



DISTRICT REVENUE SECTION, ANGUL

ଜିଲ୍ଲା ରାଜସ୍ୱ ଉପବିଭାଗ, ଅନୁଗୋଳ

COLLECTORATE, ANGUL || ଜିଲ୍ଲା ପାଳିକା କାର୍ଯ୍ୟାଳୟ, ଅନୁଗୋଳ

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To Letter No 375 / File No. VI-15/2023 Date: 31.07.2023

The District Information Officer,
National Informatics Center , Angul

Sub:- Hoisting of District Survey Report in web site for general information of public.

Sir,

As per G.O. No. 27689/R&DM dt.27.07.2018 the District Survey Report shall be placed in the public domain and posting it on Districts web site for receiving any public comments on the report.

The District Survey Report are enclosed here with for posting of the same in the public web site accordingly.

Yours faithfully,

**Addl. District Magistrate,
Angul**

Memo No. 376 / Touzi Dt. 31.07.2023

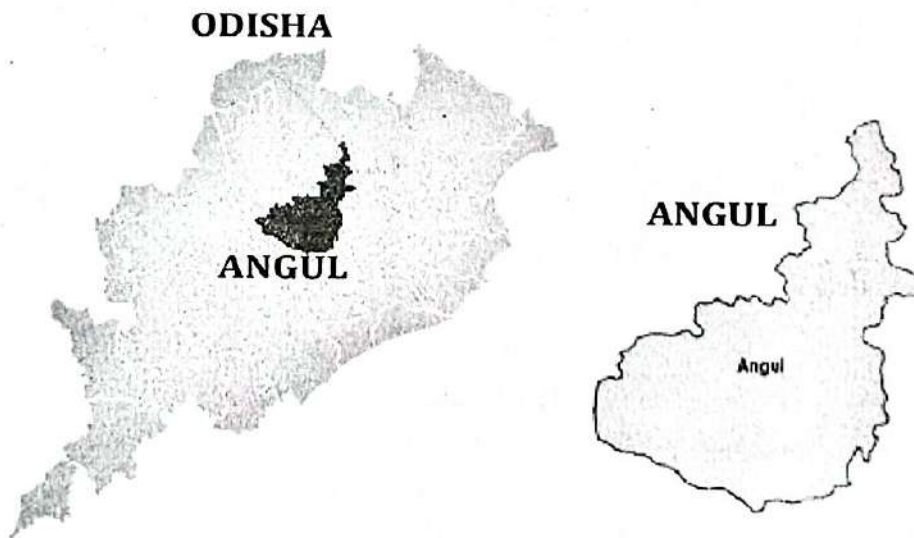
Copy forwarded to all Sub-Collectors / Tahasildars of Angul District / Divisional Forest Officer (T), Angul/ Superintending Engineer, Irrigation Division, Angul/ Regional officer, State Pollution Control Board, Angul/ Deputy Director, Mines Talcher for information & necessary follow up action .

**Addl. District Magistrate,
Angul**



**DISTRICT SURVEY REPORT (DSR)
OF
ANGUL DISTRICT, ODISHA
FOR
ROAD METAL/ BUILDING STONE/ BLACK STTONE**

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



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

COLLECTORATE, ANGUL

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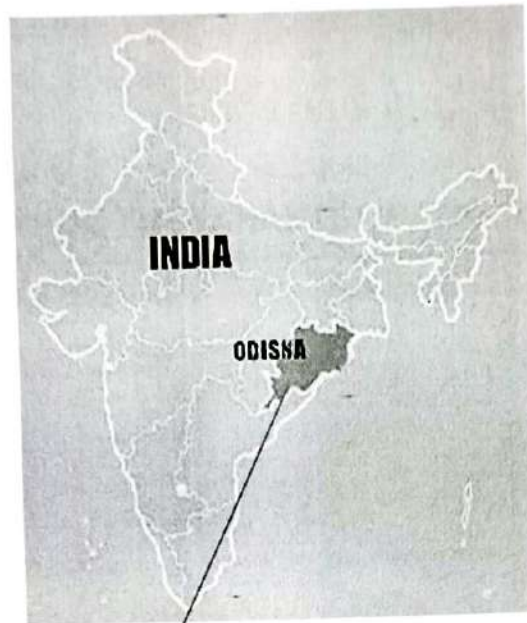
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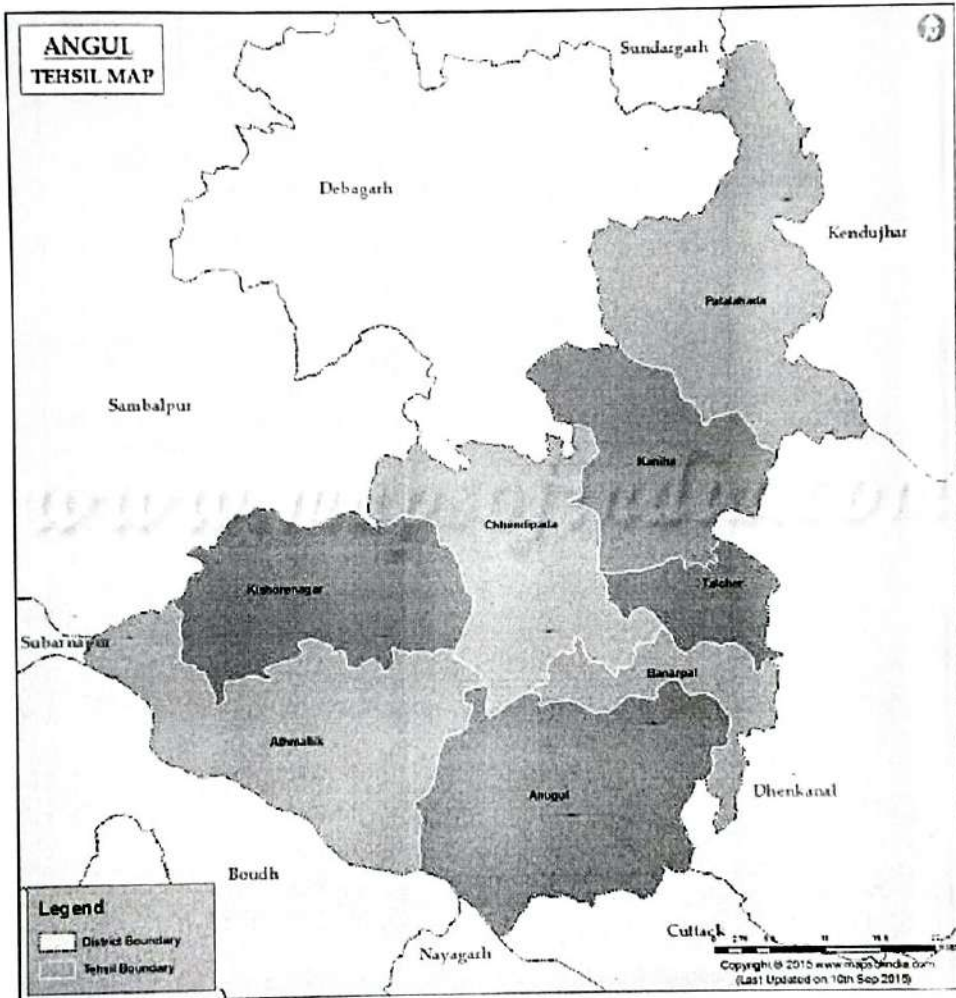


