



DISTRICT SURVEY REPORT (DSR) OF DHENKANAL DISTRICT, ODISHA FOR MORRUM 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 DHENKANAL
NOVEMBER-2024**

CONTENTS		
Point No.	DESCRIPTION	Page No.
00	PREFACE	01
01	INTRODUCTION.	02-03
02	OVERVIEW OF MINING ACTIVITY IN THE DISTRICT.	04-05
03	GENERAL PROFILE OF THE DISTRICT.	6-12
04	GEOLOGY OF THE DISTRICT.	13-16
05	DRAINAGE OF IRRIGATION PATTERN.	17-18
06	LAND UTILIZATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURAL, HORTICULTURAL, MINING ETC.	19-34
07	SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT.	35
08	RAINFALL OF THE DISTRICT AND CLIMATIC CONDITION.	36
09	DETAILS OF THE MINING LEASES IN THE DISTRICT AS PER THE FORMAT.	37-38
10	DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS.	39
11	DETAILS OF PRODUCTION OF MINOR MINERAL IN LAST THREE YEARS.	39
12	MINERAL MAP OF THE DISTRICT.	40
13	LIST OF LETTER OF INTENT (LOI) HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY AS PER THE FOLLOWING FORMAT.	41
14	TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT.	41
15	QUALITY /GRADE OF MINERAL AVAILABLE IN THE DISTRICT.	42
16	USE OF MINERAL.	42
17	DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS.	42
18	MINING LEASES MARKED ON THE MAP OF THE DISTRICT.	43-44
19	DETAILS OF THE AREA OF WHERE THERE IS A CLUSTER OF MINING LEASES VIZ. NUMBER OF MINING LEASES, LOCATION (LATITUDE AND LONGITUDE).	45
20	DETAILS OF ECO-SENSITIVE AREA, IF ANY, IN THE DISTRICT.	45-46
21	IMPACT ON THE ENVIRONMENT (AIR, WATER, NOISE, SOIL, FLORA & FAUNA, LAND USE, AGRICULTURE, FOREST ETC.) DUE TO MINING ACTIVITY.	46-48
22	REMEDIAL MEASURES TO MITIGATE THE IMPACT OF MINING ON THE ENVIRONMENT.	48-50

23	RECLAMATION OF MINED OUT AREA (BEST PRACTICE ALREADY IMPLEMENTED IN THE DISTRICT, REQUIREMENT AS PER RULES AND REGULATION, PROPOSED RECLAMATION PLAN).	50-51
24	RISK ASSESSMENT & DISASTER MANAGEMENT PLAN.	51
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.	52
26	PLANTATION AND GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT.	53
27	ANY OTHER INFORMATION.	53

LIST OF TABLES

SL NO.	DESCRIPTION	PAGE NO.
01	Stratigraphy	14-15
02	Land Utilisation Pattern In The District: Forest, Agricultural & Horticultural	19-32
03	The variation of ground water table in the district	35
04	Year-Month wise rainfall report	36
05	Details of the mining leases in the district as per format	37-38
06	Details of Royalty or Revenue Received In Last Three Years	39
07	Details of Production of Minor Mineral In Last Three Years.	39
08	List of letter of intent (loi) holders in the district along with its validity as per the following format	41
09	Total mineral reserve available in the district	41
10	Demand and supply of the mineral in the last three years.	42
11	Details of the area of where there is a cluster of mining	45
12	Tuberculosis data rntcp	52

LIST OF MAPS

Sl No.	DESCRIPTION	Page No.
01	Index Map of the District	09-12
02	Map showing River & Drainage pattern	18
03	Forest Map of District	34
04	Hydrogeological map of district	35
05	Mineral Map of District	40
06	Mining Leases marked on the Map of the District	43-44

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 25th July, 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 Morrum mining has been prepared in accordance with Clause II of Appendix X of the notification. Every effort has been made to cover Morrum mining locations, future potential areas and overview of Morrum 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.

Centrally located on the Geo-Political map of Odisha, Dhenkanal District is surrounded by beautiful wild lives and forests. The District is situated on the Cuttack-Sambalpur road (NH 55) and on the Cuttack-Sambalpur or Baranga-Sambalpur railway line. The Dhenkanal District touches the boundary of Kendujhar district on its north, Cuttack district on south and bounded by Jajpur District on the east and Angul District on its west. It is commonly believed that the Dhenkanal District owes its name to a Savara chief named 'DHENKA' who formerly ruled over in this tract. Dhenkanal District covers an area of 4452 Sq Km. It has a vast area covered with dense forests and a long range of hills. This is the reason of calling the District as 'Home of Elephants and tigers of the country'. The District lies between 85 degree 58' E to 86 degree to 2' E longitude and between 20 degree 29' N to 21 degree 11' N latitude. Dhenkanal District has a moderate climate. The District experiences hot with high humidity during April and May and cold during the winter months, i.e. December and January. The monsoon generally breaks during the month of June with the average annual rainfall being 1421.1 mm. As per the agriculture is concerned, the District produces a substantial agricultural yield and paddy, ground nut, cashew nut, potato, mango, jackfruit, sugarcane and some vegetables as its primary agricultural products.

Dhenkanal is very rich in case of eminent personalities. Baji Rout (freedom fighter), Bira Baishnaba Pattanaik (Freedom Fighter), Brajanath Badajena (Eminent Poet), Sarangadhar Dash, Nandini Satpathy (First and only woman Chief Minister of Odisha), Kalpana Das (First woman from Odisha to scale Mt Everest) are some of the prominent personalities born in this District.

