, augen gneiss, garnetiferous granite gneiss, granetiferous leucogranite/ leptynite
		Acid to intermediate charnockite/ Basic charnockite. Pyroxene granulite
		Quartz-Feldspar-Garnet-Sillimanite ± Graphite Schist/ Gneiss

The district has good deposits of good quality river sand and caters to the need of the cuttack and adjoining districts. Also, minor minerals like road metal, brick earth and specified minerals like fireclay & khondalite (dimension stone) are available in the district.

a. Detail of river/stream/other sand source- Sand mining in the district is confined to rivers like Mahanadi, Kathajodi, Kuakhai, Birupa, Chitraptala, Sidua, Luna and Devi.
b. Availability of sand or gravel or aggregate resources- sand- 53,44,010 cum, Gravel- Nil, Aggregate- Nil. This is the maximum volume of sand which can be quarried out from the sources of the district and has been calculated as 60% of the quantity derived by multiplying the area of the source with 3m

thickness as the exact resource of sand is not possible to calculate due to the monsoon period.

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- Please refer Annexure II.

SAND SAIRATS ALREADY LEASED OUT AND EXECUTED Annexure I

Sl. No.	Name of Tahasil	River or stream and Name of Village & date of Registration of lease deed	Portion of the River or Stream leased for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Length of area leased for mineral concession (in km)	Average width of area leased for mineral concession (in km)	Area leased for mineral concession (in sq m)	Mineable mineral potential as per approved mining plan (in cum)
A	B	C	D	E	F	G	H
1	Cuttack Sadar	Kathajodi (Subarnapur)	Kh. No - 01, Plot No.- 01 Latitudes- 20 27' 56.1" N to 20 27' 48.5" N Longitudes - 85 50' 59.5" E to 85 50' 44.5" E				149850
2	Cuttack Sadar	Kathajodi (Unit - 39, Silpapuri)	Kh No- 327 , Plot No. - 685, 876 Latitudes - 20 26' 03.1" N to 20 26' 13.0" N Longitudes - 85 53' 55.5 " E to 85 54' 04.5" E				136563
3	Cuttack Sadar	Kathajodi (Unit - 37, Badambadi)	Kh No- 540 , Plot No. - 661, 663 Latitudes - 20 26' 59.4" N to 20 27' 06.9" N Longitudes - 85 52' 53.5" E to 85 53' 02.5" E			14000	136977
4	Cuttack Sadar	Kathajodi (Bagulapada)	Kh. No- 677 , Plot No- 01 Latidude - 20 25'00" N to 20 27'30" N Longitude - 85 55'00" E to 85 57' 30" E	0.377	0.139	52600	44703
5	Cuttack Sadar	Kathajodi (Bagulapada)	Kh No - 25, Plot No. - 116 Latitudes - 20 26' 13.8" N to 20 26' 21.5" N Longitude				73694

			- 85 56' 21.7" E to 85 56' 33.9" E				
6	Cuttack Sadar	Kathajodi (Rajahansa)	Khata No- 960, Plot No - 857 Latitudes - 20 25' 20.1" N to 20 25' 35.8"N Longitudes - 85 57' 15.1"E to 8557'23.6"E			54600	87396
7	Cuttack Sadar	Kuakhai (Arakhakuda)	Kh. No.- 172, Plot No.- 1 Latitudes- 2022'43.6" N to 20 22'55.5"N Longitudes- 85 52' 30.0"E to 85 52' 43.4" E				43348
8	Cuttack Sadar	Kuakhia (Pratapnagari)	Kh. No- 1030, Plot No- 1248 Latitudes - 20 23' 40.9" N to 20 23' 53.4" N Longitudes - 85 52' 09.8" E to 85 52' 20.0" E				43331
9	Cuttack Sadar	Kuakhia (Uttamapur)	Khata No- 255 , Plot No- 861 Latitudes - 20 25' 42.02" N to 20 25' 31.58" N Longitudes- 85 52' 03.95" E to 85 51' 56.39" E				80413
10	Cuttack Sadar	Kathajodi (Tangarhuda)	Kh. N- 3, Plot No. - 24 Latitudes - 20 27' 56.8" N to 20 28' 08.8" N Longitudes - 85 49' 57.4" E to 85 50' 17.5" E				329390
11	Baranga	Kathojodi river Bidyadharpur. Case No.- 3/2016-2017	Khata No. 331, Plot No. 102 Pillar-1-85 48'39.852''(Longitude) 20 28'34.983''(Latitude) Pillar-2-85 48'54.449''(Longitude) 20 28'33.235''(Latitude)	436(m)	130(m)	56680 m^3	170172

			Pillar-3-85 48'53.995''(Longitude) 20 28'28.671''(Latitude) Pillar-4-85 48'39.546''(Longitude) 20 28'30.187''(Latitude)				
12	Baranga	Kuakhai river, Naranpur (North), Case No.2/2016-2017	Khata No.27, Plot No. 76 Pillar-1- 85 50'22.6''(Lungitude) 20 26'58.1''(Latitude) Pillar-2-85 50'29.3''(Lungitude) 20 27'07.1''(Latitude) Pillar-3-85 50'39.0''(Lungitude) 20 27'02.6''(Latitude) Pillar-4-85 50'32.7''(Lungitude) 20 26'53.8''(Latitude)	196 (m)	82(m)	16072 m3	148674
13	Baranga	Kathojodi river Mundamuhan	Khata No.27, Plot No. 76 Pillar-1- 85 50'22.6''(Lungitude) 20 26'58.1''(Latitude) Pillar-2-85 50'29.3''(Lungitude) 20 27'07.1''(Latitude) Pillar-3-85 50'39.0''(Lungitude) 20 27'02.6''(Latitude) Pillar-4-85 50'32.7''(Lungitude) 20 26'53.8''(Latitude)	326(m)	260(m)	254280 m3	254229

14	Tangi-Choudwar	Nuapatna, River	Mahanadi River Sand Khata No 329, Plot No. 959, Area . Ac 14.00 (Longitude. 85 degree 49' 35.5" E to 85 degree 49' 58.5"E)(Latitude . 20 degre 30' 31" N to 20 degree 30' 34.1" N)	0.160	0.360	57600	102150
15	Tangi-Choudwar	Brahmanpada, River	Birupa River Sand Khata No 288, Plot No. 835, Area . Ac 7.35 Plot No. 836 Area 5.65 (Longitude. 85 degree 59' 41.9" & 85 degree 59' 57.4" & E)(Latitude . 20 degree 30 39.4" and 20 degree 30' 47.4"N)	0.120	0.189	22680	27180
16	Tangi-Choudwar	Saranga, River	Birupa River Sand Khata No 475, Plot No.1111, Area . Ac 13.00 (Corner A Longitude. 86 degree 01'25.2"E, Latitude.20 degree 31' 13.9"N, Corner.B Longitude. 86 degree 01' 23.0"E , Latitude . 20 degree 31' 18.9"N, Corner. C Longitude . 86 degree 01' 34.8"E, Latitude. 20 degree 31' 24.4"N, Corner. D Longitude. 86 degree 01' 36.3"E, Latitude . 20 degree 31' 20.4"N)	0.122	0.120	17525	17515
17	Tangi-Choudwar	Khaira, River	Birupa River Sand Khata No 540, Plot No. 125, Area . Ac 14.00(Longitude. 85 degree 56' 25" E to 856 degree 56'36.7"E)(Latitude. 20	0.160	0.155	24800	25005

			degree 30' 41.8"N to 20 degree 30'47.3"N)				
18	Tangi-Choudwar	Rudrapur, River	Birupa River Sand Khata No. 651 Plot No. 2168 Area . Ac 13.00 (Langitude . 86 degree 04' 38" E to 86 degree 04'50.7"E) Latitude. 20 degree 34' 32.8"N to 20 degree 34'44.1"N)	0.340	0.162	55080	25000
19	Salipur	Birupa (Chahapada)	Khata no 1020 Plot no 01 Longitude- 86° 02' 47.8" to 86° 02' 59.2" Latitude - 20° 32' 35.3" to 20° 32' 43.5"	0.402336	0.12573	Ac.12.500 (50585.70 sqm)	9245 cum
20	Salipur	Birupa (Narada)	Khata no 535 Plot no 01 A 20° 33' 44.9" 86° 04' 4.9" B 20° 33' 52.9" 86° 04' 13.7" C 20° 33' 54.9" 86° 04' 11.6" D 20° 33' 45.6" 86° 04' 1.9"	0.553212	0.0115456	Ac.12.500 (50585.70 sqm)	15900 cum
21	Salipur	Mahanadi	Khata no 589	0.41340024	0.1224107	Ac.12.500	60000 cum

		(Gopinathpur)	Plot no 1001 A 20° 28' 34.0” 85° 57' 14.7” B 20° 28' 30.5” 85° 57' 14.5” C 20° 28' 30.2” 85° 57' 28.7” D 20° 28' 33.6” 85° 57' 28.7”			(50585.70 sqm)	
22	Salipur	Chitratpala (Barabodia)	Khata no 553 Plot no 1514 A 20° 27' 21.2” 85° 59' 41.0” B 20° 24' 17.8” 85° 59' 41.1” C 20° 25' 00.7” 85° 59' 31.3” D 20° 27' 20.7” 85° 59' 31.7”	0.299339	0.1689862	Ac.12.500 (50585.70 sqm)	34815 cum
23	Salipur	Birupa (Ganipur)	Khata no 172 Plot no 01 A 20° 31' 3.2” 86° 00' 23.2” B 20° 31' 6.3”	0.52947418	0.0955548	Ac.12.500 (50585.70 sqm	25204 cum

			86° 00' 23.00” C 20° 31' 10.7” 86° 00' 39.7” D 20° 31' 6.1” 86° 00' 38.8”				
24	Salipur	Birupa (Badabhimarajpur)	Khata no 818 Plot no 01 A 20° 32' 57.49” 86° 01' 58.82” B 20° 32' 57.37” 86° 02' 3.8” C 20° 32' 48.9” 86° 02' 3.7” D 20° 32' 48.3” 86° 01' 51.5”	0.2465324	0.2051914	Ac.12.500 (50585.70 sqm)	13044 cum
25	Salipur	Birupur (Bhairpur)	Khata no 655 Plot no 01 A 20° 30' 47.02” N 85° 58' 43.02” E B 20° 30' 51.02” N 85° 58' 43.08” E C 20° 30' 48.50” N 85° 58' 55.56” E D 20° 30' 47.78” N 85° 58' 55.51” E	0.31633668	0.1599286	Ac.12.500 (50585.70 sqm)	23200 cum

			E 20° 30' 46.13" N 85° 58' 55.30" E F 20° 30' 47.70" N 85° 58' 55.03" E				
26	Nischintakoili	Chitrotpala (Jaladia)	Lat from 20 25 55.8 to 20 26 06.4 N, Long from 86 10 04.4 to 86 10 12.1 E, Khata 139 plot 444	300	200	60000	46250
27	Nischintakoili	Chitrotpala (Santapur)	Lat 20.43 086 10, Long-86.17 052 58, khata no 313 plot no 71	200	100	20000	20000
28	Mahanga	Birupa River sand, Jasarajpur/sand/8.7.16 /Sand	Latitude N 20deg.35'19.6" to 20deg.35'29.4" Longitude E 86deg.05'33.7" to 86deg.05'58.6" KhataNo 749Plot no2315	0.102	0.006	Ac 15.000(18900sqm)	12285 cum
29	Mahanga	Birupa River sand,Samsarpur & Naptuan/Sand	Latitude N 20deg. 35' 48.9" to 20deg.35'04.4" Longitude E 86deg.06'54.4" to 86deg.07'20.2"Khata No 876&637 Plot No3647& 1523	0.783	0.011	Ac4.500 & Ac 8.500 (8840sqm)	12660 Cum
30	Mahanga	Birupa River sand,khuhunda/2.2.16	Latitude N 20deg.35'22.20" to 20deg.35'41.60" Longitude E 86deg.10'2.40" to 86deg.10'20.09"Khata No 1143 Plot no 4403	0.15	0.008	Ac15.000(18900sqm)	12424 cum
31	Mahanga	Birupa River sand, Khartanga& Arilo/Sand/13.5.16	Latitude N 20deg.34'37.8" to 20deg.33'54.1" Longitude E 86deg.08'36.7" to 86deg.09'18.2"Khata No 396&1161 Plot No 1 & 497 & 3527	0.126	0.005	Ac6.500 , Ac7.000 & Ac2.000(14000sqm)	14600 cum
32	Mahanga	Birupa River sand, Gunupur/3.5.16	Latitude N 20deg.36'24.7" to 20deg.36'23.8" Longitude E 86deg.11'26.6" to	0.15	0.01	Ac20.000(16000sqm)	16000 cum

			86deg.12'04.5"Khata No 804 Plot no 947				
33	Mahanga	Birupa River sand, Barahipur & Chasakhanda/Sand/16.5.16	Latitude N 20.34'52.3" to 20.34'27.6" Longitude E 86.07'25.3" to 86.06'59.3" Khata No 488&159 Plot no1334 & 23	0.12	0.008	Ac7.700 & Ac 5.300(19000sqm)	14250 cum
34	Mahanga	Badagenguti River sand, Banapur/Sand/3.10.16	Latitude N 20deg.38'34.7" to 20deg.38'11.1" Longitude E 86deg.08'48.2" to 86deg.08'50.2" Khata No 536 Plot no 1982 & 1990	0.223	0.0064	Ac6.000 & Ac7.000 (5500sqm)	7700 Cum
35	Mahanga	Badagenguti River sand, Madhupur & Dobandhia/20.2.16 /Sand	Latitude N 20deg.36'48" to 20deg.37'48.2" Longitude E 86deg.07'05.7" to 86deg.08'39.2"Khata No 919&547 Plot no 1 & 26 & 203 & 147	0.16	0.036	Ac8.000 & Ac2.000, Ac2.000 & Ac3.000(3786sqm)	20422Cum
36	Kishorenagar	Mahanadi & Kuruli	Latitude N20026’15.4” to 20026’23.5”N & Longitude E86004’33. 9” to 86004’42.6”E Khata No. 451 Plot no.1004	0.250	0.200	50580	20000
37	Kishorenagar	Mahanadi & Kishan nagar	Latitude N20025’30.860” to 20025’40.684”N & Longitude E86005’23.449” to 86005’32.668”E Khata No. 400 Plot no.1	0.250	0.200	50580	20000
38	Kishorenagar	Mahanadi & Khental	Latitude N20023’46.582” to 20023’56.294”N & Longitude E86008’13.444” to	0.250	0.200	50580	67072.5

			86008’23.169”E Khata No. 188 Plot no.1				
39	Kishorenagar	Mahanadi & Bankala	Latitude N20021’59.1” to 20022’00.9”N & Longitude E86011’45.9” to 86011’57.0”E Khata No. 103 Plot no.280	0.250	0.200	50580	47090
40	Kishorenagar	Chitrotpala& Mohammedpur	Latitude N20024’08.2” to 20024’15.4”N & Longitude E86015’36.4” to 86015’46.2”E Khata No. 520 Plot no.1	0.250	0.200	50580	67066
41	Kishorenagar	Chitrotpala& Guali	Latitude N20027’40.0” to 20027’46.8”N & Longitude E86002’57.0” to 86003’05.3”E Khata No. 1051 Plot no.1615	0.260	0.195	50580	27838
42	Kishorenagar	Mahanadi & Pinpur	Latitude N20021’44.5” to 20021’53.0”N & Longitude E86012’55.8” to 86013’06.5”E Khata No. 264 Plot no.529	0.250	0.200	50580	43015
43	Kishorenagar	Mahanadi & Barda	Latitude N20026’15.1” to 20026’24.4”N & Longitude E86001’37.9” to 86001’46.0”E Khata No. 1213 Plot no.2	0.250	0.200	50580	47662
44	Kishorenagar	Mahanadi &	Latitude N20025’49.5” to	0.290	0.175	50580	13702

		Hulipur	20025’58.8”N & Longitude E86004’01.1” to 86004’11.0”E Khata No. 882 Plot no.1				
45	Kishorenagar	Mahanadi & Udepur	Latitude N20024’13.7” to 20024’23.1”N & Longitude E86008’24.9” to 86008’36.1”E Khata No. 179 Plot no.1282	0.248	0.216	50580	15673
46	Kishorenagar	Chitrotpala& Dulupur	Latitude N20023’19.5” to 20023’30.9”N & Longitude E86013’06.1” to 86013’24.7”E Khata No. 579 Plot no.1,5	0.545	0.090	50580	42787
47	Niali	Devi(Bachhasailo)	Khata No.436,plot No.01, Lattitude- 20°12'30"-20°15'00" Longitude- 86°07'30"-86°10'00"	0.62655	0.090677	Ac 13.00 (0.05681367 sq km) 52610 sqm	86874 cum
48	Niali	Devi(Sithalo)	Khata No.164,plot No.1489, Lattitude- 20°10'00"-20°12'30" Longitude- 86°05'00"-86°07'30"	0.433774	0.130975	Area: Ac 13.00 (0.05681367 sq km) 52610 sqm	31010 cum
49	Niali	Kandal(Pahanga)	Khata No.1061,plot No.2584, Lattitude- 20°10'00"-20°12'30" Longitude- 86°05'30"-86°07'30"	0.49694	0.09721	Area: Ac 12.90 (0.0483075 sq km) 52205 sqm	34920 cum
50	Niali	Kandal(Polasara)	Khata No.711,plot No.1317,	0.457705	0.091143	Area: Ac	49200 cum