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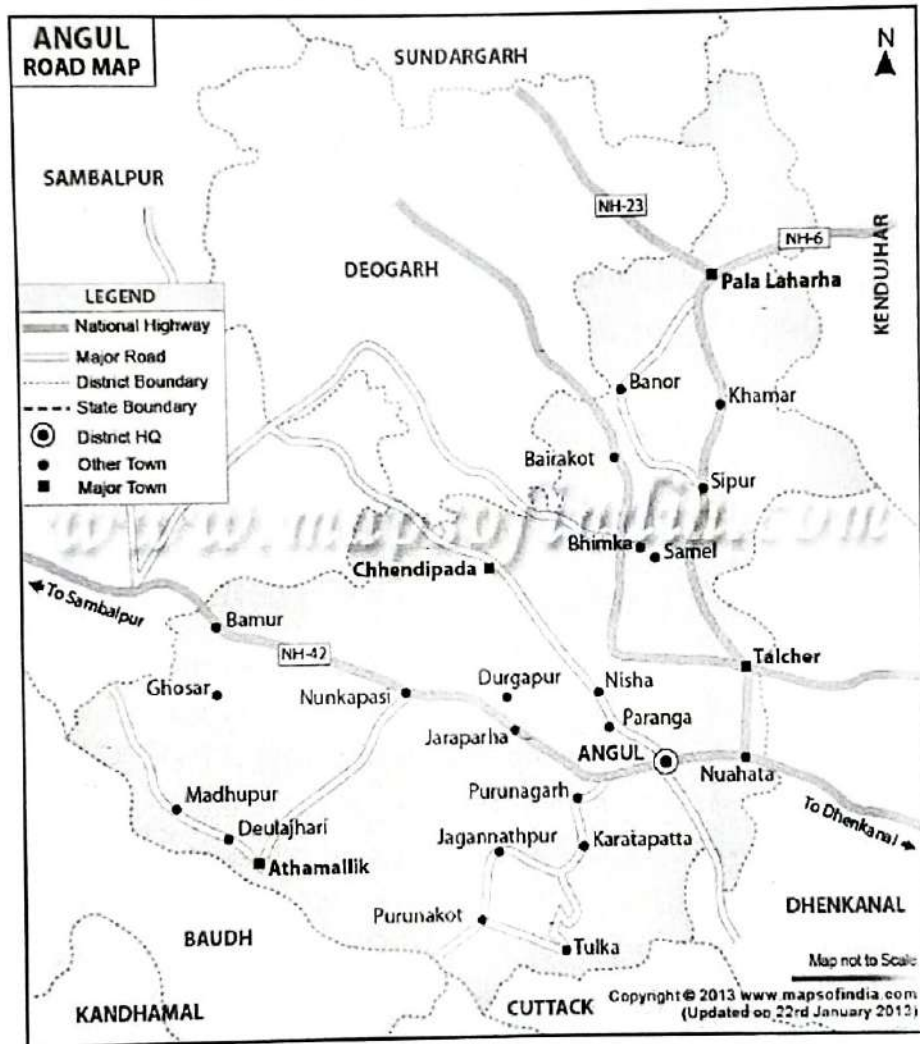


Angul

MAP SHOWING THE TAHASILS OF ANGUL DISTRICT



MAP SHOWING THE MAJOR ROADS OF ANGUL DISTRICT



PREFACE

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

1. INTRODUCTION

The district of Angul situated at the heart of Odisha was a part of Undivided Dhenkanal district till early March 1993, but for the administrative convenience, Dhenkanal District was divided into two parts i.e. Dhenkanal and Angul vide State Government Notification No. DRC-44/93/14218/R. dated 27 March 1993. Angul District came into existence as a separate district on April 1, 1993. The district is surrounded by Cuttack & Dhenkanal on the east, Sambalpur & Deogarh on the west, Sundargarh & Keonjhar on the north and Phulbani on the south. Covering an area of 6232 sq.km, Angul District is located at Latitude 20° 31' to 21°41' North to 84°16' to 85°23' East Longitude. The altitude of this place is 564 to 1187 mt. The district is abundant with natural resources. Angul, The district headquarters is about 150 kilometres (93 mi) from the state capital Bhubaneswar.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

Angul district is enriched with many valuable economic minerals like coal, Kyanite, graphite, fireclay, china clay, precious and semi-precious stones, dimension and decorative stones etc.

Coal:

Angul district occupies a significant position in the mineral map of India because of its vast resources of coal in the Talcher coalfield. A total reserve of 50,406 million tonnes of coal of all categories has been estimated in the district in Talcher coalfield. The Karaharbari and Barakar formations belonging to Damuda series are coal bearing. Coal produced in this area is mostly used for power generation purpose.

Fireclay:

Fireclay occurs sporadically within a stretch of 15 sq. km area in and around Badaganduri, Kansamunda and Telisinga villages of Kaniha Block, Angul district. In Talcher Lower Gondwana basin, the fireclay beds usually overly the coal seams. Fireclay also occurs in Handapa area around Kakarpani, Ichhapur villages. The total fireclay resource of the district has been estimated at 1.22 million tonnes. This fireclay contains Lower Gondwana plant fossils like *Glossopteris* and *Gangompteris*.

Kyanite:

Kyanite occurrences are reported around Magarmuhan and Bankoli villages of Pallahara sub-division. In Magarmuhan, Kyanite occurs in association with quartzite-kyanite-schist and quartz-chlorite-kyanite schist extending over a length 1.5 km with an average width of 5 m. A reserve of 6000 tonnes of Kyanite has been inferred upto a depth of 1.5 m with Al_2O_3 content varying from 19.02% to 53.81% and silica content varying from 32.84% to 54.07%.

Graphite:

Incidence of graphite are recorded in the khondalite suite of rocks within a 25 km long and 10 km wide belt extending in NW-SE direction between Dondatopa and Patharkupa of Athmallik sub-division. The graphite occurs as flakes and disseminations. The important locations are Kamalpur, Dandatopa, Bhuasuninali, Adeswar, Girida, Akharkata, Sanrohila, Lanchi, Govindapur, Polamahal, Siariamalia, Cherkhandi, Karadagadia, Dhauragoth, Brahmanidei and Padmapokhari. Graphite occurrence near Dandatopa is high grade and pocket type where the F.C. content varies between 54% to 77%. In the remaining areas, graphite occurs as disseminations and flakes in khondalites with F.C. content ranging from 5% to 15%.

Besides the above, occurrences of graphite are reported around Badakantakul, Kanja and Tallisara in Angul sub-division.

China clay:

China clay occurs in Panduripathar area of Athmallik sub-division. It extends over a strike length of 250 m with an average width of 150 m.

Precious and Semi-Precious Stones:

Garnet (pink, violet, red and honey yellow varieties), red corundum, moonstone, blue Kyanite etc. have been reported in Nuagaon, Parhang, Burubura, Kulad, Karanpal area of the district.

Manganese Ore:

Floats of Pyrolusite and psillomelane are strewn over the ground near Teleipathar, Pathartaila and Akharkata village

Decorative and Dimension stone:

Granite, granite-gneiss, porphyritic granite gneiss and charnockites exposed between Boinda and Athmallik along the roadside are suitable for decorative and dimension stone. 4800 cu. m of decorative and dimension stone has been estimated in Govinda Panasahi and Durgapur Panasahi.

Other than the above mentioned minerals, minor minerals such as river sand, laterite slabs, building stone/black stone/road metals, morrum, brick earth etc. are also available in the district.

In the district of Angul, there are ten working mines and two non-working coal mines. Besides, one sand and one quartz mines are also operating in this district. Detailed of the working/non-working mines are given below.

Sl. No.	Name of working mines	Mineral	Area (in sq. km)
1	Talcher Colliery	Coal	11.4
2	Nandira Colliery	Coal	3.70
3	Jagannath Colliery	Coal	5.12
4	Bharatpur OCP	Coal	17.67
5	Anata OCP	Coal	5.35
6	Lingaraj	Coal	12.48

7	Balaram OCP	Coal	11.17
8	Hingula OCP	Coal	10.64
9	Chhendipada OCP	Coal	0.24
10	Bhubaneswari	Coal	6.88
11	Kandapal Sand Mines	Sand	0.18

Name of the non-working Mines:

1. Deulabera Colliery Coal
2. Nandira Colliery Coal
3. Kakudi & Kishoripal Sand Mines Sand
4. Kandapal Sand Mines Sand
5. Telisinga F.C. Mines Fireclay

3. GENERAL PROFILE

a. Administrative set up:

SI No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	84°16' to 85°23' East
	Latitude	Degree	20° 31' to 21°41' North
2	Geographical area	Sq.Km.	6375
3	Sub-division	Numbers	4
4	Tahasils	Numbers	8
5	C D Blocks	Numbers	8
6	Municipalities	Numbers	2
7	NACs	Numbers	1
8	Police Stations	Numbers	23
9	Gram Panchayats	Numbers	225
10	Villages	Numbers	1871
	Inhabited	Numbers	1654
	Uninhabited	Numbers	217
11	Assembly constituencies	Numbers	5

b. Area and Population:

The district has an area of 6375 sq. kms and 12.74 lakhs of population as per 2011 census. The district accounts for 4.09 percent of the states territory and shares 3.03 percent of the state's population. The density population of the district is 200. per sq. kms. as against 270 person per sq. km. of the state. It has 1871 villages (including 217 un-inhabited villages) covering 8 blocks. 8 Tahasils and 4 Subdivisions. As per 2011 census the schedule caste population is 239552 (18.8.%) and schedule tribe population is 179603 (14.1.%). The literacy percentage of the district constitutes 77.53 against 72.9 of the state.

c. Climate :

The climate condition of the district is generally hot and high humidity during April to May and cold during November to December The monsoon generally breaks during the month of July, Average annual rainfall of the district was 1147.52 m.m during 2014, which is higher than the normal rainfall 1401.9 m.m.

d. Economy:

Agriculture occupies a vital place in the economy of Angul District, as it provides direct and indirect employment to around 70 % of its total work force, as per the 2001 census. The total cultivable area of this District is 2, 16,403 hectares, covering 32.7 % of its total geographical area. The major crops of the Kharif season are paddy, maize, ragi, oilseeds, pulses, small millets and vegetables etc. Paddy, wheat, maize, field pea, sunflower, garlic, ginger, potato, onion, tobacco, sugarcane and coriander etc are the major Rabi crops.

The last decade has witnessed a tremendous improvement in the industrial scenario of Angul District. Many public sector undertakings have setup up plants and offices here, like National Aluminium Company Limited (NALCO), Mahanadi Coal Fields Limited (MCL), National Thermal Power Corporation (NTPC) and Talcher Thermal Power Station (TTPS). One of the major coalfields is the Talcher coalfield, which contains huge reserves of power grade non-coking coal. Engineering Units, Rice Mills, Hotels, Fly Ash Brick units, Stone Crushers, Service Units, Bleaching units, Bread and Bakery units, Tyre Retreading units, Flour Mills and Spices Grinding units etc. are some of the small scale industries functioning here.

Dhokra casting works, Terracotta works, Wood carvings, Art textiles and Soft toys etc are some examples of the crafts that have been generating revenues for this District. The District Industries Center functioning in the District promotes its various industrial activities.

e. Industry:

The locational advantage and abundant stock of manpower and raw materials have played an important role in the industrial development of the district. The important PSUS of the district are the NALCO, the MCL. Besides, during the year 2014-15., 1011 nos of Micro Small and Medium Enterprises have been Established with total capital investment of about Rs 68386.94 lakhs with 7447 nos of Employment generated in Angul district. Apart from this a good number of Thermal power plants and sponge plants have been established within the district including NTPC and various private companies due to abundant availability of thermal grade coal. Besides various kinds of handicraft works like dhokra casting, bell metals, textile products have been developed by the skilled workers and artisans of the district.

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
2325	20936.67	2337	704	4175	7216	405

f. Agriculture:

During the year 2017-18 the net area sown was 197 thousand hectares against 5356 thousand hectares of the state. The production of was as below:

Name	Paddy	Wheat	Maize	Mung	Biri	Kulthi	TIL	Groundnut	Mustard	Potatoes	Jute	Sugarcane
Production in 000MT	188.63	0.09	14.86	15.95	17.36	4.35	14.84	20.72	1.72	0.00	18.00	4.55

During 2017-18, the total fertilizers used in the district was about

Type of fertiliser	Nitrogenous	Phosphatic	Pottasic	Total	Consumption per Ha
Quantity in MT	4354	2025	853	7232	25.45

g. Power:

Consumption of electricity in Angul district during the year 2013-14 covers 1167.05 million units and villages so far electrified as on 31.03.2014, 1618 revenue villages which constitutes 97.8% to the total revenue villages of the district.

h. Transport & Communication:

Railway route length (14-15) km	105.51
No of Rly stations and PH(14-15)	12
Forest road (17-18) km	449.54
National Highway (16-17) km	235.93
State Highway (17-18) km	186.13
Major district road (17-18) km	64.42
Other dist road (17-18) km	739.03
Rural road(17-18) km	1391.83
Inter village road (16-17) km	2093.93
Intra village road (16-17) km	2298.06

i. Health:

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

Sub divisional hospitals including mobile	4 No
Beds facilities	392 No
Homoeopathicdispensaries	16 No
Ayurvedic dispensaries	19 No

j. Tourist places:

There are 13 nos. of tourist center such as Angul, Banarpal, Bhimkand, Binikei, Bulajhar, Deulajhari, Tikarapada, Talchar, Handapa patrapada, Hingulapitha, khuladi, Rengali and Derjanga as identified by Department of Tourism and culture, Odisha. During 2015 the number of Domestic tourists were 758273 and foreign tourists were 241 who visited the tourists sports of the district.

k. Forest areas:

Category of forest	Area in sq km
Reserve Forest	1760.76
Unclassified Forest	1.15
Demarcated Protected Forest (DRF)	273.21
Undemarcated Protected Forest	11.99
Other forest under Revenue Dept	669.71
Total	2716.82

l. Education:

Primary School (2017-18)	No. of Schools	1004
	Enrolment (No)	111635
	Pupil Teacher Ratio	21.41
Upper Primary School 2017-18	No. of Schools	680
	Enrolment (No)	63888
	Pupil Teacher Ratio	19.82
Gernerall College 2017-18	Junior	43
	Degree	23
Secondary School	No. of Schools	282

Literacy Rate, 2011	Enrolment (No)	36666
	Pupil Teacher Ratio	25.71
	Male	86.0
	Female	68.6
	Total	77.5

m. Culture & Heritage:

Angul district is very much rich in its fairs and festivals. Laxmi Puja is celebrated in the city of Angul. The celebration starts from Kumar Purnima and continues for long 11 days. Ganesh Puja of Talcher is one of the most famous festivals celebrated in the District. Amb Nua (fresh mango eating), Raja, Gammha Purnima, and Push Punei are functions celebrated by the people with much enthusiasm. The number of fairs and festivals observed in the district showcase its varied culture vividly.

4. GEOLOGY

The district can be broadly divided into five sectors such as central, northern, southern, eastern and north-central sectors. The Eastern Ghat Super-group of rocks occur in the southern sector, whereas the rocks of Gondwana Supergroup, Gorumahasani and Lower Bonai Groups occur in the central, north-central and northernmost sectors respectively. The Quaternary sediments overlie the above groups of rocks and occur in the south, central and eastern parts of the district. The rocks of Eastern Ghat Supergroup, Gorumahasani Group and Lower Bonai Group are overlain by laterites (both in-situ and transported). The Eastern Ghat Super-group of rocks mainly comprises quartz - feldspar - garnet - sillimanite - graphite schist /gneiss, garnetiferous quartzite, charnockite, pyroxene granulite, leptynite and augen gneiss. The metasedimentaries of Gorumahasani Group constitute quartzite, gritty quartzite, quartz - mica schist. fuchsite quartzite, quartz - chlorite schist, hornblende schist, and metabasics. The Lower Bonai Group constitutes biotite gneiss, biotite-hornblende granite gneiss and granodiorite. Metasedimentaries of Lower Bonai Group consist of ferruginous shale, cherty shale, phyllite, sandstone and conglomerate. The Gondwana Supergroup consists of sandstone, shale,

conglomerate and fire clay. The Quaternary sediments mainly consist of sandy clay with calcareous concretions, coarse to fine sand, silt and clay.

