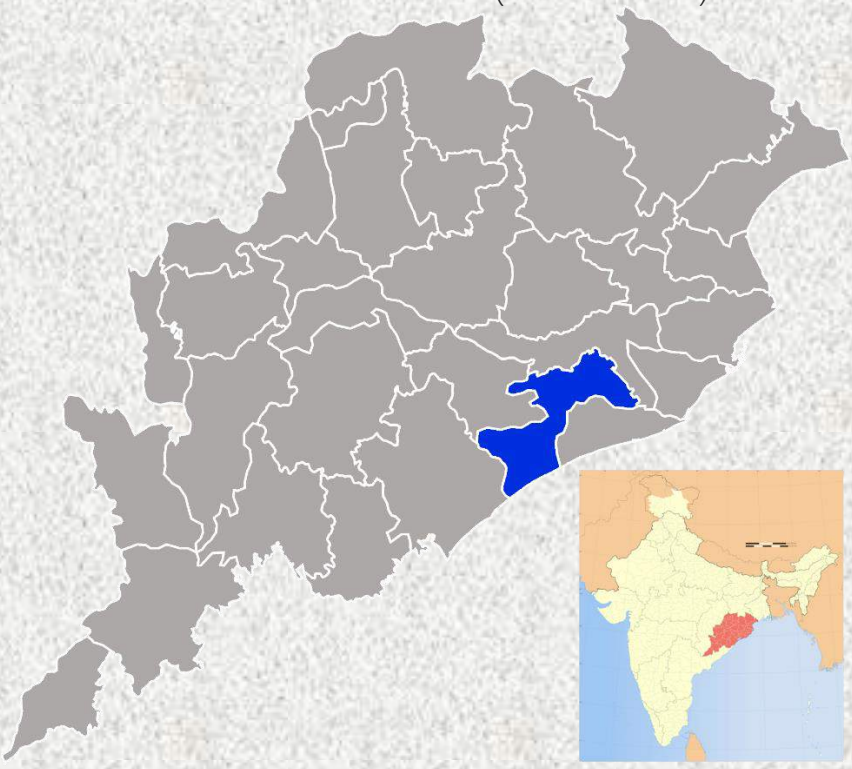
DRAFT

DISTRICT SURVEY REPORT (DSR) OF KHORDHA DISTRICT, ODISHA FOR DECORATIVE STONE MINING

As per Notification No. S.O. 141(E),15th January,2016 & S.O. 3611(E), 25th July, 2018, New Delhi ,MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE (MoEF & CC)



COLLECTORATE KHORDHA
OCTOBER-2024

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PREFACE

The Erstwhile Ministry of Environment and Forests(MoEF), (the Government of India, made Environmental Clearance (EC) for mining of minerals mandatory through its Notification of 27th January, 1994 under the provisions of Environment Protection Act, 1986. Keeping in view the experience gained in environmental clearance process over a period of one decade, the Ministry came out with Environmental Impact Notification, SO 1533 (E), dated 14th September 2006. The Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India had amended the said vide notification S.O. 141(E) Dated 15th January, 2016. Now again Ministry of Environment, Forests & Climate Change (MoEF & CC), Government of India amended the notification S.O. 141(E) Dated 15th January, 2016 vide S.O. 3611(E) Dated 25thJuly,2018. It has been made mandatory to obtain environmental clearance for different kinds of development projects as listed in Appendix-X of the Notification. 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 laterite stone mining has been prepared in accordance with Clause II of Appendix X of the notification. Every effort has been made to cover laterite stone mining locations, future potential areas and overview of laterite 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 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 for preparation for district survey report. 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.

OBJECTIVES

The main objective of the preparation of District Survey Report is to ensure the following

- Identification of mineral wealth in the district.
- Identification of areas of Minor Mineral having the potential mineral where mining can be allowed.
- Identification of areas of proximity to infrastructural structures and installations where mining should be prohibited.

01. INTRODUCTION.

Khordha is one of the new districts carved out of the former Puri District on 1st April, 1993. The other new district carved out of Puri was Nayagarh. In the year 2000, the district's name was changed from Khordha to Khordha. The district headquarters is located in Khordha Town, formerly known as Jajarsingh or Kurada, (kurada means foul mouthed). The old milestones of the area had the word KURADA which have now been white washed and the word "Khordha" is written on them. About the origin of the word Khordha (as earlier called) it is also told that the word is derived from two Odia words- "Khura" and "Dhara", meaning razor and edge, probably because the soldiers of Khordha were as sharp and dreadful as the edge of a razor. Neither of the two origins, however, can be called authentic.

The history of Khordha depicts that in early days the area was densely populated by the Savaras, a tribal community who are still found in some pockets of the district. Over the period, however, its history is found closely associated with the history of Puri district. About the middle of the 10th century A.D. the rule of Bhoumakars was supplanted by that of the Somavamsis. Yayati-2, Mahasiva Gupta was the first Somavamsi king to occupy eastern Odisha. He and his son Udyot Mahabhava Gupta were great temple builders and the Lingaraj temple at Bhubaneswar has been attributed to them. The last king of this dynasty was Karnadeva, who was defeated and killed by Chodaganga Deva about 1110 A.D. Khordha ascended to eminence and glory at the time of the first King of Khordha dynasty Ramachandra Deva who selected Khordha as the capital of his kingdom in the later part of 16th Century. The reason was its strategic location as Khordha was guarded by Barunei Hill on one side and dense forest on the other. Despite repeated onslaughts from Maratha and Muslim cavalry, it managed to maintain the glory of its independence of royal fort till 1803. Therefore, the Royal Fort is spelt with reverence as "Khordhagada" and is referred as the "last independent fort" which remained free from the clutches of East India Company for a long period (from 1757,the Battle of Plassey after which the East India Company established company rule in Bengal till 1803). However, Khordha came fully under occupation of East India Company in 1827. The delay was a consequence of the strong revolts of the Paikas of Khordha that greatly affected the Company administration in this region. History witnessed the brawn and bravery of the Paikas of Khordha during the Paika Rebellion of 1817-18 under the command of Bakshi Jagabandhu.

This resistance movement of Odias was recorded by the British historians as "Paik Rebellion", which was in fact, the first Independence war of India. It originated in Khordha soil and spread to other parts of Orissa in 1817 much prior to the outbreak of the historical Sepoy Mutiny of 1857. Mr. Walter Ewer recorded his views in his report of 1818, excerpt of which reads as: "Now there is no need of assistance of Paiks at Khordha. It is dangerous to keep them in British armed forces. Thus they should be treated and dealt as common Ryots and land revenue and other taxes should be collected from them. They must be deprived of their former Jagir lands (rent free lands given to the Paiks for their military service to the state)" Within a short period of time the fame of Paiks was forgotten. But even now where the Paiks are living as a group they have retained their previous aggressive nature. The British armed force advanced from Madras on 8th September 1803 and arrived at Puri on

16th September enroute Manikapatna. With the help of Fate Mohemmed of Malud (recruited by the Marathas as watchman) Colonel Harcourt reached Narasinghpatna after two days crossing the Chilika lake. The Britishers did not face any resistance while occupying Narasinghpatna and Puri. After occupying Jagannath temple of Puri, Colonel Harcourt proceeded to Cuttack crushing the feeble resistance of Marathas near Atharnala and Jagannath Sadak. The vanquished Maratha soldiers fled for life to Khordha jungle. Colonel Harcourt arrived at Cuttack enroute Barangagada crossing the river Kathajodi.

Under the able command of Captain Morgan a detachment of British troop arrived at Jampada of Balasore sea shore by ship and occupied the Maratha fort. Another detachment of British troop reached at Balasore enroute Medinipur (now Midnapore) under the command of Colonel Forgusson and joined the previous troop stationed at Balasore. The joint troops proceeded from Balasore to Cuttack and joined the soldiers of Colonel Harcourt and occupied the Barabati fort. In this way Odisha fell to the East India Company in the year 1803. Thus the Company became the ruler of most parts of India except the territory of Khordha.

In 1804 AD the English soldiers seized the fort of Khordha for three weeks and razed it to the ground by canon firing. They proclaimed Raja Mukund Dev-II as rebel, dethroned him and made him a prisoner of war. Raja Mukunda Dev-II submitted an appeal to the British authority stating that as per the instruction of Jayee Rajguru he had fought with them and he was in no way responsible for the battle. Considering the appeal the Britishers pardoned him and offered him the responsibility of managing the temple of Jagannath. He was also ordered to remain at Puri. Jayee Rajguru being the kingpin of Khordha Rebellion of 1804 was sentenced to death and was hanged on a banyan tree at Baghitota of Medinipur. The gruesome murder of Jayee Rajguru by the Company authority caused much discontentment among the Paiks of Khordha who thereafter under Bakshi Jagabandhu Bidyadhar rebelled against the Company. Khordha was ultimately annexed to British territory in 1827, after the rebellion was fully crushed.

Khordha is an important centre of handloom industry. The lungi, Gamchha & Sarees produced here and popular outside Odisha for its quality. There are a few Hindu mathas in Gada Khordha i.e. the old fort area of the town. The civic affairs of the town are managed by Khordha Municipality.

The erstwhile Puri district was divided to form three new districts in April 1993 and as a result Khordha district was formed taking Khordha & Bhubaneswar sub-divisions of Puri district.

Khordha district is located in the south-eastern part of Odisha, adjoining the coastal area. It occupies an area of about 2887.5 sq km. The district is bounded by latitudes 19° 40' to 20° 25' and longitudes is 84° 56' to 86° 05' and occupies parts of degree sheets 73 H, L, P & 74 I,A,E. It is surrounded by Cuttack district to the north, Ganjam and part of Puri district to the south, Puri district to the east and Nayagarh district to the west. Bhubaneswar – Vizayanagaram segment of the East-coast railway runs through the district along NE –SW direction. National Highway No. 16 running almost sub-parallel to the East coast railway line, passes through Khordha, the district headquarters and Bhubaneswar the state capital Khordha is about 30 km from Bhubaneswar and 12 km from Jatani, the nearest railway station of East coast railway. It has an average elevation of 75 m (246ft).

02. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT.

Khordha district is indeed rich in minor minerals, which plays a vital role in supporting infrastructure development. The availability of minor minerals like stone, laterite, moorum, ordinary earth and sand sources contribute significantly to the local economy and construction industry. The artisan grade of khondalite does indeed occur in various parts of Khordha district. This mineral is known for its quality and is utilized in different applications, including construction and decorative purposes. The geology of Khordha provides a diverse range of materials that meet the demands of both residential and commercial construction.

The implementation of the i4ms system for minor minerals has brought about a more systematic approach to monitoring and managing these resources. Utilizing Drone surveys can improve operational efficiency by offering precise mapping and resource assessments, which aid in planning and management. The effective management and monitoring of these resources, along with the integration of technology, can significantly enhance sustainable development in the region, benefiting both the economy and the community.

Mineral Resources Overview:

- Laterite: Laterite occurs as capping and develops by intensive weathering of underlying parent rock. These are porous, vesicular, concretionary often forms a hard crust, and can reach thicknesses of up to 10 meters or more.
- Road Metal/Stone: Road metals typically consist of durable and hard rock types that are suitable for construction and road building. it constitutes granite gneiss, charnockite, pyroxene granulite, khondalite and its variants which are invariably fractured jointed and associated with hairline cracks and other microstructures.
- Morrum: Association of moorum with laterite is predominantly observed in the district. There are few morrum sources identified and proposed. Mainly these are used in filing up the project sites, laying out railway tracks etc.
- Sand: Daya, Bhargabi, Kuakhai and Kushabhadra rivers, emerging as distributaries from Mahanadi River system, drain southerly through the eastern flank of the district and merge either with the Chilika lake or with the Bay of Bengal. The river system that carried sands into coasted depressions with their tributaries.
- Decorative Stone Lease:

  Existing Sources:

  1.Narangarh Khondalite

  Holder: M/s OMC Ltd.

  Lease Area: 4.672 hectares

  Commencement Date: 01.12.2020

  Lease Period: 30 years

  Current Status: Working

2. Tutumberpalli Granite, Lessee Sri Maa Granites

Lease Area: 3.399 hectares

Commencement Date: 08.04.2016

Lease Period: 20 years

Current Status: Mining operations are halted, pending Consent to Operate from the Odisha State Pollution Control Board (OSPCB).

Prospecting License Sources:

3.Source Name: Malipada Khondalite Block, Khordha

Area: 4.641 hectares

4. Source Name: Deuli Khondalite Block, Begunia

Area: 14.152 hectares

5. Source Name: Narangarh Khondalite Block. Khordha

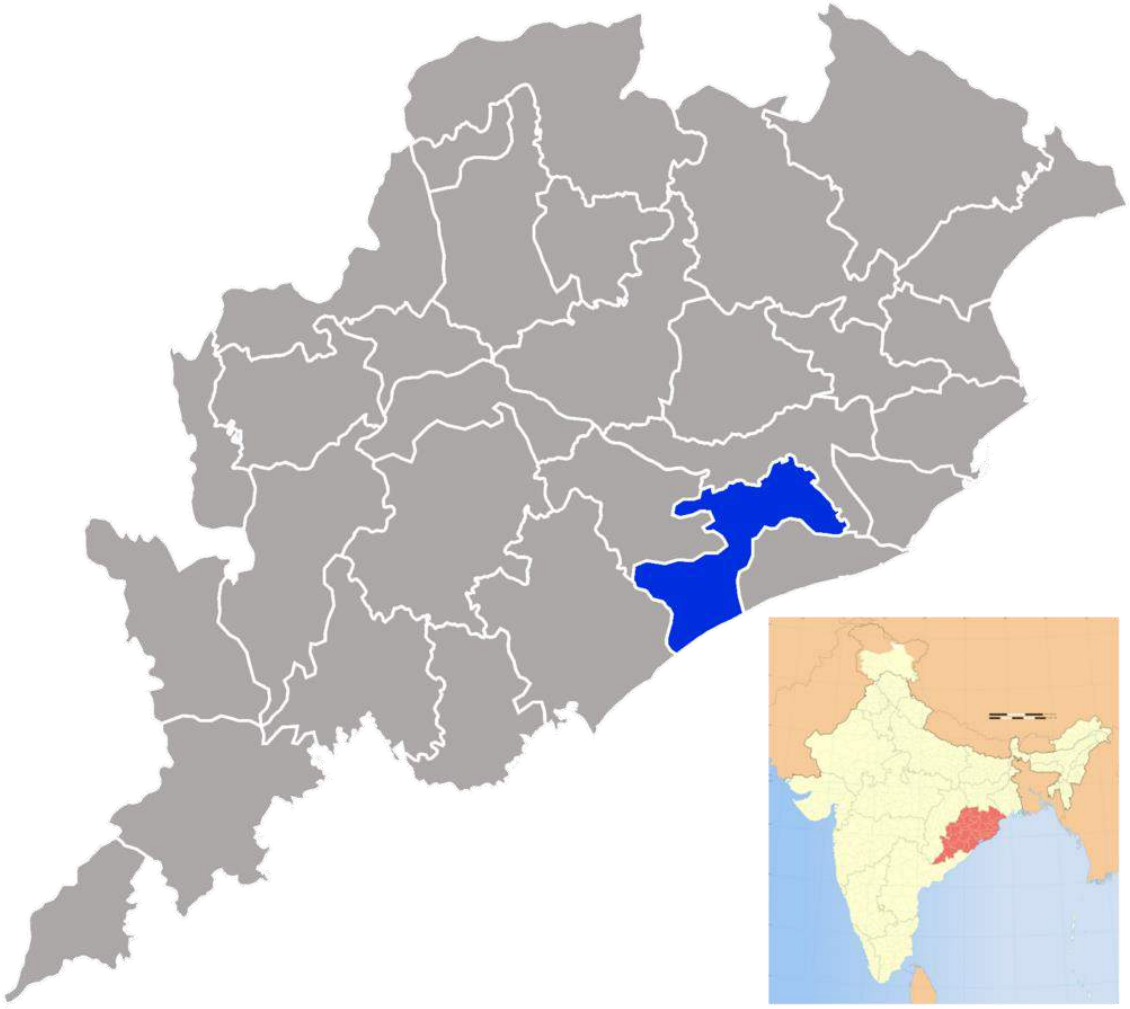
Area: 2.215 hectares

6.Proposal: Routpada & Kurumapada Artisan grade stone (khondalite)

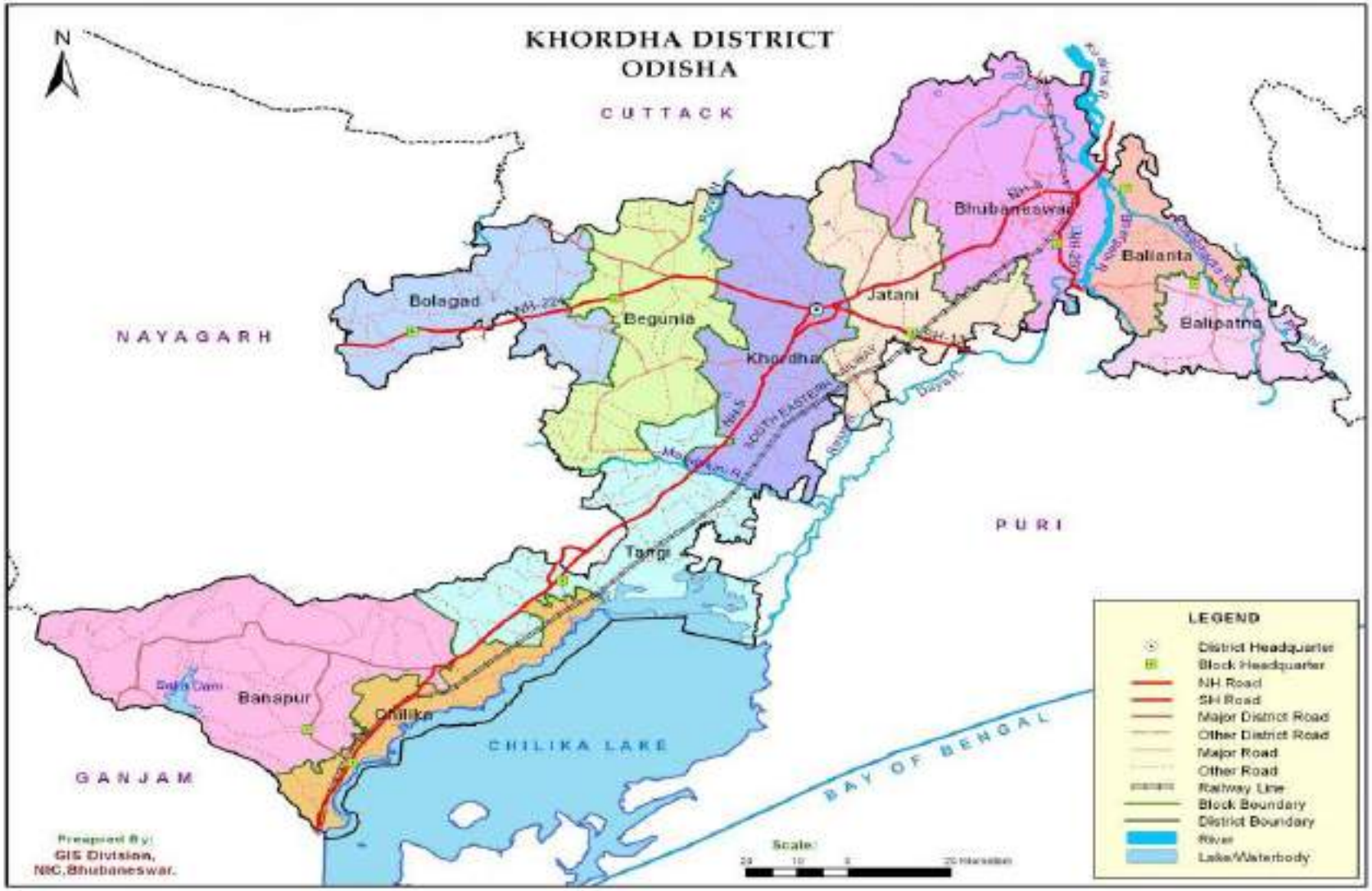
03. GENERAL PROFILE OF THE DISTRICT.

