



DISTRICT SURVEY REPORT (DSR)

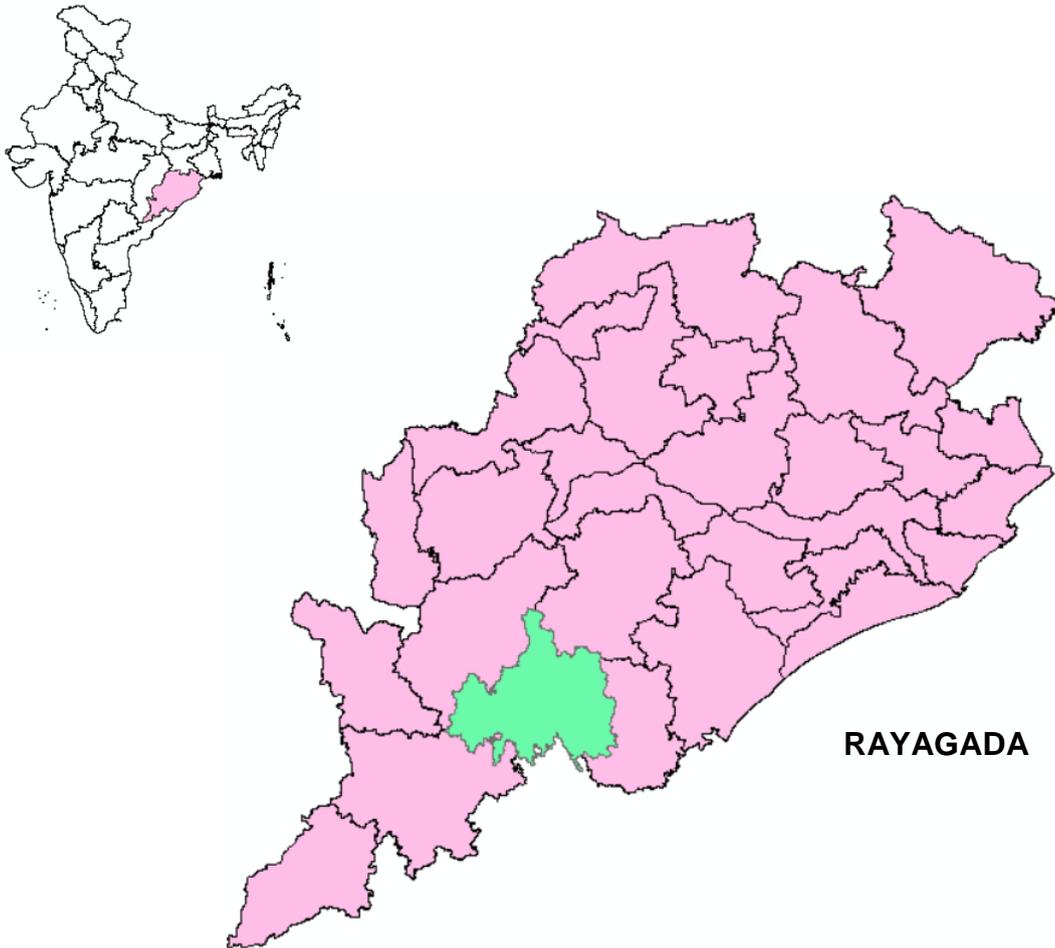
OF

RAYAGADA DISTRICT, ODISHA.

FOR

MORRUM QUARRY / ORDINARY EARTH

(FOR PLANNING & EXPLOITATION OF MINOR MINERAL RESOURCES)



RAYAGADA

As per Notification No. S.O. 3611(E) New Delhi

Dated 25th July 2018 of

Ministry of Environment, Forest & Climate Change(MoEF & CC)

COLLECTORATE RAYAGADA.

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PREFACE

Odisha is one of the Major Mineral rich State in India. Rayagada is a unique District in Odisha lies on the Southern part of the State with rich and varied mineral resource. It is a paradise for Geoscientists of India and abroad. It has preserved many important rock groups from the earliest of crust formation to the geologically recent times. The landmass constituting the Rayagada District, explorers to many Entrepreneurs on account of its diverse geological setting and rich and varied mineral resources.

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

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

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

DEAC will scrutinize and recommend the prior environmental clearance of mining of minor mineral to

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

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

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

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

In lieu of above guideline and orders of Hon'ble Supreme Court and in compliance to the orders of Hon'ble NGT, EZ, Kolkata, in connection with O.A No. 63/2020, the Member Secretary, SEIAA, Bhubaneswar issued a Letter on 27th December, 2022 to Collector & District Magistrate, Rayagada with a direction “ the DSR is to be signed afresh by the Collector and District Magistrate, along with members of the designated sub-committee consisting of Sub-Divisional Magistrate, and District Level Officers from Irrigation Department, State Pollution Control Board, Forest Department, Geology and /or Mining Department. Keeping in view of the orders of Hon'ble Supreme Court, Hon'ble NGT and directions of SEIAA, Bhubaneswar a fresh DSR has been prepared observing all formalities in the year 2024.

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

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

1. INTRODUCTION

1.1 History:

In the third century B.C, during the reign of Ashoka the Great, Rayagada District was covered under Kalinga Empire. Bhojpur Rock inscription in Brahmi of Rastrik King Mandhata adds some facts about the history of Rayagada District. Later on, the Rastriks were defeated by Kharvela during Ganga Vansi and Surya Vansi Kings, it was under Dadarnab Dev of Gudari Kataka. A rock inscription found at Pataleswar temple in Brahmi script provides an evidence to this effect.

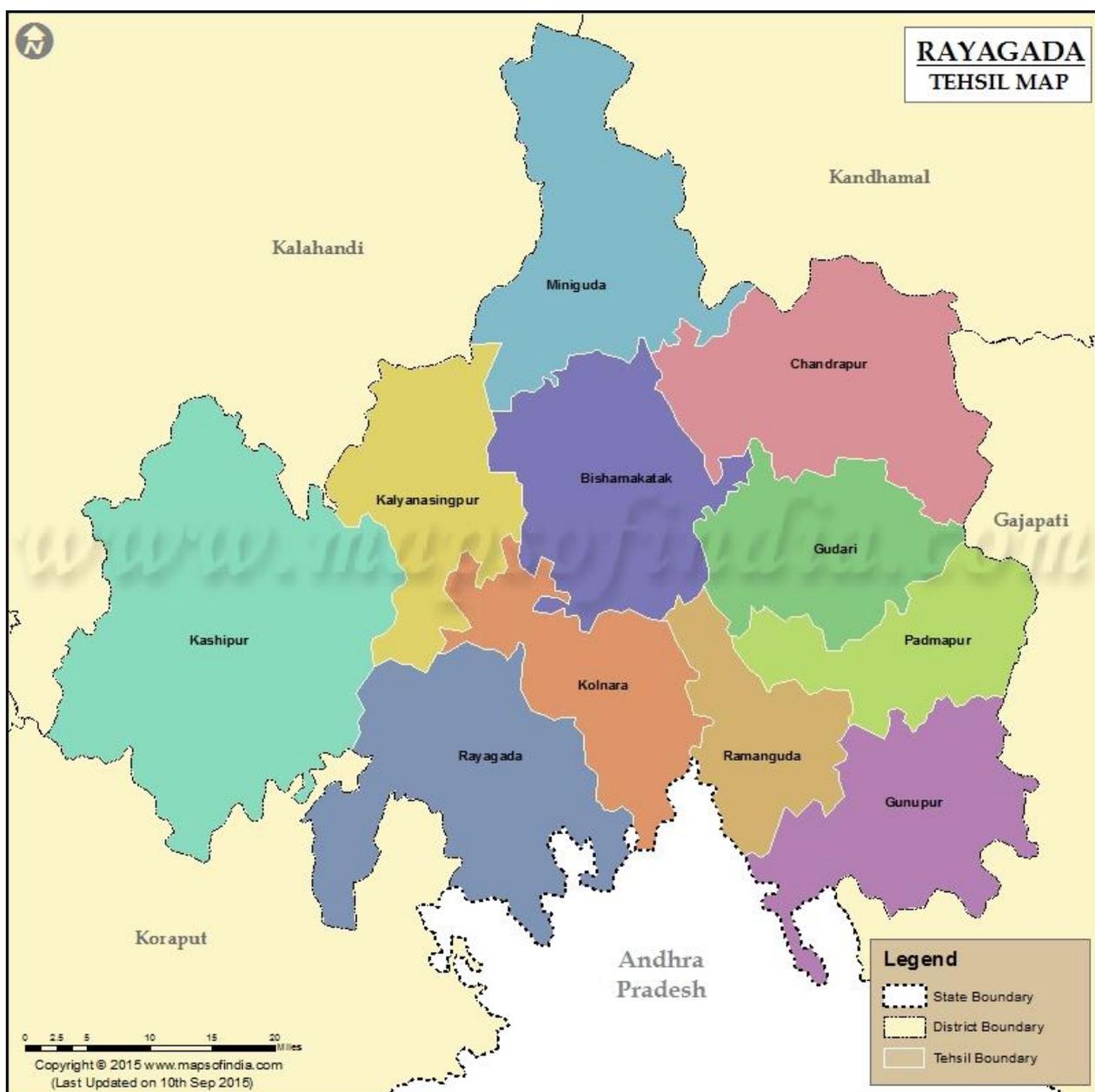
A subsequent literature found at Pataleswar temple speaks about the River Langully, giving a supporting evidence to the various facts of the District. This region went to Bahamanis when Mukund Dev was defeated at Gohera Tikiri in 1519. Then, it was under Nandapur Kingdom for brief period of 47 years. Biswambar Dev who was defeated and killed by Hasin Khan was perhaps the third king installed at Rayagada. Still, the Sati Kunda Goddess Majhi Ghairani and the Mud fort around it speaks much about its evidence. In subsequent years it was under Bobilli, a Tahasil of Vijayanagaram. Later, during the English regime, Rayagada District was covered under the Jeypore Zamindari, which continued till Independence.

1.2 Location and Geographical Area:

Rayagada is one of the Districts of Odisha. Rayagada is the District Head Quarter, spreading over an area of 7584.7 sq.km. The District is surrounded by Kandhamala District in its northern side, Gajapati District in its East, Palasa District of Andhra Pradesh & Koraput District in its South and Kalahandi District lie on its Western side. It is the largest city of South Odisha. Rayagada is a district in southern Odisha, a state in India, which became a separate district in October 1992. Its population consists mainly of tribes, primarily the Khonds and the Soras. In addition to Odia, Kui and Sora are spoken by the district's indigenous population. Rayagada is divided into eleven blocks. Agriculture is the chief source of income and paddy, wheat, ragi, green and black gram, groundnut, sweet potato and maize being the district's major crops. Rayagada district is known as the most famous region of the state because of its longest human history. It has long and glorious historical records evident by copper plates, rock inscriptions as well as different coins, which clearly indicate the region was the centre of attraction in all ages. In the third century B.C., during the reign of Ashoka the Great, it was covered under Kalinga Empire.

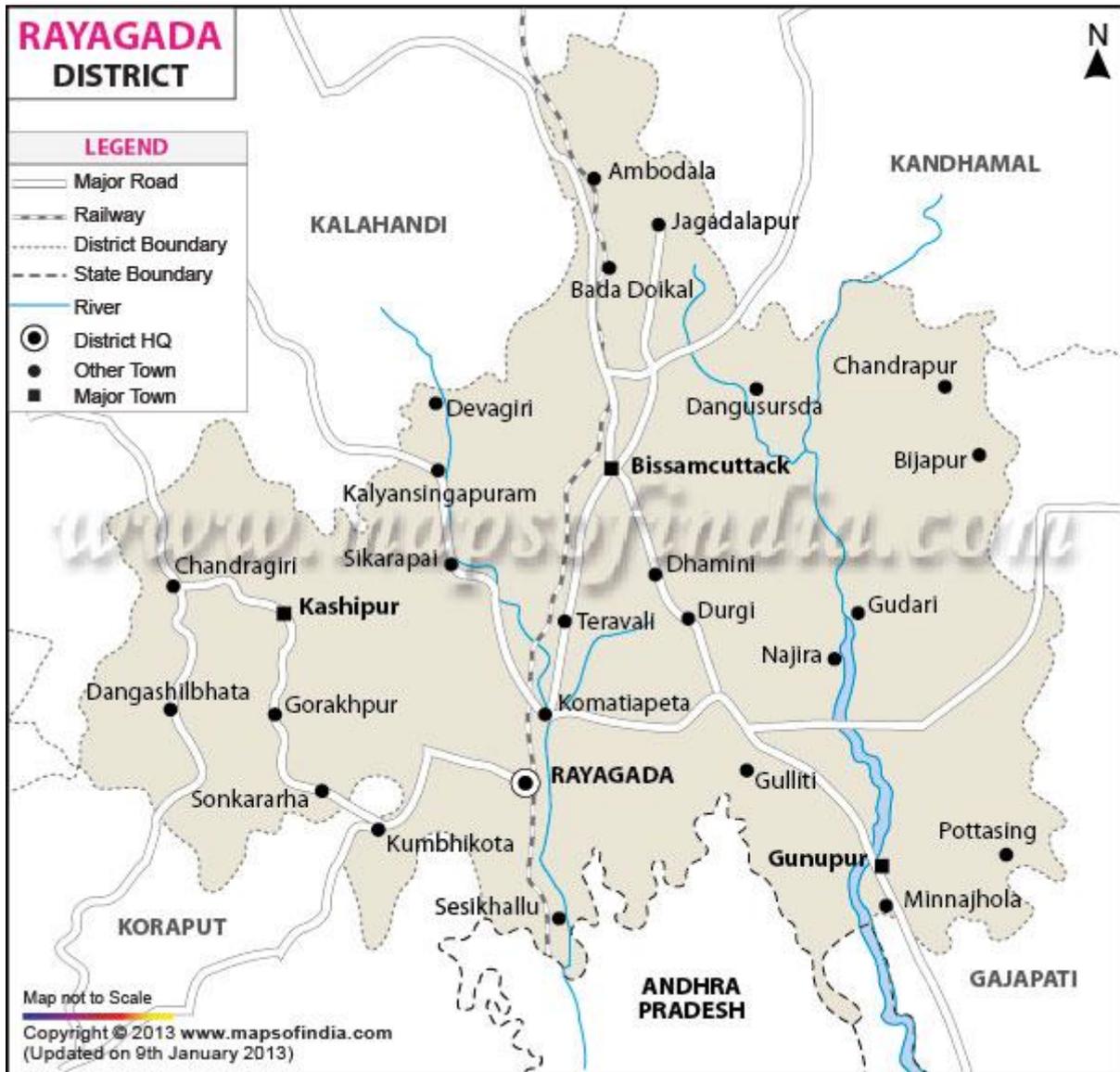
1.3 Administrative Units:-

Rayagada is the Administrative Headquarter of Rayagada District. It is located at a distance of 376 km from Bhubaneswar, State Capital of Odisha. It has 2657 villages covering 11 Blocks, 11 Tahasils and 2 sub-divisions. The district is sub divided into 2 divisions 1. Rayagada 2. Gunupur. & Tahasils namely 1) Rayagada 2) Gunupur 3) Bissamacuttack 4) Kasipur 5) Kolnara 6) Ramanaguda 7) Kalyansinghpur 8) Padmapur 9) Gudari 10) Muniguda 11) Chandrapur. The population of the District is 967,911 according to the 2011 Census. The District accounts for 4.78% of the State's territory and about 2.31% of State's population. The density of population of the District is 137 per square km as against 610 per square km of the State. As per 2011 census, the population of Scheduled Caste is 139514 (14.41%), and Scheduled Tribe is 549905 (56.81%). The literacy percentage of the District covers 43.50 against 84.67 of the State.



