



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

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

**ODISHA**



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

**COLLECTORATE, JAGATSINGHPUR**

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# INDEX MAP



## ODISHA



MAP SHOWING THE TAHASILS OF JAGATSINGHPUR DISTRICT



## MAP SHOWING THE MAJOR ROADS OF JAGATSINGHPUR DISTRICT



## PREFACE

In compliance to the notification issued by the Ministry of Environment and Forest and Climate Change Notification no. S.O.3611 (E) NEW DELHI dated 25-07-2018 the preparation of district survey report of river sand mining has been prepared in accordance with Clause II of Appendix X of the notification. Every effort has been made to cover river sand mining locations, future potential areas and overview of sand mining activities in the district with all its relevant features pertaining to geology and mineral wealth. This report will act as a compendium of available mineral resources, geological set up, environmental and ecological set up of the district and based on data of various departments like Revenue, Water Resources, Forest, Geology and Mining in the district as well as statistical data uploaded by various state Government departments for preparation for district survey report. The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

### 1. INTRODUCTION

**Jagatsinghpur District** is one of the thirty districts of Odisha in the eastern coast of India. It became a new district on 1 April 1993 (Vide Government Notification No.14218/R dated 27.03.1993 and EOG No.459 dated 01.04.1993) being separated from Cuttack district. It lies between  $86^{\circ} 3'$  E to  $86^{\circ} 45'$  East longitude and between  $19^{\circ}58'$  to  $20^{\circ}23'$  North latitude .Its ancient name was Hariharapur. The city of Jagatsinghpur is the district headquarters. With 88.5% rate of male literacy and 68.5% of female literacy, the district ranks better than the national average in literacy and is one of the developed districts in Odisha. The district tops the list in male literacy and second in female literacy rate in Odisha.

Deltaic and partly littoral; the district of Jagatsinghpur is triangular in shape and small in geographical proportions .It is the smallest district in the state and covers a landmass of 1759 km<sup>2</sup>. It has a history of its own dating back to the 6th century AD, being contemporaneous with the Prachi valley civilization.

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

The district constitutes a coastal track of Odisha and hence lacks any major mineral deposit excluding the incidence of beach sand. Mining of beach sand in the district is yet to be commenced.

Only quarrying takes place to win out the river sand from various rivers of the district.

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

Enclosed as Annexure I

## 4. DETAILS OF ROYALTY COLLECTED (Rs)

Sl.No	Name of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Biridi	200000	2416400	7216400	1216400
2	Jagatsinghpur	2076000	2076000	2076000	2076000
3	Nuagaon	2399350	2395750	2399850	2400250
4	Raghunathpur	2353587	2484397	2488817	2024717
5	Tirtol	3133050	3660285	3026895	3018345
6	Kujang	0	0	0	0
<b>TOTAL</b>		10161987	13032832	17207962	10735712

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

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	Biridi	1200	21700	21700	21700
2	Jagatsinghpur	10000	10000	10000	10000
3	Nuagaon	17350	17310	17355	17360
4	Tirtol	22950	34610	35880	35750
5	Raghunathpur	40450	40530	40550	40570
6	Kujang	0	0	0	0
<b>TOTAL</b>		91950	124150	125485	125380

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

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

## 7. GENERAL PROFILE

### a. Administrative set up:

Sl No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	86 <sup>00</sup> 3' to 86 <sup>05</sup> 8'East
	Latitude	Degree	19 <sup>0</sup> 58' to 20 <sup>0</sup> 23' North
2	Geographical area	Sq.Km.	1668
3	Sub-division	Numbers	1
4	Tahasils	Numbers	8
5	C D Blocks	Numbers	8
6	Municipalities	Numbers	2
7	NACs	Numbers	-
8	Police Stations	Numbers	15
9	Gram Panchayats	Numbers	198
10	Villages	Numbers	1292
	Inhabited	Numbers	1223
	Uninhabited	Numbers	69
11	Assembly constituencies	Numbers	4

### b. Area and Population:

The district has an area of 1668 sq.kms and 11.37 lakhs of population as per 2011 census. The district accounts for 1.07. percent of the states territory and shares 2.71 percent of the state's population. The density of population of the district is 682 per sq. kms. As against 270 person per sq.km of the state. It has 1288 villages (including 61. un-inhabited villages) covering 8 blocks, 8 Tahasils and 1 Subdivisions. As per 2011 census the schedule caste population is 248152 (21.80%) and schedule tribe population 7862 (0.70%)of the district . The literacy percentage of the district covers 86.60 against 72.90 of the state.