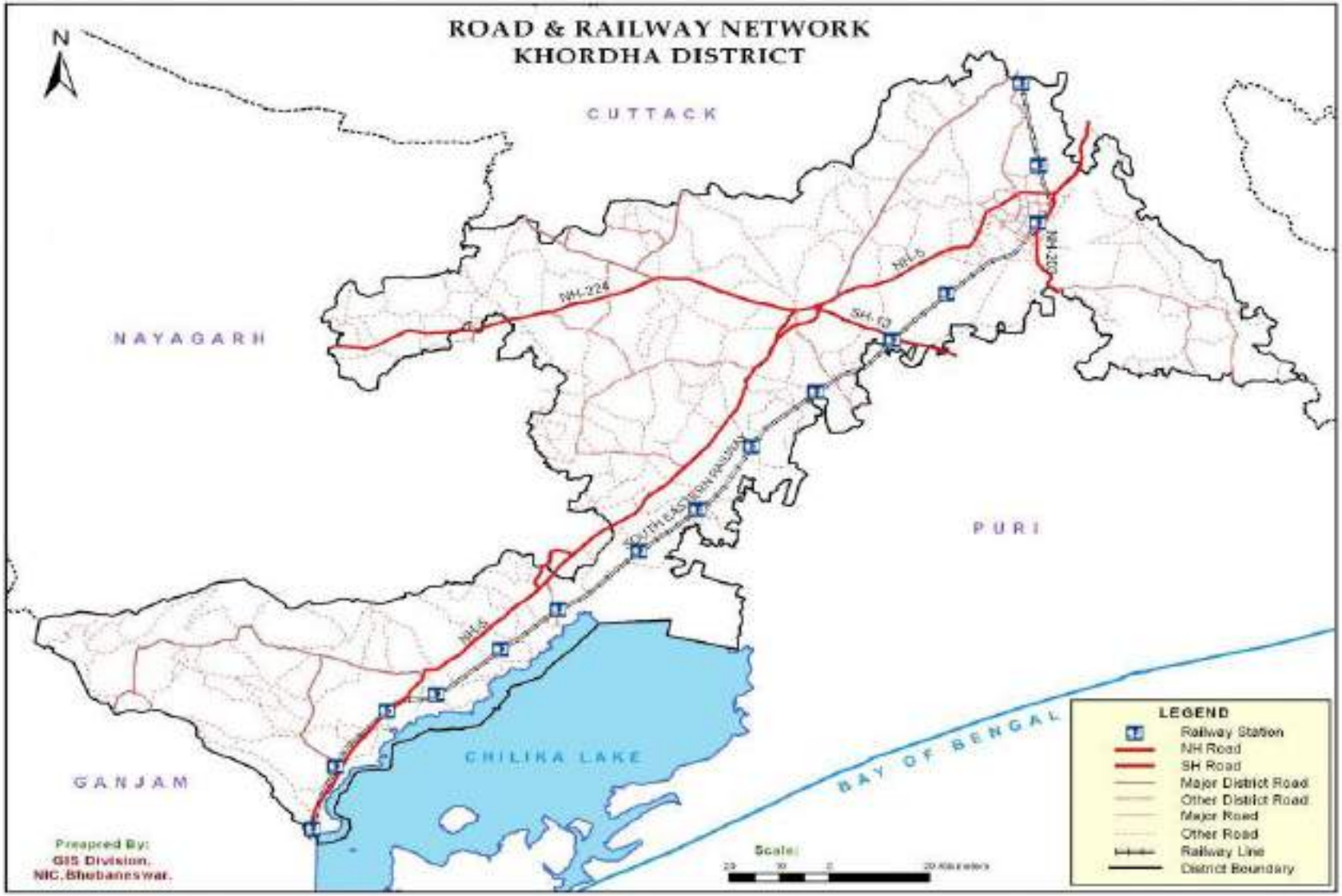
Geographical position	Longitude -84° 55' to 86° 5' Latitude- 19° 40' to 20° 25'
Area & Population	The district has an area of 2813 sq. km and 22.52 lakhs of population as per 2011 census. The district accounts for 1.81 percent of the states territory and shares 5.36 percent of the state's population. The density of population of the district is 800 per sq. Km as against 270 person per sq.km of the state. It has 1534 villages (including 178 un-inhabited villages) covering 10 blocks. 10 Tahasils and 2 sub-divisions. As per 2011 census the schedule caste population is 297472 (13.2%) and schedule tribe population 115051 (5.1 %). The literacy percentage of the district covers 86.9 against 72.9 of the state.
Climate	The climate condition of 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.
Industry & Mining	Khordha is an important centre of handloom industry. The lungi, napkin and saree produced here have an all Odisha market. Besides during the year 2014-15, 2187 nos. of small scale industries have been established with total capital investment of about Rs.10870.89 lakhs with 2176 nos. of Employment generated in the district. The district is also important for mining of minerals like decorative stone (Khondalite), building stone, laterite blocks, morrum & earth.
Power	Consumption of electricity in Khordha district during the year covers 1437.75 million units and revenue villages so far electrified as on 2013-14 is 1343 which constitutes 98.9 % to the total villages of the district.
Tourist Places	There are 19 nos. of tourist center such as Bhubaneswar, Dhauli, Khandgiri & Udayagiri, Nadankanan, Atri, Banapur, Barunei, Bhusandapur, Chilika (Barakul), Hirapur, Jayadev Kenduli, Gadamanitri, Rameswar, Madangiri (Mundiapada), Salia Dam-Barbara Hills, Kosalasuni, Thakuranipitha, Balipatna (Sisu Ananta Pitha),Shree Ananta Purusottam Dev (Jagulaipatna) and Sankat Mochan Mahavir Temple identified by department of Tourism and Culture, Odisha.
Transport & Communication	NH- 162.98 km SH- 25.97km Major district Road- 2555.08 km Other district road- 775.74 km Rural road- 1188.89 km Inter village road- 2424.00 km Intra village road- 1471.24 km Besides, 117.39 Kms. of Railway lines with 23 nos. of railway stations and passenger halts are there in the district.
Health	The medical facilities are provided by different agencies like Govt., Private individuals and voluntary organizations in the district. There were 282 nos. of the govt. Allopathic medical institutions with 965 beds facilities, 23 nos. of Homoeopathic dispensaries and 27 nos. of Ayurvedic dispensaries in the district during the year 2013-14.

