DISTRICT SURVEY REPORT (DSR)

OF

BALANGIR DISTRICT, ODISHA

FOR

RIVER SAND

(FOR PLANNING & EXPLORATION OF MINOR MINERAL RESOURCES)

ODISHA, BALANGIR

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

(MoEF & CC)

MARCH - 2021

COLLECTORATE BALANGIR.

CONTENT

30.04.2021
Deputy Collector
Collectorate, Balangir

30/4/21
Additional District Magistrate
Balangir

Collector, Balangir

PREAMBLE

Balangir is a city and Municipality, the headquarters of Balangir district in the state of Odisha, India. Balangir has a rich cultural heritage. It is also known as the cultural hub of Western Odisha. Balangir municipality is divided into twenty one wards. It is spread over an area of 12,200 acres (4,900 ha). Balangir is a unique District in Odisha lies on the western most part of the State with rich and varied mineral resource.

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. 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, however this is an interim report, which will be updated at regular intervals. In lieu of above guideline Chief Secretary of Government of Odisha issued a letter to all DEIAA, to prepare a District Survey Report as per guideline of sustainable sand mining & other than sand mining as minor mineral mining guidelines with the assistance of Irrigation Department (Minor Irrigation), Forest Department, Mining & Geology Departments, considering the recent amendment S.O. 3611 (E) dated 25th July, 2018.

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.

INTRODUCTION

Balangir at a Glance:

1.1 Location and Geographical Area:

The Balangir District is surrounded by Subarnapur district in east, Nuapada District in the west, Kalahandi District in the south and Bargarh District in the north. The District lies between $20^0$11'40 to 21^0 05'08 degree north latitude and $82^0$41'15 to $83^0$40'22 East longitude. The District covers an area of 6575 sq.km.

The district of Balangir is flanked in the north-west by the Gandhamardan hills, a name of the Ramayana Fame, and in the north-east by the rock-infested Mahanadi. It is traversed by many hill streams and is interspersed with the evergreen woodlands, the shelter of Bison and Sambar. The main forest area stretches along the western boundary bordering the Nuapada, Kalahandi district and then turns to the east running parallel to the Gandhamardan range. This forest track is broken by occasional clearings and small settlements, but it mostly consists of thick vegetation in which bamboo of excellent quality grows and Sal, Sahaj, Piasal, Dhaura and Ebony form the principal timber. The crest of the range of Gandhamardan hills is fine platue, some ten miles long, with an average height of 3000 feet. For most part of this district lies on the north-west bank of river Tel, which form the boundary between his district and the district of Kalahandi, Sonepur, Boudh and Kandhamal.

The district has many rivers and perennial streams. Almost the entire Bolangir district is drained by nine rivers namely Mahanadi,Tel, Undar, Lanth, Sungadh and Sukhtel (Tributaries of the Tel),Ang, Jira, Saleshing.

Hill System

Mathkhai, The Sacred Hill on the outskirt of Balangir City also a Landmark of the District.

- Gandhamardan (3,296 ft)
- Butel (2,670 ft)
- Chahdli (2,630 ft)
- Thuta (2,056 ft)
- Bender (1,920 ft)
- Patpani
- Chhatardandi
- Matkhai (2,591)

It is best known for Harisankar Temple. The Ordnance Factory is located 45 km South of Balangir. It is the largest city of Western Odisha. The District is divided into 3 Sub-Divisions namely 1) Balangir, 2) Patnagarh and , 3) Titalagarh. It has 1794 villages covering 14 Blocks, 14 Tahasils. Balangir is the main town of the District and is also its centre of economic growth. The primary occupation of people in the District is cultivation. This District is mainly known for cultivation of paddy. Because rice is the staple cereal of the local people. Hybrid varieties of seeds are being developed and land reform programs are being planned for the maximum usage of the wastelands, promising to enhance the District's economic stability in the near future. Industries, Agriculture and Tourism are the four major Revenue Sources of Balangir District**.** The District Industries Centre, Balangir has been functioning since 1978, in order to provide service to the people of Balangir District in all respects of industrial promotion i.e. preparation of project reports, facilitating financial assistance from financing institutions, marketing assistance, allotment of Govt. land and shed, Raw–material recommendation, imparting of Entrepreneurship Development Training to prospective entrepreneurs and providing different technical know–how etc under one roof. There are no of industries are present in the Bolangir District.

- No. of Small Scale Industries (Working) – 1066
- No. of Large / Medium Industries – 6

Different Types Of Sophisticated Industries Existing In Balangir (Item Wise)		
Sl. No.	**Type of Industries existing.**	**No.of units.**
1	Aluminium Utensils	08
2	Automatic Bakery Unit	9
3	Automatic Rice Mills	65
4	Auto – Offset Printing	4
5	Ayurvedic Medicine	1
6	Cold Storage	1
7	Coolers	15
8	Corn Flakes	2
9	Cotton Ginning Mill	10
10	Detergent Powder & Cake	2
11	Digital Colour Photo Lab	3
12	Engineering Workshop	20
13	Flax Printing	6
14	Flour Mill	3
15	Fly Ash Bricks	20
16	Gem stone cutting & Polishing	2
17	Granite Cutting & Polishing	11

18	Graphite Crucible	1
19	Graphite Beneficiation Plant	12
20	Gudakhu Factory	2
21	Handloom Weaving Factory	8
22	Hot Mix Plant	1
23	Hotel & Lodge	14
24	Leather Foot Wear	4
25	Modern Dal Mill	2
26	Oil Mill	4
27	Packaged Drinking Water	6
28	Pesticides & Insecticides	2
29	Pharmaceutical Tablet Units	1
30	Phenyle	2
31	Pressed Leaf Cup & Plate Mfg./Paper Plate	12
32	Plastic Glass	2
33	Sophisticated Readymade Garments	5
34	Sortex Rice	12
35	Steel Furniture With Hot Chamber	3
36	Stone Crushers	15
37	Tufted Woolen Carpets	3
38	Therm Cool Sheet	2
39	Transformer assembling & Repairing	2
40	Tyre Retreading	9
41	Vermicelli	2

Bolangir district is situated in the western side of the state of Odisha, extending from $82^0$41' to $83^0$42' East longitude and 200 9' to 210 05' north latitude. Generally the climate of the district is hot & moist sub-humid**.** Broadly the district has Red & Yellow, Red & Black, Black, Late–rite, Black Cotton Soil and Brown forest soil with alluvium soil and intersected by the perennial rivers, which collectively provides conducive infrastructure for the growth of agriculture in the region. Rice, Pulses, oil seeds like Groundnut, Mustard, Castor and linseed are grown in the District of Balangir. The District has a rich mineral base of 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 all the tahasil regions provide tremendous scope for development of few more industries.

Bolangir district with its fascinating natural beauty, rich tribal cultural heritage has a potential reserve of graphite, bauxite, Galena, & manganese.

1.2 Administrative Units:-

Balangir is the Administrative Headquarter of Balangir District. It is located at a distance of 319 km from Bhubaneswar, State Capital of Odisha. In accordance to the area, the District is the the 3rd largest weastern Odisha Districts of Odisha. It has 1794 villages covering 14 Blocks, 14 Tahasils and 3 Sub-Divisions. The District is divided into 3 Sub-Divisions namely 1) Balangir, 2) Patnagarh and , 3) Titalagarh.

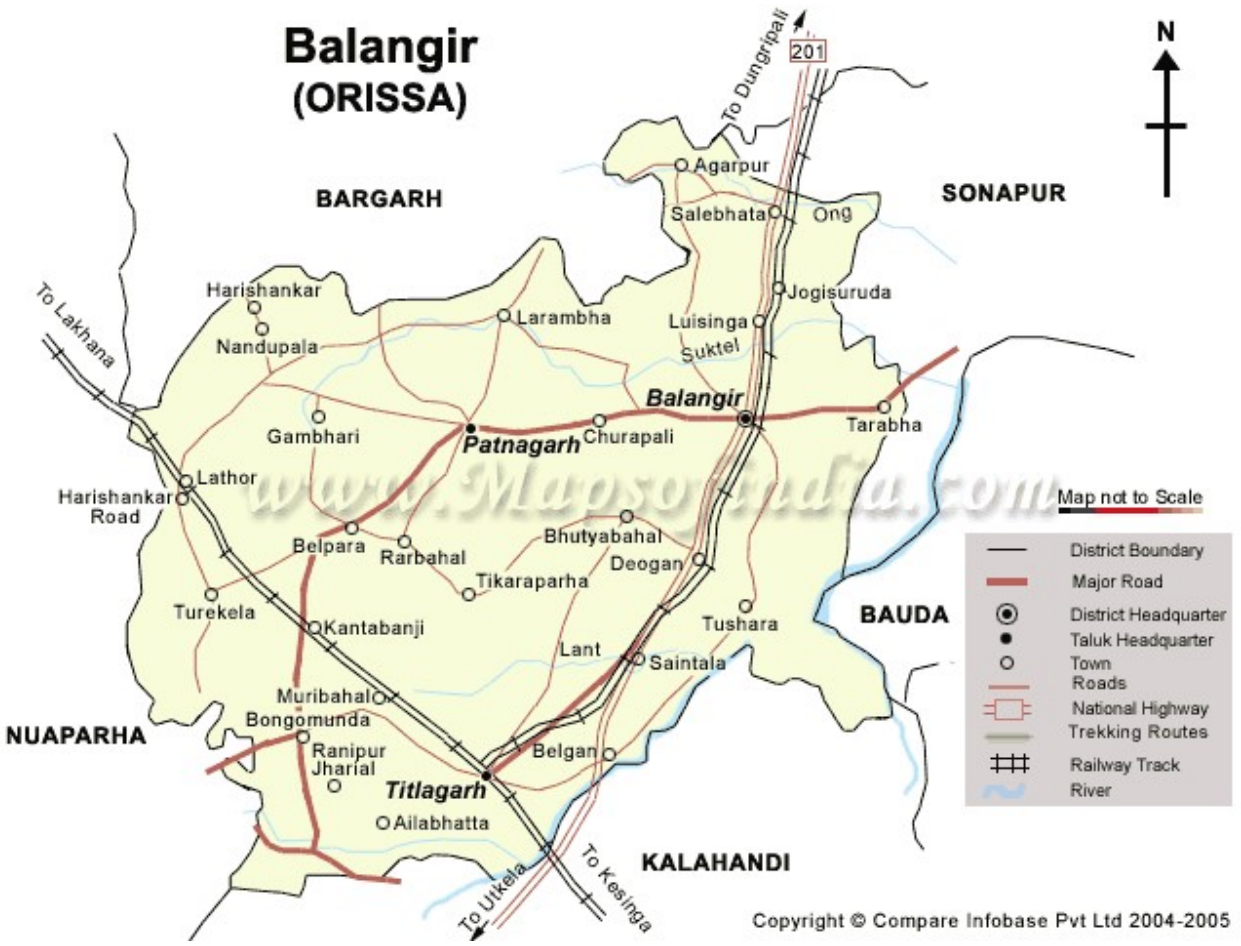
The total population of the District is 13,79,647 according to the 2011 Census.

Sl No	Unit	Total	Male	Female
1	Population (Total) - 2011	1,648,997	830,097	818,900
2	ST Population	3,47,164	1,72,489	1,74,675
3	SC population	294,777	148,356	146,421
4	Literacy (Total)	927,260	545,672	381,588

1.3 Connectivity facilities:-

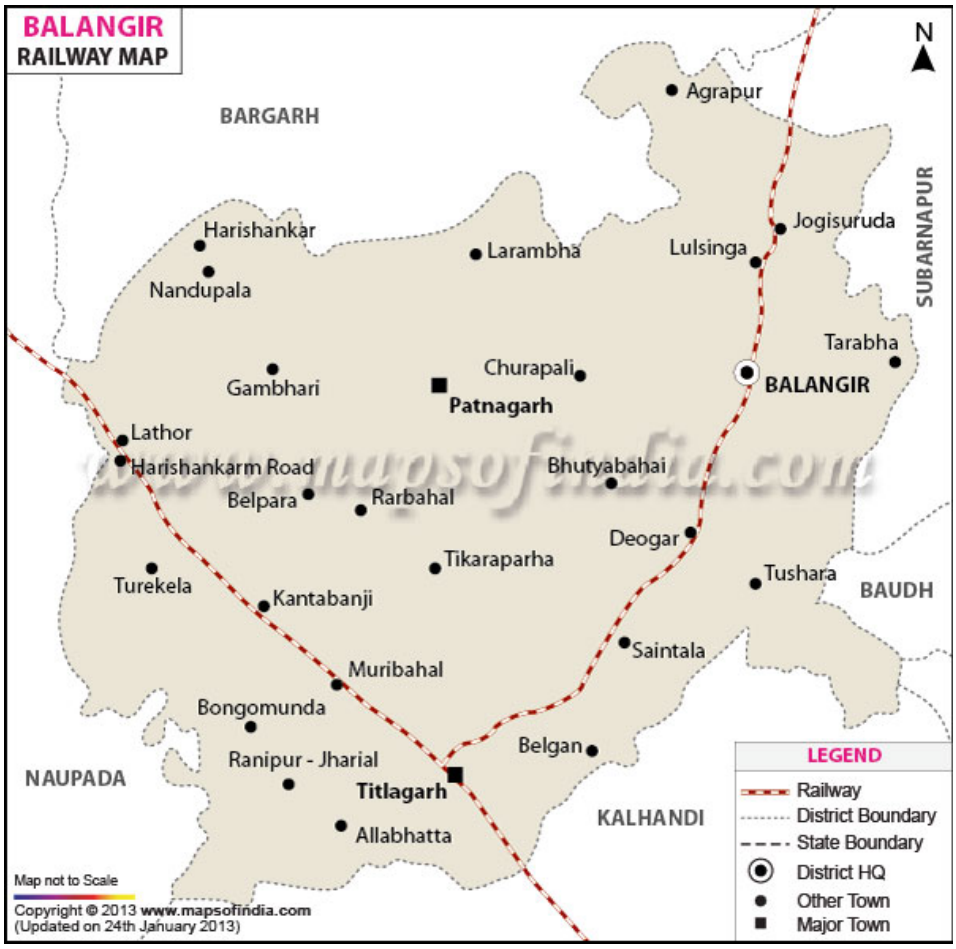
Road Network

The District is well served by a network of good roads. The chief road emanating from Balangir town is NH-201 passes through the District. Balangir Town is about 79 Kms from Bargarh, 119 Kms from Nuapada, 237 Kms from Kalahandi, 98 Kms from Boudh, and 49 Kms from Subarnapur. It is also connected with other cities such as Nabarangpur, Koraput, Ganjam, Khordha, Nayagarh, and Boudh via Odisha State Road Transport Corporation and some private travel services.



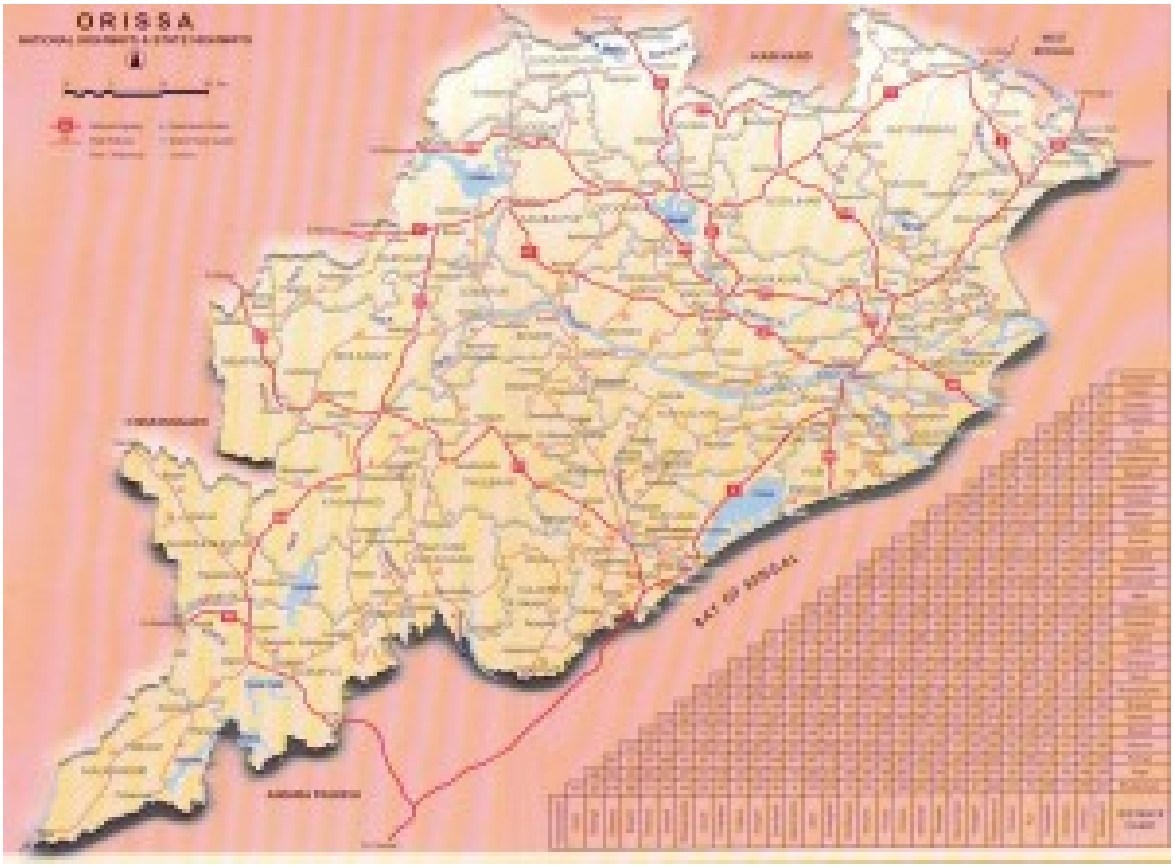
Rail Network

Balangir District is well connected by Rail link to different places, Balangir railway station is a railway station which serves Balangir district in Indian state of Odisha. The **Jharsuguda–Vizianagaram line** is a railway line in western India. It connects Jharsuguda, on the Howrah-Nagpur-Mumbai line, and Titlagarh, which in turn is connected with Vizianagaram, on the Howrah-Chennai main line, and Raipur, There are several branch lines, like the one connecting Rayagada with Koraput on the Kothavalasa-Kirandul line. The **Khurda Road–Bolangir line** is a rail line between Khurda Road Junction and Balangir which is under construction. The distance to Raipur is approximately 283 km, while the distance to Bhubaneswar is about 317 km; the city of Balangir is well connected to many places in India like Nayagarh, Phulbani, Baragarh, and Jharsuguda, Rourkela wiith Bhubaneswar sambalpur.