			Lattitude- 20°10'00"-20°12'30" Longitude- 86°05'00"-86°07'30"			12.70(0.05681367 sq km) 51396sqm	
51	Niali	Devi(Kulashree)	Khata No.1194,plot No.03, Lattitude- 20°12'30"- 20°15'00" Longitude- 86°05'00"-86°07'30"	0.5618905	0.0890245	Area: Ac 12.80 (0.05681367 sq km) 51800sqm	63750 cum
52	Niali	Devi(Nati)	Khata No.604,plot No.2510, Lattitude- 20°10'00"- 20°12'30" Longitude- 86°07'30"-86°10'00"	0.4248075	0.0981705	Area: Ac 12.70 (0.0417035 sq km) 51396sqm	18944 cum
53	Kantapada	Arisol & Adaspur Kandal River,Arisol and Adaspur	Khata No.429,1277 , Plot No 531,3857 20 °13'04.00"-N 86°02'12° 90"E 20 °13'16.00"-N 86°02'04° 50"E 20 °13'18.02"-N 86°02'06° 90"E 20 °13'05.50"-N 86°02'17° 10"E			Ac.12.74 51558 sqm	
54	Kantapada	Badabil Kandal River ,Badabil	Khata No.457 , Plot No 1 25 °05'53"-N 94°48'14"E 84 °55'50"-N 108°01'29"E			52610sqm	
55	Kantapada	Badakharmanga Devi River (East),Badakharamanga	Khata No.235 , Plot No 633 86°02'11 87"E 20 °17'27.14"-N			51800 sqm	

			86°02'05.94"E 20 °17'27.03"-N 86°02'06.71"E 20 °17'21.76"-N 86°02'07.49"E 20 °17'16.24"-N 86°02'12.42"E 20 °17'16.90"-N 86°21'2.12"E 20 °17'22.31-N				
56	Kantapada	Badakharmanga Devi River(West),Badakharamanga	Khata No.235 , Plot No 654 86°01'55.50"E 20 °17'30.05"-N 86°01'57.60"E 20 °17'37.08"-N 86°02'04.30"E 20 °17'29.00"-N 86°02'00.90"E 20 °17'16.24"-N			50586 sqm	
57	Kantapada	Jharpada Devi River, Jharpada	Khata No.785 , Plot No.2703 & 2704 20 °17'33.30"-N 86°01'56.20"E 20 °17'33.90"-N 86°01'56.20"E 20 °17'42.40"-N 86°01'58.30"E 20 °17'42.80"-N 86°01'58.40"E 20 °17'41.90"-N 86°02'03.10"E 20 °17'31.90"-N 86°02'02.90"E			50789 sqm	

58	Athagarh	Balarampur Mohanadi sand	Mz- Balarampur Khata - 288 Plot- 674/1319& 674/1320 Ac 18.00 Latitudes- 20˚27'21.0''N to 20˚27'28.1'' N Longitude- 85˚44'19.4'' E to 85˚44'32.3''E	0.36KM	0.2KM	72843 SQmt	15000CUM
59	Tigiria	Mahanadi Hatamal Dated- 13/11/2015	Khata No.275, Plot No 1260/1288(Nadi) and 1282 (Nadi) Latitude: N $20^0$24'16.60"-N $20^0$24'27.60" Longitude: E $85^0$30'41.50"-E $85^0$30'59.00"	0.5	0.12	60000	39144
60	Badamba	Gopinathpur	Khata-1434 plot-5477	0.4469 km	0.1629 km	57667.698	7462 cum
61	Badamba	Tunapur	Khata-504 Plot-4007, 4007/4051	0.3699 km	0.1399 km	52609.128	9578 cum
62	Badamba	kantapada	Khata-439 Plot-3278	0.3979 km	0.1699 km	64749.696	15886 cum
63	Badamba	Mangarajpur	Khata-641 Plot-3720/3749	0.2319 km	0.2399 km	56655.984	9148 cum
64	Badamba	Ogalpur	Khata-200 Plot-1137/1898	0.3079 km	0.1699 km	52609.128	19125 cum
65	Badamba	Naranpur	Khata-156 Plot-1053	0.4519 km	0.1109 km	54025.527	21020 cum
66	Badamba	Bengerisingha	Khata-903 Plot-7388/7570	0.4999 km	0.1739 km	68796.552	22100 cum

67	Narasinghpur	Mahanadi & Nuapatna	Latitude- 200 26’26.1’’N to 200 26’ 40.2’’N Longitude- 850 02’ 35.3’’E to 850 02’58.2’’E Khata - 93 Plot No.- 559	0.733	0.076	50585.71	13370
68	Narasinghpur	Mahanadi & Dhanipur	Latitude- 200 25’01’’N to 200 25’7.4’’N Longitude- 850 05’ 28.7’’E to 850 05’39’’E Khata - 6 Plot No.- 640	0.297	0.201	60702.80	12180
69	Narasinghpur	Mahanadi & Brahmapura	Latitude- 200 25’8.00’’N to 200 25’15.0’’N Longitude- 850 05’ 52’’E to 850 06’05’’E Khata - 158 Plot No.- 1141	0.293	0.201	60702.80	6300
70	Narasinghpur	Mahanadi & Muraripur	Latitude- 20024’36.9’’N to 20024’48.1’’N Longitude- 850 07’ 4.5’’E to 850 07’ 13.4’’E Khata - 324 Plot No.- 1219	0.162	0.217	60702.80	15350
71	Narasinghpur	Mahanadi & Padamalapatna	Latitude- 200 23’ 39.7’’E to 200 23’ 46.5’’N Longitude- 850 09’ 9.6’’E to 850 09’ 23’’E Khata - 269 Plot No.- 1072	0.382	0.116	54632.56	14605
72	Narasinghpur	Mahanadi & Purasttampur	Latitude- 200 27’ 13.00’’N to 200 27’22.5’’N Longitude- 850 01’ 32.1’’E to 850 01’ 43’’E	0.249	0.211	52609.10	4720

			Khata - 196 Plot No.- 1361				
73	Banki	Mahanadi River stream (Ostia sand Ghat)	Khata No-1Plot No-38(P) Ostia-1 85.37’29.62870” 20.27’01.96073” Ostia-1 85.37’3395800” 20.26’55.78344” Ostia-3 85.37’40.21165” 20.27’01.46572” Ostia-4 85.37’34.17026” 20.27’07.45693”	0.50 km	0.10 km	Ac12.50 50,586 sqm	139899
74	Damapda	Mahanadi river stream in Jatamundia Sandghat	Mouza Mohanadi , Khata No. 12 Plot No. 27 (P) , Area Ac15.00 dec , Kissam - Nadi Latitude:-20 25’ 0.3’’N to 20 25’ 06.78’’N Longitude:-85 36' 25.28''E to 85 36' 37.3'' E	0.305 km	0.02 km	0.061 sqm	159000 C.M.
75	Damapda	Mahanadi river stream in Kalika Prasad Sandghat	Mouza Mohanadi , Khata No. 12 Plot No. 36 (P) , Area Ac15.00 dec , Kissam - Nadi Latitude-20 26’ 59.275''N to 20 27’ 04.068"N Longitude:-85 38' 10.123''E to 85 38' 26.056'' E	0.48 km	0.14 km	0.0672 sqm	66600 C.M

SAND SAIRATS POTENTIAL OF THE DISTRICT Annexure- II

Sl. No.	Name of Tahasil	River or stream	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Name of village	Length of area recommended for mineral concession (in km)	Average width of area recommended for mineral concession (in km)	Area recommended for mineral concession (in sq m)	Maximum Mineable sand (in cum) (60% of total potential)
A	B	C	D	E	F	G	H	I
1	Cuttack Sadar	Kathajodi	Kh. No - 01, Plot No.- 01 Latitudes- 20 27' 56.1" N to 20 27' 48.5" N Longitudes - 85 50' 59.5" E to 85 50' 44.5" E	Subarnapur	_	_	_	89910
2	Cuttack Sadar	Kuakhia	Khata No- 255 , Plot No- 861 Latitudes - 20 25' 42.02" N to 20 25' 31.58" N Longitudes- 85 52' 03.95" E to 85 51' 56.39" E	Uttamapur	_	_	_	48248
3	Cuttack Sadar	Kuakhia	Kh. No- 1030, Plot No- 1248 Latitudes - 20 23' 40.9" N to 20 23' 53.4" N Longitudes - 85 52' 09.8" E to 85 52' 20.0" E	Pratapnagari	_	_	_	25999
4	Cuttack Sadar	Kuakhai	Kh. No.- 172, Plot No.- 1 Latitudes- 2022'43.6" N to 20 22'55.5"N Longitudes- 85 52' 30.0"E to 85 52' 43.4" E	Arakhakuda				26009
5	Cuttack	Kathajodi	Khata No- 960, Plot No	Rajahans				32760

	Sadar		- 857 Latitudes - 20 25' 20.1" N to 20 25' 35.8"N Longitudes - 85 57' 15.1"E to 8557'23.6"E	a				
6	Cuttack Sadar	Kathajodi	Kh No - 25, Plot No. - 116 Latitudes - 20 26' 13.8" N to 20 26' 21.5" N Longitude - 85 56' 21.7" E to 85 56' 33.9" E	Bagulapada				44216
7	Cuttack Sadar	Kathajodi	Kh. No- 677 , Plot No- 01 Latidude - 20 25'00" N to 20 27'30" N Longitude - 85 55'00" E to 85 57' 30" E	Brahmapura	_	_	_	26822
8	Cuttack Sadar	Kathajodi	Kh No- 540 , Plot No. - 661, 663 Latitudes - 20 26' 59.4" N to 20 27' 06.9" N Longitudes - 85 52' 53.5" E to 85 53' 02.5" E	Unit- 37 Badambadi	_	_	_	82186
9	Cuttack Sadar	Kathajodi	Kh No- 327 , Plot No. - 685, 876 Latitudes - 20 26' 03.1" N to 20 26' 13.0" N Longitudes - 85 53' 55.5 " E to 85 54' 04.5" E	Unit 39, Silpapuri	_	_	_	81938
10	Cuttack Sadar	Kathajodi	Kh. N- 3, Plot No. - 24 Latitudes - 20 27' 56.8" N to 20 28' 08.8" N Longitudes - 85 49'	Tangarhuda	_	_	_	197634

			57.4" E to 85 50' 17.5" E					
11	Cuttack Sadar	Kathajodi	Latitude- 20 26' 53.5"N to 20 27' 03.7" N Longitude- 85 52' 09.9" E to 85 52' 30.07" E	Subhadrapur	_	_	_	10000
12	Cuttack Sadar	Sidhua	Latitude- 20 24' 33.6"N to 20 24' 16.9" N Longitude- 85 54' 15.6" E to 85 54' 08.3" E	Jaripada	_	_	_	10000
13	Cuttack Sadar	Kathajodi	Latitude - 20 26'6" 20 25'55" 20 25'53" 20 26'2" Longitude - 85 55'28" 85 55' 29" 85 55'16" 85 55' 13"	Sartol	0.464	0.33	153000 sqm	275400
14	Cuttack Sadar	Sidhua	Khata No. 610 Plot No-2638 Latitude- 20 23' 41.8" N to 20 23'49.0"N Longitude- 85 54' 43.1" E to 85 54' 54.9" E	Kadampada	0.229	0.22	50380 sqm	90684
15	Cuttack Sadar	Kathajodi	Khata No. 1009 Plot No- 2 Latitude- 85 58'18.7"E to 8558'10.4"E & 2023'41.2"N to 2023'47.1"N Longitude- 85 58' 14.9" E to 85 58' 23.3" E & 2023'52.1"N to 2023'46.1"N	Kalapada	0.118	0.9	10779 Sqm	32337
16	Cuttack	Sidhua	2022'2"N to 8558'8"E	Kulasaric	0.66	0.57	3866	11600

	Sadar		2022'2"N to 8558'14"E 2022'6"N to 8558'14"E 2022'7"N to 8558'9"E	huan				
17	Cuttack Sadar	Mahanadi	Khata No- 252 Plot No. 1	Kanheipur	0.905	0.223	201815	363267
18	Baranga	Kathojodi	Khata No. 57 Plot No. 70 Pillar-1 85 49' 48.4" E (Longitude) 20 27' 57.5'' N (Latitude) Pillar-2 85 49' 31.3" E (Longitude) 20 27' 58.4'' N (Latitude) Pillar-3 85 49' 31.2" E (Longitude) 20 28' 4.9'' N (Latitude) Pillar-4 85 49' 48.6" E (Longitude) 20 28' 4.3'' N (Latitude)	Bentkarpada	500m	200m	100000 m3	63000
19	Baranga	Sidua	Khata No. 57 Plot No. 70 Pillar-1 85 59' 18.5" E (Longitude) 20 21' 39.8'' N (Latitude) Pillar-2 85 59' 17.9" E	Korkora	200m	300m	60000 m3	30006

			(Longitude) 20 21' 44.2'' N (Latitude) Pillar-3 85 59' 28.0" E (Longitude) 20 21' 46.9'' N (Latitude) Pillar-4 85 59' 28.3" E (Longitude) 20 21' 42.7'' N (Latitude) Pillar-5 85 59' 27.4" E (Longitude) 20 21' 42.6" N (Latitude) Pillar-6 85 59' 28.0" E (Longitude)20 21' 39.5'' N (Latitude) Pillar-7 85 59' 25.5" E (Longitude) 20 21' 38.7'' N (Latitude) Pillar-8 85 59' 22.9" E (Longitude) 20 21' 39.7'' N (Latitude) Pillar-9 85 59' 22.5" E (Longitude) 20 21' 39.4'' N					

			(Latitude) Pillar-10 85 59' 21.8" E (Longitude) 20 21' 40.0'' N (Latitude)					
20	Baranga	Sidua	Khata No. 57 Plot No. 70 Pillar-1 85 57' 15.6" E (Longitude) 20 22' 4.8'' N (Latitude) Pillar-2- 85 57' 11.1" E (Longitude) 20 22' 7.8" N (Latitude) Pillar-3 85 57' 12.2." E (Longitude) 20 22' 7.0'' N (Latitude) Pillar-4 85 57' 16.8" E (Longitude) 20 22' 8.7'' N(Latitude)	Deokali	200m	100m	20000 m3	9576
21	Baranga	Kathajodi	Khata No.27, Plot No. 76 Pillar-1- 85 50'22.6''(Longitude) 20 26'58.1''(Latitude) Pillar-2-85 50'29.3''(Longitude) 20 27'07.1''(Latitude) Pillar-3-85 50'39.0''(Longitude)	Mundam uhan	326m	260m	84760 m3	152537

			20 27'02.6''(Latitude) Pillar-4-85 50'32.7''(Longitude) 20 26'53.8''(Latitude)					
22	Baranga	Kathojodi	Khata No. 331, Plot No. 102 Pillar-1-85 48'39.852''(Longitude) 20 28'34.983''(Latitude) Pillar-2-85 48'54.449''(Longitude) 20 28'33.235''(Latitude) Pillar-3-85 48'53.995''(Longitude) 20 28'28.671''(Latitude) Pillar-4-85 48'39.546''(Longitude) 20 28'30.187''(Latitude)	Bidyadharpur	436m	130m	56680 m3	102103
23	Baranga	Kuakhai	Khata No. 196, Plot No. 01 Pillar-1- 85 51'06.8''(Longitude) 20 26'21.8''(Latitude) Pillar-2-85 51'03.2''(Longitude) 20 26'31.2''(Latitude) Pillar-3-85 51'10.2''(Longitude) 20 26'32.9''(Latitude) Pillar-4-85 51'13.3''(Longitude) 20 26'23.8''(Latitude)	Naranpur	196m	82m	16072 m3	89204
24	Tangi-Choudwar	Mahanadi	Mahanadi River Sand Khata No 329, Plot No.	Nuapatna	0.160	0.360	57600	102150

			959, Area . Ac 14.00 (Longitude. 85 degree 49' 35.5" E to 85 degree 49' 58.5"E)(Latitude . 20 degre 30' 31" N to 20 degree 30' 34.1" N)					
25	Tangi-Choudwar	Birupa	Birupa River Sand Khata No 288, Plot No. 835, Area . Ac 7.35 Plot No. 836 Area 5.65 (Longitude. 85 degree 59' 41.9" & 85 degree 59' 57.4" & E)(Latitude . 20 degree 30 39.4" and 20 degree 30' 47.4"N)	Brahman pada	0.120	0.19	22680`	27180
26	Tangi-Choudwar	Birupa	Birupa River Sand Khata No 475, Plot No.1111, Area . Ac 13.00 (Corner A Longitude. 86 degree 01'25.2"E, Latitude.20 degree 31' 13.9"N, Corner.B Longitude. 86 degree 01' 23.0"E , Latitude . 20 degree 31' 18.9"N, Corner. C Longitude . 86 degree 01' 34.8"E, Latitude. 20 degree 31' 24.4"N, Corner. D Longitude. 86 degree 01' 36.3"E, Latitude . 20 degree 31' 20.4"N)	Saranga	0.122	0.120	17525	17515

27	Tangi-Choudwar	Birupa	Birupa River Sand Khata No 540, Plot No. 125, Area . Ac 14.00(Longitude. 85 degree 56' 25" E to 856 degree 56'36.7"E)(Latitude. 20 degree 30' 41.8"N to 20 degree 30'47.3"N)	Khaira	0.160	0.155	24800	25005
28	Tangi-Choudwar	Birupa	Birupa River Sand Khata No. 651 Plot No. 2168 Area . Ac 13.00 (Langitude . 86 degree 04' 38" E to 86 degree 04'50.7"E) Latitude. 20 degree 34' 32.8"N to 20 degree 34'44.1"N)	Rudrapur	0.34	0.162	55080	25000
29	Salipur	Birupa (Chahapada)	Khata no 1020 Plot no 01 Longitude - 86° 02' 47.8” to 86° 02' 59.2” Latitude - 20° 32' 35.3” to 20° 32' 43.5”	0.402336	0.12573	0.12573	50585.70 sqm	9105
30	Salipur	Birupa (Narada)	Khata no 535 Plot no 01 A 20° 33' 44.9” 86° 04' 4.9” B 20° 33' 52.9” 86° 04' 13.7” C	Narada	0.553212	0.01154557	50585.70 sqm	9105

