DRAFT DISTRICT SURVEY REPORT (DSR)

OF

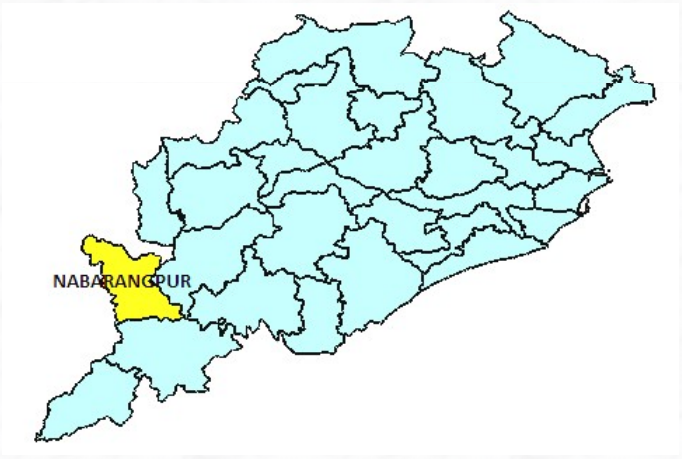
NABARANGPUR DISTRICT, ODISHA

FOR

ROAD METAL / BUILDING STONE / BLACK STONE

(FOR PLANNING & EXPLOITING OF MINOR MINERAL RESOURCES)

ODISHA



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

COLLECTORATE, NABARANGPUR

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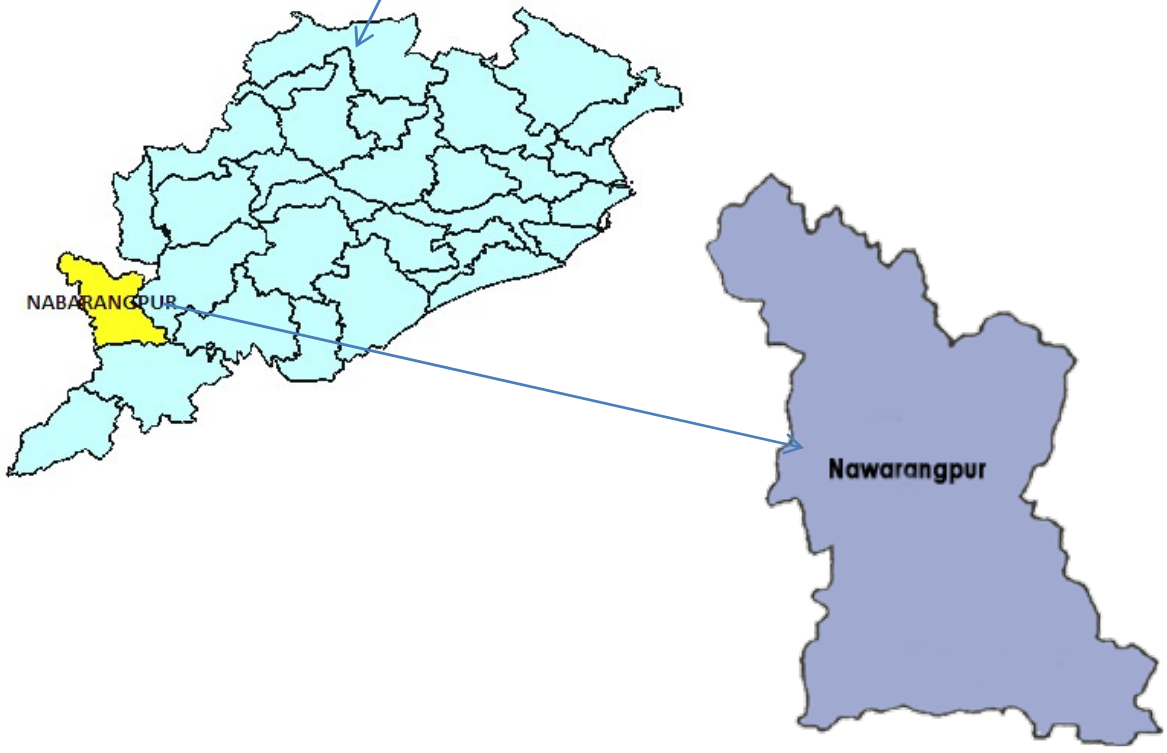