The geological succession in the district is as follows:

STRATIGRAPHY:

AGE	GROUP/SUPER GROUP	FORMATION	LITHOLOGY
Holocene	Quaternaries	Brahmani / Mahanadi formation	Alluvium
Upper Pleistocene to Holocene		Kaimundi formation	Gray sandy clay with calcareous concretions
Pleistocene	Tertiaries		Laterite / Latosol (in situ)
Permian to Triassic		Mahadeva Formation	Sandstone. shale
Permian	Gondwana Supergroup	Barakar, Barren Measures, Raniganj & Damuda Formations (Unclassified)	Conglomerate. sandstone, shale, coal
Carboniferous (?) to Permian		Talchir Formation	Sandstone. shale, tillite
Archaean to Palaeoproterozoic		Lower Bonai Group	Gabbro Metavolcanics Granite, biotite gneiss, biotite - hornblende granite gneiss, granodiorite
		Gorumahisani Group	Ferruginous shale, cherty shale with ash IBT and tuts, mangariferous shale/ phyllite Gritty sandstone, orthoquartzite, conglomerate Metabasics
		Granitoids	Quartzite, sericite schist, quartz schist, quartz -mica schist, mica schist, micaceous quartzite Actinolite quartzite, tremolite - actinolite schist Augen gneiss, garnetiferous gneiss,

Archaean		biotite gneiss, migmatised khondalite Leptynite
	Eastern Ghat Supergroup	Charnockite Group Acid and intermediate charnockite Basic charnockite, pyroxene granulite
		Khondalite Group Quartz-feldspar-garnet- sillimanite graphite schist/ gneiss Coarse crystalline quartzite, quartz- sillimanite schist. garnetiferous quartzite

5. DRAINAGE AND IRRIGATION PATTERN.

The drainage of the district is mainly controlled by rivers like Mahanadi, Brahamani, Tikira and their tributaries.

Major part of the district is irrigated through canal irrigation from Rengali dam on river Brahmani.

6. LANDUSE PATTERN

SI No	Landuse	Area in '000Ha
1	Forest Area	272
2	Misc. trees & Grooves	23
3	Permanent Pasture	36
4	Culturable Waste	19
5	Land put to Non Agril Use	28
6	Barren & Unculturable Land	17
7	Current Fallow	19
8	Other Fallow	17
9	Net Area Sown	197
10	Mining	10
	Geographical	638

7. SURFACE WATER & GROUND WATER SCENARIO

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

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

Depth of water level (mbgl)/ Period	April	August	November	January
Minimum	2.55	0.30	0.60	2.10
Maximum	18.8	9.70	15.30	18.10

8. RAINFALL & CLIMATIC CONDITION

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

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

Year/ Month	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	Total
15-16	37.04	39.93	218.86	343.29	224.64	142.20	16.38	0.23	31.85	0.63	24.98	42.59	1122.62
16-17	1.93	44.25	126.63	267.16	389.86	143.23	98.26	4.90	NIL	8.43	NIL	22.44	1107.09
17-18	1.23	35.76	201.05	213.38	213.05	143.69	109.87	16.90	NIL	NIL	NIL	0.10	935.03
18-19	74.34	80.10	123.42	333.20	299.31	295.03	114.29	2.70	50.95	0.40	27.00	24.60	1425.34
19-20	63.1	67.2	102.4	325.7	426.4	546.2	141.4	0.0	9.6	3.2	24.4	23.8	1733.4
20-21	75.8	84.6	129.8	468.4	763.6	130	176	0.0	0.0	24.56	76.45	74.08	2003.29
21-22	5.60	160.41	145.68	252.40	121.35	409.20	46.64	35.76	39.68	0.0	0.63	4.40	1221.75
Avg.	24.73	51.74	77.91	268.71	227.57	180.85	64.14	6	10	30.12	20.57	2.51	872

9. DETAILS OF MINING LEASES

Attached as Annexure I

10. DETAILS OF ROYALTY COLLECTED

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

Sl. No.	Name Of Tahasil	2019-20	2020-21	2021-22	2022-23
1	Angul	0.00	0.00	0.00	500000.00
2	Athamalik	879890.00	614744.00	386364.00	1601915.00
3	Kishorenagar	5940000.00	10383310.00	1253137.00	21922831.00
4	Pallahara	30469355.00	17667845.00	26554.00	8365814.00
5	Talcher	0.00	0.00	0.00	0.00
6	Banarpal	3721975.00	37152.00	838875.00	24032778.00
7	Chhendipada	0.00	0.00	1100000.00	0.00
8	Kaniha	1200061.00	1395524.00	5722007.00	4420448.00
	TOTAL	42211281.00	30098575.00	9326937.00	60843786.00

11. DETAILS OF PRODUCTION OF MINOR MINERAL

Year -wise Production of Road metal in cum

Sl.No	Name Of Tahasil	2019-20	2020-21	2021-22	2022-23
1	Angul	0	0	0	1026
2	Atthamalik	7495	3963	5040	14540
3	Kishorenagar	36000	56126	32043	54043
4	Pallahara	111889	92218	192	23935
5	Talcher	0	0	0	0
6	Banarpal	26848	220	2926	54982
7	Chhendipada	0	0	775	0
8	Kaniha	8494	9279	24244	15098
TOTAL		190726	161806	65220	163624

12. MINERAL MAP OF THE DISTRICT

Attached as Plate No 4.

13. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of road metal/buildingstone/blackstone/whitestone is 10,973,577 cum which may increase after detail investigation.

Details of the potential areas submitted as Annexure I.

14. QUALITY/GRADE OF MINERAL

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

15. USE OF MINERAL

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

16. DEMAND & SUPPLY OF THE MINERAL

The tentative annual demand is to the tune of 5 lakhs cum of road metal and is mainly supplied from different tahasils of the district and adjoining districts of Sambalpur, Keonjhar and Dhenkanal.

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

Attached as plate no. 5

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

Not Applicable

19. DETAILS OF ECO-SENSITIVE AREA

Not applicable

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

Activities attributed to Mining:-

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

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

Impact on Ambient Air

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

The major air pollutants due to mining activities include:-

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

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

Water Impact

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

Noise Impact

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

Impact on Land environment

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

Impact on Flora & Fauna

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics.

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

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

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

Air

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

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust particles.
- Controlled blasting techniques shall be adopted.
- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be undertaken.
- Transport of materials in trucks are to be covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine

area.

- Information on wind direction and meteorology are to be considered during planning, so that pollutants, which cannot be fully suppressed by engineering techniques, will be prevented from reaching the nearby agricultural land, if any.
- Comprehensive greenbelt around overburden dumps and periphery of the mining projects/clusters has to be carried out to reduce fugitive dust transmission from the project area in order to create clean & healthy environment.

Water

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

NOISE

- Periodic maintenance of machineries, equipments shall be ensured to keep the noise generated within acceptable limit.
- Development of thick green belt around mining/cluster area, haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities like blasting, excavation site etc. Worker and operators at work sites will be provided with earmuffs.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise

related effects.

- Periodic noise monitoring at locations within the mining area and nearby habitations to assess efficacy of adopted control measures.
- During blasting optimum spacing, burden and charging of holes will be made under the supervision of competent qualified mines foreman, mate etc. **Biological Environment**

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

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

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

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

Most of the quarry/mining lease areas are yet to be exhausted from ore point

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

23. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

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

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

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

General responsibilities of employees' during an emergency:

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

Co-ordination with local authorities:

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

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

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

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

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

TUBERCULOSIS DATA

YEAR	TOTAL
2019-20	1125
2020-21	1230
2021-22	1176
2022-23	1166

There is no case of Silicosis found in the district within the time frame mentioned above.

25.

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

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

26. ANY OTHER INFORMATION

Nil

2

Annexure-I

POTENTIAL OF ROAD METAL SAIRATS IN THE DISTRICT.

