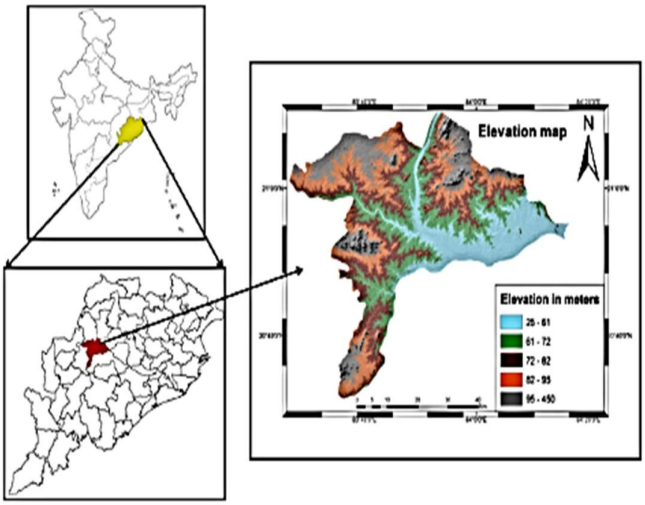
DISTRICT SURVEY REPORT (DSR)
OF
SUBARNAPUR DISTRICT, ODISHA
FOR
RIVER SAND

(FOR PLANNING & EXPLOITATION OF MINOR MINERAL RESOURCES)



As per Notification No. S.O. 3611(E) New Delhi
Dated 25th July 2018 of
Ministry of Environment, Forest & Climate Change
(MoEF & CC)
COLLECTORATE SUBARNAPUR

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PREAMBLE

Odisha is one of the Major Mineral rich State in India. Subarnapur comes under 9th Agro-climate zone of Orissa.i.e. Western Central Table Level.It is located in the Mahanadi River Basin. Subarnapur is a unique District in Odisha lies on the Western most part of the State with rich and varied mineral resource. It is a paradise for Geoscientists of India and aboard. It has preserved many important rock groups from the earliest of crust formation to the geologically recent times. The landmass constituting the Subarnapur District, explorers to many Entrepreneurs on account of its diverse geological setting and rich and varied mineral resources.

In pursuance of MoEF & CC Notification S.O. 141(E) dated 15th Jan. 2016, District Environment Impact Assessment Authority (DEIAA) & District level Expert Appraisal Committee (DEAC) has been formed for Category –B2 Minor Minerals having area less than or equal to 5 ha. Prior to the formation of Odisha Minor Mineral Concession Rule 2004, (OMMCR -2004) the mining operation for minor mineral were carried out in unscientific manner. Identifying this fact in exercise of power, Conferred by Section 15 by Mines and Minerals (Development and Regulation) Act 1957 as amended in 2015 and all other powers enabling it in that behalf, the industry Mines & Geology Department, Govt. of Odisha framed the aforementioned rule, which has been amended with period of times in the year 2014, 2015 and 2016.

Keeping in view of experience gained in period of decade, the MoEF & CC came out with Environmental Impact Assessment Notification S.O.-1533(E) dated 14th Sept. 2006. It has been made mandatory to obtain environmental clearance for different kinds of development projects as listed in Scheduled -I of notification. Further, pursuance of the order of Hon' ble Supreme Court Petition (C) No. 19628- 19629 of 2009, dated 27th Feb. 2012 In the matter of Deepak Kumar etc., Vs State of Haryana and others etc., Prior Environmental Clearance has now become mandatory for mining of Minor Minerals irrespective of the area of Mining Lease. And also in view of the Hon' ble National Green Tribunal, order dated the 13th Jan. 2015 the matter regarding Sand, Brick Earth, & Burrowed Earth cutting for Road Construction has to take prior E.C. for Mining Lease irrespective of the fact that whether the area involved is more or less than 5 hectares. They also suggested to make a policy on E.C for minor minerals lease in cluster.

MoEF & CC in consultation with State Government has prepared Guidelines on Sustainable Sand Mining & Minor minerals other than sand mining in 2016, detailing the provisions on Environmental Clearance for cluster. Creation of District Environmental Impact Assessment Authority (DEIAA) & proper monitoring of Minor Minerals. Mining, using Information Technology to track the mineral out material from source to destination.

DEAC will scrutinize and recommend the prior environmental clearance of mining of minor mineral to DEIAA on basis of District Survey Report. This will model and guiding document which is a compendium of available mineral resources, geographical setup, Environmental and Ecological set up of the District and replenishment of minerals and is based on data of various departments, published reports, Journal and websites. Subsequently, Hon'ble Supreme Court vide their order dt. 18.01.2022 in connection with Civil Appeal Nos. 3661-3662 of 2020, the State of Bihar and others Vrs- Pawan Kumar and others at Paragraph 14 " We therefore find it appropriate to substitute the directions issued by Tribunal vide judgment and order dated 14th October-2020 with the following directions,

(i). The exercise of preparation of DSR for the purpose of mining of the State of Bihar in all the Districts shall be under taken afresh. The Draft DSRs shall be prepared by the Sub-Divisional Committees consisting of the Sub-Divisional Magistrate, Officers from Irrigation Department, State Pollution Control Board or Committee, Forest Department, Geological or Mining Officer. The same shall be prepared by undertaking site visits and also using by modern technology. After the Draft DSRs are prepared the District Magistrate of the concerned District shall forward the same for examination and evaluation by the SEAC. The same shall be examined by the SEAC and its report shall be forwarded to SEIAA. The SEIAA will thereafter consider the grant of approval such DSRs.

(ii). Needless to state that while preparing DSRs and appraisal thereof by SEAC and SEIAA. It should be ensured that a strict adherence to the procedure and parameters laid down in the policy of January-2020 should be followed.

The District Survey Report will form the basis for application for Environmental Clearance, preparation of reports and appraisal of projects. District Survey Reports are to be reviewed once in every five years as per statue.

In lieu of above guideline and orders of Hon'ble Supreme Court and in compliance to the orders of Hon'ble NGT, EZ, Kolkata, in connection with O.A No. 63/2020, the Member Secretary, SEIAA, Bhubaneswar issued a Letter on 27th December, 2022 to Collector & District Magistrate, Subarnapur with a direction " the DSR is to be signed afresh by the Collector and District Magistrate, along with members of the designated sub-committee consisting of Sub-Divisional Magistrate, and District Level Officers from Irrigation Department, State Pollution Control Board, Forest Department, Geology and /or Mining Department. Keeping in view of the orders of Hon'ble Supreme Court, Hon'ble NGT and directions of SEIAA, Bhubaneswar a fresh DSR has been prepared observing all formalities in the year,2023

The Main objective of the preparation of District Survey Report is to ensure the following:-

1. Identification of Mineral Resources in the District.
2. Identification of areas of minor minerals having the potentiality where mining can be allowed.
3. Identification of area and proximity to infrastructure and installations where mining should be prohibited.

1.0 INTRODUCTION

Subarnapur at a Glance:

1.1 Location and Geographical Area:

Subarnapur District, also called **Sonepur District** or **Sonapur District**, is an administrative district in Odisha state in eastern India. The town of Sonepur is the district headquarters. Sonepur is known as the Mandiramalini town (city of temples) of Odisha with more than hundred temples. The people of the Sonepur region are referred to as Sonepuria . The district spreads over an area of 3634 sq.km lies between 20° 30' North and 20°10' North latitudes and 83°27' and 84°15' East longitudes. The District is surrounded by 4 Districts namely Bolangir(west), Boudh(South), Sambalpur(East) and Bargarh(North). This District consists of two Sub-Divisions namely Sonepur and Birmaharajpur. There are 8 Tahasils for 6 Blocks of the District.

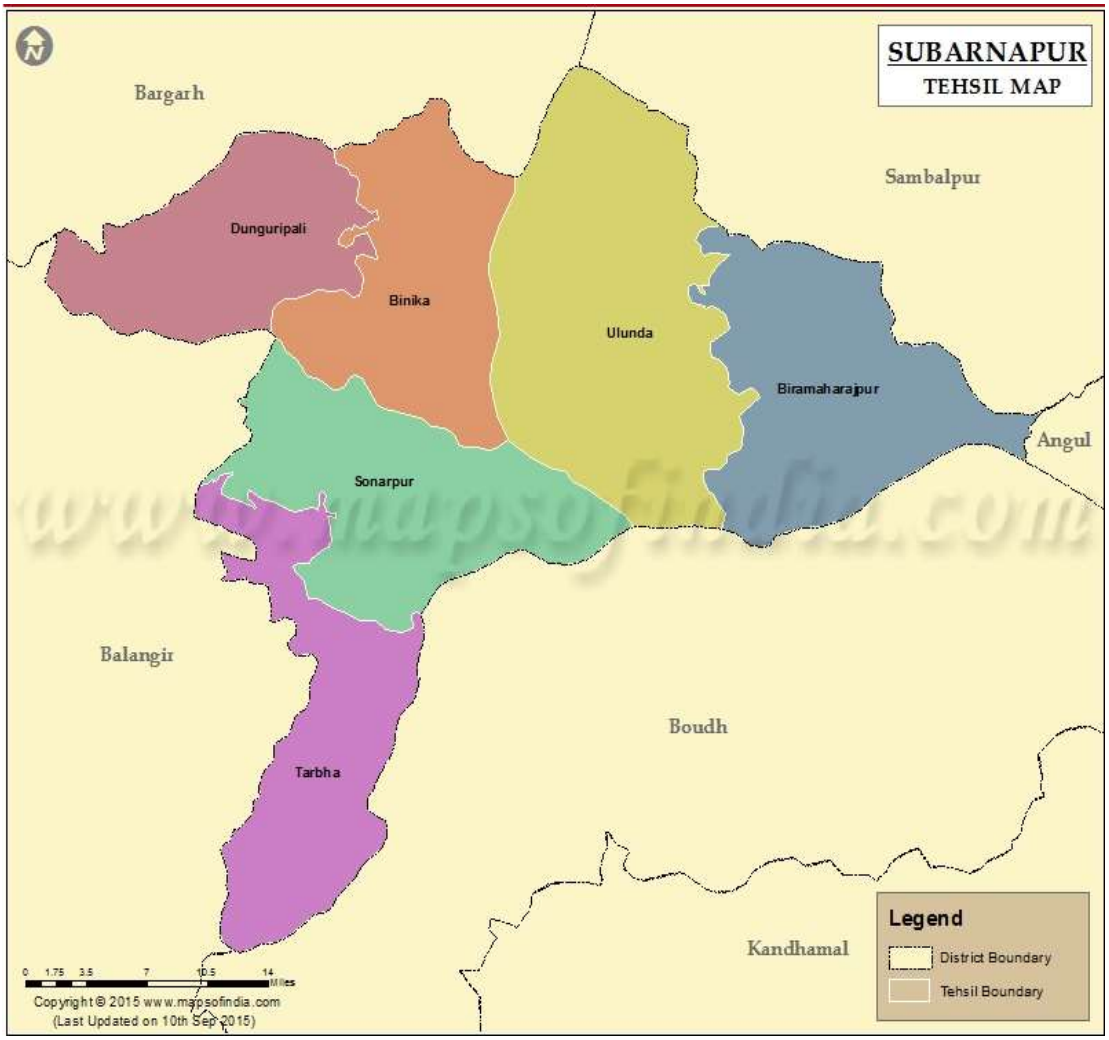
Subarnapur has figured on the political and cultural map of Odisha since pre- historic times as an ancient place of human civilization. The discovery of a large number of stone tools, rock art of Puja Dunguri near Rampur Tahasil and punch marked coins is a testimony to primitive human settlements in this region since the 3rd Century B.C.. It was declared a feudatory state by the British in 1867. With the division of Bengal in 1905 it came under the jurisdiction of Lt. Governor of Bengal. This feudatory state merged with Odisha province on 1st January, 1948 and became a sub-division under Bolangir district.Subsequently it was created as a separate district and started functioning w.e.f. 01.04.1993 with headquarter at Sonepur as per Revenue and Excise Department Notification No.14218/R dt.27.03.1993 after being carved out from the undivided Balangir District and renamed as Subarnapur.

In the Middle Ages Subarnapur was known as Lanka. The Tibetan historian Taranath refers to Lanka as a place of tantric Buddhism. Buddhist literature of the 8th century also speaks of Lanka. Laxminkara, sister of the Vajrayanist king Indrabhuti of Sambalaka is said to have married prince Jalauka of Lanka. Further the Greek geographer Ptolemy underlines Lanka as a diamond prone zone located on the bank of the river Manad or Mahanadi. According to historians the Subarnapur District was known as Paschima Lanka around 11th Century A.D.

It is known as second Varanasi of India for its cluster of temples (nearly 108) having architectural importance and tantric (sicsic) mystiques. It is also called second Allahabad for the Meeting Point (Sangam) of three rivers Mahanadi, Tel and Suktel. Subarnapur is famous for silk, handloom, prawns, terracotta etc. Textiles and terracotta of Sonepur, Brass metal works and Philigri crafts of Tarva and Binka, Stone carving of Ullunda and Paddy crafts of Dunguripali are recognized all over the state and also in country. In addition, the great poet and prophet of Mahima Dharma, Santh Bhima Bhoi was from this district.

1.2 Administrative Units:-

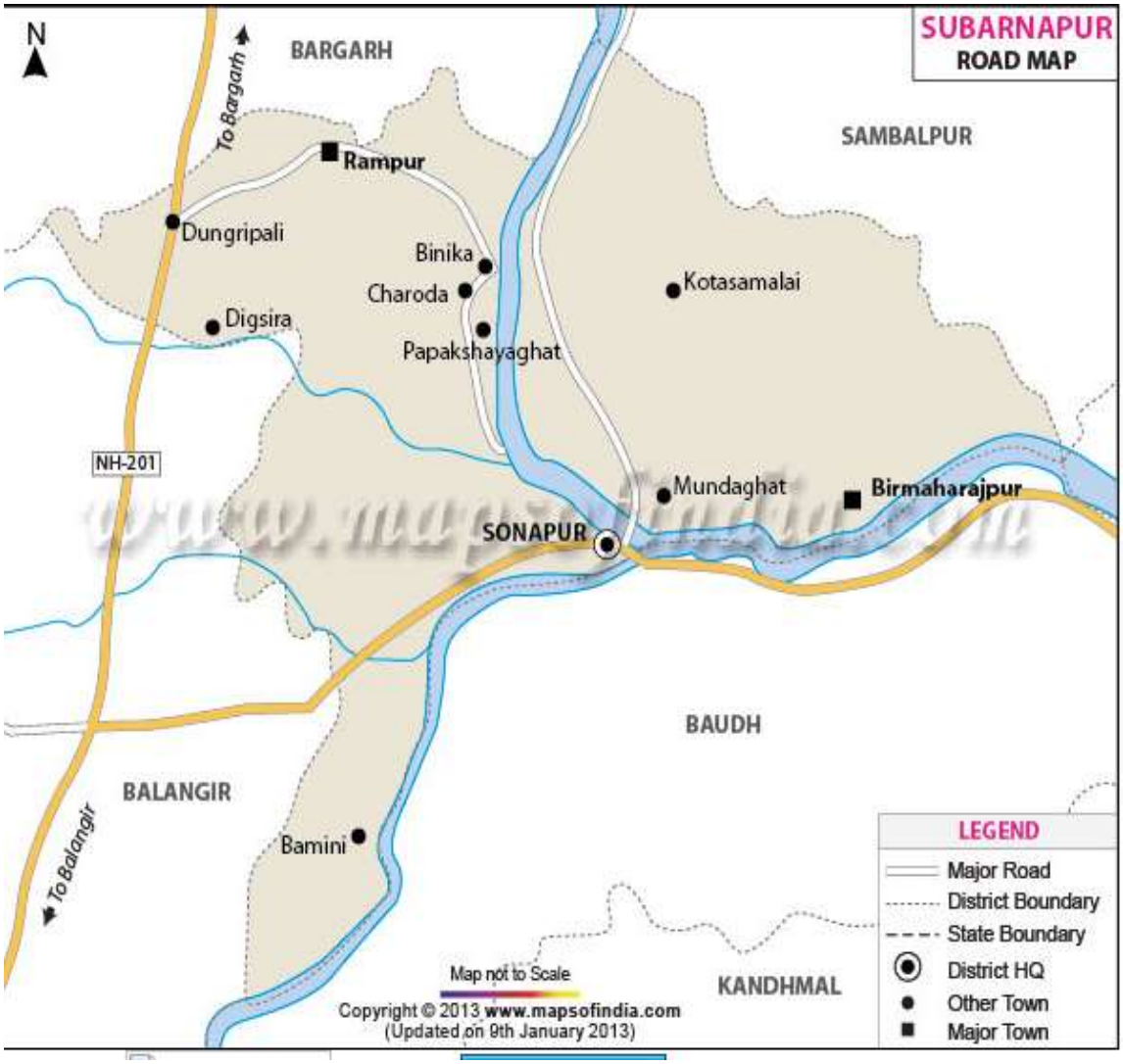
Subarnapur is the administrative headquarter of Subarnapur District. It is located at a distance of 250 km from Bhubaneswar, state capital of Odisha.. It has 962 villages covering 6 Blocks, 6Tahasils and 2 Sub-Divisions. The District is divided into 2 sub-Divisions. The District is divided into 2 Sub- Divisions namely 1) Subarnapur, 2) Birmaharajpur and into 6 Blocks &Tahasils, namely i) Sonepur ii) Binika iii) Rampur iv) Birmaharajpur v) Tarbha vi) Ullunda.The population of the Districtis 610,183 according to the 2011 Census. The District accounts for 1.50% of the State's territory and about 1.45% of State's population. The density of population of the District is 260 per square km as against 269 per square km of the state. As per 2011 census, the population of Scheduled Caste is 1,84,682 (25.60%), and Scheduled Tribe is 14,79,576 (9.37%). The literacy percentage of the District covers 74.42% against 75.15 of the state.