			20° 33' 54.9” 86° 04' 11.6” D 20° 33' 45.6” 86° 04' 1.9”					
31	Salipur	Mahanadi (Gopinathpur)	Khata no 589 Plot no 1001 A 20° 28' 34.0” 85° 57' 14.7” B 20° 28' 30.5” 85° 57' 14.5” C 20° 28' 30.2” 85° 57' 28.7” D 20° 28' 33.6” 85° 57' 28.7”	Gopinathpur	0.41340024	0.122410728	50585.70 sqm	9105
32	Salipur	Chitratpala (Barabodia)	Khata no 553 Plot no 1514 A 20° 27' 21.2” 85° 59' 41.0” B 20° 24' 17.8” 85° 59' 41.1” C 20° 25' 00.7” 85° 59' 31.3” D 20° 27' 20.7” 85° 59' 31.7”				Ac.12.500 (50585.70 sqm)	34815 cum

33	Salipur	Birupa (Ganipur)	Khata no 172 Plot no 01 A 20° 31' 3.2” 86° 00' 23.2” B 20° 31' 6.3” 86° 00' 23.00” C 20° 31' 10.7” 86° 00' 39.7” D 20° 31' 6.1” 86° 00' 38.8”				Ac.12.500 (50585.70 sqm	25204 cum
34	Salipur	Birupa (Badabhimarajpur)	Khata no 818 Plot no 01 A 20° 32' 57.49” 86° 01' 58.82” B 20° 32' 57.37” 86° 02' 3.8” C 20° 32' 48.9” 86° 02' 3.7” D 20° 32' 48.3” 86° 01' 51.5”				Ac.12.500 (50585.70 sqm)	13044 cum
35	Salipur	Birupur (Bhairpur)	Khata no 655 Plot no 01 A 20° 30' 47.02” N 85° 58' 43.02” E B 20° 30' 51.02” N				Ac.12.500 (50585.70 sqm)	23200 cum

			85° 58' 43.08" E C 20° 30' 48.50" N 85° 58' 55.56" E D 20° 30' 47.78" N 85° 58' 55.51" E E 20° 30' 46.13" N 85° 58' 55.30" E F 20° 30' 47.70" N 85° 58' 55.03" E					
36	Nischintakoili	Chitrotpala (Jaladia)	Lat from 20 25 55.8 to 20 26 06.4 N, Long from 86 10 04.4 to 86 10 12.1 E, Khata 139 plot 444					60000
37	Nischintakoili	Chitrotpala (Santapur)	Lat 20.43 086 10, Long-86.17 052 58, khata no 313 plot no 71					20000
38	Nischintakoili	chitrotpala	lat 20 24 56.1 N , long 86 09 43.1 , khata no 49, plot no 185	sanarout apati,	200	50	10000	18000
39	Nischintakoili	luna	lat 20 45 63 35, long 86 21 34 91, khata no1006 plot no 1210	baliapad a	150	500	7500	13500
40	Nischintakoili	chitrotpala	chitrotpala, lat 20 41 22 59 , long 86 18 81 12 , khata no 1013 plot no 535	nagaspur	150	50	7500	13500
41	Nischintakoili	chitrotpala	chitrotpala , lat 20 39 54 07 , long 86 20 21 20, khata no 231 , plot	berhmpu r	200	50	10000	18000

			no 634					
42	Nischintakoili	chitrotpala	chitrotpala, lat 20 40 42 87 long 86 19 51 40 , khata no 481 plot no 819	chariraka ba	100	50	5000	9000
43	Nischintakoili	chitrotpala	Lat 20.4513700, Long - 86.1464864, khata no 296 , plot no 01	kalamishr ee jayant pur	500	160	8000	14400
44	Nischintakoili	Luna River	Lat 20.46 52 85 9, Long 86.25 43 089, khata no 817 plot no 1918, 1919, 1920,1921	Kulaganis alo	225	200	45000	81000
45	Nischintakoili	Luna River	Lat 20.45 76 273, Long 86.23 53 295, khata no 371,115 plot no 1022,421,420	Kulasuka rpada Loknathp ur	280	260	72800	130800
46	Nischintakoili	Luna River	Long 20.45 33 022, Lat 86.22 24 586, khata no 563 plot no 49	Sahadevp ur	50	100	5000	9000
47	Nischintakoili	Luna River	lat 20 27 13.7 N, long 86 10 46.1 E, khata no140 plot no 428	Sadhakna gar	20	50	1000	2400
48	Nischintakoili	Luna River	lat 20 45 15 902, long 86.199 07 64 , khata no 325 plot no 192	demando	180	80	14400	
49	Nischintakoili	chitrotpala	lat 20.42 64 05 ling 86.180 7 39, khata nop 548 plot no 169	palda	250	120	30000	
50	Mahanga	Birupa River sand,	KhataNo 749Plot no2315	Jasorajpu r	0.102	0.006	18900sqm	7371cum
51	Mahanga	Birupa River sand,	Khata No 876&637 Plot No3647& 1523	Samsarp ut & Naptuan	0.783	0.011	8840sqm	12660cum
52	Mahanga	Birupa River	Khata No 1143 Plot no	Kuhunda	0.15	0.008	18900sqm	7484cum

		sand,	4403					
53	Mahanga	Birupa River sand,	Khata No 396&1161 Plot No 1 & 497 & 3527	Khartanga & Arilo	0.126	0.005	14000sqm	8760cum
54	Mahanga	Birupa River sand,	Khata No 804 Plot no 947	Gunupur	0.15	0.01	16000sqm	9600cum
55	Mahanga	Birupa River sand,	Khata No 488&159 Plot no1334 & 23	Barahipur& Chasakhanda	0.12	0.008	19000sqm	8535cum
56	Mahanga	Badagenguti River sand,	Khata No 536 Plot no 1982 & 1990	Banapur	0.223	0.0064	5500sqm	4620cum
57	Mahanga	Badagenguti River sand,	Khata No 919&547 Plot no 1 & 26 & 203 & 147	Madhupur Dobandhia	0.16	0.036	3786sqm	12253cum
58	Kishorenagar	Mahanadi & Kuruli	Latitude N20026'15.4" to 20026'23.5"N & Longitude E86004'33. 9" to 86004'42.6"E Khata No. 451 Plot no.1004	Kuruli	0.245	0.190	50580	30348
59	Kishorenagar	Mahanadi & Kishan nagar	Latitude N20025'30.860" to 20025'40.684"N & Longitude E86005'23.449" to 86005'32.668"E Khata No. 400 Plot no.1	Kishan nagar	0.250	0.200	50580	45522
60	Kishorenagar	Mahanadi & Khental	Khata No. Latitude N20023'46.582" to	Khental	0.250	0.200	50580	45522

			20023’56.294”N & Longitude E86008’13.444” to 86008’23.169”E 188 Plot no.1					
61	Kishorenagar	Mahanadi & Bankala	Latitude N20021’59.1” to 20022’00.9”N & Longitude E86011’45.9” to 86011’57.0”E Khata No. 103 Plot no.280	Bankala	0.250	0.200	50580	45522
62	Kishorenagar	Chitrotpala& Mohammedpur	Latitude N20024’08.2” to 20024’15.4”N & Longitude E86015’36.4” to 86015’46.2”E Khata No. 773 Plot no.1	Mohammedpur	0.250	0.200	50580	45522
63	Kishorenagar	Chitrotpala& Guali	Latitude N20027’40.0” to 20027’46.8”N & Longitude E86002’57.0” to 86003’05.3”E Khata No. 1051 Plot no.1615	Guali	0.260	0.195	50580	30000
64	Kishorenagar	Mahanadi & Pinpur	Latitude N20021’44.5” to 20021’53.0”N & Longitude E86012’55.8” to 86013’06.5”E Khata No. 264,529 Plot no.	Pinpur	0.250	0.200	50580	30348

65	Kishorenagar	Mahanadi & Barda	Latitude N20026’15.1” to 20026’24.4”N & Longitude E86001’37.9” to 86001’46.0”E Khata No. 1213 Plot no.2	Barda	0.250	0.200	50580	45522
66	Kishorenagar	Mahanadi & Babujanga	Latitude N20021’37.2” to 20021’45.7”N & Longitude E86010’52. 8” to 86004’60.6”E Khata No. 817 Plot no.1676	Babujanga	0.250	0.200	50580	30348
67	Kishorenagar	Chitrotpala & Murkundi	Latitude N20027’36.6” to 20027’44.8”N & Longitude E86004’25. 3” to 86004’34.2”E Khata No. 505 Plot no.1	Murkundi	0.250	0.200	50580	30348
68	Kishorenagar	Mahanadi & Hulipur	Latitude N20025’49.5” to 20025’58.8”N & Longitude E86004’01.1” to 86004’11.0”E Khata No. 882 Plot no.1				50580	13702
69	Kishorenagar	Mahanadi & Udepur	Latitude N20024’13.7” to 20024’23.1”N & Longitude E86008’24.9” to 86008’36.1”E Khata No. 179				50580	15673

			Plot no.1282					
70	Kishorenagar	Chitrotpala& Dulupur	Latitude N20023’19.5” to 20023’30.9”N & Longitude E86013’06.1” to 86013’24.7”E Khata No. 579 Plot no.1,5				50580	42787
71	Niali	Devi River	Khata No.436,plot No.01,	Bachhasa ilio	0.62655	0.090677	Ac 13.00 (0.05681367 sq km)	10262 cum
72	Niali	Devi River	Khata No.164,plot No.1489,	Sithalo	0.433774	0.130975	Area: Ac 13.00 (0.05681367 sq km)	3696 cum
73	Niali	Kandal River	Khata No.1061,plot No.2584,	Pahanga	0.49694	0.09721	Area: Ac 12.90 (0.05681367 sq km)	4191 cum
74	Niali	Kandal River	Khata No.711,plot No.1317,	Polasara	0.457705	0.091143	Area: Ac 12.70(0.05681367 sq km)	5904 cum
75	Niali	Devi River	Khata No.1194,plot No.03,	Kulashre e	0.5618905	0.089025	Area: Ac 12.80 (0.05681367 sq km)	7650 cum
76	Niali	Devi River	Khata No.604,plot No.2510,	Nati	0.4248075	0.098171	Area: Ac 12.70 (0.0417035 sq km)	2304 cum
77	Kantapada	Arisol & Adaspur Kandal River,Arisol and Adaspur	Khata No.429,1277 , Plot No 531,3857 20 °13'04.00"-N 86°02'12° 90"E 20 °13'16.00"-N 86°02'04° 50"E 20 °13'18.02"-N 86°02'06° 90"E	Arisol and Adaspur			Ac.12.74	

			20 °13'05.50"-N 86°02'17° 10"E					
78	Kantapada	Badabil Kandal River ,Badabil	Khata No.457 , Plot No 1 25 °05'53"-N 94°48'14"E 84 °55'50"-N 108°01'29"E	Badabil			13	
79	Kantapada	Badakharmanga Devi River (East),Badakharamanga	Khata No.235 , Plot No 633 86°02'11 87"E 20 °17'27.14"-N 86°02'05.94"E 20 °17'27.03"-N 86°02'06.71"E 20 °17'21.76"-N 86°02'07.49"E 20 °17'16.24"-N 86°02'12.42"E 20 °17'16.90"-N 86°21'2.12"E 20 °17'22.31-N	Badakharamanga			12.8	
80	Kantapada	Badakharmanga Devi River(West),Badakharamanga	Khata No.235 , Plot No 654 86°01'55.50"E 20 °17'30.05"-N 86°01'57.60"E 20 °17'37.08"-N 86°02'04.30"E 20 °17'29.00"-N 86°02'00.90"E 20 °17'16.24"-N	Badakharamanga			12.5	
81	Kantapada	Jharpada Devi River,	Khata No.785 , Plot No.2703 & 2704	Jharpada			12.6	

		Jharpada	20 °17'33.30"-N 86°01'56.20"E 20 °17'33.90"-N 86°01'56.20"E 20 °17'42.40"-N 86°01'58.30"E 20 °17'42.80"-N 86°01'58.40"E 20 °17'41.90"-N 86°02'03.10"E 20 °17'31.90"-N 86°02'02.90"E					
82	Athagarh	Mohanadi	Mz- Balarampur Khata - 197 Plot- 399 Ac 18.00 Latitudes- 20˚27'21.0''N to 20˚27'28.1'' N Longitude- 85˚71'70.6'' E to 85˚44'32.3''E	Balarampur	0.36K.M.	0.2K.M.	72843.42 sqM	131118CUM
83	Athagarh	Mohanadi	Mz- Brajabiharipur Khata - 21 Plot- 142 Ac 14.00 Latitudes- 20˚27'21.0''N to 20˚27'28.1'' N Longitude- 85˚44'19.4'' E to 85˚44'32.3''E	Brajabiharipur	0.30km	0.2K.M.	56656sqm	101980CUM
84	Athagarh	Mohanadi	Mz- Daspur Khata - 165 Plot- 371	Daspur	0.36K.M.	0.2K.M.	72843.42 sqM	131118CUM

			Ac 18.00 Latitides- 20˚45'30.5''N Longitude- 85˚44'19.4'' E					
85	Athagarh	Balarampur Mohanadi sand	Mz- Balarampur Khata - 288 Plot- 674/1319& 674/1320 Ac 18.00 Latitudes- 20˚27'21.0''N to 20˚27'28.1'' N Longitude- 85˚44'19.4'' E to 85˚44'32.3''E				72843 SQmt	15000CUM
86	Tigiria	Mahanadi	Khata No.275, Plot No 1260/1288(Nadi) and 1282 (Nadi) Latitude: N 20024'16.60"-N 20024'27.60" Longitude: E 85030'41.50"-E 85030'59.00"	Hatamala	0.5	0.12	60000	39144
87	Baramba	Mahanadi	Khata-1434 Plot No. 5477, Ac.14.25 Longitude 85022'47.0"E to 85022'56.8"E Latitude 20022'59.2"N to 20023'04.5"N	Gopinathpur		0.1629	162.9	4477

88	Baramba	Mahanadi	Khata-504 Plot No. 4007, 4007/4051 Ac.13.00 Longitude 85023'02.6"E to 85023'15.7"E Latitude 20022'85.1"N to 20023'04.9"N	Tunapur		0.1399	139.9	5746
89	Baramba	Mahanadi	Khata-439 Plot No. 3278 Ac.16.00 Longitude 85020'18.9"E to 85020'33.6"E Latitude 20022'25.0"N to 20022'35.1"N	Kantapad a		0.1699	169.9	9531
90	Baramba	Mahanadi	Khata-641 Plot No. 3720/3749 Ac.14.00 Longitude 85018'39.6" to 85018'47.7" Latitude 20022'27.0" to 20022'26.9"	Mangaraj pur		0.2399	239.9	5488

91	Baramba	Mahanadi	Khata-200 Plot No. 1137/1898 Ac.13.00 Longitude 85016'36.3"E to 85016'47.6"E Latitude 20021'57.9"N to 20022'04.8"N	Ogalpur		0.1699	169.9	11475
92	Baramba	Mahanadi	Khata-157 Plot No. 1053 Ac.13.35 Longitude 85025'47.0"E to 85026'02.8"E Latitude 20023'21.6"N to 20023'26.9"N	Naranpur		0.1109	110.9	12612
93	Baramba	Mahanadi	F45T7 (73H/7) Khata-903 Plot No. 7388/7570 Ac.17.00 Longitude 85027'59.9"E to 85028'17.5"E Latitude 20023'20.7"N to	Bangerisingha		0.1739	173.9	13260

			20023'27.0"N					
94	Narasinghpur	River	Latitude- 200 23’ 35.7’’N to 200 23’43.7’’N Longitude- 850 09’ 35.4’’E to 850 09’ 47.8’’E Khata - 414 Plot No.- 1750	Tamara	0.221	0.146	52609.10	23280
95	Narasinghpur	River	Latitude- 200 23’ 26.3’’N to 200 23’ 29.9’’N Longitude- 850 10’ 43.3’’E to 850 10’ 59.1’’E Khata - 280 Plot No.- 2251 Plot No.- 2252	Manapur	0.422	0.092	52609.10	8010
96	Narasinghpur	River	Latitude- 200 26’26.1’’N to 200 26’ 40.2’’N Longitude- 850 02’ 35.3’’E to 850 02’58.2’’E Khata - 93 Plot No.- 559	Nuapatna	0.733	0.076	50585.71	8022
97	Narasinghpur	River	Latitude- 200 25’01’’N to 200 25’7.4’’N Longitude- 850 05’ 28.7’’E to 850 05’39’’E Khata - 6 Plot No.- 640	Dhanipur	0.297	0.201	60702.80	7308
98	Narasinghpur	River	Latitude- 200	Brahmap	0.293	0.201	60702.80	3780

			25’8.00’’N to 200 25’15.0’’N Longitude- 850 05’ 52’’E to 850 06’05’’E Khata - 158 Plot No.- 1141	ura				
99	Narasinghpur	River	Latitude- 20024’36.9’’N to 20024’48.1’’N Longitude- 850 07’ 4.5’’E to 850 07’ 13.4’’E Khata - 324 Plot No.- 1219	Muraripur	0.162	0.217	60702.80	9210
100	Narasinghpur	River	Latitude- 200 23’ 39.7’’E to 200 23’ 46.5’’N Longitude- 850 09’ 9.6’’E to 850 09’ 23’’E Khata - 269 Plot No.- 1072	Padamal apatna	0.382	0.116	54632.56	8763
101	Narasinghpur	River	Latitude- 200 27’ 13.00’’N to 200 27’22.5’’N Longitude- 850 01’ 32.1’’E to 850 01’ 43’’E Khata - 196 Plot No.- 1361	Purastta mpur	0.249	0.211	52609.10	2832