Dhenkanal District is very much famous for its fairs and festivals. Gajalaxmi Puja is very much popularly known festival to be celebrated in the District. Every year this festival begins from Kumar Purnima and continues for eleven days. Kapilash is the abode of Lord Chandra Sekhar which is one of the famous tourist spot of Odisha. Every year during Mahashiv Ratri "Jagar Yatra" is being observed. Dussehera festival of Kamakhyanager bears a special significance in the culture of Dhenkanal District. Maghamela at Joronda is yet another most

famous festival of 'Mahima Dharma'. Every year it begins on 'Magha Purnima' and continues for four days at Jorondo. Bullock festival of Bhuban has a special identity. Racing competition is held among the bullocks and prizes are awarded to the owners.

For the promotion of the different Industrial activities, there is the District Industries centre functioning with effect from 1st, September, 1978, with the jurisdiction of undivided Dhenkanal District. After bifurcation of Angul district, the jurisdiction of DIC Dhenkanal was both Dhenkanal and Angul Districts till 31.12.1999. In Angul District, a full-fledged DIC was opened with effect from 01.01.2000. There are five numbers of Industrial Estates/Areas established in this District by Industrial Development Corporation of Odisha (IDCO). Different schemes have also been introduced in the District for the betterment of the Industrial scenario. For the development of Handicrafts enterprises, the schemes being implemented in the District are related to the followings: (a) Setting up of handicraft enterprises (b) Rehabilitation of handicraft artisans and (c) Cluster development programmes. Certain industries are also based on the agricultural and forest products available. Dhenkanal consists of many chief minerals like chrome ore and granite stone sustaining many industries. Some large scale industries like Nilachal Refractories, Utkal Asbestos Ltd, M/S Nababharat Ventures Ltd., M/S. Bhusan Steel & Strips Ltd., M/S. GMR Energy Ltd. and Shakti Sugars are established in the District. The Dhenkanal District is famous all over the world for its Dokra casting, Bell Metals, Horn works, Straw works, Wood carving, Stone carving, Tribal jewellery and Silver Filigree.

02. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT.

Dhenkanal district in Odisha has many valuable minerals, including coal, chromite, kyanite, china clay, semi-precious stones, decorative and dimension stones, and graphite.

Here are some details about mining in Dhenkanal: -

- **Coal:** The Brahmani Block of the Talcher coalfield has an estimated 58.9 million tonnes of F to B grade coal.
- **Chromite:** Chromite is found around Kathapal, Sendhasar (Dandakota), Samal, Tangarpada, Lokanathpur, Mahulpal, Badamuktaposi, Bamuan, Godachhak, Jamunakot, Mohulabhanj hill, Bhuasuni hill, Asurabandha, and Tulasiposi.

Analysis of samples collected from pits, trenches and dumps (other than Kathapal area) revealed the presence of chromite. The Cr₂O₃ content varies from 28.6% to 58.75%. SiO₂ varies from 3.20% to 43.30%. Reserve of the above areas has not been estimated to far. Presence of chromiferous bands in quartzite and ultrabasics is also reported from Ghaturigaon and Umundira villages of Kamakhyanagar sub-division. Geo-chemical analysis of soil samples of these areas indicated presence of chromite (about 1% Cr₂O₃) in the soil.

- **Kyanite:** Important Kyanite occurrences are reported around Torodanali, Kodabasanta and Jhilli. The Al₂O₃ and Fe₂O₃ content of Kyanite varies from 20% to 61.1 1% and 5% to 26.6% respectively. SiO₂ varies from 31.46% to 69.0%. Reserve of Kyanite has been estimated at 0.64 million tonnes in these areas.
- **Graphite:** Occurrence of graphite has been located around Karabira and Bandhabhuin villages of Hindol sub-division. The low grade disseminated variety of graphite in migmatized khondalite located 250 metre east of Karabira village extends over a length of 250 m with average width of 100 m. The fixed carbon content of graphite varies from 8.74% to 11.79%.
- **Semi-precious stones:** Semi-precious stones like garnet (almandine, rhodolite, hessonite) moon stone and beryl are reported from Gotarei, Ghagarmunda, Katumunda, Asanabahal, Tiperijharan and Nakanaki area of Kamakhyanagar sub-division. 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.

- **Dimension and decorative stones:** Decorative and Dimension stones of economic importance are reported around Karanda (granite gneiss), Babandha (Augen gneiss), Haripur (Charnockite) Kukuta (Augen gneiss) of Hindol sub-division and Latadeipur. Radhadeipur (granite gneiss) of Dhenkanal sub-division.

- **Illegal mining**

In May 2024, the National Green Tribunal (NGT) announced a committee to investigate illegal mining in Dhenkanal.

OTHER

Rungta Mines Dhenkanal steel plant

In 2018, Rungta Mines Ltd. proposed to build a steel plant in Jharbandh, Galpada, and Tarkabeda villages. The plant is partially operational and partially under construction.

Minor minerals

The Dhenkanal district of Odisha is known for mining a variety of minerals, including: Decorative stone, Building stone/ road metal, Laterite blocks, Morrum, sand and quartzite. The major mining activities are dependent upon Sand & stone mining. Whereas other associated mining activities are related to morrum, sand & ordinary earth mining. There are one no of decorative stone source & one quartzite source reported in the district. Hence the total mining area are different for different categories of mineral.