1.3 Connectivity facilities:-

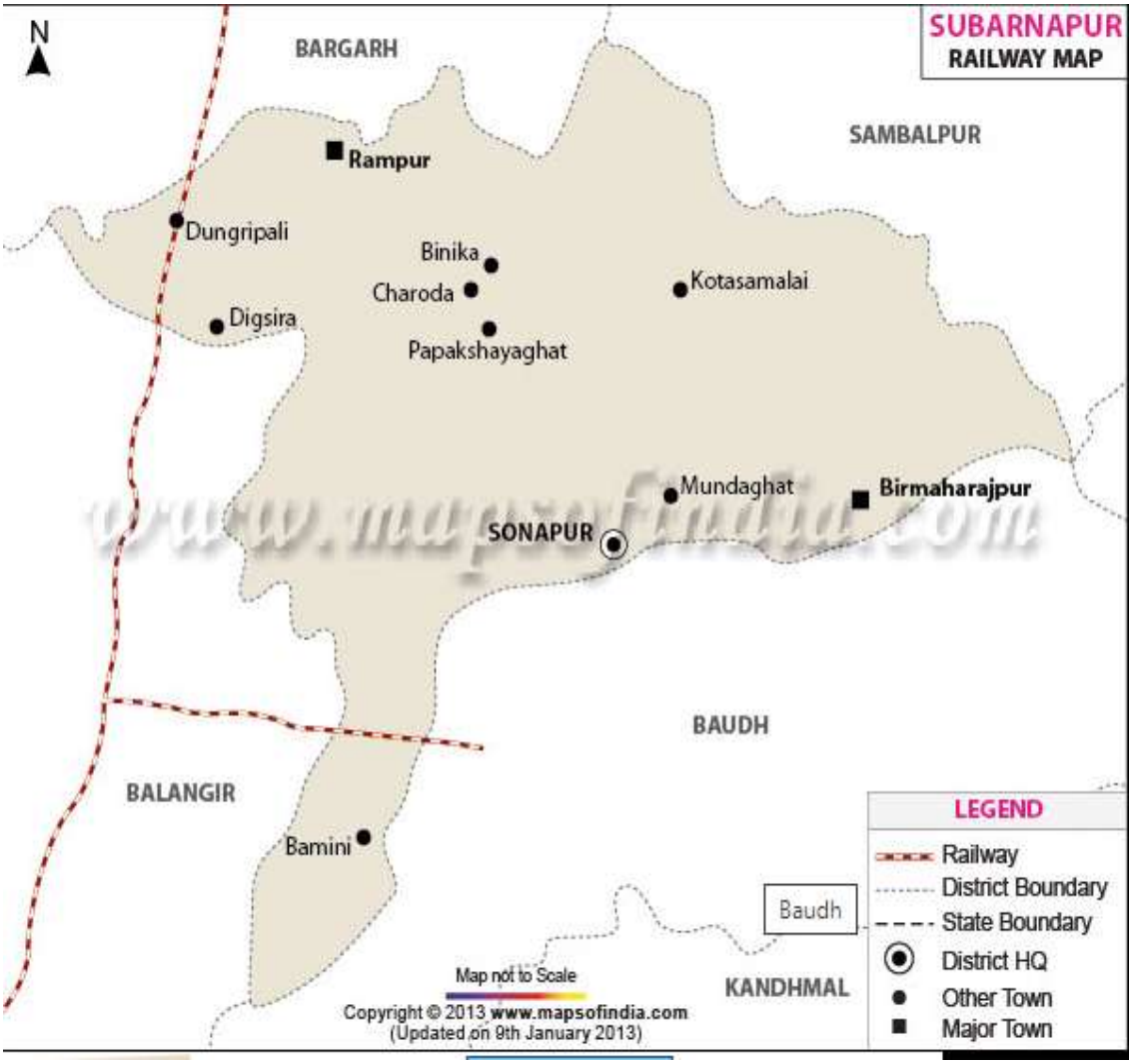
Road Network

The District is well served by a network of good roads.The NH-57 originating from NH-26 at Balangir and end at Khurda(NH-16) covering a distance of 299.900km the road is the life line rout for playing of vehicle mainly of Khurda, Nayagarh, Boudh, mostly Subarnapur and Balangir. NH-126A the route of Balangir-Sonapur-Redhakhol. Subarnapur is 80.3 Kms from Sambalpur, 76.3 Kms from Redhakhol, 461.4 Kms from Jamshedpur, 258.3 Kms from Cuttack, 271.9 Kms from Bhubaneswar and 152 Kms from Bhawanipatna. It is also connected with other cities such as Sambalpur, Puri, Bolangir, Nayagarh, Boudh, and other district and state via Odisha State Road Transport Corporation and some private transport services.



Rail Network

Subarnapur Districtis well connected by Rail link to different places, Subarnapur Railway Station is an important station on the East Coast Eastern Railway. The distance to Bhubaneswar is approximately 444 km, while the distance to Sambalpur is about 278 km; the city of Subarnapur is well connected to many places in Odisha like Talcher, Bhubaneswar,Angul, Hirakud, Barpali, Narasinghgarh and Cuttack.



Air Network

At present, Subarnapur has no connection by Airway. The site selection for aerodrome is presently under process. Nearest airport is Biju Patnaik International Airport, Bhubaneswar, 132 Kms from Subarnapur. Swami Vivekananda Airport in Ranchi is 141 kms from Subarnapur.

2.0 GENERAL PROFILE OF THE DISTRICT:

2.1 Demography:

Census - 2011	
Geographical Area	2337 Sq. Km.
Total population	6,10,183
Male Population	3,11,312
Female Population	2,98,871
Male Literacy	74.01%
Female Literacy	56.22%
SC Male	79,725
SC Female	76,494
ST Male	28,794
ST Female	28,398
OBC	NA
Illiterate Male	80,919
Illiterate Female	1,30,843

Rural Urban Subarnapur

2.2 Climate

The district enjoys tropical climate characterized by summer's cold winters & rainy. The winter season generally commences from late November & continues up to the end of February. The summer season commences from March & continues till middle of June where the maximum temperature varies from 34.3 ° to 47.7 ° C. May being the hottest with the meandaily maximum temperature of 41.4 ° C while December is the coldest month of the year when the temperature drops down to 6 ° C.

Temperature Graph- Subarnapur

May being the hottest with the meandaily maximum temperature of 41.4 ° C while December is the coldest month of the year when the temperature drops down to 6 ° C.

Source: Indian Meteorological Department.

3.0 LAND UTILIZATION PATTERN IN THE DISTRICT

3.1 Forest and non-forest land

The forests of Subarnapur Division are situated within the dry deciduous zone. Sal trees occur as almost pure crop in a few blocks and in Subarnapur District. There are variety of medicinal plants, neem, Bamboo, Sal, Teak, other timber species and a wide range of carnivorous & herbivorous wild animals. The District has Ainlachhat jungle, Arjunpur Forest, Dahaja Forest Range, Sonepur, Kharapura Jungle, Singjuri jungle, Subarnapur which hosts even elephants.The principal animals that are found are Elephant, Bear, Nilgai, Sambhar, Peacock, Wild Bear and Deer, together with variety of snakes and birds.

District-wise Forest Cover Area in Odisha (Area in Km2)

2019 Assessment								
District	**Geographical Area Km2**	**Very Dense Forest**	**Moderate. Dense Forest**	**Open Forest**	**Total**	**Percent of GA**	**Change**	**Scrub**
Angul	6375	371	1380	1004	2755	43.22	43	84
Bolangir	6575	70	224	837	1131	17.2	151	142
Subarnapur	3806	23	127	234	380	9.98	30	48
Bargarh	5837	176	371	484	1031	17.66	88	47
Bouda	3098	263	546	480	1289	41.61	27	57
Bhadrak	2505	0	9	66	75	2.99	2	0
Cuttack	3932	53	226	517	796	20.24	11	68
Deogarh	2940	191	667	614	1472	50.07	-3	14
Dhenkanal	4452	174	418	825	1417	31.83	9	82
Gajapati	4325	84	1490	946	2520	58.27	12	262
Ganjam	8206	164	1075	864	2103	25.63	15	655
Jagatsinghpur	1668	0	5	131	136	8.15	6	0
Jajpur	2899	6	72	225	303	10.45	3	so
Jharsugada	2114	3	140	179	322	15.23	9	36
Kalahandi	7920	362	729	1327	2418	30.53	36	362
Kandhamal	8021	661	2588	2143	5392	67.22	16	380
Kendrapada	2644	84	88	133	305	11.54	14	2
Keonjhar	8303	289	1404	1519	3212	38.68	4	55
Khorda	2813	21	186	250	457	16.25	0	92
Koraput	8807	94	740	1255	2089	23.72	120	944
Malkangiri	5791	158	709	1475	2342	40.44	20	45
Mayurbhanj	10418	1335	1718	1027	4080	39.16	42	34
Nabarangpur	5291	168	428	507	1103	20.85	8	47
Nayagarh	3890	189	965	556	1710	43.96	28	173
Nuapada	3852	86	482	705	1273	33.05	33	109
Puri	3479	0	54	160	214	6.15	8	11
Rayagada	7073	422	853	1851	3126	44.2	7	349
Sambalpur	6624	499	1675	1106	3280	49.52	13	40
Subarnapur	2337	2	187	161	350	14.98	26	29
Sundargarh	9712	1019	1814	1431	4264	43.9	107	89
Grand Total	**155707**	**6967**	**21730**	**23008**	**51345**	**32.98**	**885**	**4306**

(Source: India state of forest report 2019-Odisha)

3.2 Agriculture Land:

The primary objective of Agriculture Department is to increase the production as well as productivity of major crops like Paddy, Groundnut, mustard, Mung, Red gram, Blackgram& vegetables which is widely covered in this District in both Kharif & Rabi season. Another key objective is the all round development of the farming community of the District. The Deputy Director of Agriculture is the head of office so far as agriculture is concerned & he is the Principal Agriculture Officer of the District. There are 5 District Agriculture Officers & the Block Level Officers are working under him. As it has already been pointed out, that agriculture is the main livelihood of the people in Subarnapur District. It is therefore also designated as the food bowl of Odisha. Rice is the principal crop grown in this District, followed by other cereals, pulses, oilseeds, vegetables, spices and sugarcane. The agricultural statistics for the District is shown

in subsequent tables below:

Table – 3.2: Crop Coverage Area of Subarnapur District, Odisha

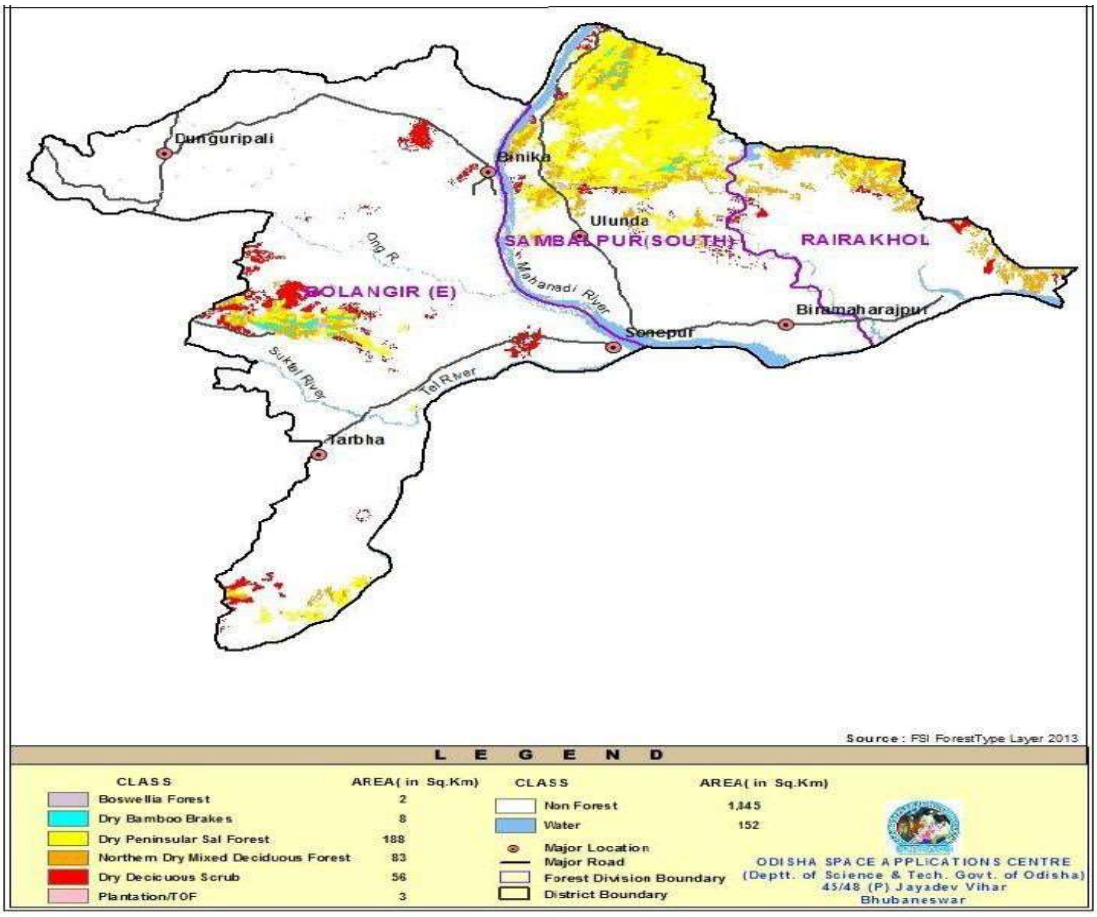
Major field crops cultivated	Area(`000ha)							
	Kharif			Rabi				
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Summer	Grand total
Paddy	62.7	34.5	97.2	28.4		28.4	-	121.3
Green gram	0.3	7.7	8.03	1.5	11.7	13.2	-	21.3
Red gram	0.1	3.9	4.05	-	-	-	-	4.1
Black gram	0.1	3.4	3.5	0.2	2.3	2.5	-	6.03
Sesamum	0.03	2.5	2.5	0.04	0.8	0.8	-	3.3
Ground nut	0.2	0.2	0.3	1.3	-	1.3	-	1.6
Sunflower	-	-	-	0.2	-	0.2	-	0.2
Mustard	-	-	-	0.5	2.9	3.4	-	3.4
Vegetable	0.7	5.6	6.3	9.2	0.2	9.4	-	15.8
Spices	-	-	0.4	1.08	-	1.08	-	1.5
Sugarcane	-	-	-	0.2	-	0.2	-	0.2

3.3 Horticulture Land:

The primary objective of Horticulture Department is increase of production as well as productivity of major fruits like Mango, Banana, Guava, Potato, Onion etc., which is widely covered in this District. Another key objective is the all-round development of the farming community of the District. The Deputy Director of Horticulture is the head of office. The horticulture statistics for the District is shown in subsequent tables below:

Horticulture crops	Total Area (hectares)
Mango	3.3
Banana	0.6
Guava	0.4
K.Lime	0.4
Sweet Potato	0.3
Potato	0.01
Onion	0.9

Source: SREP, Subarnapur. Orissa Agric.



