

OFFICE OF THE
COLLECTOR & DISTRICT MAGISTRATE
KENDRAPARA
(REVENUE SECTION)



06727-232602(O)

06727-232802(R)



(FAX) No- 06727-221603 (F)
EMAIL ID: dycolrev.kendrapara@gmail.com

L. No. 1829 / Rev.

Date: 05/09/19

To

The Addl. Secretary to Govt.,
Revenue & D.M Department,
Odisha, Bhubaneswar

Sub: - Direction to the State Government for preparation of District Survey
Report – reg.

Ref: - Letter No.24248/R&DM Dt.17.08.2019 of the Principal Secretary, R&DM
Department, Odisha, Bhubaneswar

Sir,

With reference to the letter on the subject cited above, I am to say that as per instructions of the Govt. in Forest & Environment Department, Odisha, Bhubaneswar vide letter No.20326/F&E Dt.19.09.2018, the District Survey Report on minor minerals of this district has been prepared as per guidance stipulated in the Notification No. S.O 141(E) Dated 15th January, 2016 and S.O. 3611(E) Dated 25.07.2018 of the Ministry of Environment, Forest & Climate Change (MoEF & CC), Govt. of India. The Sub-Divisional Committee constituted for the purpose has prepared District Survey Report and which has approved by the Collector-cum-Chairman, DEIAA, Kendrapara. The approved copy of District Survey Report on minor minerals in respect of Kendrapara district is enclosed herewith for favour of your kind information.

Yours faithfully

Enclosure: Approved DSR

Memo No. 1830 Rev. Dt. 05/09/19 //

Copy forwarded to the Director, Environment-cum-Special Secretary to Govt., Forest & Environment Deptt., Odisha, Bhubaneswar for favour of kind information and necessary action.

Collector, Kendrapara
**COLLECTOR
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Memo No. 1831 Rev. Dt. 05/09/19 //

Copy forwarded to the Secretary, Board of Revenue, Odisha, Cuttack & Secretary to RDC(CD), Cuttack for information and necessary action.

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O. No. 1753 / Rev.

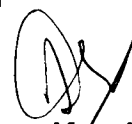
Date: 27/8/19

OFFICE ORDER

As per instructions of the Govt. in Revenue & DM Department, Odisha, Bhubaneswar vide letter No.27689/ R&DM Dt.27.07.2018, the Sub-Divisional Committee is hereby constituted in respect of Kendrapara district comprising of following members to visit each site for which environment clearance has been applied for and make recommendation on suitability for mining or prohibition thereof.

Sub-Divisional Committee

- | | |
|---|----------|
| 1. Sub-Collector, Kendrapara | Chairman |
| 2. Executive Engineer, Kendrapara Irrigation Division
Kendrapara | Member |
| 3. Regional Officer, SPCB, Paradeep | Member |
| 4. Asst. Conservator of Forest, (WL), Rajnagar | Member |
| 5. Forest Range Officer, Kendrapara Range | Member |
| 6. Deputy Director, Mines, Jajpur Road, Jajpur | Member |


Collector, Kendrapara

Memo No. 1754 /Rev. Dt. 27/8/19 //

Copy forwarded to Officer's concerned for information and necessary action.


Collector, Kendrapara

Memo No. 1755 /Rev. Dt. 27/8/19 //

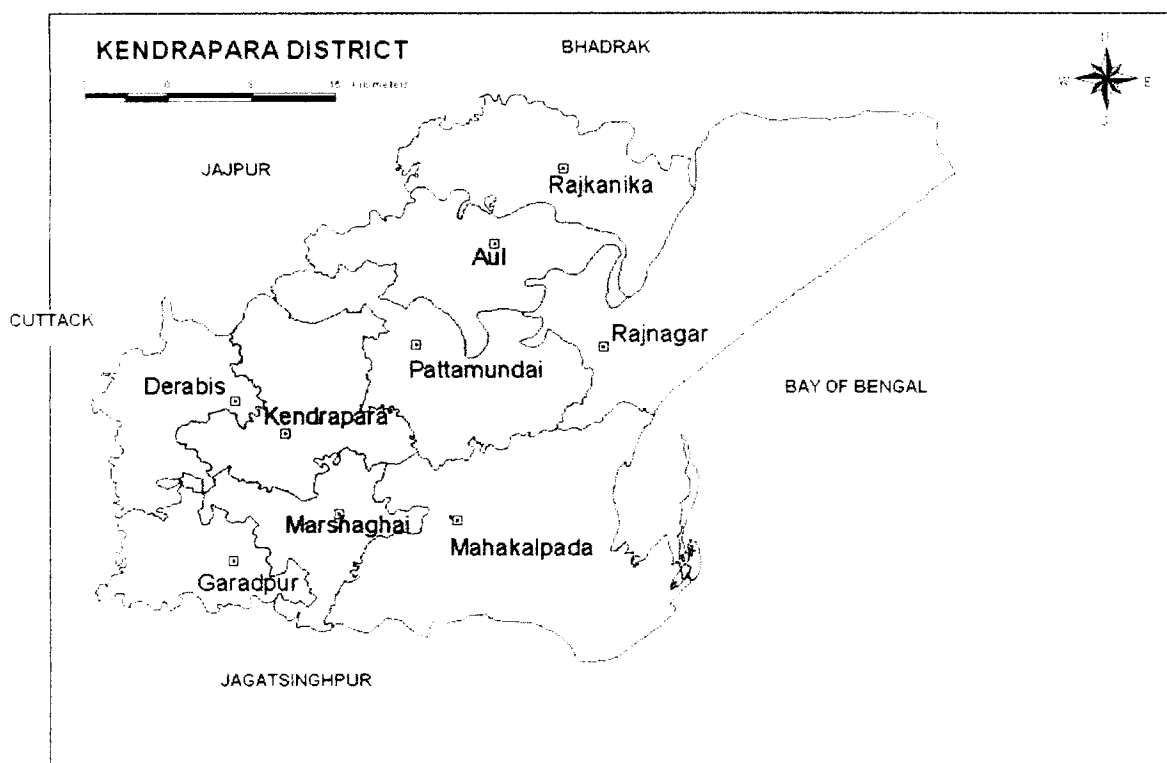
Copy forwarded to the Joint Secretary to Govt., R&DM Deptt., Odisha, Bhubaneswar for information and necessary action w.r.t letter No.27689/ R&DM Dt.27.07.2018 of the Govt.


Collector, Kendrapara



District Survey Report (D.S.R)

in respect of Minor Mineral (Sand) of Kendrapara district, Odisha prepared as per Notification No.141(E) Dated 15th January, 2016 and S.O.3611(E) Dated 25.07.2018 of the Ministry of Environment, Forest & Climate Change (MoEF & CC), Govt. of India.



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O. No. 1753 / Rev.

Date: 27/8/19

OFFICE ORDER

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| 5. Forest Range Officer, Kendrapara Range | Member |
| 6. Deputy Director, Mines, Jajpur Road, Jajpur | Member |


Collector, Kendrapara

Memo No. 1754 /Rev. Dt. 27/8/19 //

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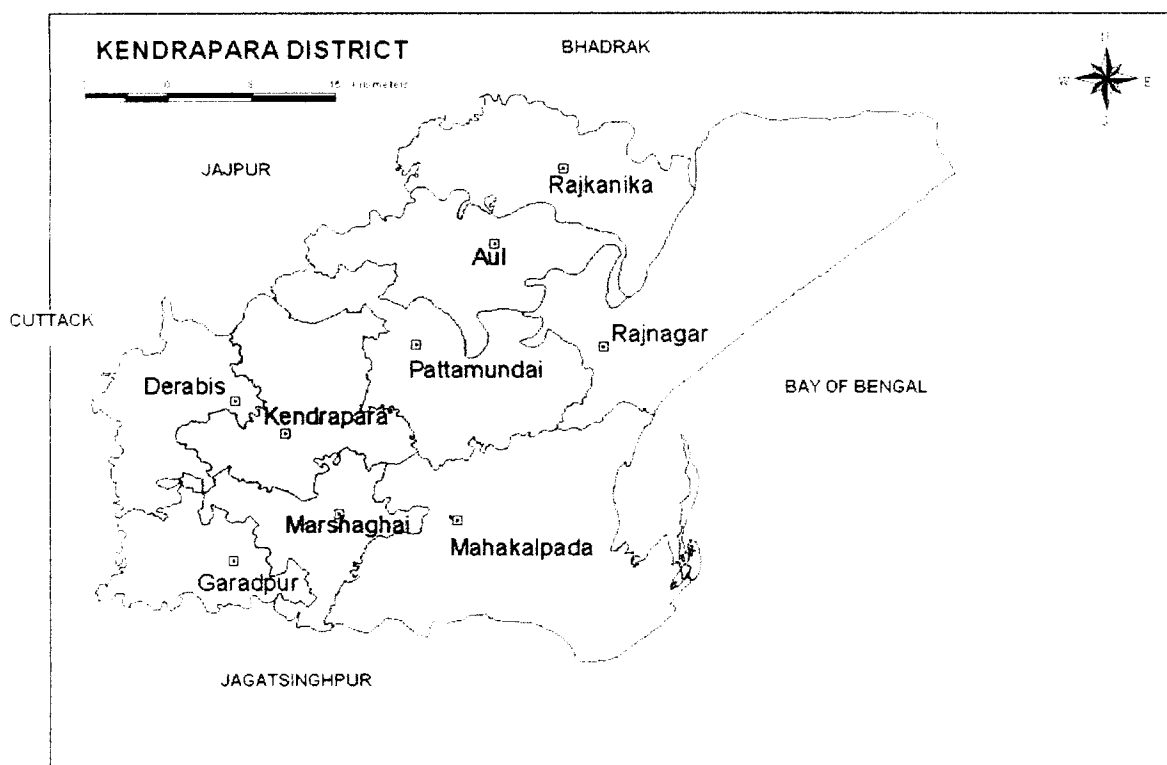
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District Survey Report (D.S.R)