1.4 Connectivity facilities:-

The District is well served by a network of good roads and has been called the motorists paradise. The chief roads emanating from Rayagada town are NH-326 pass through the District. Rayagada Town is about 200 Kms from Berhampur, 110 Kms from Koraput, 363 Kms from Raipur, 376 Kms from Bhubaneswar. It is also connected with other cities such as Nabarangpur, Vizianagaram, Visakhapatnam, Balangir and Paralakhemundi.



2. OVERVIEW OF MINING ACTIVITIES IN THE DISTRICT:

Rayagada district has a potential reserve of graphite, manganese, bauxite, chinaclay, limestone, quartz, gemstones etc. The following paragraphs are a brief account of the minerals of the district.

Bauxite

The district has many high level bauxite occurrences. Important bauxite deposits of the district are Sijimali, Kutrumali, Baphilimali, Sashubohumali, Lakharasi. Kutrumali and Sijimali deposits extend into both Rayagada and Kalahandi districts.

Gibbsite is the main aluminous mineral. Al₂O₃ content ranges from 44 to 57.80%, SiO₂ content is between 0.40 to 8.74%, Fe₂O₃ content ranges between 16.2 to 27%. The resource of bauxite in the district is more than 600 Mt. However, this figure is likely to be much higher in view of numerous occurrences of smaller plateaux whose potentiality has not been quantified through detailed exploration. Almost all the plateaux rising more than 900 m above MSL contain bauxite which have been explored by Directorate of Geology and GSI.

Manganese

Manganese Ore deposits in the district are associated with khondalite suite of rocks belonging to Eastern Ghat Supergroup. Nishikhal manganese deposit is the most important, single largest deposit in the area with a reserve of nearly 10.2mt (Mn-28-38%). It is currently being mined by OMC and fed to Vishakapatnam Steel Plant. The other deposits in the area are Podakona-Taldhodshi (7mt), Kuttinga-Debjholla (1mt) etc. Manganese occurrences have been reported around Devajhola, Kutingpadar, Nishikhal, Rukunibadi, Paikaranipinda, Kandharanipinda, Taladoshi, Upardoshi, Podakona, Kinchikhal, Koka, Liliguma, Sirlijodi, Balkapai, Bhitardulki, Sikapai, Pariguda, Katubadi, Sunakhunti, Anjorhi, Bada Siringul, Purunapani, Mandhara etc. Manganese content varies from 7% to 38%.

Graphite

Graphite occupies a very prominent position in the district with regard to its extension, reserve and number of deposits. There are quite a number of graphite deposits in the district occurring at the contact of the khondalite and the granite gneiss. The important occurrences which are under active mining are in the famous Tumudibandh belt. Nearly 150 occurrences of graphite have been identified. The most important occurrences of the district are Bandhamandi, Solagudi, Birida, Naringponga, Jagdalpur, Dukkum, Pangadi, Hajaridangu, Sada, Minahala, Pichaliguda, Rauli, Bhitardulki, Jholaguda, Sikabarhi, Kaliapalli, Patrani, Gandrugam, Dallurgam, Malimunda, Disidaku, Deulbadi, Alanda, Budaguda, Murkakona, Ajaygarh, Pipliguda, Bhitarsaja, Kumbhikota, Boragaon, Dongipadar, Tutter etc. Graphite is mostly of

crystalline & flaky variety. It occurs in form of disseminations, veins, pockets, lenses and also as bedded deposits. Mineralisation is controlled by lithology, stratigraphy and structure. Graphite is associated with khondalite, calc- granulite, and granite gneiss and also with pegmatites and quartz veins. The fixed carbon value in low grade and high grade graphite occurrences varies between 5 to 25 % and 30 to 80 % respectively.

Limestone

Limestone occurrences in the district has been reported from Talasaja, Salimi, Gummigurha, Sikarpai, Ranjabadi, Bhitarijhol, Bheja, Santinagar, Nilabadi, Karlakona etc. Limestone occurs as lenticular bands associated with calc-granulite. The average CaO content varies from 28 % to 52 %.

Chinaclay / Kaolin

Chinaclay / kaolin occurrences have been reported in the district from Ambadola, Bandhamandi, Pipliguda, Kanipai, Bondichuan, Ladiponga, Loharahira, Bantichura etc. These occurrences are associated with khondalite, granite gneiss as pockets & lenses. The occurrences are highly gritty.

Quartz

Quartz veins of different dimensions are reported in the district. Among them, the notable occurrences are found around Bainibasa, Jamraguda, Bhaliapadar, Dangipada, Torumohra, Gudikhal, Sikampadar, Machhkhunti, Srirampur, Purlikona, Chitikapangu, Kusumpadar, Kasli etc.

Quartzite

There are several quartzite bands analysing more than 97% SiO₂ content in the Eastern Ghats Super Group of rocks. Notable among them are the occurrences around Kondakora, Karlakona, Sana Kuanga, Loharasahi, Malkajuba, Pordiguda, Bhitarijhol, Matiguda, Adabarhi, Guriaguda and Sikarpai etc.

Calc-Tufa

Minor occurrences of calc-tuffa have been reported from Kiribiri, Durgi, Podabai, areas of Rayagada district. These occur as pockets in khondalites.

Red-Ochre

Red-ochre has been reported to occur at Marichakona with Fe₂O₃ content of 20.4 to 42.8% and Al₂O₃ content of 28.58 to 42.4 %. Red-ochre has also been found at Ganiabhadra with Fe₂O₃ of 36.16-36.69%, SiO₂ of 12.40-12.56% and also at Budharaja Parbat with Fe₂O₃ of 25.20-42.44%, Al₂O₃-28.58-42.44% and SiO₂ of 0.03-0.85%.

Gemstones

- (i) Garnet:** Hessonite garnets are reported around Bandhaguda, Hata dahikhal, Lataguda.
- (ii) Chrysoberyl:** Gem quality chrysoberyl occurrences are reported in the area around Dhakalguda, Berhu. Often, the chrysoberyl exhibits cat's eye effects.
- (iii) Sillimanite Cat's eye:** Fibrolite variety of this group with excellent cat's eye effect is reported from the areas around Hamsa, Anabadi, Bada irkubadi.

Dimension and decorative stones

The district has good potential as regards to the occurrences of dimension and decorative stones. The massive granite and charnockite serve as excellent construction material extensively used in foundation structures, roads and buildings. Of these, the pink granite of Gurumulu, porphyritic granites of Chatikona, granite gneiss of Bissamcuttack are important.

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

3.1 Demography:

SINo	Unit	Rayagada
1	Geographical Area in (Sq.Kms)	7073
2	Total forest area in (Sq.Kms)	2812.33
3	Normal rainfall(M.M)	1285.9
4	Actual Avg. rainfall 2012(M.M)	1192
5	Density of Population(person per square Kilometre) - 2011	136
6	No of Sub Divisions	2
7	No of Tahasils	11
8	No of CD Blocks	11
9	No of Municipality	1
10	No of NACs	2
11	No of PS including Mahila PS	15
12	No of GPs	171
13	No of Fire station	1
14	No of Assembly Constituencies	3
15	No of Village (Total)	2667
16		Inhabited 2467
17		Un habited 200
18	Population (Total) - 2011	961959
19	Male - 2011	469672
20	Female - 2011	492287
21	Urban population -2011	115404
22	Rural population-2011	715702
23	SC population -2011	139514
24	ST population-2011	541905
25	Population in 0-6 age groups-2011	147892
26	Decadal growth (2001-2011)	15.74%
27	Sex Ratio (No of female per 1000 male) - 2011	1048
28		Rural 1064
29		Urban 967
30	(0-6) Yrs Sex Ratio Total-2011	1046
31	Literacy Rate (Total Population)-2011	50.88%
32	Literacy rate (Male) - 2011	62.67%
33	Literacy Rate (Female))- 2011	39.27%
34	Literacy rate (Rural)	45.45%
35	Literacy rate (Urban)	79.20%

4. GEOLOGY OF THE DISTRICT:

Rayagada District in Odisha presents a rich and varied geological landscape, reflecting a complex history of rock formation and tectonic activity. The district's geological foundation is anchored by Archaean crystalline rocks, including granites and gneisses, which are part of the Eastern Ghat Granulite Terrain. These ancient rocks, some of the oldest in the region, are often accompanied by greenstone belts containing met volcanic and metasedimentary rocks, revealing the region's early geological processes.

Overlaying these ancient formations are Proterozoic sedimentary rocks, such as those found in the Bhadanpur Group. This group includes quartzites and schists that were deposited during the Proterozoic era, adding another layer of geological history to the district. The Eastern Ghats Super group further contributes to the geological complexity of Rayagada with its diverse range of metamorphosed sedimentary rocks, reflecting significant tectonic and metamorphic activity.

In addition to these ancient and metamorphic formations, the district also features laterite deposits, particularly in the lower elevations. These laterites are rich in iron and aluminum and have formed through extensive weathering of the underlying rocks, contributing to the soil composition and landscape of the region.

Economically, Rayagada District is significant for its mineral resources. The district hosts important bauxite deposits, which are essential for aluminum production, and limestone deposits, crucial for the cement industry. These resources play a key role in the local economy.

The geological setting of Rayagada is profoundly influenced by its location along the Eastern Ghats, a major tectonic feature that has shaped the region's geological and geomorphological characteristics. The district's hilly terrain, shaped by the Eastern Ghats, affects local drainage patterns and sediment distribution. Major rivers, such as the Nagavali and the Vansadhara, have carved valleys through the district, further influencing the region's geomorphology and contributing to its diverse landforms and sedimentary features.

Overall, the geology of Rayagada District is a testament to a dynamic history of rock formation, tectonic activity, and sedimentary processes, resulting in a diverse and resource-rich landscape.

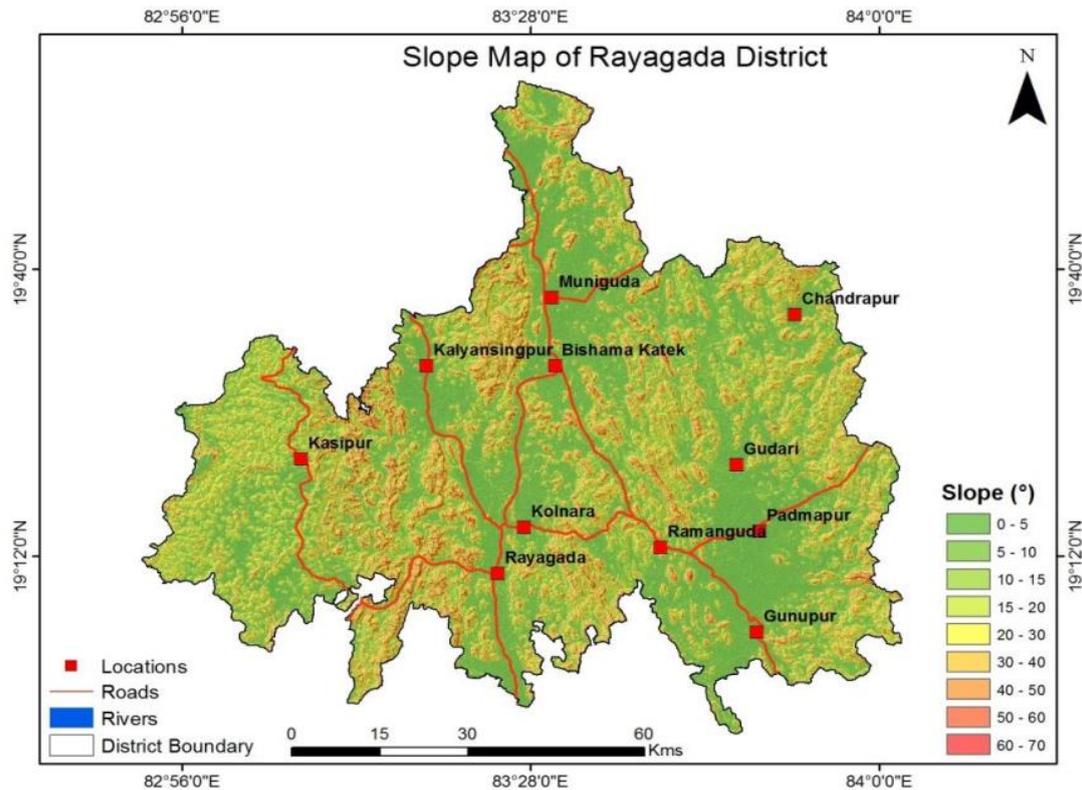
4.1 Physiography & Geomorphology:

Physiography:

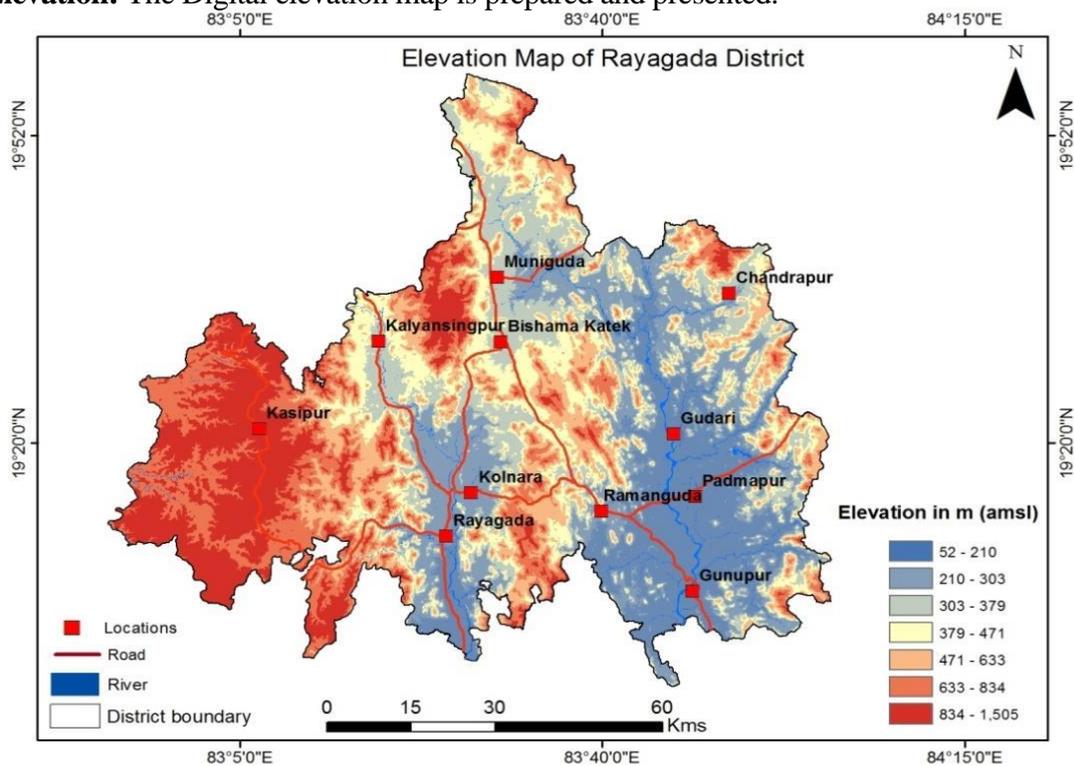
Rayagada District in Odisha is distinguished by its diverse physiography, shaped significantly by the Eastern Ghats, which dominate the landscape with their rugged, hilly terrain and elevations reaching up to 1,200 meters above sea level. This mountain range features steep slopes and prominent peaks, interspersed with deep river valleys carved by major rivers such as the Nagavali, Vansadhara, and Indravati, which influence the district's drainage patterns. Between these hills and river valleys lie plateau regions and interfluves with relatively flat terrain, utilized for agriculture and settlement. The district's dense forests, including both deciduous and evergreen types, cover the hilly areas and

contribute to its rich biodiversity. Soil types vary from lateritic soils in the lower elevations, formed by intense weathering, to fertile alluvial soils found in river valleys. The tropical climate, influenced by seasonal monsoon rains, affects temperature and soil moisture across the varied topography, further contributing to the district's ecological and agricultural diversity.

Slope of the area: The average slope of Rayagada district is less than 100. Slope is as high as 700 in some parts of the district in scatter manner.



Elevation: The Digital elevation map is prepared and presented.



Geomorphology:

Rayagada District, located in the southern part of Odisha, India, exhibits a diverse and complex geomorphology that reflects its varied geological history and topography. Here's a broad overview of the geomorphological features of the district:

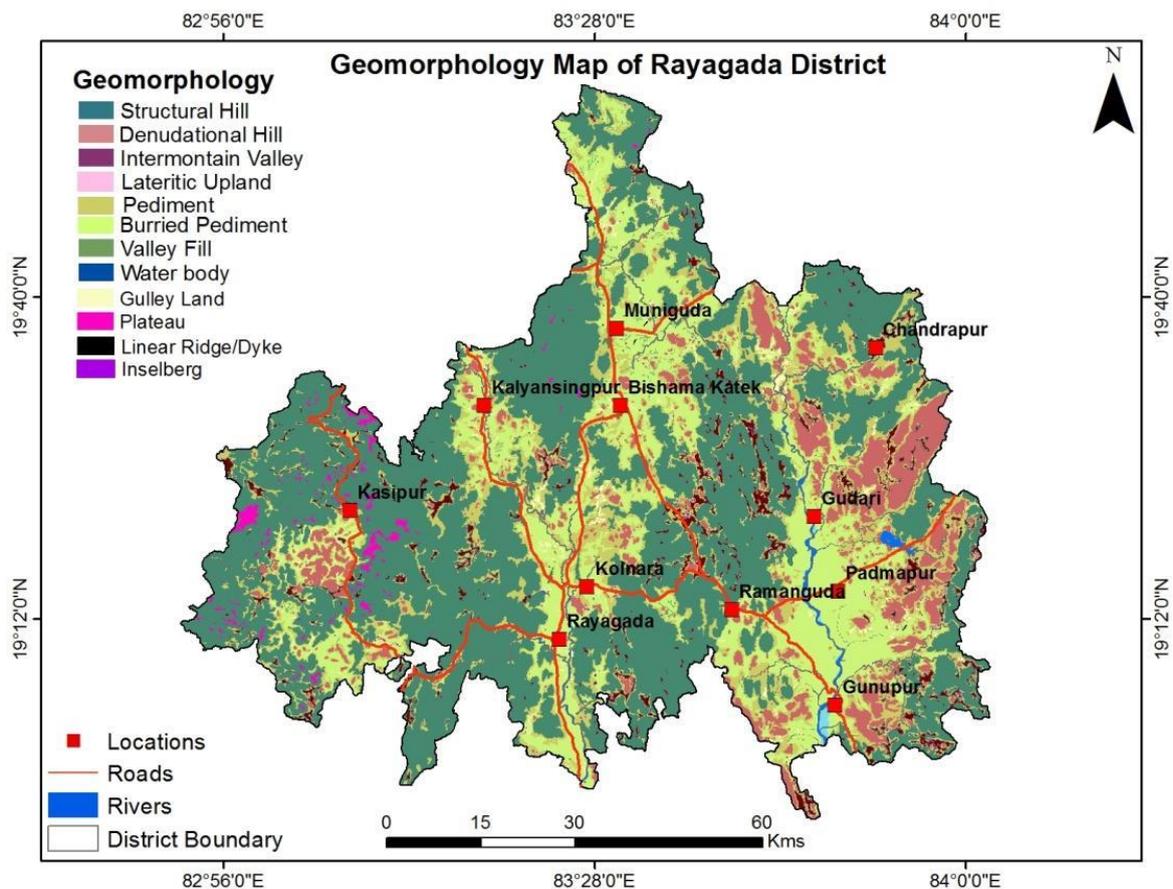
1. Topography

Rayagada District is characterized by rugged terrain with a mix of hills, plateaus, and valleys. The elevation varies significantly, contributing to a varied topographic profile.

Hills and Ranges: The district is part of the Eastern Ghats, which run along the western border of the district. These hills are often covered with dense forests and are a significant feature of the region's geomorphology.

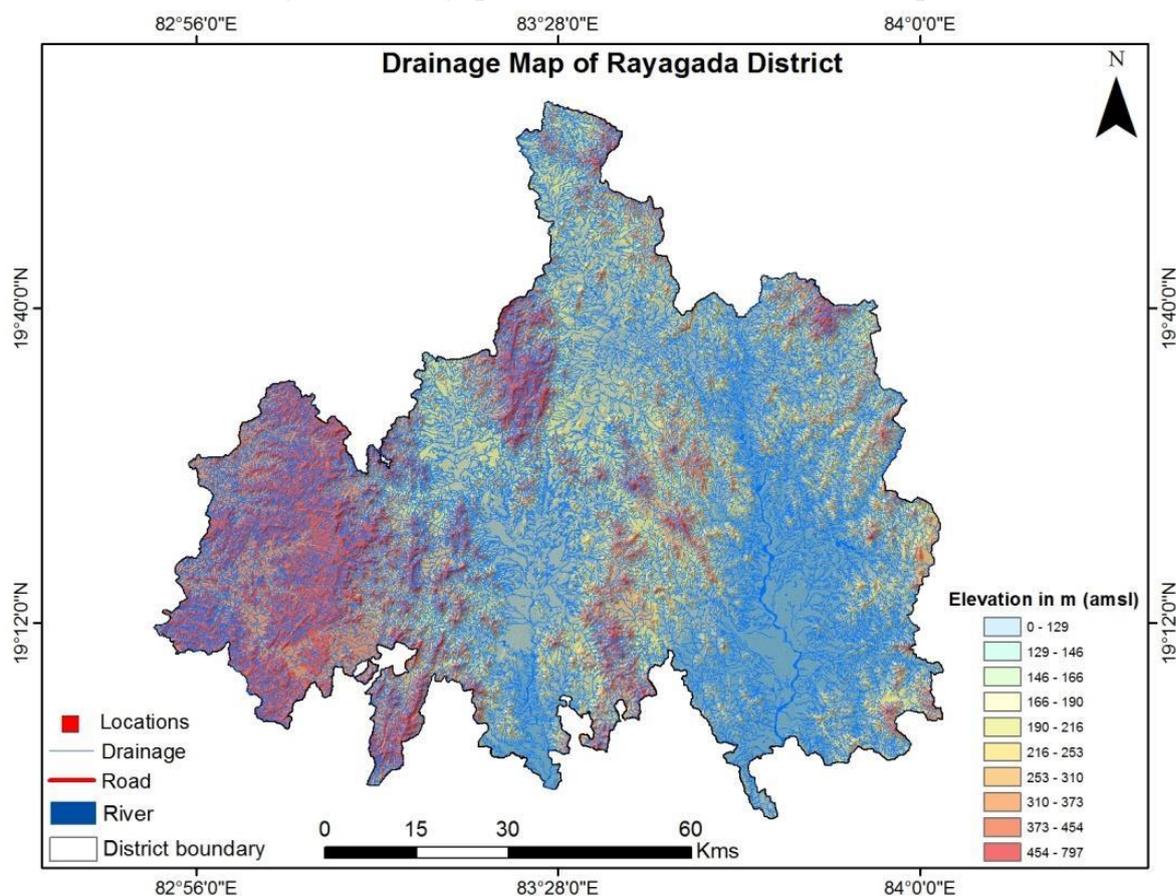
Plateaus: The district also contains plateau regions, particularly in the northern parts, which are generally more elevated and less rugged compared to the hill ranges.

Valleys and Interfluves: The areas between the hills and plateaus are marked by valleys and interfluves where rivers and streams have cut through the landscape.



2. Rivers and Drainage

The area is mainly drained by the Vamsadhara and Nagavalli River which are effluent in nature. The Vamsadhara River originates in the extreme northern parts of the BissamCuttack flows southwards through Gudari and Gunupur and enter Andhra Pradesh. The length of the river in Rayagada district is approximately 140 kms. The Nagavalli River which originates from the Kalahandi district, flows southwards through Kalyansinghpur of Rayagada district and enters Andhra Pradesh below Rayagada town. In Rayagada, the Nagavalli River descends below Rayagada town. In Rayagada the Nagavalli River descends into a gorge with occasional waterfalls. The length of the Nagavalli River in the district is about 101 km. The general drainage pattern of the district is dendritic to subparallel.



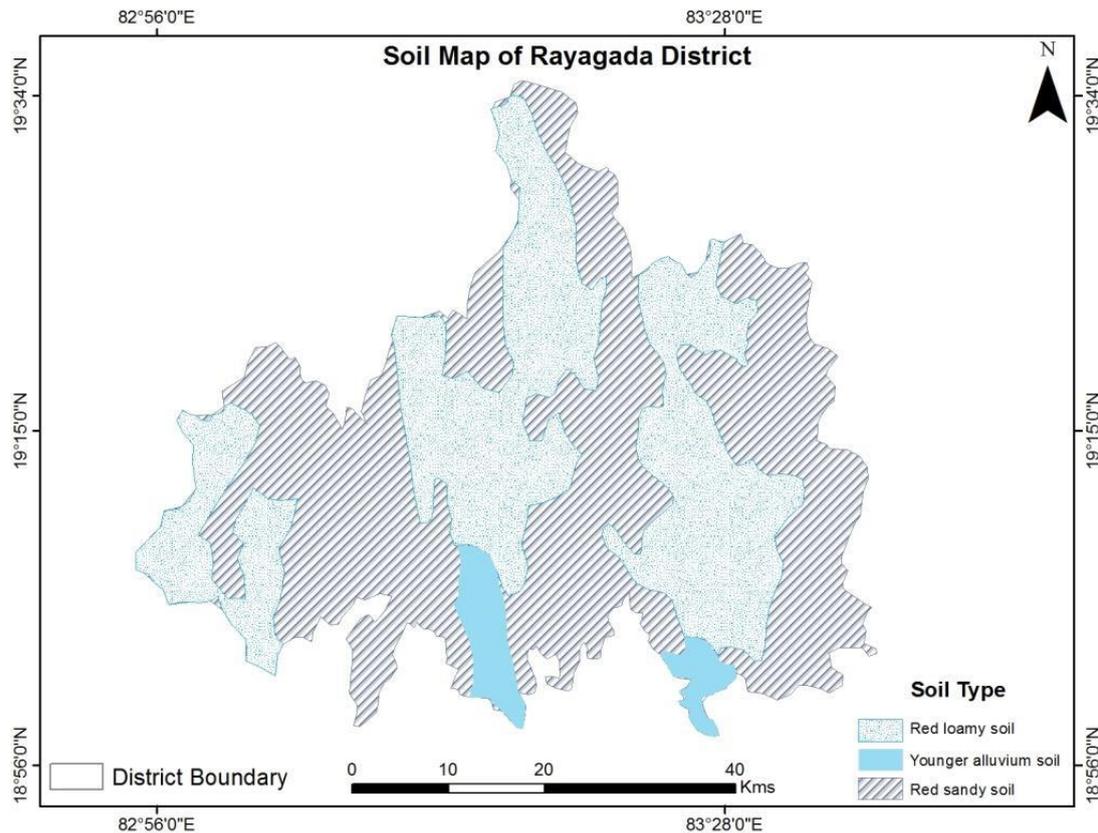
3. Soil Types

The soil in Rayagada District varies based on the topography and underlying geology:

Red Soils: Predominant in the plateau areas, these soils are typically well-drained and suitable for cultivation of a variety of crops.