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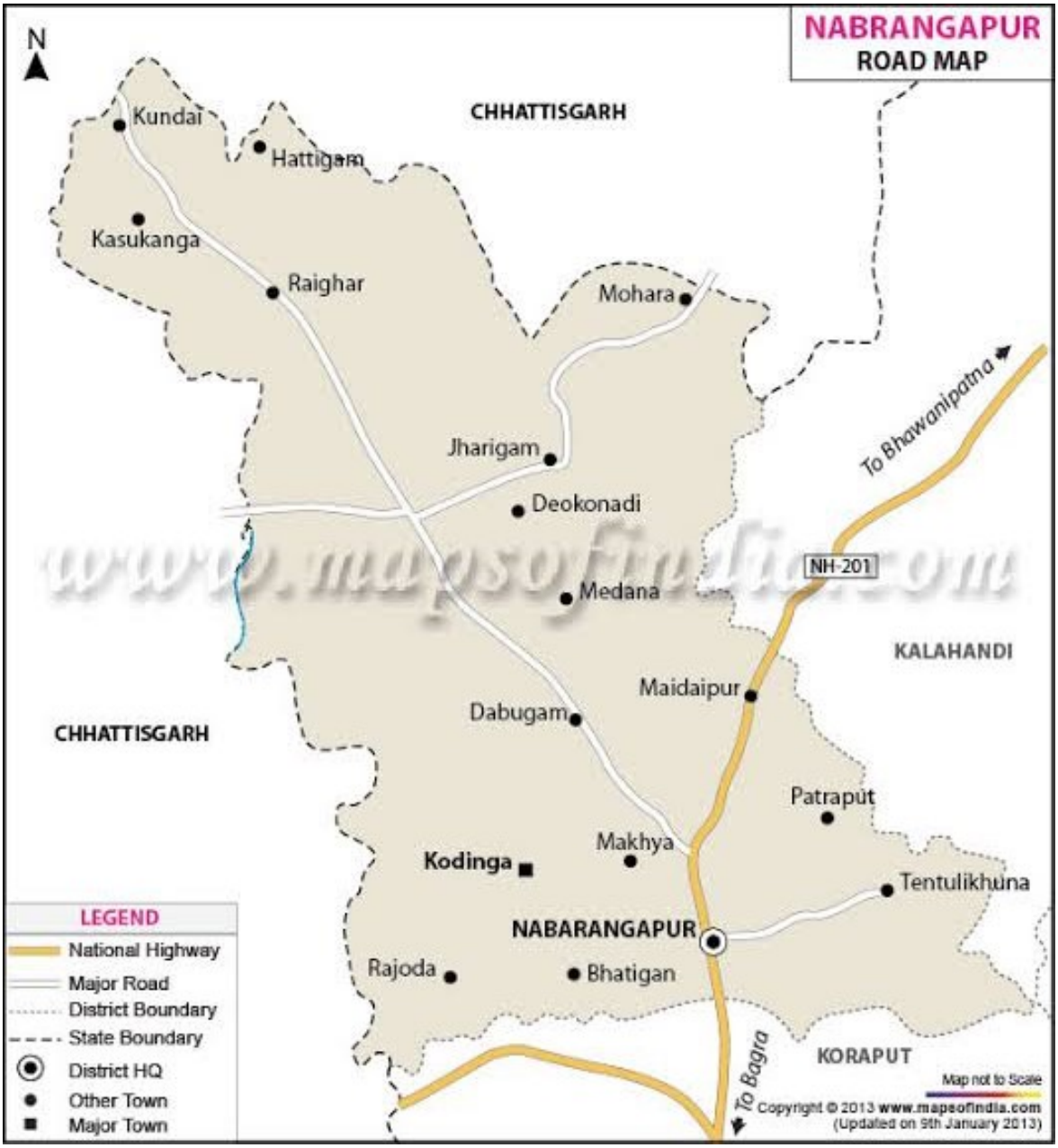


PREFACE

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 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

Situated in the greeneries of south-western Odisha, Nabarangpur district is a very spectacular one, functioning since 02.10.1992 (State Government Notification No.DRC- (44/93/14218/R). Prior to that, it was a vast sub-division of the erstwhile Koraput district. Its boundary stretches in the north to Raipur and west to Bastar district of Chhatisgarh. The east side of Nabarangpur touches Kalahandi and Rayagada districts and south to the Koraput district. The river Indravati forms the border between Nabarangpur and Koraput Districts. Nabarangpur District covers an area of 5294 sq km. The district is situated at $81^0 52'$ to $82^0 53'$ East longitudes and $19^0 09'$ to $20^0 05'$ North latitudes. The city of Nabarangpur is the district headquarters. Most of its population is tribal, and most of the land is forested and is located in the southwest corner of Odisha.

2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT.

Iron ore: Iron ore occurrence of the district is reported near Hirapur, in the Podagad hill range. The occurrence has Fe_2O_3 content varying from 55.80% to 66.72%. It is a deposit with 6 nos. of Banded Iron Formations (BIF) with possible reserve of 2.65 Million tonnes.

Limestone: Lime stone occurrences in the district of Nabarangpur are found at Teliguda, Binsuli Dongariguda, Kakadaguda, Siraguda, Chittabeda etc. These are mostly stromatolitic limestones with a resource of about 2.28 million tonne. The CaO content varies from 21.01 % to 45.13 %, MgO content 0.94 % to 19.72 %.

Quartz vein: Quartz vein occurrences have been reported from Debadhara, Pandaripakna, Sanakarka, Valiapada, Amadhara. The SiO_2 content varies from 94.46 % to 99.84 %.Five million tonne of Quartzite have also been reported from the area.

Chinaclay: Chinaclay occurrences have been located around Tangini, Debadhara, Chandandhara, etc. with a resource of about 1.33 million tonne. The Al_2O_3 content ranges between 21.74% to 29.22%. However, it is highly siliceous with SiO_2 content of 25.45% to 67.06%.

Calc tufa: Calc tufa occurrences have been reported from Jalaguda. The dimension is 40 m x 20 m x 15 m with a probable reserve of 0.018 million tonne. The CaO content varies from 47.60 % to 55.44%. SiO_2 content varies from 0.14 % to 4.34% MgO content of the occurrence is 0.26 % to 0.56%.

Gemstones: Transparent almandine and rhodolite garnets are recovered from the gravel beds encountered around Petfulla & Hatibadi localities. Green coloured beryl is found in the zoned pegmatites around Kendumunda . Agate is found in the form of bands around Kenduguda.

Copper: Incidence of copper mineralization in the form of veinlets varying in thickness from 0.2 cm to 1 cm is noticed in the calcareous rocks encountered around Teliguda and Varhaiguda. Copper mineralisations are identified as Malachite and Azurite.

Dimension / Decorative stones: Nabarangpur district has a rich store house of dimension / decorative stone occurrences. The most important locations are Tohra, Cheptiamba,Jamranda, Bhalujharan, Keopani, Kandasara, Samarchachara and Chacha. About 2,38,000 million tonne of dimension / decorative stone have also been reported from the district. Lithologically they are granites, amphibolite, dolerite, meta-basics & pink granites.