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01. INTRODUCTION

The provisions incorporated in Gazette Notification No. S.O.141(E) dated 15.01.2016 and S.O.190(E) dated 20.01.2016 issued by the Ministry of Environment, Forest & Climate Change, Govt. of India has given birth to DEIAA (District Environment Impact Assessment Authority) & DEAC (District Expert Appraisal Committee) which needs to be constituted by the Revenue Divisional Commissioner in each district under their respective jurisdiction. The primary functions of these above two bodies are to grant Environmental Clearance (EC) for category of B2 Projects prior to the quarry / mining of Minor Minerals in whole district. The main purpose of preparation of District Survey Report is to identify the mineral resources and mining activities along with other relevant data of district. This report contains details of Lease, Sand mining and Revenue which comes from minerals in the district. This report is prepared on the basis of data collected from different concern departments. A survey is carried out by the members of DEIAA with the assistance of other line departments in the district.

02. BRIEF HISTORY OF THE DISTRICT

The place Kendrapara finds description in the mythological texts like 'Mahabharat', 'Tulasi Purana' and 'Tulasi Khestra Mahatmya'. In these scriptures Kendrapara is variously identified as 'Tulasi Kshetra', 'Bramha Kshetra', 'Gupta Kshetra' and 'Kandara Palli'. The place has the rare distinction of being acclaimed as one of the sacred Pancha Kshetras of Odisha. The very designation of Kendrapara as 'Bramha Kshetra' speaks of its spiritual importance from mythological perspectives. It is also asserted by Hindu Purans that salvation cannot be full-circled, if a devotee does not visit Tulasi-kshetra to pray for the blessings of Baldevjew before or after he visits Sri Jagannath at Puri.

As per the description contained in the purans, during the age of Dwapara, Lord Baldev while on his pilgrimage (Tirthayatra) came across a tyrant and oppressive demon, Kandasura near Lalitgiri. Now the place is in a border strip between Kendrapara and Jajpur districts after the reorganization of the districts in 1993. There he fought with the demon, killed him and threw different parts of his body into different directions. The various places where the parts of his

body were dropped were named accordingly. The places like Angulei, Madhyakhanda, Khadiana, Katikata etc. in the district of Kendrapara justify such puranic tales. The daughter of the cruel demon bearing the name Tulasi was a virtuous maiden who could please Lord Baladev by dint of her heavenly qualities. Being pleased with her devotion and prayer, Lord Baldev married her and established his abode at Ichhapur. As such, the place came to be known as Tulasikshetra.

The sacred soil of Tulasi Kshetra has been a meeting ground of diverse cultures and a melting pot of all the divergent religious cults harmoniously synchronizing the Buddhist, Saiva, Sakta, Soura, Ganapatya, Natha Vaishnava and Islamic monuments as an invincible beehive of cultural noninterference and a safe paradise of peaceful coexistence. Lord Baladevjew, who is known in eighteen variegated names according to Amarakosa of 4th century A.D. is the symbolic representation of such religious cultural syncretism.

(Source:Kendrapara District Gazetteer)

03. POPULATION

As per 2011 Census the total population of Kendrapara is 14, 40,361 having a total household of 3, 21,934, the population of this district is 3.43% of the total population of the State. It was ranked 14th in the state as far as total population is concerned.

Looking at the population of 1981 to 1991, 1991 to 2001 & 2001 to 2011 it is found that the population growth of the district from 1981 to 1991 was 17.51%. Between 1991 to 2001 the population growth was 13.27%. Between 2001 to 2011 the rate of growth of population is 10.59%. The growth of population in the district in the last 10 years is 10.06%.

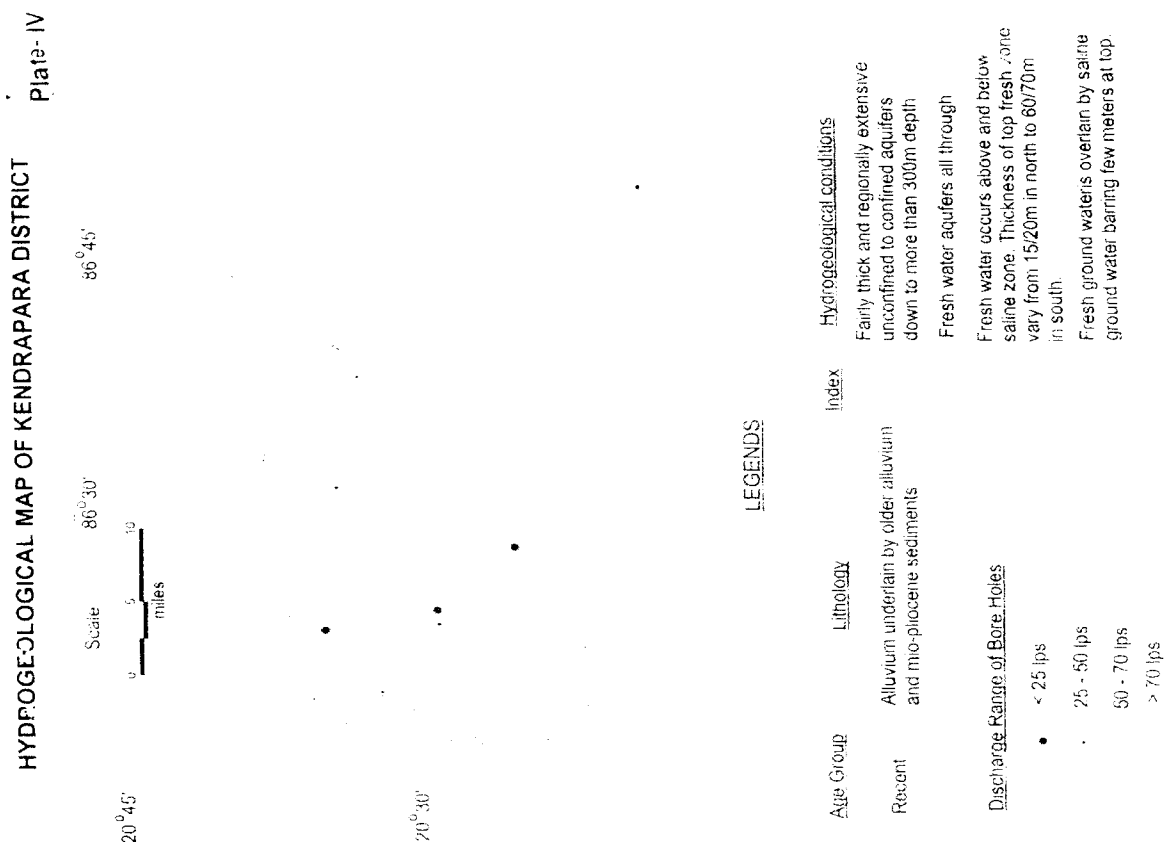
(Source:District Statistical Hand Book, Kendrapara, 2001,2007,2011)

04. Hydrology

The hydrological survey for the entire district has been covered by the hydrologists of central Ground water Board from time to time. The major river like Mahanadi & Brahmani along with their tributaries like Chitrotpala, Luna, & Kharasuan form an anastomosing and alluring drainage pattern of nature. The river Brahmani roughly bisects the district into two parts.


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A total area of 34986 hectares of land irrigated through different major, medium, minor & lift irrigation projects in 6 Tahasils namely Derabish, Garadpur, Kendrapara, Marshaghai, Mahakalapara and Pattamundai. The most important among them are Mahanadi—Chitrotpala irrigation system, Pattamundai Canal, Marshaghai Jamboo canal system etc.