Laterite Soils: Found in the hilly regions, these soils are rich in iron and aluminum oxides and are often reddish or brownish in color. They are less fertile compared to red soils but support forest vegetation.

Alluvial Soils: Along river valleys and floodplains, alluvial soils are found, which are fertile and support intensive agriculture.



4. Geological Formation

The geology of Rayagada is diverse, with significant formations from the Precambrian era:

Eastern Ghats Rock Formations: The rocks in the Eastern Ghats are primarily of ancient metamorphic origin, including gneisses, schists, and granites.

Sedimentary Rocks: In the river valleys and plains, sedimentary rocks and alluvial deposits are common.

5. Erosion and Soil Conservation

Given the district's hilly and plateau terrain, erosion is a concern, particularly in areas with deforested slopes. Soil conservation efforts are important to prevent loss of fertile topsoil and maintain agricultural productivity.

6. Land Use and Human Impact

The geomorphology influences land use patterns:

Agriculture: The fertile valley soils are extensively used for agriculture, with crops such as rice, pulses, and oilseeds being commonly cultivated.

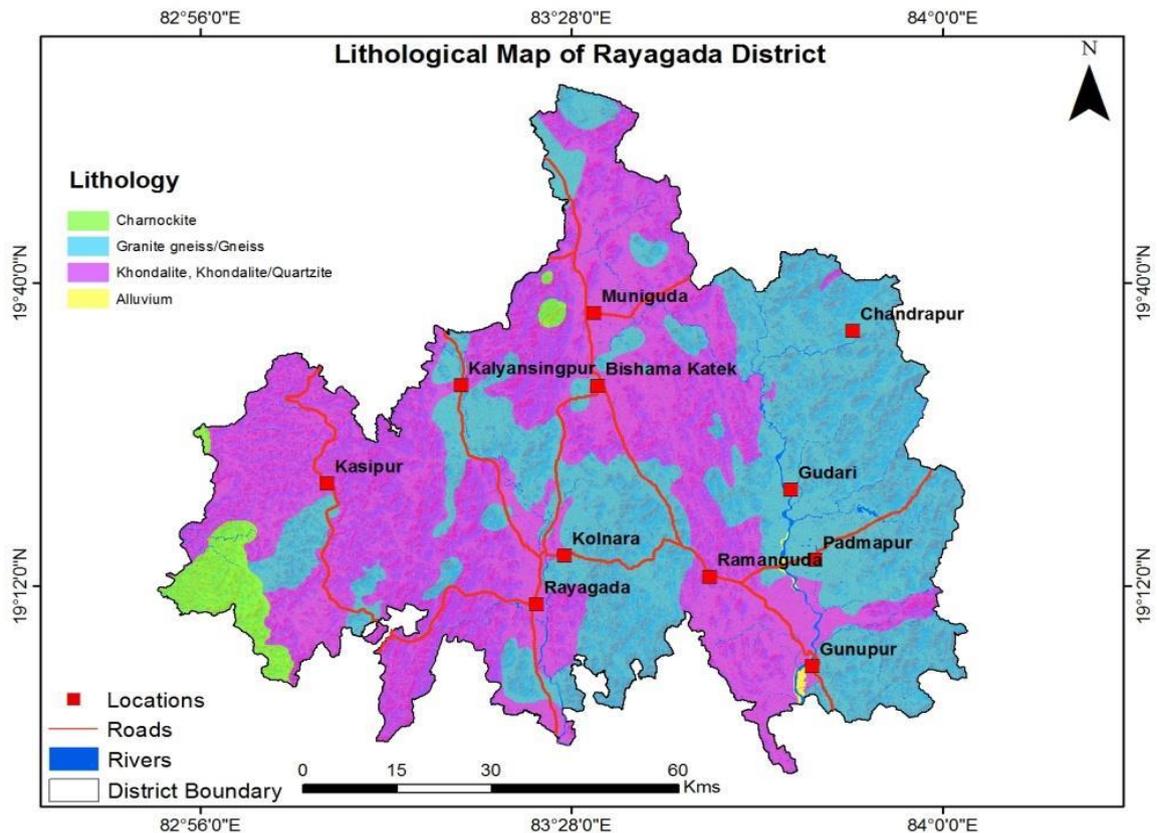
Forestry and Mining: The hilly and forested areas support various types of forestry activities, and there is also mining activity, which can impact the geomorphological balance if not managed properly.

Understanding these geomorphological aspects helps in planning sustainable development, managing natural resources, and mitigating natural hazards in Rayagada District.

4.2 Stratigraphy:

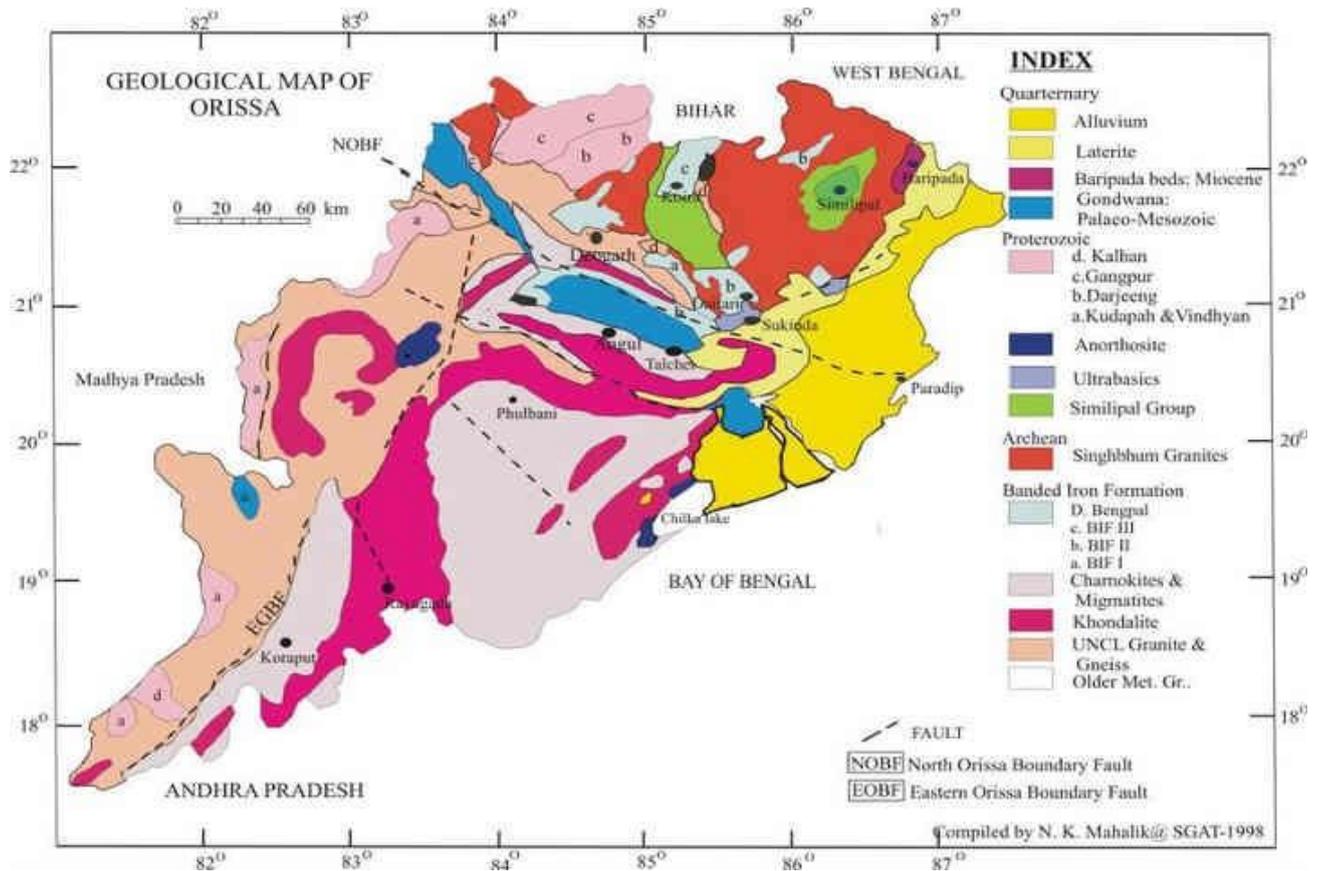
The study area comprises the following distinct geomorphic units:

Age	Super Group	Group	Litho-unit
Cenozoic			Laterite and Lateritic bauxite
Meso to Neo Proterozoic	Chhatisgarh	Sabari	Shale Limestone Sandstone
Palaeo to meso Proterozoic		Tulasi dongar	Gabbro and related basic rocks Sandstone
Proterozoic		Intrusive	Quartz vein Granite Dolerite
Archaean to Proterozoic	Eastern ghat	Migmatite	Granite gneiss, Leptynite (Acid to Intermediate)
		Charnocite	Charnockite, pyroxene granule, Garnetiferous sillimanite
		Khondalite	Schist/gneiss, Porphyry granite, meta basics, Amphibolite
Archaean		Bengal	Andalusite Schist, Hornblende schist, magnetite quartzite, quartz-magnetite-grunerite schist



4.3 Mineral Resources:

Rayagada district in Odisha is rich in minerals including significant deposits of bauxite, essential for aluminum production; limestone, used in the cement industry; iron ore; chromite, important for stainless steel; and graphite, valuable for lubricants and batteries. These resources play a crucial role in the region's economy and industrial development.



5. DRAINAGE OF IRRIGATION PATTERN

Rayagada district in Odisha features a diverse drainage pattern shaped by its hilly terrain and varied geology. The major rivers, including the Nagavali, Vamsadhara, and Kolab, flow eastward towards the Bay of Bengal. The region displays a mix of radial drainage patterns around elevated areas and dendritic patterns in flatter zones, resulting in a complex network of rivers and streams influenced by the local topography and underlying rock formations.

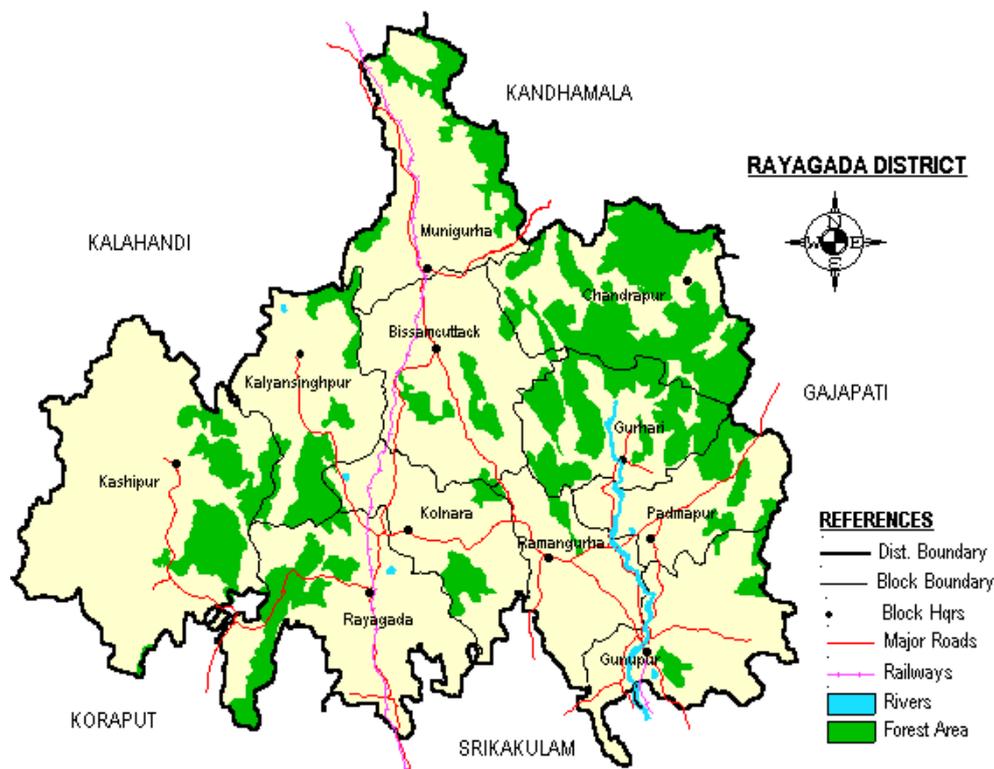
5.1 River System

Rayagada district in Odisha is characterized by a prominent river system primarily consisting of three major rivers: the Nagavali, Vamsadhara.

1. **Nagavali River:** It originates from the Bijipur hills of the Eastern Ghats near village Lakhabahal in Kalahandi district. The total length of the river is 217 Km of which 125 Km lies in Odisha and remaining portion in Andhra Pradesh. The prominent tributaries are Pitadar Nalla, Datteibannda Nalla, Sana-nadi, Barha-nadi, Baldiya-nadi, Sat Nalla, Sitagura Nalla, Ghora Nalla, Sitagera Nalla, Srikona-nadi, Bonamarha-nadi, Errigeda Nalla & Jhanjhabati river.

2. **Vansadhara River:** It originates from the flanks of the Durgakangar hills (Lingaraj hills) of the Eastern Ghats in Kalahandi district. The river traverses a total distance of 239 Kms before its outfall into the Bay of Bengal in Andhra Pradesh. The prominent tributaries of river Vansadhara are Bhangi, Pedagoda on right side and Badanalla, Chauladhua, Pandaka Nalla, Badajhar, Harbhangi, Sananadi, Mahendratanaya on left side. It is an important river for the local agriculture and economy.

These rivers, along with their tributaries and streams, form a vital part of the district's hydrological network, influencing agriculture, local economies, and the overall landscape.



6.0 LAND UTILIZATION PATTERN IN THE DISTRICT

6.1 FOREST & NON-FOREST LAND

The forest of Rayagada District is full of varieties of medicinal plant. Kendu leaves, Bamboo, Sal, Teak, other timber species and a wide range of carnivorous & herbivorous wild animals live in the forest. The District has one Wildlife Sanctuary known as Kalrapat Wildlife Sanctuary. This sanctuary is home to many wildlife species like tiger, leopard, sambar, nilgai, barking deer, mouse deer, a wide variety of birds like green munia, Great Eared-nightjar and various reptiles.