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.

3. GENERAL PROFILE

a. Administrative set up:

Sl No	Item	Unit	Magnitude
1	Location		
	Longitude	Degree	$81^0$52' to $82^0$53'East
	Latitude	Degree	19^0 09' to $20^0$05' North
2	Geographical area	Sq.Km.	5291
3	Sub-division	Numbers	1
4	Tahasils	Numbers	10
5	C D Blocks	Numbers	10
6	Municipalities	Numbers	2
7	NACs	Numbers	-
8	Police Stations	Numbers	13
9	Gram Panchayats	Numbers	189
10	Villages	Numbers	891
	Inhabited	Numbers	868
	Uninhabited	Numbers	23
11	Assembly constituencies	Numbers	4

b. Area and Population:

As per 2011 census, the total population of Nabarangpur district is 12,20,946 comprising above 11,33,321 rural and 87,625 urban population. The SC and ST population works out to 14.5 % and 55.8 % respectively. The district is predominantly inhabited by tribals like Kandha, Paraja, Soura etc. The density of population per sq.km is 231 with decadal growth of 19.0 for the district, as against population density of 270 person per sq.km and decadal growth of 14.0 for the state. It has 901 census villages (including 25 un-inhabited villages) covering 10 Blocks and 10 Tahasils. The literacy percentage of the district is 46.4 against 72.9 of the state.

c. Climate :

Nabarangpur district falls under East Coast Plains and Hills as per the GOI's Agro-Climatic Zonal Planning. Entire district except Dabugan block, falls under 'Eastern Ghat High lands'. Dabugan block falls under 'Western undulating lands'. The climate is subtropical to temperate. It is characterized by hot and dry summer, cool and humid monsoon and cold and dry winter. The district has different types of soils like red and laterite. The soil PH is neutral to alkaline and its salinity is normal. In 2011 Normal rainfall of the district was 1569.5 mm and the actual rainfall was 1432.8 mm.

d. Economy:

Predominantly an agricultural District, Nawarangpur has more than 90 per cent of its inhabitants depending on farming for their livelihood. The farming community largely depends on rains due to lack of irrigation facility. National Horticulture Mission is taking lots of steps to improve the cultivation of many fruits and vegetables in the district. Nabarangpur District is a treasure of many natural resources like iron, chlorite, mica, quartz etc. Heeraput village near Umerkote contains a fair deposit of hematite and limonite, each of which possesses about 60% iron. Similarly, Tentulikhunti area of Nabarangpur has fairly large deposits of granite. The north of Nabarangpur District, up to the boarder of Kalahandi, has rock beds covering layers of coarse white quartz. Tough industrially this district is not that developed, all these minerals found in the District sustains the various industries in other parts of the country.

e. Industry:

No. of MSME units set up	Investment (In Rs. crores)	Employment Generated				Employment of women
		SC	ST	General	Total	
1321	6819.08	1633	1512	1117	4262	20

f. Agriculture:

During the year 2017-18 the net area sown was 186 thousand hectares against 5356 thousand hectares of the state. The production of was as below:

Name	Paddy	Wheat	Maize	Mung	Biri	Kulthi	TilL	Groundnut	Mustard	Potatoes	Jute	Sugar cane
Production in 000 MT	466.14	0.23	219.94	4.06	3.00	0.05	0.21	11.42	0.46	0.00	6.00	295.19

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	26515	7369	4614	38498	151.03

g. Power:

consumption of electricity in Nawarangapur district upto 31st March 2011 was 65.341 Million Units & So far only 458 revenue villages are electrified as on February' 2011 which constitutes 52.3% to the total villages of the district.

h. Transport & Communication:

Railway route length (14-15) km	-
No of Rly stations and PH(14-15)	-
Forest road (17-18) km	136.46
National Highway (16-17) km	42.00
State Highway (17-18) km	122.59
Major district road (17-18) km	63.80
Other dist road (17-18) km	420.95
Rural road(17-18) km	1904.60
Inter village road (16-17) km	3822.17
Intra village road (16-17) km	2351.57

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	13 No
Beds facilities	360 No
Homoeopathic dispensaries	22 No
Ayurvedic dispensaries	16 No

j. Tourist places:

There are 18 nos. of tourist spots in this district, out of which 5 nos. of tourist centre such as Kelia Lord Siva Temple, Nabarangpur, Papdahandi, Podagada and Umerkote has been identified by Department of Tourism and Culture, Odisha. During 2011 the numbers of Domestic tourists were 364145 who visited the tourist spots of the district.

k. Forest areas:

Category of forest	Area in sq km
Reserve Forest	535.34
Unclassified Forest	0.07
Demarcated Protected Forest (DRF)	685.77
Undemarcated Protected Forest	0
Other forest under Revenue Dept	1241.55
Total	2462.73

l. Education:

Primary School (2017-18)	No. of Schools	1224
	Enrolment (No)	146516
	Pupil Teacher Ratio	30.11
Upper Primary School 2017-18	No. of Schools	624
	Enrolment (No)	77431
	Pupil Teacher Ratio	29.50
Gerneral College 2017-18	Junior	26
	Degree	8
Secondary School	No. of Schools	235
	Enrolment (No)	28916
	Pupil Teacher Ratio	34.22
Literacy Rate, 2011	Male	57.3
	Female	35.8
	Total	46.4

m. Culture & Heritage:

Mondei is the widely celebrated festival of Nabarangpur district. This festival is usually celebrated after the harvesting of crops. Most areas of Nabarangpur

District experience the first arrival of monsoon much before the rest of the state. While the rest of Orissa gets rain due to monsoon from the Bay of Bengal, the whole of Nabarangpur gets it straight from the Arabian Sea, through the Southwest direction.