03. GENERAL PROFILE OF THE DISTRICT.

a) Geographical Position:- Topographically, this district is located between latitude 20° 29' to 21° 11' N and longitude 85° 58' to 86° 2' E.

b) Area & Population :-

The district has an area of 4452 sq.kms and 11.93 lakhs of population as per 2011 census. The district accounts for 2.86 percent of the states territory and shares 2.84 percent of the state's population. The density of population of the district is 268 per sq. kmas against 270 person per sq.km of the state. It has 1208 villages (including 127 un-inhabited villages) covering 8 blocks, 8 Tahasils and 3 Subdivisions. As per 2011 census the schedule caste population is 2.34 lakhs (19.6%) and schedule tribe population 1.62 lakhs (13.6%). The literacy percentage of the district covers 78.8 against 72.9 of the state.

c) Climate:-

The climate condition of the district is generally hot with high humidity during April to May and cold during December to January. The monsoon generally breaks during the month of June. Annual rainfall of the district was 1109.68 mm in 2018-19 which is less than the normal rainfall (1421.1 mm).

d) Industry & Mining:-

M/s Scaw Industries (P) Ltd., M/s Tata Bhusan Steel & Strips,, M/s Rana Sponge Ltd. & BRG iron & Steel Ltd. Are some of the major plants within Dhenkanal district established during 2006-07. Till 2005-06, seven chrome ore beneficiation plants (COBP) are operating within Dhenkanal. The quantity of low grade chrome ore utilized by these plants during 2005-06 varied between 96 MT to 532 MT.

e) Power:-

Consumption of electricity in Dhenkanal district during the year 2011 covers 266.250 million units and villages so far electrified as on February, 2011 is 1053 which constitutes 97.4 % to the total inhabited villages of the district.

f) Tourist Places:-

There are 9 nos. of tourist center such as Kapilas, Joranda, Jibankhol, saptasaiya, Saranga, Kualo, Ladagarh, Dandadhar and Tentuliapada identified by department of Tourism and Culture, Odisha. During 2011, the numbers of Domestic tourists were 1046050 and foreign tourists were 79 who visited the tourists spots of the district.

g) Health:-

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

Sub Divisional hospitals including mobile	11 No
Beds facilities	487 No
Homoeopathic dispensaries	22 No
Ayurvedic dispensaries	19 No

h) Demography: -

description	Value
Area	4,452.00 sq.km
No. of Sub-Division	3
No. of Block	8
No. of Municipalities	1
No. of Police Station	15
Area under Forest	1654.96 sq.km
No. of Tahasils	8
No. of Gram Panchayats	212
No. of NACs	3
No. of Revenue Villages	1236

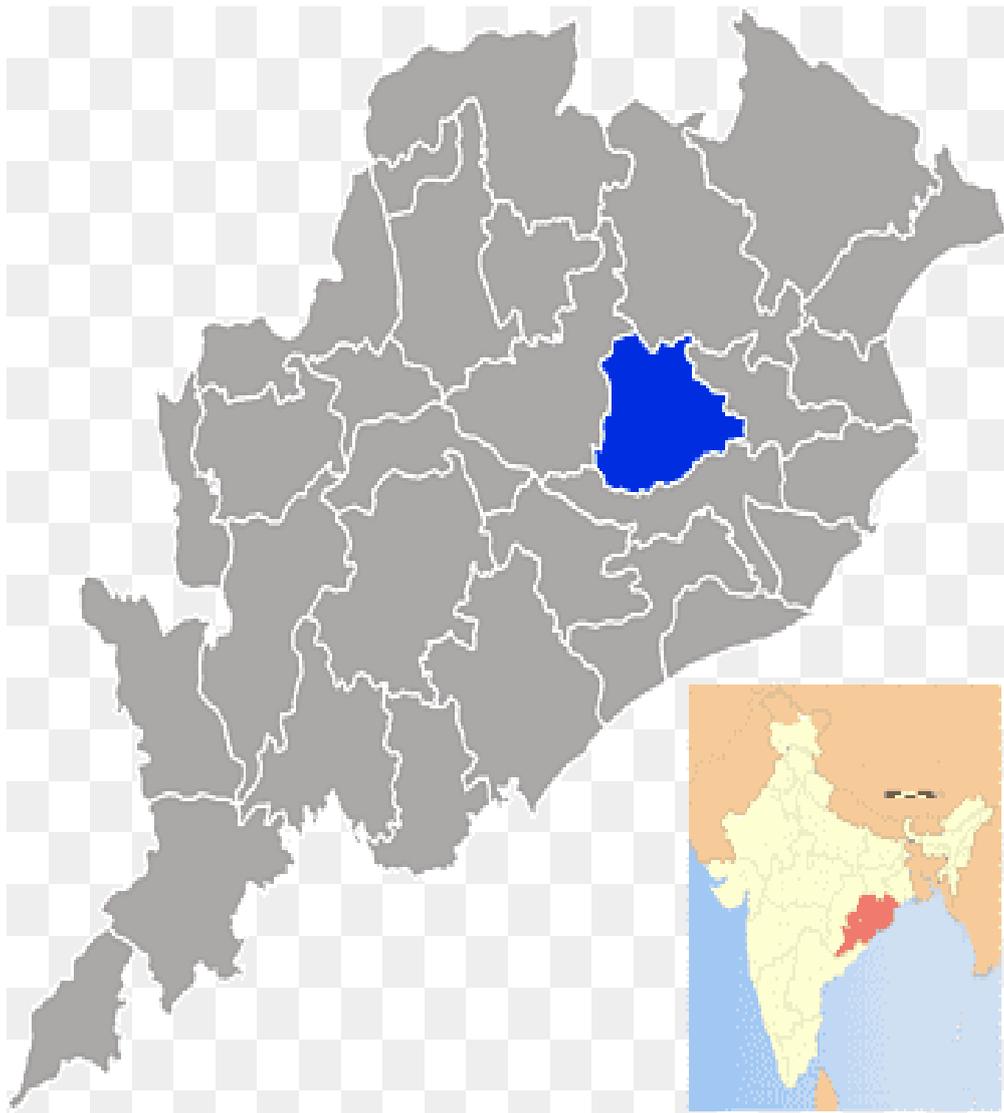
i) Culture & Heritage:

Dhenkanal is very rich in case of eminent personalities. Baji Rout (freedom fighter), Bira Baishnaba Pattanaik (Freedom Fighter), Brajanath Badajena (Eminent Poet), Sarangadhar Dash, Nandini Satpathy (First and only woman Chief Minister of Odisha), Kalpana Das (First woman from Odisha to scale Mt Everest) are some of the prominent personalities born in this district.