4.0 PHYSIOGRAPHY OF THE DISTRICT:

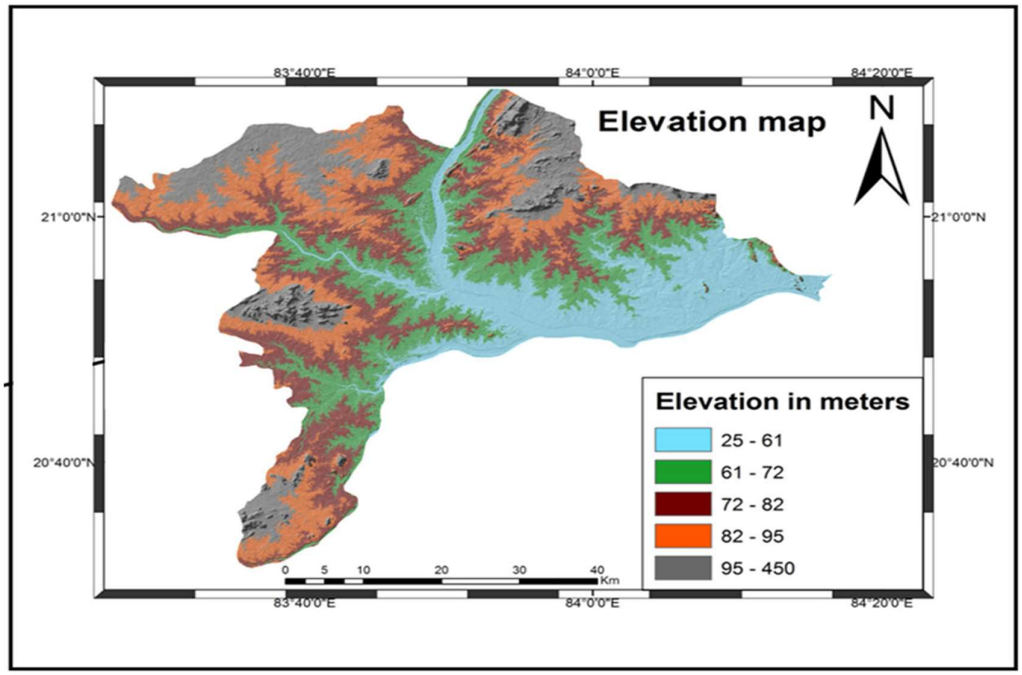
Physiography:

Physiographically the district comprises undulating plains dotted with residual hills and mounds except for a few patches of scattered hills and high relief areas in the east central and northern parts. A gently undulating terrain with a vast stretch of cultivable land characterizes the major parts of the district, the average elevation being 200m to 300m above mean sea level with a general topographic slope towards east.

Depending upon the mode of origin, occurrence and the physical and chemical characteristics the soils in the district are mainly classified into two major groups 1) Alfisols and 2) Vertisols.

The Alfisols includes Red loamy soil and red Sandy Soil and are generally light textured with a PH ranging from 6.5 to 7.3. These soils are usually deficient in nitrogen, phosphate, organic matter and lime. The soils are in general having average to good fertility. These soil are suitable for cultivation of paddy and other crops.

The Vertisols are medium black soil found around the course of Mahanadi and Tel rivers in the southern part of the district. These soils are highly argillaceous and contain high amount of iron, calcium and magnesium. The PH varies from neutral to alkaline and texture varies from loam to clay loam. These soil are highly argillaceous and contain high amount of iron, calcium and magnesium.



5.0 Drainage of Irrigation Pattern

5.1 River System

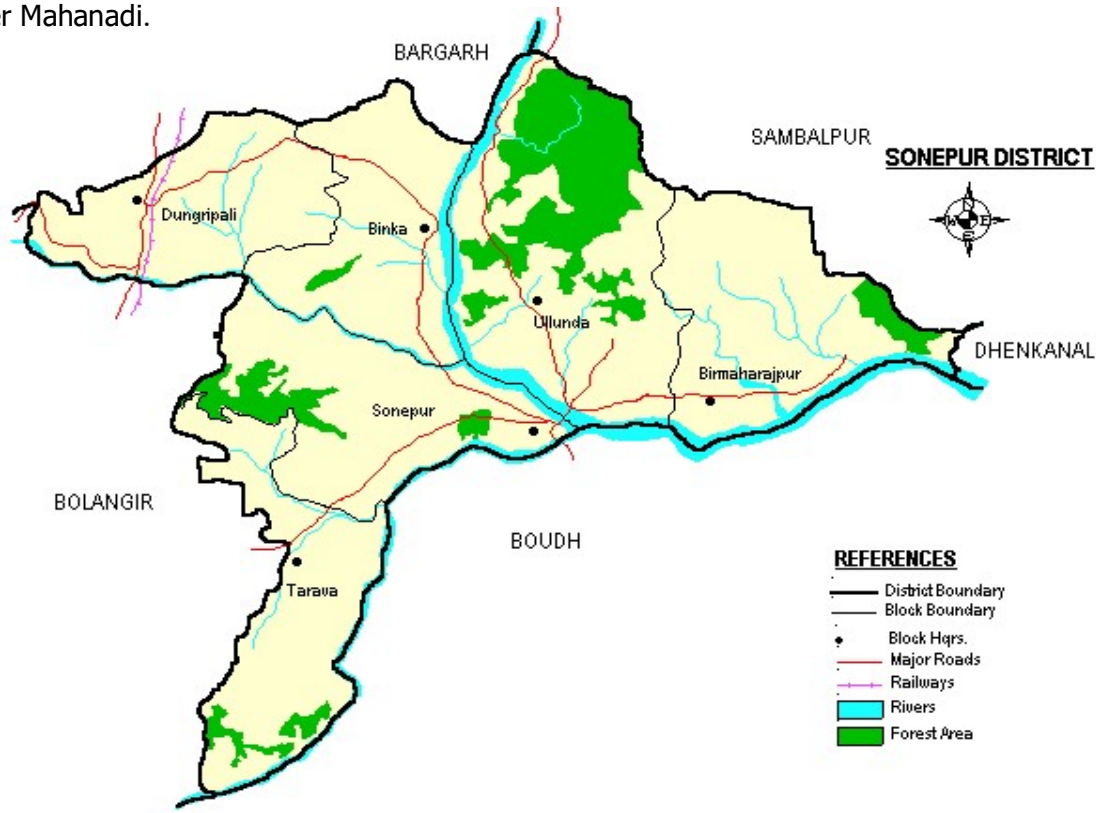
The Mahanadi, is the biggest river of Odisha and the sixth largest in India. It is about 851 km long (494 km in Odisha) and its catchment area spreads over 141,600 Sq. Km. out of which 65,580 Sq. Km. (42% of area of the State) lies in Odisha.

The river Mahanadi flows through Subarnapur District and travels for a distance of about 80 kms and drains an area of 2284.89 sq. km. along with its main tributaries river Tel and Ong.

Tel River is one of the largest river of Odisha. It's origin is near Jharigaon in Nabarangpur district and flows through Kalahandi, Balangir, Subarnapur district of Odisha and finally merges with Mahanadi near Sonepur. It travels 296 km and has a total catchment area of 22818 sq. km. The river Suktel is a tributary to Tel.

Ong River flows across Odisha and joins Mahanadi upstream of Sonepur at Pandkital. The river travels 204 km before it meets Mahanadi. It drains an area of about5,128 sq. km.. Ong river is tributary of Mahanadi River.

Besides these the district have other important rivers, namely Suktel, the tributary of Tel, Nibrutijore, the tributary of Suktel, Hariharjore and Surubalijore, tributaries of river Mahanadi.



5.2 Rainfall of the District and Climate Condition:

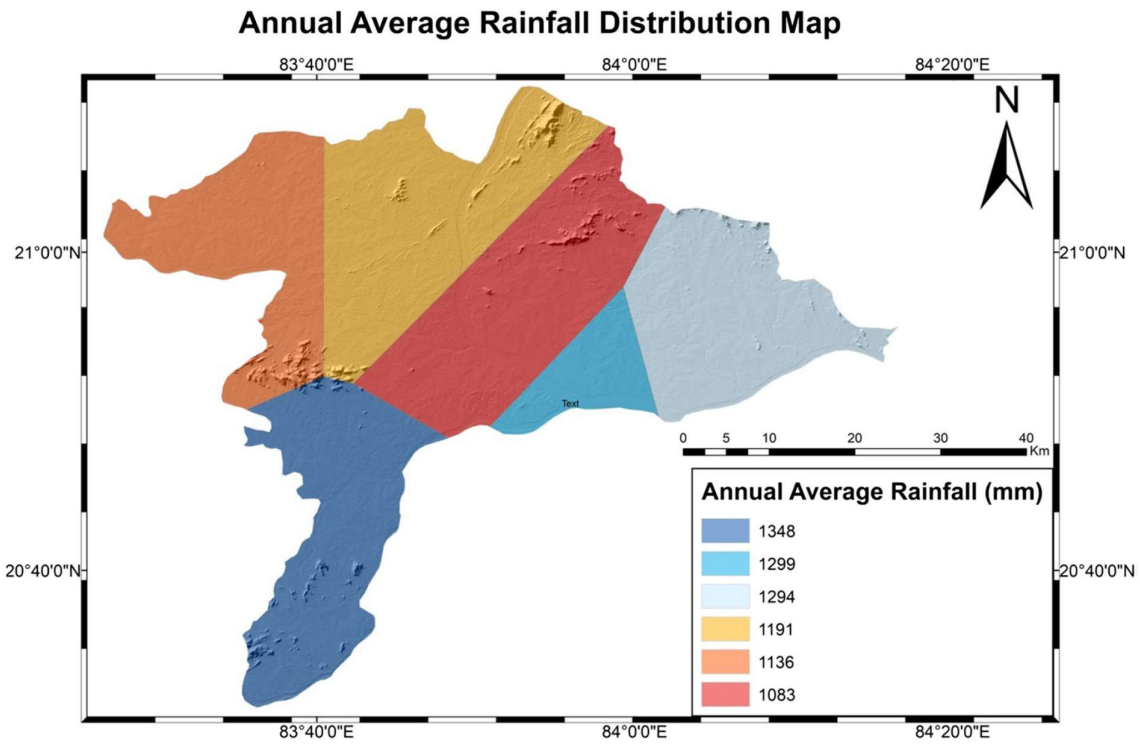
It is observed that about 90% of the total annual rainfall takes place due to South West monsoon between the middle of June & mid-October. The northeast monsoon gives erratic & insufficient rainfall. The normal annual rainfall is 1443.5mm. The rainfall is highly erratic both in space and time. There is a large spatial variation as observed from the rainfall data of various blocks.

5.2.1 Month wise rainfall:

The driest month is November, with very less amount of rain. There is on average 15.56 mm of precipitation in January. In July, the precipitation reaches its peak, with an average of 255.01 mm.

Year		2020	2022	2023	Average
Sl. No.	Month	(mm)	(mm)	(mm)	(mm)
1	Jan	0.00	46.70	0.00	46.70
2	Feb	0.00	0.00	4.05	4.05
3	Mar	50.35	0.00	4.25	54.6
4	Apr	21.47	0.00	4.05	25.52
5	May	33.90	25.70	56.67	116.27
6	Jun	141.55	136.20	209.85	487.6
7	Jul	NR	406.03	359.00	765.03
8	Aug	NR	439.17	149.85	589.02
9	Sep	NR	93.02	444.07	537.07
10	Oct	NR	44.85	38.45	83.3
11	Nov	NR	0.00	0.00	0.00
12	Dec	NR	0.00	0.00	0.00
Total		NR	1191.67	1270.24	2709.16

The Indian Meteorological Department, Bhubaneswar, vide letter No. BBS/RMC/CS-312, dated 18th January, 2016 has provided the period of Rainy Season viz. Normal dates of Onset and Withdrawal of South West Monsoon over India as state-wise. The duration for the period is 10th June to 15th October.



6.0 GEOLOGY AND MINERAL WEALTH OF THE DISTRICT:

6.1 Regional Geology:

The state of Odisha consists of rocks ranging in age from Mesoarchaean to Recent. The Precambrian terrain in the state can be distributed in the following parts (GSI 2011):

- Eastern Indian craton: northern and northwestern Odisha.
- Part of Bastar craton: western Odisha.
- Part of Eastern Ghats Mobile Belt (EGMB):central and southern Odisha.

The major portion of the study area falls under three supergroups, viz., Bastar cratonic gneiss (BCG), Eastern Ghats Mobile Belt (EGMB) and Lower Gondwana

BCG

Part of western Odisha consists of Bastar craton. This cratonic strip is delimited by Mahanadi graben in the northeast and EGMB in the east and southeast. The major lithostratigraphic units in this part are: Archaean supercluster of the granite gneisses and granitoids, Bengpal and Bailadila groups with age ranging from Neo-Archaean to palaeoproterozoic.

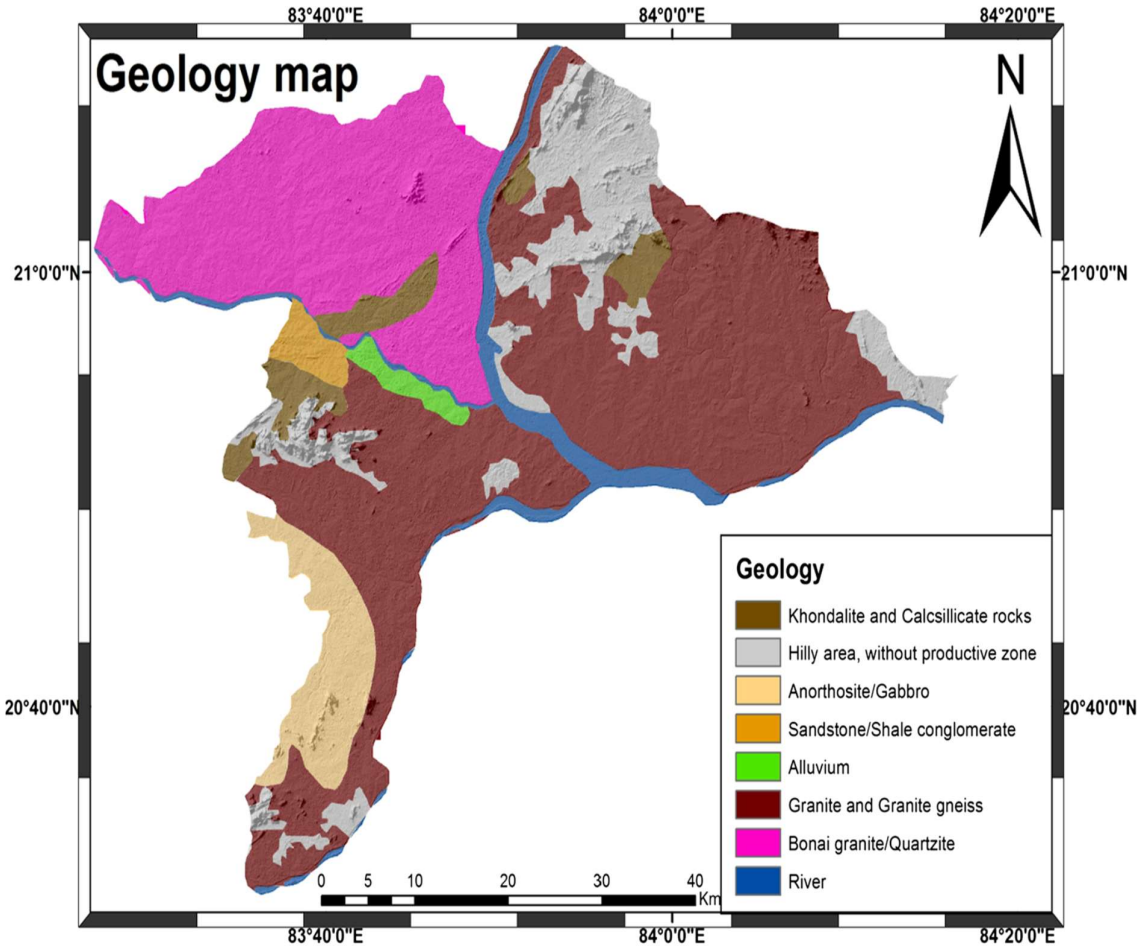
EGMB

The EGMB extends for over 1000 km from Odisha to southeastern part of Andhra Pradesh along the coastline. It comprises garnetiferous, graphite bearing sillimanite schist and gneiss (Khondalite).

Lower Gondwana

These rocks rest unconformably on the Precambrian basement comprising granitoids, hornblende gneiss, schist and amphibolites. The base of the Gondwana sequence has been exposed along the southern margin of the basin and it is defined by Talchir formation formed by more than 325 m thick pile of glacial and periglacial deposits. The geology of the study area can also be grouped into consolidated, semi-consolidated and unconsolidated formations. Consolidated formations include granites, gneiss, Khondalite, quartzite, anorthosite and gabbro. Among these formations, granite and granite gneisses form good

aquifers due to the presence of weathered and fissured zones. The thickness of the weathered zone ranges from 10 to 15 m and the groundwater yields are up to 10 litres per second (lps). The groundwater development possibility is limited in the Khondalite suite of rocks (up to 10 lps). These types of rocks are mainly formed by quartz–garnet–sillimanite schist and gneiss. Calcsilicates and quartzite are also present in minute amounts. The quartzite group of rocks often does not have good primary porosity and is very hard in nature, but due to brittle nature of these rocks, fractures and weathering are often observed. These features contribute to secondary porosity and render the formation suitable for holding and transmitting groundwater with typical yields up to 10 lps . Anorthosite rocks are very hard and not suitable for groundwater movement. Hence the yields are low to moderate up to 3 lps. About 78.9% of the total area is contributed by anorthosite, granite/quartzite, khondalite, granite and gneiss rocks. The other types of formations are semi-consolidated in nature and belong to the Lower Gondwana age group. This formation consists of sandstones and conglomerates with typical groundwater yields 5 lps. A very small patch of this formation is observed in the western part of the study area. Recent alluvium and laterites form the unconsolidated formations along the main drainage channels and possess high-water bearing capacity . The groundwater yields in alluvial formations are up to 10 lps.