4. GEOLOGY

Geologically the district exposes various lithostratigraphic unit having varied litho assemblages. The oldest unit is Bengpal Group, followed by khondalite Group, charnockite Group, lithounits and Indravati Group of Archaean to Neoproterozoic in age. Rocks of Bengpal Group consisting of quartz-mica schist, anthophyllite-grunerite schist, quartzite, banded magnetite quartzite, amphibolites and hornblende schist and pillowed metabasalt crop out over the western and southern part of the area. These rocks occur as small bands and lenses or as linear bands within granite. Quartzite belonging to khondalite Group of Eastern Ghat Supergroup occurs in the form of hills and ridges as well as low mounds amidst granite gneisses in the south eastern part of the area. The khondalite-charnockite association is exposed only along the eastern part of the district. Both basic as well as acid to intermediate charnockite are present in the area. Peninsular gneiss is found mainly in the eastern part of the area. Major rock of the area is unclassified granite and Tel granite of Palaeo Proterozoic age. The granites cover the entire pediplain and peneplain region of the northern part of the district while in the southern part these occur as high hills. Intrusives like pegmatite, quartz vein and dolerite dykes are present in the western and southwestern part of the area. The Indravati Group belonging to Chattishgarh Supergroup of rocks is composed of Tirathgarh and Jagdalpur Formation. Tirathgarh Formation consists of sandstone and conglomerate and Jagdalpur Formation is composed of grey purple shale and shale with limestone. Few occurrences of laterite of Cainozoic age have been observed in the area.

STRATIGRAPHY:

The geological succession in the district is as follows:

Age	Super Group	Group	Litho units
Cainozoic			Laterite
Meso to Neo Proterozoic	Chattishgarh Super Group	Indravati Group	Limestone stone with shale Grey purple shale Sandstone with conglomerate
Paleo-proterozoic			Dolerite/Gabbro Pegmatite/ vein quartz Unclassified granite
Archaean to Proterozoic	Eastern Ghat Supergroup	Migmatite Group	Granite gneiss
		Charnockite Group	Acid to intermediate charnockite Pyroxene granulite/basic charnockite
		Khondalite Group	Quartzite
Archaean		Bengpal Group	Quartz-mica schist; Anthophyllite- grunerite, schist; Quartzite; Dolerite/gabbro; Banded magnetite quartzite; Amphibolites/hornblende schist; Pillowed meta basalt

5. DRAINAGE AND IRRIGATION PATTERN.

The drainage of the district is mainly controlled by the river Indravati and its trubataries.

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

6. LANDUSE PATTERN

Sl No	Landuse	Area in '000Ha
1	Forest Area	246
2	Misc. trees & Grooves	13
3	Permanent Pasture	8
4	Culturable Waste	15
5	Land put to Non Agril Use	43
6	Barren & Unculturable Land	9
7	Current Fallow	0
8	Other Fallow	8
9	Net Area Sown	186
10	Mining	1
	Geographical Area	529

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	3.3	0.55	1.0	2.0
Maximum	10.4	4.25	5.20	7.90

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 45^0C in the summer and up to 7^0-8^0 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
Avg.	28.63	50.01	167.49	289.25	281.72	181.04	84.70	6.18	20.70	2.36	13.00	22.43	1147.52

9. DETAILS OF MINING LEASES OF ROAD METAL

Attached as Annexure I

10. DETAILS OF ROYALTY COLLECTED

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

Sl.No	Name Of Tahasil	2015-16	2016-17	2017-18	2018-19
1	**Kodinga**	273600	868990	800934	519921
2	**Dabugam**	0	0	0	0
3	**Nabarangpur**	0	0	0	0
4	**Nandahandi**	356767	318600	118145	0
5	**Jharigam**	0	0	360000	0
6	**Tentulikhunti**	221610	134750	190485	190485
7	**Ghodakhuntia**	0	0	0	0
8	**Umerkote**	0	0	0	0
	TOTAL	**851977**	**1322340**	**1469564**	**710406**

11. DETAILS OF PRODUCTION OF MINOR MINERAL

Yearwise Production of Road metal in cum

Sl.No	Name of Tahasil	2015-16	2016-17	2017-18	2018-19
1	**Kodinga**	2400	6848	7370	7865
2	**Dabugam**	0	0	0	0
3	**Nabarangpur**	500	500	500	500
4	**Nandahandi**	3478	3622	3766	3920
5	**Jharigam**	10131	10381	10381	8204

6	**Tentulikhunti**	1250	1250	1250	1250
7	**Ghodakhuntia**	0	0	0	0
8	**Umerkote**	0	0	0	0
TOTAL		**17759**	**22601**	**23267**	**21739**

12. MINERAL MAP OF THE DISTRICT

Attached as Plate No 4.

13. LIST OF LOI HOLDERS ALONG WITH VALIDITY

Attached as Annexure II

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of road metal/buildingstone/blackstone/white stone is 23,90,135 cum which may increase after detail investigation.

Details of the potential areas submitted as Annexure III.

15. 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.

16. USE OF MINERAL

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

17. DEMAND & SUPPLY OF THE MINERAL

The tentative annual demand is to the tune of 4 lakh cum of road metal and is mainly supplied from different tahasils of the district and adjoining districts of Koraput and Kalahandi.

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

Attached as Plate No 5.

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

Not applicable

20. DETAILS OF ECO-SENSITIVE AREA

Not applicable.

21.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 the mines.

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 the mining 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 NOx , 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 actives 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 it's 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.

22. 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 diction 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 to 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 checks 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 in to 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, excavtion 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.

23. 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 retaning 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.

24. 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 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 savage 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.

25. 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, earmuffs ets are to be provided to mine workers as per Mines Rules. All operators and mechanics are to be trained to handle fire fighting equipments.