### c. 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.

**d. Industry:**

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
1100	6048.09	1196	38	1979	3213	502

**e. Agriculture:**

During the year 2017-18, the net area sown was 83 thousand hectares against 5356 thousand hectares of the state. The production of paddy was 231.96 thousand MT, 0.17 thousand MT wheat, 0.52 thousand MT maize, 22.50 thousand MT mung, 8.15 thousand MT biri, 0.89 thousand MT kulthi, 0.07 thousand MT til, 14.73 thousand MT groundnuts, 0.41 thousand MT mustard, 0.70 thousand MT of Jute, 6.0 thousand MT potatoes, and 59.41 thousand MT sugarcane. During 2017-18, the total fertilizers used in the district is about 12044 MT with a breakage of 6110 MT nitrogenous, 3909 MT phosphatic and 2025 MT pottasic and the consumption of fertilizer per hectare is 68.08kg.

**f. Power:**

Villages so far electrified as on 31.03.2018 is 1223 which constitutes almost 100% to the total inhabited villages of the district.

**g. Transport & Communication:**

Railway route length (14-15) km	68.12
No of Rly stations and PH(14-15)	10
Forest road (17-18) km	0
National Highway (16-17) km	103.40
State Highway (17-18) km	6.59
Major district road (17-18) km	34.91
Other dist road (17-18) km	199.41
Rural road(17-18) km	1225.0
Inter village road (16-17) km	1584.48
Intra village road (16-17) km	1522.56

**h. Health:**

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

Govt. Allopathic medical institutions	47
Beds facilities	284
Homoeopathic dispensaries	11
Ayurvedic dispensaries	17

**i. Tourist places:**

There are 8 nos. of tourist centres such as Paradip Port (Paradip), Sarala Temple (Kanakapur), Jagatnath Temple (Garei), Jagannath Temple (Dhyankud), Iskon Temple (Balikuda), Astasambhu temple (Hajipur), Jagannath Temple (Sidhal,) Gorekhnath Temple (Chhapada) and identified by department of Tourism and Culture, Orissa. During 2011, the numbers of Domestic tourists were 8, 31,687 and foreign tourists were 8,869 who visited the tourists spots of the district.

**j. Forest areas:**

Category of forest	Area in sq km
Reserve Forest	1.23
Unclassified Forest	0.02
Demarcated Protected Forest (DRF)	4.77
Undemarcated Protected Forest	83.06
Other forest under Revenue Dept	13.84
<b>Total</b>	<b>132.92</b>

**k. Education:**

Primary School (2017-18)	No. of Schools	981
	Enrolment (No)	82486
	Pupil Teacher Ratio	14.65

Upper Primary School 2017-18	No. of Schools	601
	Enrolment (No)	48904
	Pupil Teacher Ratio	12.87
General College 2017-18	Junior	34
	Degree	18
Secondary School	No. of Schools	316
	Enrolment (No)	33387
	Pupil Teacher Ratio	22.50
Literacy Rate, 2011	Male	92.4
	Female	80.6
	Total	86.6

### **I. History & Heritage:**

The history of Jagatsinghpur comprises the conglomeration of Hindu, Muslim, Maratha and British realms. The East India Company established their arsenals at Hariharpur in 1600 A.D. and Capt. Bruton was in charge of administration of this place till 1633 A.D. Understanding of the origin of the name of Jagatsinghpur and its nomenclature mostly depends upon the legends. Legend says the name of Jagatsinghpur (Earlier Hariharpur) has come into existence as a revenue village, either in Mughal or Maratha rule after the name of Jagatsingh, the son of Bhagat Singh, an Amildar in Cuttack-Puri Sarkar or Cuttack Chakada since 1786. Bhagat Singh worked as an Amildar either in Mughal or Maratha rule. The Maratha administration kept the place under their jurisdiction and appointed Jagat Singh in 1748 to collect revenue. He collected the Peshkush and Nazrana and remained an unchallenged and uninterrupted administrator for a pretty long period.

The district had a large contribution to the freedom struggle of the country. It was Gopabandhu, the chief animating force, making Congress activities popular in Odisha. From the beginning of his career, he had associated himself with different sessions of the Congress. After attending the Lucknow session, he joined the Congress. In 1920, after the special session of the Congress at Kolkata, Gopabandhu decided to carry on Congress programme in Odisha launched by Mahatma Gandhi. The Utkal Provincial Congress Committee was constituted early in 1921 and Gopabandhu became its first president. The arrival of Mahatma Gandhi in Cuttack on 23 March 1921 galvanized the Non-cooperation movement. It was Gopabandhu who translated the speeches of Gandhi which prompted the people to join the Non-cooperation movement. Under his leadership, by 30

June 1921, the Utkal Pradesh Congress Committee collected Rs.21000/- for Tilak Swaraj fund and enrolled 39000 Congress members. Nabakrushna Chaudhury of the Jagatsinghpur district along with H.K.Mahtab and Nityananda Kanungo of Jagatsinghpur had to leave their studies to join the Congress movement. To carry out Congress programmes and to train workers and volunteers, Alaka Ashram was established in the district in the year 1922. To establish this Ashram, Gopabandhu Chaudhury, Bhagirathi Mahapatra and Pranakrushna Padhiary acted as the chief mobilizing force. It also became the meeting place of young volunteers (Banarsena) and published a weekly „Utkalika“ edited by Sarala Devi, spreading Congress ideas like boycott of foreign cloth, law court and government institutions etc. The district had its contribution to the Civil Disobedience movement. Gandhiji had started this movement by breaking the salt law on 6 April 1930.