Air Network

The Jharsuguda Airport at Jharsuguda is the nearest airport to the city while Swami Vivekananda Airport at Raipur, Chhattisgarh is 234 km away. Biju Patnaik International Airport in the state capital, Bhubaneswar is 327 km away by road and 397 km by rail.



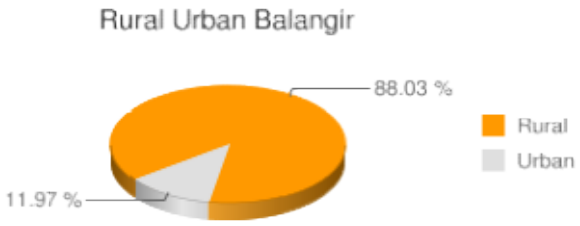
2. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT:

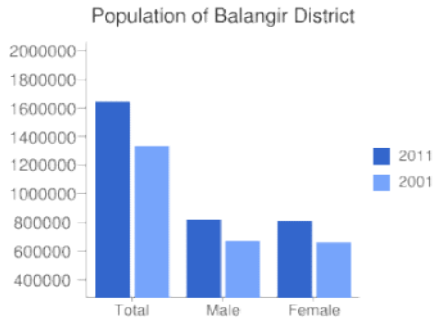
A great variety of ores and minerals occur in this distriict. Of these, the important ones are graphite, Galena(Lead ore), Manganese ore and Bauxite.Balangir District is a transition land features of both coastal plain and hilly region. Most of the mineralized area coming under Eco-Sensitive Zone, mining activity only confined out of safety zone of Eco-Sensitive Zone. The mining activity in the District is only restricted to minor minerals i.e. of sand, stone, granite and brick clays. Altogether there are leases of stone, granite and sand which has been granted to the District is regulated as per minerals concession rules of Odisha, there is no lease of major mineral in the District. At present Leases of stone, sand and bricks making units are operational in the District. Stone chips, granite stones, ordinary sand constitute the principal mining activity of all the tahasil area of Balangir District. which have been provides tremendous scope for development of few more Industries based on this resources.

3.0 .GENERAL PROFILE OF THE DISTRICT:

3.1 Demography:

Census – 2011	
Geographical Area	3806 Sq. Km.
Total population	1,648,997
Male Population	830,097
Female Population	818,900
Male Literacy	545,672
Female Literacy	381,588
SC Male	148,356
SC Female	146,421
ST Male	1,72,489
ST Female	1,74,675
Illiterate Male	2,84,425
Illiterate Female	437312





4.0 GEOLOGY OF THE DISTRICT:

Balangir district constitutes a portion of the peninsular reunion. It has largely remained a table-land, a mass of great rigidity and has not been affected by inner movements of the earth through some portions of the peninsular India has been affected by structural disturbance of vertical nature.

The Archean formations of the eastern Ghat region, rerpresented mainly by the rocks of the Khondalite series, extend up to the western limit of the district. The next younger series of rocks, in this area consisting of garnetiferous gneisses are thought to be the products of hybridism between the cale silicate rocks and aplitic solutions. The concluding phases of the Archean in the Mahanadi tracts have been marked by a large scale intrusion of very coarse grained, often porphyritic granite with the accompanying pegmatite facies. Large scale felspathisation of the older rocks, particularly the granulitic rocks and the leptynitic gneisses resulted in avariety of injection gneisses.

The next younger formatiions in this area consists of certain fresh water sediments perhaps of lower Gondwana (Talchir stage) age and are exposed as isolated sandstone patches in the Tel Valley.

The youngest geological formations of the area are laterite an alluvium, the former occurring extensively as surface capping on the plains as well as on the 3,000 foot high Gandhamardan Plateau.

The areas represent parts of the Eastern Ghat Super Group comprising strongly metamorphosed rocks viz. Khondalites (and their migmatitic derivatives), calc granulites and garnetiferous quartzite associated with granite gneisses, pegmatites and quartz veins. The stratigraphic sequence established by earlier workers and confirmed by the present authors for these areas is as follows:-

			alluvium & soil Laterite
			Pegmatite & quartz veins
			Granite gneisses
			Migmatites
ARCHAEAN	Eastern		
	Ghat	Charnockite	Pyroxene- granulite
		Formation	
	Supergroup	Khondalite	Khondalite, calc-
		formation	Granulate quartzite.

Khondalite formations:

Khondalites, sensu strict, are as vary scares in the areas as a result of extensive migmatisation. Portions of these rocks, which are much less migmatised with leuco-somes 10% or less, form in general, high conical hills that support thick vegitation and stand out prominently in an otherwise undulating rolling country.

Such hills are generally made up of gneissic khondalite. The Kalinili hill west of Sanbanki as well as the hill further north and the hill east of Sapmund are made up of this type of rock. The schistose variety, on the other hand, is exposed in the nalas and foothills close to those hills.

The rock is greyish to reddish brown in colour, medium grained, foliated and consists of quartz, garnet, sillimanite, graphite and a little feldspars. The reddish brown colour is the result of limonitisation of garnet. Under the microscope, it consists of xenomorphic and strained, quartz, stumpy needles of
sillimanite with transverse cracks, limonitised garnet showing diablastic structure and biotite altering from garnet mostly along cracks and peripheries. Graphite occurs as greyish black flakes. Both perthite and K-feldspar are present.

The garnetiferous quartzite forms small hillocks east and NE of Bariali, east of Dholmandal and west of mahulpati. The rock stands out prominently as hills and ranges because of its resistant nature.

The quartzite is a granular rock, greyish in colour and dotted with conspicuous reddish garnet. In some cases, e.g. on the hill near Bariali, a little biotite is present in the rock. Sometimes occasional sillimanite needles are noticed. It is generally devoid of graphite except for .a few flakes as noted in the east of Dholmandel

The calc-granulite forms linear bands within the migmatised khondalite terrain and is intricately folded. This rock is exposed in the west Bariali and extends discontinuously along the strike further NE following the course of the Lant river (Plate-II.). The total strike length of the band between Bariali and east of 1561 hill is about 10km. Another band is continuous for about 4km between east of Debriamunda and east 1561 hill. The other bands are exposed near Kharli, Debriamunda, and north of Harishankar Road (foot hills of 1561). The width of the bands are

varies from 3m to 10m. Bands of 1m or less width are exposed in Thongajhar nala east of Jamki and Sanbanki. Differential weathering has given the rock a serrated appearance.

Megascopically, the rock is medium grained and pale in colour. Under the microscope, it shows granulitic texture and is found to contain diopside, quartz, calcite, scapolite and sphene. Garnet is rarely present.

Pyroxene granulite:

Pyroxene granulite occurs as isolated small outcrop on either side of the forest road connecting Harishankar Road Rly. Station with Ghagruli, about 6km away. This is the only outcrop of pyroxene granulite where it forms small humps standing out from the surrounding soil cover area. Its contact with the other litho-units is concealed.

The rock is medium grained, dark in colour and very compact. It shows
granulitic texture under the microscope and consists of hypersthenes, diopside, plagioclase (andesine to labradorite), garnet and quartz with some opaque. Incipient alteration of garnet to biotite at the margin it noticed.

Migmatites:

Migmatite is hybrid rock containing an admixture of palaeosomes and leucosomes (neosomes) in various proportions. Strictly speaking, all the lithounits of the areas examined are migmatised to some extent or the other. But the khondalitic rocks being most prominent of the metasedimentaries, the migmatites formed after Khondalites are by far more conspicuous and prominently developed. The migmatite bodies are concordant to the regiona1 trend of the rock units and are confined to the low lying soil covered tracts where these are expose mainly in nala cuttings. Outcrops of migmatites are in Thongajhar nala east or Sanbanki and Jamki, Pandrapatranala, Palsakaninala and the nalas east of Gargarbahal, Lant river sections, south and north of Telenpali (Plate I). In all these outcrops the rocks considered to be migmatites have leucosomes varying from 10% and above. The ratio of palaeosomes, leucosome varies from more than 80:20 to as low as 20:80. The known graphite deposits fall within the migmatite zones.

The various migmatitic structures noted are stromatic, schol1en and schollen types (Mehenerti, 1968). Of these, the stromatic in which veins of neosome alternate with palaeosomes is the most common. The schollen structure is noted in Pandrapatra and Palsakaninala where small sillimanite lumps are included within the leucosome. Development of biotite and garnet at the contact of leucosomes and palaeosomes is common.

Megascopically, the migmatites have a general gneissic appearance as

a result of alternation of the paleosomes and neosomes. Under the microscope, the schistose structure is prominent. A mineral assemblage of K-feldspar, microperthite, quartz and garnet with minor amounts of biotite, sillimanite and opaques are seen. The feldspars are later developed and enclose sillimanite needle and biotite flakes partially or fully. Garnet alters to biotite at the margin. Graphite normally occupies the inter-granular space.

Granite gneisses:

Granite gneisses occupy a major part of the areas examined. Two distinct types of granite gneisses are discernible non-porphyroblastic (garnetiferous) and porphyroblastic, of which the latter is predominant.

The non-porphyroblastic granite gneiss is exposed on a smell ridge south-west of Dhusamunda and has a few isolated outcrops further west. Small concordant tongues of this rock within the migmatites are exposed in Pendrapatra, Thongajhor and Palsakaninalas. Relicts of the rock within porphyroblastic granite gneiss are observed on the hill in Patpani R.F area indicating an older age of the former.

The rock is leucocratic, medium grained and shows well developed gneissosity. It contains K-feldspar, perthite, quartz garnet and biotite. The quartz grains in the rock are stretched (flattened) at some places.

The porphyroblastic granite forms a continuous ridge in Patpani and Chandil R.F. areas apart from the small ters, Whalebacks and ruwares in the planes between Bardakle on the south of Jalpankel on the north (Plate I).It has intruded into all other units described above along their foliation planes.

The rock is leucocratic and consists of large porphyroblasts of feldspar (long axis varying from 2cm to 15cm, showing a crude gneissosity), quartz, garnet and biotite. At the contact with the older rocks, segregated zones of garnet and biotite are noticed. Sometimes growth of feldspar is impeded by garnets suggesting a later origin of porphyroblasts. This may be due to alkali metasomatism at a deeper tectonic level after the development of garnet.

Under the microscope, it shows porphyroblastic texture and consists of plagioclase (oligocase-andesine), perthite, quartz, garnet, biotite with apatite as accessory. The rock is granodioritic in composition.

Pegmatite and quartz veins:

Depending upon the mineral assemblages, three types of pegmatites are identified. These have the fo1lowing compositions:

i) Quartz-feldspar-biotite-garnet with or without clots of graphite

ii) Quartz-feldspar-garnet -biotite -muscovite-tourmaline.

iii) Quartz-feldspar-with or without garnet and graphite

The pegmatite bodies are frequent within the migmatite zone and run parallel to the host rock foliation with sharp contact as seen east, west and north of Jamki.

The third type has a gradational contact with the host rock and is exposed mainly in graphite quarries near Chormunda and Sapmand and to the south of Sanbanki, The second type has mainly E-W to NW-SE trends. This type of pegmatite is reported to be clandestinely excavated for precious stores (mainly acquamarine and topaz). The width of pegmatite bodies vary from less than a meter to more than 3m. One such excavation was noted in the nala NNW of Karuanajhor.

Two quartz veins are noted about 2.5km south-east of Lathor and 1.5km SW of Gargarbahal. These are highly fractured and sheared. The quartz is milky white in colour.

Structure:

Foliation:

The Khondalite and the associated rocks display well developed foliation as a result of preferred orientation of sillimanite needles graphite flakes and other platy minerals. Alternation of quartz-feldspathic bands with garnet rich bands is also quite prominent. The regional trend of foliation varies from NNE-SSW to NE-SW with steep easterly dips 35° to 70° (Plate I). In the Bakbahal R.F. area the strike is confined between N-S and NNE-SSW directions with local variation to NW-SSE (Plate I). The dip is sometimes as low as 10° in this part. The porphyroblastic granite displays a crude gneissosity with a linear arrangement of feldspar porphyroblasts.

Folds:

The general parallelism of foliation indicates isoclinal to overturned nature of the regional fold pattern. Such folds on minor scale are well preserved in calc-granulites. The tight folds preserved in this rock have axial

plane parallel or sub-parallel to the foliation with fold axes plunging 15° to 30° towards NNE. Later warping with plunge at 35° to 45° towards east, among along NW-SE and E-W axes is observed in calc-granulites. This explains the swing in strike locally from NNW-SSE to NNE-SSW in Bakbahal R.F. area.

Joints:

The following three prominent sets of joint sets are noted in the areas examined of which the latter two sets are tension joints:

a) NE-SW to NNE-SSW, parallel to foliation

b) NW-SW vertical joint set

c) E - W vertical joint set

These joints are sometimes filled up by pegmatite veins and other quartzo-feldspathic material as seen in Thongajhor, Palsakani and Pandrapatranalas.

Shear Zones:

Shearing parallel to the foliation is evident at many places. As a result of shearing, close spaced joints had developed along with mylonitisation of the rocks. The quartz reef emplaced along the shear zone SW of Gargarbahal and SE of Lathor is much crushed and has close spaced joints parallel to the regional foliation trend. Shearing in migmatites is noted along Thongajhor, Pandrapatranala, Karusnjhar, village, Lant river and WNW of Kandagadh village.

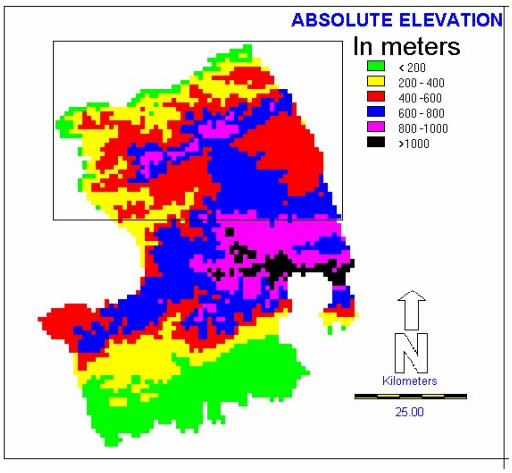
4.1.Physiography &Geomorphology:

Physiography:

The areas examined in the course of the investigation fall south of the arcuate Gandhamardan range forming a water divide. The different hill ranges in the area have NE-SW to ENE-WSW trends in the northern part which swerves to the general N-S direction in the southern part. The Gandhamardan range is a table land having the highest elevation of about 1000m above the MSL. To the SW lies the Chandil range, known as Patpani range in its southern

extension. In between the two (Gandhamardan and Patpani ranges) lies a narrow valley. The Patpani range marks the boundary between the two districts of Kalahandi and Bolangir many prominent peaks of heights ranging from 560m to 715m above the MSL make the range quite conspicuous. Another prominent hill, the Chattradandi (810m), lies in the south eastern part of the area. The intervening valleys are extensively soil covered and have a few isolated hills. The area around Sapmund, at the south-eastern foot hills of the Gandhamardan range, has two prominent hills (816m and 518m). Elsewhere in the areas, there are many small hillocks and mounds which range in altitude from 400m to 600m. The general elevation in the areas is about 300m above the MSL.