	Banki	Mahanadi River stream (Ostia sand Ghat)	Khata No-1Plot No-38(P) Ostia-1 85.37’29.62870” 20.27’01.96073” Ostia-1 85.37’3395800” 20.26’55.78344” Ostia-3 85.37’40.21165” 20.27’01.46572” Ostia-4 85.37’34.17026” 20.27’07.45693”	0.50 km	0.10 km		Ac12.50 50,586 sqm	139899

93	Banki	Mahanadi,River stream(Kotadwar sand Ghata)	Khata No-1Plot No-25, KOTDWAR -q01 LONGITUDE85.30’21.30254” LATITUE20.22’13.74999” KOTDWAR -q02 LONGITUDE85.30’10.78623” LATITUE 20.22’22.39993” KOTDWAR -q03 LONGITUDE85.30’30.94440” LATITUE 20.22’31.73379” KOTDWAR -q02 LONGITUDE85.30’38.68091” LATITUE20.22’23.81171”	Kotadwar	0.60km	0.332 km	202347 sqm	358560cum
94	Banki	Mahanadi River stream(Baideswar Sand Ghata)	Khat No-1Plot-3(P) Baideswar-1 LONGITUDE85.23’57.40992” LATITUE20.21’29.94757” Baideswar-2 LONGITUDE85.23’57.44074” LATITUE20.21’36.45112” Baideswar-3 LONGITUDE85.24’20.30398” LATITUE20.21’38.38857” Baideswar-4 LONGITUDE85.24’20.29	Baideswar	0.67km	0.20km	133549 sqm	241200cum

			466” LATITUE20.21’32.85131 ”					
95	Banki	Mahanadi River stream (Anury Sand Ghata)	Khata No-1Plot No-6 Anuary-1 LONGITUDE85.25’24.01101” LATITUE20.21’35.39409” Anuary-2 LONGITUDE85.25’30.684”E LATITUE20.21’34.565” N Anuary- LONGITUDE52.25’38.07200” LATITUE20.21’33.64705 Anuary-4 LONGITUDE85.25’38.16602” LATITUE20.21’29.54301” Anuary-5 LONGITUDE85.25’30.912” E LATITUE20.21’30.354” N Anuary-6 LONGITUDE85.25’24.29401” LATITUE20.21’31.09400 ”	Anuary	0.50km	0.10km	50586 sqm	90000cum
96	Banki	Mahanadi River stream (Tentulia sand Ghat)	Khata No-1 Plot No-29 (P) Tentu-1 LON85.32’11.97830”GITUDE LATITUE20.24’42.92571	Tentulia	0.50km	0.10km	50586 sqm	90000cum

			” Tentu-2 LONGITUDE85.32’12.14647” LATITUE20.24’39.83878” Tentu-3 LONGITUDE85.32’12.32196” LATITUE20.24’36.71786” Tentu-4 LONGITUDE85.32’15.95222” LATITUE20.24’36.58015” Tentu-5 LONGITUDE85.32’19.61656” LATITUE20.24’36.40879” Tentu-6 LONGITUDE85.32’20.01390” LATITUE20.24’39.53699” Tentu-7 LONGITUDE85.32’20.25403” LATITUE20.24’42.68227” Tentu-8 LONGITUDE85.32’15.73999” LATITUE20.24’42.80699”					
97	Damapada	Mahanadi & Jatamundia Sand ghat	Khata No. 12 Plot no.27(P) Latitude- 20º 25’ 0.3” to 20º 25’ 06.78” Longitude- 85º 36’ 25.28” to 85º 36’ 37.3”	Jatamundia	0.31	0.21	60700	25000

98	Damapada	Mahanadi & Kalikaprasad Sand Ghat	Khata No. 12 Plot no.36 (p) Latitude- 20º 26’ 59.275” to 20º 27’ 04.068” Longitude- 85º 38’ 10.123” to 85º 38’ 26.056”	Kalikaprasad	0.48	0.14	97870	60000

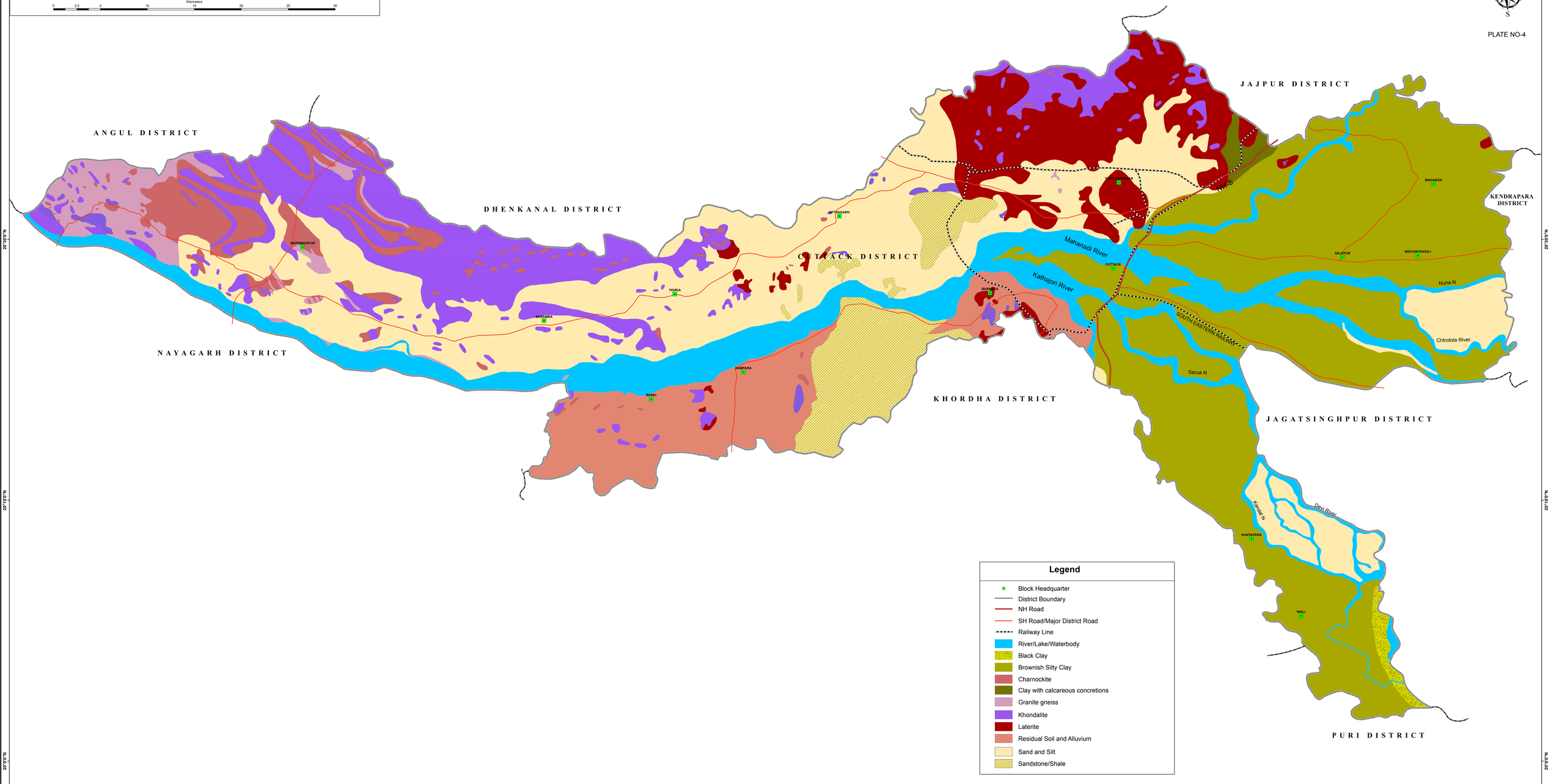
MINERAL MAP OF CUTTACK DISTRICT

SCALE :- 1:110,000

Kilometers

0 2.5 5 10 15 20 25 30

PLATE NO-4



Legend

- Block Headquarter
- District Boundary
- NH Road
- SH Road/Major District Road
- Railway Line
- River/Lake/Waterbody
- Black Clay
- Brownish Silty Clay
- Charnockite
- Clay with calcareous concretions
- Granite gneiss
- Khondalite
- Laterite
- Residual Soil and Alluvium
- Sand and Silt
- Sandstone/Shale

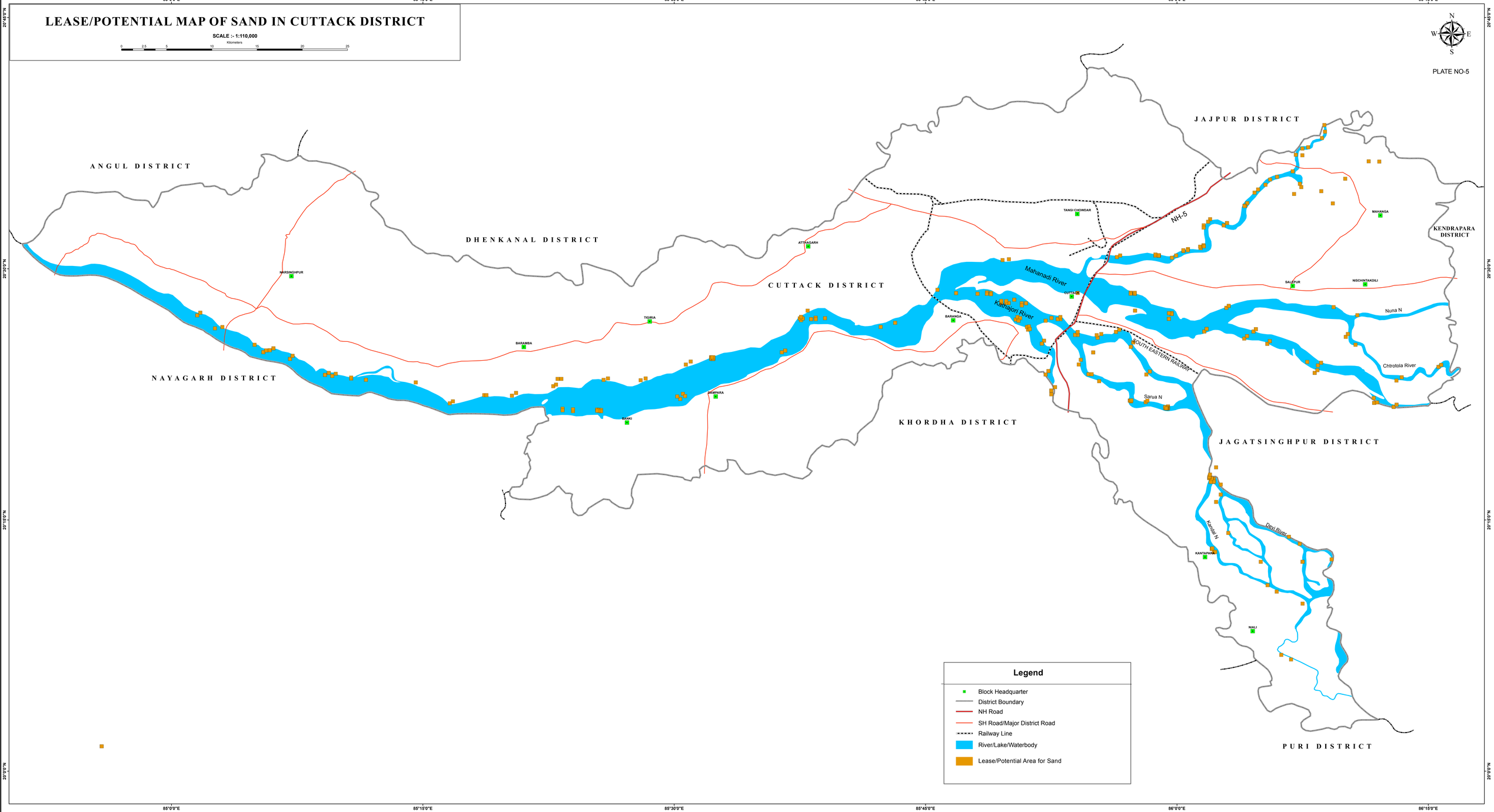
LEASE/POTENTIAL MAP OF SAND IN CUTTACK DISTRICT

SCALE :- 1:110,000

Kilometers

0 2.5 5 10 15 20 25

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

DISTRICT SURVEY REPORT (DSR)

OF

CUTTACK DISTRICT, ODISHA

FOR

ROAD METAL / BUILDING STONE / BLACK STONE

(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, CUTTACK

CONTENT

25	DETAILS OF THE OCCUPATION HEALTH ISSUES IN THE DISTRICT. (LAST FIVE- YEAR DATA OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED)	
26	PLANTATION OF GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT	
27	ANY OTHER INFORMATION	

LIST OF PLATES

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MAP SHOWING TAHASILS	2
ROAD MAP OF THE DISTRICT	3
MINERAL MAP OF THE DISTRICT	4
LEASE/POTENTIAL AREA MAP OF THE DISTRICT	5

PLATE NO- 1

INDEX MAP

ODISHA

PLATE NO- 2

MAP SHOWING THE TAHASILS OF CUTTACK DISTRICT

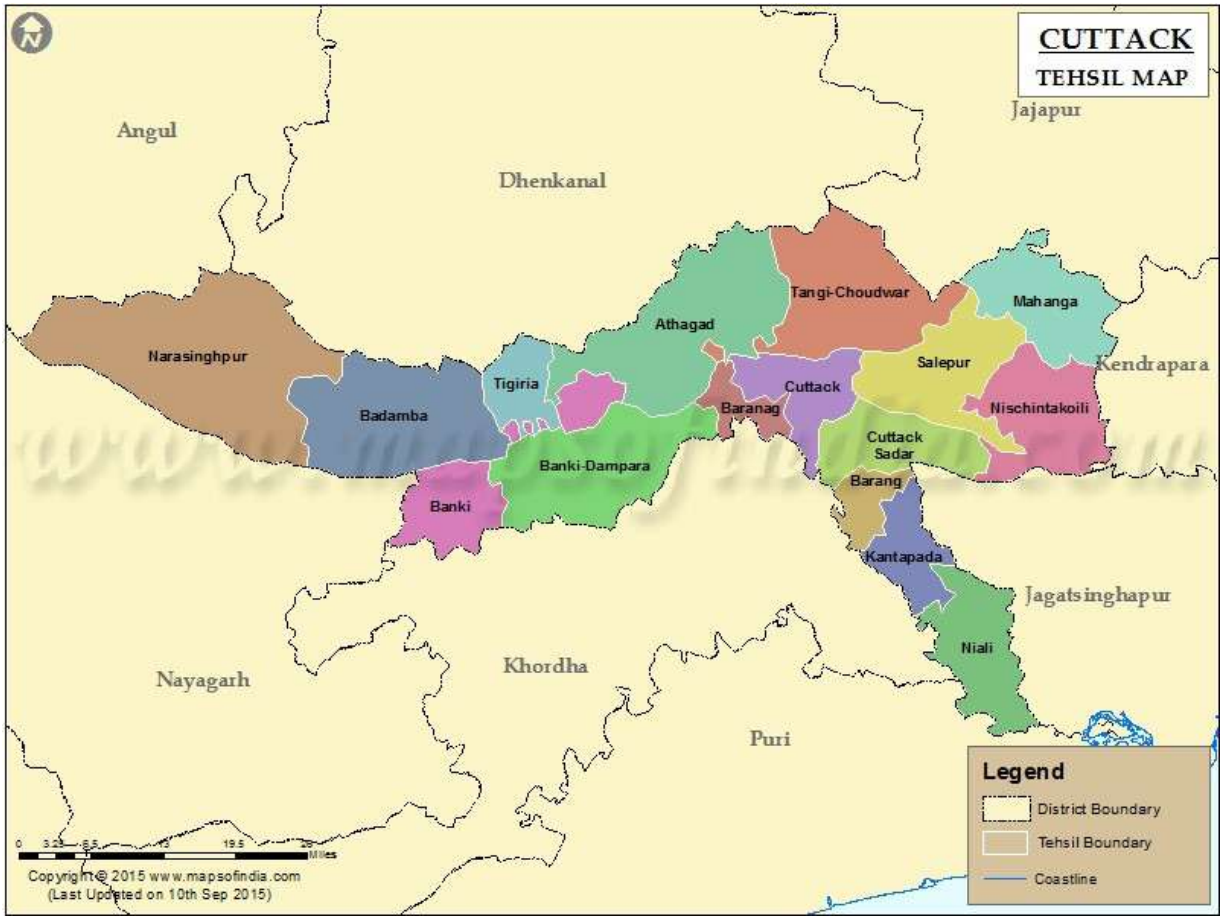
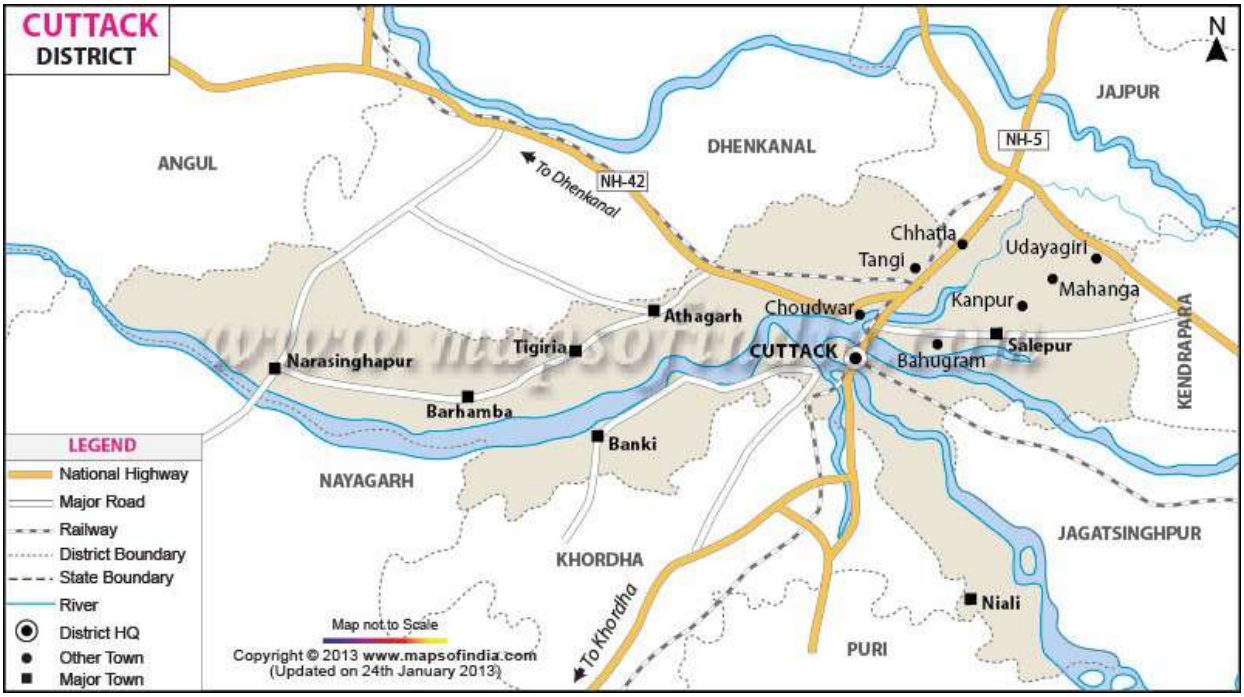