05. Ground water scenario

The brief description of the district Aquifer system will be worthy to describe the ground water scenario. The aquifer system may be broadly classified into

- (i) Shallow aquifer
- (ii) Deeper aquifer


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I. Shallow Aquifer

The thickness of the shallow aquifers varies widely due to salinity. Normally the thickness of fresh shallow aquifers varies from 15m to 20m or more within the saline hazard tract lying west of Indupur- Kendrapara- Karilopatna section & east of this section the thickness generally attains almost negligible thickness of 2m to 3m. The top fresh water bearing zones extends down to 90m or 95m depth in the south western part of the district.

II. Deeper Aquifers

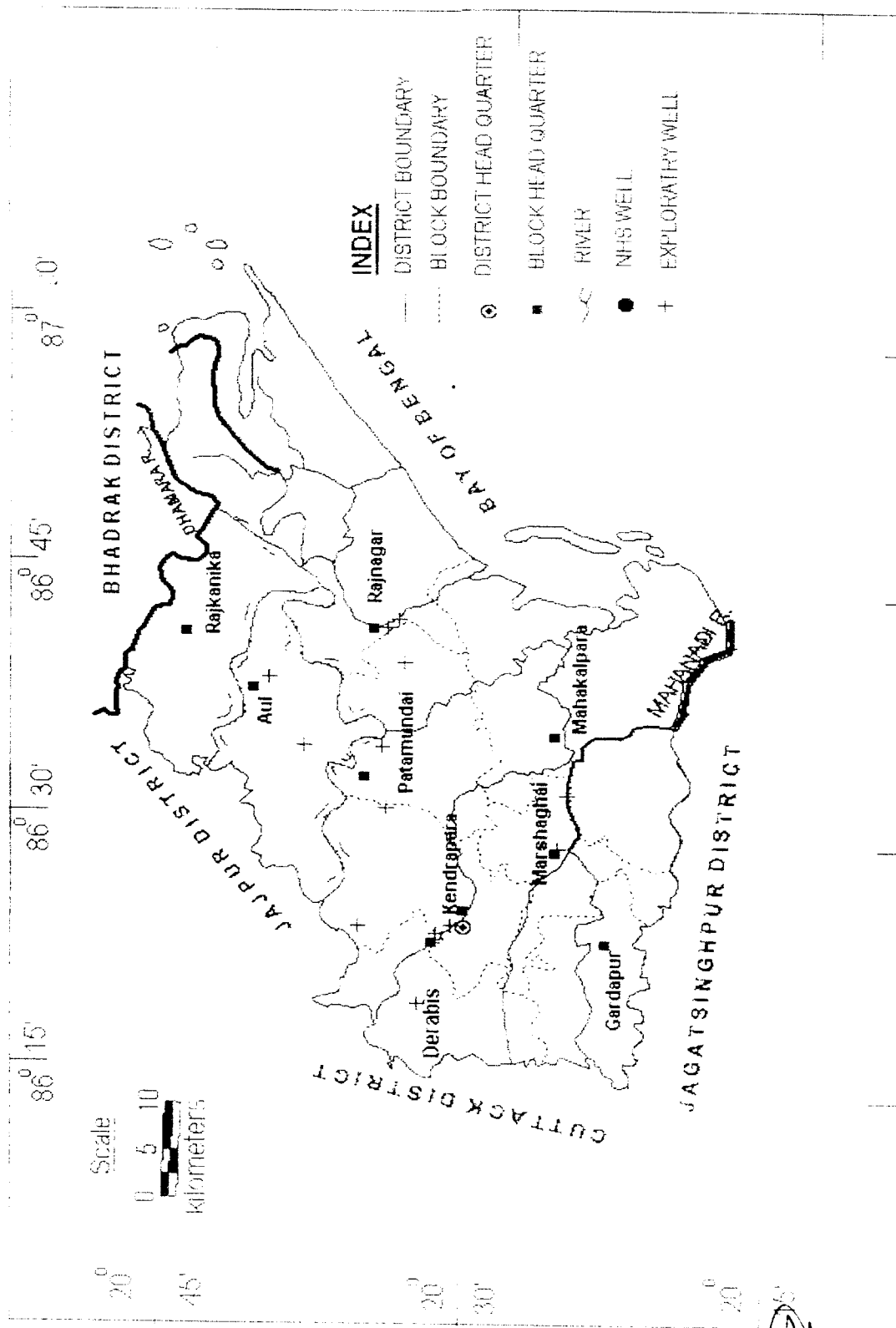
The occurrence of fresh water bearing deeper aquifer is identified from available borehole data down to a maximum depth of 612m. In the major part of the district the depth of boreholes are restricted to 300m. Generally the deeper fresh water bearing zones are sandwiched between saline water bearing zones. The cumulative thickness of the aquifers that have been tapped by the deep tube wells varies from 20 to 69 m with the average value ranging from 30 to 40. The yield of these tube wells varies from 22 to 71 ltrs per second.

The information of PH value infers that the shallow ground water in the district is alkaline in nature and is suitable for drinking purpose. However the higher concentration of fluoride, chloride & Nitrate has been found in some local pockets. Like shallow ground water the deeper ground water is also alkaline in nature & no pollutants like nitrate and fluoride have been found beyond permissible limit, thus suitable for domestic purpose.


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INDEX MAP OF KENDRAPARA DISTRICT, ORISSA

PLATE-I



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06. TRANSPORT

After the creation of this District, the road conditions gradually developed. After development of district roads, the people of this district are using vehicles to travel from one place to another place smoothly. Since then, the lengths of all categories of roads have further increased. The District at present is served by National Highway and State Highway, Major District Roads, other District roads and classified village roads, apart from municipal and village roads. The National Highway 5 (A) passes through this District. The National Highway 5 (A) previously a portion of the Daitari Paradeep Express highway starts from the National Highway No-5 at Chandikhol and proceeds up to Paradeep through Kendrapara District. This road is an all-weather and black topped road and is entirely within the District. The N.H 5(A) from Panchupandab to Nilanchal Bazar comes under the jurisdiction of Kendrapara district. The State Highway No.9 (A) is known as the Cuttack Chandbali road. It starts from Jagatpur near Cuttack and passes through Kendrapara District, i.e. Kendrapara, Derabish, Pattamundai, Aul and Rajkanika, Leaves for Chandabali of Bhadrak District after crossing the river Baitarani.

The Regional Transport Office, Kendrapara is functioning since 01-06-2009 at Kendrapara since the bifurcation from the Regional Transport Office, Chandikhole as per Commerce and Transport Department Notification vide No.3858/T Dated 27.05.2009. It covers the entire Kendrapara Revenue District. This office is functioning at Juidaspur adjacent to National Highway 5-A.

Now the construction of Paradeep-Haridaspur railway link is under progress. Similarly, the people of Batighar GP, Ramnagar GP and some other pockets of this district also use inland water ways for transport and communication by motor launches and motor boats and country boats. There is no aerodrome in this district.


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07. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT WITH LOCATION, AREA AND PERIOD OF VALIDITY

Sl. No.	Name of the Tahasil	Name of the Sand Sairat sources	Land Schedule				Period of validity
			Village	Khat a No.	Plot No.	Area (in Ha.)	
1	2	3	5	6	7	8	9
1	Aul	Kharasrota nadi sand Daitaripur to Padanipal	Daitaripur	688	1,970, 970/2506	8.093	2015-16 to 2019-20
2	Aul	Kharasrota nadi sand Panapentha to Desahi	Hinjal & Panapentha	331, 199	1/P & 199/P	5.261	2015-16 to 2019-20
3	Aul	Kharasrota nadi sand Gobindpur to Juania	Gobindapur & Juania	963	1541/P, 1547/P, 1527, 1303/P	5.746	2015-16 to 2019-20
4	Aul	Brahmani nadi sand Gangadharpur	Gangadharpur	240	342/P	5.058	2015-16 to 2019-20
5	Aul	Brahmani nadi sand Nuapada	Nuapada	712	2990/P	5.058	2015-16 to 2019-20
6	Aul	Kharasrota river sand Aragal	Aragal	1131	1/P	6.272	2015-16 to 2019-20
7	Derabish	Mangalpur Birupa river sand sairat	Mangalpur	814	1977	5.200	2015-16 to 2019-20
8	Derabish	Basupur Luna river sand sairat	Basupr		1099	5.180	2015-16 to 2019-20
9	Derabish	Aratamula Luna river sand	Artamul	582	646	5.159	2015-16 to 2019-20
10	Derabish	Bhagabatpur Luna river sand	Bhagabatpur	321	600 & 359	5.078	2015-16 to 2019-20
11	Garadpur	Luna River sand sairat Sathilo	Sathilo	241	50,56&58	5.261	2015-16 to 2019-20
12	Garadpur	Chitrotpala River sand sairat Korua	Korua	885	3128	5.058	2015-16 to 2019-20
13	Garadpur	Chitrotpala River sand sairat Panadia	Panadia	376	1208	5.101	2015-16 to 2019-20