Minor Mineral Sources under Angul Sub-Division

Stone sources under Angul Tahasil																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16		17
														LONGITUDE	LATITUDE	RESERVE	IN CUM	
SL NO	NAME OF THE TAHASI	NAME OF THE SOURCE	SATU S	KHATANO	PLOT NO	AREA in AC.	NAME OF MINOR MINE RAL	NAME OF LESSEE	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	DATE OF REGISTRATION OF LEASE DEED	NO & DATE OF GRANT OF ENVIRONMENTAL CLEARANCE	NAME OF SUCCESSFUL BIDDER	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	Longitude	Latitude	RESERVE	IN CUM	
1	Angul	Lokeipasi stone Quarry	Operationalized	1	153 8(P)	7.26	Stone	Nagen Kumar Sahu	S/O: Prasanna Kumar Sahu, At: Sasan Bazar, PO: Badake	20.04.22	SEIA A-239675/127-MIN B2/12-2021 Dt.3.1.2022	Nagen Kumar Sahu	S/O: Prasanna Kumar Sahu, At: Sasan Bazar, PO: Badake, PS: Bantala, Dist.-Angul. Mob No. 7008537406	85 07	54. 6	20	43	28980

Stone sources under Banarpal Tahasil

1	Banarpal	Krushnac handrapur stone Quarry No.1	Un-ope rati ona lize d	62,64, 65	565, 275, 276, 277, 54,5 5	5.00 Ac	Stone	Nil	Nil	Nil	SEIA A-5970 2/188 Dt.2. 6.202 2	Nil	Nil	85 0	21. 5	20	51	5 2 . 1 2	5 87469
2	Banarpal	Krushnac handrapur stone Quarry No.2	ope rati ona lize d	62	565	5.5A c	Stone	Basa nt Ku. Pari da	AU/Po- Jarasin gha, Dist.- Angul. Mob.- 993758 9459	12.08.2 2	SEIA A-5970 2/532 Dt.2. 6.202 2	Basa nt Ku. Parid a	AU/Po- Jarasingha, Dist.- Angul.Mob.- 9937589459	85 0	23	20	52	1 3 5	95421
3	Banarpal	Krushnac handrapur stone Quarry No.3	ope rati ona lize d	62	558, 565	5.50 Ac	Stone	Sri Prad eep Ku. Sara ngi for M/s Jaga nnat h Corp orati on Proj ects Pvt. Ltd.	Plot No.397 , Luis road, Garrag eChhak , Old Town, Bhuba neswar, 751002 .Mob. 789444 4403	15.09.2 2	SEIA A-5970 2/186 Dt.2. 6.202 2	Sri Prade ep Ku. Saran gi for M/s Jagan nath Corp orati on Proje cts Pvt. Ltd.	Plot No.397, Luis road, GarrageChhak, Old Town, Bhubaneswar , 751002.Mob. 7894444403	85 0	29. 57	20	51	5 6 . 1 8	102011
4	Banarpal	Krushnac handrapur stone Quarry	ope rati ona lize	62	565	5.5A c	Stone	Sri Prad eep Ku.	Plot No.397 , Luis road,	17.09.2 2	SEIA A-5970 2/189	Sri Prade ep Ku.	Plot No.397, Luis road, GarrageChhak, Old Town,	85 0	21. 36	20	51	5 9 . 7	402318

5	Banarpal	Krushnac handrapur stone Quarry No.5	opened	62	565	5.5A c	Stone	Sarangi for M/s Jagannath Corporation Projects Pvt. Ltd.	GarrageChhak, Old Town, Bhubaneswar, 751002 .Mob. 789444 4403	16.09.22	SEIA A-5970/2/187 Dt.2.6.2022	Sri Siva Sankar Mohapatra for M/s Orissa Biodiesel Jatropha Pvt. Ltd.	Plot No.397, Luis road, GarrageChhak, Old Town, Bhubaneswar, 751002.Mob. 9437651948	85	0	30.62	20	52	0	134113	6
6	Banarpal	Krushnac handrapur stone Quarry No.6	opened	62	565	5.49 Ac	Stone	Sri Siva Sankar Mohapatra for	Plot No.397, Luis road, GarrageChhak, Old Town, Bhubaneswar, 751002.Mob.	29.07.22	SEIA A-5970/2/185 Dt.2.6.2022	Sri Siva Sankar Mohapatra for M/s	Plot No.397, Luis road, GarrageChhak, Old Town, Bhubaneswar, 751002.Mob.	85	0	18.34	20	51	5	150851	5821

7	Banarpal	Krushnac handrapur stone Quarry No.7	operationalized	62.64	565, 275, 278, 279, 280	8.85 Ac	Stone	M/s Orissa Biodiesel Jatropha Pvt. Ltd.	Town, Bhubaneswar, 751002 .Mob. 943765 1948	10.10.22	SEIA A-5970 2/190 - MIN B1/0 1-2022 Dt.2.6.22	Sri Pradeep Ku. Sarangi for M/s Jagannath Corporation on Projects Pvt. Ltd.	Plot No.397 , Luis road, GarrageChhak , Old Town, Bhubaneswar, 751002.Mob. 7894444403	85	0	21.2	20	51	52	148254
8	Banarpal	Fulpada Stone Quarry	operationalized	609	620	5.00 Ac	Stone	M/s Orissa Biodiesel Jatropha Pvt. Ltd.	Town, Bhubaneswar, 751002 .Mob. 943765 1948	17.9.21	SEIA A-1237/01-2021 dt.22.1.21	Smt. Prati Maik	At- Pandapur, PO- Fulpada, Dist.- Angul, Mob.993797 9536	85	8	16.72	20	44	53	120428

Stone sources under Chhendipada Tahasil																				
1	Chhendipada	LOI	2/2	125	9.42 Ac	Stone	Giridhar Pradhan	Hrushikesh Pradhan	5.07.21	645/2 6.02.21	Giridhar Pradhan	Hrushikesh Pradhan	84	52	26.13	20	54	58	707580	
							Durgapur Panasahi Stone Quarry					Hrshikesh Pradhan								

Minor Mineral Sources under Athamalik Sub-Division																																
Stone sources under Kishorenagar Tahasil																																
1	SL NO OF THE TALAHS	2	NAME OF THE SOURCE	3	4	SA TUS	5	KHATANO	6	PLOT NO	7	AREA in AC.	8	NAME OF MINOR MINERAL	9	NAME OF LESSEE	10	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	11	DATE OF REGISTRATION OF LEASE DEED	12	NO & DATE OF GRANT OF ENVIRONMENTAL CLEARANCE	13	NAME OF SUCCESSFUL BIDDER	14			15		16		17
																									ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER		LONGITUDE		LATITUDE		RESERVE IN CUM AS PER MINING PLAN	
1		Kishorenagar	Jamunali Stone Quarry		No-n-operation	95,96	180/14	86, 985 (P), 986 (P)	4.36 Ac	Stone	Sri Shank Agarwal, M/s. Agarwal Infra build Pvt. Ltd.	1st Floor, VR Plaza, Link Road, Bilaspur, State-Chhatisgarh.	Nil	Nil	Sri Shank Agarwal, M/s. Agarwal Infra build Pvt. Ltd.	1st Floor, VR Plaza, Link Road, Bilaspur, State-Chhatisgarh.	84	47	21.36	20	56	12	491491									

2	Kishorenagar	Brundabanpur Stone Quarry	Operational	15	83(P)	4.78 Ac	Stone	Sri Shankar Agarwal, M/s. Agarwal Infrastructure Pvt. Ltd. AIP L	1st Floor, VR Plaza, Link Road, Bilaspur, State-Chhatisgarh.	Temporarily issued to AIP L.	EC22 B001 OR1 3976 2/DT .22.0 9.202 2	Sri Shankar Agarwal, M/s. Agarwal Infrastructure Pvt. Ltd. AIP L	84	32	31.20	21	00	1971	527642
3	Kishorenagar	Sanarohil Stone Quarry A	Running	88	92/969	5.49 Ac	Stone	Rohitawar Pradhan, S/o-Dhar mapada Pradhan	At-Ramachandrapur, P.S.-Kishorenagar, Dist-Angul	05.04.2021	191/SEIA A/ Dt.22 .02.2 021	Rohitawar Pradhan, S/o-Dhar mapada Pradhan	82	24	58.95	20	54	0787	86500
Stone sources under Athamallik Tahasil																			
1	Athamallik	Gunduri Stone Quarry	Running	76	1548	5.00 Ac	Stone	Apollokumar Garmaik	At-Arakhakud, P.O.-Thakurgarh, Dist-Angul	25.04.2022	E.C id. No.- EC22 B001 ORI	Apollokumar Garmaik	84	39	47.8	20	50	86	25200