PLATE NO- 3

MAP SHOWING THE MAJOR ROADS OF CUTTACK 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 Cuttack district for 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 road metal/building stone mining locations, future potential areas and overview of road metal 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 is 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. 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

Cuttack District is one of the oldest districts of Odisha. It is an important city and district headquarters. Cuttack, which lends its name to the district, is known as the business capital of Odisha. The word Cuttack derives its name from the anglicized sanskrit word Kataka, which has two meanings- one being military camp and the other being the seat of government, protected by the army. Literally, it also means the fort, referring to the ancient Barabati Fort, around which the city developed.

Cuttack district is located in the eastern part of Odisha state. It is bounded by latitude 20^0 03' to 20^0 40' N and longitude 84^0 5' - 86^0 20'E. It covers an area of 3628 sq. km. Angul, Dhenkanal and Jajpur districts are the neighboring districts to the north, Kendrapara and jagatsinghpur districts are located in the eastern side. Puri and Khordha districts bound the south side while Nayagarh district is at the west of Cuttack district.

Western and north western part of this district is occupied by Archaean hilly terrain intervened by narrow valleys. Maximum height is 687 m. From west to east the

district is gently sloping towards east, occupied by plainland and drained by Mahanadi river, its tributaries and distributaries. At the northern boundary a narrow fringe is occupied by upland comprising khondalite group of rocks. In Cuttack district Mahanadi river, its tributaries and distributaries constitute the drainage system. Cuttack town is located at the vertex of Mahandi delta, from where distributaries like birupa, Chitrotpala, Nuna, Sarua and Kuakhai, etc branch away.

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally (vi) present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

As far as specified minor mineral is concerned, the district is bestowed with best quality fireclay and dimension stone deposits. Fireclay deposits are located around Talabasta village in Dampada tahasi and dimension stone (khondalite) occurrences are confined to the Narasinghpur and Athagad tahasils. Due to Chandaka wildlife sanctuary, all fireclay concessions are temporaily stopped at the moment. Although one ML for dimension stone has been granted in Narasinghpur tahasil is yet to start its operation.

Apart from these specified minor minerals river sand and road metal occurrences are there within the district. Being a coastal district the river basins are much wider and the sand sources are very much suitable for construction purposes. The road metal deposits are spread over tahasils like Athagad, Tigiria, Badamba & Narasinghpur. As the rocks are fractured and jointed these are not suitable for decorative purpose and hence used as building stone.

3. GENERAL PROFILE

Geographical position	Longitude -84^0 58' to 86^0 20' E Latitude- 20^0 03' to 20^0 40' N

Area & Population	Cuttack city is flanked by Mahanadi river on the north and Kathajodi river on the south. Covering a geographical area of 3932 sq K.Ms as per 2011 census. total population of the district is 2624470 which consists of 1352760 (Male) and 1271710 (Female). The population density of the district is 667 per Sq. Km. and the Literacy Rate is 85.5 percent. Sex ratio of the district is 940 female per 1000 male.. Cuttack district is divided into three Sub-divisions namely: Cuttack, Athagarh and Banki. It has 15 Tahasils 14 Blocks, one Municipal Corporation, 373 Gram Panchayats & 1950 villages. Established as a Municipality in the year 1876, Cuttack City became the Municipal Corporation during in 1994. There are Two NACs like Athagarh & Banki and one Municipality i.e. Choudwar Municipality. Cuttack has 9 Assembly Constituencies. 87-Baramba, 88-Banki, 89-Athagarh, 90-Barabati-Cuttack,91-Chudwar-Cuttack, 92-Niali, 93-Cuttack Sadar,94-Salepur & 95-Mahanga.
Climate	The climate condition of 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
Industry & Mining	With limited industrialization, the people of this District depend upon agriculture as their main source of livelihood, with about 76 percentage of the population being dependent on it. Agriculture in this District is sustained by the numerous rivers and canals flowing through it. Rice, pulses, oil seeds, jute, sugarcane, coconut and turmeric are the major crops grown here. This District is a major exporter of cash crops, which in turn contributes immensely towards its economic growth. A number of reforms have been implemented in this agricultural sector by the government. Example of some of these reforms are broad basing of agriculture & allied sectors by bringing

	stake holders to a common platform and empowering farmers' organization & utilizing farmers' input into programme planning and resource allocations etc. National Rice Research Institute (NRRI) located at Bidyadharpur village on the Cuttack-Paradeep Road,is one of the premier national research institute under the Indian Council of Agricultural Research. Among other industries, the District has a rich tradition of handicraft and cottage industries. The District is famous for its silver filigree works. Horn works, Patta Chitra, Dokra Casting, Terra Cota, Wood Carving, Art Leather and Brass/Bell Metal works are also quite evolved here. The District also generates substantial revenues from the exports of these handicraft products. The presence of a number of handicraft cooperatives and handicraft training institutes gives a boost to this handicraft industry. Silver filigree work of Cuttack city attracts the visitors from near and abroad. Among others wood carving work is mostly practised in the Cuttack town as well as in Salipur Block. Banki-Dampada and Jilinda Narsinghpur is famous for cane and Bamboo work. Terracotta work in Banki and Jute craft in Nischintkoili and Salipur Block is famous. Dhokra casting in Baramba Narsinghpur. Bhatimunda of Tangi Choudwar is famous for Brass and Bell Metal. Mahanga is known for stone carving. Applique work is also followed as occupation in Banki as well as in Cuttack City. Baranga is for art leather. Athagarh is famous for Patta Chitta work and Palm leaf products of Cuttack Sadar Block is famous. Artisans do Jarimali works and also horn works in Cuttack Town too. There are a number of other large and medium industries functioning in this District as well. Some of the prominent among them are Indian Metals and Ferro Alloys (IMFA), Paradeep Oxygen and Odisha Magnetics etc. The micro

	and small industries functioning here are chemical based, textile based, leather based or any other category based. The most important aspect as regards the industrial growth of the District is the presence of industrial estates.Many enterprises are also in the pipeline, prominent among them being Odisha Cement Ltd, Tata Power, Visa Power, Nilachal Power, Arati Steel etc. The district is also important for mining of minerals like decorative stone (Khondalite), building stone & earth.
Tourist Places	Tourism of Cuttack District occupies a profound place in the State of Odisha. The ruins of Barabati Fort with its moat and gate and the earthen mounded of the nine-storied palace of the Ganga dynasty lie on the bank of the river Mahanadi as the silent witness of the vicissitudes of Odishan history. Another item of interest is the Barabati stadium adjacent to the fort. The stadium with its impressive structures covers an area of twenty-five acres and affords sitting capacity for thirty-five thousand persons. Its delightful soft green turn hums almost daily with programmes of sport events and cultural functions. The installation of Flood light system is another attraction of Barabati Stadium. Nearly is the Jawaharlal Nehru Air-conditioned Indoor Stadium having a sitting capacity for 6,000 person. Goddess Katak Chandi and Gadachandi are presiding deities of Cuttack City. Besides there are many Hindu temples we find many Musjids, Churches, Jain temples, Gurudwara in Cuttack City. Surrounded by the holy river Mahanadi , Kathajodi, it is the scenic beauty of water at Jobra Bride, Mahanadi Bridge and Naraj Bridge which attracts the Tourists. The famous Ansupa lake coming under Banki Sub-Division

	in opposite side of Banki And Mahanadi, is a source of attraction to the tourists. Though it is a small, a picturesque freshwater lake that offers asylum to migratory birds in winter. The water spread is ideal for fishing and boating. All effort has been taken by Tourism department with regard to eco tourism in Ansupa. Since last few years Anshupa Mahotsav and Pallishree Mela is being organised with support of District administration and local people to promote tourism and development of Ansupa. Banki, which is situated at a distance of 52 Kms from Cuttack and also about 82 KMs from near by airport Bhubaneswar is the nearest airport is famous for Sakti Pitha "Goddess Charchika". There are also the famous Ramnath Deva and Singhanath Dev Temples which are situated at Baideswar of Banki Sub Division and is about 18 KMs from Banki. A picturesque island in Mahanadi, the place named after its is the presiding deity Lord Sree Dhabaleswar(Shiva) is also a great source of attraction to devotees as well as tourist. The enchanting water spares of Mahandi her provie ample opportunities for boaring. There is a hanging bridge connecting the island from its northern side to Mancheswar. One can go From Cuttack to Mancheswar via Choudwar from Cuttack covering about 30kms by taxi or auto. From the northern side of Cuttack boats ply on the Mahanadi river straight to the island of Dhabaleswar, Maa Bhattarika Sakti Pitha of Badamba, Sri Sri Singhanath Dev Pitha Baramba, in the Sri Sri Champanath Temple at Champeswar, Narsinghpur, Maa Mahakali Temple of Kharod, Baramba, Maa Pragala Pitha, Baramba, Sri Sri Singhanath dev Pitha, Sri Sri Radha Gobinda Dev Temple of Athagarh are major source of attraction for tourists. Coming to Cuttack Sadar Sub Division one can find the

	Famous Madhab Temple and Sobhaneswar Temple in Niali, Sri Sri Achutananda Pitha of Nishcintkoili, Sri Sri Gangeswar Mahadev Temple at Dharmagatpur, Salipur, Sri Sri Baladevjew and Sri Sri Hanuman temple of Umar, Mahanga , Sri Sri Harachandi Temple at Nishcintkoili, Dhakulei Pitha of Pratap Nagari and Sri Sri Paramhansha Mahadev Temple at Cuttack Sadar Block are some of the places of tourism and Cultural importance in Cuttack District. Situtated on the Origin of river Kathajori, a tributary of Mahanadi, gives panaromic view of the vast expanse of the river Mahanadi. There are many Buddhist images found. The place is frequented by devotees offereing prayers at Lord Sidheswar. This is also a beautiful picnic spot. The Odisha Maritime Museum, at Jobra now has been a source of attraction for the tourists, where one can find the show case of our glorious past of maritime activities, placed in 10 gallaries beautiful aquarium having over 60 aquatic species and4Dimension SFX hall which can accommodate 48 persons.
Education	Secondary Board High School, Ravenshaw University, Ravenshaw Collegiate School,SCB Medical College, National Law University (NLU) , Shri Shri University, Madhusudan Law College are some of the premier educational institutions of the District. It has also a number of technical institutes like Bhubanananda Odisha School of Engineering (BOSE), IPSAR, Institute of Textile Technology (ITT),) etc. National Institute of Rehabilitation and Training (NIRTAR), Regional Spinal Injury Centre (RSIC) and Acharya Harihar Regional Cancer Research Centre (AHRCRC) are the pioneer research institutes functioning here. Netaji Subash Chandra Bose, Utkal Gourav Madhusudan Das, Karma Veera Gouri Shankar Ray, Dr. Radhanath Rath, Dr. Harekrushna Mahatab, Biju patnaik,

	Pyarimohan Acharya were some of the prominent personalities this District who have earned name and fame in world abroad due to their noble did for their contribution to Odisha as well as for our Country.
Health	The medical facilities are provided by different agencies like Govt., Private individuals and voluntary organizations in the district. There are 97 nos. of the govt. Allopathic medical institutions with 768 beds facilities, 20 nos. of Homoeopathic dispensaries and 27 nos. of Ayurvedic dispensaries in the district.

4. GEOLOGY

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

Upper Gondwana formation, covering an area of approximately 1100 sq km occupies either side of river Mahanadi. The principal lithological units representing Gondwanas are sandstone of various grain size, colour 7 composition, Red shale, silt stone, clay and conglomerate.

Cuttack district comprises rocks from Archaean to Late Holocene age, distributed more or less from west to east. Eastern Ghat Supergroup forms the oldest suit of rocks in this area. It occupies western high land and can be classified into Khondalite and Charnockite group. Khondalite group contains quartz-feldspar-garnet-sillimanite graphite schist gneiss and granetiferous quartzite. Charnockite group comprises acid to intermediate charnockite, basic charnockite and pyroxene granulite.

Gondwana Supergroup is represented by Athgarh formation which occupies patches in central and southern part of this district. It contains sandstone,

conglomerate, shale and clay. Laterite and latosol of Bolgarh formation occupies northern part of this district with fringe of charnockite at its northern boundary. Other formations in descending antiquity are Kaimundi, Brahmani, Bankigarh and present day deposits. Brahmani formation contains residual soil of Pleistocene to Holocene age. Kaimundi formation comprises caliche bearing greyish white clay. Bankigarh formation includes upper and lower deltaic facies represented by brownish silty clay and black clay. Present day deposits contain sand to silt in flood plains, point bars and meander scrolls.

STRATIGRAPHY:

Age	Formation	Lithology
Late Holocene	Present day coastal/flood plain deposit	Sand & Silt (point & lateral bars & meander scrolls)
Middle to Late Holocene	Bankigarh	Black Clay (Lower Deltaic Facies)
		Brownish Silty Clay (Upper Deltaic Facies)
Pleistocene to Holocene	Brahmani/ Mahanadi	Residual Soil and Alluvium
Late Pleistocene to Early Holocene	Kaimundi	Clay with calcareous concretions
Pleistocene	Bolgarh	Laterite/ Latosol (Insitu)
Jurassic to Cretaceous	Athagarh	Sandstone, Shale
Archaean		Granite gneiss, augen gneiss, garnetiferous granite gneiss, granetiferous leucogranite/ leptynite
		Acid to intermediate charnockite/ Basic charnockite. Pyroxene granulite
		Quartz-Feldspar-Garnet-Sillimanite ± Graphite Schist/ Gneiss

5. DRAINAGE AND IRRIGATION PATTERN.

The drainage of the district is mainly controlled by rivers like Mahanadi, Kathajodi, Kuakhai, Birupa, Chitraptala, Sidua, Luna and Devi.

During the year 2013-14, it is reported by District Agriculture Officer that the irrigation potential created during Kharif and Rabi are 101740 hectares and 48370 hectares respectively from all sources.

6. LANDUSE PATTERN

Sl No	Landuse	Area in '000Ha
1	Forest Area	36
2	Misc. Tree & Groves	54
3	Permanent Pasture	11
4	Culturable Waste	10
5	Land Put to Non Agril Use	83
6	Barren & Unculturable Land	9
7	Current Fallow	31
8	Other Fallow	1
9	Net Area Sown	157
10	Mining	1
	Geographical Area	393

7. SURFACE WATER & GROUND WATER SCENARIO

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

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

Depth of water level (mbgl)/ Period	April	August	November	January
Minimum	0.66	0.26	0.37	0.5

Maximum	10.5	7.20	6.6	8.2

8. RAINFALL & CLIMATIC CONDITION

The district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of July and continues till end of October. The temperature goes as high as up to 45^0C in the summer and up to 7^0-8^0 C during peak winter.