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

26. 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.

27. ANY OTHER INFORMATION

Nil

ANNEXURE I

ROAD METAL/ BLACKSTONE/WHITESTONE/LATERITE/ MORRUM/EARTH FOR ROAD CONSTRUCTIO/EARTH FOR BRICK MAKING SAIRATS ALREADY LEASED OUT AND EXECUTED

(TO BE FILLED BY TAHASILDARS FOR RESPECTIVE TAHASILS [SEPARATE SHEET FOR DIFF MINERAL])

Sl. No.	Name of Tahasil	Name of Minor Mineral	Name of village	Name of lessee	Address & contact No of lessee	Mining lease grant order No & date	Period of QL		Date of commencement of minig operation	Status (working/ non-working/Temp working for depatch)	Captive or Non-captive	Lt No & date of grant of EC	Location of Resource (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Method of mining	Area leased for mineral concession (in sq m)	Mineable mineral potential as per approved mining plan (in cum)
							From	To								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Kodinga	Motigam Stone quarry-II	Motigam Dated.05.08.2017	Amjad Khan	Kosagumuda	Lette No.718/2019 Dated.10.04.2017	2016-17	2020-21	01.06.2016	Working		718/IX-03/2017 Dated.10.04.2017	Khata No-654 Plot No-5262			9100
2	Kodinga	Motigam Stone quarry-III	Motigan Dated.21.10.2017	Krushna Chabdra Nayak	Badamada		2016-17	2020-21	01.06.16			716/IX-03/2017 Dated.10.04.2017	Khata No-654 Plot No-3119			18332
3	Kodinga	Sanasirsiaguda Stone quarry-II	Sanasirsiaguda Dated.07.09.15	Amjad Khan	Kosagumuda		2015-16	2019-20	30.09.14	Working		4142/15 Dated.17.08.2015	Khata No-125 Plot No-653			6000
4	Kodinga	Sanasirsiaguda	Sanasirsiaguda Dated.0	Dayaram Patel	Kondgam		2015-16	2019-20	30.12.14			739/16 Dated.30.01.201	Khata No-125 Plot			6000

		Stone quarry-III	7.04.16									6	No267/1			
5	NGPUR	Baghseuni Stone Quarry	Baghseuni	Sidheswar Panigrahi	Badam Street, Nabarangpur[(9437338654)	1092/18.05.16 (DIEEA)	2015-16	2019-20	Yet not operated	Non-Working	Non Captive	1093/18.05.16	Mouza-Baghseuni, Khata No.608, Plot No.1670, Ac.0.38, Patharbarj	---	1537 Sq.KM	-
6	Nandahandi	Sindhiguda Stone Quarry	Sindhiguda	Sri Bhagaban Nayak,	At-Dengato-taguda	1465, dt 8.10.2015	2015-16	2019-20	1.9.2016	working	Non-captive	1084, dt.18.5.16	Khata NO.416, Plot No.401 Vill-Sindhiguda		39537.79	172668
7	Nandahandi	Belgaon Stone Quarry	Belgaon	Sri Sumanta Nayak	At-Dengato-taguda	1465, dt 8.10.2016	2015-16	2019-20	1.09.2016	working	Non-captive	1082, dt 18.5.16	Khata NO.374, Plot No.729 Vill-Sindhiguda		2751.86	755045
8													Plot No.731		40994.656	
9													Plot No. 788		2913.74	
10	Nandahandi	Nuagam-3 Stone Quarry	Nuagam	Rajani Ranjan Dash,	At-Dahana	1465, dt 8.10.2017	2015-16	2019-20	1.09.2016	working	Non-captive	1081, dt 18.5.16	Khata No.417, Plot No.1575 Vill-Nuagaon		8012.776	11633
11	Jharigam	Stone quarry	Tarabeda	Sibaram Satpathy	Chitabeda	10.04.17	2015-16	2019 20	20.07.17	Working	Non-captive	Lno.708/Dt.10.04.17	Kh.No.81, Pl.No.565		4.2307 hac.	15000 Cum.
12	Jharigam	Stone quarr	Jambaguda	No	---	10.04.17	2015-16	2019 20	No	No	No	Lno.710/Dt.10.0	Kh.No.95,		2.17 hac.	8300 Cum.

		y										4.17	Pl.No.1032			
13	Jharigam	Stone quarry	Kutrichapar	No	---	---	---	---	No	No	No	---	Kh.No.200, Pl.No.955		0.651 hac.	6000 Cum.
14	Jharigam	Stone quarry	Bhejiguda	No	---	---	---	---	No	No	No	---	Kh.No.108, Pl.No.437		19.627 hac.	24000 Cum.
15	Jharigam	Stone quarry	Kenduguda-I	No	---	---	---	---	No	No	No	---	Kh.No.27, Pl.No.136		0.449 hac.	6000 Cum.
16	Jharigam	Stone quarry	Kenduguda-II	No	---	---	---	---	No	No	No	---	Kh.No.27, Pl.No.153		0.388 hac.	1800 Cum.
17	Jharigam	Stone quarry	Kenduguda-III	No	---	---	---	---	No	No	No	---	Kh.No.27, Pl.No.135		0.259 hac.	2450 Cum.
18	Jharigam	Stone quarry	Santemara	No	---	---	---	---	No	No	No	---	Kh.No.57, Pl.No.645,653		26.696 hac.	15000 Cum.
19	Te**ntulikhunti**	Stone Quarry	Bharanpur	M/S Premex Sri Prava Ranjan Mishra	Ekamra Villa IRC Village, Nayapali, BBSR	L.No.1409/15 05.08.2015	2015-16	2019-20		Non-Working	Captive		Khata: 509 Plot NO. 744 858 703		124266 Cum (Mineable reserve)	
20	Te**ntulikhunti**	Stone Quarry	Kenduguda	M/S Premex Sri Prava Ranjan Mishra	Ekamra Villa IRC Village, Nayapali, BBS	L.No.1408/15 05.08.2015	2015-16	2019-20		Non-Working	Captive		Khata: 84 Plot NO. 39		116625 Cum (Mineable reserve)	