Dhenkanal district is very much famous for its fairs and festivals. Gajalaxmi Puja is very much popularly known festival to be celebrated in the District.

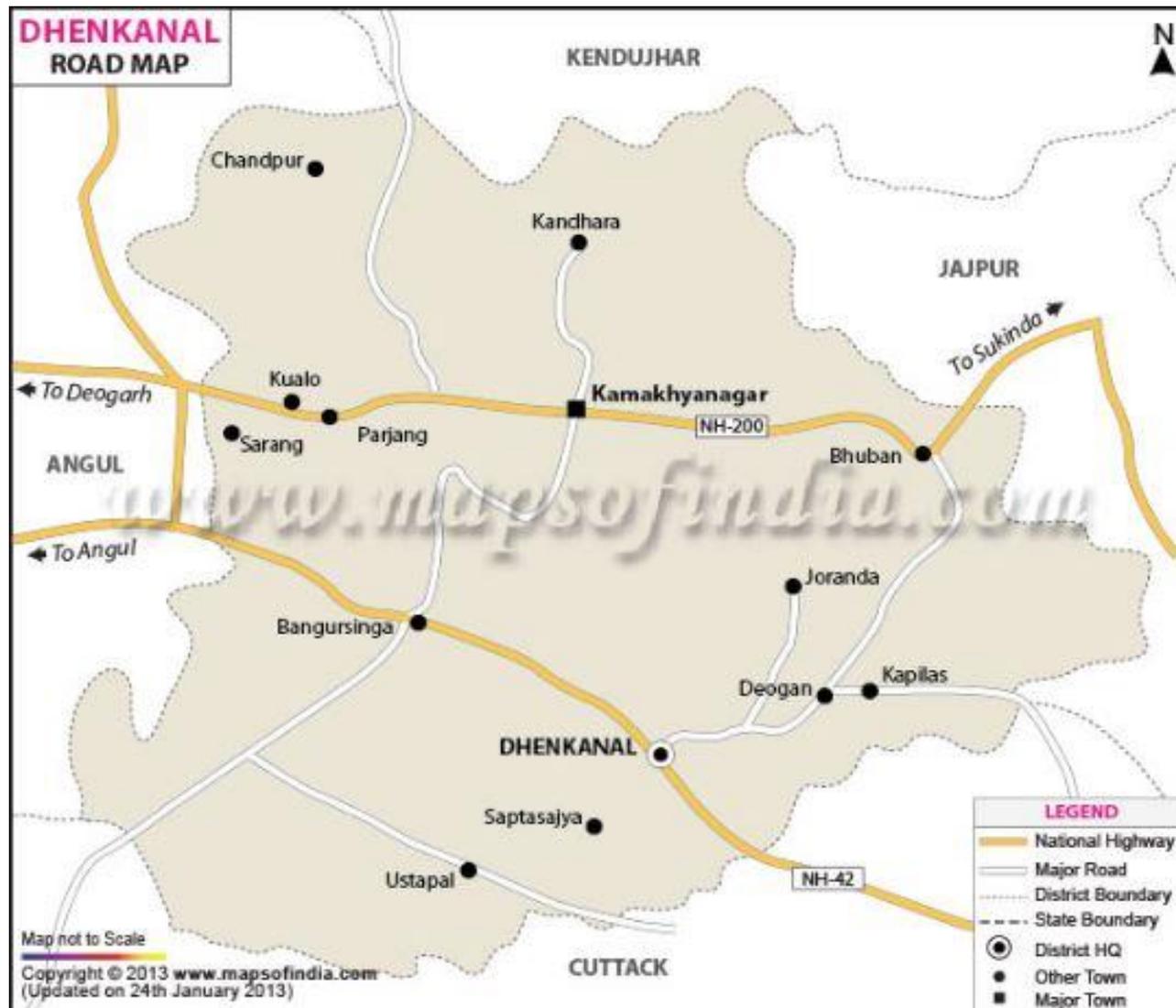
Every year this festival begins from Kumar Purnima and continues for eleven days. Kapilash is the abode of Lord Chandra Sekhar which is one of the famous tourist spot of Odisha. Every year during Mahashiv Ratri "Jagar Yatra" is being observed. Dussehera festival of Kamakhyanagar bears a special significance in the culture of Dhenkanal District. Maghamela at Joronda is yet another most famous festival of 'Mahima Dharma'. Every year it begins on 'Magha Purnima' and continues for four days at Jorondo. Bullock festival of Bhuban has a special identity. Racing competition is held among the bullocks and prizes are awarded to the owners.

INDEX MAP









04. GEOLOGY OF THE DISTRICT.

Geologically the district exposes various lithostratigraphic units having varied litho assemblages. The oldest units are Singbhum Granite and Gorumahishani Group of Archaean age, followed by rocks of Easternghat Super Group, Bonai Granite Complex and ultramafics of Sukhinda/Baula Nuashi of Archaean to Proterozoic age, intrusives of Proterozoic age, Gondwana Super Group of Upper Carboniferous to Permian, laterite of Cainozoic and Quarternary of Pleistocene to Recent age. Singbhum granite is the oldest rock of the area. A small patch of this rock is found northern part of the area. Gorumahishani Group of rocks is exposed in the northern part of the district especially to the north of Bramhani river. The Group comprises hornblende schist, quartzite, quartz sericite schist, grit and conglomerate. They are marked by the development of quartzite horizon and associated with metabasic rocks. The field relationship between these rocks and the charnockite is obscured by the extensive development of laterite. Rocks of Easternghat Super Group mainly fall within three distinctive groups, viz; Khondalite Charnockite and Migmatite. Charnockite is associated with Khondalite and ranges from acid charnockite to basic charnockite Khondalite Group comprises quartz-garnet-sillimanite schist and Migmatite group includes augen gneiss, garnetiferous gneiss and garnetiferous leucogranite Overlying the Easternghat Suprgroup exists granite of Bonai Granite Complex. This rock association mainly consists of granite, biotite gneiss, biotitehornblende granite gneiss and granodiorite with polycyclic remobilization. Small rafts of chromite bearing ultramafics are noted in the granite gneiss of Migmatite Group and Gorumahishani Group near Moulabonja Parbat in the north and around Kandhara area. The intrusives include dolerite dykes and granophyre. Dolerite cut across the granite and ultramafic enclaves. The granite and gneiss are also intruded by granophyre at places. The western part of the area is occupied by Gondwana Group of rocks. The lower Gondwana Rocks i.e. Talchir Formation comprises boulder bed, tillite, sandstone and shale. In association to this formation, white to reddish sandstone with purple shale, carbonaceous shale and coal occur