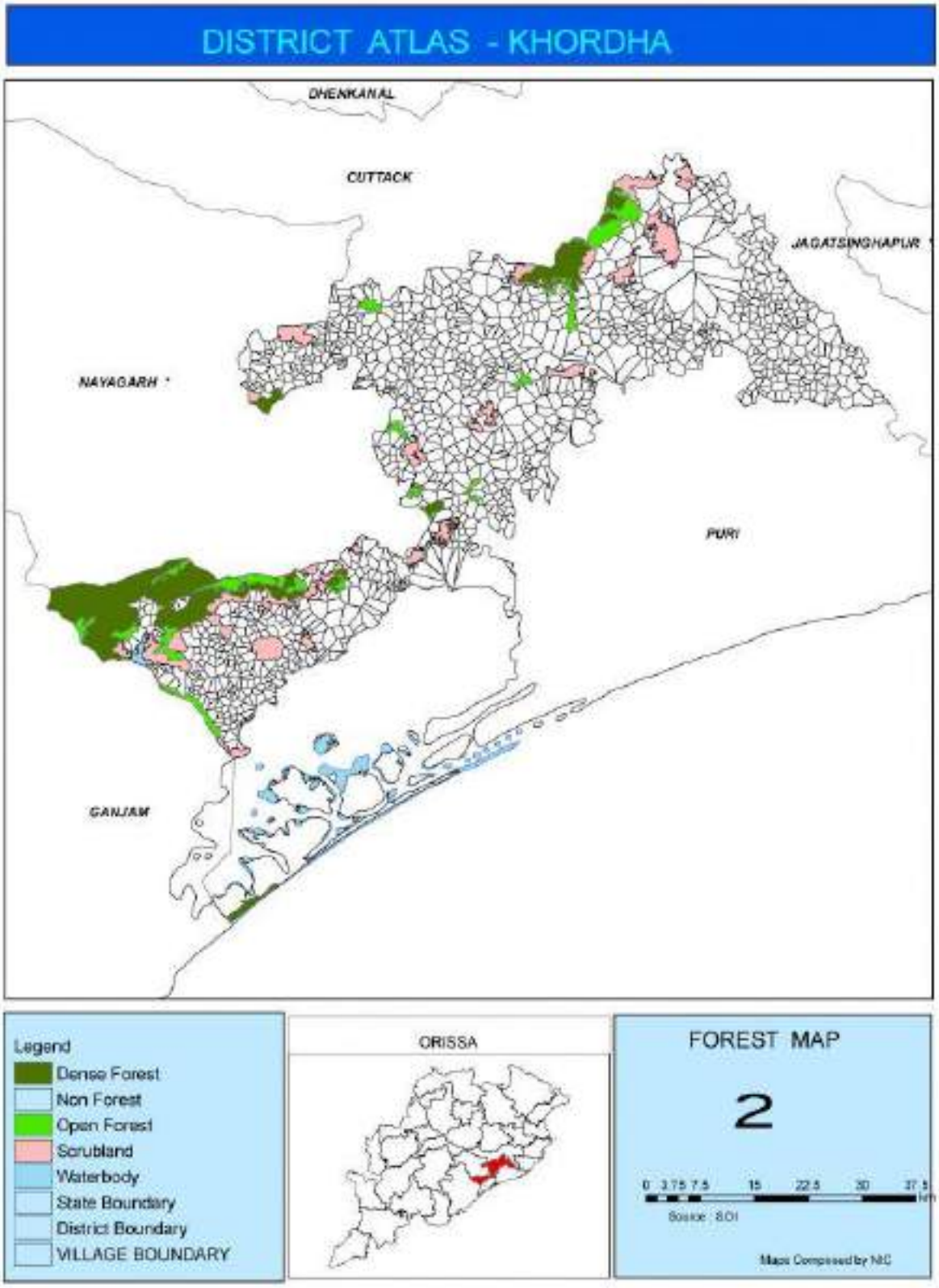
INDEX MAP



MAP SHOWING THE TAHASILS OF KHORDHA DISTRICT


KHORDHA DISTRICT
ODISHA
N
CUTTACK
NAYAGARH
PURI
GANJAM
Bolagad
Begunia
Khordha
Jatani
Bhubaneswar
Balianta
Balipatna
Tangi
Banapur
Chilika
CHILIKA LAKE
BAY OF BENGAL
Prepared By:
GIS Division,
NRC,Bhubaneswar.
Scale:
LEGEND
District Headquarter
Block Headquarter
NH Road
SH Road
Major District Road
Other District Road
Major Road
Other Road
Railway Line
Block Boundary
District Boundary
River
Lake/Waterbody


ROAD & RAILWAY NETWORK
KHORDHA DISTRICT
N
CUTTACK
NAYAGARH
PURI
GANJAM
CHILIKA LAKE
BAY OF BENGAL
NH-224
NH-5
SH-13
NH-203
SOUTH EASTERN RAILWAY
Prepared By:
GIS Division,
NIC,Bhubaneswar.
Scale:
LEGEND
Railway Station
NH Road
SH Road
Major District Road
Other District Road
Major Road
Other Road
Railway Line
District Boundary


DISTRICT ATLAS - KHORDHA
DHENKANAL
CUTTACK
JAGATSINGHAPUR
NAYAGARH
PURI
GANJAM
Legend
Dense Forest
Non Forest
Open Forest
Scrubland
Waterbody
State Boundary
District Boundary
VILLAGE BOUNDARY
ORISSA
FOREST MAP
2
Maps Composed by NIC

04. GEOLOGY OF THE DISTRICT.

The Major geology in the district can be broadly classified into Eastern Ghat Super Group of Archean to Proterozoic age, Proterozoic intrusive, Gondwana Super Group of Mesozoic and Pleistocene to Holocene age of Quartenary period of Cenozoic Era.

The rocks belonging to EGSG are mostly quartzite, khondalite and their variants, charnockite and pyroxene granulite. They are found mostly on the western and south western parts of the district. The Eastern Ghat Super Group of rocks have been intruded by plugs/apophyses of anorthosite, popularly known as Banpur anorthosite/ Chilika lake complex, and are found as cluster of anorthosite bodies around Banpur, Rambha and Balugaon region in the southern & western side of chilika lake and partly within the lake also. This pluton is emplaced in the core of an antiform (perraju, 1960). Sarkar et al. (1981) deciphered 3 phases of folding (F1-F3) in the khondalite host rocks and considered emplacement of anorthositic complex syntectonoc with F3. Xenoliths of metasediments (khondalite and calc-silicate gneisses) and charnockite in anorthosite and locally developed pyroxene hornfels grade skarn zones indicate the intrusive nature of the complex. The rocks of Eastern Ghat Supergroup show foliation in NE-SW direction. Joint planes, wherever present, follow the same structural alignment. A prominent fault running ENE-WSW is recorded in north-western part of the district. Major lineaments trend in NE-SW direction. The NE-SW trending lineament passing through Baghamari houses a sulphurous hot spring at Atri and is of immense tectonic significance.

Granite gneiss of Archean to Proterozoic age, exposed in the western part of the district, are well foliated and are often garnetiferous. Quartz veins cut across the granulitic country at random.

Western & south-western part of the district is occupied by the hilly terrain of Eastern Ghats. The hilly area in the west gradually passes on to the low undulating rugged terrain towards the central part of the district. In the northern, eastern and south-eastern sides, the district is surrounded by the flood plain and deltaic deposits of Mahanadi river basin. Parts of Chilika lake and its set of tributaries are the most

conspicuous geomorphic features in the south. Daya, Bhargabi, Kuakhai and Kushabhadra rivers, emerging as distributaries from Mahanadi river system, drain southerly through the eastern flank of the district and merge either with the Chilika lake or with the Bay of Bengal. Kaipadar, about 10 km south west of Khordha, marks a water divide with Ran River flowing northerly to Mahanadi and Mandakini river flowing southerly to Chilika. The highest elevation attained in the district is at 568 mts. in its southwestern corner, while Chilika represents the lowest at mean sea level.

The exposures belonging to Athgarh formation of Upper Gondwanas (Lower Cretaceous) mostly occur as a cluster forming upland in the north, NE parts of the district, i.e. west of Bhubaneswar. They are comprising dominantly of sandstones classified as quartz arenite, sub-lithic arenite and lithick wacke (Mishra, 1988; Pal, 1990), characteristically lacking in feldspars in clastic components. This also includes conglomerates, grits, carbonaceous shale, variegated shale and fire clay; most of them as small lenticular bodies breaking the monotonous vastness of sandstones. Deep drilling in the coastal Odisha has indicated the extension of the formation below the alluvial cover of the Mahanadi delta and the coastal Tertiary succession (Pandya et al. 2000).

The earliest Quarternary deposit, the Bolgarh formation (Pleistocene age) occupies central and northern part of the district, overlying the khondalite group of rocks. It comprises hard crust laterite, latosol and also residual soil.

Brahmani formation (Pleistocene to Holocene) consists of residual soil and alluvium and occupies an appreciable part of the district and are particularly conspicuous in the eastern and southern part of the district adjoining Chilika lake. Bankigarh formation (Middle to Late Holocene) is occupied by north and NE part of the district i.e. east of Bhubaneswar. It mostly comprises brownish silty clay and occur in the flood plain / deltaic plains of Mahanadi River basin.

The district lacks any major mineral deposit of economic significance. Few fire clay deposits located in the north-eastern part of the district are the only deposits of minor minerals that are being mined presently by Tata Refractories Ltd. The other deposits that are being profusely exploited as Dimension and decorative

stone for construction material/polished slabs and artisan grade of khondalite around Tapanga and Kurumpada area.

Ground water occurs in the porous sedimentary formations and in the fractured igneous and metamorphic rocks in unconfined to confined conditions. The nala and gully erosion in the tributaries and distributaries of Mahanadi river basin and in Chilika lake are quite common.

Stratigraphy:

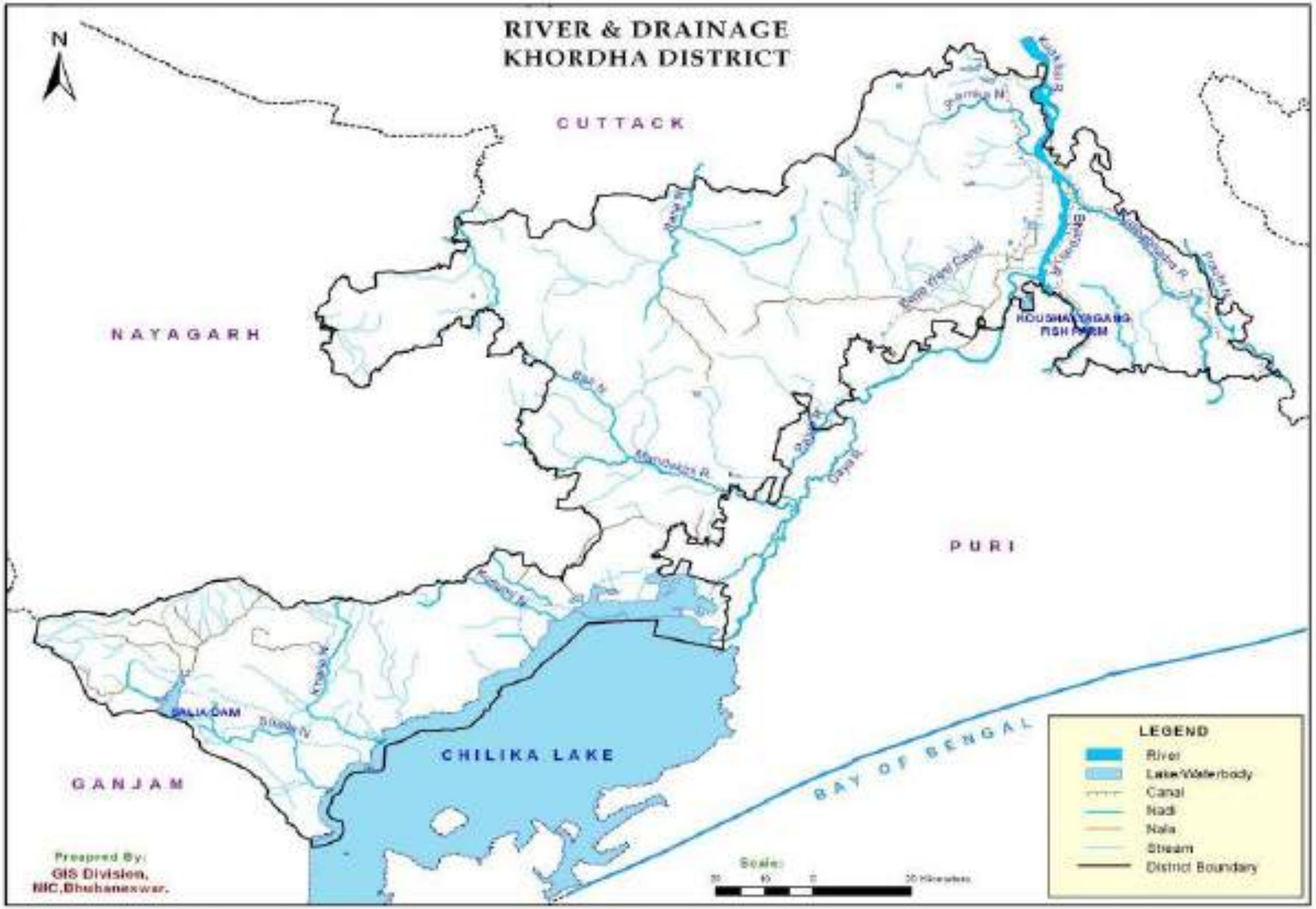
Phanerozoic	Quarternary	Mid to Late Holocene	Bankigarh Fm	Brownish silty clay
		Pleistocene to Holocene	Brahmani/ Mahanadi Fm	Residual soil and alluvium
		Pleistocene	Bolagarh Fm	Laterite/Latosol
	Gondwana Super Group	Lr Cretaceous	Athagarh Fm	Sandstone, Shale
Precambrian	Archean to Proterozoic	Eastern Ghat Sup Gp		Quartz vein Granite gneiss Anorthosite Charnockite gp of rocks Khondalite gp of rocks Quartzite