14	Garadpur	Chitrotpala River sand sairat Arakhakuda	Arakhakuda	343	1308	5.058	2015-16 to 2019-20
15	Garadpur	Chitrotpala River sand sairat Talakusuma	Talakusuma	910	252	5.060	2015-16 to 2019-20
16	Garadpur	Chitrotpala River sand sairat Haridaspur	Haridaspur	458	1/1888, 1/1887	5.060	2015-16 to 2019-20
17	Garadpur	Luna River sand sairat Ramachandrapur	Ramachandrapur	195	526	5.060	2015-16 to 2019-20
18	Kanika	Baitarani river sand Kanapur to Manapur	Kanpur	187	739/P, 8 26/P	5.869	2015-16 to 2019-20
19	Kanika	Kharasrota river sand sairat of Charapada	Charapada	1417	4100.38 00/4167 (P)	6.831	2015-16 to 2019-20
20	Marshaghai	Luna river sand sairat of Tulasipur	Tulasipur	309	338/P	5.188	2015-16 to 2019-20
21	Marshaghai	Luna river sand sairat of Pakshyot	Pakshyot	431	429	5.131	2015-16 to 2019-20
22	Marshaghai	Chitrotpala river sand sairat of Akhuadakhini	Akhuadakhini	239	1	5.099	2015-16 to 2019-20
23	Marshaghai	Karandia river sand sairat of Goudagaon	Goudagaon	640	1302	5.139	2015-16 to 2019-20
24	Mahakalapara	Naladia sand quarry in river Mahanadi	Naladia	3	9	8.094	2015-16 to 2019-20
25	Pattamundai	Amrutamanohi Brahaamani nadi sand	Amrutamanohi	771	385	8.094	2015-16 to 2019-20
26	Pattamundai	Taradipal Brahmani nadi sand	Taradiapal	1504	5006	5.058	2015-16 to 2019-20
27	Pattamundai	Penthapala Amrutamanohi Brahmani nadi sand	Penthapal	1227 & 771	4161 & 65	6.070	2015-16 to 2019-20
28	Pattamundai	Alapua Brahmani nadi sand (Alapua)	Alapua	913	3506	5.000	2015-16 to 2019-20
		Total				157.336	


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08. DETAILS OF ROYALTY OR REVENUE COLLECTED IN LAST 3 YEARS

Sl. No.	Name of the Tahasil	Name of the Sand Sairat sources	Collection of royalty / revenue made in last 3 years (in Rs.)		
			2016-17	2017-18	2018-19
1	2	3	4	5	6
1	Aul	Kharasrota nadi sand Daitaripur to Padanipal	101136	141456	141456
2		Kharasrota nadi sand Panapentha to Desahi	84870	118910	118910
3		Kharasrota nadi sand Gobindpur to Juania	59180	82940	82940
4		Brahmani nadi sand Gangadharpur	36072	50472	50472
5		Brahmani nadi sand Nuapada	13890	55560	55560
6		Kharasrota river sand Aragat	54520	75800	75800
7	Derabish	Mangalpur Birupa river sand sairat	428080	275384	351732
8		Basupur Luna river sand sairat	3777591	1154185	1678890
9		Aratamula Luna river sand	690119	409692	543230
10		Bhagabatpur Luna river sand	1486159	817469	1151814
11	Garadpur	Luna River sand sairat Sathilo	1712190	1712190	1712190
12		Chitrotpala River sand sairat Korua	236664	236664	236664
13		Chitrotpala River sand sairat Panadia	51408	51408	51408
14		Chitrotpala River sand sairat Arakhakuda	43911	43911	43911
15		Chitrotpala River sand sairat Talakusuma	121175	184680	184680
16		Chitrotpala River sand sairat Haridaspur	197732	365400	365400
17		Luna River sand sairat Ramachandrapur	252000	252000	252000
18	Kanika	Baitarani river sand Kanapur to Manapur	151641	151641	151641
19		Kharasrota river sand Sairat, Charapada	120828	162452	0
20	Marshaghai	Luna river sand sairat of Tulasipur	2649820	546342	546342
21		Luna river sand sairat of Pakshyot	461191	461191	461191
22		Chitrotpala river sand sairat of Akhuadakhini	173501	173501	173501
23		Karandia river sand sairat of	529290	529290	529290

24	Mahakalapara	Goudagaon Naladia sand quarry in river Mahanadi	3736122	496415	557023
25	Pattamundai	Amrutamanohi Brahaamani nadi sand	1037984	290476	369234
26	Pattamundai	Taradipal Brahmani nadi sand	524976	505116	0
27	Pattamundai	Penthapala Amrutamanohi Brahmani nadi sand	866757	319402	319402
28	Pattamundai	Alapua Brahmani nadi sand (Alapua)	847049	856866	1034012

09. DETAILS OF PRODUCTION OF SAND IN LAST 3 YEARS

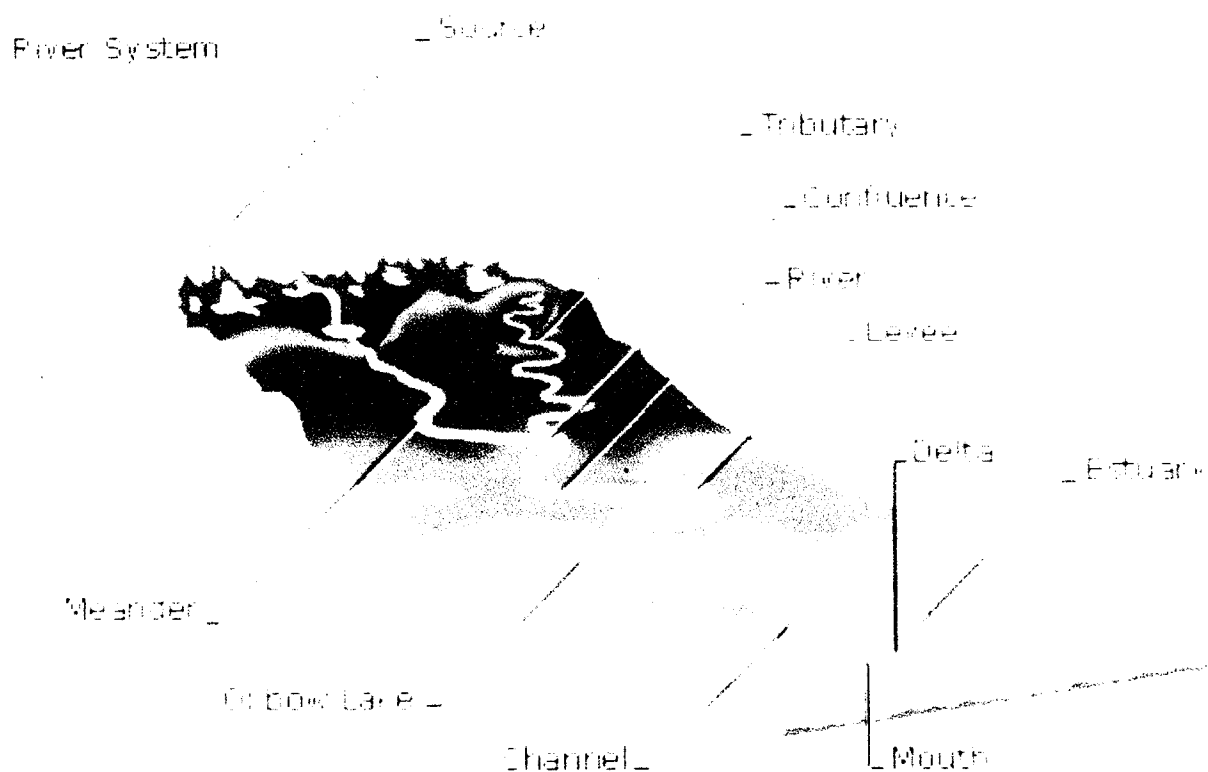
Sl. No.	Name of the Tahasil	Name of the Sand Sairat sources	Production of sand in last 3 years (in Cubic meter)		
			2016-17	2017-18	2018-19
1	2	3	4	5	6
1	Aul	Kharasrota nadi sand Daitaripur to Padanipal	336	336	336
2		Kharasrota nadi sand Panapentha to Desahi	230	230	230
3		Kharasrota nadi sand Gobindpur to Juania	220	220	220
4		Brahmani nadi sand Gangadharapur	72	72	72
5		Brahmani nadi sand Nuapada	76	76	76
6		Kharasrota river sand Aragal	200	200	200
7	Derabish	Mangalpur Birupa river sand sairat	8,436	8,436	8,436
8		Basupur Luna river sand sairat	46,361	46,361	46,361
9		Aratamula Luna river sand	14,047	14,174	13,919
10		Bhagabatpur Luna river sand	31,333	31,333	31,333
11	Garadpur	Luna River sand sairat Sathilo	30088	28085	33082
12		Chitrotpala River sand sairat Korua	2503	2584	1500
13		Chitrotpala River sand sairat Panadia	1200	1200	1100
14		Chitrotpala River sand sairat Arakhakuda	1400	1400	1400
15		Chitrotpala River sand sairat Talakusuma	0	3040	3040
16		Chitrotpala River sand sairat Haridaspur	9500	10500	11300
17		Luna River sand Sairat Ramachandrapur	1000	4500	5000
18	Kanika	Baitarani river sand Kanapur to	1,400	1,400	1,400