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

2017 Assessment								
District	Geographical Area Km ²	Very Dense Forest	Moderate. Dense Forest	Open Forest	Total	Percent of GA	Change	Scrub
Angul	6375	371	1380	1004	2755	43.22	43	84
Bolangir	6575	70	224	837	1131	17.2	151	142
Baleswar	3806	23	127	234	380	9.98	30	48
Bargarh	5837	176	371	484	1031	17.66	88	47
Bouda	3098	263	546	480	1289	41.61	27	57
Bhadrak	2505	0	9	66	75	2.99	2	0
Cuttack	3932	53	226	517	796	20.24	11	68
Deogarh	2940	191	667	614	1472	50.07	-3	14
Dhenkanal	4452	174	418	825	1417	31.83	9	82
Gajapati	4325	84	1490	946	2520	58.27	12	262
Ganjam	8206	164	1075	864	2103	25.63	15	655
Jagatsinghpur	1668	0	5	131	136	8.15	6	0
Jajpur	2899	6	72	225	303	10.45	3	50
Jharsugada	2114	3	140	179	322	15.23	9	36
Kalahandi	7920	362	729	1327	2418	30.53	36	362
Kandhamal	8021	661	2588	2143	5392	67.22	16	380
Kendrapada	2644	84	88	133	305	11.54	14	2
Keonjhar	8303	289	1404	1519	3212	38.68	4	55
Khorda	2813	21	186	250	457	16.25	0	92
Koraput	8807	94	740	1255	2089	23.72	120	944
Malkangiri	5791	158	709	1475	2342	40.44	20	45
Mayurbhanj	10418	1335	1718	1027	4080	39.16	42	34
Nabarangpur	5291	168	428	507	1103	20.85	8	47
Nayagarh	3890	189	965	556	1710	43.96	28	173
Nuapada	3852	86	482	705	1273	33.05	33	109
Puri	3479	0	54	160	214	6.15	8	11
Rayagada	7073	422	853	1851	3126	44.2	7	349
Sambalpur	6624	499	1675	1106	3280	49.52	13	40
Subarnapur	2337	2	187	161	350	14.98	26	29
Sundargarh	9712	1019	1814	1431	4264	43.9	107	89
Grand Total	155707	6967	21730	23008	51345	32.98	885	4306

(Source: India state of forest report 2017-Odisha)

The major portion of the District is covered by forest (39.75 % of TGA) and has scattered settlement pattern. The forest is full of variety of medicinal plants, Kendu leaves, Bamboo, Sal, Teak and other timber species. The District has considerable flat land, which provides suitable site for agricultural use. The hilly areas are mostly under forest with patches of cultivation on scarp areas. Major crops grown in the District are rice and pulses. Only 12.50 percent area of agricultural use are net irrigated and major source of irrigations are well and tube wells.

Source: Fertilizer and Agriculture Statistics, Eastern Region (2006-2007).

LAND USE PATTERN OF RAYAGADA DISTRICT

S. No	Block	No. of G.P	Villages	Geographical Area	Area under Agriculture				Area under Forest	Area under Waste Land	Area under other uses
					Gross Cropped Area	Net Sown Area	Area sown more than once (1-2)	Cropping Intensity			
		No	No	ha			%	ha			
1	Rayagada	28	294	55857.65	22716	17536	5180	130	4160	540	510
2	Kolnara	15	199	39425	17785	15224	2561	117	17140	160	810
3	K.Singpur	13	254	44590	17533	14228	3305	123	8470	2020	1040
4	Kasipur	20	449	51251	45545	37000	8545	123	7700	1110	1850
5	Gunupur	18	129	99586.65	22616	16464	6152	137	0	900	3580
6	Padmapur	13	125	88390	20008	13190	6818	152	24530	210	940
7	Ramanaguda	12	119	66999	23543	16506	7037	143	28340	1050	760
8	Gudari	9	159	79460	15439	12784	2655	121	2670	600	1220
9	Bissam Cuttack	20	308	64807	23000	18085	4915	127	31770	850	2820
10	Muniguda	16	416	67608	18806	15428	3378	122	16280	1170	3340
11	Chandrapur	7	219	46100	8521	6462	2059	132	34730	13760	4110
Total		171	2671	704074.3	235512	182907	52605	1427	175790	22370	20980

6.2 Agriculture Land:

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

Table – 3.6a: Crop Coverage Area of Rayagada District, Odisha.

	District Agriculture area	Land Use (fig: '000 Ha.)
1	Geographical area	758.746
2	Cultivable area	193.504
3	Cultivated Area	
	High	118.062
	Medium	43.561
	Low	20.981
	Total	182.604
4	Paddy Area (Kharif): -	
	High	5.354
	Medium	20.646
	Low	20.981
	Total	47.000
5	Cropping Intensity	125%
6	Irrigation Potential	
	Kharif	77.344
	Rabi	29.457
7	Major Crops	
	Kharif	Paddy, Ragi, Maize, Arhar, Vegetables
	Rabi	Blackgram, Sunflower, Vegetables

Farmer Category in the district

Marginal Farmers (<1.0 Ha) : 133653 Nos.

Small Farmers (1-2 Ha) : 71401 Nos.

Semi medium Farmers (2-4 Ha): 26809 Nos.

Medium Farmers (4-10 Ha): 5631 Nos.

Large farmers (>10Ha): 459 Nos.

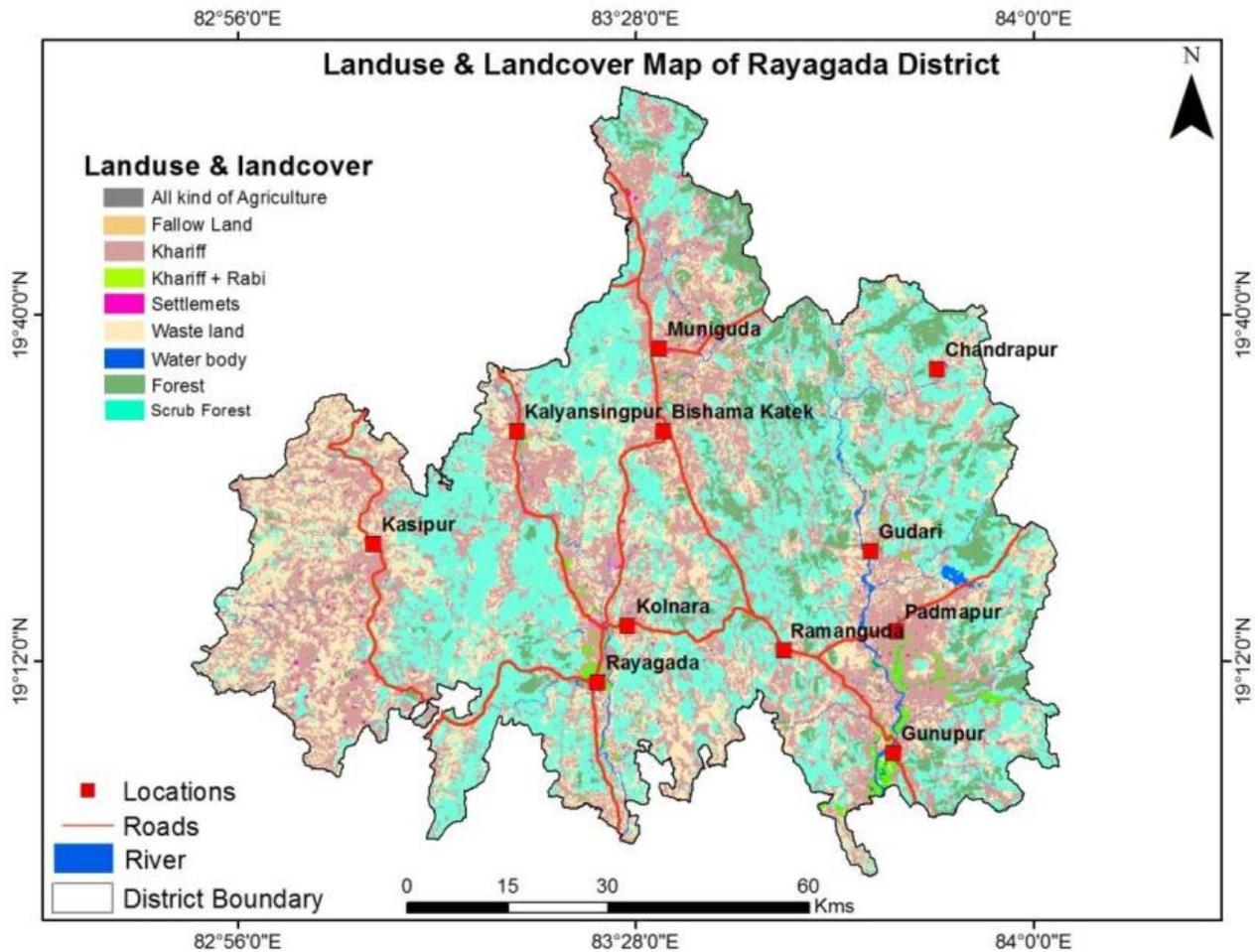
Landless Agril. Labourer : 381530 Nos.

6.3 Horticulture Land:

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

INFORMATION ON HORTICULTURE PLANTATIONS FOR RAYAGADA DISTRICT.

Sl.No	Year	Fruit Plants				Perennial crop cultivation	Vegetables	Flowers
		Mango	Cashew	K.Lime	Jackfruit	Banana / Papaya		
1	2019	9240	10054	1100	730	1120	15255.46	102
2	2020	12980	11154.08	1500	950	1790	16173.56	133
3	2021	13241.56	12160.26	1500.03	950.58	2029.17	17969.43	132.35
4	2022	13950.75	12990.24	1505.04	962.64	2047.05	19632.75	132.42
5	2023	14347.21	13062.14	1521.15	970.8	2075.5	22550.67	206.17
	Total	63759.52	59420.72	7126.22	4564.02	9061.72	91581.87	705.94



7.0 SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

7.1 Hydrogeology

The hydrogeological conditions vary from place to place depending upon the aquifer characteristics of the litho units, sources of groundwater recharge and the structural setting of the area. The hydrogeological units of the area are broadly categorized into three groups namely:

- A. Consolidated formations.
- B. Semi Consolidated formations
- C. Unconsolidated formations

Consolidated Formations:- The weathered and fractured granites, granite gneisses and their variants, khondalites, charnockites etc. are the most predominant rock types in the district. These are characterized by development of secondary porosity. The secondary porosity in the consolidated formations developed as a result of weathering and fracturing due to major and minor tectonic movements from the conduits for movement of groundwater as also act as reservoir of groundwater. Generally the secondary porosity in the consolidated formations developed as a result of weathering and fracturing due to major and minor tectonic movements form conduits for movement of groundwater as also act as reservoir of ground water. Generally the secondary porosity developed in the crystallines is non uniform in distribution. This fractured and jointed rocks when interconnected form potential aquifers, which sustain limited to moderate yield.

Semi-consolidated formations:- Porous laterites occurring as discontinuous capping over older formations. These possess both primary and secondary porosities.

Unconsolidated formations:- Recent alluvium occurring as valley fills of the rivers, Vamsadhara & Nagavalli are characterized by primary porosity. Recent alluvial deposits formed in the river valleys of Vamsadhara and Nagavalli, are the most potential. The occurrence and movement of ground water in the alluvium are characterized by more or less homogenous hydrogeological properties.

Water bearing properties of the consolidated formations:

Granites and Granite Gneisses: The granite and granite gneisses with leaching out of kaolinised clay these rocks on weathering reduce to porous granular materials. The thickness of weathered mantle is an average 10 m. The weathered as also fractured and fissures intersecting system of granite gneisses in topographic lows form potential aquifers. It is in these hydrogeologically favourable locales that groundwater structures are successful and well yields are relatively high. The yield of the wells depends upon the thickness of the saturated zone as also number of Fractures tapped. The open wells generally range from 7.3m to 8.5m. The depth to water table during premonsoon season is between 1.72 m to 11.70 m below ground level and during post monsoon season between 0.50 m to 9.80 m below ground level. The seasonal fluctuation of water level is between 0.67 m to 7.28 m. Specific capacity index of wells in this formation ranges from 1 lpm/m/m² to 14 lpm/m/m², the transmissivity values of the formation range from 0.5 m² /day to 116 m² /day. The yield of the open wells in Granitic Gneissic terrain is generally upto 3 lps. However generally the bore wells in this formation yield upto 10 lps.

Khondalites : Khondalites are actually metasediments and occupy mainly ridges and hills, covered with thick forests and profuse vegetation. Khondalites have undergone high degree of weathering down to a depth of more than 20 meters. Although the interlacing joints and sheared surfaces, from potential receptacles of groundwater, preponderance of clayey material reduces the permeability of the formation. The depth of open wells in this formation generally varies between 7 m to 8 m. The depth to water level during pre-monsoon period varies between 2.62 to 9.13m below ground level and during post monsoon period between 0.86 m to 6.96 m below ground level. The seasonal water table fluctuation is between 1.20 m to 4.14m. The pumping test analysis in the open wells indicate that specific capacity index of the formation varies between 1.00 to 13 lpm/m/m². The yield of the dugwells is upto 3 lps.

Charnockites: The Charnockitic rocks in the area are generally devoid of significant ground water storage due to lack of well-connected joints and fractures. Very few wells exist in this formation. The average depth of open wells vary between 4 to 20m. The depth to water level during pre-monsoon period varies between 3.34 to 16.39 m below ground level and during post monsoon period it ranges between 0.64 to 16.39 m below ground level. The water level fluctuation between pre-monsoon and post monsoon period varies from 0.07 to 3.09 m. The aquifer characteristics of the formation could not be ascertained for want of facilities for conducting hydraulic tests on wells tapping charnockites.

Semi-Consolidated Formation:

Laterites : Porous laterites are formed as capping over the crystalline hardrocks in the upland areas like the Raygada-Kolnara uplands, Kailashkota, Ramanguda, Gudari section etc. Due to restricted areal extent these rocks do not contribute as potential aquifers.