which is designated as Barakar Formation. Patches of laterite occur mainly at the top of the hills that is made up of khondalite and ultramafics. Laterisation is very common in the north where it is mostly thick and ferrugeneous. Residual soil and alluvium with or without impersistent laterite cover banks of Bramhani river and the river basin. The age of the quaternary deposits varies from Pleistocene to recent.

Both primary and secondary structures are exposed in the area. Bedding is common in the Gondwana rocks. The strike of the bedding plane varies from N20°W to S20°E to N40°E to S 40°W with gentle east-notheasterly dip. The Gondwana formations are flanked towards north by granite with enclaves of quartzite trending NW-SE with dip varying from 30° to 70° towards northeast. Foliation is common secondary structure in Gorumahishani and Easternghat Group of rocks. Dip of the foliation varies from very low 5° to almost vertical. Faults and lineaments are common in the area. Most of the faults are of Proterozoic age whereas faults found at the boundary of Gondwana rocks are much younger.

Stratigraphy:

Age	Geological Unit		Lithology
Pleistocene to Recent	Quaternary (undifferentiated) sediments		Residual soil and alluvium Alluvium with impersistent laterite
Cainozoic			Laterite
Permian	Gondwana Supergroup	Barakar Formation	Sandstone, shale, coal
Upper Carboniferous to Permian		Talchir Formation	Boulder bed, tillite, sandstone and shale
Proterozoic		Intrusives	Granophyre Dolerite
			Ultramafics of Sukinda/Baula Naushi
		Bonai Granite Complex	Granite
Archaean to Proterozoic		Migmatite Group	Augen gneiss, garnetiferous gneiss, garnetiferous leucogranite
	Easternghat Supergroup	Charnockite Group	Acid Charnockite Basic Charnockite

		Khondalite Group	Quartz-garnet-silimanite-graphite schist/gneiss Quartzite
Archaean		Gorumahishani Group	Hornblende schist Quartzite/quartz-sericite schist Grit, conglomerate and quartzite/sandstone
		Singbhum Granite complex	Granite

The district Dhenkanal district is enriched with some valuable economic minerals like coal, chromite, Kyanite, china clay, semi-precious stone, decorative and dimension stone and graphite.

Coal: Brahmani Block of Talcher coalfield covers 13.1 km² area around Khalpal, Paramhanspur and Ramachandrapur villages. Seam I & II belonging to Karharbari and Barakar Formations are known to occur in this block 58.9 million tonnes of F to B grade coal has been estimated in this block.

Chromite: Chromite occurs around Kathapal, Sendhasar (Dandakota) Samal, Tangarpada, Lokanathpur, Mahulpal, Badamuktaposi, Bamuan, Godachhak, Jamunakot, Mohulabhanj hill, Bhuasuni hill, Asurabandha, Tulasiposi etc. of Kamakhyanagar sub-division in Dhenkanal district. About 0.589 million tonnes of chromite has been estimated at Kathapal. Analysis of samples collected from pits, trenches and dumps (other than Kathapal area) revealed the presence of chromite. The Cr₂O₃ content varies from 28.6% to 58.75%. SiO₂ varies from 3.20% to 43.30%. Reserve of the above areas has not been estimated to far. Presence of chromiferous bands in quartzite and ultrabasics is also reported from Ghuturigaon and Umundira villages of Kamakhyanagar sub-division. Geo-chemical analysis of soil samples of these areas indicated presence of chromite (about 1% Cr₂O₃) in the soil.

Kyanite: Important Kyanite occurrences are reported around Torodanali, Kodabasanta and Jhilli. The Al₂O₃ and Fe₂O₃ content of Kyanite varies from 20% to 61.1 1% and 5% to 26.6% respectively. SiO₂ varies from 31.46% to 69.0%. Reserve of Kyanite has been estimated at 0.64 million tonnes in these areas.

China Clay: China clay occurrences in shape of small pockets has been located at Karanda, Babandha and Dudurkot I Hindol sub-division of Dhenkanal district. The percentage of Al_2O_3 , SiO_2 and Fe_2O_3 vary from 11.4 to 14.3, 18.22 to 23.6 and 5.6 to 7.2 respectively. These are not suitable for refractory industries.

Decorative and Dimension Stones: Decorative and Dimension stones of economic importance are reported around Karanda (granite gneiss), Babandha (Augen gneiss), Haripur (Charnockite) Kukuta (Augen gneiss) of Hindol sub-division and Latadeipur. Radhadeipur (granite gneiss) of Dhenkanal sub-division. 25,8000 cubic metre of dimension stone has been estimated in these area.

Graphite: Occurrence of graphite has been located around Karabira and Bandhabhuin villages of Hindol sub-division. The low grade disseminated variety of graphite in migmatized khondalite located 250 metre east of Karabira village extends over a length of 250 m with average width of 100 m. The fixed carbon content of graphite varies from 8.74% to 11.79%.