19		Manapur Kharasrota river sand Sairat, Charapada	521	521	521
20		Luna river sand Sairat of Tulasipur	64,174	14,000	14,000
21		Luna river sand Sairat of Pakshyot	11,109	11,229	11,343
22	Marshaghai	Chitrotpala river sand sairat of Akhudakhini	3,375	3,375	3,375
23		Karandia river sand sairat of Goudagaon	12,460	12,460	12,460
24	Mahakalapara	Naladia sand quarry in river Mahanadi	1,400	1,400	1,400
25	Pattamundai	Amrutamanohi Brahaamani nadi sand	3520	3520	1020
26	Pattamundai	Taradipal Brahmani nadi sand	6123	6123	0
27		Penthapala Amrutamanohi Brahmani nadi sand	9435	3145	3145
28	Pattamundai	Alapua Brahmani nadi sand (Alapua)	693	762	838

10. PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT

Rivers are the most powerful agent of sedimentation process which includes Erosion, transportation and deposition of the eroded materials. Generally the eroded materials comprise of rocks, organic matters etc. The processes of sedimentation in the district are being done by the fluvial action of the major rivers like Brahmani, Mahanadi and its tributaries. The sedimentation process is seen to be highest in the rainy season between mid-June to mid-September. The size of the sediments so deposited varies from fine gravel to very fine sand and in some places silt and clay are also found. At their lower end these rivers form numerous estuaries, small islands in Mahakalapada and Rajnagar area. The alluvial deposits done by the rivers in their bank are very fertile utilized for cultivation of various vegetables, cereals, and cash crops like jute etc.


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11. General Profile of the District

Kendrapara District was created on 1st of April 1993 covering an area of 2,644 Sq. Km. District Head Quarters, Kendrapara - 85 Km from State Capital

No. of Subdivision	-	1
No. of Tahasil	-	9
No. of R.I Circles	-	92
No. of Blocks	-	9 i.e. Kendrapara, Aul, Marshaghai, Rajkanika, Pattamundai, Mohakalapara, Rajnagar, Garadpur, Derabish.
No. of Municipalities	-	2 nos. Kendrapara & Pattamundai.
No. of Assembly constituency-		5nos. Kendrapara (SC), Patkura, Rajnagar, Mohakalapara, Aul,
No. of G.Ps	-	230

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No. of Revenue Villages	—	1592
No. of Police Station	-	13
No. of Out Posts	-	6
No. of ICDS Projects	-	9

12. Land Utilization Pattern in the District

1) Geographical Area	2,29,762 Ha.
2) Area under Forest	2946 Ha.
3) Misc. tree crops and groves not included in the net area shown	1787 ha.
4) Permanent Pastures and other grazing land	11818 Ha
5) Cultivable Waste	2565 Ha
6) Land put to non-agricultural uses	45546 Ha.
7) Current fallow	12224 Ha.
9) Other fallows	8832 Ha.
10) Net area Sown	143912 Ha.
11) Total Cultivated Area	152000 ha
12. Gross cropped Area.	231849 Ha.

2) Cultivated Area

a) High land	31,081 Ha.
b) Medium land	71890 Ha.
c) Low land	<u>49029 Ha.</u>
Total	1,52,000 Ha.

3) A. Paddy Area

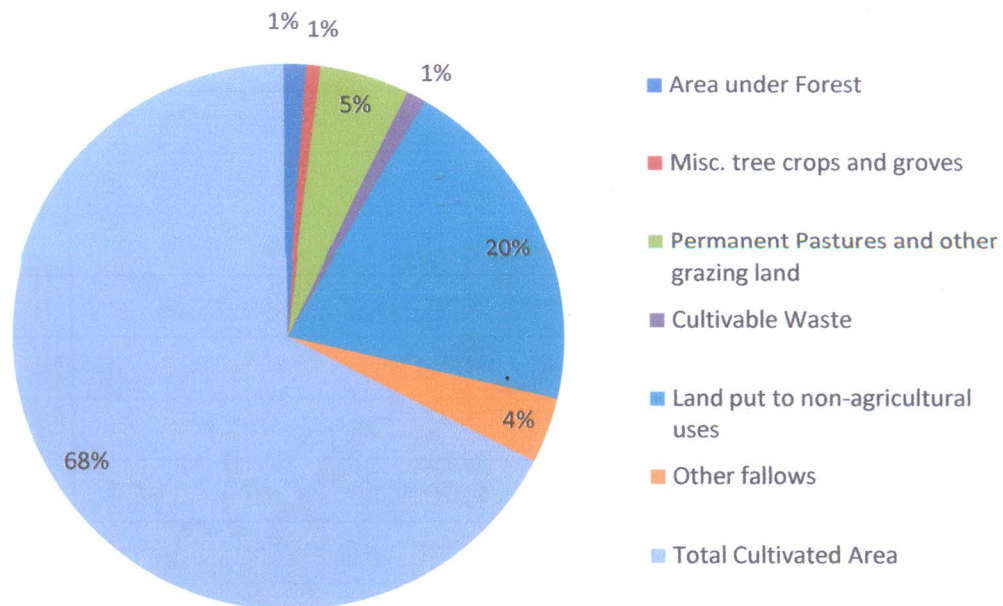
a) High land	10,562 Ha.
b) Medium land	64,381 Ha.
c) Low land	<u>49,029 Ha.</u>
Total	1,23,972 Ha.

B. Non- paddy Area

28,028 Ha

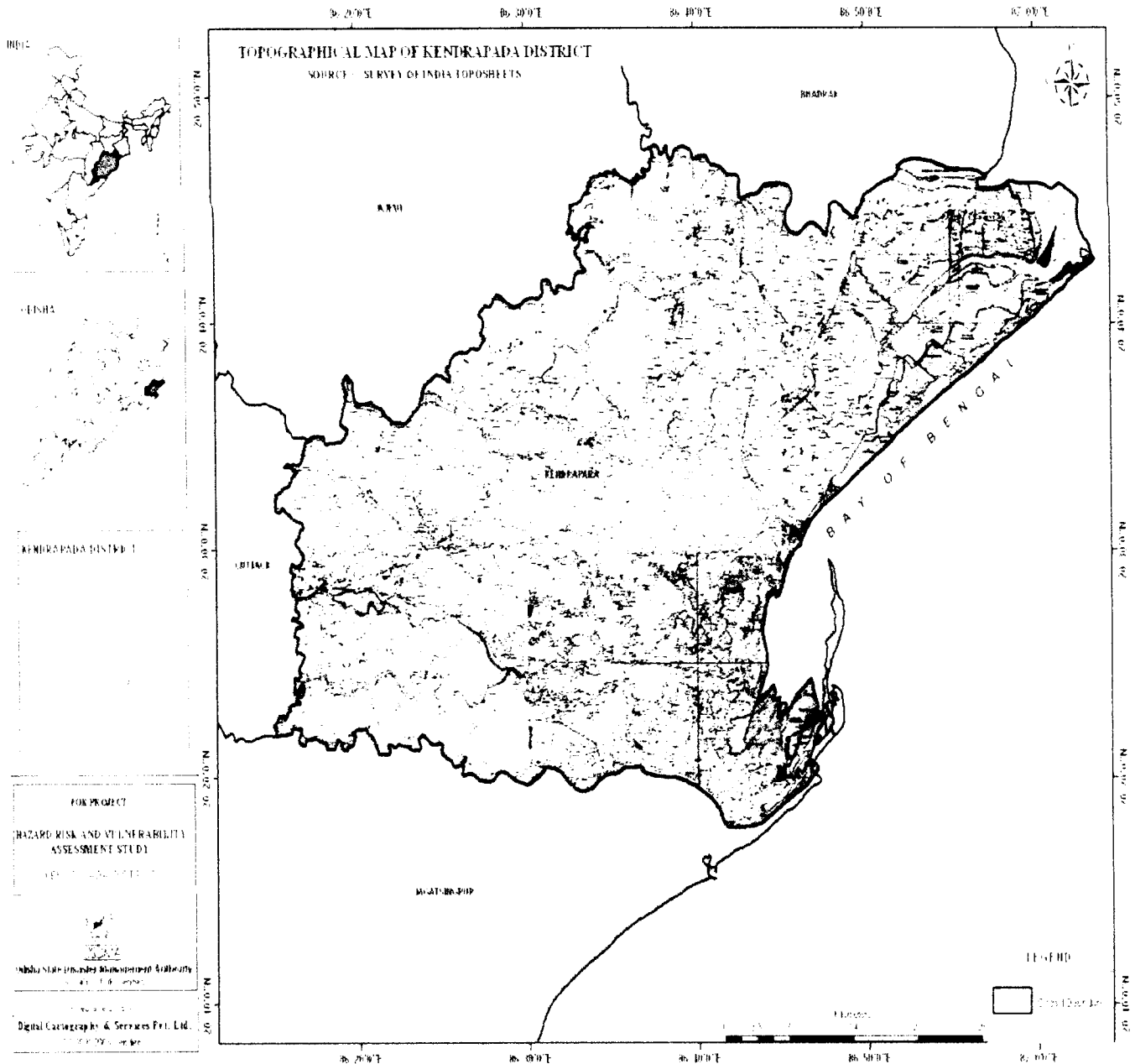

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Land utilization pattern




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Topographic map of Kendrapara



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13. PHYSIOGRAPHY OF THE DISTRICT

Physiographically the district can broadly be divided into two distinct units, viz.