2	Athamallik	Ranibandha Stone Quarry	Working	59	11	7.00 Ac	Stone	Sanjeev Kumar Singh	At-Badakeera, P.O.-Badakeera, Dist-Angul/Con. No. 5620	02.11.2022	E.C id. No. - EC22 B001 OR1 2738 0/DT.1 8.07.2022	Sanjeev Kumar Singh	At-Badakeera, P.O.-Badakeera, Dist-Angul/Con. No. 8249880806	84	39	21.23	20	48	072	25000
3	Athamallik	Ghodaban Stone Quarry (B)	Working	85	114	5.00 Ac	Stone	Mahabir Prasad Agrawalla	At-Kaintragarh, P.O.-Athmalik, Dist-Angul/Con. No. 801235	22.08.2022	E.C id. No. - EC22 B001 OR1 2021 8/DT.2 2.07.2022	Mahabir Prasad Agrawalla	At-Kaintragarh, P.O.-Athmalik, Dist-Angul/Con. No. 8658012351	84	41	33.13	20	49	5733	25000

Minor Mineral Sources under Talcher Sub-Division

Stone sources under Kaniha Tahasil																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16		17
														LONGITUDE	LATITUDE	RESERVE	IN CUM	
SL NO	NAME OF THE TALAHA	NAME OF THE SOURCE	SATURS	KHATA NO	PLANT NO	AREA in AC.	NAME OF MINERAL	NAME OF LESSEE	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	DATE OF REGISTRATION OF LEASE DEED	NO OF GRANTS OF ENVIRONMENTAL CLEARANCE	NAME OF SUCCESSFUL BIDDER	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	Longitude	Latitude	RESERVE	IN CUM	
1	Kaniha	Khindo (A) Stone Quarry	Operationalized	276	96(P)	1.00 Ac	Stone	Amrit Das	(C/o- Sri Durga Condev Pvt. Ltd.) S/o- Nilamani Das, Vill- Kairapari (Kotasa hi), Tangi, PO- Kotasa	16.07.2021	3871/SEIA A Dt. 20.01.2022	Amrit Das	(C/o- Sri Durga Condev Pvt. Ltd.) S/o- Nilamani Das, Vill- Kairapari (Kotasa hi), Tangi, PO- Kotasa hi, PS- Tangi, Dist- Cuttack	84 57	21 17	46	35550	

2	Kaniha	Khindo (B) Stone Quarry	Operationalized	276	96(P)	1.00 Ac	Stone	Himachal Pradesh	S/o- Prafulla Ch. Panda, Vill/Po- Bajrakote, PS- Rengali Dam Site, Dist- Angul, PIN-759105 Mob No. 9437299437	1029 6/ SEJA A Dt.17.12.2022	Himachal Pradesh	84	57	26.64	21	17	44.6	25641
3	Kaniha	Khindo (C) Stone Quarry	Operationalized	276	96(P)	1.00 Ac	Stone	Amrit Das	(C/o- Sri Durga Condev Pvt. Ltd.) Nilamani Das, Vill- Kairapari (Kotasahi), Tangi, PO- Kotasahi, PS- Tangi, Dist- Cuttack PIN-	4014/ SEIA A Dt. 17.02.2022	Amrit Das	84	57	25.8	21	17	50.46	29642

Minor Mineral Sources under Pallahara Sub-Division

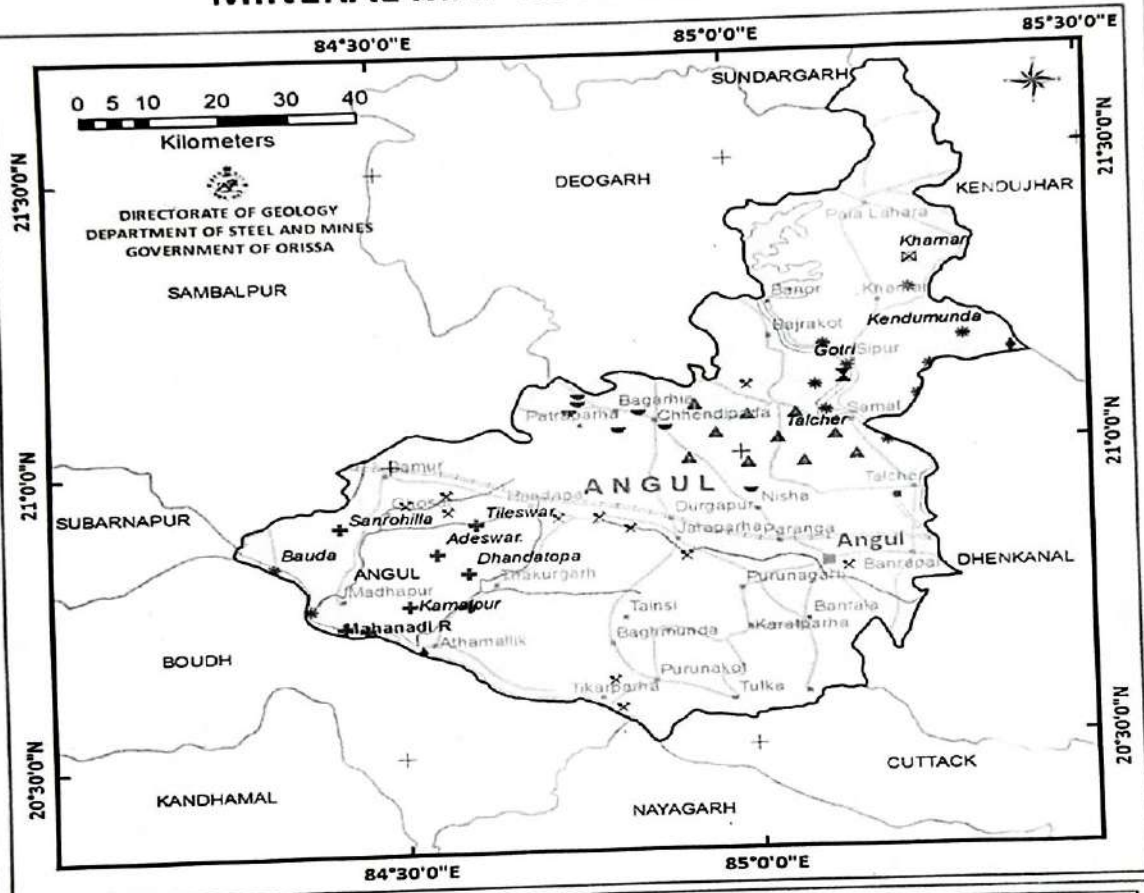
Stone sources under Pallahara Tahasil																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16		17
														LONGITUDE	LATITUDE	RESERVE IN CUM	AS PER MINING PLAN	
SL NO	NAME OF THE TAHASIL	NAME OF THE SOURCE	SATS	KHATA NO	PLOT NO	AREA in AC.	NAME OF MINOR MINERAL	NAME OF LESSEE	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	DATE OF REGISTRATION OF LEASE DEED	NO. OF GRANTS OF ENVIRONMENTAL CLEARANCE	NAME OF SUCCESSFUL BIDDER	ADDRESS & CONTACT NO OF SUCCESSFUL BIDDER	Longitude	Latitude	RESERVE IN CUM	AS PER MINING PLAN	
1	Pallahara	Rengali Stone Quarry	LOI	97	347	5.00 Ac	Stone	Narottam Sahoo	At-Jhimiripali, PO-Dimira, PS-Pallahara, Dist-Angul, Mob No-9556370220	Nil	Nil	Narottam Sahoo	At-Jhimiripali, PO-Dimira, PS-Pallahara, Dist-Angul, Mob No-9556370220	85 11 14.3124	21 23 59.76359	5	126378	
2	Pallahara	Mohanpur Stone Quarry	Running	28	17.28	5.92 Ac	Stone	Manas Ranjan Bisoi	At/Po-Kulad, PS-Nalco, Dist-Angul, Mob No-	18.01.21	9047/25.09.2020	Manas Ranjan Bisoi	At/Po-Kulad, PS-Nalco, Dist-Angul, Mob No-9437063578	85 7 22.4	21 15 9.4	9	99340	