Semi-precious Stone: Semi-precious stones like garnet (almandine, rhodolite, hessonite) moon stone and beryl are reported from Gotarei, Ghagarmunda, Katumunda, Asanabahal, Tiperijharan and Nakanaki area of Kamakhyanagar sub-division. 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.

05. DRAINAGE AND IRRIGATION PATTERN.

Dhenkanal district in Odisha, India, exhibits a drainage and irrigation system influenced by its topography and hydrological features.

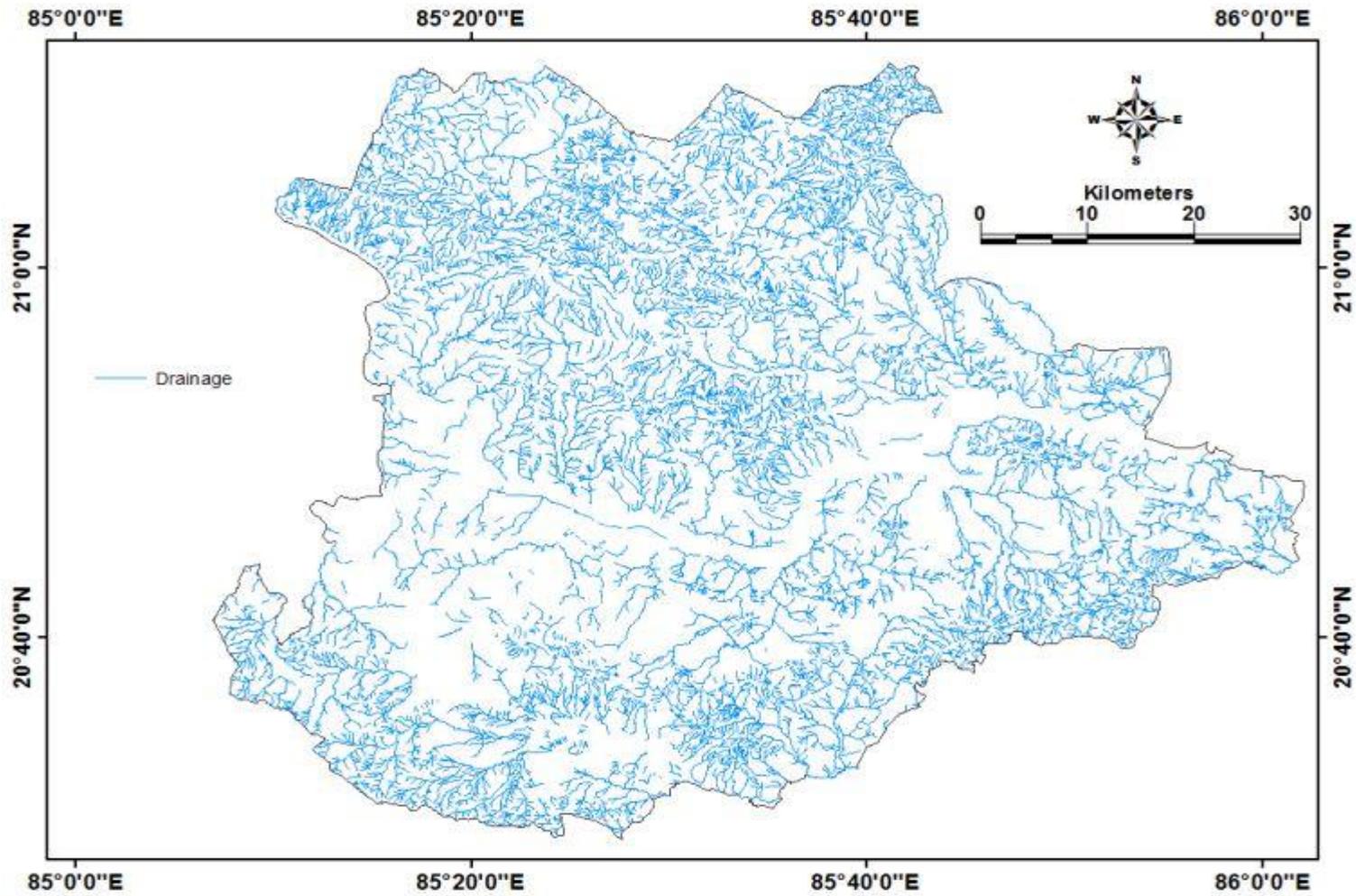
Drainage System:

The primary drainage feature of Dhenkanal is the Brahmani River, which traverses the district in an east-west direction, dividing it into two halves. This perennial river receives significant tributaries such as Ramiala Nadi, Nigre Nadi, and Purajhor Nadi. The district's drainage pattern is characterized by sub-parallel streams, indicating structural control. During the monsoon season, these rivers are filled with water, gradually decreasing from January to June.

Irrigation Pattern:

Agriculture in Dhenkanal is predominantly rain-fed, with limited irrigation facilities. The district's irrigation potential is primarily derived from surface water resources, including the Brahmani River and its tributaries. The Rengali Irrigation Project, along with minor flow and lift irrigation projects, contributes to the irrigation coverage. During the Kharif season, approximately 27.3% of the area is irrigated, while during the Rabi season, about 7.5% is covered. The sources of irrigation include minor flow irrigation projects, lift irrigation projects, and groundwater resources, mainly through dug wells.

In summary, Dhenkanal's drainage system is dominated by the Brahmani River and its tributaries, while its irrigation pattern relies on surface water resources, supplemented by groundwater through dug wells.



— Drainage Map of Dhenkanal district.