05. DRAINAGE AND IRRIGATION PATTERN.

The drainage of the district is mainly controlled by rivers like Kuakhai, Kusabhadra, Bhargavi & Daya. Detail of the river system is narrated below.

DRAINAGE SYSTEM WITH DESCRIPTION OF MAIN RIVERS

Sl No.	Name of the River	Place of Origin	Altitude of Origin	Total Length in the District(In Km)	Area Drained (Sq.Km)	% Areas Drained in the District	Process of Deposition of Sediments
1	Kushabhadra	Bhubanapur (Khordha dist)	11.8m	30.0	212.32	48.86	Slow
2	Bhargavi	Balakati (Khordha dist)	7.80m	14.0	Nil	Nil	Slow
3	Kuakhi	Mukameswar	25.92m	26.50	21.85	45.60	Moderate
4	Daya	Nathapur	18.180m	10.10	10.10	51.80	Slow
5	Malaguni	Baunshagarh (Nayagarh dist)	21.20m	35	8.40	62.87	Slow
6	Hada	Hatibari (Nayagarh dist)	19.80m	14	0.92	60.87	No deposition
7	Kusumidhar	Randa (Khordha dist)	60m	33	1.32	100.00	No deposition


RIVER & DRAINAGE
KHORDHA DISTRICT
N
CUTTACK
NAYAGARH
PURI
GANJAM
CHILIKA LAKE
BAY OF BENGAL
LEGEND
River
Lake/Waterbody
Canal
Nadi
Nala
Stream
District Boundary
Prepared By:
GIS Division,
NIC,Bhubaneswar.
Scale:

06. LAND UTILISATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURAL, HORTICULTURAL, MINING ETC.

Forest:

As per the data provided by the ***Divisional Forest Officer, Khordha Division, Khordha***; the land use in the division is as follows

Category of Forest Areas in Khordha Forest Division(Khordha District)			
Category of Forest	**Number of Blocks**	**Area in Ha.**	**Percentage(%)**
Reserved Forest	13	19556.28	30.163
Proposed Reserved Forest	1	97.28	0.15
Demarcated Protected Forest	29	16602.59	25.608
Village Forest	103	677.945	1.046
Protected Forest	-	-	-
DLC Forest	278	5777.312	8.911
Revenue Forest	598	22123.443	34.123
Total Forest Area	**1022**	**64834.85**	**100**

As per the data provided by the ***Divisional Forest Officer, Chandaka Wildlife Division, Bhubaneswar***; the land use in the division is as follows

Category of Forest Areas in Chandaka Wildlife Division, Bhubaneswar			
Category of Forest	**Number of Blocks**	**Area in Ha.**	**Percentage(%)**
Reserved Forest	7	9140.81	47.26
Proposed Reserved Forest	11	9219.19	47.67
Demarcated Protected Forest	1	53.87	0.27
Village Forest	0	0	0
Protected Forest	2	21.09	0.109
DLC Forest	0	20056.66	0
Revenue Forest	0	0	0
Total Forest Area	**21**	**38491.62**	

As per the data provided by the ***Divisional Forest Officer, City Forest Division, Bhubaneswar***; the land use in the division is as follows

Category of Forest Areas in City Forest Division			
Category of Forest	**Number of Blocks**	**Area in Ha.**	**Percentage(%)**
Reserved Forest	1	317.28	40%
Proposed Reserved Forest	-	-	-
Demarcated Protected Forest	-	-	-
Village Forest	5	27.1	-
Protected Forest	-	-	-
DLC Forest	-	616.1424	
Revenue Forest	-	2708.527(Approx)	
Total Forest Area		**3669.0494**	

As per the data provided by the ***Divisional Forest Officer, Chilika Wildlife Division***; the land use in the division is as follows

Category of Forest Areas in Chilika Wildlife Division			
Category of Forest	**Number of Blocks**	**Area in Ha.**	**Percentage(%)**
Reserved Forest	Nil	-	
Proposed Reserved Forest	Nil	-	
Demarcated Protected Forest	1	212.47	
Village Forest	1	13.745	
Protected Forest	Nil	-	
DLC Forest	2	212.074	
Revenue Forest	Not available	-	
Total Forest Area		**438.289**	**0.71%**

Agriculture & Horticulture:

Land utilization pattern in the district as per the department of agriculture & horticulture Khordha is as follows;

Blockwise Land Utilization Pattern in Khordha District												
Sl No.	**Name of the Blocks**	**Geographical Area**	**Forest Area**	**Misc Tree & Groves**	**Permanent pasture**	**Culturable Waste**	**Land put to non-agricultural use**	**Barren & Unculturable Land**	**Other Fallow**	**Cultivable Area**	**Current Fallow**	**Cultivated Area**
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Khordha	31860	7060	320	345	182	4607	2533	2185	14627	27	14600
2	Begunia	30610	4374	1725	558	914	3954	1836	620	16629	69	16560
3	Bolagarh	25260	4515	673	569	102	2826	735	10	15830	0	15830
4	Tangi	34374	5010	3247	814	3935	7293	1265	50	12760	0	12760
5	Chilika	20172	1892	770	580	93	3093	1586	410	11748	28	11720
6	Banapur	40650	20720	287	524	118	3001	2339	980	12681	31	12650
7	BBSR	45729	12109	829	571	616	13242	1149	4435	12778	728	12050
8	Jatani	23447	5158	1890	999	331	3991	1195	1880	8003	103	7900
9	Balianta	14971	854	273	172	225	1068	886	1458	10035	95	9940
10	Balipatna	14227	175	354	366	35	1175	482	720	10920	280	10640
District		281300	61867	10369	5498	6551	44250	14006	12748	126011	1361	124650

Mining:

The Khordha district of Odisha is known for mining a variety of minerals, including: Decorative stone (Khondalite), Building stone, Laterite blocks, Morrum, and Earth. The major mining activities are dependent upon laterite & stone mining. Whereas other associated mining activities are related to morrum, sand & ordinary earth mining. There are three no of khondalite decorative stone sources reported in the district. Hence the total mining area are different for different categories of mineral. Total mining area will be the sum of the lease areas present in the district, which can be abstracted from the mining lease details table annexed herewith.

07. SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT.

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:

Sl No	District	Total Annual Ground Water(Ham)Recharge	Total Extraction(Ham)	Annual Extractable Ground Water Resource(Ham)
1	Khordha	46985.97	26216	42849.75