The drainages of the areas are mostly controlled by joints. In the northern part, the Sukhajhor (also known as Katanginala) flow north-easterly and joins the Suktel River. Perennial nalas descending from the Gandhamardan range feed this higher order stream. In the south, the Lant river forms the major drainage and flows to the NE to join ultimately the Tel river further SE. In the southernmost part, the Arjunnala flows SE and joins the Udanti river. The southern streams are ephemeral in nature.



Geomorphology :

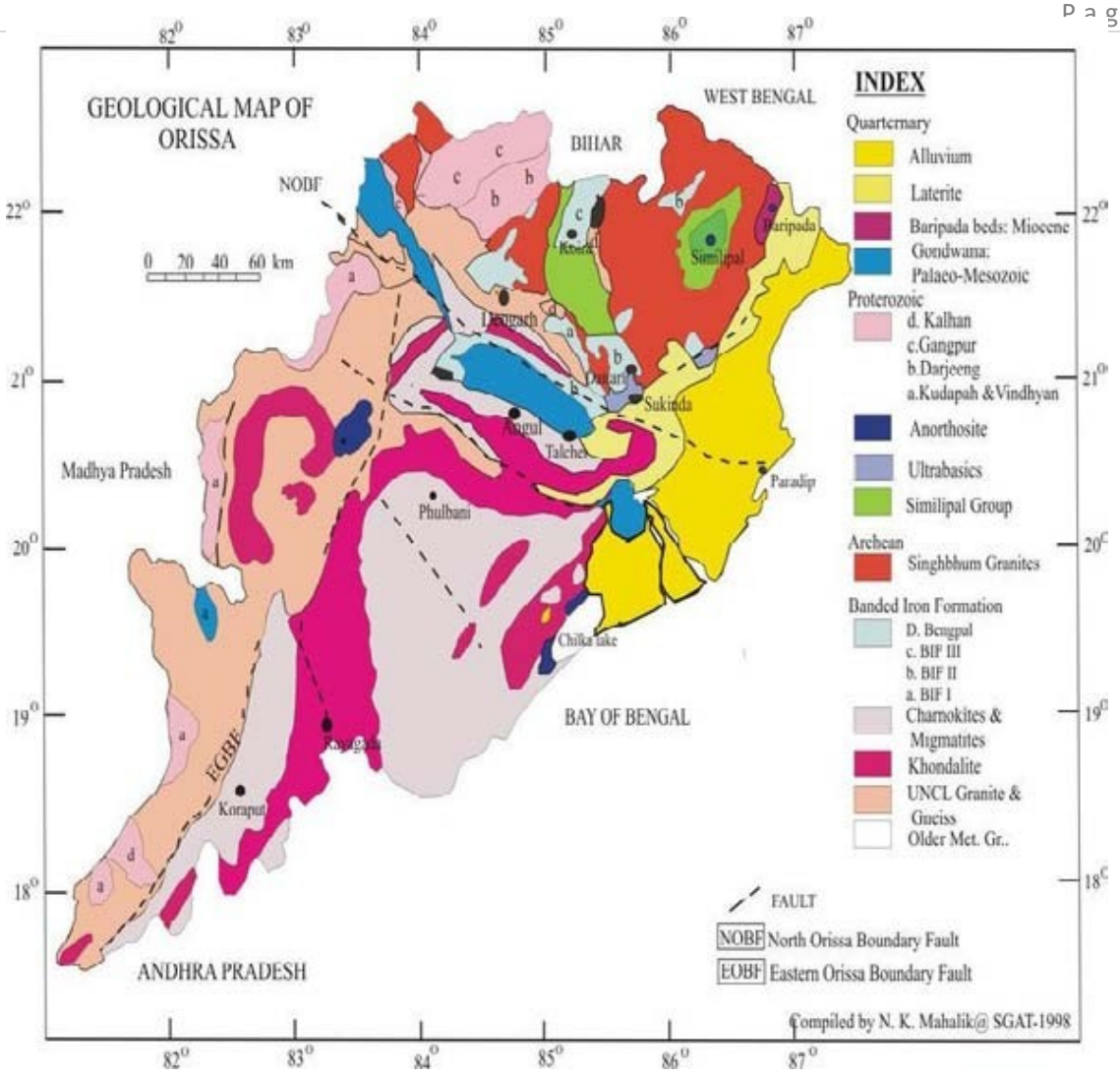
The district can be divided into two broad physiographic units (i) undulating plains (Pediments) dotted with residual hills and (ii) scattered hills and areas with high relief. The undulating plains occupy the central and eastern parts of the district the average elevation being 200m to 300m above mean sea level with a general slope towards east. The areas with high relief and high hills are situated in the north western, western and south eastern parts of the district (Plate-V). The hill ranges belong to the Eastern Ghats having a general trend of Northeast – Southwest. The highest peak is Gandhamardan situated 983 m above mean sea level.

4.2. Soil:

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 **Alfisols :** It includes red sandy soils and red loamy soils. The red loamy and sandy soils are occurring in major parts of the district. The characteristic features of red soils are (1) light texture, porous and friable structure, (2) absence of lime Kankar and free carbonates and (3) soluble salts in a small quantity usually not exceeding 0.05%. These are usually deficient in nitrogen, phosphate, organic matter and lime. These soils are suitable for cultivation of paddy and other crops.

Ultisols : These are lateritic soils occurring in northwestern part of the district in Khaprakhol block in a limited area. These are characterized by compact to vesicular mass in the subsoil horizons composed essentially of a mixture of the hydrated oxides of aluminum and iron. Due to peculiar granular nature, these soils can be cultivated immediately after heavy rains.

Vertisols : These are medium black soils found in the blocks of Loisinga, Bolangir and Puintala especially in the areas mostly underlain by anorthosite. The soils are highly argillaceous and contain high amount of iron, calcium and magnesium. These are poor in organic matter, nitrogen and phosphorous but rich in potash and lime. The pH varies from neutral to alkaline and texture varies from loam to clayey loam. These are quite fertile soils and the crops grown are generally cotton, wheat, tobacoo and chilly , soils of the district may be classified into three groups namely Alfisols, Ultisols and Vertisols



4.3. 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 all the tahasil area provide tremendous scope for development of few more Industries based on this resources. Except these, no minerals in large quantity which can be explored for commercial purpose found in the District.

5. DRAINAGE OF IRRIGATION PATTERN:

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. The district has many rivers and perennial streams. Almost the entire Bolangir district is drained by nine rivers namely Mahanadi,Tel, Undar, Lanth, Sungadh and Sukhtel (Tributaries of the Tel),Ang, Jira, Saleshing.. Major crops grown in the District are rice, Only. 12.21 percent area of agricultural use are net irrigated and major source of irrigations are well and tube wells.

5.1.River System:

The district has many rivers and perennial streams. Almost the entire Bolangir district is drained by nine rivers namely Mahanadi,Tel, Undar, Lanth, Sungadh and Sukhtel (Tributaries of the Tel),Ang, Jira, Saleshing.

Industrial Estate and flows from west to east. Amrutia N. flows from NNW to SSE and carries the waste water load of East Coast Fertilizer at Gadadeulia and water laden solid wastes (particularly in rainy season) from the dumping site of Krebs & CIE Ltd. at Kalma. These tributaries join Burhabalang river downstream at Sahupada and Bhimda (outside present area) respectively. There is another local stream, which flows from Southwest to Northeast, carrying the waste water of Birla Tyres Ltd. at Chhanpur and the Industries located at Ganeshwarpur Industrial Estate. This stream too ultimately joins the Burhabalang river near Nuabazar, Balangir town.

6.LAND UTILIZATION PATTERN IN THE DISTRICT:

6.1.Forest and non forest land

The forest of Balangir District is full of variety of medicinal plants, Kendu leaves, Bamboo, Sal, Teak, other timber species and a wide range of carnivorous & herbivorous wild animals.

District-wise Forest Cover Area in Odisha (Area in Km^2)

2017 Assessment								
District	**Geographical Area Km^2**	**Very Dense Forest**	**Moder-ate. 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
Balangir	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	50
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 2017-Odisha)

The major portion of the District is covered by forest (9.98 % of TGA) and has scattered settlement pattern. The forest is full of variety of medicinal plants, Kendu leaves, Bamboo, Sal, Teak and other timber species. The District has considerable flat land, which provides suitable site for agricultural use. The hilly areas are mostly under forest with patches of cultivation on scarp areas. Major crops grown in the District are rice and pulses. Only 12.50 percent area of agricultural use are net irrigated and major source of irrigations are well and tube wells.

6.2.Agriculture Land:

The primary objective of Agriculture Department is to increase of production as well as productivity of major crops like Paddy, Groundnut, Mustard, Mung, Biri & vegetables which is widely covered in this District in both Kharif & Rabi season. Another key objective is to make 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 Balangir District, it is therefore 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 :

6.3.Horticulture Land:

The primary objective of Horticulture Department is increase of production as well as productivity of major fruits like Mango, Guava, Citrus 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.

7.SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

7.1.Hydrogeology

The hydrogeological framework of the district is mainly controlled by the geological set up, rainfall distribution and the degree of secondary and primary porosities in the geological formations for storage and movement of ground water. Since major parts of the district are underlain by hard rocks of diverse lithological composition and structure, the water bearing properties of the formations also vary to a great extent. The area has undergone several phases of intense tectonic deformations which has been responsible for the development of deep seated intersecting fracture system. Hydrogeological surveys in the district reveals the lithological characteristics and the role of tectonic deformation on the occurrence and distribution of ground water reservoirs and their water bearing and water yielding properties. Lineaments formed due to tensile deformation were picked up from remote sensing studies. The structural elements mainly control the occurrence and movement of groundwater in the typical fractured crystalline basement terrain. The major hydrogeologic units in the district can be subdivided into three broad groups.(i)Areas underlain byfractured, fissured and consolidated basement rock formations.(ii)Areas underlain by the semi consolidated (Gondwana) formation.(iii)Areas underlain by recent unconsolidated alluvial formations.Water bearing properties of the Consolidated formations :

7.2.Depth to Water Level:

The crystalline rocks like Khondalites, granite gneisses, charnockites, quartzites and anorthosites, which are devoid of primary porosity, occupy about 95% of the area of the district. The weathered residuum and jointed & fractured portion of these consolidated rocks constitute principal water bearing horizons. The thickness of the weathered zone is generally more in the topographic lows and undulating plains than in the high land areas. Ground water occurs under phreatic condition in the weathered zone and in semi-confined to confined condition in deeper fractured zones. The water yielding capacity of fractured rocks largely depends on the extent of fracturing openness and size of fracture and nature of their inter connections. Usually two to four water bearing fractures occur down to a depth of 100m below ground level. Potential fracture zone is encountered even at depth of 178 m at Kanut (Block-Belpara).Granites and Granite Gneisses Including Bonai granite :These are the most predominant rock types occurring in the undulating plains and topographic lows. Depending upon the topographic set up, the depth of weathering ranges from 5.5m to 17.50m and occasionally extends up to 35.5m depth. The weathered residuum and fracture zones form principal aquifers.In deeper fracture zones ground water occurs under confined to semi-confined conditions. In general the deep bore wells in these rocks can sustain yield of 2 to 25 LPS depending upon topographic setting, proximity to the major lineaments, thickness of weathered residuum and number of saturated and interconnected fractures encountered. The granites and granite gneiss can be developed through open wells and borewells. High yielding wells are recorded in the western parts of the district where the discharge

ranges from 10 to 25 LPS. Specific capacity of the dug wells tapping the weathered zone ranges from 6 to 286 LPM/M drawdown.Khondalites :These rocks generally form steep linear ridges hence don't form potential aquifers. Well foliated nature of these rocks allows deep weathering. In the pediment areas, the thickness of weathering is varying from 5 to 32m. Ground water occurs under water table condition in the weathered zone and circulates through deeper fractures. The yield of bore wells range from 1 to 5 LPS. The specific capacity of the dug wells ranges from 2.3 to 13.3 LPM/m draw down.Charnockite : These formations are of very much restricted occurrences in the district. Due to paucity of joints and fractures the thickness of weathering in these formations is limited up to 10m. Due to the compact nature and less weathering, ground water prospects in charnockites are not good.Gabbro –anorthosites : The rheologic property of these rocks resembles with charnockite, Barring few locations dismal weathering and lack of fracturing renders these formation as a bad water yielder. The Sp. Capacity of dug wells in anorthosite vary from 16 to 102 LPM/M drawdown.Quartzites :This unit also less fractured and weathered hence do not form good aquifers. However fractured quartzites along lineaments yield good amount of water.Pegmatite and quartz vein : These are course grained intrusives and form good aquifers when fractured.

Semiconsolidated Formation :These are represented by rocks of lower Gondwana formations. These formations have faulted contact with the Precambrians. The friable and loosely connected sandstones form the aquifers. Ground water occurs under water table condition in the weathered zone and under semiconfined to confined condition in deeper fracturedand friable sand stone beds. The yield of tube wells in these formation is meager (<1 LPS). Depth of the open wells in this formation ranges from 5 to 12 m bgl. Yield of the open wells in less then 3 LPS.Unconsolidated Formation : Laterites and alluvium of sub-Recent to Recent age constitute the unconsolidated formations. Laterites occur as capping over the older formations are tapped through dug wells. Recent alluvium occurs as thin discontinuous patches along prominent drainage channels. The thickness of the alluvial deposit varies from 6 to 12m and form potential shallow aquifers. The specific capacity of the dug wells in alluvium vary from 336 to 466 LPM/M draw down.Aquifer Characteristics of Crystalline: In the hard crystalline rock recharge of ground water from precipitation or seepage from surface water bodies percolate into the weathered (saprolite) zone. In case the underlying basement rocks (both weathered and fresh) are incised by open fractures, the downward movement of the water from the upperregolith zone (comprising the top soil and saprolite horizon) is facilitated. In the saprolite/regolith horizon ground water generally occurs under unconfined condition where as is the fractured bedrock aquifers it occurs under semi-confined to confined conditions. At places confined conditions give rise to the formation of auto flowing wells in the basement rocks as seen at Kantabanji (Block-Tureikela), Dokhra (Block-Belpara), Bhoipara (Block-Muribahal). The ground water potentials of various zones i.e. saprolite (tapped by dug wells), weathered basement rock and shallow fractured basement rock horizon (tapped by the hand pumps) and deeper fractured basement rock (tapped by the deep boreholes by CGWB) vary considerably

depending upon their lithological andstructural characteristics. A total of 34 pumping tests were conducted in dug wells tapping the saprolite horizons of various rock formations. The various aquifer parameters were derived following methods given by Slichter (1906) and Hvorslev (1951). Perusal of all result indicates that granite gneiss forms the most potential aquifer both in shallow and deeper horizons followed by Khondalite, Calc Silicate rocks and anorthosites. Anorthosites and Gondwana sediments are poor water yielder in deeper horizonswhere as in the weathered horizon some considerable amount of yield may be obtained from the anorthosites.In unconsolidated alluvium the specific capacity of dug wells vary from 336-to 466-lpm/m drawdown. Although of limited extant the alluvium forms potential shallow aquifers.Depth of water level.

7.3.Ground Water Quality:

Ground water in the phreatic aquifers in Balangir District slightly alkaline in nature, which is also colourless, odourless. The specific electrical conductance of ground water in phreatic zone at 25ºC. The suitability of ground water for drinking purpose has been evaluated on the basis of pH, Total hardness (T.H), Ca, Cl, F and NO3. The chemical concentration of these constituents is presented.

7.4.Ground Water Development:

In the rural areas the entire water supply is dependent on ground water. Ground water development is mainly carried out in the District through dug wells and Hand pumps. In general dug wells are of 2 m diameter and the depth ranges between 8 to 15 m depending on the thickness of the weathered zone, tapping the shallow aquifer in the weathered zone and uppermost slice of the basement. Large number of dug wells used for drinking water is under private ownership for which there is no reliable data. Over the years Mark II/ Mark III hand pumps are being drilled in large numbers for ground water development. These hand pumps have the following two major advantages i) less susceptible to contamination from surface sources and ii) tap fractures between 20-60m depth which have been found to be less affected by seasonal water level fluctuation and thus have lesser chances of failure even during extreme summer. In rural areas of Balangir District the number of hand pumps drilled by PHED is 12311 of which 9342 are under working condition. There are 574 dug wells constructed by government departments that are under regular use. In the urban areas ground water plays a supplementary role in water supply, the major supply being made through dams, reservoirs or weirs across rivers or streams. No authentic data is available on the number of ground water structures catering the urban water supply.

As per the latest ground water resource estimation carried out adopting GEC 97 methodology, the overall stage of ground water development in Balangir District has been found to be 41 % indicating enough scope for future development. The ground water resources of Balangir District is given in the table.