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

Forest:

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

Reserve Forest:-

Sl No	Name of the Division	Name of Forest Block	Category of Forests	Notification No. with date	Area in Ha.	Area in Sq. Kms	Boundary In Kms.	Boundary pillars	compartments	(Mention Topo sheet No.)	
1	2	3	4	5	6	7	8	9	10	11	
1	Dhenkanal	Charkhola	Reserve Forest	44094/D-2F-189(M/2)/59 Dt.22.12.1959	817.09	8.1709	17.66	164	2	73H/10	
2		Ghantabaja		-do-	1251.74	12.5174	37.2	223	4	73H/10, 73H/6	
3		Saptasalya		-do-	2224.23	22.2423	21.6	180	3	73H/10	
4		Majuri		-do-	991.52	9.9152	18.7	245	2	73H/10	
5		Nimidha		-do-	155.00	1.55	7	47	1	73H/5	
6		Godabolua		-do-	380.42	3.8042	10.02	68	1	73H/10	
7		Patapuri		-do-	477.55	4.7755	12.7	81	1	73H/10	
8		Megha		-do-	615.15	6.1515	12.8	77	1	73H/10	
9		Korian		-do-	393.37	3.9337	7.52	51	1	73H/10	
10		Kankadahad		-do-	380.42	3.8042	9.96	73	1	73H/10	
11		Tamanda		-do-	550.39	5.5039	20.4	101	1	73H/10, 73H/6	
12		Jaripal		-do-	275.60	2.756	9.28	60	1	73H/6	
13		Belabania		-do-	566.98	5.6698	16.4	241	1	73H/6	
14		Sulia		-do-	259.00	2.59	7.54	85	1	73H/6	
15		Matiamundia		-do-	1110.78	11.1078	13.96	146	1	73H/7	
16		Matharagadi		-do-	299.50	2.995	12.32	163	1	73H/6	
17		Kotaberena		-do-	1003.66	10.0366	18.02	222	1	73H/6	
18		Kapilash		-do-	12934.21	129.3421	38.4	450	28	73H/13, 73H/10, 73H/14	
19		Sadangi-A		FS 65/70-59327R Dt.26.10.1970	54.72	0.5472	-	17	1	73H/9	
20		Sadangi_B		44094/D-2F-189(M/2)/59 Dt.22.12.1959	428.98	4.2898	5.8	40	1	73H/9	
21		Lahada-A		-do-	1327.42	13.2742	12.8	86	1	73H/13	
22		Lahada-B		-do-	2662.35	26.6235	19.02	144	1	73H/13	
23		Ramel		-do-	1877.81	18.7781	35.5	136	4	73H/14	
24		Aswakhola		-do-	2571.86	25.7186	29.12	132	6	73H/13	
25		Ralgoda		-do-	363.42 Ha	3.6342	9.86	53	1	73H/13	
26		Gondia		-do-	934.86	9.3486	14	94	1	73H/13, 73H/14	
27		Balipasi		-do-	267.10	2.671	10.4	81	1	73H/13	
28		Nischinta		-do-	712.27	7.1227	15.6	90	1	73H/13	
29		Raltola		-do-	518.02	5.1802	11.2	61	1	73H/13	
30		Bega		-do-	550.39	5.5039	15.8	78	1	73H/13	

31	Rupaballa		914.62	9.1462	5.2	70	1	73H/9
32	Khankira	-do-	453.26	4.5326	24.6	126	1	73H/9
33	Moulabhanja	-do-	1672.74	16.7274	64.6	755	33	73G/12
34	Ranjagarh	-do-	16414.63	164.1463	25.66	103	1	73H/9
35	Jiridamli	-do-	783.21	7.8321	18.2	93	1	73G/12
36	Birsal	-do-	1780.68	17.8068	16.2	90	1	73H/9
37	Tipilei	-do-	825.59	8.2559	12.96	82	1	73H/9
38	Bhirpur	-do-	469.45	4.6945	46.66	225	1	73H/9
39	Sunajhari	-do-	2744.68	27.4468	13	109	1	73H/13
40	Dhalpada	-do-	372.32	3.7232	18.48	175	1	73H/13
41	Balibo	-do-	667.76	6.6776	14.04	68	1	73H/13
42	Bhuban	-do-	460.14	4.6014				73G/4, 73H/9, 73G/8, 73G/12
43	Anantapur	-do-	20016.06	200.1606	152	1463	40	
44	Sundarakhol	-do-	2153.00	21.53	28.6	183	6	73H/9
45	Sarimalia	-do-	1400.26	14.0026	29.4	187	1	73H/5
46	Kadalipal	-do-	246.06	2.4606	6.56	63	1	73H/5
47	Kankili	-do-	1732.52	17.3252	21.4	196	1	73H/5
48	Madhi	-do-	420.89	4.2089	8.6	80	1	73H/5
49	Machia	-do-	278.84	2.7884	13.8	100	1	73H/9
50	Anlabereni	-do-	492.52	4.9252	15.2	207	1	73H/9
51	Suniamaru	-do-	1724.02	17.2402	18.88	73	1	73H/9
52	Nandabiri	-do-	137.60	1.376	9.3	31	1	73H/5
53	Barabanka-N	-do-	469.45	4.6945	9.8	47	1	73H/5
54	Barabanka-S	-do-	922.72	9.2272	14.4	125	1	73H/5
55	Talcher Border	-do-	784.31	7.8431	12.24	68	1	73G/4, 73G/8
56	Khalpal	-do-	688.80	6.888	15.2	151	1	73H/5
57	Dolia	-do-	1776.23	17.7623	14.8	90	1	73G/8
58	Kandhara	11F-47/68/12087/CF Dt.12.06.1969	11172.96	111.7296	42.24	316	25	73H/7, 73H/6 73H/2
59	Patalo	-do-	801.31	8.0131	7.76	100	2	73H/6
60	Bompa	-do-	2355.35	23.5535	19.92	257	5	73H/6
61	Nandinia	44094/D-2F- 189(M/2)/59 Dt.22.12.1959	641.85	6.4185	7.56	31	1	73H/2
62	Hitinda	-do-	798.88	7.9888	15.68	122	1	73H/6
63	Koi	-do-	2619.22	26.1922	36.94	289	2	73H/6 73H/2
64	Kansara	-do-	51.37	0.5137	2.9	25	1	73H/2
65	Ambithi	-do-	464.60	4.646	5.6	92	1	73H/2