- i. The saline marshy tract along the coast
- ii. The very gently sloping plain

The saline marshy tract forms a long and narrow strip along the coast. The width of this tract varies from 3 to 15 m and is intersected by tidal streams and covered by shrubby vegetation. The gently sloping alluvial plains with the altitudes varying between 10.5 m amsl in the north western part to 2.15 m amsl in the east occurs in the west of the marshy saline tract and form most fertile part of the district. The general slope of the district is towards east and southeast and varies from 5m/km in the west to 1.6 m/km in the eastern part

14. RAIN FALL

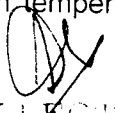
The southwest monsoon is the principal source of rainfall in the district. The district is characterized by a tropical monsoon climate having three distinct seasons in a year viz. winter, summer and rainy seasons. The Bay of Bengal, which forms the eastern boundary of the district, plays a vital role in controlling the climate of the district.

Average rainy days/ Annum:78 days

The month wise rainfall data of Kendrapara District (last 4 years)

F. Year / Month	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
15-16	78.44	26.00	121.00	431.33	247.89	123.33	87.67	19.22	0.33	2.44	17.00	6.44	1161.09
16-17	4.00	184.22	192.67	216.48	510.47	276.09	149.68	83.18	0.00	0.67	0.00	81.47	1698.93
17-18	2.67	30.53	142.83	343.24	330.92	148.02	228.89	146.16	48.93	0.00	0.00	0.00	1422.19
18-19	18.42	100.89	251.89	383.84	270.07	653.04	204.89	0.00	2.78	0.00	0.00	33.88	1919.70
AVG	25.88	85.41	177.10	343.72	339.84	300.12	167.78	62.14	13.01	0.78	4.25	30.45	1550.48

Climatic Condition: The climate is generally hot with high humidity. The month of May is usually the hottest month with mean daily maximum temperature of 40°C and minimum of 30°C. December is the coldest month of the year with mean daily maximum temperature of 27.4°C and minimum of 14.9°C.


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FOREST:

The entire district of Kendrapara comes under two forest Divisions, i.e. Rajnagar (wildlife) Forest Division and Cuttack Forest Division. The natural vegetation in the district varies from dry deciduous Forest to tidal mangrove swampy forest. The flora of the former forest includes teak, sal, bamboo, mango, Eucalyptus, acacia, neem tree, chakunda tree, burflower (kadamba) etc. Apart from that, about 62 mangrove species occur in the Bhitarkanika wildlife National park including Avicenna, Bruguiera, Heritiera and Rhizophora.

BHITARKANIKA NATIONAL PARK

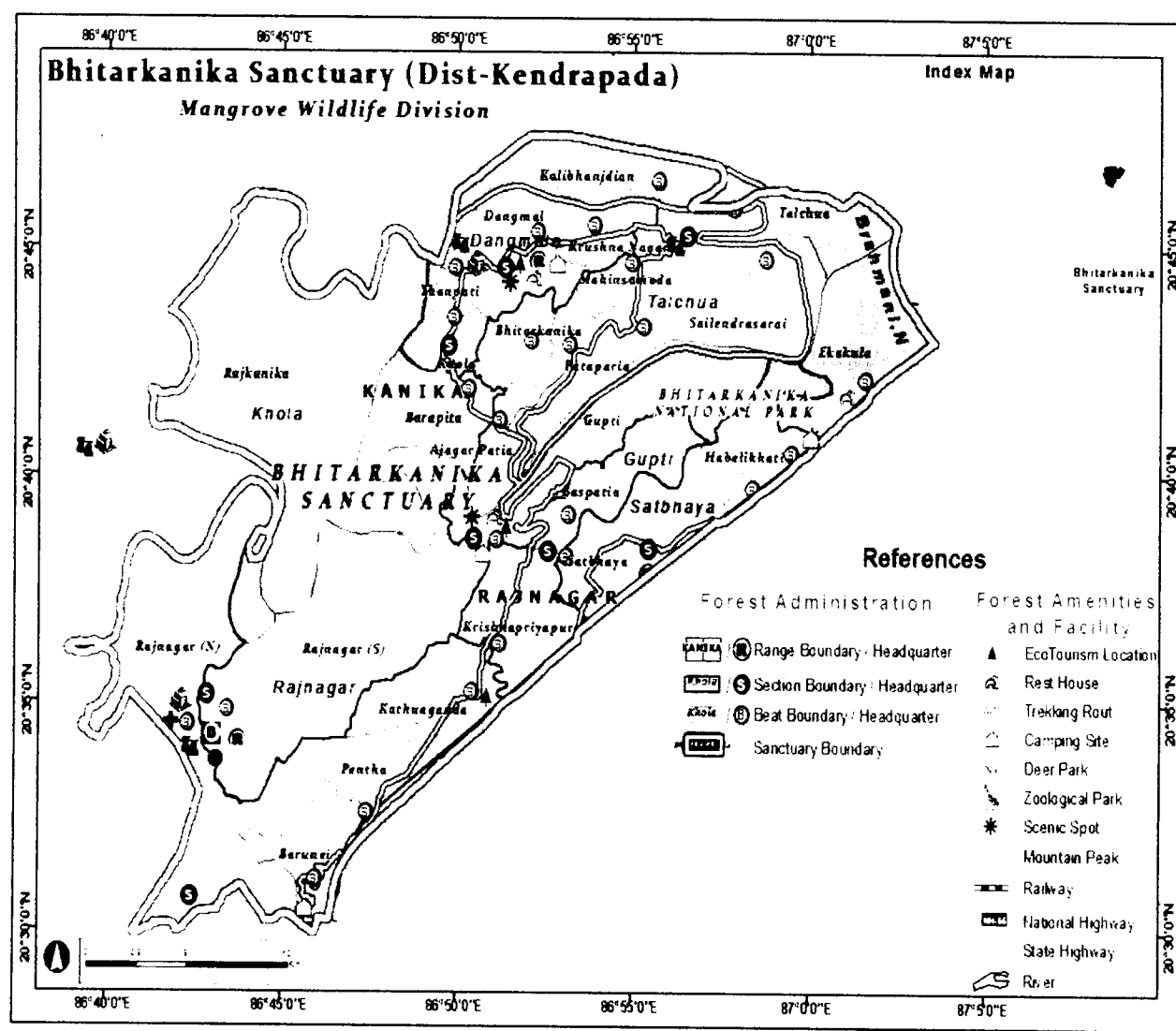
An area of 145 Sq. kms. have been notified as Bhitarkanika National Park vide Notification No.19686/F & E dated 16.9.1998 of Forests & Environment department, Govt. of Orissa. It has much significance with regard to ecological geomorphological and biological background which includes mangrove forests, rivers, creeks, estuaries, back water, accreted land and mud flats. Bhitarkanika National Park is the core area of Bhitarkanika Sanctuary.

BHITARAKANIKA SANCTUARY

Bhitarkanika Wildlife Sanctuary was declared vide notification No.6958/FF AH Dtd. 22.04.1975 over an area of 672 square kilometres. The Sanctuary comprising Mangrove Forests meandering rivers, innumerable criss-crossed tidal inundated creeks provide last refuge to the already endangered salt water Crocodile (*Crocodile Porosus*). Besides estuarine Crocodile, the Sanctuary is rich in avifauna mammalian and reptilian population. Theses Mangrove forests are good habitat for King Cobra, Indian Python & Water Monitor Lizard. A large number of water birds visit Bagagahan heronry which is an area of approximately 4 hectare within the Bhitarkanika Forest Block near Suajore creek from the month of June to October. Most of the Birds are Asian open bill. Egrets, Black Ibis, Cormorants, Darters & etc. The Details of forest are given below.