Subarnapur was awarded the status of a district in April 1993 after being carved out from the erstwhile Bolangir district and was renamed as Subarnapur. The district has a total geographical area of 2344 sq.km, with 2 Subdivision and 6 administrative blocks. The district is having 3 towns and 80 Gram Panchayats .It is one of the economically backward districts of Orissa and is presently under KBK region.

The district is situated between 20°30′ and 21°11′ North latitude and 83°27′ and 84°16′ East longitude covered under survey of India degree sheets no 64O, 64P and 73D. It is bounded on the north by Bargarh and Sambalpur district, on the east by Sambalpur and Angul districts, on the south by Boudh district and on the west by Bolangir district of Orissa.

The Subarnapur district comes under Mahanadi basin.The river Mahanadi, Tel and their tributaries constitute the main drainage system in the district. The tributaries are ephemeral in nature. The river Mahanadi flows an almost north south course as it enters the district, which changes to south east as it nears Sonepur and finally takes an easterly course after confluence of river Tel with it at Sonepur. River Tel flows in a north

easterly course through the border of the district in thesouth western part before its confluence with Mahanadi. Ong is another important tributary of the river Mahanadi which flows in a south easterly course in the western part of the district and joins Mahanadi a few kilometers north of Sonepur. The drainage is effluent in nature.

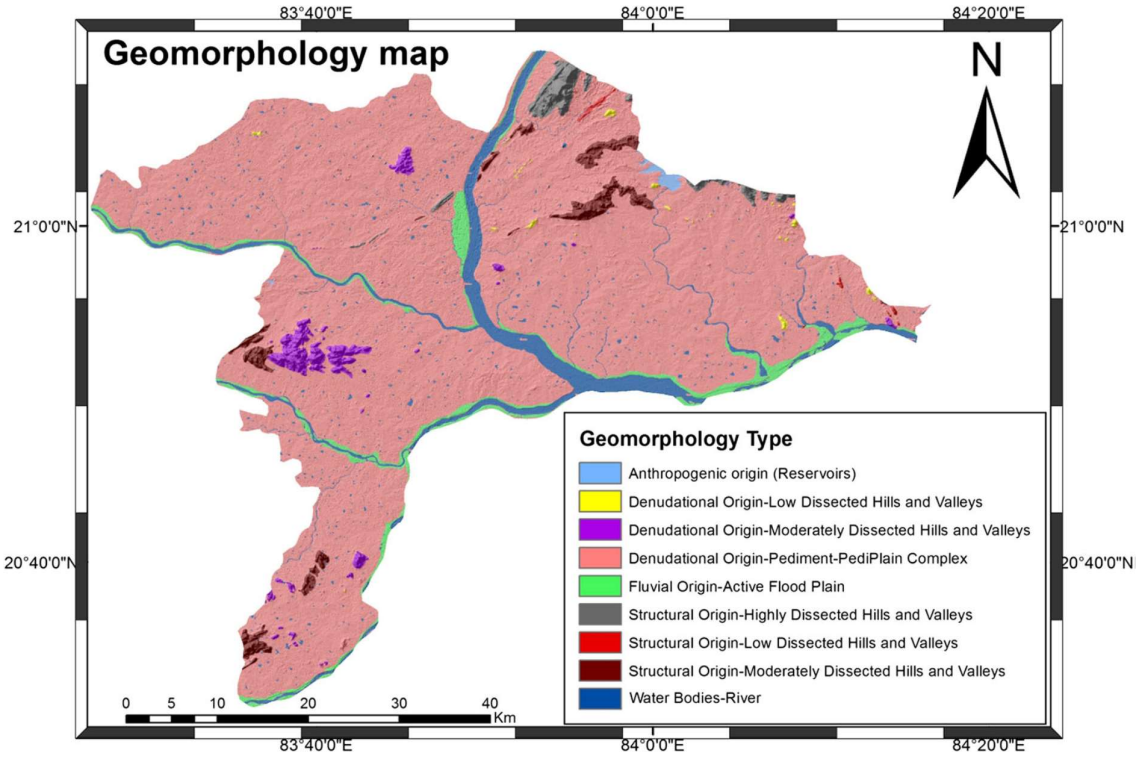
The district gets irrigation from major, minor & lift irrigation projects and also from ground water source. The major source of flow irrigation projects is surface water, which mainly depends on rainfall, hence actual area-getting irrigation in different crop season s in different year varies. The irrigation potential created from all sources aggregates to 97690 Ha in the district.

6.2 Geomorphology :

The identification of different landforms and the preparation of a geomorphic map are very important in evaluating the groundwater prospects. Geomorphological features such as slope, extent of weathering and type of landform play a direct role in determining the groundwater potentiality of a region. The study area is divided into nine major landforms (according to the NRSC 2012 and ISRO 2013 classification schemes), some of the major features are viz., pediment–pediplain complex (84.4%), low-to-high dissected hills and valleys (3.9%), active flood plains (3.5%) and low to moderately dissected hills and valleys (1.5%). The geomorphic classification is explained as the categorisation and description of the nature, origin and development of landforms.

The fundamental parameters, which are considered for the classification of the geomorphic features are origin and development (process), general structure and shape (landform), dimensions and characteristics (morphometry) and the presence and status of process overprinting (geomorphic generation). Pediments of the denudational origin are gently sloping (0.5–7.0_) weathered rock surface areas with erosional bedrock characterized by low relief and generally found in hills and plains. It develops due to laminar sheet flows of water. Because of the massive and compact rocky structure with numerous fractures and joints, these are considered as good for groundwater movements and storage. Pediplains are defined as the gently inclined sloping surface of thick weathered granite, gneiss and weathered material formed by coalescence of pediments. This type of landform forms very good recharge and storage zones. The groundwater prospect in these zones depends on the extent of weathering. Denudational hills consist of jointed and fractured granites and gneisses, and are formed due to differential erosion and weathering processes. The presence of fractures, joints and topographic cuts makes

infiltration of groundwater possible but with increasing slope the runoff possibility also increases limiting the groundwater recharge process. Therefore, the highly dissected hills process have very less groundwater prospect than the low-dissected hills. Structural hills are formed due to the combined effect of tectonism and denudation. Being compact and hard in nature these types of formations mainly act as runoff zones. The infiltration possibilities are limited only through fractures and faults and so why groundwater potential is very poor in this region. Active flood plains are formed by the lateral movement of a stream and by overbank deposition, which act as good aquifers due to their high permeability. Based on the relative importance of the different landforms with respect to the groundwater potential, different ranks are assigned to each of these landforms .



Hydrogeology

The district is mostly underlain by Precambrian crystalline, metamorphics, intrusive, sedimentaries of permocarboniferous ages and recent laterites and alluvium. Features like geological set up, rainfall distribution and the degree of primary and secondary porosity controls the hydrogeological framework of a place. As the district is underlain by diverse rock type as already discussed, it results in contrasting water bearing properties of these different geological formation. Depending on the nature of formations and their water bearing capacities etc, the rock formations of the district may be divided broadly into two major hydrogeological units viz -

1) Consolidated formations
2) Semi-consolidated formation
3) Unconsolidated formations

Consolidated formations- Almost the entire district is underlain by the consolidated formation containing granites gneiss, khondalite, quartizite, anorthosite and gabro. These rocks are hard and compact and are devoid of primary porosity. The secondary porosity in these rocks developed as a result of weathering and fracturing due to major & minor tectonic movements along with climatological actions. The secondary porosity forms the conditions for movement of ground water and also act as reservoir of ground water. Groundwater occurs under water table conditions in weathered residuum while it occurs under semi confined to confined conditions in the fractured & jointed rocks usually two to four water bearing fracture zone occurs down to a depth of 100 mgl.

Water Bearing Properties Of Major Litho Units

Granite and Granite Gneisses -These rock types in the district occupying the undulating plains, low lying area and sometimes forms hills and hillocks. These rocks are mostly represented by biotite gneiss, porphyritic granitic gneiss etc. They are porphyritic and non porphyritic in nature and are usually grey to light grey in colour. Weathering in granitic rocks is pronounced and fissures and joints etc are also well developed. These rocks are traversed by numerous veins of quartz and pegmatites. The thickness of weathered zone in granitic rocks usually ranges from 10 to 15m and occasionally extends beyond 25m depth. For all the above factors, the granite rocks form the most potential aquifers both at shallow and deeper depths in comparison to other hard rock formation. The available data on existing ground water structures indicate that ground water development is mainly through open wells and to some extent through bore wells. The

specific capacity of dug wells tapping weathered zone ranges from 6 to 286 lpm/m drawdown.

The potentiality of the deeper aquifers (Saturated fractures) has been explored by deep drilling down to a maximum depth of 200m. It is found that though saturated fracture was encountered at the depth of 190 m but normally it is restricted within 150 m depth and it has also been noted that the saturated zones are more commonly found within 100m depth. The maximum number of saturated fractures encountered down to 190m depth is five. On an average, down to 150m depth 3 to 5 sets of saturated fracture zones occur. The yield of the wells varied from negligible to maximum of 14.0 lps. with the average yield of 2 to 5 lps. The maximum yield of 14.0 was recorded in the well located at Chun Chun Dungripalli area where 3 sets of saturated fractures were encountered down to 65.0m depth.

Charnockite suite: There is very limited occurrence of charnockite in the district. This suite of rocks comprises of pyroxene granulite, hypersthene granite and granodiorite etc. The acid and intermediate group of rocks are more common than other varieties. The charnockites are fine to coarse grained, greenish grey colour having greasy lusture. Texture is mostly granulitic and having gneissic structure. Due to hard and compact nature of the rocks ground water development prospects in charnockite is not good.

Khondalites: This suite of rocks comprises of mainly quartz-garnet-sillimanite schist and gneiss and minor occurrence of calcsilicates and quartzites. The rocks usually form hills and have limited ground water development. These rock have well developed joints. The weathered residuum and also fracture zones constitute the main repository of ground water.. The thickness of weathered zone ranges from 5 to 32m. The specific capacity of the dug wells ranges from 2.3 to 13.3 1pm/m drawdown.

Quartzite: These rocks occurs as distinct bands and are very resistant to weathering. The weathered mantle is thin and joints are less developed. As such these rocks do not form good aquifers.

Anorthosite: These are generally hard and massive in nature. Weathering yields white clayey material, while restricts movement of ground water. Joints and foliations are also not well developed and these rocks do not form good aquifers. Well drilled at Tarbha had a discharge of 1.0 lps.

Pegmatite and quartz veins: These are coarse grained and hard. These form good aquifers when fractured and friable.

Semi consolidated formations: These are represented by the rocks of lower Gondwana formations. These rocks occurs in small patch in the western side of the district in Sonepur block. The friable and loosely connected sandstones form the aquifers. Ground water occurs under water table conditions in the weathered zone and under semi confined condition in the deeper fracture and friable sandstone beds. The depth of open well ranges from 5 to 12 mbgl and depth to water level ranges from 3 to 10 mbgl. The yield of the well in the district is generally limited.

Unconsolidated Formation: Laterites and alluvium of Sub-recent to Recent age constitute the unconsolidated formations. Laterites occurring as capping over older formations are highly porous in nature and form good aquifers to be tapped through dug wells. The alluvial deposits of recent origin occur as thin discontinuous patches along the prominent drainage channels. The alluvium varies in thickness from 6 to 12 m. These mainly consist of silt, sand with gravel & pebble, which form potential shallow aquifers tapped through dug wells.

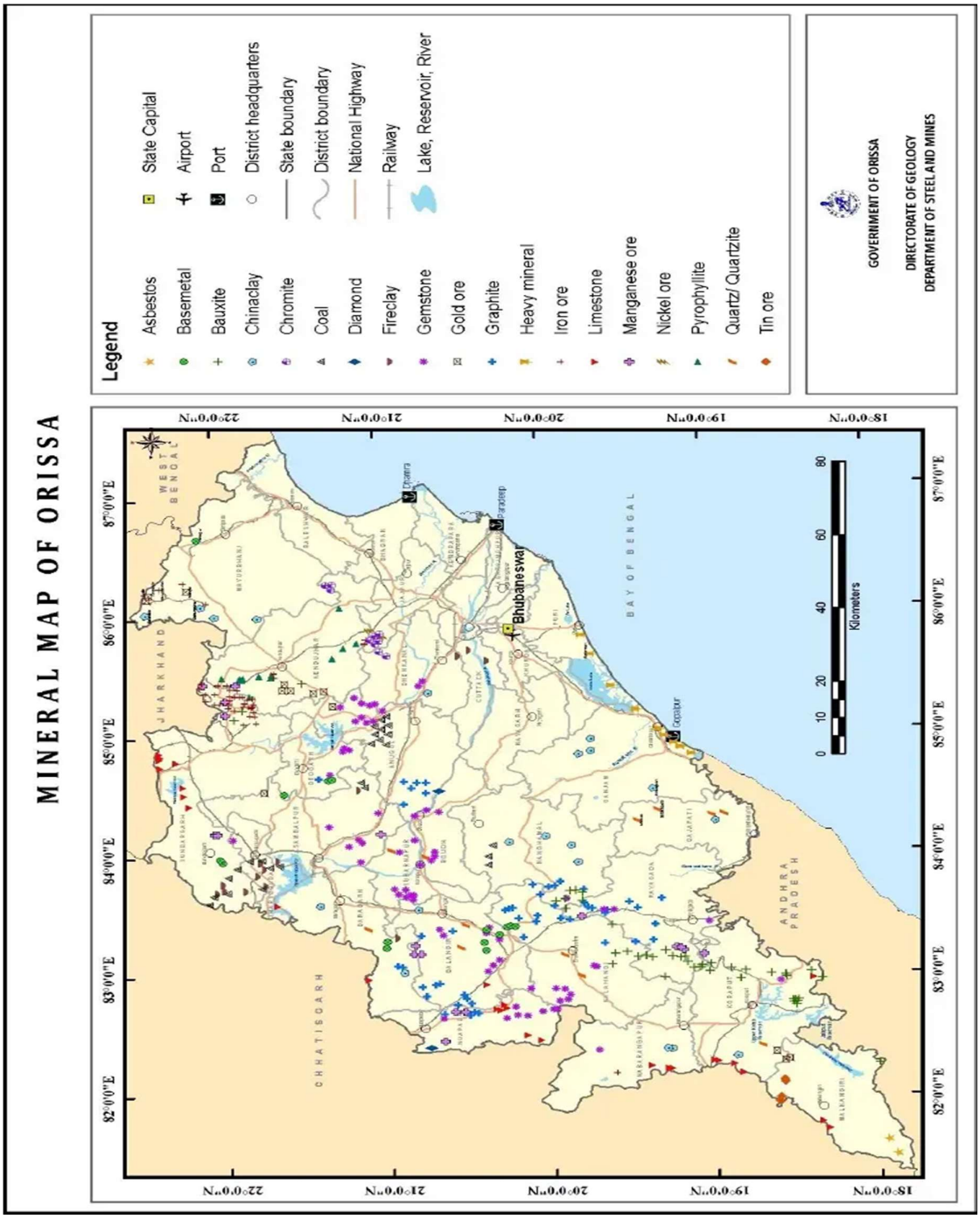
6.3 Stratigraphy:

Geologic stratigraphic succession of the study area (GSI 2007, 2009).