7.5. Ground Water Related Issue and Problems

Some of key ground water related issues are

I. Locating suitable sites for bore wells

II. Suitable design of dug wells and hand pumps

III. Taking up artificial recharge projects to augment the resource availability in Balangir District.

IV. Optimal development of irrigation potential by developing ground water available for future uses.

V. Creating public awareness for conserving ground water through awareness camps, NGO's and mass media.

7.6.Mass Awareness Campaign (MAP) & Water Management Training Programme (WMTP) by CGWB:

Nil

7.7. Area Notified by Cgwb/Sgwa

None

7.8. RECOMMENDATIONS

As the District suffers from water scarcity, it is recommended to take artificial recharge at suitable locales. On the basis of the hydrogeological criteria such as post monsoon water level below 7 m bgl indicating availability of sufficient space in the unsaturated zone to retain additional water and availability of surplus surface runoff, 250 Sq kms area in Balangir District has been demarcated as suitable for artificial recharge. Through this 41.25 mcm water can be recharged.

In the hard rock areas, pin pointing suitable sites for bore wells is always a challenge. Considering the anisotropy in distribution of fractures at deeper level, suitable sites may be selected using remote sensing techniques in association with geophysical and hydro- geological investigations.

For deriving optimal benefit from aquifers in areas under fissured formation, the dug wells should be designed to penetrate the weathered zone as well as top part (1-2 m) of the underlying bed rock, so as to get the full benefit, from the total thickness of the shallow aquifer. For hand pumps and shallow tube wells the casing provided against the weathered zone should be slotted at the bottom so that the well can extract shallow ground water also. In urban areas use of shallow aquifers should be encouraged.

The surface run off in urban areas and its peripheral parts should be harnessed to augment the ground water resource through appropriate recharge techniques. For urban areas roof top rain water harvesting and artificial recharge is most suitable. Location and design of the structures should be

guided by findings from hydrogeological and geophysical surveys. Sites for artificial recharge should be taken up at places where sufficient thickness of weathered zone as well as fracture/fracture zones is available. The depth of the recharge well should be governed by the depth of occurrence of the fractures.

8. RAINFALL OF THE DISTRICT AND CLIMATE CONDITION

8.1. Month wise rainfall:

The south-west monsoon is the principal source of rainfall in the district. Average annual rainfall of the district is 1229.47mm. About 80% of the total rainfall is received during the period from June-September. Droughts are quite common in the district. The rainfall is scanty in the west and west-central parts of the district i.e. in the Patnagarh subdivision, which increases in east and southern directions. Block-wise average annual rainfall varies from 946.0 mm to 1492.10-mm.

Year		2016	2017	2018	Average
Sl. No.	Month	(mm)	(mm)	(mm)	(mm)
1	Jan	18.33	00	00	6.11
2	Feb	49.92	00	00	16.64
3	Mar	6.42	105.29	6.23	39.32
4	Apr	18.33	18.50	162.62	64.48
5	May	224.33	165.98	144.39	178.23
6	Jun	165.05	164.28	268.94	199.42
7	Jul	303.49	317.98	320.48	313.98
8	Aug	334.98	276.51	341.13	317.54
9	Sep	308.00	198.01	346.48	284.16
10	Oct	153.10	251.58	243.31	215.99
11	Nov	46.43	47.20	00	31.21
12	Dec	00	5.08	4.97	3.35
Total		**1628.38**	**1550.41**	**1838.55**	**1672.44**

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.

8.2.Climate:

The climate of the district is tropical with hot and dry summer and pleasant winter. The summer season extends from March to middle of June followed by the rainy season from June to September. The winter season extends from November till the end of February. Humidity is high during middle of

June and it's less in post-monsoon period. The relative humidity in the district varies from26% to 84% through out the year. The mean monthly potential evapotranspiration value ranges from 45mm in December to 470 mm in May. Wind is generally light to moderate. During summer and Southwest monsoon months wind velocity increases. The mean annual wind speed is 3.3 Km/hr.

Temperature Graph- Balangir:

May is the warmest month of the year. The temperature in May averages 32.3 °C. January has the lowest average temperature of the year. It is 16.5 °C.

9.0 DETAILS OF MINING LEASES OF THE DISTRICT:

9.1
9.2 } Attached as Annexure – I

10. DETAIL OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS:

Sl. No.	Name of the Tahasil	2016-17	2017-18	2018-19	Total Amount (Lakh)
1	Agalpur	23471	254123	272167	**5,49,761**
2	Balangir	368650	340050	500719	**12,09,419**
3	Bangamunda	128068	576200	576200	**12,80,468**
4	Belpara	555408	882483	342987	**17,80,878**
5	Deogaon	272700	334250	355000	**9,61,950**
6	Kantabanji	Nil	8913	35652	**44,565**
7	Khaprakhol	187044	190774	194405	**572,223**
8	Loisinga	439252	416940	445425	**13,01,617**
9	Muribahal	605984	736828	736828	**20,79,640**
10	Patnagarh	408532	428419	428419	**12,65,370**
11	Puintala	341000	355870	324500	**10,21,370.00**
12	Saintala	118000	138650	196165	**4,52,815**
13	Titilagarh	Nil	Nil	Nil	**Nil**
14	Tusura	322016	322016	322016	**9,66,048**
Grand Total		**3770125**	**4985516**	**4730483**	**1,34,86,124**

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

Sl. No.	Name of the Tahasil	2016-17	2017-18	2018-19	Total Quantity (Cubic meter)
1	Agalpur	5920	5920	5920	**17,760**
2	Balangir	8000	8000	8000	**24,000**
3	Bangamunda	6150	6150	6200	**18,500**
4	Belpara	13,455.5	13,651.9	13846	**40,953.4**
5	Deogaon	6800	7100	7300	**21,200**

6	Kantabanji	700	700	700	**2100**
7	Khaprakhol	4085	4180	16896	**25,161**
8	Loisinga	8000	8000	8625	**24,625**
9	Muribahal	5138	5338	5338	**15,814**
10	Patnagarh	1711	1718	1755	**5,184**
11	Puintala	14300	14300	14300	**42,900**
12	Saintala	2250	2250	2100	**6,600**
13	Titilagarh	4452	4467	4415	**13,334**
14	Tusura	17,140.2	17,170.9	17,276.95	**51,588.05**
Grand Total		**98,101.70**	**98,945.80**	**1,12,671.95**	**3,09,719.45**

12. LIST OF LETTER OF INTENT (LOI) HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY:

Sl. No.	Name of the Mineral	Name of the Lessee	Address	Letter of Intent Grant Order No. & date	Area of Mining lease to be allotted	Validity of LoI	Use (Captive/ Non-Captive)	Location of the Mining lease (Latitude & Longitude)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Attached as Annexure-I								

13.TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT:

Total mineral reserve of road metal/Building stone is 47,22,508cum which may increase after detail investigation as per details below.

(i) Blocks were identified based on geological studies through field observation.

(ii) Mineable resource was calculated by considering detail prospecting.

(iii) Area calculated as per GPS co-ordinates and information obtained from local people. Land detail need to be verified from revenue record.

(iv) Since this is an interim report, as per the present requirement of minerals, more such blocks need to be identified and the data should be updated periodically, after certain intervals to update the data bank of DSR.

Summary of Identified Mineral Potential:

Sl. No.	Name of the mineral	Name of the lessee	Address and contact No. of the lessee	Letter of Intent Grant Order No. and date	Area of mining lease to be allotted	Validity of LoI	Use (Captive / Non-Captive	Location of the Mining lease (Latitude & Longitude)
1	2	3	4	5	6	7	8	9
Attached as Annexure-I								

14.QUALITY/GRADE OF MINERAL AVAILABLE IN THE DISTRICT

Rocks and Minerals found in Balangir District:-

Road metal/Building stone of the District are very much suitable for various construction purposes after crushing and screening. The granite gneisses are well foliated, jointed and weathered easily. Generally the depth of weathering extends down to a depth of 30 meters. This weathered zone forms the main repository of ground water in hard rock areas and is tapped by dug wells. The yield of dug wells range from 6 to 10 m^3/ day. As the area has undergone several phases of tectonic deformations deep-seated fractures are developed which form a conduit for downward percolation of ground water and form aquifers in deeper conditions. These deeper fractures are generally encountered in bore wells. Deeper fractures are tapped by bore wells in hilly blocks.

15. USE OF MINERAL:

Uses of granitic rocks:

- **Building Stone**:- Granitic rocks have been extensively used as a dimension stone and as flooring tiles in public and commercial buildings and monuments.
- **Sub base and base material in road and highway construction:**- Crushed stone is the most basic use of granite. Crushed granite is used as a sub base and base material in road and highway construction. It is used as crushed stone media in sewage system drain fields and as a base material for foundations and construction slabs. Crushed granite in attractive colors is used as a landscape stone and in planters. It also makes great railroad ballast, and in larger sizes it makes good riprap.
- **Granite Paving Stone**:- Granite paving stones or "pavers" can make a colorful and interesting way of paving a driveway or patio. The beauty of natural stone combined with expert craftsmanship and design can produce a unique and lasting result. In the past granite blocks were often used to pave city streets.
- **Engineering:-** Engineers have traditionally used polished granite surface plates to establish a plane of reference, since they are relatively impervious and inflexible. Sandblasted concrete with a heavy aggregate content has an appearance similar to rough granite, and is often used as a substitute when use of real granite is impractical. Granite block is usually processed into slabs, which can be cut and shaped by a cutting center. Granite tables are used extensively as bases for optical instruments because of granite's rigidity, high dimensional stability, and excellent vibration characteristics.

16. DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS:

As such there are huge infrastructural activities such as road, building, railways are coming up by Govt. of India & PSUs under “Make In India” programme.

The Granitic rocks are the main raw minerals for the above activities and considering the last three years’ actual production of Balangir with respect to the requirement of the state has a huge gap.

It is proposed to start the stone production from larger block/area to at least double the production of the District which will enhance the revenue of the District and also support the livelihood of the local people.

17. MAP OF EXISTING MINING LEASES IN THE DISTRICT:

Enclosed as Plate-I

18. DETAILS OF THE AREA OF WHERE THERE IS A CLUSTER OF MINING LEASE VIZ. NUMBER OF MINING LEASES, LOCATION (LATITUDE AND LONGITUDE):

NIL

19. DETAILS OF ECO-SENSITIVE AREA, IF ANY, IN THE DISTRICT:

There is no eco- sensitive area within the district.

20. IMPACTS OF MINING ON ENVIRONMENT:

The most important environmental impact of mining projects are:-

Transportation sources:

Transportation sources of air pollutants include heavy vehicles used in excavation operations, cars that transport personnel at the mining site, and trucks that transport mining materials. The level of polluting emissions from these sources depends on the fuel and conditions of the equipment. Even though individual emissions can be relatively small, collectively these emissions can be of real concern. In addition, mobile sources are a major source of particulate matter, carbon monoxide, and volatile organic compounds that contribute significantly to the formation of ground-level ozone.

Fugitive emissions:

Common sources of fugitive emissions include: storage and handling of materials; mine processing; fugitive dust, blasting, construction activities, and roadways associated with mining activities; leach pads, and tailing piles and ponds; and waste rock piles. Sources and characteristics of fugitive emissions dust in mining operations very in each case, as do their impacts. Impacts are difficult to predict and calculate but should be considered since they could be a significant source of hazardous air pollutants.

Noise and vibration:

Noise pollution associated with mining may include noise from vehicle engines, loading and unloading of rock into steel dumpers, chutes, power generation, and other sources. Cumulative impacts of shoveling, ripping, drilling, blasting, transport, crushing, grinding, and stock-piling can significantly affect wildlife and nearby residents.

Vibrations are associated with many types of equipment used in mining operations, but blasting is considered the major source. Vibration has affected the stability of infrastructures, buildings, and homes of people living near large-scale open-pit mining operations. According to a study commissioned by the European Union in 2000:“Shocks and vibrations as a result of blasting in connection with mining can lead to noise, dust and collapse of structures in surrounding inhabited areas. The animal life, on which the local population may depend, might also be disturbed.”

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

1. Following are the remedial measures to mitigate the in Water sprinkling on haul road, loading and unloading points.
2. Plantation along the safety zone and dump area.
3. Providing dust masks to workers.
4. Regular monitoring of ambient air quality.
5. Provision of air conditioned cabin of Excavators and Dumpers.
6. Regular and proper maintenance of working equipments.
7. Periodic medical examination of the workers and organize medical camp in the area.
8. Use Milli Second Delay Detonator in blasting operation.
9. Provisions of ear plug to the workers.

22.RECLAMATION OF MINED OUT AREA:

Necessity of Reclamation & Rehabilitation:

- Exponential growth in mineral production since 1980.
- Mining activities causes physical, chemical, biological and socio-economic changes in the area.
- Surface mining activities disturb the original land profile.
- In India, mineral production comes mostly from opencast mines & hence Land degradation problems is of serious concern.
- An intricate, in-depth and site-specified techniques involving integrated approach is necessary.

Reclamation has three vital roles:

i. **Reclamation –** Reclamation means return the mined-out land with useful life. It implies restoring the land to a form and productivity that is useful and inconformity with a prior land use. Reclamation always may not be a single- phase operation.

ii.Rehabilitation – Rehabilitation is to bring bach the degraded land to a normal stage by a special treatment. It is a process of taking some mitigation measures for disturbed environmental condition created through mining activities.

iii.Restoration – Restoration is the process of returning the mined out land being fit to an acceptable environmental condition. However, the general acceptable meaning of the term is bringing the disturbed land to its original form. Restoration is often used to indicate that biological properties of soil are put back to what they were. This is a rate phenomenon.

iv.When active mining ceases, mine facilities and the site are reclaimed and closed. The goal of mine site reclamation and closure should always be to return the site to a condition that most resembles the pre-mining condition. Mines that are notorious for their immense impact on the environment often made impacts only during the closure phase, when active mining operations ceased. These impacts can persist for decades and even centuries.

Mine reclamation and closure plans must describe in sufficient detail how the mining company will restore the site to a condition that most resembles pre-mining environmental quality; how it will prevent – in perpetuity – the release of toxic contaminants from various mine facilities (such as abandoned open pits and tailings impoundments); and how funds will be set aside to insure that the costs of reclamation and closure will be paid for.

Proposed future land use after reclamation:

a. Forestry, b. Recreation, c. Water Reservoir, d. Crop Land, i.e. residential/Commercial, f. Fish & wildlife Habitat, g. Undeveloped Land, h. Grazing/Pasture Land

Statutory requirement:

As per the Mineral Conservation Development Rule, 2017, the following rules must be bare in mind by the mine owner/agent/manager, which is a part of reclamation activities –
Rule 22, Mine Closure Plan

Rule 23, Submission of Progressive Mine Closure Plan Rule 24, Submission of Final Mine Closure Plan

Rule 26, Responsibility of holder of mining lease Rule 27, Financial Assurance Rule 35, Sustainable Mining.

23. RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN:

Mining activity because of the very nature of the operation, complexity of the systems, procedures and methods always involves some amount of hazards. Hazard identification and risk analysis is carried for identification of undesirable events that can leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects. The activities which can cause high risk related to face stability and the person blasting the shots. It was observed that on a working face of the mine, there were large cracks and unsupported rocks were present, which can lead to a serious hazard and injure workers engaged in loading operation and machineries because of rock falls or slides. This type of condition turn out because improper dressing of the bench and improper supervision. To avoid the hazards due to fall of rocks the face must be examined, made suitable for working and the remedial measures must be taken to make it safe if there is any doubt that a collapse could take place. Working of the face should be in the direction taking into account the geology of the area such that face and quarry side remain stable. Another major risk identified in mines is due to the firing of explosive by an unqualified person. In the mines there is problem of fly rocks and the village is located close to the mine and so it is rated high as it can affect may people. Explosives by nature have the potential for the most serious and catastrophic accident. Planning of round of shots, holes correctly drilled, direction logged, weight of explosive suitable for good fragmentation are the few of the steps necessary to ensure its safe use and if the shots are not properly designed can result in misfires, early ignition and flying rocks. No person is allowed to use explosives without being properly trained in its handling. In the mine a large numbers of heavy vehicles were in operation and the roads were not proper for haulage purpose. The haulage roads were not even and were not wide enough for the crossing purpose and hence the chances of hazards are very high. The main hazards arising from the use large earth moving vehicles are incompetent drivers, brake failure, lack of all-around visibility from the driver position, vehicle movements particularly reversing, roll over, and maintenance. Those most at risk are the driver and pedestrians likely to be struck by the vehicle, and drivers of smaller vehicles, which cannot be seen from the cabs of large vehicles. Edge protection is always necessary to prevent inadvertent movement over the edge of roadway or a

bench. Seatbelt will protect driver in case of roll. Good maintenance and regular testing are necessary to reduce the possibility of brake failure. Access to the vehicles should always be restricted to those people necessary for the work in hand. The use of personal protective equipment and proper arrangements is essential to check if the person is wearing protective equipment or not. The personal protective equipment includes helmet, non-skid safety boots, safety glasses, earmuffs etc. The required personal protective equipment should be provided and used in a manner that protects the individual from injury. Few minor injuries which can be prevented are slip, trip, or fall hazards; hazards due to rock falls and collapse of unstable rocks, atmosphere containing toxic or combustible gases; protects from chemical or hazardous material etc. A disaster management plan should be prepared for taking care of for any disaster. Other risk which are included in this category are noise, as it occurs and it can lead to permanent disability. There are problems related to road traffic in and out issuers; inappropriate exposure of moving machines; mechanical failure and because of large number of moving trucks and dumpers there is large quantity of dust present in roadways which affects the operators and can lead to accidents causing injury. They are in acceptable range because of precautions measures taken but no step is taken it can cause hazard hence steps should be taken to reduce the hazards such as for dust suppression system should be installed. Other problems like occurrence of lots of mosquitoes in the area due to unhygienic conditions which affect the human health causing malaria, dengue etc. and causing a person to be hospitalized.