The Salt Satyagraha was a powerful movement in the coastal Odisha. The first batch of Satyagraha, led by Gopabandhu Chaudhury and Acharya Harihar, started for Inchudi from Swaraj Ashram at Cuttack. Kujanga was another important centre of salt Satyagraha. Rama Devi, Malati Devi, Sarala Devi, Rani Bhagyabati Patamahadei and hundreds of women volunteers joined the movement and violated the salt law. The centres of salt Satyagraha in the district were Chatua, Kaliapata, Paradeep, Erasama and Daradia. Apart from the organisation of salt Satyagraha, marches, boycott of foreign cloth, propagation of Khadi, picketing before excise shops and other constructive programmes formed part of the civil disobedience movement. This movement was withdrawn in May 1934. Sarala Devi was the first woman freedom fighter and satyagrahi from Jagatsinghpur in the freedom struggle. On 8 August 1942, the All India Congress Committee in its meeting at Bombay passed the famous Quit India resolution and gave a call for mass struggle to achieve freedom. Centres of Congress movement like Swaraj Ashram at Cuttack, Bari Ashram at Binjharpur, Alaka Ashram at Jagatsinghpur, Kendupatana Spinning Centre, etc. were declared unlawful. Prominent Congress leaders were taken into custody by 10 August 1942. The Quit India programmes included attack on post offices, police stations, tahasil offices and such other public offices to paralyze the administration and force the British to quit India. Such incidents occurred in the wake of the movements at

various places such as Tirtol, Erasama and Jagatsinghpur. It became a forceful movement to make India free. Notable freedom fighter of the district Surendra Nath Dwivedi came to lime light by taking part in the Quit India movement. After years of struggle, finally the country became independent and the district moved forward in the path of modernization and development.

The religious belief and rituals of the people find expression in the archaeological monuments of the district which includes temples and images of various pantheons. The temples generally follow the Odishan temple style in having a curvilinear superstructure for the sanctuary and pidha deula, for the frontal porch. The Lingaraj Mahadeva temple near Balia, on the bank of Biluakhai river, is an important specimen of the early series of the temples and can be assigned to 8th to 9th centuries. The small rekha temple is triratha in plan and has Mahisamardini as one of the Parsvadevatas. The Singhnath Siva temple in an islet of the Mahanadi at Singhnath is the most important Siva temple of 9th century A.D. The main temple is a beautiful rekha Deula but jagamohan, rectangular in plan, has terraced roof. The Amangai temple in another island of the Mahanadi near Kandarpur is now in ruins. Its pyramidal Jagmohan seems to be a later addition, but the Deula, pancharatha in plan, is a developed specimen of the Odishan style. Sathalpur in Jagatsinghpur sub-division had a temple for Saptamatruka and the images still exist there. Buddhist images of the district hail from Tarapur and Paradeep garh. The beautiful image of Lokeswar at Paradeepgarh, worshipped as Bisnu-Lokanath, is a unique temple of Gajaprustha style.

## 8. LAND UTILISATION PATTERN

SI No	Landuse	Area in '000Ha
1	Forest Area	13
2	Misc.Tree & Groves	4
3	Permanent Pasture	7
4	Culturable Waste	6
5	Land Put to Non Agril Use	12
6	Barren & Unculturable Land	13

7	Current Fallow	14
8	Other Fallow	7
9	Net Area Sown	90
10	Mining	0.8
	Geographical Area	166.8

## 9. RAINFALL

The district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of July and continues till end of October. The temperature goes as high as up to 46°C in the summer and up to 7<sup>o</sup>-8<sup>o</sup> C during peak winter.

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

Year/ Month	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	TOTAL
15-16	534.1	29	2281.4	3935.1	3578.3	1366.8	93.6	0	180.4	44.3	59.8	96.6	12199.4
16-17	62.6	281.5	782.8	2109.1	4471.2	2323.2	452.9	2	0	156.2	0	110.2	10751.7
17-18	7.1	300.6	2488	3524.2	2311.2	1814	559.4	73.2	0	0	0	8.8	11086.5
18-19	428.2	948.8	1580.2	4763.4	4615.2	1634.3	124.5	9.8	830.4	6.3	235.8	257	15433.9
<b>AVG</b>	258	389.975	1783.1	3582.95	3743.98	1784.58	307.6	21.25	252.7	51.7	73.9	118.15	12367.9

## 10. GEOLOGY AND MINERAL WALTH

Geologically the district can be broadly divided into four sectors. The northwestern and southwestern hilly areas comprise the meta-sediments of Gorumahisani Group and Eastern Ghat Supergroup with basic and ultramafic intrusions. The laterite covers the central and northwestern part of the district.