<table>
<tr><td colspan="2">Rock Type</td><td colspan="2">Group/Supergroup</td></tr>
<tr><td colspan="2">Sandstone and Shale</td><td colspan="2">(Lower Gondwana)</td></tr>
<tr><td colspan="4">----------Unconfirmity----------</td></tr>
<tr><td colspan="2">Gabbro and anorthosite</td><td colspan="2" rowspan="6">Eastern Ghats Mobile Belt (EGMB)</td></tr>
<tr><td colspan="2">Garnetiferous granite gneiss</td></tr>
<tr><td>Calc-silicate</td><td rowspan="3">Khondalite Group</td></tr>
<tr><td>Quartz–garnet–sillimanite</td></tr>
<tr><td>schist/gneiss</td></tr>
<tr><td colspan="2">Pyroxene granulite–Charnockite suite</td></tr>
<tr><td colspan="4">----------Tectonic contact/unconformity----------</td></tr>
<tr><td colspan="2">Biotite Granite Gneiss</td><td colspan="2">Bastar Cratonic Gneiss (BCG)</td></tr>
</table>

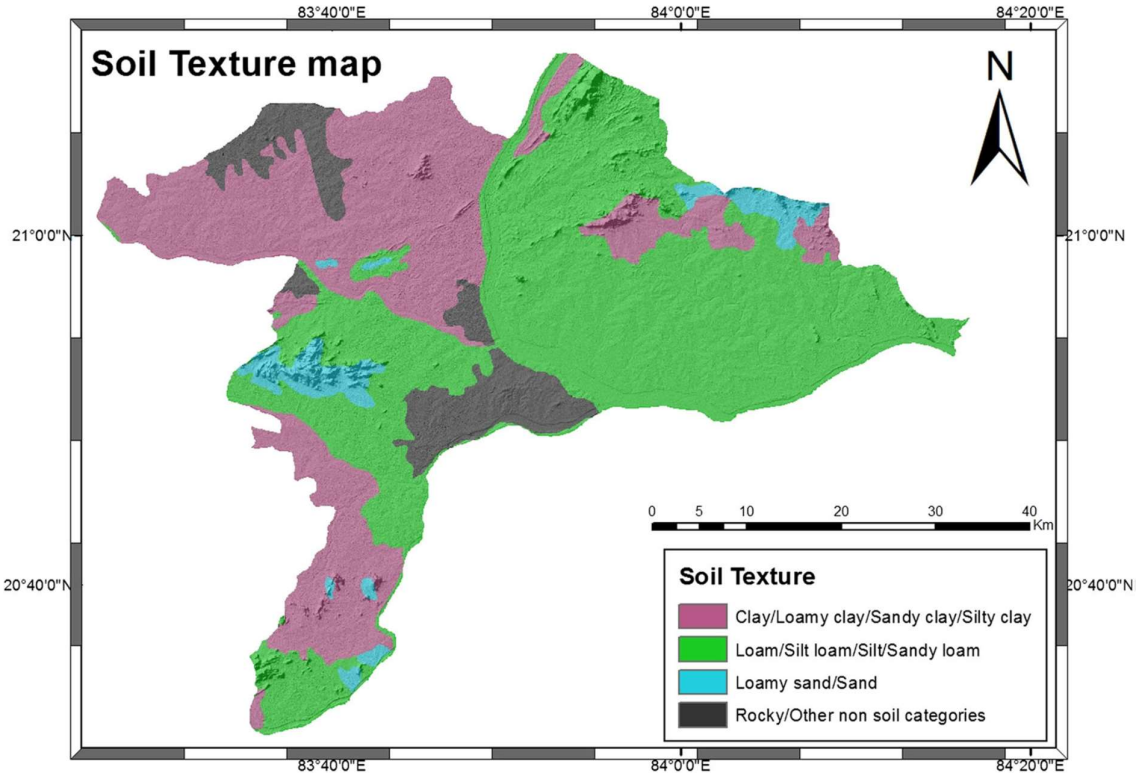
6.4 Mineral Resources:

Minerals like soft stones, limestone, stone chips are available in the District, which are mainly used in industrial units in the District. The huge deposits of granite stones at Nilgiri, Khaira, Soro, Jaleswar area provides tremendous scope for development of few more industries based on these resources. Except these, no minerals in large quantity which can be explored for commercial purpose found in the District.



6.5 Soil:

The soils in the district are mainly classified into two major groups 1) Alfisols and 2) Vertisols. The Alfisols includes Red loamy soil and red Sandy Soil and are generally light textured with a PH ranging from 6.5 to 7.3. These soils are usually deficient in nitrogen, phosphate, organic matter and lime. The soils are in general having average to good fertility. These soil are suitable for cultivation of paddy and other crops. The Vertisols are medium black soil found around the course of Mahanadi and Tel rivers in the southern part of the district. These soils are highly argillaceous and contain high amount of iron, calcium and magnesium. The PH varies from neutral to alkaline and texture varies from loam to clay loam. These soil are highly argillaceous and contain high amount of iron, calcium and magnesium.



7. OVERVIEW OF MINING ACTIVITY IN THEDISTRICT:

In Subarnapur District, there are very few natural mineral deposits scattered throughout the area. Lead and Manganese deposits have been found in Dunguripali area. Manganese ores occur in association with laterites. Manganese content of this ore is low- around 30-35 %, though iron and phosphorus contents are high. These mineral ores are mostly psilomelane. Bauxite is also found in some parts of the district. Other minerals like Garnet are traced in Birmaharajpur and Binka regions. Gemstones like Aquamarine, Heliodor & Topaz and Rhodolite Garnet are there in Birmaharajpur, Badmal, Siali and Naktamunda belts. High grade quartz is also available in the district .

8.0 LIST OF MINING LEASES WITH LOCTION, AREA, AND PERIOD OF VALIDITY IN THE DISTRICT:

8.1 List of Mines in operation in the District:

Attached as Annexure-A

8.2 List of Mines not in operation in the District:

Attached as Annexure-A

9.0 DETAIL OF ROYALTY OR REVENUE RECEIVED IN LAST THREEYEARS:

Sl. No.	Name of the Tahasil	2020-21	2021-22	2022-23	TotaiAmount (Lakh)
1	Binika	Nil	Nil	Nil	Nil
2	Biramaharajpur	Nil	Nil	Nil	Nil
3	Rampur	Nil	Nil	Nil	Nil
4	Sonapur	Nil	Nil	Nil	Nil
5	Tarbha	Nil	Nil	Nil	Nil
6	Ulunda	Nil	Nil	Nil	Nil
Grand Total		Nil	Nil	Nil	Nil

10. DETAIL OF PRODUCTION OF MINOR MINERALS IN LAST THREE YEARS:

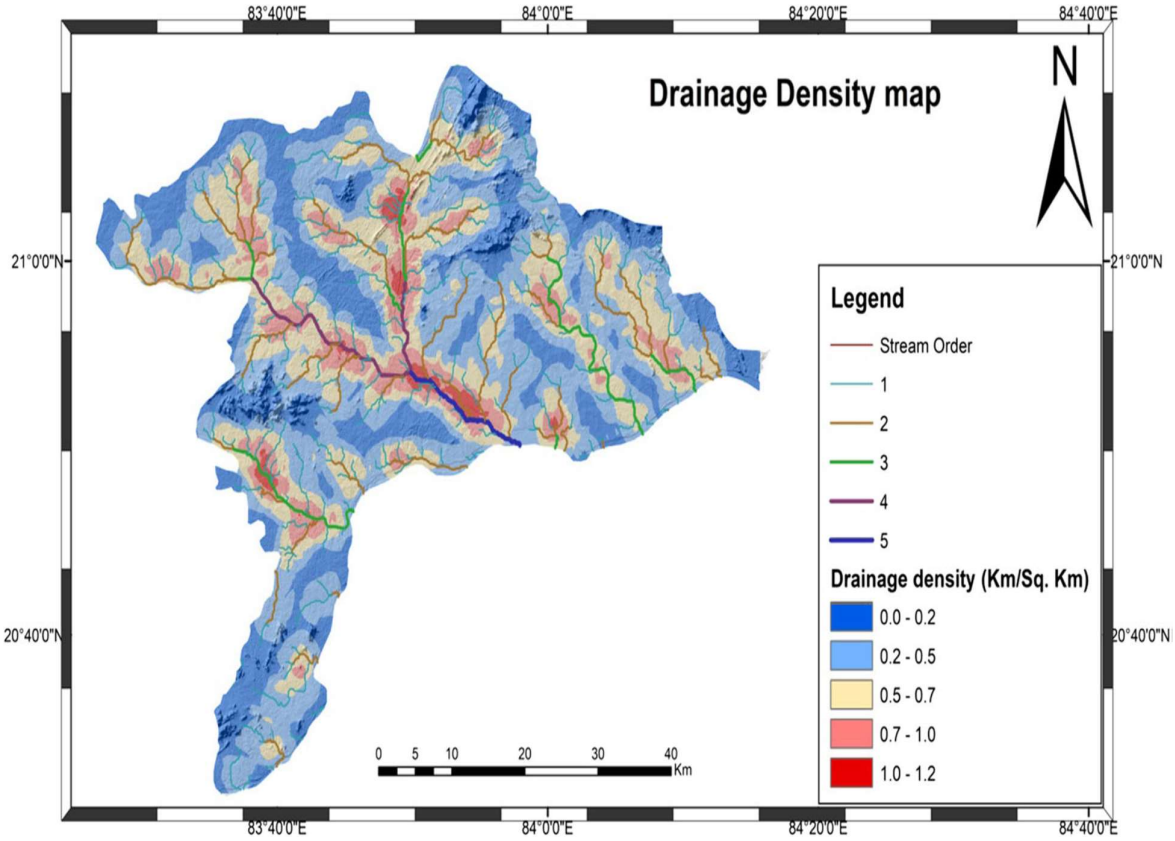
Sl. No.	Name of the Tahasil	2020-21	2021-22	2022-23	Total Quantity (Cubic meter)
1	Binika	Nil	Nil	Nil	Nil
2	Biramaharajpur	Nil	Nil	Nil	Nil
3	Rampur	Nil	Nil	Nil	Nil
4	Sonapur	Nil	Nil	Nil	Nil
5	Tarbha	Nil	Nil	Nil	Nil
6	Ulunda	Nil	Nil	Nil	Nil
Grand Total		Nil	Nil	Nil	Nil

11.0 DETAILS OF RIVER OR STREAM AND OTHER SAND SOURCES

11.1 DRAINAGE SYSTEM WITH DESCRIPTION OF MAIN RIVERS

The District has considerable flat land, which provide suitable site for agricultural use. The hilly areas are mostly under forest with patches of cultivation on scarp areas. Major rivers flowing in the District are The Mahanadi, Tel, Ong,. Major crops grown in the District are paddy. major source of irrigations are Canals,Tanks, well and tube wells.

IRRIGATION BY DIFFERENT SOURCES(Areas and Number of Structures)				
	Sources of Irrigation	**Number**	**Area in hectare**	**Percentage of total irrigated area**
	Canals		53.1	72.9
	Tanks		5.1	6.9
	Open wells		2.4	3.3
	Bore wells		2.4	3.3
	Lift irrigation schemes		9.8	13.4
	Micro-irrigation		0.1	0.1
	Other		-	
	Total Irrigated Area		72.8	
	Pump sets	1424		
	No. of Tractors	100		
	Irrigation	**Area in hectares**		
	Net irrigated area	Net irrigated area 44.1		
	Gross irrigated area	Gross irrigated area 72.8		
	Rainfed area	92.3		
Source: SREP and DAO, Subarnapur				



11.2 SALIENT FEATURES OF IMPORTANT RIVERS AND STREAMS:

The river Mahanadi, Tel and their tributaries constitute the main drainage system in the district. The tributaries are ephemeral in nature. The river Mahanadi flows an almost north south course as it enters the district, which changes to south east as it nears Sonepur and finally takes an easterly course after confluence of river Tel with it at Sonepur. River Tel flows in a north easterly course through the border of the district in the south western part before its confluence with Mahanadi. Ong is another important tributary of the river Mahanadi which flows in a south easterly course in the western part of the district and joins Mahanadi a few kilometers north of Sonepur. The drainage is effluent in nature. The district gets irrigation from major, minor & lift irrigation projects and also from ground water source. The major source of flow irrigation projects is surface water, which mainly depends on rainfall, hence actual area-getting irrigation in different crop season s in different year varies. The irrigation potential created from all sources aggregates to 97690 Ha in the district.

1	2	3	4	5	6	7	8	9	10
Sl. No.	Name of the River or Stream	Total Length in District (in Km.)	Place of Origin	Altitude at Origin	Portion of River or Stream Recommended for Mineral Concession	Length of area Recommended for Mineral Concession (in Km.)	Average width of area Recommended for Mineral Concession (in metre)	Area Recommended for Mineral Concession (in Sq. meter.)	Mineable mineral potential (in metric tonne) (60%of total mineral potential)
1	Mahanadi	80	Rajnagar	120	Details enclosed in Annexure-A				
2	Tel	58	Karlamuhan	130					
3	Ong	47	Phatamunda	140					
4	Suktel	28	Kumundal	142					
5	Nibrutijore	20	Kayapadar	140					
6	Hariharjore	33	Sagjuri	133					
7	Surubalijore	15	Sahajlata	112					

12.0 AVAILABILITY OF SAND OR GRAVEL OR AGGREGATE RESOURCES

12.1 Mineral Potential

ptial				
Name of the River or Stream	Boulder (MT)	Bajri (MT	Sand (MT)	Total Mineable Mineral Potential (MT)
Mahanadi	Nil	Nil	Nil	Nil
Tel	Nil	Nil	Nil	Nil
Ong	Nil	Nil	Nil	Nil
Suktel	Nil	Nil	Nil	Nil
Nibrutijore	Nil	Nil	Nil	Nil
Hariharjore	Nil	Nil	Nil	Nil
Surubalijore	Nil	Nil	Nil	Nil

12.2 Annual Deposition

Annual Deposition				
Name of the River or Stream	Boulder (MT)	Bajri (MT	Sand (MT)	Total Mineable Mineral Potential (MT)
Mahanadi	Nil	Nil	Nil	Nil
Tel	Nil	Nil	Nil	Nil
Ong	Nil	Nil	Nil	Nil
Suktel	Nil	Nil	Nil	Nil
Nibrutijore	Nil	Nil	Nil	Nil
Hariharjore	Nil	Nil	Nil	Nil
Surubalijore	Nil	Nil	Nil	Nil

13.0 PROCESS OF DEPOSITION OF SAND OR BAJRI OR MINOR MINERAL IN LAST THREE YEARS:

Sl. No.	Name of the River	Financial Year	Process of Deposition of Sediments
Total Volume of Sand in three years			
1	Mahanadi	2020-21	moderate
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
2	Tel	2020-21	moderate
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
3	Ong	2020-21	Slow
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
4	Suktel	2020-21	Slow
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
5	Nibrutijore	2020-21	Slow
		2021-22	---do---
		2022-23	---do---

Total Volume of Sand in three years			
6	Hariharjore	2020-21	Slow
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
7	Surubalijore	2020-21	Slow
		2021-22	---do---
		2022-23	---do---
Total Volume of Sand in three years			
Grand Total			

CONCLUSION:

To meet the requirement of minerals in the present scenario, it is proposed to identify such potential areas at certain interval and get the data bank of DSR to be updated regularly. The insitu mining activity in any area is on one hand bring revenue and employment (Direct and indirect) and on other hand if not done properly potential pollution and ecological imbalance increases, the ability of the ecosystem can also be reduced. Particulate matter transported by the wind as a result of excavations, blasting, transportation of materials, heavy equipment used raise these particulate levels; and Gas emissions from the combustion of fuels in stationary and mobile sources, explosions, and mineral processing. All these activities indirectly affected the biodiversity of area. Larger potential and smaller areas have been identified in Subarnapur District on the basis of geological study carried out during field observation, which can be considered for mining concession after all the parameters for statutory clearances are verified by consulting with concerned authorities.

The District Survey Report for Morrum (Minor Mineral) in respect of Subarnapur District in accordance with Appendix-X, Para-7 (iii) (a) of S.O. 3611(E) dt. 25.07.2018 of Ministry of Environment, Forest and Climate Change, New Delhi, Enforcement & Monitoring Guideline for Sand Mining-2020 and in compliance with the orders of Hon'ble Supreme Court dt. 10.11.2021 in connection with C.A Nos. 3661-3662 of 2020. Before preparation of this report, a survey has been conducted by District Environment Impact Assessment Authority (DEIAA) with the assistance of Irrigation Department, Forest Department, Public Works Department, Mining Department, Ground Water Boards, Remote Sensing Department, Mining Departments. The DSR is being submitted to SEIAA, Odisha, Bhubaneswar for necessary evaluation and approval.