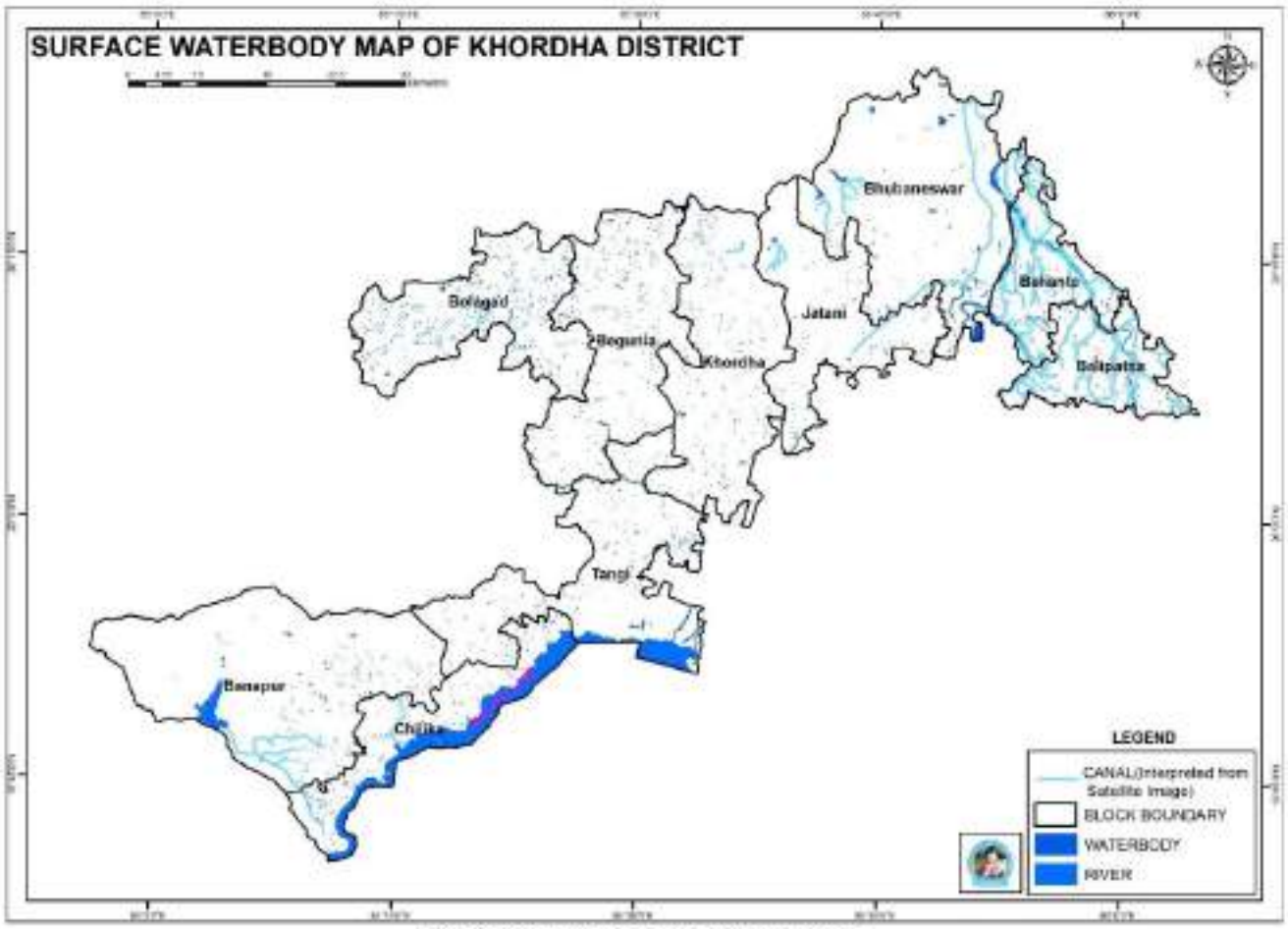


Figure:ii Surface Water body Map of Khordha District

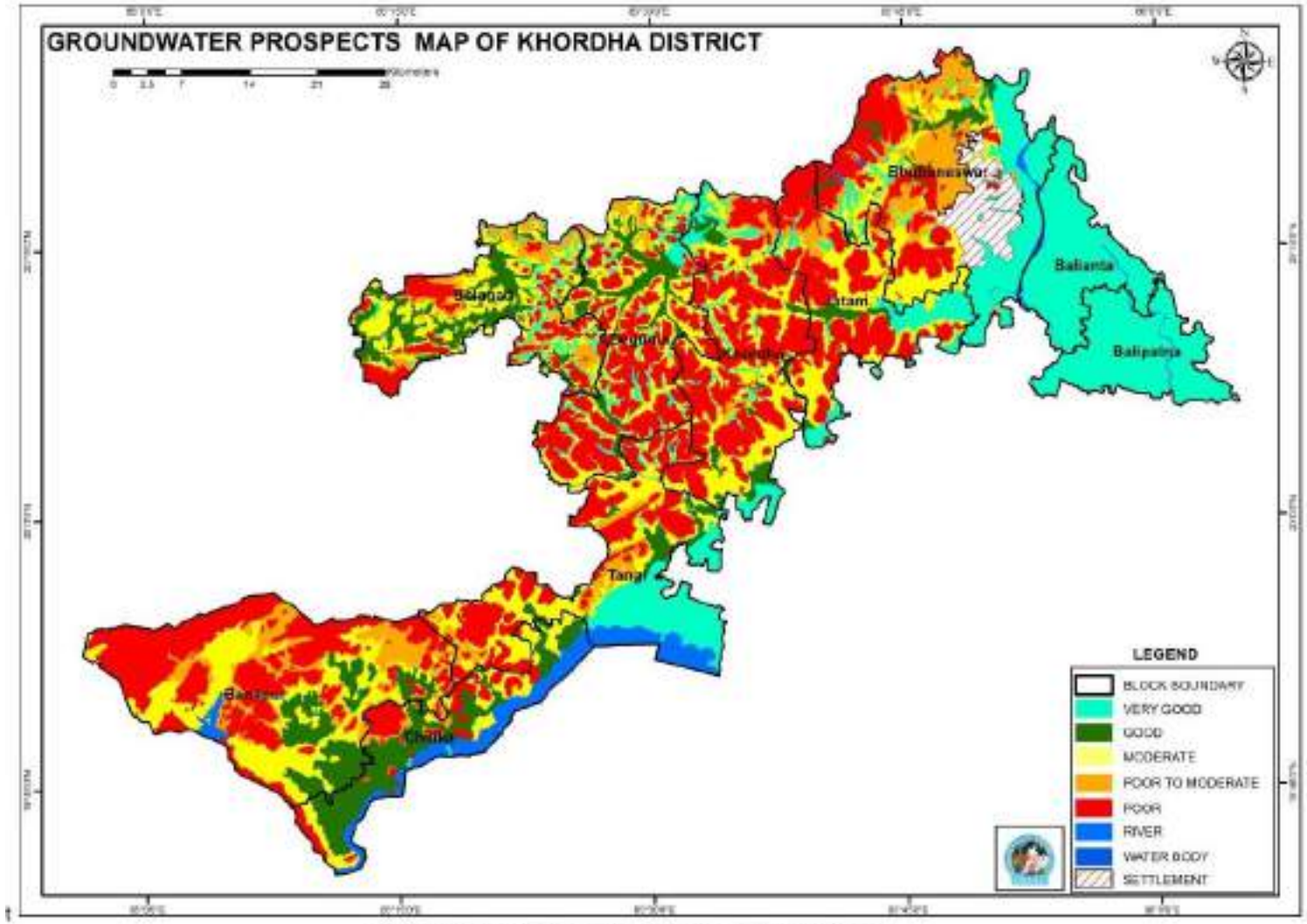
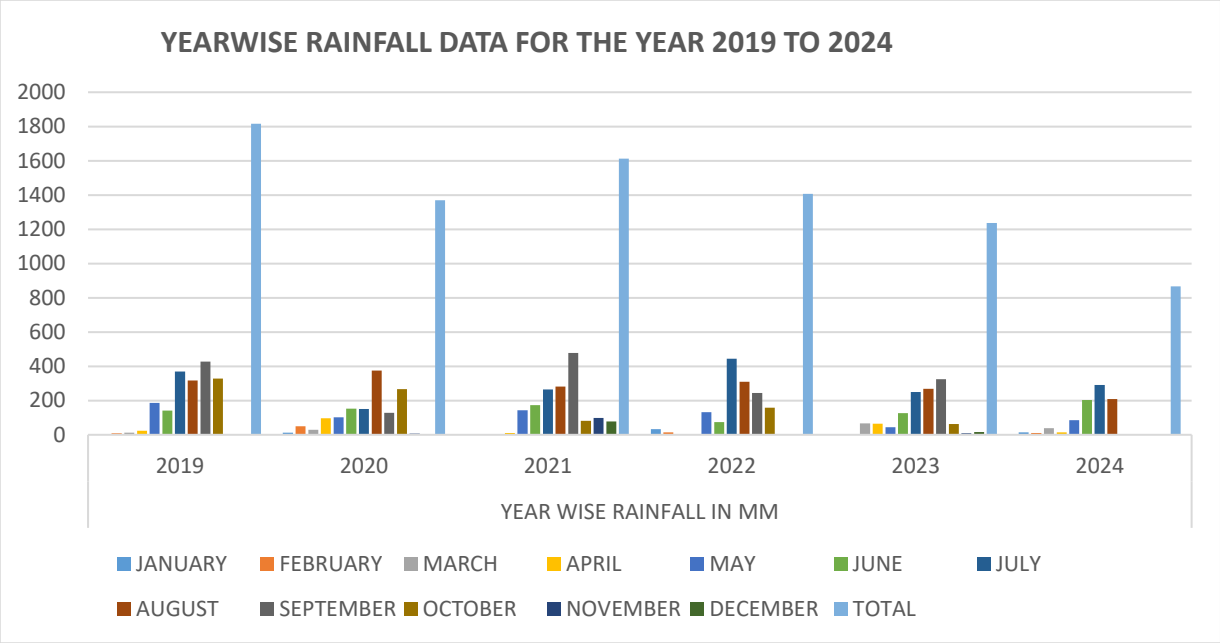


Figure:vii Ground Water Prospects Map of Khordha District

08. RAINFALL OF THE DISTRICT AND 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 -8°C during peak winter.

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



YEAR MONTH WISE RAINFALL REPORT (in mm) OF KHORDHA DISTRICT FOR THE YEAR 2019 - 2024

Year	January	Febuary	March	April	May	June	July	August	September	October	November	December	Total
2019	1.1	8.06	11.8	24.38	185.59	140.48	370.29	317.46	426.77	328.23	2.12	0	1816.28
2020	12.2	50.32	28.47	97.09	101.68	153.4	150.72	375.12	128.34	265.72	6.1	0	1369.16
2021	0	0	0	10.62	143.24	174.1	265.37	281.66	478.69	82.39	97.96	78.02	1612.05
2022	32.87	13.72	0	0.5	131.97	73.84	443.69	309.67	243.36	157.55	0	0	1407.17
2023	0	0	65.7	65.12	44.43	126.56	249.77	269.36	325.42	63.08	8	19.1	1236.54
2024	14.4	11.36	38.92	14.26	85.39	202.39	291.46	207.91	0	0	0	0	866.09