					R											
21	Te**ntulikhunti**	Stone Quarry	Panasa Padar	P.Nagaratnam W/o: P.Trinath Naidu	At/po: Charamula	05.05.2014	2014-15	2018-19		Non-Working	Captive		Khata NO.431 Plo: 1482		158.80 Cum	
22	Te**ntulikhunti**	Stone Quarry	Kongra	Dasa Majhi S/o: Hari Majhi	At: Bijragud a Po: Kukudabai	NO.870 Date: 10.06.2014	2014-15	2018-19		working	Captive		Khata NO.792 Plt No.1108		8750 Cum	

ANNEXURE II

SOURCES ALREADY AUCTIONED BUT NOT EXECUTED (LOI ISSUED)

Sl. No.	Name of Tahasil	Name of village	Name of Minor Mineral	Name of the Successful auction holder	Address & Contact No of Letter of Intent Holder	Letter of Intent Grant Order No. & date	Validity of LoI	Use (Captive/Non-Captive)	Location of the Source recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Area of the mineral potential patch (in sq m)	Average height of potential patch (in m)	Mineable mineral potential (in cum)
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Kodinga	Motigam	Motigam Stone quarry -II	Amjad Khan	Kosagumuda	Lette No.718/2019 Dated.10.04.2017	Motigam		Khata No-654 Plot No-5262			9100
2	Kodinga		Motigam Stone quarry -III	Krushnachandra Nayak	Bad amada		Motigam		Khata No-654 Plot No-3119			18332
3	Kodinga		Sanasirsiagu da Stone quarry -II	Amjad Khan	Kosagumuda		Sana Sirsiagud a		Khata No-125 Plot No-653			6000
4	Kodinga		Sanasirsiagu da Stone quarry -III	Dayaram Patel			Sana Sirsiagud a		Khata No-125 Plot No267/1			6000
5	NGPUR	---	Chakachhapar, 2.913	Sidheswear Panigrahi	Badam Street, PO/Dist-Nabrangpur,	L.No.2353, Dt. 03.05.2015	5 Years	Non Captive	K.No.252, Plot No.160, 135, 139	29137 Sq.M	-	2400 Cum

			Hac		8018572654							
6	Tentulikhunti	Bharanpur	Stone Quarry	M/S Premex Sri Prava Ranjan Mishra	Ekamra Villa IRC Village, Nayapali, BBSR	L.No.1409/15 05.08.2015	2015-16 to 2019-20 Period of Concession		Khata: 509 Plot NO. 744 858 703	824Sqm (Mineable reserve)	149 (Mineable reserve)	124266 Cum (Mineable reserve)
7	Tentulikhunti	Kendu guda	Stone Quarry	M/S Premex Sri Prava Ranjan Mishra	Ekamra Villa IRC Village, Nayapali, BBSR	L.No.1408/15 05.08.2015	2015-16 to 2019-20 Period of Concession		Khata: 84 Plot NO. 39	155 Sqm (Mineable reserve)	75 (Mineable reserve)	116625 Cum (Mineable reserve)
8	Tentulikhunti	Panaspadar	Stone Quarry	P.Nagaratnam W/o: P.Trinath Naidu	At/po: Charamula	05.05.2014	2014-15 to 2018-19		Khata NO.431 Plo: 1482	278.6 SqM	60M	158.80 Cum
9	Umerkote	---	Malbeda Stone Quarry (2.348 Hc.)	Inderjit Yadav S/o-Kaluram Jadav	Umerkote	2508/01.10.15	2015-16 to 2019-20	0.2.348 Hc.	attached	0.2.348 Hc.	2.5 Meter	6409
10	Umerkote	---	kurshi(0.243 Hc.)	Bhaskar Patra S/o-Satya Narayan Patra	Umerkote	2610/01.10.15	2015-16 to 2019-20	0.243 Hc	attached	0.243 Hc	2.5 Meter	9535

ANNEXURE III

POTENTIAL ROAD METAL/ BLACKSTONE/WHITESTONE SOURCES OF THE DISTRICT

Sl. No.	Name of Tahasil	Name of village	Status	Name of Minor Mineral	Location of the Source (Total Hillock) recommended for mineral concession (GPS co-ordinates or Khata & Plot No) (Sketch map to be attached)	Area of the mineral potential patch (in sq m)	Average height of potential patch (in m)	Mineable mineral potential (in cum)
1	2	3	4	5	6	7	8	9
1	Kodinga	Sanasirsiaguda	LOI	Sanasirsiaguda Stone quarry-II	Khata No-125 Plot No-653			6000
2	Kodinga	Motigam	LOI	Motigam Stone quarry-II	Khata No-654 Plot No-5262			20000
3	Kodinga	Motigam	LOI	Motigam Stone quarry-III	Khata No-654 Plot No-3119			20000
4	Kodinga	Sanasirsiaguda	LOI	Sanasirsiaguda Stone quarry-III	Khata No-125 Plot No267/1			20000
5	Kodinga	Nuaguda	New Source	Nuaguda Stonequarry-II	Khata No -118 Plot No - 604	Ac 0.40		2500
6	Kodinga	Nuaguda	New Source	Nuaguda Stonequarry-I	Khata No -118 Plot No - 638	Ac 7.50		20000
7	NGPUR	Baghseuni	LOI	Bagnseuni stone quarry, 0.153 Hc	K.No.608, Plot No. 1670,	1537 Sq.M	-	500 Cum
8	NGPUR	Chakachhapar	LOI	Chakachhapar stone quarry, 2.913 Hac	K.No.25, Plot Nol 135,139,160	29137 Sq.M	-	2400 Cum
9	Nandahandi	Dhandra	New Source	Dhandra Stone Quarry-1	Dhandra, Khata No.927(AAA), Plot No.576	1.675 Ha	6m	66149
10	Nandahandi	Dhandra	New Source	Dhandra Stone Quarry-II	Dhandra, Khata No.927(AAA Plot No.503	0.509 Ha	6m	4074
11	Nandahandi	Dhandra	New Source	Dhandra Stone Quarry-III	Dhandra, Khata No.927(AAA Plot No.563	1.197 Ha	6m	44452
12	Nandahandi	Belgaon	New Source	Belgaon Quarry-I	Belgam, Khata No.374 Plot No.897	4.699 Ha	6m	81738