3	Pallahara	Besalia Stone Quarry	Run ning	81	1044	2.00 Ac	Stone	ManasRanjaniBisoi	At/Po-Kulad, PS-Nalco Nagar, Dist-Angul, Mob No-9437063578	18.01.21	9045/25.09.2020	ManasRanjaniBisoi	At/Po-Kulad, PS-Nalco Nagar, Dist-Angul, Mob No-9437063578	85	7	39.3	21	14	525	46354
4	Pallahara	Kholamunda Stone Quarry	Run ning	27	328	7.65 Ac	Stone	Sarabehera	At-Kunditarapatna, Johala, PS-Balianta, Dist-Khordha, Mob No-9778250326	21.09.22	4202/15.03.22	Sarabehera	At-Kunditarapatna, Johala, PS-Balianta, Dist-Khordha, Mob No-9778250326	85	15	46.1880	21	11	2616	252514.8
5	Pallahara	Ranjana Stone Quarry	Sub-judicial Hon'ble High	42	240	1.75 Ac	Stone	Nil	Nil	Nil	Nil	Nil	Nil	85	7	23	21	23	38	49824

6	Pallahara	Sankamur Stone Quarry	Ne wly pro posed	281	22	7.52 Ac	Stone	Nil	Nil	Nil	Nil	Nil	Nil	Nil	85	7	15.54060	21	16	1	688838.5
7	Pallahara	Patabeda Stone Quarry	Ne wly pro posed	47	35,48	5.30 Ac	Stone	Nil	Nil	Nil	Nil	Nil	Nil	Nil	85	8	26.492	21	16	1	

PLATE NO-4

MINERAL MAP OF ANGUL DISTRICT



Legend

- District Boundary
- Village/ Town
- District headquarter
- Drainage
- National Highway
- Major Road
- Minor Road
- Railway
- Waterbody

Mineral Occurrence

- Coal
- Dimension Stone
- Gemstone
- Gold
- Graphite
- Fireclay

Annexure-II

Final List of Potential Mining Lease (existing & proposed)

Tahasil	Sl No	Quarry detail	Lease detail	Area (in Ac)	Distance (in K.M) from PA/BR/WC	Distance from forest area (in K.M)	Mining lease within 500 metres (if yes cluster area	Total excavation in Tonnes/ Annum considering digging depth max as 6 metres	Mineral to be mined (Stone/Bajri/RBM etc.	Existing/ proposed
	2	3	4	5	6	7	8	9	10	11
Angul	1	Lokeipasi stone Quarry	Lokeipasi stone Quarry	7.26 Ac	WC-24 Km BR-23 Km	Tikarpada Wildlife Sanctuary - 24 Km	No	28980 Cum	Stone	Existing
BanarpalTahasil										
Banarpal	1	Krushnachandrapur stone Quarry No.1	Krushnachandrapur stone Quarry No.1	5.00 Ac	WC-23.7 Km BR-4.6 Km	Tikarpada Wildlife Sanctuary - 23.7 Km	Yes 46.34 Ac	27972 Cum	Stone	Existing
Banarpal	2	Krushnachandrapur stone Quarry No.2	Krushnachandrapur stone Quarry No.2	5.5 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary - 22.6 Km	Yes 46.34 Ac	21000 Cum	Stone	Existing
Banarpal	3	Krushnachandrapur stone Quarry No.3	Krushnachandrapur stone Quarry No.3	5.5 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary - 22.6 Km	Yes 46.34 Ac	50385 Cum	Stone	Existing
Banarpal	4	Krushnachandrapur stone Quarry No.4	Krushnachandrapur stone Quarry No.4	5.5 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary - 22.6 Km	Yes 46.34 Ac	32760 Cum	Stone	Existing
Banarpal	5	Krushnachandrapur stone Quarry No.5	Krushnachandrapur stone Quarry No.5	5.5 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary - 22.6 Km	Yes 46.34 Ac	54740 Cum	Stone	Existing

Banarpal	6	Krushnachandrapur stone Quarry No.6	Krushnachandrapur stone Quarry No.6	5.49 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary – 22.6 Km	Yes 46.34 Ac	58310 Cum	Stone	Existing
Banarpal	7	Krushnachandrapur stone Quarry No.7	Krushnachandrapur stone Quarry No.7	8.85 Ac	WC-22.6 Km BR-3.5Km	Tikarpada Wildlife Sanctuary – 22.6 Km	Yes 46.34 Ac	44050 Cum	Stone	Existing
Banarpal	8	Fulpada Stone Quarry	Fulpada Stone Quarry	5.00 Ac	WC-25.5 Km BR-1.5Km	Tikarpada Wildlife Sanctuary – 25.5 Km	No	14630 Cum	Stone	Existing

ChhendipadaTahasil

Chhendipada	1	Durgapur Panasahi Stone Quarry	Durgapur Panasahi Stone Quarry	9.42 Ac	WC- 25 BR- 3 Km	Tikarpada Wildlife Sanctuary – 25 Km	No	16040 Cum	Stone	Existing
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KishorenagarTahasil

1	2	3	4	5	6	7	8	9	10	11
Kishorenagar	1	Jamunali Stone Quarry	Jamunali Stone Quarry	4.36 Ac	WC-30 Km BR-2 Km	Tikarpada Wildlife Sanctuary – 30 Km	No	357224 Cum	Stone	Existing
Kishorenagar	2	Brundabanpur Stone Quarry	Brundabanpur Stone Quarry	4.78 Ac	WC-51.24 Km BR-1.75 Km	Tikarpada Wildlife Sanctuary – 51.24 Km	No	423132 Cum	Stone	Existing
Kishorenagar	3	Sanarohila Stone Quarry A	Sanarohila Stone Quarry A	5.49 Ac	WC-50 Km BR-1.3Km	SunabedaWildlife Sanctuary – 50 Km	No	14595 Cum	Stone	Existing

AthamallikTahasil

1	2	3	4	5	6	7	8	9	10	11
Athamallik	1	Gunduri Stone Quarry	Gunduri Stone Quarry	5.00 Ac	WC-29.58 Km BR-1.17 Km	Tikarpada Wildlife Sanctuary – 29.58 Km	No	25200 Cum	Stone	Existing
Athamallik	2	Ranibandha Stone	Ranibandha Stone	7.00 Ac	WC-28.34 Km	TikarpadaWildlife	No	25000 Cum	Stone	Existing

Athamallik	3	Quarry	Quarry	Ghodabandhuni Stone Quarry (B)	5.00 Ac	BR-0.54 Km	Sanctuary - 28.34 Km	No	22500 Cum	Stone	Existing
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Kaniha Tahasil

1	2	3	4	5	6	7	8	9	10	11
Kaniha	1	Khindo (A) Stone Quarry	Khindo (A) Stone Quarry	1.00 Ac	WC-68Km BR-7.5 Km	Tikarpada Wildlife Sanctuary -68 Km	Yes 3.00Ac	25200 Cum	Stone	Existing
Kaniha	2	Khindo (B) Stone Quarry	Khindo (B) Stone Quarry	1.00 Ac	WC-68 Km BR-7.5 Km	Tikarpada Wildlife Sanctuary -68 Km	Yes 3.00Ac	16100 Cum	Stone	Existing
Kaniha	3	Khindo (C) Stone Quarry	Khindo (C) Stone Quarry	1.00 Ac	WC-68 Km BR-7.5 Km	Tikarpada Wildlife Sanctuary -68 Km	Yes 3.00 Ac	25045 Cum	Stone	Existing
Kaniha	4	Derang-A Stone Quarry	Derang-A Stone Quarry	1.40 Ac	WC-50 Km BR-0.7 Km	Tikarpada Wildlife Sanctuary -50 Km	No	9145 Cum	Stone	Existing
Kaniha	5	Rengali Stone Quarry,	Rengali Stone Quarry,	1.95 Ac	WC-68 BR- 3 Km	Tikarpada Wildlife Sanctuary -68 Km	No	15500 Cum	Stone	proposed

Pallahara Tahasil

1	2	3	4	5	6	7	8	9	10	11
Pallahara	1	Rengali Stone Quarry	Rengali Stone Quarry	5.00 Ac	WC-84 Km BR-4 Km	Tikarpada Wildlife Sanctuary -84Km	No	7503 Cum	Stone	Existing