List of existing and new Sand Sources in respect of Sonepur District

ANNEXURE - A

List of Minor Mineral sources operational & non-operational in Sonepur District

Tahasil	Sl No	Name of the river or stream	Name of the Quarry Lease	Village, Khata No, Plot No & Kisam	Latitude	Longitude	Date And Registration No Of Lease Deed	No & Date Of Grant Of Env Clearance	Total Area recommended for Mineral concession (in Sq. Meter/Ha.)	Mineable Mineral potential in Metric Tones/Cums(60 % of Total Minerals/potential)	Geological mineral potential in Metric tones/Cums	Name of the Lesse with address despatch	Period of Lease		Status of working or non-working/Temp permit working for	Production (Sand) (in Cums)			Royalty Received(In rupees)		
													From	To		2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Binika																					
Binika	1	Anga Nadi	Anganadi (Kha) Seledi Sand Quarry	Seledi Khata No-1 Plot No-31 & 32 Kisam-Nadi	20°53'50.57510"N to 20°54'00.76014"N	83°49'11.91795"E to 83°49'.24.92306"E	1168210014 2 Dt-10.03.2021	SEIAA-559/09-2020 Dt-17.12.2020	4.9998	MR-9736	GR-149994	Atish Mohanty At/Po-Kantabanji, Dist-Balangir, Odisha	10.03.2021	09.03.2026	Running	NA	NA	NA	NA	NA	NA
Birmaharajpur																					
Birmaharajpur	2		Janakpur Sand Quarry	Khata No.-1, Plot No. - 12 Kisam-Jore, Mouza-Surbalijore	NA	NA	NA	NA	1.529	NA	NA	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Birmaharajpur	3		Surubalijore Sand Quarry	Khata No.-1, Plot No. - 23 Kisam-Nadi, Mouza-Surbalijore	NA	NA	NA	NA	9.145	NA	NA	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Birmaharajpur	4	Mahanadi	Mahanadi(G)-Durdura B Sand Quarry	Khata No.-2, Plot No. - 291 Kisam-Nadi, Mouza-Mahanadi(Ga)	20°54'9.66"N to 20°54'0.32" N	84°12'51.03"E to 84°12'44.02"E	NA	NA	4.856	NA	NA	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Birmaharajpur	5	Hariharа Jora	Hariharjore Sand Quarry	Khata No.-55, Plot No. - 43(p) Kisam-Jore, Mouza-Hariharjore	20°52'33.06136" N to 20°52'28.74407" N	84°06'10.06831" E to 84°06'01.87916" E	NA	NA	6.292	MR-28600	GR-48745	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Birmaharajpur	6	Hariharа Jora	Hariharjore Jatesingha Sand Quarry	Khata No.-55, Plot No. - 45 Kisam-Nadi, Mouza-Jatesingha	20°51'34.71089" N to 20°51'44.57228" N	84°06'27.33493" E to 84°06'37.56958" E	NA	NA	4.553	MR-38983	GR-45528	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Birmaharajpur	7	Mahanadi	Durdura Sand Quarry	Khata No.-2, Plot No. - 291 & 294 Kisam-Nadi, Mouza-Durdura	20°54'10.17080" N to 20°54'00.70970" N	84°13'09.77350" E to 84°13'03.58541" E	24.02.2021 Reg No-1167200228	5349/DEIAA Dt-23.05.2018	4.046	MR-80175	GR-96219	Sri Satyanarayan Pradhan S/o-Chintamani Pradhan AT-Rajanpali,Po-Butupali,Dist-Boudh Mob-9668507136	24.02.2021	23.02.2026	Running	NA	NA	NA	NA	NA	NA

Sonepur

Sonepur	8	Tel	Baidyanath Sand Bed	Khata No.- 368, Plot No. - 668/1721, Kisam-Nadi, Mouza- Baidyanath	20°48'35.36620" N to 20°48'28.68467" N	83°47'50.38350" E to 83°47'33.07339" E	07.07.2022 Reg No- 1662200981	241729/92-MINB2/11-2021 Dt- 01.02.2022	5	MR-130425	GR-150000	Smt. Snigdha Pujahari AT- Hardokhol,Po- Baidyanath, PS- Sonepur Mob- 8895005820	07.07.2022	06.07.2027	Running	NA	NA	NA	NA	NA	NA
Sonepur	9	Suktel	Lakarma Sand Quarry	Khata No.- 139, Plot No. – 1199/1200, Kisam-Nadi, Mouza- Lakarma	20°49'30.00532" N to 20°49'18.63608" N	83°49'37.62510" E to 83°49'27.33773" E	26.10.2022 Reg No- 1166220132 7	271573/733-MINB2/05-2022 Dt- 30.06.2022	5	MR-129630	GR-150000	Sri Rasmi Ranjan Patra At- Brahmanbhati PO:- Badamulai Dist:- Cuttack, Mob- 9437882583	26.10.2022	25.10.2027	Running	NA	NA	NA	NA	NA	NA
Sonepur	10	Ong	Kirtipur Sand Bed	Khata No.- 334, Plot No. -151/3282, Kisam-Nadi, Mouza- Kirtipur	20°54'46.00523" N to 20°54'40.62131" N	83°46'43.33963" E to 83°46'30.79892" E	24.09.2021 Reg No- 1166210103 2	SEIAA-664/09-2020 Dt-17.12.2020	5	MR-119550	GR-136692	Sri Balamakunda Purohit At-Hardokhol PO:- Baidyanath PS-Sonepur Dist:- Subarnapur, Mob- 8895005820	24.09.2021	23.09.2026	Running	NA	NA	NA	NA	NA	NA
Sonepur	11	Suktel	Suktel Nadi Khari Sand Quarry	Khata No.- 219, Plot No. – 1288P, Kisam-Nadi, Mouza-Khari	20°46'21.83724" N to 20°46'13.01115" N	83°43'12.07857" E to 83°42'55.60630" E	09.02.2021 Reg No- 1166210015 2	SEIAA- 663/09-2020 Dt- 07.12.2020	5	MR-48980	GR-106275	Sri Sanjaya kumar mishra S/O- Maheswari Prasad Mishra At/Po-Sonepur Dist:- Subarnapur	09.02.2021	08.02.2026	Running	NA	NA	NA	NA	NA	NA
Sonepur	12	Suktel	Kutsira Sand Quarry	Khata No.- 237, Plot No. –1488, Kisam-Nadi, Mouza- Kutsira	20°46'56.61837" N to 20°46'47.50393" N	83°41'11.67587" E to 83°40'58.27598" E	19.03.2021 Reg No- 1166210035 0	SEIAA- 661/09-2020 Dt- 17.12.2020	5	MR-84096	GR-100000	Sri Ramakrushna Sahu At/Po- Radharanipara PO/Ps- Balangir, Dist:- Balangir	19.03.2021	18.03.2026	Running	NA	NA	NA	NA	NA	NA
Sonepur	13	Tel	Kharjura Sand Quarry	Khata No.- 380, Plot No. - 1590, Kisam-Nadi, Mouza- Kharjura	20°47'08.46730" N to 20°46'59.27507" N	83°45'55.29064" E to 83°45'43.47548" E	N/A	N/A	5	MR-30903	GR-37658	N/A	N/A	N/A	Non-Operational	NA	NA	NA	NA	NA	NA
Sonepur	14	Ong	Dhaurakhaman Sand Quarry	Khata No.- 115, Plot No. -1/746, Kisam-Nadi, Mouza- Dhaurakhaman	20°53'48'.31799" N to 20°53'39.91183" N	83°48'44'.07944" E to 83°48'35.93226" E	07.11.2022 Reg No- 1166220138 0	SEIAA- 254019/216-MINB2/01-2022 Dt- 04.04.2022	5	MR-43277	GR-50000	Smt. Prativa Das D/O- Ajit Kumar Das Plot No- 269, At/Po/PS- Kharabelnagar, Bhubaneswar Dist:- Khordha, Contact No- 8280123333	07.11.2022	06.11.2027	Running	NA	NA	NA	NA	NA	NA

Sonepur	15	Mahanadi	Panisiali Sand Quarry	Khata No.-97, Plot No. - 543, Kisam-Nadi, Mouza-Panisiali	20°52'11'.83325" N to 20°52'02.78749" N	83°53'15.02351" E to 83°53'06.50456" E	09.06.2022 Reg No-1166220082 3	SIA/OR/MIN/266167/2022 Dt-27.04.2022	5	MR-43343	GR-50000	Sri Narottam Mohanty S/O- Murlidhar Mohanty Plot No-269, At/Po/PS-Kharabelnagar, Bhubaneswar Dist:- Khordha, Contact No-9090023333	09.06.2022	08.06.2027	Running	NA	NA	NA	NA	NA	NA
Sonepur	16	Ong	Ong Nadi "Ka" Sand Quarry	Khata No.-1, Plot No. - 43 & 44, Kisam-Nadi, Mouza-Siali	20°56'58.96"N to 20°57'04.73" N	83°40'05.36"E to 83°40'20.58"E	25.02.2021 Reg No-1169210014 9	SEIAA-660/09-2020 Dt-01.12.2020	5	MR-40959	GR-50000	Sri Jitendra Kumar MeherS/O-Sarat Kumar Meher At-Bileibahali, Po-Julunda, PS-Dunguripali Dist:-Subarnapur	25.02.2021	24.02.2026	Running	NA	NA	NA	NA	NA	NA
Sonepur	17	Suktel	Tareikela Sand Quarry	Khata No.-468, Plot No. – 2625P, Kisam-Nadi, Mouza-Tareikela	20°46'41.56194" N to 20°46'31.66979" N	83°41'59.57599" E to 83°41'46.26935" E	23.09.2021 Reg No-1166210101 8	SEIAA-662/09-2020 Dt-17.12.2020	5	MR-82616	GR-100000	Sri Smarak Ranjan Mishra S/O- Bighnaraj Mishra At-Clubpada, Po/PS- Balangir Dist:- Balangir Mob-9937076988	23.09.2021	22.09.2026	Running	NA	NA	NA	NA	NA	NA
Sonepur	18	Tel	Samiabhag Sand Quarry	Khata No.-4, Plot No. - 53/54, Kisam-Nadi, Mouza-Samiabhag	20°47'58.61566" N to 20°47'48.78107" N	83°46'40.00055" E to 83°46'28.79371" E	24.08.2022 Reg No-1166220113 2	SEIAA-1741/07-2021 Dt-28.09.2021	5	MR-50448	GR-57157.5	Sri Balamakunda Purohit At-Hardokhol PO:- Baidyanath PS-Sonepur Dist:-Subarnapur, Mob-8895005820	24.08.2022	23.08.2027	Running	NA	NA	NA	NA	NA	NA
Sonepur	19	Suktel	Matikod Sand Quarry	Khata No.-227, Plot No. - 1496, Kisam-Nadi, Mouza-Matikod	20°48'24.43121" N to 20°48'13.64868" N	83°39'37.65125" E to 83°39'26.82590" E	N/A	N/A	5	MR-42566	GR-50000	N/A	N/A		Non-Operational	NA	NA	NA	NA	NA	NA
Sonepur	20	Ong	Balpur Sand Quarry	Khata No.-1, Plot No.-39,40,41, Kisam-Nadi, Mouza-Balpur	20°57'40.06430" N to 20°57'51.67060" N	83°39'16.06273" E to 83°39'2.60139"E	N/A	Not Obtained	5	MR-36060	GR-44006	Sri Panchanan Nanda S/o- Late Jibardhan Nanda At/Po-Menda,PS-Tarbha, Dist-Subarnapur	N/A		Non-Operational	NA	NA	NA	NA	NA	NA
Sonepur	21	Tel	Baldapali Sand Quarry	Khata No.-73, Plot No.- 390, Kisam-Nadi, Mouza-Baldapali	20°49'12.17506" N to 20°49'04.75262" N	83°52'56.77418" E to 83°52'47.39532" E	N/A	N/A	5	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA
Sonepur	22	Suktel	Malisrigudi Sand Quarry	Khata No.-298, Plot No.-2299, Kisam-Nadi, Mouza-Malisrigudi	20°47'17.20553" N to 20°47'09.08490" N	83°40'35.98328" E to 83°40'20.73442" E	N/A	N/A	5	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA

Tarbha																				
Tarbha	23	Suktel	Ghatkantara Sand Bed	Khata No.-228, Plot No. - 1, Kisam-Nadi, Mouza-Ghatkantara	20°46'29.50131" N to 20°46'16.81668" N	83°42'13.07388" E to 83°42'00.59062" E	Regd. No-11952200123 29.03.2022	EC 22B001OR110614 Dt-04.01.2022	5	MR-101616	GR-150000	SRI UMESH MAHAKUR AT-ANILSARAI, PO-SOUNTPUR, PS-PUNITALA, DIST-BALANGIR, ODISHA	29.03.2022	28.03.2027	Running	NA	NA	NA	NA	NA	NA
Tarbha	24	Tel	Bhurad Sand Quarry	Khata No.-173, Plot No. - 308/1014, Kisam-Nadi, Mouza-Bhurad	20°37'52.78741" N to 20°37'44.87237" N	83°43'19.92184" E to 83°43'05.58226" E	Regd. No-11952200298 24.06.2022	SEIAA-1125/12-2020 26.03.2021	4.977	MR-20762	GR-49776	Sri Ramesh Mahakur AT-ANILSARAI, PO-SOUNTPUR, PS-PUNITALA, DIST-BALANGIR, ODISHA	24.06.2022	23.06.2027	Running	NA	NA	NA	NA	NA	NA
Tarbha	25	Tel	Bankeda Sand Quarry	Khata No.-184, Plot No. - 1034, Kisam-Nadi, Mouza-Bankeda	20°40'24.3"N to 20°40'11.7" N	83°44'05.11"E to 83°44'56.38"E	Regd. No-11952400444 30.07.2024	EC24B001OR126143 22.03.2024	5.22	MR-43659	GR-52205	Thabir Salema AT-Gandhinagarpada , PO-Balangir, PS-Balangir, DIST-BALANGIR, ODISHA	NA	NA	Non-Working	NA	NA	NA	NA	NA	NA
Tarbha	26	Tel	Maraduguchha Sand Quarry	Khata No.-344, Plot No. - 1959, Kisam-Nadi, Mouza-Maraduguchha	20°41'26.79056" N to 20°41'09.76074" N	83°44'23.63645" E to 83°44'17.30717" E	NA	Not Obtained	4.046	MR-32860	GR-40469	Samarendra Kuanr At/Po-Maraduguchha, Ps-Tarbha, Dist-Subarnapur	NA	NA	Non-Working	NA	NA	NA	NA	NA	NA
Tarbha	27	Suktel	Tilesara Sand Quarry	Khata No.-115, Plot No. -323/1195, Kisam-Nadi, Mouza-Tilesara	20°47'29.60987" N to 20°47'11.10718" N	83°39'52.41150" E to 83°39'45.42160" E	Regd. No-11952400442 30.07.2024	SIA/OR/MIN/293495/2022	4.046	MR-31243	GR-40469	Thabir Salema AT-Gandhinagarpada , PO-Balangir, PS-Balangir, DIST-BALANGIR, ODISHA	NA	NA	Non-Working	NA	NA	NA	NA	NA	NA
Tarbha	28	Suktel	Ranisarda Sand Quarry	Khata No.-434, Plot No. - 1604, Kisam-Nadi, Mouza-Ranisarda	20°50'39.80771" N to 20°50'26.55601" N	83°35'07.97919" E to 83°34'48.08880" E	NA	Under process	6.07	MR-25760	GR-28352	Niranjana Satapathy At-Kumundi, PO-Ranisarda, Dist-Subarnapur	NA	NA	Non-Working	NA	NA	NA	NA	NA	NA
Tarbha	29	Suktel	Badtenda Sand Quarry	Khata No.-24, Plot No. - 194, Kisam-Nadi, Mouza-Badtenda	20°33'36.84988" N to 20°33'27.82718" N	83°41'00.16255" E to 83°40'42.65493" E	NA	NA	4.249	MR-32996	GR-42492	NA	NA	NA	Non-Working	NA	NA	NA	NA	NA	NA
Tarbha	30	Suktel	Kankeda Sand Quarry	Khata No.-156, Plot No. - 515, Kisam-Nadi, Mouza-Kankeda	20°45'49.34834" N to 20°45'43.44876" N	83°44'33.07022" E to 83°44'12.49455" E	NA	SEIAA-673/09-2020 19.01.2021	4.999	MR-40252	GR-499979	NA	19.01.2021	18.01.2026	To be auctioned	NA	NA	NA	NA	NA	NA
Tarbha	31	Tel	Basasankar Sand Quarry	Khata No.-72, Plot No. - 528, Kisam-Nadi, Mouza-Basasankar	20°32'49.57168" N to 20°32'37.95482" N	83°39'32.12521" E to 83°39'16.45403" E	NA	NA	4.978	MR-24617	GR-37938	NA	NA	NA	To be auctioned	NA	NA	NA	NA	NA	NA
Tarbha	32	Suktel	Arda Sand Quarry	Khata No.-374, Plot No. - 2557/P, Kisam-Nadi, Mouza-Arda	20°50'03.68615" N to 20°49'59.02622" N	83°36'48.30355" E to 83°36'22.44262" E	NA	NA	6.07	MR-49880	GR-60703	NA	NA	NA	To be auctioned	NA	NA	NA	NA	NA	NA
Tarbha	33	Suktel	Dilkhuspur Sand Quarry	Khata No.-74, Plot No. - 1, Kisam-Nadi, Mouza-Dilkhuspur	20°47'10.77864" N to 20°47'05.36918" N	83°40'14.11905" E to 83°39'58.66160" E	11951800228 30.07.2018	74627/1973-NCN/04-2018 Dt.30.06.2018	5.058	MR-15952	GR-50586	SRI UMESH MAHAKUR AT-ANILSARAI, PO-SOUNTPUR, PS-PUNITALA, DIST-BALANGIR, ODISHA	.30.06.2018	29.07.2023	To be auctioned	NA	NA	NA	NA	NA	NA