The horizontally disposed Quaternary sediments occupy the southeast, east and northern part of the district. The Eastern Ghat Supergroup consists of quartz-feldspar-garnet-sillimanite  $\pm$  graphite schist/gneiss, garnetiferous quartzite, calcisilicate and charnockites. All these rocks have undergone intensive migmatization. The Gorumahisani Group comprises banded hematite/magnetite quartzite, banded hematite jasper, banded chert, quartzite, ferruginous shale, fuchsite quartzite, conglomerate, gritty quartzite, ortho quartzite. These are associated with metavolcanics, pyroxinite and chromiferous ultramafics. Granite and granophyres are intrusive into these rocks. The meta-sedimentaries and ultramafics have undergone intensive lateritization and the thickness varies from 5m to 15m. These rocks are overlain by Quaternary sediments of sub-recent to recent period. These sediments constitute transported laterite at the base, sandy clay with kankar, black clay and present flood plain deposits consisting of coarse to fine sand. The meta-sediments of Eastern Ghat Supergroup have undergone polyphase deformation. The axis of first generation of folds is represented by NE-SW trend; the second generation is represented by NW-SE trend and the youngest one by the N-S trend. The axial planes of these folds are highly sheared and faulted. The Gorumahisani Group of meta-sediments has undergone three phases of deformation. The first and second generation of folds are co-axial and trend in N70°E-S70°W direction. The second generation of folds is of open type and plunges towards west. These folds are cross folded along N-S axis and are represented by broad warps.

#### **STRATIGRAPHY:**

The geological succession in the district is as follows:

<b>Age</b>	<b>Supergroup</b>	<b>Group</b>	<b>Formation</b>	<b>Lithounit</b>
Late Holocene			Brahmani	Fine Sand
Middle to Late Holocene			Bankigarh	Brownish Silty Clay (Upper Deltaic Facies)
				Black Clay (Lower Deltaic Facies)
Early Holocene to Late Pleistocene			Kaimundi	Clay with calcareous concretions
Early Pleistocene			Bolgarh	Laterite/ Latosol (Insitu)

to Late Tertiary				
Proterozoic			Intrusive	Granophyre
				Hornblende granite
				Basic lava
				Pyroxenite, Ultramafics
				Bonai granite
Archaean		Gorumahisani		Ortho quartzite
				Gritty quartzite
				Conglomerate
				Fuchsite quartzite/ andalusite quartzschist / ferruginous shale
				Banded chert (q <sub>2c</sub> )/ BMQ, BHQ (q <sub>2h</sub> ), BHJ (q <sub>2j</sub> )
				Quartzite
		Charnockite		Granetiferous granite and gneiss
		Eastern Ghat		Acid and intermediate charnockite
		Khondalite		Quartz-Feldspar-Garnet-Sillimanite ± Graphite Schist/ Gneiss
				Calc silicate

- a. Detail of river/stream/other sand source- Sand mining in the district is confined to main rivers like Mahanadi, Devi, Biluakhai & Paika etc.
- b. Availability of maximum sand or gravel or aggregate resources- sand- 18,99,099 cum (Annexure II), Gravel- Nil, Aggregate- Nil
- c. Detail of existing mining leases of sand and aggregates- For sand pl refer Annexure I. Aggregate- Nil

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

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

**ANNEXURE I**

**SAND SAIRATS ALREADY LEASED OUT AND EXECUTED**

Sl. No	Name of Tahasil	River or stream and Name of Village/Date of Registration of lease deed	Status	Portion of the River or Stream leased for mineral concession (Khata & Plot No) (Sketch map to be attached)	Longitude			Latitude			Length of area leased for mineral concession (in km)	Average width of area leased for mineral concession (in km)	Area leased for mineral concession (in sq m)	Mineable mineral potential as per approved mining plan (in cum)
					Degree	Minutes	Seconds	Degree	Minutes	Seconds				
1	2	3	4	5	8	9	10	11	12	13	14	15	16	17
1	Biridi	Madhya sasan devi nadi sand sairat Dt.19.06.15	Running	Khata No.994, Plot - 53(P)							0.7	0.31	0.060	1200
2	Biridi	Hazipur,Kulakaijanga, Nuapari Biluakhai Sand Sairat Dt.17.02.16	Running	Hazipur Khata No.869, Pl. No.2881 Kulakaijanga Khata No.735 Pl. No.1653 Nuapari Khata No.587, Pl. No.1086							0.11	0.33	5500	5500
3	Biridi	Manguli, Sankhari Sahi Biluakhai Sand Sairat Dt.06.04.16	Running	Manguli Khata No.543, Pl. No.7 & 1179 Sankharisahi Khata No.591, Pl. No.1407							0.92	0.26	15000	15000
4	Jagatsinghpur	Devinadi Alipingal & Adhanga 17.10.2015	Running	Mouza- Alipingal Khata No-780 Plot No-1879 Adhanga- Khata No-303 Plot No-1804	8	2	6	2	1	3	514	174	89436	8000
5	Jagatsingh	Devinadi	Running	Mouza-Mundilo	8	2	0	2	1	3	250	257	64250	2000