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Sl. No.	Reserve Forest / Protected Forest (in Sq. Km)	Revenue / Village Forest	Total (in Sq. Km)
1	2	3	4
1	R.F. = 1590.30Ha. (1590.30 x 0.01 Sq.Km=15.903 Sq. Km.	8300.86Ha =8300.86 X 0.01 = 83.0086 SqKm	39344.91 =39344.91 X 0.01=393.4491 SqKm
2	P.R.F. = 14300.49Ha. (14300.49 x 0.01 Sq.Km=143.0049 Sq. Km.	-	-
3	P.F. = 15153.26Ha. (15153.26 x 0.01 Sq.Km=151.5326 Sq. Km.	-	-



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15 Drainage System

Kendrapara district is being drained by three important rivers and their tributaries such as Brahmani, Mahanadi and Baitarani.

I No	Name of the river	Total length in the district (in Km)	Area drained (Sq. Km)	% Area drained (Sq. Km)
1	2	3	4	5
1	Brahmani	88	913	36%
2	Chitrotpala	60	1350	52%
3	Baitarani	25	304	12%

16. GEOLOGY

The distribution of different soil types in the district depends much on its physiographic and lithologic variations. Based on the physical and chemical characteristics, mode of origin and occurrence, soils of the district may be classified into three groups namely Alfisols, Aridisols and Entisols.

Alfisols: This includes deltaic alluvial soils and this type of soils occupies nearly 90% of the entire district area. The deltaic alluvial soils are generally deficient in phosphate (P_2O_5) and nitrogen (N). Both the total and available potassium are fairly adequate and PH varies between 6.5 and 7.3.

Aridisols: These are saline and saline alkali soils and occur in small pockets in the north eastern and south eastern corner of the district near coast. These are rich in calcium, magnesium and also consist of half decomposed organic matter.

Entisols: These include coastal sandy soils and occur as narrow elongated ridge along the coastline. The soils are deficient in nitrogen, phosphoric acid and humus, but not in potash and lime.

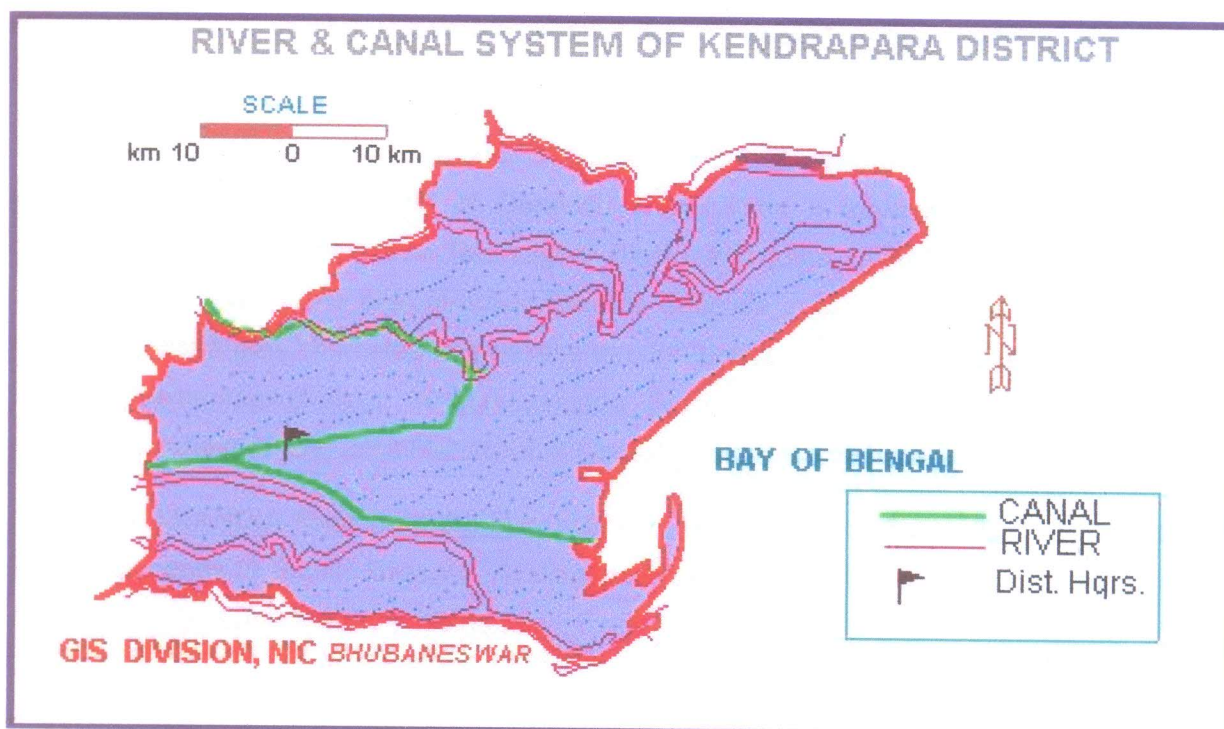

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17. Silent features of River Systems

There are three major river systems in this District. They are:

1. The Mahanadi system
2. The Bramhani system
3. The Baitarani system

Cultivable alluvial plains are formed from the deposits of the above river systems and contribute to agricultural prosperity of the district. The district is bisected by rivers like the Mahanadi, the Brahmani and the Baitarani and many other streams and their tributaries like Luna, Chitrotpala, Karandia, Govari, Kharashuan, Dhamara, Meinpura, Kani and Birupa.




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The Mahanadi System:

The **MAHANADI** originates from Maikal range in Chhatisgarh popularly known as the Amar Katak Plateau and enters into Odisha through Sambalpur and flows through Dhenkanal, Cuttack, Jagatsinghpur and enters Kendrapara district in south at Raipur of Mahakalpada Block. Then it passes through Khursia, Kulla and embraces the river Luna at Chaumuhani. Then it makes its passage to Bahukud, Hetamundia and finally meets the Bay of Bengal near the False Point at 20° 18' N. and 86° 43' E. longitude.

The **CHITROTPALA** flows from Mahanadi at Bisharpur in Cuttack district and makes its passage to this district at Matanga (Talakusuma) in Garadpur block. The Mahanadi after crossing Cuttack town moves eastward and splits into Chitrotpala, Paika and Mahanadi. Chitrotpala after flowing some distance parallel to Luna joins the Mahanadi at Badapada of Cuttack district. After flowing through Garadpur and Patkura touches the river Luna at Kuanarpala in Marsaghai Block.

The river **LUNA** flows from the river Chitroptala at Sunaria in Cuttack district and enters into Kendrapara district at Girigola of Derabish block. Then it traverses through Danpur (Derabsih Block) Baspur, Kalapada (Marsaghai Block) and joins Chitropala at Kunarapala. Afterwards, it proceeds in the east direction towards Balikuda in Mahakalapada block. At this point, the river again gets bifurcated and passes through both sides of Dasmouji Gheri to rejoin at Teragan Samantasingharpur in Mahakalpada Block. After that, it proceeds towards Gojabandha, Gokhakhati and joins Mahanadi at Choumuhani in Mahakalapada Block.

River **KARANDIA** flows from the river LUNA in its right side at Balipada of Kendrapara district and proceeds to Sathilo Basupur, Ayatpur and rejoins Luna at village Karandia, creating an Island known as 'Luna Karandia Island'.

The river **GOVARI** flows from Mahanadi-Paika Island at Bahadulpur in Cuttack district, traverses through Jajpur district at Panchu Pandav in north-west direction,. The river forms almost a border line between the districts of Jajpur and Kendrapara. After entering into the district, it passes through Paripala (Derabish Block) Rajanga, Raghudeipur, Kurjanga, Kendrapara Municipality, Nagpura (Kendrapara Block) , Endara, Madhukula, Bagachhelia, Chandipur (Mahakalapada Block) and finally merges with the Bay of Bengal at Batighara mouth


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near Jambu of Mahakalapada Block. The river traverses a total distance of 227.20 Kms out of which 149 Kms are in the district of Kendrapara.

River **PAIKA** flows from Mahanadi in Cuttack district, and enters in to Kendrapara district in the northwest at Benipur of Derabish block. Then it proceeds to Indupur (Kendrapara Block) and joins river Brahmani at Ghagara.