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

MONTH – WISE RAINFALL (mm) DATA OF CUTTACK DISTRICT (LAST 4 YEARS)													
Year/ Month	**April**	**May**	**June**	**July**	**August**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**March**	**Total**
15-16	72.2	14.7	135.2	225.1	252.9	198.9	43.3	4.8	3.6	0.6	3.5	9.2	**964**
16-17	0.7	87.9	138.64	262.83	291.25	299.37	75.9	15.4	0	0.7	0	52.7	**1225.39**
17-18	10.26	17.58	164.93	402.23	313.31	239.07	249.3	59.96	20.02	0	0	0	**1476.66**
18-19	51.89	136.37	162.23	577.66	296.79	333.66	234	2	17.02	11	8.6	11.8	**1841.02**
Avg.	**33.8**	**64.1**	**150.3**	**367.0**	**288.6**	**267.8**	**150.6**	**20.0**	**10.2**	**3.1**	**3.0**	**18.4**	**1376.8**

9. DETAILS OF MINING LEASES OF ROAD METAL

Attached as Annexure I

10. DETAILS OF ROYALTY COLLECTED

Year-wise Calculation of Royalty (Rs) of Road metal

Sl.No.	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Cuttack Sadar	0	0	0	0
2	Baranga	0	0	0	0
3	Tangi - Choudwar	0	0	0	0
4	Salipur	0	0	0	0
5	Nischintakoili	0	0	0	0
6	Mahanga	0	0	0	0
7	Kishorenagar	0	0	0	0
8	Niali	0	0	0	0
9	Kantapada	0	0	0	0
10	Athagarh	0	0	559176	0
11	Tigiria	0	1013000	1525050	0
12	Badamba	0	214000	0	0
13	Narasinghpur	357886	388328	421124	109545
14	Banki	0	0	0	0
15	Dompada	0	0	0	0
TOTAL		**357886**	**1615328**	**2505350**	**109545**

11. DETAILS OF PRODUCTION OF MINOR MINERAL

Yearwise Production of Road metal in cum

Sl.No.	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Cuttack Sadar	0	0	0	
2	Baranga	0	0	0	0
3	Tangi - Choudwar	0	0	0	0
4	Salipur	0	0	0	0
5	Nischintakoili	0	0	0	0
6	Mahanga	0	0	0	0
7	Kishorenagar	0	0	0	0
8	Niali	0	0	0	0
9	Kantapada	0	0	0	0
10	Athagarh	0	3216	3216	3216
11	Tigiria	7000	9050	9100	9100
12	Badamba	0	2000	0	0
13	Narasinghpur	1201	1332	1485	1712
14	Banki	0	0	0	0
15	Dompada	0	0	0	0
TOTAL		**605759**	**887512**	**819460.5**	**384772.5**

12. MINERAL MAP OF THE DISTRICT

Attached as Plate No 4.

13. LIST OF LOI HOLDERS ALONG WITH VALIDITY

Not applicable.

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of road metal/buildingstone/blackstone/white stone is 378512 cum which may increase after detail investigation.

Details of the potential areas submitted as Annexure II.

15. QUALITY/GRADE OF MINERAL

Road metal/building metal of the district are very much suitable for various construction purposes after its crushing and screening. The in-situ rocks are fractured making these unsuitable for decorative purpose.

16. USE OF MINERAL

Road metal/building metal of the district are used mainly for various construction purposes like road making, concrete making, dams etc.

17. DEMAND & SUPPLY OF THE MINERAL

The demand for building/road metal is huge in the district approximately to the tune of 10,00,000 cum per annum. The supply from the district is very scanty. The balance is procured from adjoining districts of Khordha, Jajpur & Dhenkanal.

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

Attached as Plate No 5.

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

Not applicable

20. DETAILS OF ECO-SENSITIVE AREA

Kapilash Wildlife Sanctuary in the District of Dhenkanal has been notified by MoEF & CC, Govt. of India on date 17th June, 2015. Some portion of the Cuttack District under Cuttack Forest Division included in the Eco-Sensitive Zone of the Kapilash Wildlife Sanctuary. There is only one village i.e, Banjhiama is coming within the Eco-sensitive Zone. The Lattitude & Longitude of the village Banjhiama is N 20.37'.2.54'' E 85.52'.41.92''.

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

Activities attributed to Mining:-

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

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

Impact on Ambient Air

Mining operation are carried out by opencast manual, semi mechanized/ mechanized methods generating dust particles due to various activities likes,

excavation, loading, handling of mineral and transportation. The air quality in the mining areas depends upon the nature and concentration of emissions and meteorological conditions.

The major air pollutants due to mining activities include:-

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

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

Water Impact

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

Noise Impact

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

Impact on Land environment

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

Impact on Flora & Fauna

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

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

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

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

Air

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

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust particles.
- Controlled blasting techniques shall be adopted.
- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be undertaken.
- Transport of materials in trucks are to be covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine area.
- Information on wind diction and meteorology are to be considered during planning, so that pollutants, which cannot be fully suppressed by engineering techniques, will be prevented from reaching the nearby agricultural land, if any.
- Comprehensive greenbelt around overburden dumps and periphery of the mining projects/clusters has to be carried out to reduce to fugitive dust transmission from the project area in order to create clean & healthy environment.

Water

- Construction of garland drains and settling tanks to divert surface run –off of the mining area to the natural drainage.
- Construction of checks dams/ gully plugs at strategic places to arrest silt wash off from broken up area.

- Retaining walls with weep hole are to be constructed around the mine boundaries to arrest silt wash off.
- The mined out pits shall be converted in to the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Periodic analysis of mine pit water and ground water quality in nearby villages are to be undertaken.
- Domestic sewage from site office & urinals/latrines provided within ML/QL areas is to be discharged in septic tank followed by soak pits.

NOISE

- Periodic maintenance of machineries, equipments shall be ensured to keep the noise generated within acceptable limit.
- Development of thick green belt around mining/cluster area, haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities like blasting, excavtion site etc. Worker and operators at work sites will be provided with earmuffs.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise related effects.
- Periodic noise monitoring at locations within the mining area and nearby habitations to assess efficacy of adopted control measures.
- During blasting optimum spacing, burden and charging of holes will be made under the supervision of competent qualified mines foreman, mate etc.

Biological Environment

- Development of green belt/gap filling saplings in the safety barrier left around the quarry area/ cluster area.
- Carrying out thick greenbelt with local flora species predominantly with long canopy laves on the inactive mined out upper benches.
- Development of dense poly culture plantation using local floral species in the mining areas at conceptual stage if the mine is not continued much below the general ground level.

- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.

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

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

1. If, substantial amount of waste is there, the exhausted quarry can be fully or partly backfilled using the stored waste. The backfilled areas are to be brought under plantation of local species.
2. If the generation of waste is much less as in the case of minor mineral mining, the exhausted quarries can be reclaimed by
    a. Plantation on the broken up surface if the depth of quarry is not much below the surrounding surface level.
    b. Converted to water reservoir after stabilization of the slopes if the exhausted quarry continues much below the surrounding surface level. It is preferred to cordon the water reservoir either through wire fencing or retaning wall with plantation from the safety point of view.

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

24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

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

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

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

General responsibilities of employees' during an emergency:

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

Co-ordination with local authorities:

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

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

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

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

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

There is no case of Silicosis found in the district.

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

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

27. ANY OTHER INFORMATION

Nil

Already leased out

Annexure I

Sl. No.	Name Of Tahasil	Name of Minor Mineral	Name of village/Date of registration of lease	Captive or Non-captive	Location of Resource (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	Athagarh	Black stone	Baidehipur Black Stone Quary	NC	Khata 79 Plot 296 Area. Ac.4.50dec Lat- 20˚28'31.8'' N to 20˚28'37.2'' N Lon- 85˚34'55.5'' E to 85˚35'3.5'' E	0.18Km	0.1Km	18575.07sqm	16070cum
2	Tigiria	Vejia Digi Mundia Black stone quarry	Vejia dated-20/01/2017	NC	Khata No 903, Plot No 3378 Lat: N 20^0 27'50.9" Long: E $85^0$28'59.0"	80 metre	40 metre	4046.856	5520
3	Tigiria	Vejia Jhinka Black stone quarry	Vejia dated-20/03/2017	NC	Khata No 903 Plot No 2847 Lat: N 20^0 28'06.7" Long: E $85^0$27'48.9"	110 metre	60 metre	11290.728	38000
4	Baramba	Nizigarh Stone Quarry	Nizigarh (Baramba)	NC	Bhalu mundia Khata-961, pl.2158	0.2959 km, length 295.9 m	0.1959 km 195.9 m	59691.126	10000 cum
5	Barambₐ	Budhapanka Stone Quarry	Budhapanka	NC	Khata No-713 Plot No.164,334, 1625	0.2739 km Length 273.9 m	0.1283 km 128.3 m	26425.969	123714 cum
6	Narasinghpur	Stone(Road Metal)	Kandhakanalapada DT.10-AUG-2016	NC	Latitude- 20026’42.1’’N to 20026’48.0’’N Longitude- 850	0.317	0.092	32374.90	3150

					04’48.4’’E to 850 05’ 0’’E Khata No - 51 Plot No - 01				
7	Narasinghpur	Stone(Road Metal)	Chatarapada DT.10-AUG-2016	**NC**	Latitude- 200 30’ 46.6’’N to 200 30’ 49.3’’N Longitude- 850 06’ 25.4’’ E to 850 06’ 27.8’’E Khata No - 89 Plot No - 451	0.08	0.03	2428.11	4481

LOI ISSUED/POTENTIAL AREAS OF ROAD METAL/ BLACKSTONE/WHITESTONE IN KHORDHA DISTRICT Annexure II

Sl. No.	Name Of Tahasil	Name of village	Name of Minor Mineral and Area of Sairat (Ha)	Location of the Source (Total Hillock) 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)	Average height of potential patch (in m)	Mineable mineral potential (in cum)
A	B	C	D	E	F	G	H
	SOURCES TO BE REAUCTIONED AFTER COMPLETION OF PRESENT LEASE PERIOD						
1	Athagarh	Baidehipur	Black Stone	Khata 79 Plot 296 Area. Ac.4.50dec Lat- 20˚28'31.8'' N to 20˚28'37.2'' N Lon- 85˚34'55.5'' E to 85˚35'3.5'' E	18575.07sqm		16070cum
2	Tigiria	Vejia	Vejia Digi Mundia Black stone quarry	Khata No 903, Plot No 3378 Lat: N 20^0 27'50.9" Long: E $85^0$28'59.0"	4046.856		5520
3	Tigiria	Vejia	Jhinka Black stone quarry	Khata No 903 Plot No 2847 Lat: N 20^0 28'06.7" Long: E $85^0$27'48.9"	11290.728		38000
4	Baramba	Nizigarh	Nizigarh Baramba) Stone Quarry	Bhalu mundia Khata-961, pl.2158	59691.126		10000 cum
5	Baramba	Budhapanka	Budhapanka Stone Quarry	Khata No-713 Plot No.164,334, 1625	26425.969		123714 cum
6	Narasinghpur	Kandhakanal apada	Stone(Road Metal)	Latitude- 20026'42.1''N to 20026'48.0''N Longitude- 850 04'48.4''E to 850 05' 0''E Khata No - 51 Plot No - 01	32374.90		3150
7	Narasinghpur	Stone(Road Metal)	Chatarapada	Latitude- 200 30' 46.6''N to 200 30' 49.3''N Longitude- 850 06' 25.4'' E to 850 06' 27.8''E	2428.11		4481

				Khata No - 89 Plot No - 451			
SOURCES TO BE INDUCTED AS NEW SOURCES							
1	Tigiria	Vejia	Vejia Baijhali Black stone Quarry , Ac 1.27 dec	Khata no 902, Plot No 1174/3887 Lat: N 200 27'57.5" Long: E 85028'24.5"	5139.5	63.86	9400
2	Tigiria	Vejia	Vejia Baurani Baladabandha Black stone quarry, Vejia , Ac 5.36 dec	Khata No 905, Plot No 3138 Lat: N 200 28'18.9" Long: E 85028'40.1"	21691.14	3m Depth	15800
3	Banki	Brahmapura	Stonequarry	KhataNo-886,Plot No-2518	9653sqm		60000
4	Banki	Panikorada	Stonequarry	Khata No-201,plot No-30	11938 sqm		60000
5	Banki	Gholapur	Stonequarry	Khata No-814,plot-No-594	20000 sqm		60000
6	Damapada	Dulanapur	Black Mental Ac.3.70	Khata No. 957 Plot no.2173	14970	6	18000
7	Damapada	Hadisahi	Black Mental Ac.1.00	Khata No. 886 Plot no.16207/2978	4040	4	6000

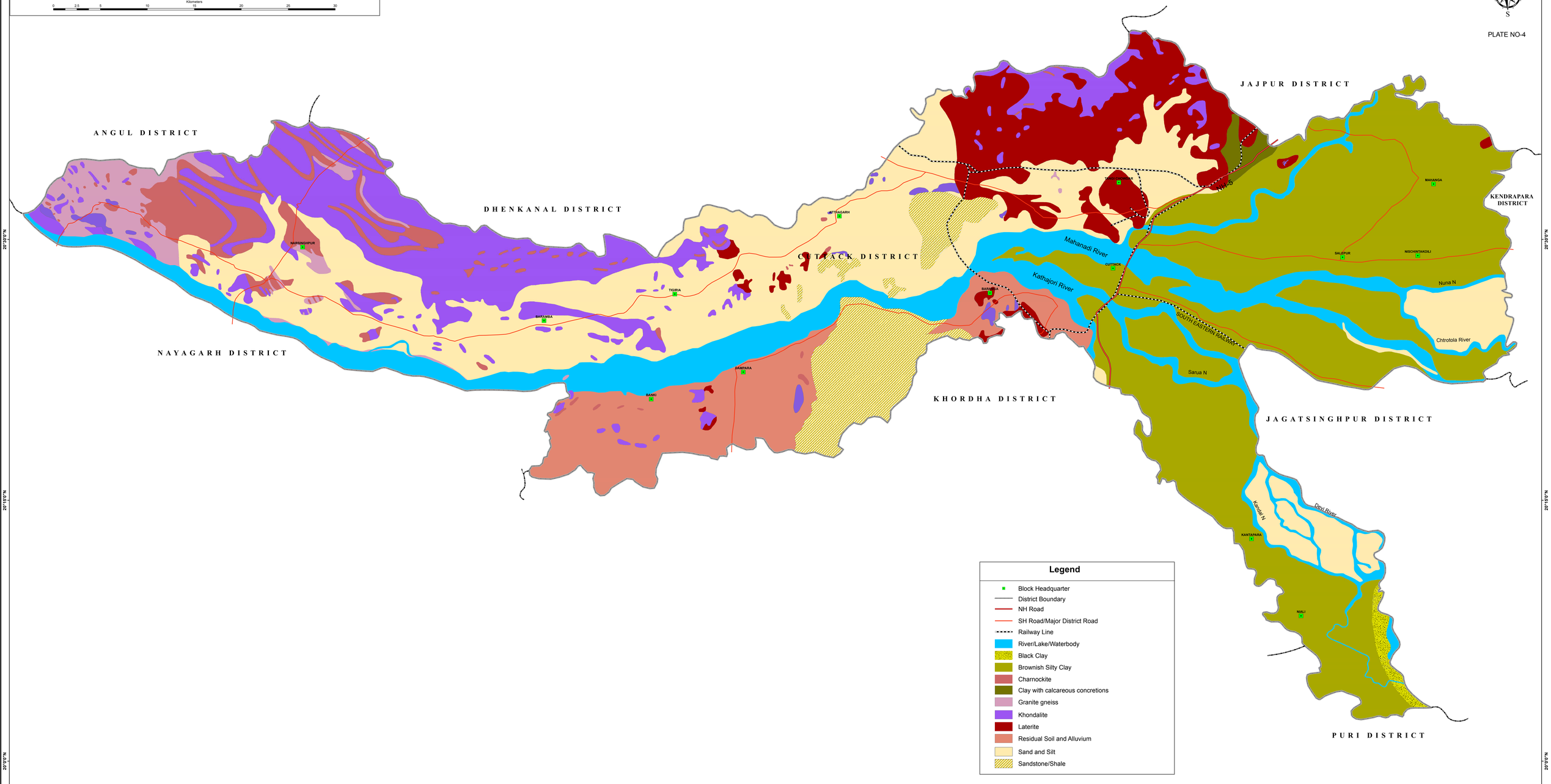
MINERAL MAP OF CUTTACK DISTRICT

SCALE :- 1:110,000

Kilometers

0 2.5 5 10 15 20 25 30

PLATE NO-4



Legend

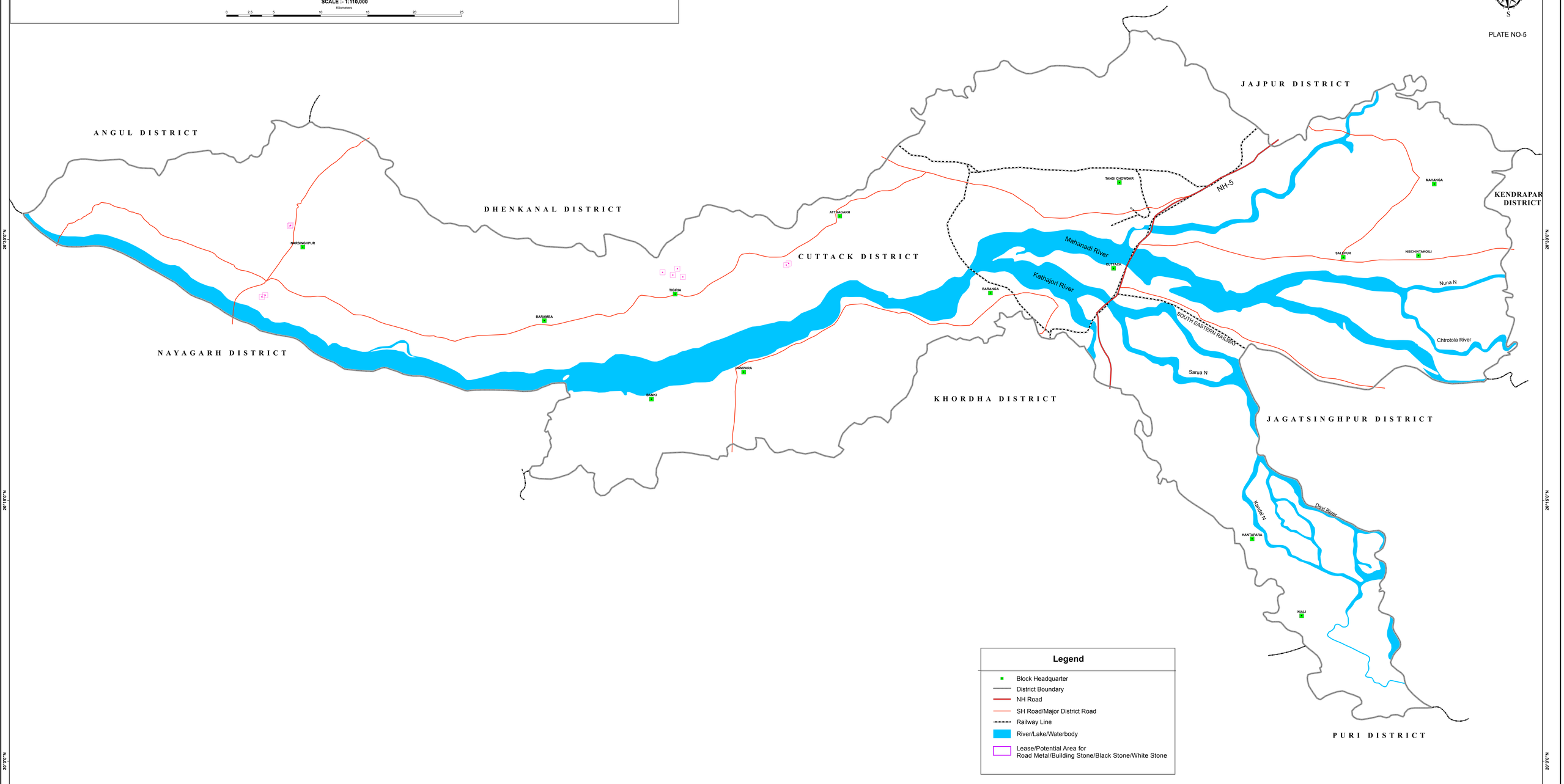
- Block Headquarter
- District Boundary
- NH Road
- SH Road/Major District Road
- Railway Line
- River/Lake/Waterbody
- Black Clay
- Brownish Silty Clay
- Charnockite
- Clay with calcareous concretions
- Granite gneiss
- Khondalite
- Laterite
- Residual Soil and Alluvium
- Sand and Silt
- Sandstone/Shale