	pur	Mundilo & Patenigaon 13.06.2016		Khata No-496 Plot No-2499	6	0	0	7					
6	Naugaon	Sikhar Devi River sand sairat Dt.11.09.2019	Running	Khata No-760 Plot No-1482(P)	8	1	2	.	2	1.4 km	1.4 KM	1,25,426	67475
					6	1	0	0	3				
7	Naugaon	Bachhalo Devi River sand Sairat Dt.3.10.2015	Running	Khata No-275 Plot No-1(P)&2(P)	8	.	3	5	2	2.1 km	2.1KM	27,189	4250
					6	9	2	0	5				
8	Naugaon	Erada Devi River sand sairat	Running	Khata No-895, Plot No-	8	.	1	8	1	1.24km	1.24KM	60,690	15000
					6	9	1	0	0				
9	Raghunat hpur	Nuapada & Regist.- date-15.10.15	Running	Khata No-324 , Plot- 266	8	1	.	4	3	0.06	0.03	66975.4 7	10420 Cum
					6	6	4	0	9				
10	Raghunat hpur	Jaipur & Regist.- date-14.09.15	Running	Khata No-703, Plot- 2717 & 282	8	1	.	2	1	0.05	0.02	50990.3 9	94275 Cum
					6	9	6	0	9				
11	Raghunat hpur	Tarpur-Achhutpur- Gokulpur & Regist.- date-15.09.15	Running	Khata No- 418,1191,326, Plot- 1,2,3,4,1,1,2,3	8	1	5	2	2	0.10	0.05	101211. 88	97975 Cum
					6	3	6	0	1				
12	Tirtol	River-Mahanadi Village-Olagada and Tartol Date- 17.11.2015	Running	Khata No.377 Plot No.1270 and Khata No.336 Plot No.1123	8	2	.	2	1	0.89	0.099	0.0809 sq.km	50150
					6	0	0	0	7				
13	Tirtol	River-Mahanadi Village- Kanimula Date- 31.05.2016	Running	Khata No.338 Plot No.1041	8	2	.	2	1	0.413	0.14	0.0526 sq.km	24200
					6	0	0	0	9				
14	Tirtol	River-Paika Village- Anupala Date- 13.04.2017	Running	Khata No.288 Plot No.455/P	8	2	.	2	2	0.34	0.13	0.05 sq.km	5040
					6	5	2	0	0				

15	Tirtol	River-Paika Village- Bilashpur Date- 31.03.2017	Running	Khata No.286 Plot No.1004/P	8 6	2 2	5 8	2 0	2 0	3 4	0.11	0.10	0.0526 sq.km	5040	
16	Tirtol	River-Paika Village- Arilo and Jaipur Date- 09.01.2017	Running	Khata No.223 Plot No.765 and Khata No.614 Plot No.7	8 6	2 2	. 6	1 0	2 0	2 0	3 9	0.11	0.09	0.0526 sq.km	5100
17	Tirtol	River-Mahanadi Village- Posal Date- 15.02.2016	Running	Khata No.311 Plot No.1444	8 6	2 0	0 0	2 0	1 7	3 0	0.58	0.18	0.0526 sq.km	30530	
18	Tirtol	River-Mahanadi Village- Kilipal Date- 30.05.2016	Running	Khata No.298 Plot No. 54	8 6	1 8	2 8	2 0	1 4	1 4	0.21	0.8	0.526 Sq.km	19180	

## ANNEXURE II

## POTENTIAL OF SAND IN THE DISTRICT

Sl. No.	Name of Tahasil	Status	River or stream and Name of Village / date of Registration of lease deed	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Longitude			Latitude			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)
					Degree	Minute	Second	Degree	Minute	Second				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Biridi	Running	Madhyasasan devinadi sand sairat Dt.19.06.15	Khata No.994, Plot - 53(P)	-	-	-	-	-	-	0.7	0.31	0.060	1200
2	Biridi	Running	Hazipur, Kulkaijanga, Nuapari Biluakhai Sand Sairat Dt.17.02.16	Hazipur Khata No.869, Pl. No.2881 Kulkaijanga Khata No.735 Pl. No.1653 Nuapari Khata No.587, Pl. No.1086	-	-	-	-	-	-	0.11	0.33	5500	5500
3	Biridi	Running	Manguli,	Manguli	-	-	-	-	-	-	0.92	0.26	15000	15000