The Bramhani System:

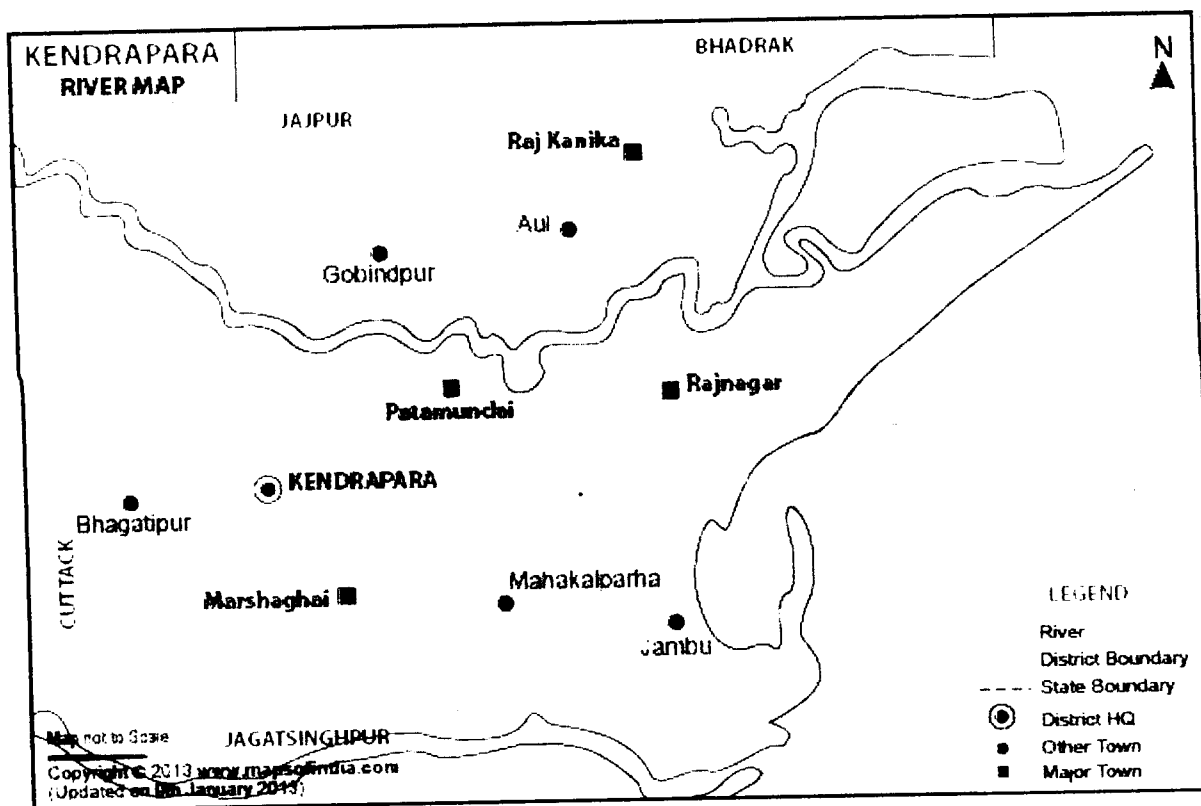
The **BRAMHANI** originates as a combined stream of two small streams called Sankhua and Koel, originated from Chhotnagpur plateau, which meets at Vedavyas near Panposh in Sundergarh district. At-Jenapur, the river gets split into two major streams, the Brahmani and its distributary, the Kharasuan. Flowing a considerable distance through the delta, the river Kharasua falls into the mother stream and the enlarged river gets released into Bay of Bengal by two mouths, the Dhamara and Mianpora .

River **KHARASROTA** popularly known as **Kharasuan** enters in to the district of Kendrapara from Jajpur district at Boijarudiha in Aul Block in the northwest, flows through Balijori, Giribandha, Ranipokhari, Balakati, Jamudanda and joins the river Brahmani at Dakshina Bedha in Rajnagar block.

River **KANI** enters into Kendrapara district from Jajpur district. It is near Arlio, Kantipur in Aul Block that the river penetrates into the district, makes its passage through Natara, Thakurpatna, Manpur, Aul and finally joins the river Kharasrota at Baulajori in Aul Block.

River **HANSUA**, a tributary of Mainpura has originated at Patrapur of Rajnagar block where Brahmani is being split into Dhamara and Mainpura. After flowing parallel to the Bay of Bengal, it meets the sea at Praharajpur, 9 Kms. away from Batighara.


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The Baitarini System:

The river **BAITARANI** originates in the up-lands of Keonjhar district located to the north-west of Kendrapara district. The southern branch of this river traverses through the district of Cuttack and touches the district of Kendrapara at Kanarpur in Rajkanika block. It flows as a border line between the district of Bhadrak and Kendrapara. On its banks, it touches Manapur, Paniki, Langalabandha, Matia, Ostia, Gualigaon, Bangarakua, Baradia, Mantapara, Upulei, Endulapur, Bajarpur and meets the river Brahmani at Nalitapatia (Rajnagar block). Subsequently it bears the name Dhamra River and proceeds towards east to finally merge in the sea at Dhamara mouth.

The river flows nearly 35 Kms in the district of Kendrapara up to Nalitapatia and then along with the water of river Brahmani, it flows about 16 Kms up to Dhamara mouth. On her way, she throws various creeks in to the district of Kendrapara such as: Chadheikhia Nala, Bagi Nala, Gopalpur Nala, Taila Nala, Kalikapur Nala, Baradia Jora, Betanasi Jora, Anantapur Jora & Nuagaon Jora.


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Other minor rivers of the district which are locally known as Nallas , Joras and Gullias are (1) Gahiramatha Nalla, (2) Baunsagada Nalla, (3) Chitrotpala Nalla, (4) Kharanasi Nalla, (5) Hanumanta Nalla, (6) Papuli Nalla, (7) Bhitarkanika Nalla, (8) Sukhuamuhan Nalla, (9) Budhia Nalla, (10) Kani Nalla, (11) Chhedakani Nalla, (12) Singha Nalla, (13) Kendrapatia Nalla, (14) Jagarjora, (15) Manda Jora , (16) Kutha Jora, (17) Batighar Gallia , (18) Ramchandi Gallia, (19) Babar Gallia etc. Most of these minor rivers of the district are charged with tidal ingression during monsoon season and give rise to floods.

An overall survey of the district reveals that there are 16574 number of TANKS & PONDS covering a total geographical area of 2981.59 hectors; out of which 1611 tanks and ponds covering an area of 707.08 hect. are owned by Gram Panchyats, 1128 covering an area of 452.53 hectors are owned by revenue department, 13835 number of tanks and ponds covering an area of 1622.08 hectors are privately owned.

18. Mineral Potential

The main mineral wealth of Kendrapara district is Sand which is scheduled under O.M.M.C Rules as a “minor mineral”. A total area of 157.336 Ha. has been marked of having potential of **6191044.57 MT** sand production, the detail of which is given below.

Name of the Tahasil	Name of the Sand Sairat Source	Total reserved Sand (in MT)	Total Mineable Mineral Potential (in MT) as per Mining Plan
1	2	3	4
Aul	Kharasrota nadi sand Daitaripur to Padanipal	4757.34	4048.80
Aul	Kharasrota nadi sand Panapentha to Desahi	4747.70	2771.50
Aul	Kharasrota nadi sand Gobindpur to Juania	4277.75	2651.00
Aul	Brahmani nadi sand Gangadharpur	2441.33	867.60
Aul	Brahmani nadi sand Nuapada	2185.87	915.80
Aul	Kharasrota river sand Aragal	4322.335	2410.00

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Derabish	Mangalpur Birupa river sand sairat	144804.90	101653.80
Derabish	Basupur Luna river sand sairat	603427.90	558650.05
Derabish	Aratamula Luna river sand	168953.10	168955.46
Derabish	Bhagabatpur Luna river sand	507943.70	377562.65
Garadpur	Luna River sand sairat Sathilo	519837.00	398662.20
Garadpur	Chitrotpala River sand sairat Korua	304744.50	50031.60
Garadpur	Chitrotpala River sand sairat Panadia	121155.50	14749.20
Garadpur	Chitrotpala River sand sairat Arakhakuda	31870.21	17637.59
Garadpur	Chitrotpala River sand sairat Talakusuma	52315.60	39042.00
Garadpur	Chitrotpala River sand sairat Haridaspur	179123.32	151830.00
Garadpur	Luna River sand sairat Ramachandrapur	93572.30	63262.50
Kanika	Baitarani river sand Kanapur to Manapur	22088.86	16870.00
Kanika	Kharasrota river sand sairat	8826.625	6278.05
Marshaghai	Luna river sand sairat of Tulasipur	864322.40	410538.68
Marshaghai	Luna river sand sairat of Pakshyot	716685.80	135157.62
Marshaghai	Chitrotpala river sand sairat of Akhuadakhini	52832.02	40668.75
Marshaghai	Karandia river sand sairat of Goudagaon	402349.50	150143.00
Mahakalapara	Naladia sand quarry in river Mahanadi	140237.91	174510.51
Pattamundai	Amrutamanohi Brahaamani nadi sand	145082.00	42416.00
Pattamundai	Taradipal Brahmani nadi sand	123994.50	73782.15
Pattamundai	Penthapala Amrutamanohi Brahmani nadi sand	731435.00	68875.39
Pattamundai	Alapua Brahmani nadi sand (Alapua)	232709.60	9264.04
	District Total	6191044.57	3084205.94


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