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

SCALE :- 1:110,000

0 2.5 5 10 15 20 25
Kilometers

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

DISTRICT SURVEY REPORT (DSR)

OF
CUTTACK DISTRICT, ODISHA
FOR
BRICK EARTH

(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, CUTTACK

CONTENT

25	DETAILS OF THE OCCUPATION HEALTH ISSUES IN THE DISTRICT. (LAST FIVE- YEAR DATA OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED)	
26	PLANTATION OF GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT	
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PLATE NO- 1

INDEX MAP

ODISHA

PLATE NO- 2

MAP SHOWING THE TAHASILS OF CUTTACK DISTRICT

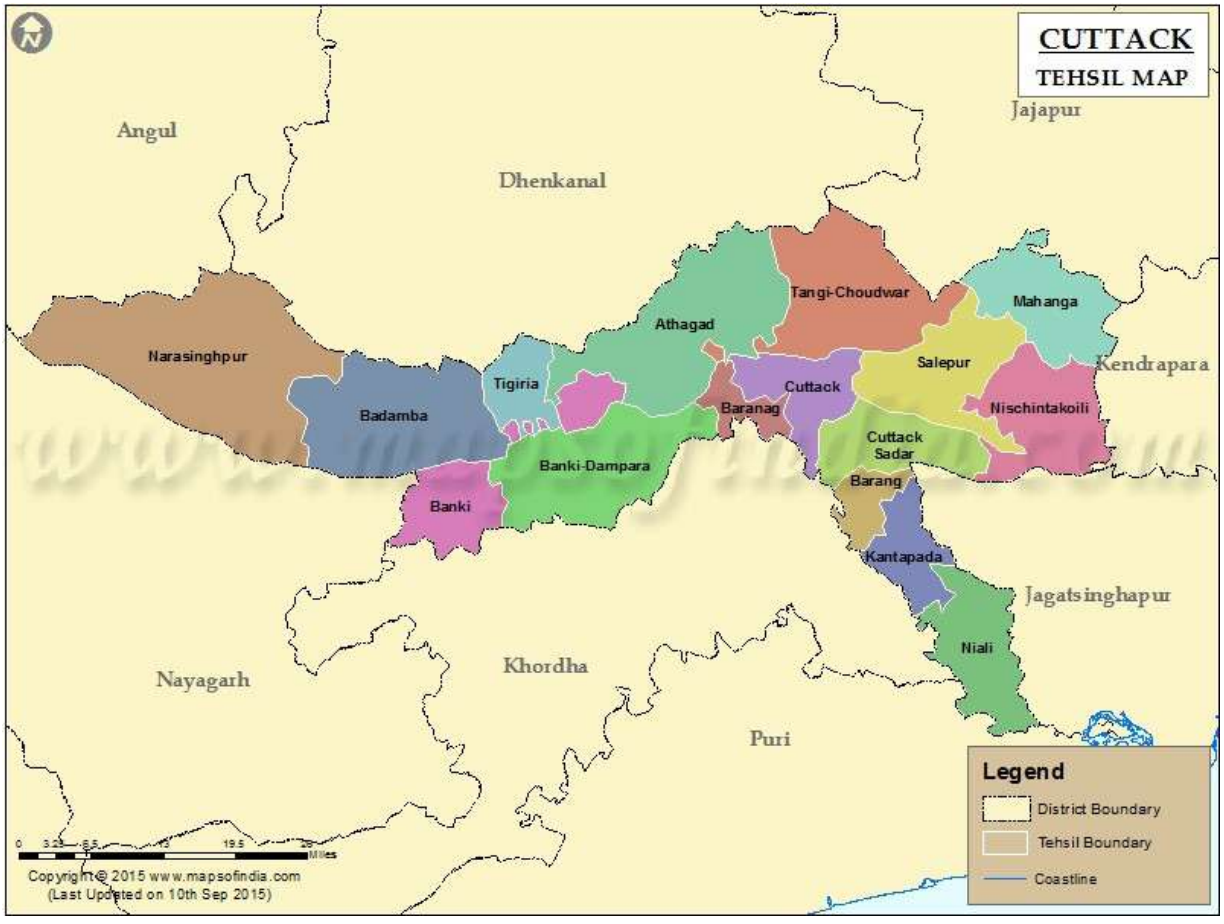
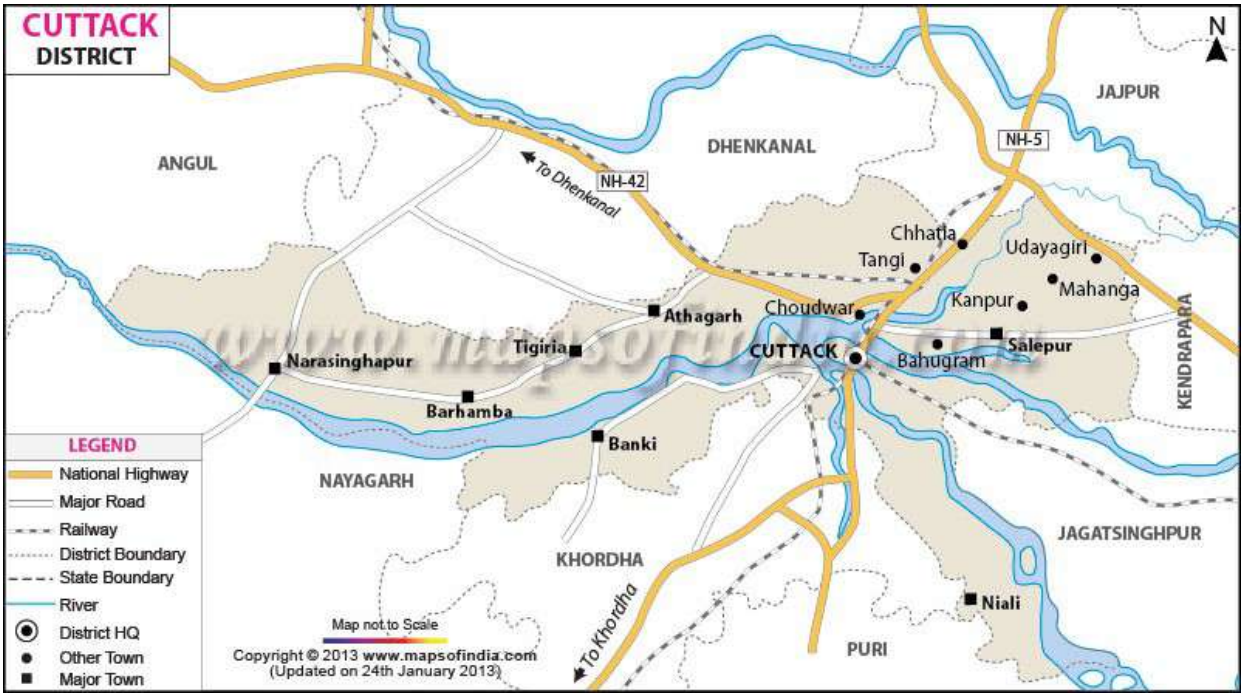


PLATE NO- 3

MAP SHOWING THE MAJOR ROADS OF CUTTACK 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 Cuttack district for 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 reported brick earth mining locations, future potential areas and overview of brick earth 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 is 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. 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

Cuttack District is one of the oldest districts of Odisha. It is an important city and district headquarters. Cuttack, which lends its name to the district, is known as the business capital of Odisha. The word Cuttack derives its name from the anglicized sanskrit word Kataka, which has two meanings- one being military camp and the other being the seat of government, protected by the army. Literally, it also means the fort, referring to the ancient Barabati Fort, around which the city developed.

Cuttack district is located in the eastern part of Odisha state. It is bounded by latitude 20^0 03' to 20^0 40' N and longitude 84^0 5' - 86^0 20'E. It covers an area of 3628 sq. km. Angul, Dhenkanal and Jajpur districts are the neighboring districts to the north, Kendrapara and jagatsinghpur districts are located in the eastern side. Puri and Khordha districts bound the south side while Nayagarh district is at the west of Cuttack district.

Western and north western part of this district is occupied by Archaean hilly terrain intervened by narrow valleys. Maximum height is 687 m. From west to east the

district is gently sloping towards east, occupied by plainland and drained by Mahanadi river, its tributaries and distributaries. At the northern boundary a narrow fringe is occupied by upland comprising khondalite group of rocks. In Cuttack district Mahanadi river, its tributaries and distributaries constitute the drainage system. Cuttack town is located at the vertex of Mahandi delta, from where distributaries like birupa, Chitrotpala, Nuna, Sarua and Kuakhai, etc branch away.

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally (vi) present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

As far as specified minor mineral is concerned, the district is bestowed with best quality fireclay and dimension stone deposits. Fireclay deposits are located around Talabasta village in Dampada tahasi and dimension stone (khondalite) occurrences are confined to the Narasinghpur and Athagad tahasils. Due to Chandaka wildlife sanctuary, all fireclay concessions are temporaily stopped at the moment. Although one ML for dimension stone has been granted in Narasinghpur tahasil is yet to start its operation.

Apart from these specified minor minerals river sand and road metal occurrences are there within the district. Being a coastal district the river basins are much wider and the sand sources are very much suitable for construction purposes. The road metal deposits are spread over tahasils like Athagad, Tigiria, Badamba & Narasinghpur. As the rocks are fractured and jointed these are not suitable for decorative purpose and hence used as building stone.

3. GENERAL PROFILE

Geographical position	Longitude -84^0 58' to 86^0 20' E Latitude- 20^0 03' to 20^0 40' N

Area & Population	Cuttack city is flanked by Mahanadi river on the north and Kathajodi river on the south. Covering a geographical area of 3932 sq K.Ms as per 2011 census. total population of the district is 2624470 which consists of 1352760 (Male) and 1271710 (Female). The population density of the district is 667 per Sq. Km. and the Literacy Rate is 85.5 percent. Sex ratio of the district is 940 female per 1000 male.. Cuttack district is divided into three Sub-divisions namely: Cuttack, Athagarh and Banki. It has 15 Tahasils 14 Blocks, one Municipal Corporation, 373 Gram Panchayats & 1950 villages. Established as a Municipality in the year 1876, Cuttack City became the Municipal Corporation during in 1994. There are Two NACs like Athagarh & Banki and one Municipality i.e. Choudwar Municipality. Cuttack has 9 Assembly Constituencies. 87-Baramba, 88-Banki, 89-Athagarh, 90-Barabati-Cuttack,91-Chudwar-Cuttack, 92-Niali, 93-Cuttack Sadar,94-Salepur & 95-Mahanga.
Climate	The climate condition of 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
Industry & Mining	With limited industrialization, the people of this District depend upon agriculture as their main source of livelihood, with about 76 percentage of the population being dependent on it. Agriculture in this District is sustained by the numerous rivers and canals flowing through it. Rice, pulses, oil seeds, jute, sugarcane, coconut and turmeric are the major crops grown here. This District is a major exporter of cash crops, which in turn contributes immensely towards its economic growth. A number of reforms have been implemented in this agricultural sector by the government. Example of some of these reforms are broad basing of agriculture & allied sectors by bringing

	stake holders to a common platform and empowering farmers' organization & utilizing farmers' input into programme planning and resource allocations etc. National Rice Research Institute (NRRI) located at Bidyadharpur village on the Cuttack-Paradeep Road,is one of the premier national research institute under the Indian Council of Agricultural Research. Among other industries, the District has a rich tradition of handicraft and cottage industries. The District is famous for its silver filigree works. Horn works, Patta Chitra, Dokra Casting, Terra Cota, Wood Carving, Art Leather and Brass/Bell Metal works are also quite evolved here. The District also generates substantial revenues from the exports of these handicraft products. The presence of a number of handicraft cooperatives and handicraft training institutes gives a boost to this handicraft industry. Silver filigree work of Cuttack city attracts the visitors from near and abroad. Among others wood carving work is mostly practised in the Cuttack town as well as in Salipur Block. Banki-Dampada and Jilinda Narsinghpur is famous for cane and Bamboo work. Terracotta work in Banki and Jute craft in Nischintkoili and Salipur Block is famous. Dhokra casting in Baramba Narsinghpur. Bhatimunda of Tangi Choudwar is famous for Brass and Bell Metal. Mahanga is known for stone carving. Applique work is also followed as occupation in Banki as well as in Cuttack City. Baranga is for art leather. Athagarh is famous for Patta Chitta work and Palm leaf products of Cuttack Sadar Block is famous. Artisans do Jarimali works and also horn works in Cuttack Town too. There are a number of other large and medium industries functioning in this District as well. Some of the prominent among them are Indian Metals and Ferro Alloys (IMFA), Paradeep Oxygen and Odisha Magnetics etc. The micro

	and small industries functioning here are chemical based, textile based, leather based or any other category based. The most important aspect as regards the industrial growth of the District is the presence of industrial estates.Many enterprises are also in the pipeline, prominent among them being Odisha Cement Ltd, Tata Power, Visa Power, Nilachal Power, Arati Steel etc. The district is also important for mining of minerals like decorative stone (Khondalite), building stone & earth.
Tourist Places	Tourism of Cuttack District occupies a profound place in the State of Odisha. The ruins of Barabati Fort with its moat and gate and the earthen mounded of the nine-storied palace of the Ganga dynasty lie on the bank of the river Mahanadi as the silent witness of the vicissitudes of Odishan history. Another item of interest is the Barabati stadium adjacent to the fort. The stadium with its impressive structures covers an area of twenty-five acres and affords sitting capacity for thirty-five thousand persons. Its delightful soft green turn hums almost daily with programmes of sport events and cultural functions. The installation of Flood light system is another attraction of Barabati Stadium. Nearly is the Jawaharlal Nehru Air-conditioned Indoor Stadium having a sitting capacity for 6,000 person. Goddess Katak Chandi and Gadachandi are presiding deities of Cuttack City. Besides there are many Hindu temples we find many Musjids, Churches, Jain temples, Gurudwara in Cuttack City. Surrounded by the holy river Mahanadi , Kathajodi, it is the scenic beauty of water at Jobra Bride, Mahanadi Bridge and Naraj Bridge which attracts the Tourists. The famous Ansupa lake coming under Banki Sub-Division

	in opposite side of Banki And Mahanadi, is a source of attraction to the tourists. Though it is a small, a picturesque freshwater lake that offers asylum to migratory birds in winter. The water spread is ideal for fishing and boating. All effort has been taken by Tourism department with regard to eco tourism in Ansupa. Since last few years Anshupa Mahotsav and Pallishree Mela is being organised with support of District administration and local people to promote tourism and development of Ansupa. Banki, which is situated at a distance of 52 Kms from Cuttack and also about 82 KMs from near by airport Bhubaneswar is the nearest airport is famous for Sakti Pitha "Goddess Charchika". There are also the famous Ramnath Deva and Singhanath Dev Temples which are situated at Baideswar of Banki Sub Division and is about 18 KMs from Banki. A picturesque island in Mahanadi, the place named after its is the presiding deity Lord Sree Dhabaleswar(Shiva) is also a great source of attraction to devotees as well as tourist. The enchanting water spares of Mahandi her provie ample opportunities for boaring. There is a hanging bridge connecting the island from its northern side to Mancheswar. One can go From Cuttack to Mancheswar via Choudwar from Cuttack covering about 30kms by taxi or auto. From the northern side of Cuttack boats ply on the Mahanadi river straight to the island of Dhabaleswar, Maa Bhattarika Sakti Pitha of Badamba, Sri Sri Singhanath Dev Pitha Baramba, in the Sri Sri Champanath Temple at Champeswar, Narsinghpur, Maa Mahakali Temple of Kharod, Baramba, Maa Pragala Pitha, Baramba, Sri Sri Singhanath dev Pitha, Sri Sri Radha Gobinda Dev Temple of Athagarh are major source of attraction for tourists. Coming to Cuttack Sadar Sub Division one can find the