			Sankhari Sahi Biluakhai Sand Sairat Dt.06.04.16	Khata No.543, Pl. No.7 & 1179 Sankharisahi Khata No.591, Pl. No.1407										
4	Biridi	New	Chasikhanda Biluakhai Nadi Sand Sairat	Khata No.712, Pl. No.157 & Pl. No.1752	-	-	-	-	-	-	-	-	101173	18211
5	Biridi	New	Sanawaubairai Sand Sairat	Khata No.85, Pl. No.266, 306 & 307	-	-	-	-	-	-	-	-	10000	18000
6	Jagatsinghpur	Running	Devinadi Alipingal & Adhanga 17.10.2015	Mouza-Alipingal Khata No-780 Plot No-1879 Adhanga-Khata No-303 Plot No-1804	86	20	0	20	17	3	514	174	89436	8000
7	Jagatsinghpur	Running	Devinadi Mundilo & Patenigaon 13.06.2016	Mouza-Mundilo Khata No-496 Plot No-2499	86	20	0	20	17	3	250	257	64250	2000
8	Jagatsinghpur	New	Devinadi Bodaro	Bodaro Khata No-88 Plot No-1	-	-	-	--	-	-	300	170	51000	91800
9	Naugaon	Running	Sikhar Devi River sand sairat Dt.11.09.2019	Khata No-760 Plot No-1482(P)	86	11	0	20	3	2.5	1.4 km	1.4 KM	1,25,426	67475
10	Naugaon	Running	Bachhalo Devi River sand Sairat Dt.3.10.2015	Khata No-275 Plot No-1(P)&2(P)	86	9	35.2	20	5	28.3	2.1 km	2.1KM	27,189	4250

11	Naugaon	Running	Erada Devi River sand sairat	Khata No-895, Plot No-	86	9	18.1	20	10	1.9	1.24km	1.24KM	60,690	15000
12	Naugaon	Pokamula Devi River Sand Sairat	New	Khata-214 Plot-662	-	-	-	-	-	-	-	-	46742	84136
13	Naugaon	Arakhakuda Devi River sand Sairat	New	Khata-1223 Plot-3987	-	-	-	-	-	-	-	-	150870	271566
14	Naugaon	Galadari Devi River Sand sairat	New	Khata-1057 Plot-5853/5864 2464/5870 2488/2489	-	-	-	-	-	-	-	-	59126	106427
15	Naugaon	Alana-2 Devi River Sand Sairat	New	Khata No-441 Plot-2 117	-	-	-	-	-	-	-	-	205585	370053
16	Raghunathpur	Running	Nuapada & Regist.- date-15.10.15	Khata No-324 , Plot-266	86	16	45.4	20	19	36.2	0.06	0.03	66975.47	10420 Cum
17	Raghunathpur	Running	Jaipur & Regist.- date-14.09.15	Khata No-703, Plot-2717 & 282	86	19	6	20	19	51	0.05	0.02	50990.39	94275 Cum
18	Raghunathpur	Running	Tarpur-Achhutpur-Gokulpur& Regist.- date-15.09.15	Khata No-418,1191,326, Plot-1,2,3,4,1,1,2,3	86	13	56	20	21	27	0.10	0.05	101211.88	97975 Cum
19	Tirtol	Running	River-	Khata No.377	86	20	0	20	17	3	0.89	0.099	0.080	50150