Unconsolidated Formation:

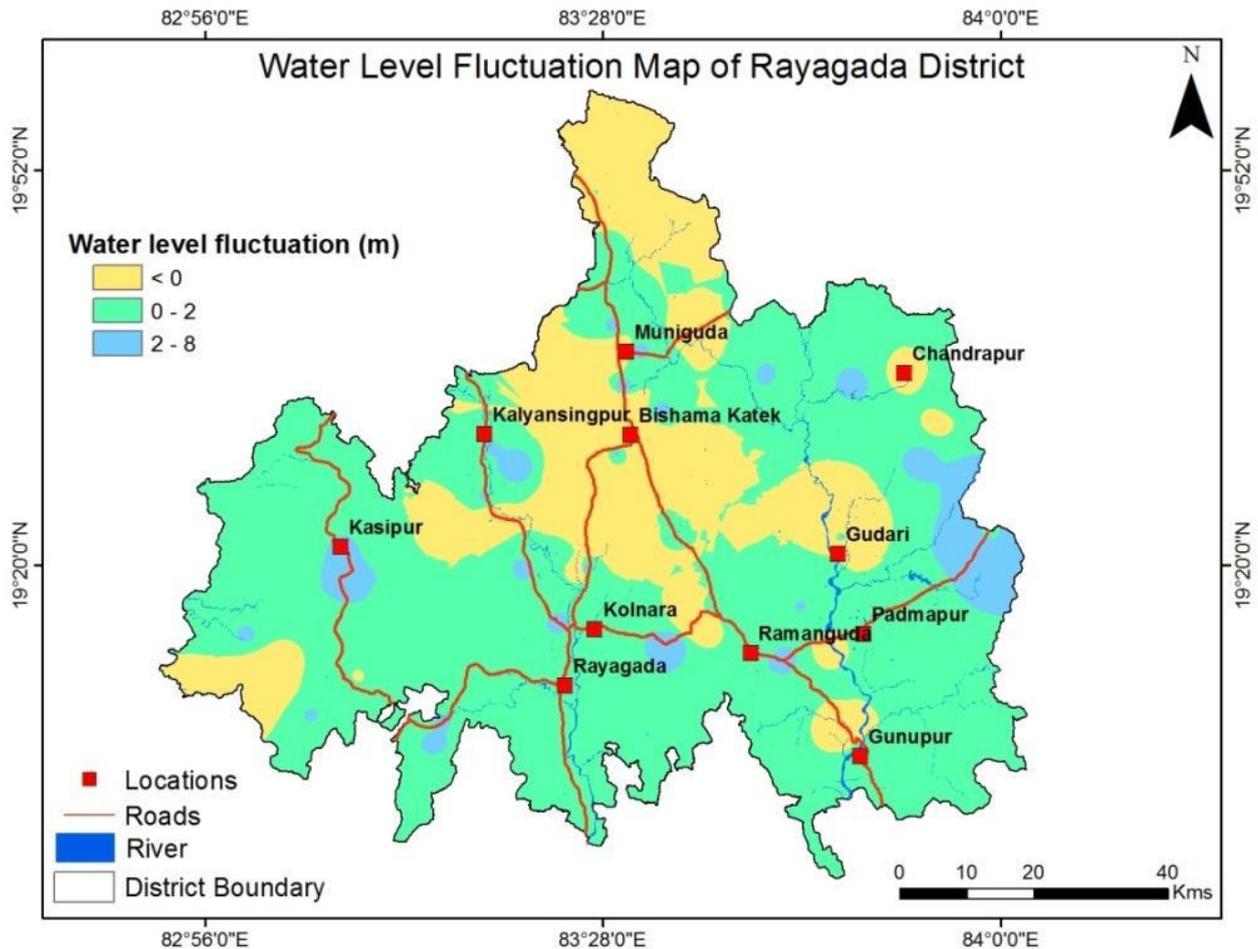
Alluvium: The alluvial deposits in the flood plains of the Vamsadhara and Nagavali rivers form the most potential aquifer system of the district. The borehole data reveals that there is a sub surface disposition of aquifers in parts of the Vamsadhara basin. The colluvium in the intermontane valleys also form rich aquifers. The alluvium comprises an admixture of gravel, sand and clay derived from eroded and weathered country rocks. Groundwater occurs in these deposits under both unconfined as well as semi confined conditions. A number of openwells and shallow tubewells vary between 0.90m to 13.05 m below ground level with an average depth of 5.5 m to 7.5 m below ground level.

Aquifer Characteristics of Crystalline: In the hard crystalline rock recharge of ground water from precipitation or seepage from surface water bodies percolate into the weathered (saprolite) zone. In case the underlying basement rocks (both weathered and fresh) are incised by open fractures, the downward movement of the water from the upper regolith zone (comprising the top soil and saprolite horizon) is facilitated. In the saprolite/regolith horizon ground water generally occurs under unconfined condition whereas in the fractured bedrock aquifers it occurs under semi confined to confined conditions. The ground water potentials of various zones i.e. saprolite (tapped by dug wells), weathered basement rock and shallow fractured basement rock horizon (tapped by the hand pumps) and deeper fractured basement rock (tapped by the deep boreholes by CGWB) vary considerably depending upon their lithological and structural characteristics. Perusal of all result indicates that granite gneiss forms the most potential aquifer both in shallow and deeper horizons followed by Khondalite. In Laterites the specific capacity Index of dug wells vary from 2.32-to 10.27-lpm/m². In limited extent the alluvium forms potential shallow aquifers.

7.2 Depth of water level:

The depth to water level is measured from the 14 National Hydrograph Stations situated in different blocks of the Raygada District. The Pre monsoon, 2011 water level data varies from 1.05 mbgl to 12.99 mbgl. The shallow water level was measured from Padampur and the deepest water level was measured at Kashipur.

The depth to water level data of Post-monsoon, 2011 represents 1.14 mbgl to 11.62 mbgl. The Gunupur shows deepest water level and Raygada shows shallowest one.



7.3 Ground Water Quality

The chemical quality of ground water in the district has been assessed on the basis of ground water samples collected during ground water monitoring, hydrogeological surveys and ground water exploration. The ground water quality is slightly alkaline type (pH ranging from 7.16 to 8.25). The electrical conductance varies from 162 $\mu\text{S}/\text{cm}$ to 1103 $\mu\text{S}/\text{cm}$ except at Kumudwali of Muniguda block of Raygada district where the EC value is found to be 2200 $\mu\text{S}/\text{cm}$. The chloride value at Kumudwali also shows high value of 550 mg/l. The fluoride content of the ground water is generally low except in case of Raygada where value of 1.4 mg/l has been observed. The iron content of water exceeded the maximum permissible limit of 1.0 mg/l at Raygagada (1.6 mg/l), Kalyansinghpur (1.2 mg/l), Kutraguda (1.9mg/l) and Muniguda (1.57 mg/l).

7.4 Ground Water Development

Ground water development in the district is mainly through dug wells, Dug-cum-bore wells and bore wells. Ground water is mainly used for domestic and irrigation purpose and in limited scale for industrial purposes. The stage of development of Ground Water in the district is low. So far only 12.74% of its resources has been exploited. Hence a strategy for detailed ground water development is required. The hydrogeological, remote sensing studies and ground water exploration so far carried out in the district depict the tentative possibilities of ground water development through suitable ground water abstraction structures in various hydrogeological settings.

Dugwells : The wells may be sited in the topographic lows and should tap the maximum saturated thickness of the weathered zone. The depth of the dug wells may vary from 9 to 12m with 4.5m to 6m diameter. The wells may be fitted with 1.5 to 2 H.P. centrifugal pumps. The wells may sustain yield maximum up to 3 lps.

Dug-cum-borewells : Dug-cum-bore wells may drilled down to a depth of 25 to 30m below ground level, tapping the saturated shallow fracture below the regolith and in top portion of the hard basement. The wells should be fitted with 2 H.P. centrifugal / submersible pumps may sustain yield up to 3 lps.

Borewells : Borewells may tap the deeper saturated fractures found to occur in the depth range of 100 to 120m. The borewells should be 100 to 150mm. diameter and may be flitted with submersible pumps of 2 to 2.5H.P. capacities. The wells drilled in the vicinity of NNW-SSE and NE-SW trending lineaments are likely to be successful which has been established based on exploratory drilling by CGWB in the Western and Southern tracts of the district. The suitable sites for drilling may be selected in the district with the aid of Remote Sensing studies, Surface Geological, hydrogeological and Geophysical surveys.

Shallow tube well: These structures are feasible in the blocks of Gudari, Gunupur, Padampur, Kolnara, Ramanguda and Raygada in the flood plain deposits of the Vamsadhara and Nagavalli rivers. The depth of the tube well will be within 50 m.

7.5 Ground Water Related Issue and Problems

Ground Water Problems: There is no significant ground water problems. There are water quality problems in very few locales of the district.

Ground Water Quality Problem: Based on the chemical analyses of water samples collected from different aquifers, it is observed that there is a very limited Ground water Quaity problem in limited locatons. The electrical conductance varies from 162 $\mu\text{S}/\text{cm}$ to 1103 $\mu\text{S}/\text{cm}$ except at Kumudwali of Muniguda block of Raygada district where the EC value is found to be 2200 $\mu\text{S}/\text{cm}$ The chloride value at Kumudwali also shows high value of 550 mg/l. The fluoride content of the ground water is generally low except in case of Raygada where value of 1.4 mg/l has been observed. The iron content of water exceeded the maximum permissible limit of 1.0 mg/l at Raygada (1.6 mg/l), Kalyansinghpur (1.2 mg/l), Kutraguda (1.9mg/l) and Muniguda (1.57 mg/l).

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

There was no Mass Awareness & Training Activity in the district of Raygada.

7.7 Area Notified by CGWB/SGWA

The stage of Groundwater development is well within Safe Category and there is no overexploitation and major threat of Groundwater pollution and depletion. Hence no area has been notified by CGWA.

7.8 RECOMMENDATIONS

Large scale planning for Ground Water Resources development should be preceded by intensive hydrogeological and geophysical survey aided by Remote Sensing studies and ground truth data. Bore wells/dug wells should be located in the vicinity of NNW-SSE and NESW trending lineaments which have been proved to be high yielding & productive and in thickly buried pediment areas. Existing dug wells should be deepened to tap the maximum saturated thickness of the weathered mantle or vertical bores maybe drilled to enhance the yield of the well where normally the dug wells get dried up. Energization of wells should be stepped up to ensure optimal utilization of the ground water resources to create additional irrigation potential. The State Ground Water Organization should render expert guidance for siting ground water structures in favorable hydrogeological settings. The farmers should be educated through agricultural extension services, Mass Awareness and water management training programme to adopt suitable cropping pattern, conservation of ground water and irrigation practices especially for drought tolerant crops for optimal utilization of available ground water resources.

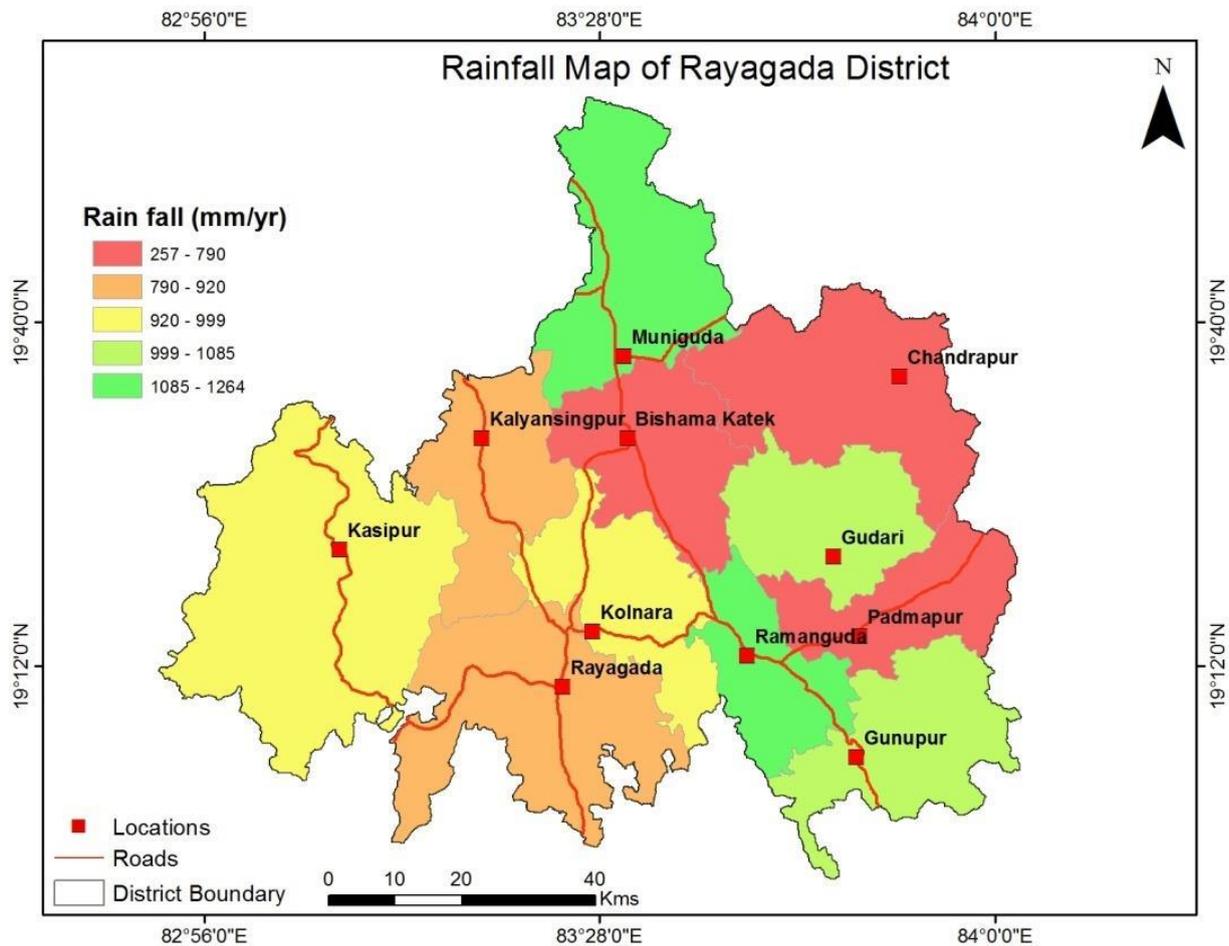
8.0 RAINFALL OF THE DISTRICT AND CLIMATE CONDITION

Rayagada, Odisha has a tropical climate with a lot of rainfall in the summer and very little in the winter. Here is some more information about the climate and rainfall in Rayagada. Rayagada receives an average of 1,312 mm of rainfall per year. The average annual temperature in Rayagada is 26.5 °C. July is the wettest month in Odisha, when the southwest monsoon brings heavy rainfall. January and February are dry months in Odisha. The summer season in Odisha begins in March and lasts until June. During this time, the sun is very harsh and temperatures can reach up to 40 °C.