Tarbha

Tarbha	34	Suktel	Deulpadar Sand Quarry	Khata No.-22, Plot No. -2203, Kisam-Nadi, Mouza-Deulpadar	20°49'14.26507" N to 20°48'55.38976" N	83°38'45.39418" E to 83°38'35.17915" E	1195180033 2 22.10.2018	28350/2007-NCN/07-2018 Dt.19.09.2018	5.05	MR-7034	GR-50586	Prasant kumar Bej At-Badakadalipali, Po-Pua, Dist-Subarnapur	19.09.2018	21.10.2023	To be auctioned	NA	NA	NA	NA	NA	NA
Ullunda																				
Ullunda	35	Mahanadi	Sindurpur Sand Quarry	Khata No.-1, Plot No. -57, Kisam-Nadi, Mouza-Mahanadi(Ka)	21°03'51.82684" N to 21°03'45.75068" N	83°49'21.98025" E to 83°49'18.43904" E	N/A	N/A	0.809	NA	NA	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Ullunda	36	Mahanadi	Origaon Sand Quarry	Khata No.-1, Plot No. - 40, Kisam-Nadi, Mouza-Mahanadi(Ka)	21°05'02.07849" N to 21°04'47.81277" N	83°50'03.43759" E to 83°49'50.62114" E	N/A	N/A	4.046	NA	NA	NA	NA	NA	Non-Operational	NA	NA	NA	NA	NA	NA
Ullunda	37	Mahanadi	Rahila Sand Quarry	Khata No.-1, Plot No. -122, Kisam-Nadi, Mouza-Mahanadi(Ka)	20°58'42.49780" N to 20°58'34.81406" N	83°49'09.69186" E to 83°49'01.51986" E	13.04.2022 Reg No-1167220047 1	SEIAA-858/11-2020 Dt-05.08.2021	4.046	MR-35817	GR-62630	Sri Sourabh Kumar Padhee S/o-Janardan Padhee AT-Binayaknagar,PS-Banika, Dist-Sonepur Mob-7008201093	13.04.2022	12.04.2027	Running	NA	NA	NA	NA	NA	NA
Ullunda	38	Mahanadi	Seledi Sand Quarry	Khata No.-1, Plot No. -148, Kisam-Nadi, Mouza-Mahanadi(Ka)	20°57'24.03838" N to 20°57'14.78269" N	83°48'46.29144" E to 83°48'42.51481" E	10.10.2022 Reg No-1167220128 8	SEIAA-859/11-2020 Dt-05.08.2021	2.023	NA	NA	Sri Gourav Kumar Padhee S/o-Janardan Padhee AT-Binayaknagar,PS-Banika, Dist-Sonepur Mob-7008201093	10.10.2022	09.10.2027	Running	NA	NA	NA	NA	NA	NA

ANNEXURE-A-1

ADDITIONAL INFORMATION AS SOUGHT FOR VIDE LETTER NO. 4605 /SEIAA DT. 25.05.2022 ON DISTRICT SURVEY REPORT OF SAND SAIRAT SOURCES IN RESPECT OF BALASORE DISTRICT

Tahasil	51 No	Name of the river or stream	Name of the source	Khata, Plot, area, Mouza	Latitude	Longitude	Width of the river	Distance of the source area from river embankment	Distance from nearest road/railway bridge	Distance from nearest sand mining source	Distance from village road	Distance from school, temple etc.	Distance from nearest Eco-Sensitive Zone/ Wild life sanctuary	Whether there is any cluster situation	Year-wise deposition of sand in the strech of river where the source is located	Year-wise depletion of sand in the strech of river where the source is located	Rate of replenish ment of sand in the strech of river where the source is located	Quantum of sand that can be sustainably extracted year to year	Production of mineral for last five years (Year wise)			Royalty collected for last three years		
																			2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Binika																								
Binika	1	Anga Nadi	Anganadi (Kha) Seledi Sand Quarry	Seledi Khata No-1 Plot No- 28 & 29 Kisam Nadi,	20°53'51.432"N to 20°53'54.78" N	83°48'47.16"E to 83°48'.44.74"E	0.3 KM	0.2 KM	0.5 KM	30 KM	1 KM	1.5 KM	66 KM	No										
Birmaharajpur																								
Birmaharajpur	2		Janakpur Sand Quarry	Khata No.- 1, Plot No. - 12 Kisam-Jore, Mouza-Surbalijore	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No										
Birmaharajpur	3		Surubalijore Sand Quarry	Khata No.- 1, Plot No. - 23 Kisam-Nadi, Mouza-Surbalijore	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No										
Birmaharajpur	4	Mahanadi	Mahanadi (Ga)-Durdura B Sand Quarry	Khata No.- 2, Plot No. - 291 Kisam-Nadi, Mouza-Mahanadi(Ga)	20°54'9.66"N to 20°54'0.32" N	84°12'51.03"E to 84°12'44.02"E	1.54 km	0.1 km	11.1 km	9.2 km	1.8 km	8.7 km	77 km	No										
Birmaharajpur	5	Harihara Jora	Hariharjore Sand Quarry	Khata No.- 55, Plot No. - 43(p) Kisam-Jore, Mouza-Hariharjore	20°52'33.06136"N to 20°52'28.74407" N	84°06'10.06831"E to 84°06'01.87916"E	0.4 KM	0.1 KM	0.8 KM	2 KM	0.6 KM	0.5 KM	77 KM	No										
Birmaharajpur	6	Harihara Jora	Hariharjore Jatesingha Sand Quarry	Khata No.- 55, Plot No. - 45 Kisam-Nadi, Mouza-Jatesingha	20°51'34.71089"N to 20°51'44.57228" N	84°06'27.33493"E to 84°06'37.56958"E	0.2 KM	0.1 KM	1.2 KM	11 KM	0.5 KM	0.5 KM	79 KM	No										
Birmaharajpur	7	Mahanadi	Durdura Sand Quarry	Khata No.- 2, Plot No. - 291 & 294 Kisam-Nadi, Mouza-Durdura	20°54'10.17080"N to 20°54'00.70970" N	84°13'09.77350"E to 84°13'03.58541"E	1.4 KM	0.3 KM	10 KM	12 KM	3.5 KM	2.5 KM	80 KM	No										
Sonepur																								
Sonepur	8	Tel	Baidyanath Sand Bed	Khata No.- 368, Plot No. - 668/1721, Kisam-Nadi, Mouza-Baidyanath	20°48'35.36620"N to 20°48'28.68467" N	83°47'50.38350"E to 83°47'33.07339"E	0.5 KM	0.02 KM	0.4 KM	3.5 KM	0.1 KM	0.5 KM	76 KM	No										

Sonepur	9	Suktel	Lakarma Sand Quarry	Khata No.-139, Plot No. - 1200, Kisam-Nadi, Mouza-Lakarma	20°49'30.00532"N to 20°49'18.63608" N	83°49'37.62510"E to 83°49'27.33773"E	0.7 KM	0.02 KM	3.5 KM	11 KM	1.7 KM	1.4 KM	75 KM	No										
Sonepur	10	Ong	Kirtipur Sand Bed	Khata No.-334, Plot No. - 151/3282, Kisam-Nadi, Mouza-Kirtipur	20°54'46.00523"N to 20°54'40.62131" N	83°46'43.33963"E to 83°46'30.79892"E	0.2 KM	0.05 KM	4.0 KM	17 KM	2 KM	1.5 KM	64 KM	No										
Sonepur	11	Suktel	Suktel Nadi Khari Sand Quarry	Khata No.-219, Plot No. - 1063/1287, Kisam-Nadi, Mouza-Khari	20°46'21.83724"N to 20°46'13.01115" N	83°43'12.07857"E to 83°42'55.60630"E	0.5 KM	0.05 KM	1.1 KM	3.5 KM	0.7 KM	2 KM	80 KM	No										
Sonepur	12	Suktel	Kutsira Sand Quarry	Khata No.-237, Plot No. - 1488, Kisam-Nadi, Mouza-Kutsira	20°46'56.61837"N to 20°46'47.50393" N	83°41'11.67587"E to 83°40'58.27598"E	0.35 KM	0.18 KM	2.7 KM	8.5 KM	0.65 KM	1.5 KM	80 KM	No										
Sonepur	13	Tel	Kharjura Sand Quarry	Khata No.-380, Plot No. - 1590, Kisam-Nadi, Mouza-Kharjura	20°47'08.46730"N to 20°46'59.27507" N	83°45'55.29064"E to 83°45'43.47548"E	0.5 KM	0.17 KM	4.1 KM	7 KM	0.8 KM	0.5 KM	79 KM	No										
Sonepur	14	Ong	Dhaurakhaman Sand Quarry	Khata No.-115, Plot No. -1/746, Kisam-Nadi, Mouza-Dhaurakhaman	20°53'48'.31799"N to 20°53'39.91183"N	83°48'44'.07944"E to 83°48'35.93226"E	0.5 KM	0.1 KM	0.5 KM	10 KM	0.5 KM	4.5 KM	66 KM	No										
Sonepur	15	Mahanadi	Panisiali Sand Quarry	Khata No.-97, Plot No. - 543, Kisam-Nadi, Mouza-Panisiali	20°52'11'.83325"N to 20°52'02.78749" N	83°53'15.02351"E to 83°53'06.50456"E	1.5 KM	0.05 KM	1.7 KM	8.5 KM	0.3 KM	0.7 KM	70 KM	No										
Sonepur	16	Ong	Ong Nadi "Ka" Sand Quarry	Khata No.-1, Plot No. - 43 & 44, Kisam-Nadi, Mouza-Siali	20°56'58.96"N to 20°57'04.73" N	83°40'05.36"E to 83°40'20.58"E	0.3 KM	0.1 KM	2.0 KM	20 KM	1 KM	1.6 KM	61 KM	No										
Sonepur	17	Suktel	Tareikela Sand Quarry	Khata No.-468, Plot No. - 2625, Kisam-Nadi, Mouza-Tareikela	20°46'41.56194"N to 20°46'31.66979" N	83°41'59.57599"E to 83°41'46.26935"E	0.2 KM	0.03 KM	1.4 KM	9 KM	0.5 KM	0.5 KM	80 KM	No										
Sonepur	18	Tel	Samiabhag Sand Quarry	Khata No.-4, Plot No. - 53/54, Kisam-Nadi, Mouza-Samiabhag	20°47'58.61566"N to 20°47'48.78107" N	83°46'40.00055"E to 83°46'28.79371"E	0.7 KM	0.06 KM	2.2 KM	13 KM	2.5 KM	2.5 KM	77 KM	No										
Sonepur	19	Suktel	Matikod Sand Quarry	Khata No.-227, Plot No. - 1496, Kisam-Nadi, Mouza-Matikod	20°48'24.43121"N to 20°48'13.64868" N	83°39'37.65125"E to 83°39'26.82590"E	0.4 KM	0.1 KM	2.4 KM	17 KM	0.5 KM	1.5 KM	77 KM	No										
Sonepur	20	Ong	Balpur Sand Quarry	Khata No.-1, Plot No. - 394041, Kisam-Nadi, Mouza-Balpur	20°57'40.06430"N to 20°57'51.67060" N	83°39'16.06273"E to 83°39'2.60139"E	0.2 KM	0.2 KM	1.3 KM	18 KM	1.5 KM	1.3 KM	60.5 KM	No										
Sonepur	21	Tel	Baldapali Sand Quarry	Khata No.-73, Plot No.-390, Kisam-Nadi, Mouza-	20°49'12.17506"N to 20°49'04.75262" N	83°52'56.77418"E to 83°52'47.39532"E	0.8 km	0.8 km	2.9 km	5.6 km	0.63 km	0.79 km	76 km	No										

				Baldapali																				
Sonepur	22	Suktel	Malisrigudi Sand Quarry	Khata No.- 298, Plot No.- 2299, Kisam-Nadi, Mouza-Malisrigudi	20°47'17.20553"N to 20°47'09.08490" N	83°40'35.98328"E to 83°40'20.73442"E	0.3 km	1.0 km	3.8 km	6.1 km	0.5 km	0.52 km	79.5 km	No										
Tarbha																								
Tarbha	23	Suktel	Ghatkantara Sand Bed	Khata No.- 228, Plot No. - 1, Kisam-Nadi, Mouza-Ghatkantara	20°46'29.50131"N to 20°46'16.81668" N	83°42'13.07388"E to 83°42'00.59062"E	0.3 KM	0.04 KM	0.7 KM	16 KM	1.4 KM	1.4 KM	78.7 KM	No										
Tarbha	24	Tel	Bhurad Sand Quarry	Khata No.- 173, Plot No. - 308/1014, Kisam-Nadi, Mouza-Bhurad	20°37'52.78741"N to 20°37'44.87237" N	83°43'19.92184"E to 83°43'05.58226"E	0.5 KM	0.2 KM	4.4 KM	5 KM	1.3 KM	1.2 KM	94.8 KM	No										
Tarbha	25	Tel	Bankeda Sand Quarry	Khata No.- 184, Plot No. - 1034, Kisam-Nadi, Mouza-Bankeda	20°40'24.3"N to 20°40'11.7" N	83°44'05.11"E to 83°44'56.38"E	0.45 KM	0.1 KM	0.5 KM	2 KM	0.6 KM	1.6 KM	89.9 KM	No										
Tarbha	26	Tel	Maradugu chha Sand Quarry	Khata No.- 344, Plot No. - 1959, Kisam-Nadi, Mouza-Maraduguchha	20°41'26.79056"N to 20°41'09.76074" N	83°44'23.63645"E to 83°44'17.30717"E	0.6 KM	0.2 KM	2.0 KM	14 KM	0.8 KM	0.8 KM	88.4 KM	No										
Tarbha	27	Suktel	Tilesara Sand Quarry	Khata No.- 115, Plot No. - 323/1195, Kisam-Nadi, Mouza-Tilesara	20°47'29.60987"N to 20°47'11.10718" N	83°39'52.41150"E to 83°39'45.42160"E	0.4 KM	0.1 KM	3.9 KM	10 KM	1 KM	1 KM	77.4 KM	No										
Tarbha	28	Suktel	Ranisarda Sand Quarry	Khata No.- 434, Plot No. - 1604, Kisam-Nadi, Mouza-Ranisarda	20°50'39.80771"N to 20°50'26.55601" N	83°35'07.97919"E to 83°34'48.08880"E	0.3 KM	0.2 KM	0.6 KM	33 KM	1 KM	1 KM	73.4 KM	No										
Tarbha	29	Suktel	Badtenda Sand Quarry	Khata No.- 24, Plot No. - 194, Kisam-Nadi, Mouza-Badtenda	20°33'36.84988"N to 20°33'27.82718" N	83°41'00.16255"E to 83°40'42.65493"E	0.3 KM	0.01 KM	2.6 KM	24 KM	0.6 KM	0.7 KM	101.4 KM	No										
Tarbha	30	Suktel	Kankeda Sand Quarry	Khata No.- 156, Plot No. - 515, Kisam-Nadi, Mouza-Kankeda	20°45'49.34834"N to 20°45'43.44876"N	83°44'33.07022"E to 83°44'12.49455"E	0.2 KM	0.02 KM	0.9 KM	25 KM	0.6 KM	0.6 KM	80 KM	No										
Tarbha	31	Tel	Basasankar Sand Quarry	Khata No.- 72, Plot No. - 528, Kisam-Nadi, Mouza-Basasankar	20°32'49.57168"N to 20°32'37.95482"N	83°39'32.12521"E to 83°39'16.45403"E	0.4 KM	0.01 KM	0.2 KM	32 KM	0.6 KM	0.3 KM	104 KM	No										
Tarbha	32	Suktel	Arda Sand Quarry	Khata No.- 374, Plot No. - 2557/P, Kisam-Nadi, Mouza-Arda	20°50'03.68615"N to 20°49'59.02622" N	83°36'48.30355"E to 83°36'22.44262"E	0.3 KM	0.03 KM	3.5 KM	8 KM	0.6 KM	0.6 KM	73.6 KM	No										

Tarbha	33	Suktel	Dilkhuspur Sand Quarry	Khata No.-74, Plot No. - 1, Kisam-Nadi, Mouza-Dilkhuspur	20°47'10.77864"N to 20°47'05.36918" N	83°40'14.11905"E to 83°39'58.66160"E	0.25 KM	0.1 KM	2.1 KM	4.5 KM	0.5 KM	0.7 KM	78 KM	No									
Tarbha	34	Suktel	Deulpadar Sand Quarry	Khata No.-22, Plot No. - 2203, Kisam-Nadi, Mouza-Deulpadar	20°49'14.26507"N to 20°48'55.38976" N	83°38'45.39418"E to 83°38'35.17915"E	0.2 KM	0.2 KM	0.5 KM	5 KM	0.5 KM	0.5 KM	74.9 KM	No									

Ullunda

Ullunda	35	Mahanadi	Sindurpur Sand Quarry	Khata No.-1, Plot No. - 57, Kisam-Nadi, Mouza-Mahanadi(Ka)	21°03'51.82684"N to 21°03'45.75068" N	83°49'21.98025"E to 83°49'18.43904"E	0.8 KM	0.1 KM	3.0 KM	2.5 KM	1.5 KM	1.7 KM	47.5 KM	No									
Ullunda	36	Mahanadi	Origaon Sand Quarry	Khata No.-1, Plot No. - 40, Kisam-Nadi, Mouza-Mahanadi(Ka)	21°05'02.07849"N to 21°04'47.81277" N	83°50'03.43759"E to 83°49'50.62114"E	1.1 KM	0.1 KM	5.5 KM	11 KM	1 KM	1 KM	45 KM	No									
Ullunda	37	Mahanadi	Rahila Sand Quarry	Khata No.-1, Plot No. - 122, Kisam-Nadi, Mouza-Mahanadi(Ka)	20°58'42.49780"N to 20°58'34.81406" N	83°49'09.69186"E to 83°49'01.51986"E	1.3 KM	0.1 KM	6.2 KM	2.5 KM	1 KM	1 KM	58 KM	No									
Ullunda	38	Mahanadi	Seledi Sand Quarry	Khata No.-1, Plot No. - 148, Kisam-Nadi, Mouza-Mahanadi(Ka)	20°57'24.03838"N to 20°57'14.78269" N	83°48'46.29144"E to 83°48'42.51481"E	1.2 KM	0.1 KM	6.2 KM	3 KM	1 KM	1 KM	59 KM	No									