09. DETAILS OF THE MINING LEASES IN THE DISTRICT AS PER THE FOLLOWING FORMAT.

SL.NO.	NAME OF THE MINERAL	NAME OF THE LESSEE	ADRESS & CONTACT NO. OF LESSEE	MINING LEASE GRANT ORDER NO. & DATE	AREA OF MINING LEASE (IN HA/AC)	PERIOD OF MINING LEASE (INITIAL)		DATE OF COMMENCEMENT OF MINING OPERATION	STATUS (WORKING NON WORKING/TEMP. WORKING FOR DISPATCH ETC.)	CAPTIVE/NON - CAPTIVE	OBTAINED ENVIRONVENTAL CLEARENCE (Y/N) IF Y LETTER NO. WITH DATE OF GRANT OF E.C	LOCATION OF THE MINING LEASE LAND SCHEDULE WITH LONGITUDE, LATTITUDE
						FROM	TO					
1	2	3	4	5	6	7	8	11	12	13	14	15
1	DECORATIVE STONE	OMC LTD.	M/S OMC LTD. AT-BHUBANESWAR, PO BOX NO-34, UNIT-IV, BHUBANESWAR -751001	8086/SM, DT-24.09.2020	4.672	13.11.2020	12.11.2050	01.12.2020	WORKING	NON-CAPTIVE	YES EC NO-SEIAA-433/08-2020, 04.09.2020	LAT- 20°02'39.50" LONG- 85°34'55.60" TENANT- SRI JAGANNATH MAHAPRABHU, PURI TAHASIL- KHORDHA MAUZA- NARANAGARH (KUNDAKUNDIKUNDA) KHATA NO-532/2, PLOT NO-

												1747/2166, 1851, 1850, 1745
2	DECORATIVE STONE	M/S SREE MAA GRANITES	PROP-SWAGATIKA JAGADEV, AT-883/06, NILAKANTHESWAR MARG, BARAMUNDA, UNIT-8 BHUBANESWAR POA-SATYAPRIYA JAYASINGH, IDCO, PLOT-7/7, CHANDAKA, INDUSTRIAL ESTATE, CHANDRASEKHARPUR, PATIA, BHUBANESWAR - 751024	3657/SM, DT-25.04.2015	3.399	22.06.2015	21.06.2035	08.04.2016	NON-WORKING	NON-CAPTIVE	YES EC NO-SEIAA-04/13 DT-16.02.2013, NO-565/SEIAA	LAT-19°54'16.80454" LONG-85°20'66.6628" TENANT- GOVT (ANABADI) TAHASIL- TANGI MAUZA-TUTAMBARPALLI KHATA NO-239, PLOT NO- 376
3	DECORATIVE STONE	THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT RESERVED THE MALIPADA KHONDALITE BLOCK	THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT	816/SM, DT-29.01.2024, SM-MC3-ML-0001-2024	4.641	---------	--------	--------	NON-WORKING	---------	---------	LAT- 20°04'37.20" LONG- LONG-85°32'56.40" TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA-MALIPADA, TAHASIL-KHORDHA, KHATA NO- 733, PLOT NO-1902
4	DECORATIVE STONE	THE GOVT OF ODISHA,	THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT	822/SM, DT-29.01.2024, SM-MC3-	14.152	---------	--------	--------	NON-WORKING	---------	---------	LAT- 20°05'34.80" LONG-85°29'49.20"

		STEEL & MINES DEPARTMENT RESERVED THE DEULI KHONDALITE BLOCK		ML-0002-2024								TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA-DEULI, TAHASIL- BEGUNIA, KHATA NO- 319, PLOT NO- 939,940,941,948,949,950,951,952,953, 954, 955,957,958,959,960,961,962,963,964, 965,966,967,968,969
5	DECORATIVE STONE	OMC LTD.	M/S OMC LTD. AT- BHUBANESWAR, PO BOX NO- 34, UNIT-IV, BHUBANESWAR -751001	MXV-C-01/2019/12063/DOMG, DT- 29.09.2023	2.215	---------	--------	--------	NON-WORKING	---------	---------	LAT- 20°02'38.40" LONG- 85°35'2.40" TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA- NARANGARH(KUNDAKUNDIKUNDA), TAHASIL- KHORDHA, KHATA NO- 535/2, PLOT NO- 1744
6	DECORATIVE STONE	THE GOVT OF ODISHA, STEEL & MINES	---------	--------	1.67	--------	--------	--------	NON-WORKING	--------	--------	LAT- 20°02'20.40" LONG- 85°35'24.00"

		DEPARTMENT RESERVED THE KURUMPADA KHONDALITE BLOCK										TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA- KURUMAPADA, TAHASIL- KHORDHA, KHATA NO- 483/1, PLOT NO- 213
7	DECORATIVE STONE	THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT RESERVED THE ROUTAPADA, (BLOCK-A) KHONDALITE BLOCK	----------	--------	3.97	--------	--------	--------	NON-WORKING	--------	--------	LAT- 20°08'45.60" LONG- 85°28'37.20" TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA- ROUTAPADA, TAHASIL- KHORDHA, KHATA NO- 1003/3(KA), PLOT NO- 3416, 3417
8	DECORATIVE STONE	SHREE THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT RESERVED THE ROUTAP	----------	--------	2.819	--------	--------	--------	NON-WORKING	--------	--------	LAT- 20°08'38.40" LONG- 85°28'48.00" TENANT- SRI JAGANNATH MAHAPRABHU, PURI

		ADA, (BLOCK-B) KHONDALITE BLOCK										MAUZA-ROUTAPADA, TAHASIL-KHORDHA, KHATA NO- 1009, 1003/3(KA), PLOT NO- 3440, 3403
9	DECORATIVE STONE	SHREE THE GOVT OF ODISHA, STEEL & MINES DEPARTMENT RESERVED THE ROUTAPADA, (BLOCK-C) KHONDALITE BLOCK	----------	--------	6.723	--------	--------	--------	NON-WORKING	--------	--------	LAT- 20°08'24.00" LONG- 85°28'51.60" TENANT- SRI JAGANNATH MAHAPRABHU, PURI MAUZA-ROUTAPADA, TAHASIL-KHORDHA, KHATA NO- 1008, 1009, 1003/3(KA), PLOT NO- 3452, 3449, 3445, 3447, 3819, 3820, 3821, 3822, 3823

NB: In the above table omitted Columns are,
Column- 09 & 10, Period of Mining lease (1st/2nd…renewal)-NA
Column-13, Use (Captive/ Non-Captive) - All Non-Captive
Column-16, Open cast/ Underground- All sources are open cast

10. DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS

Revenue collected for Khondalite**.**

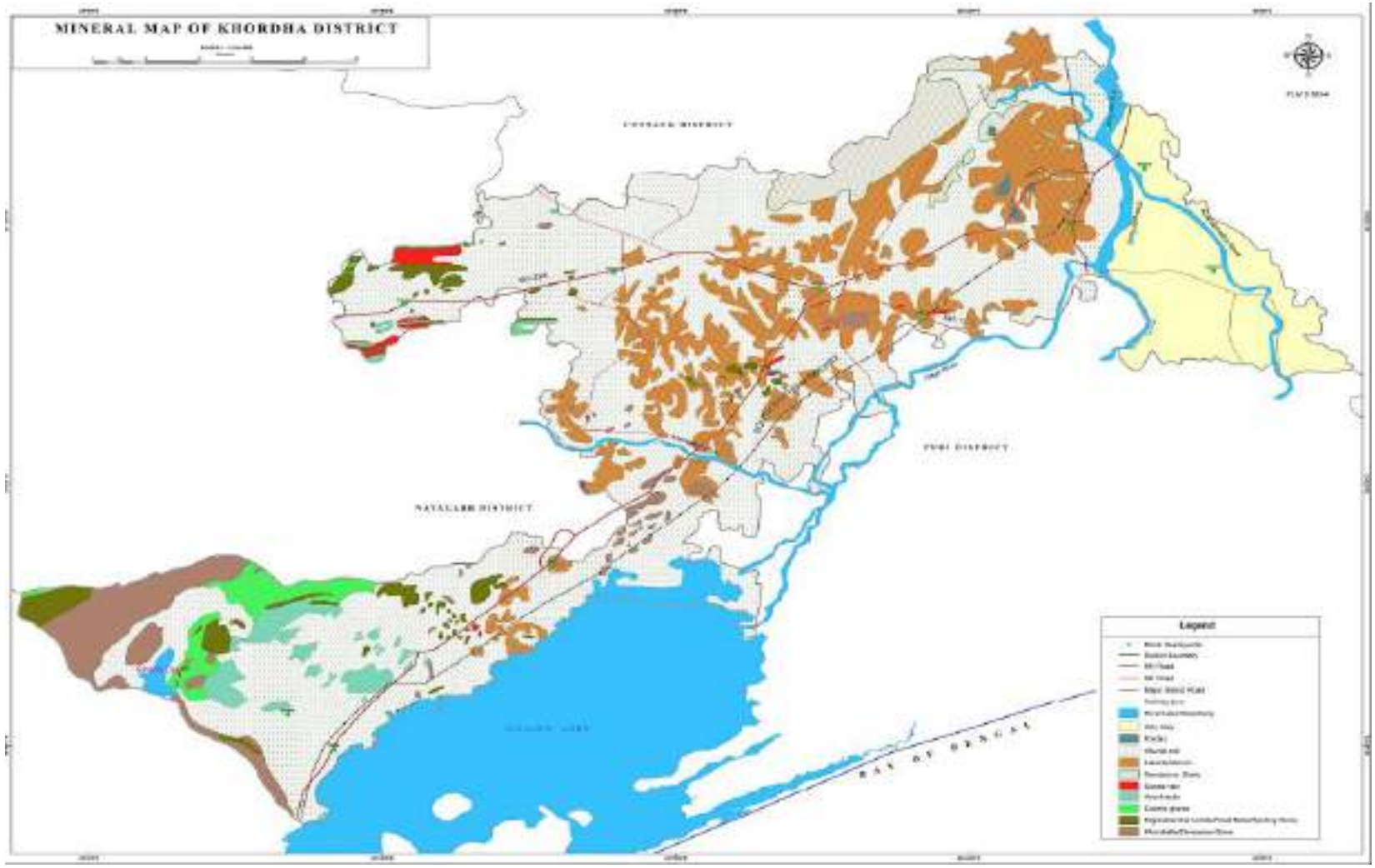
Sl No	Financial Year	Revenue received in Rs.
1	2021-22	3,29,856.00
2	2022-23	2,89,668.00
3	2023-24	3,09,668.00