8.1 Month wise rainfall:

Year	2021	2022	2023
Month	(mm)	(mm)	(mm)
Jan	0.00	66.17	0.00
Feb	1.05	0.00	0.00
Mar	0.00	0.00	71.82
Apr	14.95	12.37	100.08
May	50.81	98.85	78.42
Jun	127.85	169.22	49.01
Jul	188.4	328.62	311.7
Aug	217.76	419.11	215.7
Sep	255.89	173.12	291.00
Oct	71.02	114.31	9.8
Nov	48.57	11.42	4.79
Dec	14.95	0.11	22.8
Total	991.25	1393.3	1155.12

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



8.2 Climate

The study area is characterized by tropical monsoon climate having three distinct seasons in a year i.e winter, summer and rainy seasons. Winter in this area commences from late November and continues till end of February. Winter is followed by summer season which continues up to mid-June. In the period from April to May, three to four cyclonic rains generally occur, which causes a drop in the temperature and bring some relief during summer. The rainy season sets in the study area at the advent of southwest monsoon, generally commences from middle of June and continues till the end of September. Vast stretch of high hills and Green forests control the climate to a great extent. December is the coldest month with mean daily average temperature of 20°C which reaches a maximum of 42°C in May.

Temperature Graph- Rayagada

The month of May/June is usually the hottest month when the maximum temperature in day time is about 44.6 °C. Monsoon season is between June to September. Relative humidity is around 55 to 81 % throughout the year. South-West monsoon is the principal source of rainfall in the study area and wind is active in this period. The wind speed is fairly strong during summer and monsoon months and major direction is between southwest and south. Mean wind speed is 14.3 km/hr at Bhubaneswar. The mean monthly potential evapotranspiration values range from 57 mm in January to 284 mm in May.

Source: Indian Meteorological Department.

9 DETAILS OF MINING LEASE OF MORRUM QUARRIES IN THE DISTRICT

Attached as Annexure – I, II & III

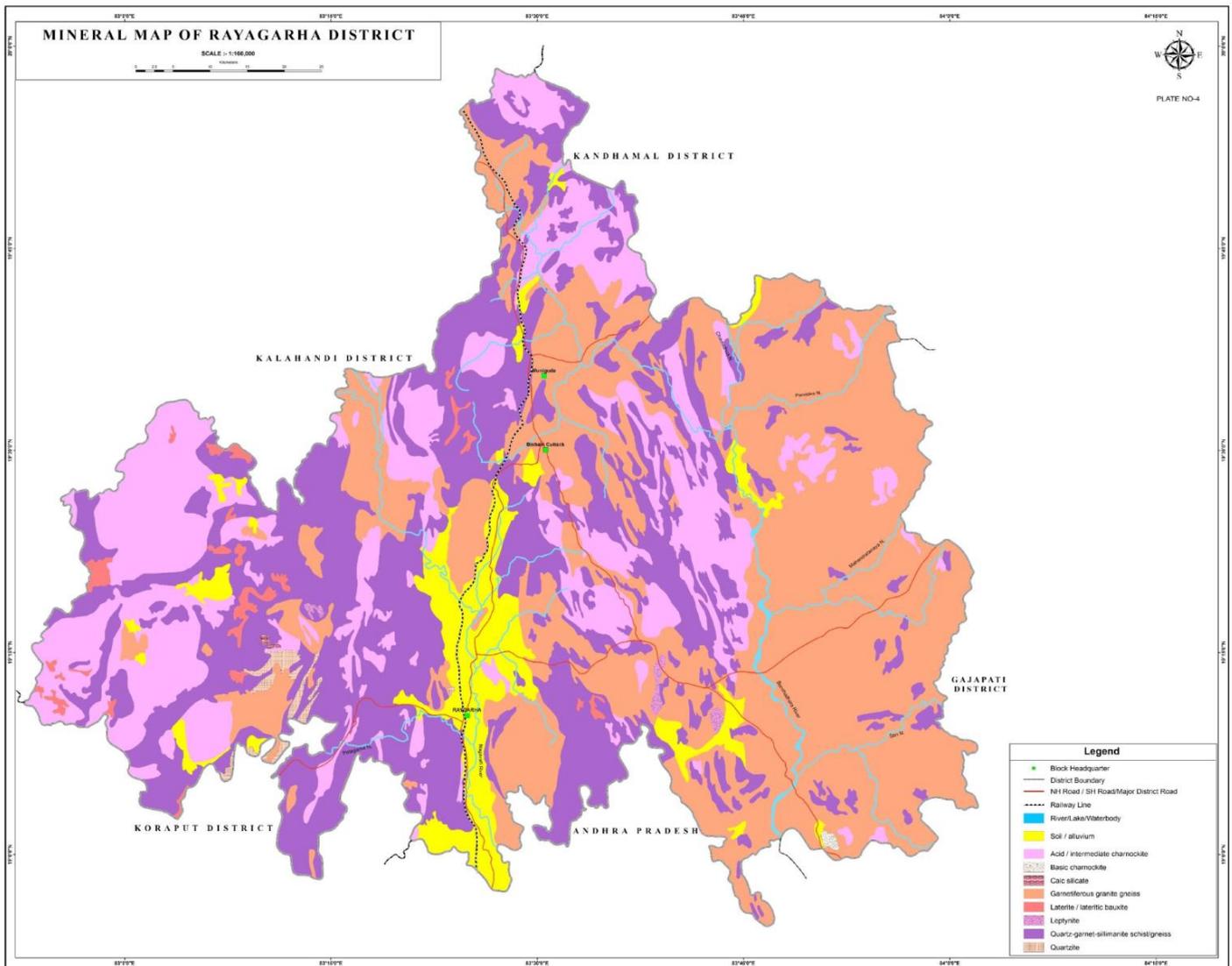
10. DETAIL OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS:

Sl No.	Financial year	Royalty Collected	Online Collection	Total
1	2020-21	311524946	--	311524946
2	2021-22	352411745	--	352411745
3	2022-23	23163120	--	23163120
Total				895572811

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

Sl. No.	Name of the Tahasil	2020-21	2021-22	2022-23	Total Quantity (Cubic meter)
1	Bissamacuttack	--	--	--	--
2	Chandrapur	--	--	--	--
3	Gudari	2100	2100	2100	6300
4	Gunupur	--	--	--	--
5	Kalyansinghpur	--	--	--	--
6	Kashipur	--	--	--	--
7	Kolnara	--	--	--	--
8	Muniguda	--	--	--	--
9	Padmapur	--	--	--	--
10	Ramanaguda	--	--	--	--
11	Rayagada	--	--	--	--
Grand Total		2100	2100	2100	6300

12. MINERAL MAP OF THE DISTRICT:



13. LIST OF LOI HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY

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

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Total mineral reserve of Morrur is 10,35,323 cum which may increase after detail investigation as per details below.

- (i) Blocks were identified based on geological studies through field observation.
- (ii) Mineable resource was calculated by considering detail prospecting.
- (iii) Area calculated as per GPS co-ordinates and information obtained from local people. Land detail need to be verified from revenue record.
- (iv) Since this is an interim report, as per the present requirement of minerals, more such blocks need to be identified and the data should be updated periodically, after certain intervals to update the data bank of DSR.

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

LIST OF THE PROPOSED MORRUR QUARRY IN THE DISTRICT:

Sl. No.	Tahasil Name	Name of the mineral	Area of mining lease to be allotted	Khata No.	Plot No.	Location of the Mining lease (Latitude & Longitude)
1	2	3	4	5	6	7
Attached as Annexure -II						

15. QUALITY/GRADE OF MINERAL AVAILABLE IN THE DISTRICT

Morrur found in Rayagada District:-

Morrur of the District are very much suitable for making various construction purposes.

16. USE OF MINERAL

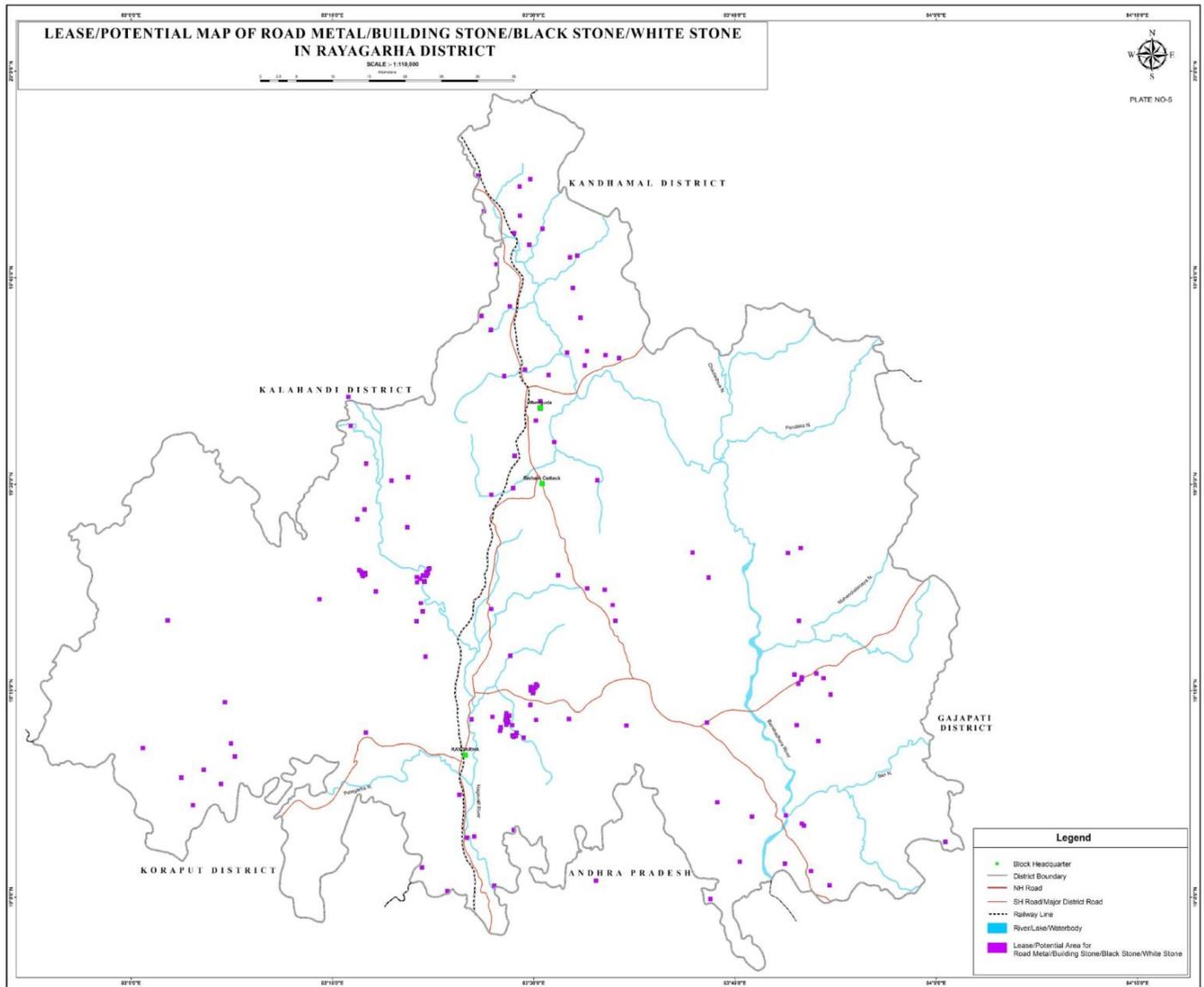
Uses of Morrur-

Morrur, a type of mud or clay, has various applications across multiple fields. In construction, it serves as a binding material for bricks and stabilizes foundations. In agriculture, it enhances soil structure and fertility, improving water retention and nutrient availability. Additionally, morrur is used in ceramics for shaping and firing objects, and it finds its place in landscaping projects to create natural ponds or shape terrain. Artists may also utilize morrur in sculpting and crafting due to its texture and malleability, making it a versatile resource in both practical and creative endeavors.

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

Quantities in Cubic Meter				
Sl No.	Mineral Type	2021-22	2022-23	2023-24
1	Sand	53369.265	57252.213	68059.8768
2	Morrum	11739.668	27168.96	36928.377
3	Black Stone	172199.167	210822.253	200338.262
4	Laterite			
5	Ordinary Earth	202455.11	100518.95	227387.815
6	Quarry Dust	18304.434	12759.73	48894.4499

18. MAP OF EXISTING MINING LEASES IN THE DISTRICT:



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

Currently there are no such clusters of mining leases in Rayagada District. However, it is proposed to consider the cluster of mining lease while planning for new lease area in coming years.

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

Eco sensitive zone of Kalrapat wild life sanctuary is located within the District.