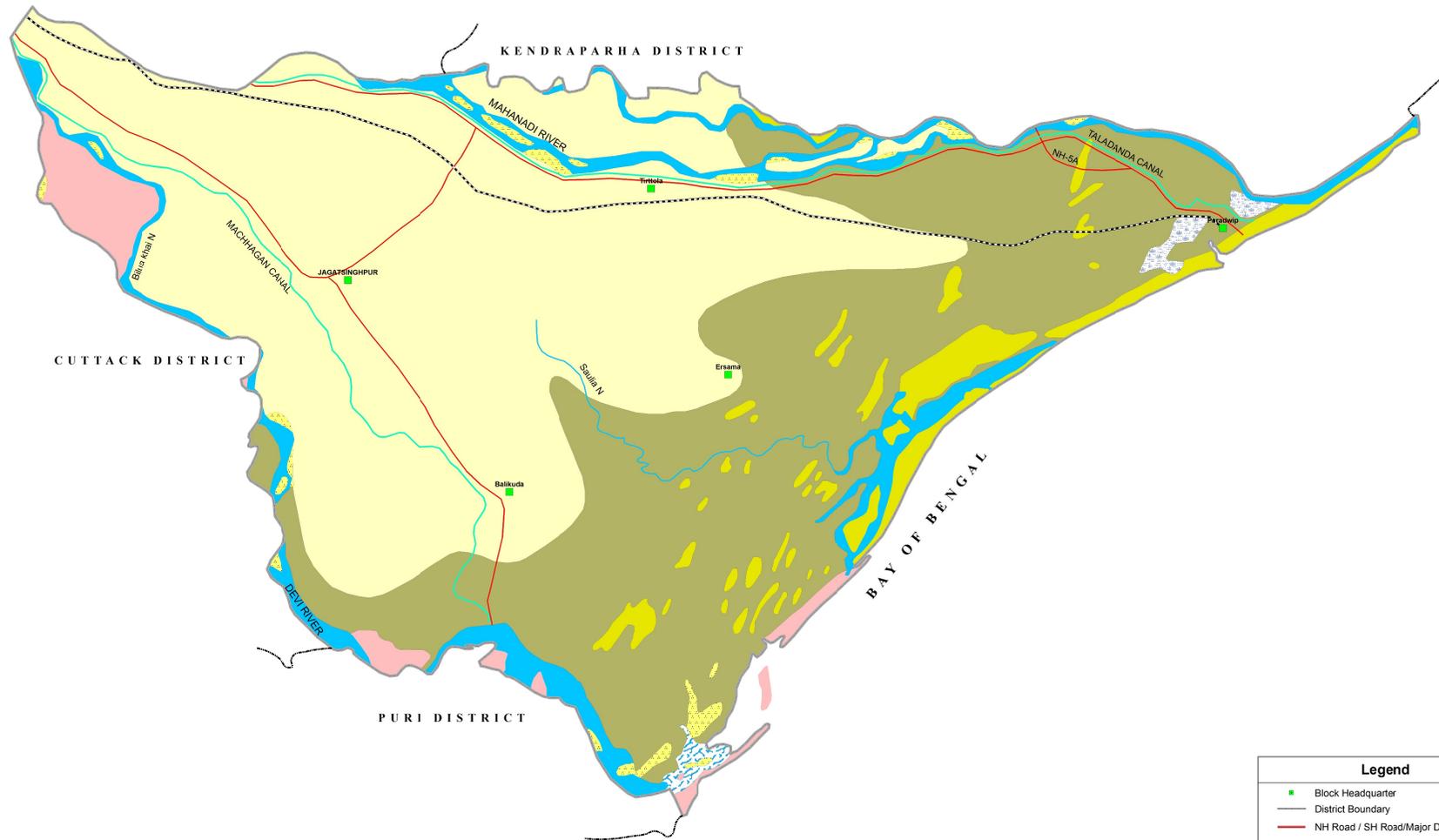
			Mahanadi Village-Olagada and Tartol Date-17.11.2015	Plot No.1270 and Khata No.336 Plot No.1123									9 sq.k m	
20	Tirtol	Running	River-Mahanadi Village-Kanimula Date-31.05.2016	Khata No.338 Plot No.1041	86	20	0	20	19	20.3	0.413	0.14	0.0526 sq.k m	24200
21	Tirtol	Running	River-Paika Village-Anupala Date-13.04.2017	Khata No.288 Plot No.455/P	86	25	29.2	20	20	8.1	0.34	0.13	0.05 sq.k m	5040
22	Tirtol	Running	River-Paika Village-Bilashpur Date-31.03.2017	Khata No.286 Plot No.1004/P	86	22	58	20	20	34	0.11	0.10	0.0526 sq.k m	5040
23	Tirtol	Running	River-Paika Village-Arilo and Jaipur Date-09.01.2017	Khata No.223 Plot No.765 and Khata No.614 Plot No.7	86	22	1.6	20	20	3.9	0.11	0.09	0.0526 sq.k m	5100
24	Tirtol	Running	River-Mahanadi Village-Posal Date-15.02.2016	Khata No.311 Plot No.1444	86	20	0	20	17	30	0.58	0.18	0.0526 sq.k m	30530
25	Tirtol	Running	River-Mahanadi Village-Kilipal	Khata No.298 Plot No. 54	86	18	28	20	14	14	0.21	0.8	0.526 Sq.k m	19180

			Date- 30.05.2016											
26	Tirtol	River-Paika nadi	New	Khata No.1743 Plot No.72/4147	-	-	-	-	-	-	0.29	0.181	50990	<b>91782</b>
27	Tirtol	River-Mahana di	New	Khata No.1743 Plot No.4101	-	-	-	-	-	-	0.241	0.21	50990	<b>91782</b>
28	Tirtol	River-Paika Nadi	New	Khata No. 278 Plot No.1	-	-	-	-	-	-	0.25	0.2	50585	<b>91053</b>
29	Tirtol	River Mohana di	New	Khata No.204. Plot No.5	-	-	-	-	-	-	-	-	26103	46985
30	Tirtol	River Paika	New	Khata No.492. Plot No.1	-	-	-	-	-	-	-	-	30554	54997
31	Kujang a	River Mohana di	New	Khata No.204. Plot No.5	-	-	-	-	-	-	-	-	26100	46980
32	Kujang a	River Paika	New	Khata No.492. Plot No.1	-	-	-	-	-	-	-	-	30551	54992