13	Nandahandi	Belgaon	New Source	Belgaon Quarry-II	Vill-Belgam, Khata No.374, Plot No.802	1.983 Ha	6m	76440
14	Nandahandi	Sindhiguda	New Source	Sindhiguda Stone Quarry	Khata NO.416,Plot No.401 Vill-Sindhiguda	3.953 Ha	6m	419603
15	Nandahandi	Belgaon	New Source	Belgaon Stone Quarry	Khata NO.374,Plot No.729, 731, 788 Vill-Sindhiguda	4.666 ha	6m	390857
16	Nandahandi	Nuagam	New Source	Nuagam-3 Stone Quarry	Khata No.417, Plot No.1575 Vill-Nuagaon	0.801 ha	6m	11633
17	Tentulikhunti	Kongra	New Source	Stone Quarry	Khata: 792 Plot: 1108	37415.75	790	145
18	Tentulikhunti	Bharanpur			509/744, **858**, **703**			20000
19	Tentulikhunti	Kamata			551/1860, 1861			20000
20	Tentulikhunti	Lakdipalla			295/566			20000
21	Tentulikhunti	Kamata			548/1270			20000
22	Tentulikhunti	Kamata			551/1259			20000
23	Tentulikhunti	Bejuguda			214/345, 357			
24	Tentulikhunti	Gotiput						20000
25	Tentulikhunti	Pk.B. Padar						20000
26	Tentulikhunti	Pj.B.Padar						20000
27	Tentulikhunti	Pj.B.Padar						20000
28	Tentulikhunti	Pj. Deopalli						20000
29	Tentulikhunti	Pj. Deopalli						20000
30	Tentulikhunti	Tagapali						20000
31	Tentulikhunti	Amalabhatta						20000
32	Tentulikhunti	Amalabhatta						20000
33	Tentulikhunti	Amalabhatta						20000
34	Tentulikhunti	Jhariguma						20000
35	Tentulikhunti	Merei						20000
36	Tentulikhunti	Kukudabai						20000
37	Tentulikhunti	Kukudabai						20000
38	Tentulikhunti	Kukudabai						20000
39	Tentulikhunti	Kukudabai						20000

40	Tentulikhunti	Kenduguda						20000
41	Tentulikhunti	Beheraguda						20000
42	Tentulikhunti	Karlichuan						20000
43	Tentulikhunti	Panasapadar						20000
44	Tentulikhunti	Dangasil						20000
45	Tentulikhunti	Khuntipadar						20000
46	Tentulikhunti	Bharanpur						20000
47	Tentulikhunti	Kamata						20000
48	Tentulikhunti	Lakdipalla						20000
49	Tentulikhunti	Kamata						20000
50	Tentulikhunti	Kamata						20000
51	Tentulikhunti	Bejuguda						20000
52	Tentulikhunti	Gotiput						20000
53	Tentulikhunti	Pk.B. Padar						20000
54	Tentulikhunti	Pj.B.Padar						20000
55	Tentulikhunti	Pj.B.Padar						20000
56	Tentulikhunti	Pj. Deopalli						20000
57	Tentulikhunti	Pj. Deopalli						20000
58	Tentulikhunti	Tagapali						20000
59	Tentulikhunti	Amalabhatta						20000
								20000
60	Tentulikhunti	Amalabhatta						20000
61	Tentulikhunti	Jhariguma						20000
62	Tentulikhunti	Merei						20000
63	Tentulikhunti	Kukudabai						20000
								20000
64	Tentulikhunti	Kenduguda						20000

65	Tentulikhunti	Beheraguda						20000
66	Tentulikhunti	Karlichuan						20000
67	Tentulikhunti	Panasapadar						20000
68	Tentulikhunti	Dangasil						20000
69	Tentulikhunti	Khuntipadar						20000
70	Ghodakhunta	Menjor-I	New Source	Stone 4.046 HC.	**K.no 94 and plot no 1232**	**40000**	**6**	**41492**
71	Ghodakhunta	Menjor-II	New Source	Stone 2.023 HC.	**K.no 94 and plot no 1233**	20000	6	20746
72	Ghodakhunta	Menjor-III	New Source	Stone 1.829HC.	**K.no 94 and plot no 1234**	18080	6	18878
73	Ghodakhunta	Menjor-IV	New Source	Stone 2.804HC.	**K.no 94 and plot no 1234**	27720	6	29044
74	Ghodakhunta	MULIAGUDA	New Source	Stone 1.303HC.	**K.no 15 and plot no 57**	###	5	13484