21. IMPACTS OF MINING ON ENVIRONMENT:

The most important environmental impact of mining projects are:-

Transportation sources:

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

Fugitive emissions:

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

Noise and vibration:

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

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

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

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

23. RECLAMATION OF MINED OUT AREA

Necessity of Reclamation & Rehabilitation:

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

Reclamation has three vital roles:

- i. **Reclamation** – Reclamation means return the mined-out land with useful life. It implies restoring the land to a form and productivity that is useful and in conformity with a prior land use. Reclamation always may not be a single- phase operation.
- ii. **Rehabilitation** – Rehabilitation is to bring back the degraded land to a normal stage by a special treatment. It is a process of taking some mitigation measures for disturbed environmental condition created through mining activities.
- iii. **Restoration** – Restoration is the process of returning the mined out land being fit to an acceptable environmental condition. However, the general acceptable meaning of the term is bringing the disturbed land to its original form. Restoration is often used to indicate that biological properties of soil are put back to what they were. This is a rate phenomenon.
- iv. When active mining ceases, mine facilities and the site are reclaimed and closed. The goal of

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

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

Proposed future land use after reclamation:

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

Statutory requirement:

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

Rule 22, Mine Closure Plan

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

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

24. RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN:

Mining activity because of the very nature of the operation, complexity of the systems, procedures and methods always involves some amount of hazards. Hazard identification and risk analysis is carried for identification of undesirable events that can leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects. The activities which can cause high risk related to face stability and the person blasting the shots. It was observed that on a working face of the mine, there were large cracks and unsupported rocks were present, which can lead to a serious hazard and injure workers engaged in loading operation and machineries because of rock falls or slides. This type of condition turn out because improper dressing of the bench and improper supervision. To avoid the hazards due to fall of rocks the face must be examined, made suitable for working and the remedial measures must be taken to make it safe if there is any doubt that a collapse could take place. Working of the face should be in the direction taking into account the geology of the area such that face and quarry side remain stable. Another major risk identified in mines is due to the firing of explosive by an unqualified person. In the mines there is problem of fly rocks and the village is located close to the mine and so it is rated high as it can affect may people. Explosives by nature have the potential for the most serious and catastrophic accident. Planning of round

of shots, holes correctly drilled, direction logged, weight of explosive suitable for good fragmentation are the few of the steps necessary to ensure its safe use and if the shots are not properly designed can result in misfires, early ignition and flying rocks. No person is allowed to use explosives without being properly trained in its handling. In the mine a large numbers of heavy vehicles were in operation and the roads were not proper for haulage purpose. The haulage roads were not even and were not wide enough for the crossing purpose and hence the chances of hazards are very high. The main hazards arising from the use large earth moving vehicles are incompetent drivers, brake failure, lack of all-around visibility from the driver position, vehicle movements particularly reversing, roll over, and maintenance. Those most at risk are the driver and pedestrians likely to be struck by the vehicle, and drivers of smaller vehicles, which cannot be seen from the cabs of large vehicles. Edge protection is always necessary to prevent inadvertent movement over the edge of roadway or a bench. Seatbelt will protect driver in case of roll. Good maintenance and regular testing are necessary to reduce the possibility of brake failure. Access to the vehicles should always be restricted to those people necessary for the work in hand. The use of personal protective equipment and proper arrangements is essential to check if the person is wearing protective equipment or not. The personal protective equipment includes helmet, non-skid safety boots, safety glasses, earmuffs etc. The required personal protective equipment should be provided and used in a manner that protects the individual from injury. Few minor injuries which can be prevented are slip, trip, or fall hazards; hazards due to rock falls and collapse of unstable rocks, atmosphere containing toxic or combustible gases; protects from chemical or hazardous material etc. A disaster management plan should be prepared for taking care of for any disaster. Other risk which are included in this category are noise, as it occurs and it can lead to permanent disability. There are problems related to road traffic in and out issuers; inappropriate exposure of moving machines; mechanical failure and because of large number of moving trucks and dumpers there is large quantity of dust present in roadways which affects the operators and can lead to accidents causing injury. They are in acceptable range because of precautions measures taken but no step is taken it can cause hazard hence steps should be taken to reduce the hazards such as for dust suppression system should be installed. Other problems like occurrence of lots of mosquitoes in the area due to unhygienic conditions which affect the human health causing malaria, dengue etc. and causing a person to be hospitalized.

Disaster in the mines like fires, explosions, entrapments, and inundations can occur any time, so emergency preparedness is a must. The Disaster Management Plan and risk assessment in the mines will include all sorts of above mentioned emergency and the extent that this plan will be implemented will depend on the nature and scope of the emergency. The basic purpose of Disaster Management Plan and risk assessment to ensure that mine rescue and recovery activities are conducted safely for rescuer and survivors. According to MMR act 1961 a standard operating procedure should be drawn for involvement different category of staff and officers. The SOP should be updated periodically to reduce the chaos and response to the emergency should be quick and smooth. The responsible person should be familiar with his responsibility during the mock drills. One or two standby should be there to replace the person in

Emergency situation. Rescue operations should not include the survivors for any assistance.

First Information of Disaster / Emergency should go to the attendance clerk on duty. Duties of attendance Clerk (Emergency Siren) the attendance clerk or other designated person should on getting information of major accident, sound a hooter or a siren immediately declaring a state of emergency at the mine and then to contact the manager and on his advice to call key personnel using the information listed in the Emergency Organization Chart. It is important that all telephone calls are recorded in a telephone log book. Duties of Other Officials should be displayed and handed over to all concerned. Copy the same should be kept at Manager's Office for ready reference. Establishment of Control Room at Unit Level, Area Level and Company Level is essential. Control Room should keep the contact information about –

- Company Manager
- Company owner/ Administrative officer.
- District Administration
- Govt. Hospitals in Nearby Localities,
- Private Nursing Homes of Localities

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

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

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

Status of TB Notification for the last Five years (Annexure-1)

Year	2019	2020	2021	2022	2023
Name of the Block					
Bissamcuttack	197	187	207	229	267
Chandrapur	87	52	57	80	89
DTC Rayagada	468	366	379	419	411
Gudari	117	94	113	123	113
Gunupur	219	182	202	177	185
Kalyansingpur	116	79	120	128	135
Kasipur	156	121	126	147	159
Kolonara	189	151	129	155	178
Muniguda	137	102	94	158	131
Padmapur	125	80	91	106	110
Ramnaguda	95	76	87	107	101

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

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

27. CONCLUSION:

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

ANNEXURE- I(A)

MINERAL CONCESSION DETAILS IN RESPECT OF MORRUM EXISTING OPERATIONAL UNDER RAYAGADA DISTRICT, ODISHA.

SL NO.	Tahasil	Name of the mineral	Name of the Lessee & Address	Mining Lease grant order no.	Area of mining Lease in Ha.	Period of mining lease (Initial)		Period of Mining lease (1st/2nd renewal)	Date of commencement of Mining Operation	Status (Working/ Non Working/T emp. Working for dispatch etc.)	Captive/ Non Captive	Obtained Environmental Clearance (Yes/No), If Yes Letter No with date of grant of EC.	Location of the Mining lease (Latitude & Longitude)	Method of Mining (Opencast/ Underground)	LOI Issued
						From	To								
1	Gudari	Silmi MQ	Sri Manoj Kumar Panigrahi S/o- Binod Bihari Panigrahi, At- Bank Street,	1671/2020 22.09.2020	3.237 Ha. Khata No. 20 Plot No. 01	26.11.2021	25.11.2026	NA	25.11.2021	Working	Non- Captive	Letter No. 989/SEIAA Dated 24.03.2021	Lat- 19°22'52.08" N Long- 83°48'00.30"E	Opencast	LOI Issued

ANNEXURE- I(B)

MINERAL CONCESSION DETAILS IN RESPECT OF MORRUM EXISTING NON-OPERATIONAL UNDER RAYAGADA DISTRICT, ODISHA.

SL NO.	Tahasil	Name of the mineral	Name of the Lessee & Address	Mining Lease grant order no.	Area of mining Lease in Ha.	Period of mining lease (Initial)		Period of Mining lease (1st/2nd renewal)	Date of commencement of Mining Operation	Status (Working/ Non Working/T emp. Working for dispatch etc.)	Captive/ Non Captive	Obtained Environmental Clearance (Yes/No), If Yes Letter No with date of grant of EC.	Location of the Mining lease (Latitude & Longitude)	Method of Mining (Opencast/ Underground)	LOI Issued
						From	To								
GUNUPUR SUB-DIVISION															
1	Chandrapur	Dimiriguda MQ	To Be Auction	NA	0.902 Ha. Khata No. 3 Plot No.23	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°35'39.44" N Long- 83°40'17.51"E	Opencast	NO
RAYAGADA SUB-DIVISION															
2	Kasipur	Adatakiri MQ	To Be Auction	NA	1.214 Ha. Khata No.55 Plot No.50	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°29'39.99" N Long- 83°03'34.67"E	Opencast	NO
3	Kasipur	Kashipur MQ	To Be Auction	NA	2.428 Ha. Khat No.1446 Plot No.664 0.809 Ha.	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°20'44.05" N Long- 83°05'55.31"E	Opencast	NO
4	Kolnara	Keutaguda MQ	To Be Auction	NA	Khata No. 18 Plot No. 7	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°18'39.52" N Long- 83°22'22.77"E	Opencast	NO

5	Kolnara	Kumbheiguda MQ	To Be Auction	NA	0.809 Ha. Khata No. 14 Plot No. 20	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°16'53.40" N Long- 83°30'18.17"E	Opencast	NO
6	Kolnara	Badakhilapadar MQ	To Be Auction	NA	0.809 Ha. Khata No. 40 Plot No. 724	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°18'00.05" N Long- 83°31'54.08"E	Opencast	NO
7	Rayagada	Kasili MQ	Venkata Ramana Allamneni At- Gayatri Nagar 3rd Lane, Rayagada765001	268/mines 15.03.2024	2.023 Ha. Khata No. 30 Plot No. 227	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°12'19.57" N Long- 83°27'03.009"E	Opencast	LOI Issued
8	Rayagada	Kuli MQ	Sri Anjan kumar jena Project Manager Iron triangle ltd. Po- Bhatpur, Rayagada.	310/20211 Dated- 29.01.2021	2.023 Ha. Khata no. 58 Plot No. 43	NA	NA	NA	NA	Non-Working	Non- Captive	EC identification no. EC23B001OR1959 33 Dated -27.04.2023	Lat- 19°12'15.52" N Long- 83°27'02.92"E	Opencast	LOI Issued
9	Rayagada	Tamparabuduni MQ	To Be Auction	NA	1.618 Ha. Khata No. 21 Plot No. 53	NA	NA	NA	NA	Non-Working	Non- Captive	NA	Lat- 19°17'33.43" N Long- 83°26'08.56"E	Opencast	NO

MINEARAL CONCESSION DETAILS IN RESPECT OF MORRUM (PROPOSED) IN RAYAGADA DISTRICT

Sl no.	Tahasil Name	Name of the Lease	Area of the lease in Ha.	Khata no.	Plot No.	Kissam	Location of Mine (Latitude & Longitude)	Mineral Reserve in Cubic meter
1	Padmapur	Khambariguda Morrur Quarry	1.011ha	71	86	Kupuli	19° 17' 42.589" N 83° 53' 8.589" E	1,69,344
2	Kolnara	Madanpur morrum Quarry	0.967ha	27	279/365	Pahada	19° 14' 30.533" N 83° 27' 25.05" E	70,200

ABSTARCT OF MORRUM SOURCES, RAYAGADA DISTRICT

SUB DIVISION	TAHASIL	OPERATIONAL	NON OPERATIONAL	NEW SOURCES	TOTAL
Gunupur	Bissamcuttack	-	-	-	0
	Chandrapur	-	1	-	1
	Gudari	1	-	-	1
	Gunupur	-	-	-	0
	Muniguda	-	-	-	0
	Padmapur	-	-	1	1
	Ramanaguda	-	-	-	0
Rayagada	K.singipur	-	-	-	0
	Kashipur	-	2	-	2
	Kolnara	-	3	1	4
	Rayagada	-	3	-	3
TOTAL		1	9	2	12

Annexure -II

DETAILS OF THE CLUSTER APPROCHED MORRUM QUARRIES IN RAYAGADA DISTRICT

Cluster NO.	Quarry No.	Lease Name	Tahasil	Khata No.	Plot No.	Area in Ha.	Total Cluster Area in Ha.	Existing / New
1	1	Kasili Morrur Quarry	Rayagada	30	227	2.023	5.00	Existing
	2	Kuli Morrur Quarry	Rayagada	58	43	2.023		Existing

ANNEXURE-II

DETAILS OF THE CONTIGUOUS CLUSTER APPROCHED MORRUM QUARRIES IN RAYAGADA DISTRICT

Contiguous Cluster No.	Cluster No.	Number of Leases in the cluster	Distance Between the clusters	Villages	Total cluster area in Ha.	Total Excavation in TON
NA						

ANNEXURE-III

Transportation Routes for individual leases present in Rayagada District

Sl. No.	Tahasil Name	Lease Name	Lease No	Transportation Route No	Number of tippers / day of lease	Number of tippers / day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
1	Rayagada	Kasili MQ	NA	VILLAGE ROAD	2	2	3	Unpaved	Unpaved	Lease Owner	Attached
2	Rayagada	Kuli MQ	NA	VILLAGE ROAD	3	3	4	Unpaved	Unpaved	Lease Owner	Attached
3	Rayagada	Tamparabuduni MQ	NA	VILLAGE ROAD	2	2	3	Unpaved	Unpaved	Lease Owner	Attached
4	Kolnara	Keutaguda MQ	NA	VILLAGE ROAD	3	3	2	Unpaved	Unpaved	Lease Owner	Attached
5	Kolnara	Kumbheiguda MQ	NA	VILLAGE ROAD	1	1	4	Unpaved	Unpaved	Lease Owner	Attached
6	Kolnara	Badakhilapadar MQ	NA	VILLAGE ROAD	4	4	5	Unpaved	Unpaved	Lease Owner	Attached
7	Gudari	Silmi MQ	NA	VILLAGE ROAD	3	3	2	Unpaved	Unpaved	Lease Owner	Attached
8	Kasipur	Adatakiri MQ	NA	VILLAGE ROAD	2	2	3	Unpaved	Unpaved	Lease Owner	Attached
9	Kasipur	Kashipur MQ	NA	VILLAGE ROAD	3	3	2	Unpaved	Unpaved	Lease Owner	Attached
10	Chandrapur	Dimiriguda MQ	NA	VILLAGE ROAD	4	4	1	Unpaved	Unpaved	Lease Owner	Attached
11	Padmapur	Khambariguda MQ	NA	VILLAGE ROAD	NA	NA	NA	Unpaved	Unpaved	Lease Owner	Attached
12	Kolnara	Madanpur MQ	NA	VILLAGE ROAD	NA	NA	NA	Unpaved	Unpaved	Lease Owner	Attached

ANNEXURE-III

Transportation Routes for Cluster leases present in Rayagada District

SI No.	Tahasil	Laese Name	Cluster No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
1	Rayagada	Kasili MQ	1	VILLAGE ROAD	2	2	3	Unpaved	Unpaved	Lease Owner	Attached
2	Rayagada	Kuli MQ		VILLAGE ROAD	3	3	4	Unpaved	Unpaved	Lease Owner	Attached


Superintending Engineer,
Minor Irrigation, Division,
Rayagada


Deputy Director Mines,
Koraput.


Asst. Conservator of Forest,
Rayagada.


Deputy Director Mines,
Jeypore.


Regional Officer,
SPCB, Rayagada.


Mining Officer, Rayagada.


Geologist, Koraput.


Asst. Executive Engineer,
Minor Irrigation, Sub-Division,
Gunupur/Muniguda


Sub-Collector-Cum
Sub-Divisional Magistrate,
Rayagada


Sub-Collector-Cum
Sub-Divisional Magistrate,
Gunupur.