# MINERAL MAP OF JAGATSINGHPUR DISTRICT



PLATE NO-4



Legend	
	Block Headquarter
	District Boundary
	NH Road / SH Road/Major District Road
	Railway Line
	Canal
	River/Lake/Waterbody
	Sand & silts ( flat surface with occasional dunes/ Point & lateral bars & meander Scrolls )
	Very fine sand, silt and clay (Older dunes)
	Sandy silt and silty clay
	Clay with fine sand and silt
	Compact sand and silt
	Swamp
	Mud

20°30'N  
20°15'N  
20°0'N

86°0'0"E  
86°15'0"E  
86°30'0"E  
86°45'0"E

86°0'0"E 86°15'0"E 86°30'0"E 86°45'0"E

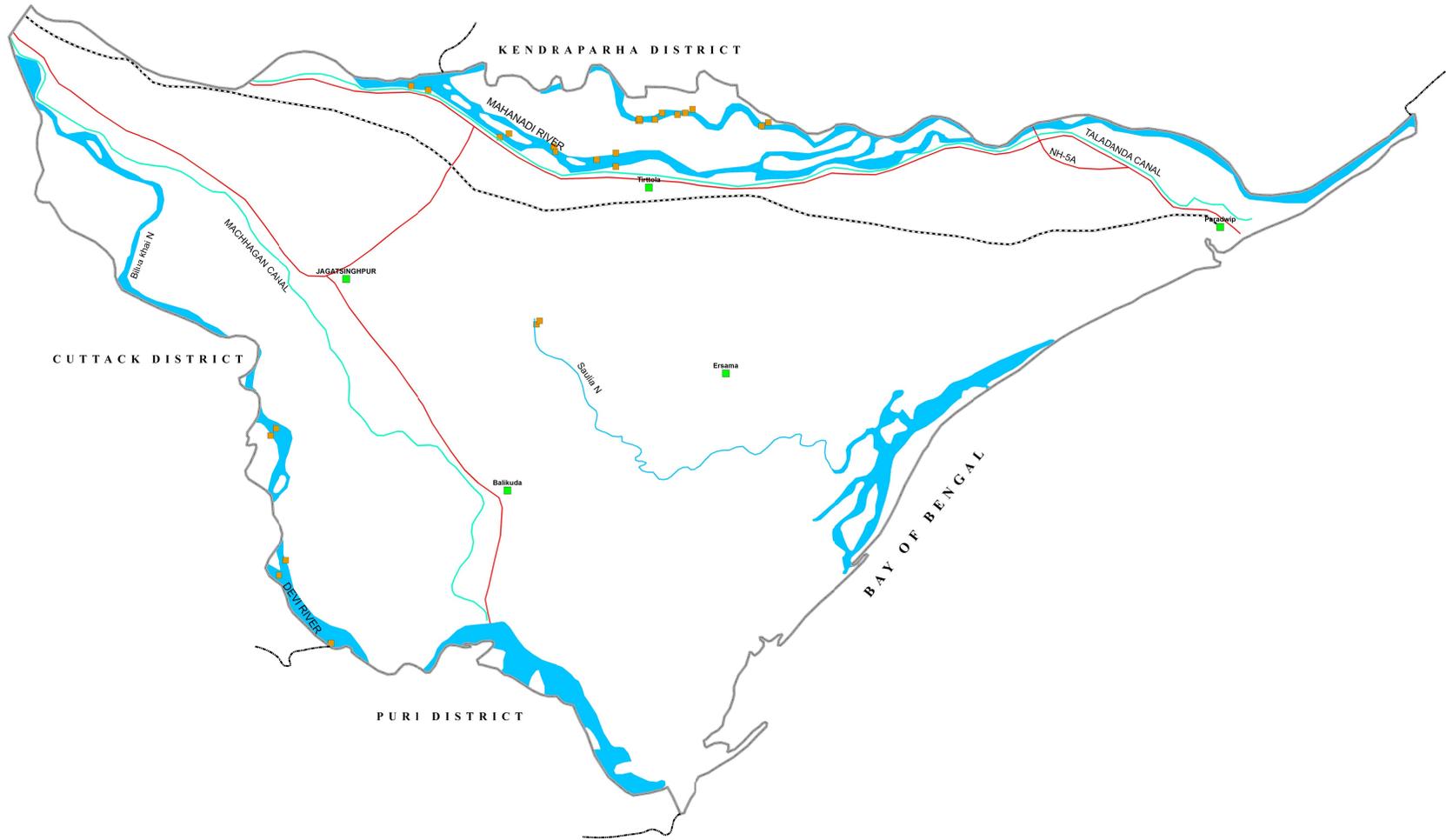
# LEASE/POTENTIAL MAP OF SAND IN JAGATSIINGHPUR DISTRICT

SCALE :- 1:100,000

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
- Canal
- River/Lake/Waterbody
- Lease/Potential Area for Sand