Disaster in the mines like fires, explosions, entrapments, and inundations can occur any time, so emergency preparedness is a must. The Disaster Management Plan and risk assessment in the mines will include all sorts of above mentioned emergency and the extent that this plan will be implemented will depend on the nature and scope of the emergency. The basic purpose of Disaster Management Plan and risk assessment to ensure that mine rescue and recovery activities are conducted safely for rescuer and survivors. According to MMR act 1961 a standard operating procedure should be drawn for involvement different category of staff and officers. The SOP should be updated periodically to reduce the chaos and response to the emergency should be quick and smooth. The responsible person should be familiar with his responsibility during the mock drills. One or two standby should be there to replace the person in Emergency situation. Rescue operations should not include the survivors for any assistance.

First Information of Disaster / Emergency should go to the attendance clerk on duty. Duties of attendance Clerk (Emergency Siren) the attendance clerk or other designated person should on getting information of major accident, sound a hooter or a siren immediately declaring a state of emergency at the mine and then to contact the manager and on his advice to call key personnel using the information listed in the Emergency Organization Chart. It is important that all telephone calls are recorded in a telephone log book. Duties of Other Officials should be displayed and handed

over to all concerned. Copy the same should be kept at Manager's Office for ready reference. Establishment of Control Room at Unit Level, Area Level and Company Level is essential. Control Room should keep the contact information about –

· Company Manager

· Company owner/ Administrative officer.

· District Administration

· Govt. Hospitals in Nearby Localities,

· Private Nursing Homes of Localities

Attendance roaster and duty charge register should be properly maintained so the record of missing people can be obtained.

24. DETAILS OF THE OCCUPATIONAL HELTH ISSUE IN THE DISTRICT:

The persons employed in the mines are exposed to a number of hazards at work which adversely affect their health. Some of the important ones are dust, noise, heat, humidity, vibration etc. In recent times, there has been increasing awareness among mining industry and the workers about occupational diseases such as Coal Worker's Pneumoconiosis, Silicosis, Manganese Poisoning, Hearing Impairment etc. caused by exposure to health hazards at work. Almost all occupational diseases are known to cause permanent disablement and there is no effective treatment. However, most of the occupational diseases can be prevented by adopting proper occupational health measures and engineering control on airborne dust at workplace.

Following diseases have been notified as the diseases connected with mining operations for the purpose of sub-section (1) of Section 25 of the Mines Act, 1952: S.R.O. 1306 dated the 21st July, 1952

1. Silicosis
2. Tuberculosis

Total Number of TB cases in Balangir District of last 5 years.

S.R. O. 2521 dated the 26th June, 1986

Cancer of lung or the stomach or the pleura and peritoneum (i.e. mesothelioma)

25 S.O. 399(E) dated 21st February, 2011

1. Noise Induced Hearing Loss
2. Contact Dermatitis caused by direct contact with chemical.
3. Pathological manifestations due to radium or radioactive substances

System of Detection of Occupational Diseases in Mines In order to detect occupational diseases the industry is required to conduct medical examinations and health surveillance of workers as per the provisions of Mines Act. The present efforts of mines management are concentrated on detection of silicosis, Pneumoconiosis and other notified diseases. Very little attention is paid to other occupational diseases. The essential features of health surveillance programme required to be carried out in mines are:

(a) Initial Medical Examination of persons to be employed in mines.

(b)Periodic Medical Examination once every five years. General physical examination, chest radiographs, lung function tests and audiometry.

(c)Classification of chest radiographs of workers as per ILO Classification.

(d)Medical examination within one year of superannuation. Evaluation of all cases of suspected pneumoconiosis by Pneumoconiosis Medical Board.

(e) Maintenance of medical records till the person is in service and 10 years thereafter. The cases of silicosis detected during health surveillance programme are referred to Pneumoconiosis Medical Board of the mining companies for evaluation and certification. If certified, the case is notified to the enforcement authority and evaluated for disability and payment of compensation. Many cases of silicosis and other pneumoconiosis go undetected and a large number of cases of silicosis are misdiagnosed due to lack of training of medical professionals.

25. PLANTATION GREEN BELT DEVELOPMENT IN RESPECT OF LEASE ALREADY GRANTED IN THE DISTRICT:

During mining operation green belt development through plantation is most important for environment safe guard, which should be supervision by mining department. Different type of species should be planted near lease periphery to keep environment clean at post mining period through reclamation. Where specific usefulness of land could be decided, afforestation is normally planned through the site could have been considered for better possibilities of land use.

26. CONCLUSION:

Since it is an interim report, 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. The 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 equipments 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 Balangir 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 River Sand (Minor Mineral) in respect of Balangir 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 is hereby approved for final publication in the District Website.

SAND SAIRATS ALREADY LEASED OUT AND EXECUTED

(TO BE FILLED BY TAHASILDARS FOR RESPECTIVE TAHASILS)

Sl. No.	Name of Tahasil	River or stream and Name of Village& date of Registration of lease deed	Name &Adress of the Lesse	Portion of the River or Stream leased for mineral concession (GPS co-ordinates or Khata& Plot No)(Sketch map to be attached)	Lessee Period	Length of area leased for mineral concession (in km)	Average width of area leased for mineral concession (in km)	Area leased for mineral concession (in sq m)	Mineable mineral potential as per approved mining plan (in cum)	Production proposed in the mining plan (cum)				Y (R) Forms issued by the Tahasildar				Royalty (in Rs lakh) collected as Royalty				Any other remarks
										15-16	16-17	17-18	18-19	15-16	16-17	17-18	18-19	15-16	16-17	17-18	18-19	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	AGALPUR	Ong River/Fasad Sand Quarry, Vil.-Fasad, Dt.-02.08.2016, Tahasil Ltr no-388 & Dt.-23.4.2015	Abanikanta Patra, At/Po-chatuanka, Ps-Kantabanji, Balangir	5.26 Hects. N20˚58′ 58.18″to N20˚ 59′ 04.27″ E83˚29′ 58.11″ E83˚29′ 58.11″ to E83˚30′ 02.43″ Khata No-93 Plot.No- 2	2015-16 to 2019-20 (Extention 2020-21 to 2021-22), Working, Captive, EC- 1700, 25/06/2016 SEIAA	0.890	0.780	5.26 Hects.	24215 Cum	2920 Cum	2920 Cum	2920 Cum	2920 Cum	NA	NA	NA	NA	NON WORKING	2347 1.00	4741 2.00	6545 6.00	Approved for Sand

2	AGALPUR	Ong River/ Salebhata Sand Quarry, Vil-Salebhata & Raphakhal, Dt.-26.09.2017, T.L & Dt.-1576/15.05.2017	Rikash Kumar Agrawal, At/Po-Salebhata, Balangir	4.25 Hects. N20° 58' 52.19" to N20° 58' 59.05" E83° 32' 01.02" to E83° 32' 11.32" Khata No-79, 410 Plot.No-931, 2291	2017-18 to 2021-22 Working, Captive, EC- 428, 16/09/2017 DEIAA	0.680	0.770	4.25 Hects.	62611 Cum	30000 Cum	30000 Cum	30000 Cum	30000 Cum	NA	NA	NA	NA	_	_	20671 1.00	20671 1.00	
3	BALANGIR	Suktel Nadi (Chandanbhati Sand Quarry) (13.03.2015)	Pritam Kumar Panigrahi, At-Chandanvati,Bolangir, Mob-9178946100	3.237Hects N20° 47' 30" to N20° 45' 00.0" E85° 25' 00.0" to E85° 27' 30" Khata No-286 Plot No-85A/P	2015-16 to 2019-20 (Working) (Captive) (EC-No-502 Dt.30.01.2016)	0.195	0.170	32370	21850	45000	45000	45000	45000	NA	NA	NA	NA	NA	2304 92.00	2167 55.00	2486 21.00	
4	BALANGIR	Suktel Nadi (Kutumdola Sand Bed) (Lt. No.-5611 Dt.30.11.2015)	Kailash Chandra Singhdeo, At-Kutumdola, Bolangir, Mob-8895249119	1.61 Hects N20° 46' 00" to N20° 47' 30" E83° 23' 00.0" to E83° 26' 30" Khata No-170 Plot No-211/P	2015-16 to 2019-20 (Working) (Captive) (EC-No-4452 Dt.17.08.2015)	0.160	0.110	16100	20550	35000	35000	35000	35000	NA	NA	NA	NA	NA	1381 58.00	1232 95.00	2520 98.00	
5	BANGOM	Bagihara	Kanheyal	6.07	2015-16 to	0.76	0.08	607	21759	1	1	1	2	NA	NA	NA	NA	N	1	1	1	

	UNDA	n River/Asurla Sand Bed Vil.-Asurla, T.L & Dt.-252, 11/03/2015	al Agrawal, At-Bangomunda, Balangir	Hects. N20° 17' 08.1" to N20° 17' 11.4" E82° 51' 01.6" to E82° 51' 15.4" Khata No-131 Plot.No- 142	2019-20 Working, Captive (03/05/2016) EC- NA			00 sqm	Cum	850 Cum	950 Cum	950 Cum	000 Cum					IL	280068.00	280068.00	280068.00	
6	BANGOMUNDA	Sundar River/Chandatora Sand Quarry Vil.-Chandatora, T.L & Dt.-448, 16/11/2016	Sangita Arya, At-Ashok Nagar, Ward No. 6, kantasanji, Balangir	4.04 Hects. N20° 12' 51.60" to N20° 13' 03.38" E82° 55' 39.05" to E82° 55' 50.48" Khata No-145 Plot.No-693/1204	2017-18 to 2021-22 Working, Captive EC- 1147, 24/04/2017	0.412	0.098	40400 sqm	33416 Cum	42000 Cum	42000 Cum	42000 Cum	42000 Cum	NA	NA	NA	NA	NIL	NIL	448132.00	448132.00	
7	BELPADA	Lanth River Parlimal Sand Quarry(01/10/2017)	Dayanidhi Mahakud At-Ghagurli,Dist-Balangir	1.43 Hects. N20° 36' 52.10" to N20° 36' 56.47" E82° 54' 58.12" to E82° 55' 03.11" (Khata No-202 Plot.No-1188	2015-16 to 2019-20 (Woring)	0.56	0.080	44300 sqm	35900 Cum	16000 Cum	16000 Cum	16000 Cum	16000 Cum	NIL	NIL	6 Books	13 Books	Non Working	Non Working	72845	68050	Approved for ordinary sand
8	BELPADA	Lanth River Dhumabhata Sand Quarry(1	Haribandhu Meher, Belpada, Dist-Balangir	7.09 Hects. N20° 34' 46.6" to N20° 34' 52.0" E83° 01' 03.9" to E82°	2015-16 to 2019-20(Working) SEIAA 40/11.01/16	1.00	0.040	70900 sqm	46348 Cum	2296.2	26020	2848.2	30528	N.A	N.A	23 Books	24 Books	685111	161749	213959	130874	Approved for ordinary sand

		6/02/2016		01' 04.9" (Khata No-295, Plot No-2520)						Cum	2Cum	Cum	Cum							
9	BELPADA	Lanth River Nunhad Sand Quarry(28/10/2015	Abani Kanta Patra,At/Po-Chatuanka,Dist-Balangir	11.169 Hects N20° 34' 51.6" to N20° 34' 53.2" E82° 57' 12.3" to E82° 57' 12.5" (Khata No-204,Plot No- 814)	2015-16 to 2019-20(Non Working)SEIAA 4291dt. 17/8/2015	0.80	0.12	111690 sqm	82607.4 Cum	2395.4Cum	3055.5Cum	3003.7Cum	2993.2Cum	N.A	24 Books	24 Books	Non Working	1792232	2571465	3174458	Non Working	Approved for ordinary sand
10	BELPADA	Lanth River Mandal Sand Quarry(19/10/15)	Sankar Prasad Jain At/Po-Belpara,Dist-Balangir	7.013 Hects. N20° 33' 57.69" to N20° 33' 45.08" E83° 00' 54.61" to E83° 01' 28.37" (Khata No-229 Plot No-1602&1623/P	2015-16 to 2019-20 Working SEIAA/3914 DTD.14/08/2015	0.92	0.040	70130 sqm	84600 Cum	30000Cum	30000Cum	30000Cum	30000Cum	12 Books	24Books	24 Books	24Books	1338337	1364944	2782211	1440063	Approved for ordinary sand
11	BELPADA	Lanth River (Ghagurli Sand Quarry	Ramesh Ranjan Patra At/po-Patnagarh, Dist-Balangir	5.71 Hects. N20° 36' 33.93" to N203642.99 E82° 55' 34.02" E82° 55' 50.67" (Khata No-214, Plot No-1864,1577 &	2016-17 to 2020-21 Workin SEIAA Dtd. 3450 dt. 24/08/2017	0.80	0.10	57100 sqm	43181.74 Cum	-	32000Cum	32000Cum	32000Cum	-	N.A	N.A	N.A	-	-	-	-	Approved for ordinary sand

				1578																	
12	DEOGAON	Sungarh (Sarsamal /Siletkani Sand Quarry) Vil.- Sarsamal /Siletkani T.L & Dt.- 201730/07/2015	Premananda Pradhan, At- Santipara, Po- R. College, Balangir	5.422 Hects. N20 34' 52.23", 20 34' 51.39"N E 83 20' 17.16", 83 20' 23.85"E Khata No-113 Plot.No-88,1	2015-16 to 2019-20 Working (31/01/2017) EC- 638, 31/01/2017	0.750	0.08	54220 sqm	27013 Cum	2000 Cum	2100 Cum	2200 Cum	2300 Cum	NA	NA	NA	NA	NA	870000.00	3675000.00	3850000.00	
13	DEOGAON	Kendugh at Sand Quarry,Vil - Kendugh at T.L & Dt.- 710/12.05 .2015	Pikun Ku. Sahoo, At- Badbahal, Po- Deogaon, Ps- Tusura, Balangir	5.26 Hects. N20 31' 08.20", 20 31' 01.41"N Eb83 34' 36.03", 83 34' 34.23"E Khata No-50 Plot.No-362/A	2015-16 to 2019-20 Working (19/05/2011) EC- 1965, 08/09/2016 SEIAA	0.380	0.140	52600 sqm	44985 Cum	1600 Cum	1700 Cum	1900 Cum	2000 Cum	NA	NA	NA	NA	NIL	900000.00	1235000.00	1425000.00	
14	DEOGAON	Sungarh (Gaibahal Sand Quarry), Vil- Gaibahal T.L & Dt.- 440 12/03/20015	Bien Dalai, At/Po- Sagarpali, Ps- Tusura, Balangir, Mob: 9668713623	5.697 Hects. N20° 34' 20" to N20° 34' 50" E83° 22' 25" to E84° 23' 15" Khata No-81 Plot.No- 2, 493, 683/P	2015-16 to 2019-20 Working (NA)	0.760	0.08	56970 sqm	41150 Cum	3000 Cum	3000 Cum	3000 Cum	3000 Cum	NA	NA	NA	NA	1160000.00	1740000.00	1740000.00	1740000.00	
15	KANTABANJI	Arjune River Vil. – Tikrapada	Munna Ahmad, At/Po/Ps- Kantabanj	1.21 Hects. N20° 23' 20.01" to N20° 23'	2017-18 to 2021-22 (Working)	0.212	0.06	12100	7311 Cum	7000 C	7000 C	7000 C	7000 C	NA	NA	NA	NA	NA	NA	8913	3565	

			i, Bolangir	25.39" E82° 45' 09.08" to E82° 45' 12.13" Khata No-54 Plot.No- 684						um	um	um	um							.00	2.00	
16	KHAPRAKHOL	Sutkel RiverGaudapali Sand Quarry) Order No-343 dtd. 23/03/2015	Rajesh Ranjan Patra,At/Po-Patnagarh Dist-Balangir	5.26 Hects. N20° 48' 40.3" to N20° 48' 48.3" E83° 01' 54.6" to to E83° 02' 16.3" (Khata No-99 Plot.No-1129/859	2015-16 to 2019-20 (Woring)	0.76	0.072	52600 sqm	24106 Cum	2982 Cum	4085 Cum	4180 Cum	4275 Cum	N.A	N.A	N.A	N.A	1945055	1870444	1907744	1944055	Working
17	KHAPRAKHOL	Sutkel River. Baghamunda Sand Quarry Grant Order No- 234 dtd. 29/01/2018	Tikam Chand Agrawal, At-Kejun,Sarapali, Mahasamud C.G	5.261 Hects N20° 49' 12.26" to N20° 49' 34.13" E86° 06' 02.31" to E86° 06' 47.23" Khata No-132 Plot No- 2	2018-19 to 2022-23 Non Working and No E/C	0.75	0.071	52610 sqm	12950 Cum	-	-	-	12621 Cum	-	-	-	-	-	-	-	-	NO E/C NON WORKING
18	LOISINGHA	Village-Hirapur(Hirapur Sand Quarry)Lease Deed-19/02/2016	PremanandaPadhanAt/Po-Santipara, Dist-Balangir,Mob-9853907346	6.070 Hects. 20 40' 00"N,20 50' 00"N & 83 30' 00"E,83 32' 00" (Khata No-155 Plot.No-1382/P	2015-16 to 2019-20 (Woring) SEIAA-Lt.504 Dt.30/01/2016	720 m	120 m	60700	49000 Cum	2500 Cum	3500 Cum	3500 Cum	3500 Cum	NA	NA	NA	NA	342222	1728960	1228600	1228600	NA
1	LOISINGH	Village-	BirendraP	8.417Hects.	2015-16 to	850	230	841	65350	2	2	2	2	NA	NA	NA	NA	1	1	1	1	NA