Annexure-II

List of Potential Mining Lease (existing & Proposed) Rivers

Tahasil	Sl No	River detail	Lease detail	Area (in Hectares)	Distance (in K.M) from BR/WC	Distance from forest area (in K.M)	Mining lease within 500 metres (if yes cluster area	Total excavation in Tonnes/ Annum considering digging depth max as 3 metres	Mineral to be mined (sand/Bajri/RBM etc.	Existing/ proposed
1	2	3	4	5	6	7	8	9	10	11
Tarbha Tahasil										
Tarbha	1	Suktel	Ghatkaintara Sand Bed	5.00	WC:78.7 KM BR: 0.7 KM	Debrigarh Wildlife Sanctuary-78.7 KM		10000	Sand	Existing
Tarbha	2	Tel	Bhurad Sand Quarry	4.977	WC:94.8 KM BR: 4.4 KM	Debrigarh Wildlife Sanctuary-94.8 KM		2000	Sand	Existing
Tarbha	3	Tel	Bankeda Sand Quarry	5.22	WC:89.9 KM BR: 0.5 KM	Debrigarh Wildlife Sanctuary-89.9 KM		5000	Sand	Existing
Tarbha	4	Tel	Maraduguchha Sand Bed	4.046	WC:88.4 KM BR: 2.0 KM	Debrigarh Wildlife Sanctuary-88.4 KM		2000	Sand	Existing
Tarbha	5	Suktel	Tilesara Sand Quarry	4.046	WC:77.4 KM BR: 3.9 KM	Debrigarh Wildlife Sanctuary-77.4 KM		5000	Sand	Existing
Tarbha	6	Suktel	Ranisarda Sand Quarry	6.07	WC:73.4 KM BR: 0.6 KM	Debrigarh Wildlife Sanctuary-73.4 KM		3840	Sand	Existing
Tarbha	7	Suktel	Badtenda Sand Quarry	4.249	WC:101.4 KM BR: 2.6 KM	Debrigarh Wildlife Sanctuary-101.4 KM		3000	Sand	Existing
Tarbha	8	Suktel	Kankeda Sand Quarry	4.999	WC:80.0 KM BR: 0.9 KM	Debrigarh Wildlife Sanctuary-80.0 KM		3000	Sand	Existing
Tarbha	9	Tel	Basasankar Sand Quarry	4.978	WC:104.0 KM BR: 0.2 KM	Debrigarh Wildlife Sanctuary-104.0 KM		1572	Sand	Existing
Tarbha	10	Suktel	Arda Sand Quarry	6.07	WC:73.6 KM BR: 3.5 KM	Debrigarh Wildlife Sanctuary-73.6 KM		4000	Sand	Existing
Tarbha	11	Suktel	Dilkhuspur Sand Quarry	5.058	WC:78.0 KM BR: 2.1 KM	Debrigarh Wildlife Sanctuary-78.0 KM		2906	Sand	Existing

Tarbha	12	Suktel	Deulpadar Sand Quarry	5.05	WC:74.9 KM BR: 0.5 KM	Debrigarh Wildlife Sanctuary-74.9 KM		700	Sand	Existing
Ullunda Tahasil										
Ullunda	13	Mahanadi	Sindurpur Sand Quarry	0.809	WC: 47.5 KM BR: 3.0 KM	Debrigarh Wildlife Sanctuary-47.5 KM		1756	Sand	Existing
Ullunda	14	Mahanadi	Arigaon Sand Quarry	4.046	WC:45.0 KM BR:5.5 KM	Debrigarh Wildlife Sanctuary-45.0 KM		3745	Sand	Existing
Ullunda	15	Mahanadi	Rahila Sand Quarry	4.046	WC:58.0 km BR:6.2 KM	Debrigarh Wildlife Sanctuary-58.0 km		3855	Sand	Existing
Ullunda	16	Mahanadi	Seledi Sand Quarry	2.023	WC:59.0 KM BR:6.2 KM	Debrigarh Wildlife Sanctuary-59.0 KM		2946	Sand	Existing

Binika Tahasil

Binika	17	Anga nadi	Anganadi (Kha) Seledi Sand Quarry	4.9998	WC-66.0 km BR-0.5 km	Debrigarh Wildlife Sanctuary-66.0 km	NA	1462.5 cum	Sand	Existing
Birmaharajpur										
Birmaharajpur	18		Janakpur Sand Quarry	1.529	NA	NA	NA	2250 cum	Sand	Existing
Birmaharajpur	19		Surubalijore Sand Quarry	9.145	NA	NA	NA	3300 cum	Sand	Existing
Birmaharajpur	20	Mahanadi	Mahanadi(Ga)-Durdura B Sand Quarry	4.856	WC-77.0 km BR-11.1 km	Debrigarh Wildlife Sanctuary-77.0 km	NA	22692cum	Sand	Existing
Birmaharajpur	21	Harihara Jora	Hariharjore Sand Quarry	6.292	WC-77.0 km BR-0.8 km	Debrigarh Wildlife Sanctuary-77.0 km	NA	3432cum	Sand	Existing
Birmaharajpur	22	Harihara Jora	Hariharjore Jatesingha Sand Quarry	4.552	WC-79.0 km BR-1.2 km	Debrigarh Wildlife Sanctuary-79.0 km	NA	5000 cum	Sand	Existing
Birmaharajpur	23	Mahanadi	Durdura Sand Quarry	4.046	WC-80 km BR-10 km	Debrigarh Wildlife Sanctuary-80 km	NA	21000 cum	Sand	Existing

Sonepur										
Sonepur	24	Tel	Baidyanath Sand Bed	5.0	WC-76.0 BR-0.4 km	Debrigarh Wildlife Sanctuary-76.0 km	NA	5000 cum	Sand	Existing
Sonepur	25	Suktel	Lakarma Sand Quarry	5.0	WC-75.0 km BR-3.5 km	Debrigarh Wildlife Sanctuary-75.0 km	NA	7000 cum	Sand	Existing
Sonepur	26	Ong	Kirtipur Sand Bed	5.0	WC-64.0 km BR-4.0 km	Debrigarh Wildlife Sanctuary-64.0 km	NA	2000 cum	Sand	Existing
Sonepur	27	Suktel	Suktel Nadi Khari Sand Quarry	5.0	WC-80 km BR-1.1 km	Debrigarh Wildlife Sanctuary-80 km	NA	5001 cum	Sand	Existing
Sonepur	28	Suktel	Kutsira Sand Quarry	5.0	WC-80 km BR-2.7 km	Debrigarh Wildlife Sanctuary-80 km	NA	5000 cum	Sand	Existing
Sonepur	29	Tel	Kharjura Sand Quarry	5.0	WC-79 km BR-4.1 km	Debrigarh Wildlife Sanctuary-79.0 km	NA	5550 cum	Sand	Existing
Sonepur	30	Ong	Dhaurakhaman Sand Quarry	5.0	WC-66 km BR-0.5 km	Debrigarh Wildlife Sanctuary-66.0 km	NA	2250 cum	Sand	Existing
Sonepur	31	Mahanadi	Panisiali Sand Quarry	5.0	WC-70 km BR-1.7 km	Debrigarh Wildlife Sanctuary-70.0 km	NA	2490 cum	Sand	Existing
Sonepur	32	Ong	Ong Nadi "Ka" Sand Quarry	5.0	WC-61 km BR-2.0 km	Debrigarh Wildlife Sanctuary-61.0 km	NA	2000 cum	Sand	Existing
Sonepur	33	Suktel	Tareikela Sand Quarry	5.0	WC-80 km BR-1.4 km	Debrigarh Wildlife Sanctuary-80 km	NA	5000 cum	Sand	Existing
Sonepur	34	Tel	Samiabhag Sand Quarry	5.0	WC-77 km BR- 2.2 km	Debrigarh Wildlife Sanctuary-77.0 km	NA	5000 cum	Sand	Existing
Sonepur	35	Suktel	Matikod Sand Quarry	5.0	WC-77 km BR-2.4 km	Debrigarh Wildlife Sanctuary-77.0 km	NA	3280 cum	Sand	Existing
Sonepur	36	Ong	Balpur Sand Quarry	5.0	WC-60.5 km BR-1.3 km	Kotgarh Wildlife Sanctuary-60.5 km	NA	5280 cum	Sand	Existing
Sonepur	37	Tel	Baldapali Sand Quarry	5.0	WC-76.0 km BR-2.9 km	Debrigarh Wildlife Sanctuary-76.0 km	NA	NA	Sand	Existing

Sonepur	38	Suktel	Malisrigudi Sand Quarry	5.0	WC-79.5 km BR-3.8 km	Debrigarh Wildlife Sanctuary-79.5 km	NA	NA	Sand	Existing

List of Potential Mining Lease (existing & Proposed) Rivers

Patta Lands/ Khatedairi Land (Existing Proposed)

Owner	Sy No.	Area	District	Tahasil	Village	Total Reserve (MT)	Total Mineral to be mined(MT)	Existing/ proposed
Not applicable for Subarnapur District								

De-Siltation Location (lakes/ Ponds/dams etc. (Existing & Proposed)

1 | 2 | 3 |	5	6	7	8	9	10	11	
Name of reservoir /Dams	**Maintain/ Collected by State Government/PSU**	**location**	**District**	**Tahasil**	**Village**	**Size (Ha)**	**Quantity (MT /year)**	**Existing/ proposed**
Not applicable for Subarnapur District								

d) M-sand Plants:							
Plant name	**Owner**	**District**	**Tahasil**	**Village**	**Gee-location**	**Quantity Tonnes/Annum**	**Existing /Proposed**
Not applicable for Subarnapur District							

Annexure-III

Cluster & Contiguous Cluster details

Cluster:

River Name	Cluster No.	Lease No.	Location (River Bed/Patta Land	Village	Area (in Ha.)	Total excavation (Cum)
No Cluster Situation available in respect of Subarnapur District						

Contiguous Cluster Details

River Name	Contiguous Cluster No.	Cluster No.	Number of leases in the cluster	Location (River Bed/Patta Land	Distance between clusters	Village	Area of cluster (in Ha.)	Total excavation (Ton)
No contiguous Cluster Situation available in respect of Subarnapur District								

Annexure-IV

Transportation Routes for individual leases and leases in Cluster.

Name of the Tahasil	Name of the sand source	Lease No.	Transportation Route number	Whether runs on Govt. or Private Land	Details of village/Forest area/Agricultural land through which the approach road runs if any	Number of tippers *I* day of lease	Number of tippers *I*day of all the lease on route	Length of Route in K.M	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved	The road will be constructed by Government /Lease Owner	Route map and location
1	2	3	4	5	6	7	8	9	10	11	12	13
Tarbha Tahasil												
Tarbha	Ghatkaintara Sand Bed	11952200123	Village Road	Govt. Land	Ghatkaintara	8	12	5	Unpaved	Unpaved	Lease Owner	
Tarbha	Bhurad Sand Quarry	11952200298	Village Road	Govt. Land	Bhurad	3	7	6	Unpaved	Unpaved	Lease Owner	
Tarbha	Bankeda Sand Quarry	NA	Village Road	Govt. Land	Bankeda	4	7	6	Unpaved	Unpaved	Lease Owner	
Tarbha	Maraduguchha Sand Bed	NA	Village Road	Govt. Land	Maraduguchha	5	9	5	Unpaved	Unpaved	Lease Owner	
Tarbha	Tilesara Sand Quarry	NA	Village Road	Govt. Land	Tilesara	7	11	4	Unpaved	Unpaved	Lease Owner	
Tarbha	Ranisarda Sand Quarry	NA	Village Road	Govt. Land	Ranisarda	7	10	4	Unpaved	Unpaved	Lease Owner	
Tarbha	Badtenda Sand Quarry	NA	Village Road	Govt. Land	Badtenda	6	9	7	Unpaved	Unpaved	Lease Owner	
Tarbha	Kankeda Sand Quarry	NA	Village Road	Govt. Land	Kankeda	8	14	5	Unpaved	Unpaved	Lease Owner	
Tarbha	Basasankar Sand Quarry	NA	Village Road	Govt. Land	Basasankar	9	16	7	Unpaved	Unpaved	Lease Owner	
Tarbha	Arda Sand Quarry	NA	Village Road	Govt. Land	Arda	9	15	8	Unpaved	Unpaved	Lease Owner	
Tarbha	Dilkhuspur Sand Quarry	1195180022	Village Road	Govt. Land	Dilkhuspur	5	8	4	Unpaved	Unpaved	Lease Owner	
Tarbha	Deulpadar Sand Quarry	1195180033	Village Road	Govt. Land	Deulpadar	3	7	5	Unpaved	Unpaved	Lease Owner	

Ullunda Tahasil												
Ullunda	Sindurpur Sand Quarry	NA	Village Road	Govt. Land	Sindurpur	2	5	5	Unpaved	Unpaved	Lease Owner	
Ullunda	Origaon Sand Quarry	NA	Village Road	Govt. Land	Origaon	3	6	7	Unpaved	Unpaved	Lease Owner	
Ullunda	Rahila Sand Quarry	11672200471	Village Road	Govt. Land	Rahila	3	7	8	Unpaved	Unpaved	Lease Owner	
Ullunda	Seledi Sand Quarry	11672201288	Village Road	Govt. Land	Seledi	2	6	4	Unpaved	Unpaved	Lease Owner	
Binika Tahasil												
Binika	Anganadi (Kha) Seledi Sand Quarry	1168210014	Village Road	Govt. Land	Anganadi	4	11	3	Unpaved	Unpaved	Lease Owner	
Birmaharajpur												
Birmaharajpur	Janakpur Sand Quarry	NA	Village Road	Govt. Land	Janakpur	4	10	3	Unpaved	Unpaved	Lease Owner	
Birmaharajpur	Surubalijore Sand Quarry	NA	Village Road	Govt. Land	Surubalijore	2	7	2	Unpaved	Unpaved	Lease Owner	
Birmaharajpur	Mahanadi(Ga)-Durdura B Sand Quarry	NA	Village Road	Govt. Land	Mahanadi(Ga)	4	10	4	Unpaved	Unpaved	Lease Owner	
Birmaharajpur	Hariharjore Sand Quarry	NA	Village Road	Govt. Land	Hariharjore	7	12	3	Unpaved	Unpaved	Lease Owner	
Birmaharajpur	Hariharjore Jatesingha Sand Qua	NA	Village Road	Govt. Land	Jatesingha	3	7	3	Unpaved	Unpaved	Lease Owner	
Birmaharajpur	Durdura Sand Quarry	1167200228	Village Road	Govt. Land	Durdura	6	10	2	Unpaved	Unpaved	Lease Owner	
Sonepur												
Sonepur	Baidyanath Sand Bed	1662200981	Village Road	Govt. Land	Baidyanath	4	9	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Lakarma Sand Quarry	11662201327	Village Road	Govt. Land	Lakarma	3	12	4	Unpaved	Unpaved	Lease Owner	
Sonepur	Kirtipur Sand Bed	11662101032	Village Road	Govt. Land	Kirtipur	4	10	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Suktel Nadi Khari Sand Quarry	11662100152	Village Road	Govt. Land	Khari	5	11	4	Unpaved	Unpaved	Lease Owner	
Sonepur	Kutsira Sand Quarry	11662100350	Village Road	Govt. Land	Kutsira	4	12	4	Unpaved	Unpaved	Lease Owner	

Sonepur	Kharjura Sand Quarry	NA	Village Road	Govt. Land	Kharjura	5	8	2	Unpaved	Unpaved	Lease Owner	
Sonepur	Dhaurakhaman Sand Quarry	11662201380	Village Road	Govt. Land	Dhaurakhaman	3	7	2	Unpaved	Unpaved	Lease Owner	
Sonepur	Panisiali Sand Quarry	11662200823	Village Road	Govt. Land	Panisiali	4	8	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Ong Nadi "Ka" Sand Quarry	11692100149	Village Road	Govt. Land	Siali	4	10	2	Unpaved	Unpaved	Lease Owner	
Sonepur	Tareikela Sand Quarry	11662101018	Village Road	Govt. Land	Tareikela	5	11	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Samiabhag Sand Quarry	11662201132	Village Road	Govt. Land	Samiabhag	3	12	4	Unpaved	Unpaved	Lease Owner	
Sonepur	Matikod Sand Quarry	NA	Village Road	Govt. Land	Matikod	5	10	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Balpur Sand Quarry	NA	Village Road	Govt. Land	Balpur	6	9	2	Unpaved	Unpaved	Lease Owner	
Sonepur	Baldapali Sand Quarry	NA	Village Road	Govt. Land	Baldapali	4	10	3	Unpaved	Unpaved	Lease Owner	
Sonepur	Malisrigudi Sand Quarry	NA	Village Road	Govt. Land	Malisrigudi	3	12	2	Unpaved	Unpaved	Lease Owner	