	Famous Madhab Temple and Sobhaneswar Temple in Niali, Sri Sri Achutananda Pitha of Nishcintkoili, Sri Sri Gangeswar Mahadev Temple at Dharmagatpur, Salipur, Sri Sri Baladevjew and Sri Sri Hanuman temple of Umar, Mahanga , Sri Sri Harachandi Temple at Nishcintkoili, Dhakulei Pitha of Pratap Nagari and Sri Sri Paramhansha Mahadev Temple at Cuttack Sadar Block are some of the places of tourism and Cultural importance in Cuttack District. Situtated on the Origin of river Kathajori, a tributary of Mahanadi, gives panaromic view of the vast expanse of the river Mahanadi. There are many Buddhist images found. The place is frequented by devotees offereing prayers at Lord Sidheswar. This is also a beautiful picnic spot. The Odisha Maritime Museum, at Jobra now has been a source of attraction for the tourists, where one can find the show case of our glorious past of maritime activities, placed in 10 gallaries beautiful aquarium having over 60 aquatic species and4Dimension SFX hall which can accommodate 48 persons.
Education	Secondary Board High School, Ravenshaw University, Ravenshaw Collegiate School,SCB Medical College, National Law University (NLU) , Shri Shri University, Madhusudan Law College are some of the premier educational institutions of the District. It has also a number of technical institutes like Bhubanananda Odisha School of Engineering (BOSE), IPSAR, Institute of Textile Technology (ITT),) etc. National Institute of Rehabilitation and Training (NIRTAR), Regional Spinal Injury Centre (RSIC) and Acharya Harihar Regional Cancer Research Centre (AHRCRC) are the pioneer research institutes functioning here. Netaji Subash Chandra Bose, Utkal Gourav Madhusudan Das, Karma Veera Gouri Shankar Ray, Dr. Radhanath Rath, Dr. Harekrushna Mahatab, Biju patnaik,

	Pyarimohan Acharya were some of the prominent personalities this District who have earned name and fame in world abroad due to their noble did for their contribution to Odisha as well as for our Country.
Health	The medical facilities are provided by different agencies like Govt., Private individuals and voluntary organizations in the district. There are 97 nos. of the govt. Allopathic medical institutions with 768 beds facilities, 20 nos. of Homoeopathic dispensaries and 27 nos. of Ayurvedic dispensaries in the district.

4. GEOLOGY

Cuttack district comprises six geomorphic surfaces viz. (i) denudational surface (Archaean & Gondwana terrain) (ii) Bolgarh surface (iii) Kaimundi surface (iv) Brahmani surface (v) Bankigarh surface & finally present day surface.

Denudational surfaces (Archaean terrain in the west and narrow fringe at the northern boundary as well as areas occupied by Athgarh formation & Bolgarh formation) are covered by reserve forests. Rest of the surfaces, mainly kaimundi, bankigarh and present day depositional surfaces are extensively cultivated.

Upper Gondwana formation, covering an area of approximately 1100 sq km occupies either side of river Mahanadi. The principal lithological units representing Gondwanas are sandstone of various grain size, colour 7 composition, Red shale, silt stone, clay and conglomerate.

Cuttack district comprises rocks from Archaean to Late Holocene age, distributed more or less from west to east. Eastern Ghat Supergroup forms the oldest suit of rocks in this area. It occupies western high land and can be classified into Khondalite and Charnockite group. Khondalite group contains quartz-feldspar-garnet-sillimanite graphite schist gneiss and granetiferous quartzite. Charnockite group comprises acid to intermediate charnockite, basic charnockite and pyroxene granulite.

Gondwana Supergroup is represented by Athgarh formation which occupies patches in central and southern part of this district. It contains sandstone,

conglomerate, shale and clay. Laterite and latosol of Bolgarh formation occupies northern part of this district with fringe of charnockite at its northern boundary. Other formations in descending antiquity are Kaimundi, Brahmani, Bankigarh and present day deposits. Brahmani formation contains residual soil of Pleistocene to Holocene age. Kaimundi formation comprises caliche bearing greyish white clay. Bankigarh formation includes upper and lower deltaic facies represented by brownish silty clay and black clay. Present day deposits contain sand to silt in flood plains, point bars and meander scrolls.

STRATIGRAPHY:

Age	Formation	Lithology
Late Holocene	Present day coastal/flood plain deposit	Sand & Silt (point & lateral bars & meander scrolls)
Middle to Late Holocene	Bankigarh	Black Clay (Lower Deltaic Facies)
		Brownish Silty Clay (Upper Deltaic Facies)
Pleistocene to Holocene	Brahmani/ Mahanadi	Residual Soil and Alluvium
Late Pleistocene to Early Holocene	Kaimundi	Clay with calcareous concretions
Pleistocene	Bolgarh	Laterite/ Latosol (Insitu)
Jurassic to Cretaceous	Athagarh	Sandstone, Shale
Archaean		Granite gneiss, augen gneiss, garnetiferous granite gneiss, granetiferous leucogranite/ leptynite
		Acid to intermediate charnockite/ Basic charnockite. Pyroxene granulite
		Quartz-Feldspar-Garnet-Sillimanite ± Graphite Schist/ Gneiss

5. DRAINAGE AND IRRIGATION PATTERN.

The drainage of the district is mainly controlled by rivers like Mahanadi, Kathajodi, Kuakhai, Birupa, Chitraptala, Sidua, Luna and Devi.

During the year 2013-14, it is reported by District Agriculture Officer that the irrigation potential created during Kharif and Rabi are 101740 hectares and 48370 hectares respectively from all sources.

6. LANDUSE PATTERN

Sl No	Landuse	Area in '000Ha
1	Forest Area	36
2	Misc. Tree & Groves	54
3	Permanent Pasture	11
4	Culturable Waste	10
5	Land Put to Non Agril Use	83
6	Barren & Unculturable Land	9
7	Current Fallow	31
8	Other Fallow	1
9	Net Area Sown	157
10	Mining	1
	Geographical Area	393

7. SURFACE WATER & GROUND WATER SCENARIO

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

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

Depth of water level (mbgl)/ Period	April	August	November	January
Minimum	0.66	0.26	0.37	0.5

Maximum	10.5	7.20	6.6	8.2

8. RAINFALL & CLIMATIC CONDITION

The district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of July and continues till end of October. The temperature goes as high as up to 45^0C in the summer and up to 7^0-8^0 C during peak winter.

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

MONTH – WISE RAINFALL (mm) DATA OF CUTTACK DISTRICT (LAST 4 YEARS)													
Year/ Month	**April**	**May**	**June**	**July**	**August**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**March**	**Total**
15-16	72.2	14.7	135.2	225.1	252.9	198.9	43.3	4.8	3.6	0.6	3.5	9.2	**964**
16-17	0.7	87.9	138.64	262.83	291.25	299.37	75.9	15.4	0	0.7	0	52.7	**1225.39**
17-18	10.26	17.58	164.93	402.23	313.31	239.07	249.3	59.96	20.02	0	0	0	**1476.66**
18-19	51.89	136.37	162.23	577.66	296.79	333.66	234	2	17.02	11	8.6	11.8	**1841.02**
Avg.	**33.8**	**64.1**	**150.3**	**367.0**	**288.6**	**267.8**	**150.6**	**20.0**	**10.2**	**3.1**	**3.0**	**18.4**	**1376.8**

9. DETAILS OF MINING LEASES OF ROAD METAL

No lease has been executed till date.

10. DETAILS OF ROYALTY COLLECTED

Not applicable.

11. DETAILS OF PRODUCTION OF MINOR MINERAL

Not applicable

12. MINERAL MAP OF THE DISTRICT

Attached as Plate No 4.

13. LIST OF LOI HOLDERS ALONG WITH VALIDITY

Not applicable.

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of road metal/buildingstone/blackstone/white stone is 30691 cum which may increase after detail investigation.

Details of the potential areas submitted as Annexure I.

15. QUALITY/GRADE OF MINERAL

The earth is suitable for making of chimney bricks.

16. USE OF MINERAL

The bricks made up of the earth are used for housing construction purposes.

17. DEMAND & SUPPLY OF THE MINERAL

The demand for brick earth in the district is approximately to the tune of 50,000 cum per annum. This will be made from the potential areas suitable for the purpose.

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

Attached as Plate No 5.

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

Not applicable

20. DETAILS OF ECO-SENSITIVE AREA

Kapilash Wildlife Sanctuary in the District of Dhenkanal has been notified by MoEF & CC, Govt. of India on date 17th June, 2015. Some portion of the Cuttack District under Cuttack Forest Division included in the Eco-Sensitive Zone of the Kapilash Wildlife Sanctuary. There is only one village i.e, Banjhiama is coming within the Eco-sensitive Zone. The Lattitude & Longitude of the village Banjhiama is N 20.37'.2.54'' E 85.52'.41.92''.

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

Activities attributed to Mining:-

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

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

Impact on Ambient Air

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

The major air pollutants due to mining activities include:-

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

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

Water Impact

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

Noise Impact

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

Impact on Land environment

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

Impact on Flora & Fauna

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

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

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

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

Air

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

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust particles.
- Controlled blasting techniques shall be adopted.
- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be undertaken.
- Transport of materials in trucks are to be covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine area.
- Information on wind diction and meteorology are to be considered during planning, so that pollutants, which cannot be fully suppressed by engineering techniques, will be prevented from reaching the nearby agricultural land, if any.
- Comprehensive greenbelt around overburden dumps and periphery of the mining projects/clusters has to be carried out to reduce to fugitive dust transmission from the project area in order to create clean & healthy environment.

Water

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

NOISE

- Periodic maintenance of machineries, equipments shall be ensured to keep the noise generated within acceptable limit.
- Development of thick green belt around mining/cluster area, haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities like blasting, excavtion site etc. Worker and operators at work sites will be provided with earmuffs.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise related effects.
- Periodic noise monitoring at locations within the mining area and nearby habitations to assess efficacy of adopted control measures.
- During blasting optimum spacing, burden and charging of holes will be made under the supervision of competent qualified mines foreman, mate etc.

Biological Environment

- Development of green belt/gap filling saplings in the safety barrier left around the quarry area/ cluster area.

- Carrying out thick greenbelt with local flora species predominantly with long canopy laves on the inactive mined out upper benches.
- Development of dense poly culture plantation using local floral species in the mining areas at conceptual stage if the mine is not continued much below the general ground level.
- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.

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

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

1. If, substantial amount of waste is there, the exhausted quarry can be fully or partly backfilled using the stored waste. The backfilled areas are to be brought under plantation of local species.
2. If the generation of waste is much less as in the case of minor mineral mining, the exhausted quarries can be reclaimed by
    a. Plantation on the broken up surface if the depth of quarry is not much below the surrounding surface level.
    b. Converted to water reservoir after stabilization of the slopes if the exhausted quarry continues much below the surrounding surface level. It is preferred to cordon the water reservoir either through wire fencing or retaning wall with plantation from the safety point of view.

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

24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The only risk involved related to mining of minor mineral excepting natural calamities is slope failure and probable accidents due to high and ill maintained

bench walls. This can only be addressed through making of regular benches and undertaking mining in benching pattern.

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

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

General responsibilities of employees' during an emergency:

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

Co-ordination with local authorities:

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

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

As per the guidelines of the Mine Rules 1995, occupational health safety has been stipulated by the ILO/WHO. The proponent's will take necessary precautions to fulfill

the stipulations. Normal sanitary facilities have to be provided within the lease area. The management will carry out periodic health checkup of workers.

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

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

There is no case of Silicosis found in the district.

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

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

27. ANY OTHER INFORMATION

Nil

POTENTIAL AREAS FOR EARTH FOR FILLING RELATED TO CONSTRUCTION & BRICK MAKING Annexure I

Sl. No.	Name Of Tahasil	Name of village	Name of Minor Mineral and Area of Sairat (Ha)	Location of the Source (Total Hillock) 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)	Average height of potential patch (in m)	Mineable mineral potential (in cum)
A	B	C	D	E	F	G	H
1	Cuttack Sadar	Sainda	Brick Earth	Longitude- 8553'57.57" Latitude- 2022'33.69" Kh. N0- 581 Plot No.- 2007	4046.8 sqm	03 mtr	10000 cum
2	Cuttack Sadar	Nuahat	Brick Earth	Longitude- 8552'30" Latitude- 2022'30" Kh. N0- 340 Plot No.- 844	8093.6 sqm	03 mtr	10000 cum
3	Cuttack Sadar	Nuahat	Brick Earth	20°22'39.38"N to 20°22'39.62"N 85°52'54.50"E to 85°52'54.62"E Kh. N0- 340 Plot No.- 844 Kh. N0- 498/343 Plot No.- 844/199	16300 sq m	03 mtr	10691 cum

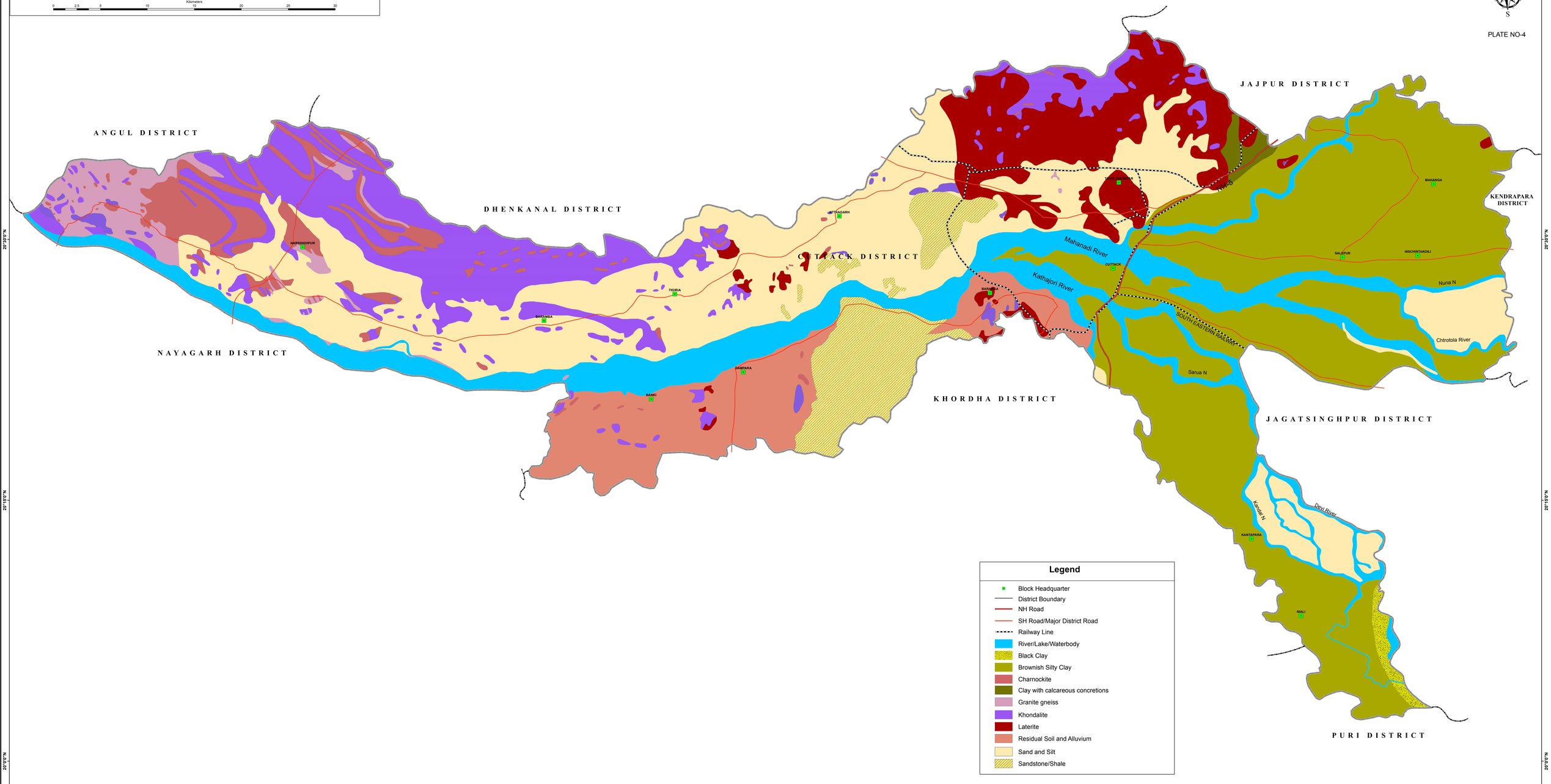
MINERAL MAP OF CUTTACK DISTRICT

SCALE :- 1:110,000

Kilometers

0 2.5 5 10 15 20 25 30

PLATE NO-4



Legend

- Block Headquarter
- District Boundary
- NH Road
- SH Road/Major District Road
- Railway Line
- River/Lake/Waterbody
- Black Clay
- Brownish Silty Clay
- Charnockite
- Clay with calcareous concretions
- Granite gneiss
- Khondalite
- Laterite
- Residual Soil and Alluvium
- Sand and Silt
- Sandstone/Shale

LEASE/POTENTIAL MAP OF EARTH IN CUTTACK DISTRICT

SCALE :- 1:110,000

Kilometers 0 2.5 5 10 15 20 25

PLATE NO-5