9	A	Gopalpur ,Chhelbahal (Gopalpur-Chhelbahal Sand Quarry)Lease Deed-26/12/2015	adhan At/Po-Loisingha Dist-Balangir, Mob-8249657001	20 50' 00"N, 20 51' 30" & 83 32' 30"E, 83 35' 00" (Khata No-82 & 112 Plot.No-2690 & 1076	2019-20 (Woring) SEIAA-Lt.4462 Dt.17/08/2015	m	m	70	Cum	000Cum	000Cum	000Cum	000Cum					19615	10314	18360	18360	
20	LOISINGHA	Village-Tebhadunguri (Tebhadunguri Sand Quarry)Lease Deed-02/03/2019	Ramesh Mahakur At/Po-AinlasariDist-Balangir, Mob-7008193850	5.00Hects. 20 51' 15.42"N, 20 51' 11.46" & 83 19' 37"E, 83 19'26.65" (Khata No-86 Plot.No- 482 & 482/504	2018-19 to 2022-23 (Woring) DEIAA-Lt.595 Dt.23/11/2016	720 m	210 m	50000	-	-	-	-	625cum	-	-	-	-	-	-	-	28485	NA
21	LOISINGHA	Village-Kusmel (Kusmel Sand Quarry)Lease Deed-05/11/2016	Satyakam Singh At/Po-KusmelDist-Balangir, Mob-8294195330	5.261Hects. 20 47' 07.9"N, 20 47' 15.3"N & 83 23' 45.3"E, 83 24' 00.7" (Khata No-330 Plot.No- 2151	2015-16 to 2019-20 (Woring) SEIAA-Lt.1959 Dt.08/09/2016	370 m	230 m	52610	44459 Cum	25000Cum	25000Cum	25000Cum	25000Cum	NA	NA	NA	NA	-	780210.00	878600.00	878600.00	NA
22	LOISINGHA	Village-Kaindapali (Kaindapali Sand	Narayan Naik At/Po-Bishnumunda Dist-	4.046 Hects. 20 50' 42.0"N, 20 51' 05.4"N & 83 20'	(Non-Working)	0.195	0.095	40460	44459 Cum	-	-	-	-	NA	NA	NA	NA	-	780210	878600	878600	Not Working Party

		Quarry) 21/2019	Balangir	43.5"E, 83 21' 26.8" (Khata No-73, Plot.No- 1)														.00	.00	.00	has not deposited govt. dues so the lease has been cancelled.
23	MURIBAHAL	Vil.-Gudighat (Gudighat SandQuarry T.L & Dt.-324/21.03.2015 Telia River	Chaitanyajhi, At/Po-Dhamandhanka, Ps-Kantabanji, Balangirh	3.98 Hects. N20 27' 37.8", 20 27' 42.7"N E83 02' 25.5", 83 2' 43.4"E Khata No-145 Plot.No- 1	2015-16 to 2019-20 Working (04/07/2018) EC- 480, 13/10/2017	0.790	0.090	39800 sqm	31226 Cum	00Cum	1800Cum	2000Cum	20000Cum	NA	NA	NA	NA	-	3678557.00	36785 57.00	36785 57.00	-
24	MURIBAHAL	Patrapalli Sand Quarry Vil.-Patrapalli, T.L & Dt.-209/16.02.2015	M.D. Kishanlal Agrawal, At/Po/Ps-Kantabanji, Balangir	1.214 Hects. N20° 27' 16.3" to N20° 27' 24.9" E83° 02' 11.6" to E83° 2' 14.4" Khata No-50 Plot.No- 207	2015-16 to 2019-20 Working (30/06/2016) EC- 481, 13/10/2017	0.210	0.062	12140 sqm	7672 Cum	00Cum	2000Cum	20000Cum	20000Cum	NA	NA	NA	NA	-	-	13084 4.00	13084 4.00	-
2	MURIBAH	Bandupal	Prithwiraj	2.83	2015-16 to	0.40	0.09	283	16980	1	1	1	1	NA	NA	NA	NA	-	2	2	2	-

5	AL	a Sand Quarry Vil.- Bandupala, T.L & Dt.- 211/28.02.2015	Patra, At-Andaldarah, Balangir, Mob: 9437204394	Hects. N20° 28' 27" to N20° 28' 33.06" E83° 05' 43.83" to E83° 6' 2.33" Khata No-50 Plot.No- 207	2019-20 Working, Captive (16/12/2016) EC- 585, 23/11/2016	8	5	00 sqm		338	338	338	338						381270.00	381270.00	381270.00	
26	MURIBAHAL	Bhainrigubha Sand Quarry Vil.- Bhainrigubha, T.L & Dt.- 211/28.02.2015																Lost Physibility hence extinction proposal has been send from Tahasil, Titlagarh				
27	PATNAGARH	Sundar Nadi Vil.- Dubalpada Dhubalpada Sand Quarry T.L(24/06/2015)	Suresh Agrawal At-Kadopada, Patnagarh, Balangir	5.26 Hects. N20 43' 12.1", 20 43' 31.4"N E 83 12' 28.5", 83 13' 37.5"E Khata No-155 Plot.No- 112	2015-16 to 2019-20 Working (29/10/2015) EC- 4382/17.08.2015	0.850	0.680	5.26 Hects.	36276.3 Cum	1708 Cum	1711 Cum	1718 Cum	1755 Cum	NA	NA	NA	NA	NA	4085321	4284199	4284199	
28	PUINTALA	Suktel River Vil.- Sankarbhoji(Sankar	Sitansu Sekhar Mishra, Balangirh	5.058 Hects. N20° 47' 30.00" to N20° 50' 00"	2015-16 to 2019-20 Working (28/02/2015)	0.575	0.095	50580 sqm	39500 Cum	35000C	35000C	35000C	35000C	NA	NA	NA	NA	NA	108500	114900	542500	NA

		bhoji SandQuarry) T.L & Dt.-1213/17.07.2015		E83° 30' 00"to E83° 32' 30.00" Khata No-106Plot.No-1/P 541	EC- 4368, 13/08/2015					um	um	um	um						0.000	2.00	.00	
29	PUINTALA	Suktel River Vil.-Durgapali(Durgapali SandQuarry) T.L & Dt.-1214/17.07.2015	Sitansu Sekhar Mishra, Balangirh	5.05 Hects. N20° 47' 30.00" to N20° 50' 00" E83° 30' 00"to E83° 32' 30.00" Khata No-256 Plot.No- 9/P	2015-16 to 2019-20 Working (27/08/2016) EC- 4370, 17/08/2015	0.655	0.080	50500 sqm	125500 Cum	3500 Cum	3500 Cum	3500 Cum	3500 Cum	NA	NA	NA	NA	NA	10850000.00	1149020.00	542500.00	NA
30	PUINTALA	Suktel River Vil.-Pipirda (Pipirda Sand Quarry) T.L & Dt.-	Sitansu Sekhar Mishra, Balangirh	5.66 Hects. N20° 47' 30.00" to N20° 50' 00" E83° 30' 00"to E83° 32' 30.00" Khata No-170 Plot.No-142/130/P, 142/1377	2015-16 to 2019-20 Working (26/02/2015) EC- 4372, 17/08/2015	0.640	0.095	56600 sqm	40135 Cum	4000 Cum	4000 Cum	4000 Cum	4000 Cum	NA	NA	NA	NA	NA	12400000.00	1260666.00	620000.00	NA
31	PUINTALA	Suktel River Vil.-Bileisarda (Bileisarda Sand Quarry) T.L & Dt.-	Sitansu Sekhar Mishra, Balangirh	5.05 Hects. N20° 50' 37.7" to N20° 50'40.4" E83° 34' 28.8"to E83° 34' 29.5"	2015-16 to 2019-20 Working (15/03/2017) EC- 568, 23/11/2016	0.510	0.100	50500 sqm	38135	3300 Cum	3300 Cum	3300 Cum	3300 Cum	NA	NA	NA	NA	NIL	NIL	NIL	1540000.0	NA

		1680/29.09.2015		Khata No-280 Plot.No-1847/1853																0	
32	SAINTALA	Vil.-Saintala (Saintala SandQuarry) T.L & Dt.-881/01.05.2015	Gobardhan Behera, At/Po-Saintala Dist-Balangir	5.05 Hects. N20 27' 37.8", 20 27' 42.7"N E83 02' 25.5", 83 2' 43.4"E Khata No-106Plot.No-1/P 541	2015-16 to 2019-20 Working (EC- 1228 dtd. 26/04/2016	0.890	0.120	50500	12141 Cum	2000 Cum	2250 Cum	2250 Cum	2100 Cum	-	4 Books	3 Books	5 Books	NA	11800.00	13865.00	1961650.00	Extension for One Year
33	TITLAGARH	Sundar River Kholan Sand Quarry(24-03-2017)	Shyam Sundar Sahu At/Po-TitilagarhDist-Balangir	6.07 Hects. N20° 13' 09.63" to N20° 17' 00.60" E83° 04' 36.60" to E83° 04' 55.73" (Khata No-246 Plot.No-1433	2015-16 to 2019-20 (Woring) SIEAA/2442, 24-01-2017	0.200	0.160	60700 sqm	21147 Cum	2439	2452	2467	2415	NIL	NIL	NA	NA	Non Working	Non Working	NA	NA	Approved for ordinary sand
34	TITLAGARH	Sundar River Ghodar Sand Quarry(07-04-2018)	Manoj Kumar Goel,At/Po-Titilagarh, Dist-Balangir	6.07 Hects N20° 13' 01.46" to N20° 13' 09.33" E83° 08' 70.26" to E83° 08' 18.33" (Khata No-284,Plot No-2015)	2015-16 to 2019-20(Working)SEIAA 4207 dt. 27/02/2018	0.200	0.140	60700 sqm	53436 Cum	2000	2000	2000	2000	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NA	Approved for ordinary sand
3	TUSRA	Village-	Barun	12.95	2015-16 to	157	120	129	66805	1	1	1	1	NA	NA	NA	NA	2	2	2	2	NA

5		Kharda (Kharda Sand Quarry)Lease Deed-11/01/2016 Sungarh River	SahuAt-Likhiria,Po/P.s-Tusura,Dist-Balangir,Mob-9777552851	Hects. 20 31'00"N,20 31' 30" & 83 27' 30"E,83 30' 00"E (Khata No-76 Plot.No-01/530 Kissam-Nadi	2019-20 (Woring/ Non captive) EC – Lt.124 Dt-11.01.2016	0m	m	500	Cum	0000Cum	0000Cum	0000Cum	0000Cum					5500000	5500000	5500000	5500000	
36	TUSRA	Village-Tusura(Sargada Sand Quarry)Lease Deed-26.04.2016 Sungarh River	Sri. Achyutananda Pndia At/Po-Tusura Dist-Balangir, Mob-9938440395	5.18 Hects. 20 29' 17.40N,20 29' 40.30" & 85 29' 31.70"E, 85 29' 36.50" (Khata No-391 Plot.No-1424	2015-16 to 2019-20 (Woring/ Non captive) EC- Lt. 869 Dt. 04.03.2016	0.830	0.105	51800	29624 Cum	2809.95Cum	2840.20Cum	2770.90Cum	2776.95Cum	NA	NA	NA	NA	6701616.40	6701616.40	6701616.40	6701616.40	NA
37	TUSRA	Village-At-Kukedmal Sand Quarry	Sri Tulsi Ram Agrawal, At-Tusura, Po-Saintala, Dist-Balangir, Mob-9437036208	8.903 Hects. 20 32' 60.09N,20 26' 50.9" & 83 26' 36.70"E, 83 26' 43.60" (Khata No-84 Plot.No-653/655	2015-16 to 2019-20 (Woring/Non Captive) EC- Lt. 1948 Dt. 26-09-2015	1.970	0.250	89030	53418	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
38	TUSRA	Village-At-Atgaon	Sri Sundarmani Saho,	4.86 Hects. 20 18' 10.49"N,20 28'	2017-18 to 2021-22 (Working)	0.720	0.080	48600	29160.00	420	430	440	450	NA	NA	NA	NA	NA	NA	NA	NA	

		(Atgaon Sand Quarry)	At/Po-Atgaon,Dehimal,Bolangir, Mob-9439193078	18.87" & 83 32' 31.78"E,83 32' 43.04"E (Khata No-88, Plot No-01	EC- Lt.560 Dt. 24/11/2018					0 Cum	0 Cum	0 Cum	0 Cum									

SAND SAIRATS PROPOSED TO BE RE-AUCTIONED IN NEXT 5 YEARS (2020-21 to 2024-25)

Sl. No.	Name of Tahasil	River or stream	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata& Plot No)(Sketch map to be attached)	Name of village	Length of area recommended for mineral concession (in km)	Average width of area recommended for mineral concession (in km)	Area recommended for mineral concession (in sq m)	Maximum Mineable sand (in cum) (60% of total potential)	MGQ (cum)	Distance in km from different structures								Distancefrom village in km	Access road exists or not	Approval of District Authority of Irrigation/ Water Resource dept. and OSPCB
										Bridge	Culvert	Dam	Weir	Water extraction point	Water supply Head works	Extraction point for irrigation	Any other cross drainage structure			
A		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	BALANGIR	Suktel River (Chandanvati Sand Quarry)	4.856 Hects N20°44'04.3"to N20°44'08.8" To E83°26'34.6"to E83°27'05.3". Khata No-280 Plot No-85 Kissam- Nadi	Chandanbhati	0.195	0.170	48560	40773	4000	1	2	14 Krupasindhu Dam	2	2	2	2	NA	1	YES	Approved for Sand
2	BALANGIR	Suktel River (Kutumdola Sand Bed	3.237 Hects N20° 46' 55.2" to N20° 46' 41.7" to E83° 23' 49.7" to E83° 23' 44.4"	Kutumdola	0.160	0.110	32375	24325	4000	1	2	18 Krupasindhu	4	5	5	3	NA	1	YES	Approved for Sand

		)	Khata No-170 Plot No-211/P Kissam-Nadi									Da m								
3	BANG OMUN DA	Sunda r Nadi (Asurla Sand Bed)	5.000 Hects N20°16'55.3"to N20°17'15.2" to E82°51'16.6"to E82°51'19.2". Khata No-131 Plot No- 142, 323 Kisam – Nadi	Asu rla ,	0.76	0.08	50000	38846 Cum	1500 Cum	2	1	66 Pat har a	2	5	2	2	NA	1	YES	Approved for sand
4	BELPA DA	Lanth River (Dhu mabh ata Sand Quarr y)	5.000 Hects. N20° 34' 46.6" to N20° 34' 52.0" E83° 01' 03.9" to E82° 01' 04.9" (Khata No-295, Plot No-2520)Kissam-Niadi	Dh um ab hat a	0.8	0.08	50000	34899 Cum	2000 Cum	3	1	48	1	2	2	3	NA	1	YES	Approved for sand
5	BELPA DA	Lanth River Nunh ad Sand Quarr y	5.000 Hects N20° 34' 57.26" to N20° 35' 03.51" E82° 57' 30.01" to E82° 57' 36.19" (Khata No-204,Plot No-814) Kissam-Niadi	Nu nh ad	0.36	0.12	50000	42092 Cum	2000 Cum	1	2	46	1	1	1	2	NA	1	YES	Approved for sand
6	BELPA DA	Lanth River Mand al	5.000 Hects N20° 33' 45.08" to N20° 33' 53.38" E83° 00'	Ma nd al	0.64	0.08	49970	37725 Cum	3500 Cum	4	2. 5	42	1	2	5	4	NA	1	YES	Approved for sand