Pallahara	2	Mohanpur Stone Quarry	Mohanpur Stone Quarry	5.92 Ac	WC-67 Km BR-10 Km	Tikarpada Wildlife Sanctuary -67 Km Km	No	6125 Cum	Stone	Existing
Pallahara	3	Besalia Stone Quarry	Besalia Stone Quarry	2.00 Ac	WC-66 Km BR-10 Km	Tikarpada Wildlife Sanctuary -66 Km Km	No	3240 cum	Stone	Existing
Pallahara	4	Kholamunda Stone Quarry	Kholamunda Stone Quarry	7.65 Ac	WC-67 Km BR-2 Km	Tikarpada Wildlife Sanctuary -67 Km Km	No	110313 cum	Stone	Existing
Pallahara	5	Ranjana Stone Quarry	Ranjana Stone Quarry	1.75 Ac	WC-87 Km BR-1.5 Km	Ushakoti Wildlife Sanctuary -87 Km Km	No	5040 cum	Stone	Existing
Pallahara	6	Sankamur Stone Quarry	Sankamur Stone Quarry	7.52 Ac	WC-70 Km BR-9 Km	Tikarpada Wildlife Sanctuary -70 Km Km	No	151000 cum	Stone	proposed
Pallahara	7	Patabeda Stone Quarry	Patabeda Stone Quarry	5.30 Ac	WC-70 Km BR-11 Km	Tikarpada Wildlife Sanctuary -70 Km Km	No	-	Stone	proposed

Patta Lands/Khatedari Land:(existing&proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to Be mined (MT)	Existing / Proposed
Not applicable for Angul District								

De-Siltation Location: (Lakes/ Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir/ Dam	Maintain/ Controlled by State Govt./ PSU etc.	Location	District	Tehsil	Village	Size(Ha)	Quantity MT/ Year	Existing /Proposed
Not applicable for Angul District								

M-Sand Plants:(Existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing /Proposed
Not applicable for Angul District							

Annexure-III

Cluster & Contiguous Cluster details

Cluster:

Cluster No.	Lease No	Location	Village	Area (in Ha)	Total Excavation (Ton)
Cluster No.1(Banarpal)	1/2020-21,2/2020-21,3/2020-21,4/2020-21,5/2020-21,6/2020-21 & 7/2020-21.	Private land	Krushnachandrapur	16.729	289217cum
Cluster No.2(Kaniha)	60/14-15,61/14-15,62/14-15	Govt. Land	Khindo	1.214	66345cum

Contiguous Clusters:

Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed/ Patta Land)	Distance between clusters	Village	Area of Cluster (Ha)	Total Mineral Excavation (Ton)
No contiguous Cluster Situation available in respect of Angul District							

Annexure-IV

Final Transportation Routes for individual leases and leases in Cluster.

Name of the Tahasil	Name of the Stone source	Lease No.	Transportation Route number	Whether runs on Govt. or Private Land	Details of village/Forest area/Agricultural land through which the approach road runs if any	Number of tippers / day of lease	Number of tippers / day of all the lease on route	Length of Route in K.M	Type of Road (Black Topped/unpaved)	Recommendation for road (Black Topped/unpaved)	The road will be constructed by Government /Lease Owner	Route map and location
1	2	3	4	5	6	7	8	9	10	11	12	13
AngulTahasil												
Angul	Lokeipasi stone Quarry	186/2020-21	Village road	Govt. Land	Lokeipasi	4	5	14	Unpaved	Unpaved	Lease Owner	
BanarpalTahasil												
Banarpal	Krushnachandrapur stone Quarry No.1	1/2020-21	Village road	Private Land	Krushnachandrapur	4	4	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.2	2/2020-21	Village road	Private Land	Krushnachandrapur	3	3	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.3	3/2020-21	Village road	Private Land	Krushnachandrapur	6	6	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.4	4/2020-21	Village road	Private Land	Krushnachandrapur	5	5	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.5	5/2020-21	Village road	Private Land	Krushnachandrapur	6	6	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.6	6/2020-21	Village road	Private Land	Krushnachandrapur	6	6	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Krushnachandrapur stone Quarry No.7	7/2020-21	Village road	Private Land	Krushnachandrapur	6	6	3	Unpaved	Unpaved	Lease Owner	
Banarpal	Fulpada Stone Quarry	10/2020-21	Village road	Govt. Land	Fulpada	3	3	3	Unpaved	Unpaved	Lease Owner	
ChhendipadaTahasil												

Chhendipada	Durgapur Panasahi Stone Quarry	04/2020-21	Village road	Govt. Land	Durgapur	3	3	4	Unpaved	Unpaved	Lease Owner
KishorenagarTahasil											
Kishorenagar	Jamunali Stone Quarry	58/2016	Village road	Govt. Land	Jamunali	0	0	2	Unpaved	Unpaved	Lease Owner
Kishorenagar	Brundabanpur Stone Quarry	13/2017	Village road	Govt. Land	Brundabanpur	1	1	2	Unpaved	Unpaved	Lease Owner
Kishorenagar	Sanarohila Stone Quarry A	209/2019-20	Village road	Govt. Land	Sanarohila	1	1	20	Unpaved	Unpaved	Lease Owner
AthamallikTahasil											
Athamallik	Gunduri Stone Quarry	01/2020	Village road	Govt. Land	Gunduri	4	5	500 Mtrs	Unpaved	Unpaved	Lease Owner
Athamallik	Ranibandha Stone Quarry	68/2014-15	Village road	Govt. Land	Ranibandha	3	3	5	Unpaved	Unpaved	Lease Owner
Athamallik	Ghodabandhuni Stone Quarry (B)	45/2014-15	Village road	Govt. Land	Ghodabandhuni	5	2	5	Unpaved	Unpaved	Lease Owner
KanihaTahasil											
Kaniha	Khindo (A) Stone Quarry	60/14-15	Village road	Govt. Land	Khindo	3	10	500 Mtrs	Unpaved	Unpaved	Lease Owner
Kaniha	Khindo (B) Stone Quarry	61/14-15	Village road	Govt. Land	Khindo	2	10	500 Mtrs	Unpaved	Unpaved	Lease Owner
Kaniha	Khindo (C) Stone Quarry	62/14-15	Village road	Govt. Land	Khindo	3	10	500 Mtrs	Unpaved	Unpaved	Lease Owner
Kaniha	Derang-A Stone Quarry	95/20-21	Village road	Govt. Land	Derang	1	4	4	Unpaved	Unpaved	Lease Owner
Kaniha	Rengali Stone Quarry,	93/20-21	Village road	Govt. Land	Rengali	2	3	3	Unpaved	Unpaved	Lease Owner
PallaharaTahasil											
Pallahara	Rengali Stone Quarry	14/2021-22	Village road	Govt. Land	Rengali	1	1	5	Unpaved	Unpaved	Lease Owner
Pallahara	Mohanpur Stone Quarry	14/2018-19	Village road	Govt. Land	Mohanpur	1	1	8	Unpaved	Unpaved	Lease Owner
Pallahara	Besalia Stone Quarry	15/2018-19	Village road	Govt. Land	Besalia	0	1	8	Unpaved	Unpaved	Lease Owner
Pallahara	Kholamunda Stone Quarry	08/2020-21	Village road	Govt. Land	Kholamunda	3	3	15	Unpaved	Unpaved	Lease Owner
Pallahara	Ranjana Stone	39/2014-	Village road	Govt. Land	Ranjana	0	0	5	Unpaved	Unpaved	Lease

	Quarry	15		Land							Owner
Pallahara	Sankamur Stone Quarry	Newly proposed	Village road	Govt. Land	Sankamur	0	0	5	Unpaved	Unpaved	Lease Owner
Pallahara	Patabeda Stone Quarry	Newly proposed	Village road	Govt. Land	Patabeda	0	0	5	Unpaved	Unpaved	Lease Owner

Cluster No	Transportation Route No	Number of tippers/ day of cluster	Number of tippers/ day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
Cluster-1 (Banarpal)	Quarry Road	36	36	2.1	Unpaved	Unpaved	Lease owner	
Cluster-2 (Kaniha)	Quarry Road	8	30	1.5	Unpaved	Unpaved	Lease owner	