11. DETAILS OF PRODUCTION OF MINOR MINERAL IN LAST THREE YEARS.

Production of Khondalite

Sl No	Financial Year	Production of Khondalite (Specified Minor Mineral) in Cum
1	2021-22	16542.715
2	2022-23	4816.017
3	2023-24	13153.528

12. MINERAL MAP OF THE DISTRICT.



13. LIST OF LETTER OF INTENT (LOI) HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY AS PER THE FOLLOWING FORMAT.

Sl.No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of Letter of Intent Holder	Letter of Intent Grant Order No. & date	Area of Mining lease to be alloted	Validity of LOI	Use(Captive/Non-Captive)	Location of the Mining lease (Latitude & Longitude)
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT.

SL. NO.	NAME OF SOURCE WITH LOCATION	Mineral Resource
1	Mauza- Naranagarh (Kundakundikunda) Tenant- Sri Jagannath Mahaprabhu, Puri Tahasil- Khordha Khata no-532/2, Plot No- 1747/2166, 1851, 1850, 1745, Area- 4.672 Ha Lat- 20°02'39.50" Long- 85°34'55.60"	2077705.029 Cum
2	Mauza- Tutambarpalli Tenant- Govt (Anabadi) Tahasil- Tangi Khata no-239, Plot No- 376, Area- 3.399 Ha Lat- 19°54'16.80454" Long- 85°20'66.6628"	19782 Cum
3	Mauza-Malipada Tenant- Sri Jagannath Mahaprabhu, Puri , Tahasil- Khordha, Khata No- 733, Plot No- 1902, Area- 4.641 Ha Lat- 20°04'37.20" Long- Long-85°32'56.40"	Exploration work is under process

4	Mauza-Deuli Tenant- Sri Jagannath Mahaprabhu, Puri , Tahasil- Begunia, Khata No- 319, Plot No- 939,940,941,948,949,950,951,952,953,954, 955,957,958,959,960,961,962,963,964,965,966,967,968,969 Area- 14.152 Ha Lat- 20°05'34.80" Long- 85°29'49.20"	Exploration work is under process
5	Mauza-Narangarh(Kundakundikunda) Tenant- Sri Jagannath Mahaprabhu, Puri Tahasil- Khordha, Khata No- 535/2, Plot No- 1744, Area- 2.215 Ha Lat- 20°02'38.40" Long- 85°35'2.40"	Exploration work is under process
6	Mauza-Kurumapada Tenant- Sri Jagannath Mahaprabhu, Puri , Tahasil- Khordha, Khata No- 483/1, Plot No- 213, Area- 1.67 Ha Lat- 20°02'20.40" Long- 85°35'24.00"	Exploration work is under process
7	Mauza-Routapada (Block-A) Tenant- Sri Jagannath Mahaprabhu, Puri Tahasil- Khordha, Khata No- 1003/3(Ka), Plot No- 3416, 3417, Area- 3.97 Ha Lat- 20°08'45.60" Long- 85°28'37.20"	Exploration work is under process
8	Mauza-Routapada (BLOCK-B) Tenant- Sri Jagannath Mahaprabhu, Puri Tahasil- Khordha, Khata No- 1009, 1003/3(Ka), Plot No- 3440, 3403, Area- 2.819 Ha Lat- 20°08'38.40" Long- 85°28'48.00"	Exploration work is under process
9	Mauza-Routapada(BLOCK-C) Tenant- Sri Jagannath Mahaprabhu, Puri	

	, Tahasil- Khordha, Khata No- 1008, 1009, 1003/3(Ka), Plot No- 3452, 3449, 3445, 3447, 3819, 3820, 3821, 3822, 3823, Area- 6.723 Ha Lat- 20°085'24.00" Long- 85°28'51.60"	Exploration work is under process

15. QUALITY /GRADE OF MINERAL AVAILABLE IN THE DISTRICT.

Khondalite of the district is very much suitable for Sculpture carving purposes due its softness due to the effect of weathering in Khondalite. After recovery Balance material may be used for filling purposes particularly of road.

16. USE OF MINERAL.

Khondalite blocks for use in the projects to be undertaken under the scheme for "Augmentation of Basic Amenities and Development of Heritage and Architecture"(ABADHA) and/or projects for development of Puri as World Heritage City.

17. DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS.

Khondalite is a type of metamorphic rock predominantly found in Odisha, India, and is primarily composed of quartz, feldspar, and mica. It has various uses, particularly in the construction and building industry, due to its durability and aesthetic appeal.

In Khordha, the demand for khondalite can be attributed to:

- Construction Projects: With ongoing infrastructure development, including roads, buildings, and bridges, reject khondalite is sought after for its strength and longevity.
- Monuments and Sculptures: Its suitability for carving makes it popular in the creation of sculptures and historical monuments.
- Export Potential: Khondalite can also be exported, increasing its demand in international markets.
- Local Industry: The demand from local stone processing industries that utilize khondalite for various applications contributes to its market need.

18. Mining lease marked on the map of the district.

MINING LEASES (DECORTIVE STONE) MARKED ON THE DISTRICT TOPO-MAP OF KHORDHA

SCALE:-1:120000

FOR QUARRY DETAILS REFER POINT NO-09

LEGEND

- DECORTIVE_STONE_SOURCES
- DISTRICT_BOUNDARY

18. Mining lease marked on the map of the district.

MINING LEASES (DECORTIVE STONE) MARKED ON THE DISTRICT SATELLITE-MAP OF KHORDHA

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

Quarries existing within 500m radius are considered as cluster of Mining Leases as per the MoEF guide lines. But for decorative stone there is no cluster present.

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

Odisha has 19 Sanctuaries including Gahirmatha Marine Wildlife Sanctuary, one National Park (Bhitarkanika), one proposed National Park (Similipal) which have been notified under the provisions of Indian Wildlife (Protection) Act, 1972 for in-situ conservation. These Protected Areas constitute 10.37% of the total forest area and 5.36% of the total geographical area of the State. One large Zoological Park **(Nandankanan),** three Small Zoos and seven Mini Zoos have been notified for ex-situ conservation and management of wildlife out side protected areas. The State has the singula distinction of having three stretches of mass nesting beaches of endangered Olive Ridley Sea turtles including the world's largest nesting ground if Olive Ridley Sea turtle, Lepidochelys olivacea at Gahirmatha. It has many natural wetlands including the largest wetland of Asia **(Chilika)** and Bhitarkanika which are declared as "Ramsar Sites". Six Eco-sensitive Zones finally notified (Kapilash, **Chandaka**, Balukhanda, Debrigarh, Kuldiha and Bhitarkanika). Hence only Eco-Sensitive Zone of Chandaka-Damapada Wildlife Sanctuary is located within the district.

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

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 sprinkling 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 mines 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, excavation site etc. Worker and operators at work sites will be provided with earmuffs.
- Conducting periodical medical check-up 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).

Mine reclamation is the process of restoring land that has been mined to a natural or economically usable state. Although the process of mine reclamation occurs once mining is completed, the planning of mine reclamation activities occurs prior to a mine being permitted or started. Mine reclamation creates useful landscapes that meet a variety of goals ranging from the restoration of productive ecosystems to the creation of industrial and municipal resources. Modern mine reclamation minimizes and mitigates the environmental effects of mining.

In Khordha district Quarries which has been reported as exhausted shall be backfilled or fenced properly for ground water recharge. For active sources reclamation approach has been implemented in present date. Mainly two types of reclamation proposal are normally proposed i.e. Firstly Back filling of

the exhausted mine by mine generated waste and capping of top soil for forest plantation and growth. Secondly proper fencing of quarried area and can be developed as water reservoir, fishery development or tourist attraction points after the life of the mine.

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 OCCUPATIONAL 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 equipment such as helmet, safety goggles, earplugs, earmuffs etc are to be provided to mine workers as per Mines Rules. All operators and mechanics are to be trained to handle firefighting equipment.

- TUBERCULOSIS DATA RNTCP KHORDHA

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL	SUCCESS
20-21	139	228	243	198	179	216	231	280	343	347	309	334	3047	2803
21-22	274	179	197	306	331	302	302	309	317	339	352	403	3611	3345
22-23	358	372	348	309	328	327	352	333	279	340	353	330	4029	3746
23-24	343	369	284	355	366	320	310	244	222	295	267	241	3616	3292
TOTAL	**1114**	**1148**	**1072**	**1168**	**1204**	**1165**	**1195**	**1166**	**1161**	**1321**	**1281**	**1308**	**14303**	**13186**
AVG.	279	287	268	292	301	291	299	292	290	330	320	327	3576	

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

26. PLANTATION AND 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.

Khordha District is having good potential of laterite and stone deposit, there are few decorative stones also reported. Minerals such as river sand, Morrum,Ordinary Earth, Brick earth etc. are also available in the district. Most of the building stone/black stone/road metals potentials are located in Khordha, Begunia and Tangi tahasils of the district. Others like laterite, morrum and earth are distributed in almost all tahasils.