		Sand Quarry	00.00" to E83° 00' 08.27" (Khata No-229 Plot No-1602&1602/1623/P Kissam- Niadi																	
7	DEOGAON	Sungarh River (Gaibahal Sand Quarry)	5.000 Hects. N20°34'07.8" to N20°34'30.9" To E83°23'07.7" to E83°23'17.9". Khata No-81 Plot.No- 2, 493, 683/P Kissam- Nadi	Gaibahal	0.670	0.08	50000sqm	71802	3606	4	3	38 Sutkel	3	3	2	3	NA	1	YES	Approved for sand
8	DEOGAON	Sungarh (Sarsamal/Siletkani Sand Quarry)	5.000 Hects. N20°34'43.41" to N20°34'54.98" & Longitude : E83°20'16.79" to E83°21'15.0" Khata No-113 Plot.No- 88,1 Kissam - Nadi	Sarsamal/Siletkani	0.650	0.08	50000	22496	1050	5	3	42 Sutkel	3	4	4	2	NA	1	YES	Approved for sand
9	DEOGAON	Kendughat Sand Quarry	5.000 Hects. N20°30'54.52"to N20°31'08.30" To E83°34'34.23to E83°34'39.61". Khata No-50 Plot.No- 362 Kissam - Nadi	Kendughat	0.320	0.150	49970	41205	1700	4	2	36 Sutkel	5	3	3	4	NA	1.5	YES	Approved for sand
10	DEOGAON	Sungarh	5.000 N20°36'26.6"to	Bandh	0.625	0.080	49970	74282	3500	3	4	39 Sutk	4	3	4	2	NA	1	YES	Approved for sand

		(Bandhapada Sand Quarry)	N20°36'43.6" To E83°16'07.2"to E83°16'16.1". Hects. Khata No-53 Plot.No- 1 Kissam- Nadi	apada								el								
11	KHAPRAKHOL	Sutkel River Gaudapali Sand Quarry	5.26 Hects. N20° 48' 40.3" to N20° 48' 48.3" E83° 01' 54.6" to to E83° 02' 16.3" Khata No-99 Plot.No-1129/859	Gaudapali	0.76	0..071	52600 sqm	24106	4275	1	2	63	2	1.5	1.5	2	NA	1	YES	Approved for Sand
12	LOISINGHA	Suktel River Hirapur Sand Quarry	5.00 Hects. N20˚ 49′ 17.23″ to N20˚ 49′ 26.39″ To E83˚ 31′ 08.11″ to E83˚ 31′ 24.43″ Kissam- Nadi Khata No-155, Plot.No- 1382/P	Hirapur	0.360	0.100	50000	40804 Cum	5500 Cum	1 KM	2 KM	40KM	2	2	1	2	NA	1.5	Yes	Approved for sand
13	LOISINGHA	Suktel River Chhelbahal Sand Quarry	5.00 Hects. 20˚ 50′ 41.39″ to N20˚ 50′ 52.26″ To E83˚ 33′ 28.31″ to E83˚ 33′ 37.45″ Kissam- Nadi	Chhelbahal	0.260	0.180	50000	42959	5000	2 KM	2 KM	35KM	2	1	1	2	NA	2.5	Yes	Approved for sand

			Khata No-112, Plot.No- 1076																
14	LOISINGHA	Suktel River Kusmel Sand Quarry	5.00 Hects. N20°47'00.0"to N20°47'11.4" to E83°23'44.7"to E83°23'53.5". Kissam- Nadi Khata No-330, Plot.No- 2151	Kusmel	0.200	0.160	50000	43398	5500	1 KM	2 KM	35KM	2	1	2.5	1	NA	3	Yes	Approved for sand
15	LOISINGHA	Suktel River Kaindapali Sand Quarry	5.000 Hects. N20°45'57.4"to N20°46'01.7" to E83°19'48.4"to E83°20'07.4". Khata No-23, Plot.No- 1 Kissam- Nadi	Kaindapali	0.195	0.095	50000	40365	5000	4 KM	3 KM	40KM	2	3	3	1	NA	5	Yes	Approved for sand
16	MURIBAHAL	Chilant River Bandhupala Sand Quarry	2.832 Hects N20˚ 28′ 33.23″ to N20˚ 28′ 38.85″ To 82˚ 05′ 43.83″ to E83˚ 06′ 02.33″ (Khata No-120, Plot No-142) Kissam- Jore	Bandhupala	0.620	0.060	28320	13034	2000	1 KM	2 KM	60KM	2 km	2 km	1 km	2 km	NA	1 km	Yes	Approved for sand
17	MURIBAHAL	Lant River Jamp	3.447 Hects N20˚ 29′ 25.33″ to N20˚ 29′ 36.20″	Jampadar	0.480	0.080	34470	25726	2000	3 KM	2 KM	35KM	30 km	2 km	3 km	2 km	NA	1 km	Yes	Approved for sand

		adar Sand Quarry	to E86° 06′ 56.21″ to E83° 07′ 04.27″ (Khata No-52, Plot No-283/317) am- nadi Kis																	
18	PATNA GARH	Sundar Nadi Vil.- Dubalpada Sand Quarry	4.046 Hects N 20 43' 12.29" to 20 43' 31.38"N E 83 25' 18.57" to 83 25' 26.10"E Khata No-155,Plot No-112 Kssam- Jore Tahasil Letter No- 729 dt. 11/02/20	Dhubalpadda	4.046 Hects Period - 5 years			24120 Cum	2000 Cum	1 KM	2 KM	40KM	1 KM	2	2	4	NA	2	NA	Approved for sand
19	PUINTALA	Suktel River (Durgapali Sand Quarr)	4.856 Hects. N20°49'6.72"to N20°49'12.27" To E83°30'57.86"to E83°31'12.96" Khata No-256 Plot.No- 9/P Kissam- Nadi	Durgapai	0.442	0.110	48560	39221	3850	1.5	1.5	12 Krupasindhu	3	2	2	3	NA	1.5	YES	Approved for sand
20	PUINTALA	Suktel River (Sankarbhoji Sand Quarry)	4.856 Hects. N20°48'41.77"to N20°48'53.85" to E83°29'55.79" to E83°30'12.79" Khata No-106 Plot.No- 1/P 541, Kissam- Nadi	Sankarbhoji	0.422	0.120	48560	30767	3850	1.5	1.5	16 Krupasindhu	5	2	2	2	NA	1	YES	Approved for sand

21	PUINTALA	Suktel River (Bileisarda Sand Quarry)	4.856 Hects. N20°50'33.2"to N20°50'40.4" to E83°34'28.8" to E83°34'49.5 Khata No-280 Plot.No-1847/1853 Kissam- Nadi	Bileisarda	0.540	0.095	48560	37685	3630	7	5	23 Krupasindhu	9	6	5	5	NA	1	YES	Approved for sand
22	PUINTALA	Suktel River (Pipirda Sand Quarry)	4.856 Hects. N20°50'38.75"to N20°50'28.96" To E83°34'49.91"to E83°34'39.25"Khata No-170 Plot.No-142/1370/P, 142/1377 Kissam- Nadi	Pipirda	0.352	0.140	48560	39898	3000	10	9	29 Krupasindhu	9	7	4	4	NA	1	YES	Approved for sand
23	SAINTALA	Tel River Vil.-Saintala (Saintala Sand Quarry)	4.99 Hects. N20°26'28.36"to N20°26' 28.21" to E83°22' 01.83"to E83°22'01.28"(Khata No-485 Plot No-3017) Kissam- Nadi	Saintala	0.815	0.160	49970	29982 Cum	20751 Cum	1 KM	2 KM	40KM	10	3	3	5	NA	2	Yes	Approved for sand
24	TUSRA	Sungarh River	5.000 Hects.	Khardа	0.580	0.090	50000	37411	2000	2	3	25	54	35	35	50	NA	3.5	Yes	Approved for sand

		Village-Kharda (Kharda Sand Quarry)	N20°30'22.6"to N20°30'29.9" to E83°28'37.5"to E83°29'01.9" (Khata No-76 Plot.No- 01/530 Kissam-Nadi																
25	TUSRA	Sungarh River Sargada Sand Quarry	4.856 Hects. N20°26'16.1"to N20°26'24.5" to E83°27'50.2"to E83°28'01.3". (Khata No-81 Plot.No- 453,454 &01 Kissam-Nadi	Sargada	0.590	0.085	48560	35214	2000	1	3	30	50	35	35	50	NA	4	Yes	Approved for sand
26	TUSRA	Tel River Kukedmal Sand Quarry	3.230 Hects. N20°26'50.2"to N20°26'16.1" to E83°27'50.2"to E83°28'01.3". (Khata No-84 Plot.No- 653/655 Kissam- Nadi	Kukedmal	1.120	0.186	32300	25944	2000	8	5	40	55	30	25	45	NA	2	Yes	Approved for sand

SAND SAIRATS TO BE DECLARED AS NEW SOURCES
(TO BE FILLED BY TAHASILDARS FOR RESPECTIVE TAHASILS [SEPARATE SHEET FOR DIFF MINERAL])

Sl. No.	Name of Tahasil	Name of Minor Mineral	Portion of the Land, River or Stream recommended for mineral concession (GPS co-ordinates or Khata& Plot No)(Sketch map to be attached)	Name of village	Area recommended for mineral concession (in Hects)	Geological Reserve	Maximum Mineable sand (in cum) (60% of total potential)	Remarks
A	B	C	D	E	F	G	H	I
1	BANGOMUNDA	Sundar Nadi (Sanamula Sand Bed)	N20° 18′ 26.43″ to N20° 18′ 34.29″ To E82° 50′ 01.11″ to E82° 50′ 11.42″ Khata No-124 Plot No- 696 Kisam- Ndi	Sanmula	5.000 Hects	50000 Cum	39013 Cum MGQ-1200 CUM	Tahasil Letter No-149 dt. 04/02/2020
2	BANGOMUNDA	Sundar Nadi (Bhusalad Sand Bed)	5.000 Hects N20° 14′ 40.32″ to N20° 14′ 48.12″ To E82° 52′ 00.02″ to	Bhusalad	5.000 Hects	50000 Cum	40454 Cum MGQ-1500 CUM	Tahasil Letter No-149 dt. 04/02/2020

			E82° 52′ 07.18″ Khata No-132 Plot No- 1 Kisam – Nadi					
3	BANGOMUNDA	Sundar Nadi (Palaskhand Sand Bed)	5.000 Hects N20° 15′ 36.51″ to N20° 15′ 45.24″ To E82° 51′ 38.27″ to E82° 51′ 44.13″ Khata No-85 Plot No- 249 Kisam – Nadi	Palaskhand	5.000 Hects	50000 Cum	42268 Cum MGQ-1500 CUM	Tahasil Letter No-149 dt. 04/02/2020
4	BANGOMUNDA	Sundar Nadi (Sriram Sand Quarry)	5.000 Hects N20° 14′ 53.12″ to N20° 14′ 59.58″ To E82° 51′ 36.18″ to E82° 51′ 42.38″ Khata No-135 Plot No- 148 Kisam – Nadi	Sriram	5.000 Hects	50000 Cum	39525 Cum MGQ-1500 CUM	Tahasil Letter No-149 dt. 04/02/2020
5	BANGOMUNDA	Sundar Nadi (Chandotara Sand Quarry)	4.451 Hects. Latitude : N20° 12′ 26.55″ to N20° 12′ 39.03″ Longitude: E82° 56′ 02.26″ to E82° 56′ 17.41″ Khata No-145 Plot No- 1011 Kisam – Nadi	Chandotara	4.451 Hects.	44516 Cum	8758 Cum	Tahasil Letter No-839 dt. 16/07/2020
6	BANGOMUNDA	Sundar Nadi (Telsarai Sand Quarry)	4.856 Hects. Khata No-31 Plot No- 218/245 Kisam – Nadi	Telsarai	4.856 Hects.	48560 Cum	29136 Cum	Tahasil Letter No-839 dt. 16/07/2020
7	BANGOMUNDA	Sundar Nadi (Bhuslad Sand Bed-B)	4.451 Hects. Khata No-132 Plot No-1 Kissam-Nadi	Bhuslad	4.451 Hects.	66774 Cum	32270.4 Cum	Tahasil Letter No-397 dt. 04/03/2021

8	DEOGAON	River Sand (Sungarh River)Aphamara Sand Quarry)	5.000 Hects N20°35'16.6" to N20°35'34.8" To E83°20'05.3" to E83°20'31.7". Mouza- Aphamara Khata No-94 Plot.No- 10/768 Kissam- Nadi	Aphamara	5.000 Hects	99960 Cum	68334 Cum	Tahasil Letter No-263 dt. 12/02/20
9	DEOGAON	River Sand (Sungarh River)Chhatapipal Sand Quarry	5.000 Hects Latitude : N20˚ 35′ 47.20″ to N20˚ 35′ 57.72″ Longitude: E83˚ 16′ 56.68″ to E83˚ 17′ 15.31″ Khata No-32 Plot.No- 1 Kissam- Nadi	Chhatapipal	5.000 Hects	49978 Cum	34260 Cum	Tahasil Letter No-1031 dt. 13/07/20
10	DEOGAON	River Sand (Sungarh River)Sikuan Sand Quarry	5.000 Hects Latitude : N20˚ 34′ 01.81″ to N20˚ 24′ 22.50″ Longitude: E83˚ 23′ 02.67″ to E83˚ 25′ 05.35″ Khata No-166 Plot.No- 382/1290 Kissam- Nadi	Sikuan	5.000 Hects	49978 Cum	28260 Cum	Tahasil Letter No-1031 dt. 13/07/20
11	DEOGAON	River Sand (Sungarh River)Arda Sand Quarry	5.000 Hects Latitude : N20˚ 34′ 36.42″ to N20˚ 34′ 42.70″ Longitude: E83˚ 22′ 30.74″ to E83˚ 22′ 48.94″ Khata No-181 Plot.No- 494 & 496 Kissam- Nadi	Arda	5.000 Hects	49978 Cum	10752 Cum	Tahasil Letter No-1031 dt. 13/07/20
12	DEOGAON	River Sand (Sungarh River)Kuturla Sand Quarry	5.000 Hects Latitude : N20˚ 35′ 49.19″ to N20˚ 35′ 08.71″ Longitude: E83˚ 22′ 19.85″ to E83˚ 22′ 41.73″ Khata No-132 Plot.No- 271 & 1	Kuturla	5.000 Hects	49978 Cum	16920 Cum	Tahasil Letter No-1031 dt. 13/07/20

			Kissam- Nadi					
13	DEOGAON	River Sand (Sungarh River)Ghatul Sand Quarry	5.000 Hects Latitude : N20˚ 35′ 15.64″ to N20˚ 35′ 21.53″ Longitude: E83˚ 15′ 27.72″ to E83˚ 15′ 38.73″ Khata No-25 Plot.No- 335& 269 Kissam- Nadi	Ghatul	5.000 Hects	49978 Cum	32548 Cum	Tahasil Letter No-1031 dt. 13/07/20
14	DEOGAON	River Sand (Tel River)Ratakhandi Sand Quarry	5.000 Hects Latitude : N20˚ 28′ 41.23″ to N20˚ 28′ 52.88″ Longitude: E83˚ 33′ 50.61″ to E83˚ 33′ 59.33″ Khata No-119 Plot.No- 1027 Kissam- Nadi	Ratakhandi	5.000 Hects	49978 Cum	30688 Cum	Tahasil Letter No-1031 dt. 13/07/20
15	DEOGAON	River Sand (Sungarh River)Antarla Sand Quarry	4.532 Hects Latitude : N20˚ 35′ 21.09″ to N20˚ 35′ 35.49″ Longitude: E83˚ 18′ 10.98″ to E83˚ 18′ 42.98″ Khata No-73 Plot.No- 1059 Kissam- Nadi	Antarla	4.532 Hects	45325 Cum	7754 Cum	Tahasil Letter No-1031 dt. 13/07/20
16	DEOGAON	River Sand (Sungarh River)Kachharpalli Sand Quarry	5.000 Hects. Latitude : N20˚ 32′ 12.92″ to N20˚ 32′ 27.71″ Longitude: E83˚ 24′ 08.84″ to E83˚ 24′ 26.28″ Khata No-242 Plot.No- 915 & 794 Kissam- Nadi	Kachharpalli	5.000 Hects	49978 Cum	25750 Cum	Tahasil Letter No-1031 dt. 13/07/20
17	DEOGAON	River Sand (Sungarh River)Tepren Sand Quarry	5.000 Hects. Latitude : N20˚ 36′ 07.10″ to N20˚ 36′ 18.2″ Longitude: E83˚ 16′	Tepren	5.000 Hects	49978 Cum	10534 Cum	Tahasil Letter No-1031 dt. 13/07/20