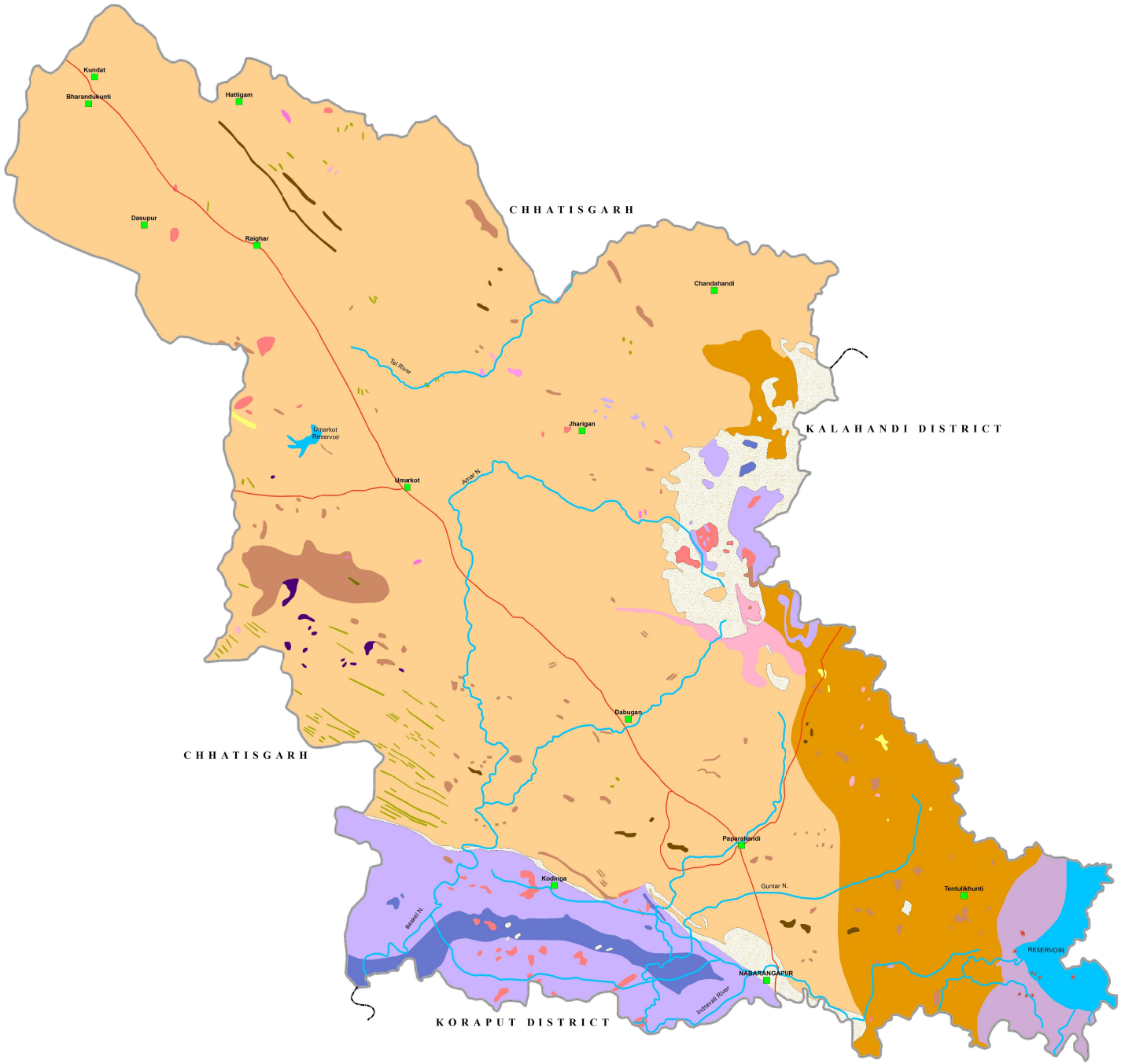
MINERAL MAP OF NABARANGAPUR DISTRICT

SCALE :- 1:150,000

Kilometers

0 2.5 5 10 15 20 25

PLATE NO-4



Legend

- Block Headquarter
- District Boundary
- NH Road / SH Road/Major District Road
- Railway Line
- River/Lake/Waterbody
- Acid to intermediate charnockite
- Amphibolite/hornblende schist
- Anthophy llite-grunerite schist
- Banded magnetite quartzite
- Dolerite / Gabbro
- Dolerite/Gabbro
- Granite gneiss
- Grey purple shale
- Laterite
- Limestone with shale
- Pegmatite/Vein quartz
- Pillowed metabasalt
- Pyroxene granulite/basic charnockite
- Quartz-mica schist
- Quartzite
- Sandstone with conglom erate
- Tel Granite
- Unclassified granite

LEASE/POTENTIAL MAP OF ROAD METAL/BUILDING STONE/BLACK STONE/WHITE STONE IN NABARANGAPUR DISTRICT

SCALE :- 1:110,000

Kilometers

0 2.5 5 10 15 20 25 30 35

PLATE NO-5

82°0'0"E 82°15'0"E 82°30'0"E 82°45'0"E 83°0'0"E

N.A.0.0.20° N.A.0.5.61 N.A.0.0.61 N.A.5.1.61

Kundat
Bharandukunti
Hattigam
Dasupur
Raighar
Chandahandi
Tel River
Umarkot Reservoir
Jharigan
Umarkot
Amar N.
Dabugan
Paparalandi
Kodinga
Guntar N.
Tentulikhunti
Baligi N.
RESERVOIR
NABARANGAPUR
Indravati River

CHHATISGARH

KALAHANDI DISTRICT

CHHATISGARH

KORAPUT DISTRICT

N
W E
S

Legend

- Block Headquarter
- District Boundary
- NH Road/SH Road/Major District Road
- River/Lake/Waterbody
- Lease/Potential Area for Road Metal/Building Stone/Black Stone/White Stone