			14.85″ to E83° 16′ 24.62″ Khata No-99 Plot.No- 500 & 1082 Kissam- Nadi					
18	PATNAGARH	(Sutkel River) Naktasar Sand Quarry	12.350 Acres Or 5.00 Hects. Latitude : N20° 43′ 14.09″ to N20° 43′ 18.88″ Longitude: E83° 12′ 05.65″ to E83° 12′ 25.56″ Mouza- Naktasar Khata No-56, Plot No- 220, Kssam- Nadi	Naktasar	5.00 Hects	49978 Cum	37668 Cum	Tahasil Letter No-874 dt. 20/02/20
19	PATNAGARH	(Sutkel River) Kaudia Sand Quarry-A	12.350 Acres Or 5.000 Hects. Mouza- Kaudia Khata No-48, Plot No- 1 & 302, Kssam- Nadi	Kaudia	5.000 Hects	99636 Cum	59961 Cum	Tahasil Letter No-874 dt. 20/02/20
20	PATNAGARH	(Sutkel River) Kaudia Sand Quarry-B	7.570 Acres Or 3.063 Hects. Mouza- Kaudia Khata No-48, Plot No- 302, Kssam- Nadi	Kaudia	3.063Hects	61256 Cum	36753 Cum	Tahasil Letter No-874 dt. 20/02/20
21	PATNAGARH	(Sutkel River) Pudapadar Sand Quarry	12.00 Acres Or 4.856 Hects. Mouza- Pudapadar Khata No-48, Plot No- 78, Kssam- Nadi	Pudapadar	4.856 Hects	97104 Cum	58262 Cum	Tahasil Letter No-874 dt. 20/02/20
22	PATNAGARH	(Sutkel River) Rengali Sand Quarry	3.26 Acres Or 1.319 Hects. Mouza- Rengali Khata No-132,	Rengali	1.139 Hects	26379 Cum	15827 Cum	Tahasil Letter No-874 dt. 20/02/20

			Plot No- 1/1349, Kssam- Nadi					
23	SAINTALA	River Sand (Lant River) Mahagaon Sand Quarry	4.850 Hects. N20°24'28.75"to N20°24'35.69" To E83°20'39.10"to E83°20'39.15". (Khata No-49 Plot No- 102) Kissam- Nadi	Mahagaon	4.850 Hects.	48552 Cum	37423 Cum	Tahasil Letter No- 249 dt. 12/02/20
24	SAINTALA	River Sand (Lant River) Kamarlaga Sand Quarry	3.278 Hects. N20°25'51.46"to N20°25'54.95" To E83°18'43.25"to E83°18'55.32". (Khata No-75 Plot No- 668) Kissam- Nadi	Kamaralaga	3.278 Hects	31450 Cum	24780 Cum	Tahasil Letter No- 261 dt. 12/02/20
25	SAINTALA	River Sand (Lant River) Ampalli Sand Quarry	2.873 Hects. N20°25'36.72"to N20°25'40.90" To E83°26'12.60"to E83°26'22.13". (Khata No-156 Plot No- 901) Kissam- Nadi	Ampalli	2.873 Hects.	15800 Cum	12400 Cum	Tahasil Letter No- 261 dt. 12/02/20
26	SAINTALA	River Sand (Lant River) Kuikeda Sand Quarry	3.298 Hects. N20°25'57.95"to N20°26'15.08" To E83°17'43.12"to E83°17'58.90". (Khata No-68, Plot No- 317/563) Kissam- Nadi	Kuikeda	3.298 Hects.	20800 Cum	18200 Cum	Tahasil Letter No- 261 dt. 12/02/20
27	SAINTALA	River Sand (Lant River) Tikrapada Sand Quarry	4.850 Hects. N20°29'59.67"to N20°29'58.25" to E83°07'21.57"to E83°07'20.63" (Khata No-248, Plot No-	Tikrapada	4.850 Hects.	48562 Cum	37433 Cum	Tahasil Letter No- 249 dt. 12/02/20

			688) Kissam- Nadi					
28	SAINTALA	River Sand (Tel River) Belgoan Sand Quarry	3.844 Hects. N20°18'33.29"to N20°18'42.98" To E83°19'24.36"to E83°19'30.04". (Khata No-233, Plot No-1100 & 1255) Kissam-Nadi	Belgoan	3.844 Hects.	18010 Cum	14100 Cum	Tahasil Letter No-261 dt. 12/02/20
29	SAINTALA	River Sand (Lant River) Chhanchhada Sand Quarry	4.85 Hects. N20°25'52.61"to N20°25'49.5" & Longitude E83°14'50.94"to E83°14'48.3". (Khata No-247, Plot No-1951) Kissam- Nadi	Chhanchhada	4.85 Hects.	24281 Cum	20591 Cum	Tahasil Letter No-249 dt. 12/02/20
30	MURIBAHAL	(Jor/Chilant River) River Sand Patrapalli Sand Quarry	2.347 Hects. Khata No-50 Plot No-207 Kissam- Jore	Patrapalli	2.347 Hects.	23470 Cum	14082 Cum	Tahasil Letter No-1088 dt. 14/07/20
31	MURIBAHAL	(Jor/Chilant River) River Sand Gudighat Sand Quarry	3.982 Hects. Latitude : N20˚ 27′ 38.66″ to N20˚ 27′ 42.64″ Longitude: E83˚ 02′ 26.04″ to E83˚ 02′ 36.60″ Khata No-145 Plot No-1 Kissam- Jore	Gudighat	3.982 Hects.	39821 Cum	29168 Cum	Tahasil Letter No-1088 dt. 14/07/20
32	TITLAGARH	(Sundar River) River Sand Udepur Sand Quarry	4.047 Hects. Khata No-329 Plot No-1862 Kissam- Nadi	Udepur	4.047 Hects.	40470 Cum	24282 Cum	Tahasil Letter No-1557 dt. 14/07/20

33	TITLAGARH	(Sundar River) River Sand Khairkhunta Sand Quarry	4.047 Hects. Khata No-79 Plot No-442 & 305/459 Kissam- Nadi	Khairkhunta	4.047 Hects.	40470 Cum	24282 Cum	Tahasil Letter No- 1557 dt. 14/07/20
34	TITLAGARH	(Sundar River) River Sand Naren Sand Quarry	3.925 Hects. Khata No-312 Plot No-1759 Kissam- Nadi	Naren	3.925 Hects.	39250 Cum	23550 Cum	Tahasil Letter No- 1557 dt. 14/07/20
35	TITLAGARH	(Sundar River) River Sand Patharla Sand Quarry	3.642 Hects. Khata No-118 Plot No-1270 Kissam- Nadi	Patharla	3.642 Hects.	36420 Cum	19476 Cum	Tahasil Letter No- 1557 dt. 14/07/20
36	TITLAGARH	(Sundar River) River Sand Parasara Sand Quarry	4.047 Hects. Khata No-132 Plot No-669 Kissam- Nadi	Parasara	4.047 Hects.	40470 Cum	24282 Cum	Tahasil Letter No- 1557 dt. 14/07/20
37	TITLAGARH	(Sundar River) River Sand Gandhargala Sand Quarry	3.642 Hects. Khata No-54 Plot No-160/766 & 27 Kissam- Nadi	Gandhargala	3.642 Hects.	36420 Cum	19476 Cum	Tahasil Letter No- 1557 dt. 14/07/20
38	TITLAGARH	(Tel River) River Sand Mahada Sand Bed	4.048 Hects. Khata No-167 Plot No-927 Kissam- Nadi	Mahada	4.048 Hects.	50653.5 Cum	26983.8 Cum	Tahasil Letter No- 60 dt. 07/01/21
39	TITLAGARH	(Sunder River) River Sand Turukbhata Sand Bed	4.048 Hects. Khata No-75 Plot No-1 Kissam- Nadi	Turukbhata	4.048 Hects.	48697.5 Cum	26010 Cum	Tahasil Letter No- 60 dt. 07/01/21
40	TITLAGARH	(Sunder River)	4.048 Hects.	Sukunabhata	4.048	59551.5 Cum	30924.9 Cum	Tahasil

		River Sand Sukunabhata Sand Bed	Khata No-104 Plot No-21 Kissam- Nadi		Hects.			Letter No-60 dt. 07/01/21
41	TITLAGARH	(Sunder River) River Sand Sargunamunda Sand Bed-A	4.048 Hects. Khata No-71 Plot No-504 Kissam- Nadi	Sargunamunda	4.048 Hects.	35829 Cum	18199.8 Cum	Tahasil Letter No-60 dt. 07/01/21
42	TITLAGARH	(Sunder River) River Sand Sargunamunda Sand Bed-B	4.048 Hects. Khata No-71 Plot No-504 Kissam- Nadi	Sargunamunda	4.048 Hects.	39130.5 Cum	20351.7 Cum	Tahasil Letter No-60 dt. 07/01/21
43	TITLAGARH	(Bhander River) River Sand Antarla Sand Bed	4.048 Hects. Khata No-150 Plot No-1440 Kissam- Nadi	Antarla	4.048 Hects.	56106 Cum	29350.8 Cum	Tahasil Letter No-60 dt. 07/01/21
44	KHAPRAKHOL	(Suktel River) River Sand LUHASINGHA Sand Bed	4.856 Hects. Khata No-242 Plot No-1018/1027 Kissam- Nadi	LUHASINGHA	4.856 Hects.	27928 Cum	5517.6 Cum	Tahasil Letter No-1310 dt. 14/12/20
45	BANGOMUNDA	(Sunder River) River Sand Salebarat Sand Bed	4.451 Hects. Khata No-119 Plot No-1147 Kissam- Nadi	Salebarat	4.451 Hects.	61691 Cum	32272 Cum	Tahasil Letter No-228 dt. 03/02/21
46	BANGOMUNDA	(Sunder River) River Sand Paruabhadi Sand Bed	4.451 Hects. Khata No-79 Plot No-411 Kissam- Nadi	Paruabhadi	4.451 Hects.	48180 Cum	15298.8 Cum	Tahasil Letter No-299 dt. 19/02/21

SAND SAIRATS LEASED OUT AND LOI ISSUED

(TO BE FILLED BY TAHASILDARS FOR RESPECTIVE TAHASILS), BOLANGIR

Sl. No.	Name of Tahasil	River or stream	Portion of the River or Stream recommended for mineral concession (GPS co-ordinates or Khata& Plot No)(Sketch map to be attached)	Name of village, Period of Lease And Lessee	Length of area recommended for mineral concession (in km)	Average width of area recommended for mineral concession (in km)	Area recommended for mineral concession (in sq m)	Maximum Mineable sand (in cum) (60% of total potential)	MGQ (cum)	Distance in km from different structures								Distancefrom village in km	Acess road exists or not	Approval of District Authority of Irrigation/ Water Resource dept. and OSPCB
										Bridge	Culvert	Dam	Weir	Water extraction point	Water supply Head works	Extraction point for irrigation	Any other cross drainage structure			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	AGALPUR	Ong River/ Tentuligaon Sand Quarry, Vil-Tentuligaon, T.L	5.00 Hects. N20° 58' 55.2" to N20° 58' 46.2" E83° 36' 02.0 to E83° 35'55.6" Khata No-82 Plot.No- 1	Tentuligaon ,5 years Umesh Mahakur, At-Ainlasari, Po-Sauntpur Balangir	0.809	0.650	5.00 Hects.	83372 Cum	8000 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand

		& Dt.-195/22.01.2020																	
2	AGALPUR	Ong River/ Khutasinga Sand Quarry, Vil-Khutasingha,T.L & Dt.-458/20.02.2020	5.00 Hects. N20° 58' 56.60" to 20° 58' 59.11" to E83° 37' 43.64" to E83° 37' 54.27" Khata No-384 Plot.No- 1	Khutasinga 5 Years Rikash Ku. Agrawal, At-Salebhata, Balangir	0.945	0.450	5.00 Hects.	43067 Cum	4000 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand
3	AGALPUR	Ong River/ Fatamunda Sand Quarry, Vil-Fatamunda,T.L & Dt.-458/20.02.2020	5.00 Hects. N21˚ 00′ 32.27″ to N21˚ 00′ 42.20″ to E83˚ 27′ 15.33″ to E83˚ 27′ 25.60″ Khata No-191 Plot.No-1798/2528	Fatamunda, 5 Years Rikash Ku. Agrawal, At-Salebhata, Balangir	0.920	0.450	5.00 Hects.	43275 Cum	4000 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand
4	AGALPUR	Ong River/ Banjhipally	5.00 Hects. Khata No-91 Plot.No-1032,	Bhajipally, 5 years Umesh Mahakur,	12.355	0.520	5.00 Hects	10422 Cum	1500 CUM	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand

		Sand Quarry, Vil-Banhjiplly,T. L & Dt.-1329/ 26.08. 2019	846/1041	At-Ainlasari, Po-Sauntpur, Balangir																
5	BANGOMUNDA	Indra & Sundar River/ Tureikela Sand Quarry Vil.-Tureikela, T.L & Dt.-1410, 31/08 /2018	3.03 Hects. N20° 13' 05.17" to N20° 13' 11.31" E82° 52' 47.32" to E82° 52' 55.47" Khata No-164 Plot.No-622	Tureikela Sujata Mohanty, At-Kantasanj, Balangir	0.358	0.086	3.03 Hects.	24969 Cum	2500 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand
6	BANGOMUNDA	Sundar River/ BhatasarSand Quarry Vil.-	3.03 Hects. N20° 12' 40.46" to N20° 12' 48.27" E82° 57' 08.52" to E82° 57' 19.21"	Bhatasar Jaladhar Meher, At-Kansel, Mundpadar, Balangir	0.349	0.088	3.03 Hects.	24854 Cum	1500 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand

		Bhatasar, T.L & Dt.- 1408, 30/08/2018	Khata No-56 Plot.No- 518 Kissam- Nadi																
7	BELPADA	Lanth River (Belpara Sand Quarry) Period- 5 years	4.451 Hects N20°35'08.5" to N20°34'56.5" E85°58'21.1" to E85°58'08.7" (Khata No-480 Plot No-2401) Order No-61 dtd. 6/01/20 (For Five Years)	Belpada (Ghanshyam Putel, At-Dunguripali, Belpada, Dist-Balangir	0.36	0.12	44510	71618 Cum	1240 Cum	1	2	40	1	2	2	3	NA	1	YES	Approved for sand (EC Under Process) **(New Source)**
8	KANTABANJI	Arjune River(Bharuakani Sand Quarry Vil.-Bharuakani	2.33 Hects. N20° 21' 58.12" to N20° 22' 04.19" E82° 46' 04.73" to E82° 46' 08.35" Khata No-46, Plot No-2 ,Kissam-Nadi	Bharuakani 2018-19 to 2022-23 Munna Ahmad, At/Po/Ps-Kantabanji, Bolangir	0.809	0.650	2.33 Hects.	16507 Cum	1000 Cum	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand
9	PATNAGARH	Sutkel River, Tamia	4.856 Hects. N20˚ 46´	Tamian , 5 Years, Bhakta	0.850	0.780	4.856 Hect	40132 CUM	1300 CUM	1 KM	2KM	40 KM	20	2	2	3	NA	2	Yes	Approved for sand

		n Sand Sairat Sourc e	54.12″ to N20° 47′ 06.45″ Tto E83° 14′ 24.43″ to E83° 14′ 33.46″ Khata No-286 Plot No-1847	Charan Patel, At-Pilatimahul , Dist-Balangir T.L No- 985 dt. 20/02/20			s.												
10	PATN AGAR H	Sutkel River, Ghasi an Sand Quarr y	4.856 Hects. N20° 49′ 40.33″ to N20° 50′ 15.43″ Longitude: E83° 10′ 09.31″ to E83° 11′ 13.17″ Khata No-228 Plot No-394 & 3	Ghasian ,5 Years, Bhakta Charan Patel, At-Pilatimahul , Dist-Balangir T.L No- 985 dt. 20/02/20	0.870	0.790	4.85 6He cts.	18690 CUM	2500 CUM	1 KM	2K M	40 K M	20	2	2	3	NA	2	Yes	Approve d for sand
11	PATN AGAR H	Maya bati River Villag e-Suna mudi Sand Quarr y	4.99 Hects N 20 43' 24.19", 20 43' 35.46"N E 83 10' 57.17", 83 11' 16.63"E Khata No-172,Plot No-1186	Sunamudi, 5 Years. Bimalendu Bikash Meher, At-Tendapad ar, Ps-Patnagarh a	0.79 0	0.81 0	5.26 1 Hect s.	22400 Cum	2400 Cum	1 KM	2K M	40 K M	20	2	2	3	NA	2	Yes	Approve d for sand