 Divisional Forest Officer,
 Dhenkanal Division

Protected Forest:-

SI No.	Name of the Division	Name of the District	Name of the Protected Forest (Declared U/s-33)	Area in Acre	Area in Ha.	Notification No. & Date
1	2	3	4	5	6	7
01	Dhenkanal	Dhenkanal	Rajmohanpur	373	150	Not notified. Non-forest land allotted vide Order No1835 dt.30.10.06 of the Collector, Dhenkanal against the forest diversion proposal of Sapua-Badajora MIP.
02			Bharatipahada	190.54	77.1113	Not notified. Non-forest land allotted against the Forest Diversion Proposal missing league to NH-23.
			Kumushi	110.64	44.7168	
03			Patabeda	81.50	32.995	Not notified. Non-forest land allotted against the Forest Diversion Proposal of Kathapal Chromite Mines by M/s FACOR vide District Office, Dhenkanal Order No.2392 dt.03.12.97
04			Kantapal	20	8.097	
05			Rupabeda	35	14.170	
06			Ihanjiriberena	23.50	9.514	
07			Damal	20.47	8.29	Not notified. Non-forest land allotted against the Forest diversion proposal of Kankadajhar MIP vide Letter No.29185 dt.27.07.2004 of Govt. of Odisha, Revenue Department and Order No.708 dt.25.06.16 of the Collector, Dhenkanal.
08						
09			Budhiparbat	151.920	61.48	Notification No.10F(Div)-32/2006/464/F&E dt.07.01.10 of Govt. of Odisha, F&E Department against Bhusan Steel & stripes Ltd.
10			Budhiparbat (A)	80	32.3749	Notification No.10F(Div)-16/2010/24717/F&E dt.23.11.10 of Govt. of Odisha, F&E Department against GMR, Kamalanga Energy Ltd.
11			Nrushinghpur Sasan alias Krushnakumarpur	15.64	6.3292	Notification No.10F(Div)-38/2012/18997/F&E dt.08.10.12 of Govt. of Odisha, F&E Department against Ashurbandha Chromite Mines by Real India Consultancy.
12			Budhiparbat	19.99	8.0937	Notification No.10F(Con)-25/2014/8283/F&E dt.05.05.14 of Govt. of Odisha, F&E Department against LANCO Babandha Ltd.
13			Gurujanga (A)	7.80	3.156	Notification No.10F(Con)-114/2014/1040/F&E dt.16.01.15 of Govt. of Odisha, F&E Department against Rungta Mines Ltd.
14			Gurujanga	200.77	81.25	Notification No.10F (Con)-104/2014/11844/F&E dt.01.07.14 of Govt. of Odisha, F&E Department. Notification No.10F (Cons) 104/2014-11850/F&E dt.01.07.14 against Sarkundi Iron & Manganese Mines of Sundargarh District by M/s. Fee grade & Co. Pvt. Ltd. of Banai Forest Division.
15			Kanaka	510.25	206.49	
16			Jagannathpur	60	24.28	Notification No.10F(Con)-09/2008/14342/F&E dt.20.08.09 of Govt. of Odisha, F&E Department against Sukrangi Mines by OMC Ltd. in Cuttack Forest Division.
17			Pangatira	672.30	272.076	Notification No.10F(Con)-76/2015/13626/F&E dt.31.07.15 of Govt. of Odisha, F&E Department against South Kalipani Chromite Mines by OMC Ltd. in Cuttack Forest Division.
18			Jogidihi	23.64	9.5668	Notification No-FF-DIV-FLD-0053-2020-10F(Cons)30/2019-19170/F&E dt.27.11.2020 of Govt. of Odisha, F&E Department.
19			Katani	41.70	16.8754	
						Notification No-FF-DIV-FLD-0053-2020-10F(Cons)30/2019-19195/F&E dt.27.11.2020 of Govt. of Odisha, F&E Department.

20		Kantakhola-B	0.6900	0.2792	Notification No.FF-DIV-FLD-0053-2020-10F(Cons)30/2019-19202/F&E dt.27.11.2020 of Govt. of Odisha, F&E Department.
21		Kantakhola-A	29	11.7359	Notification No.FF-DIV-FLD-0053-2020-10F(Cons)30/2019-19209/F&E dt.27.11.2020 of Govt. of Odisha, F&E Department.
22		Kerajodi-A	28.511	11.5381	Notification No.FF-DIV-FLD-0051-2020-10F(Cons)77/2020-19366/F&E dt.01.12.2020 of Govt. of Odisha, F&E Department.
23		Kerajodi-B	127.438	51.5724	Notification No.FF-DIV-FLD-0051-2020-10F(Cons)77/2020-19373/F&E dt.01.12.2020 of Govt. of Odisha, F&E Department.
24		Kerajodi-C	241.490	97.7277	Notification No.FF-DIV-FLD-0051-2020-10F(Cons)77/2020-19380/F&E dt.01.12.2020 of Govt. of Odisha, F&E Department.
25		Asanabahali	158.789	64.2597	Notification No.FE-DIV-FLD-0067-2021-10F(Cons)140/2016-8043/F&E dt.22.04.2021 of the Govt. of Odisha, F&E Department.
26		Jagannathpur	14.826	6.00	Not Notified
Total				1304.0391	

Divisional Forest Officer,
Dhenkanal Division

Village Forest:-

Sl. No	Name of the Division	Name of the Village Forests	Category of Forests	Notification No. with date of Govt. of Odisha Forests & Environment Department	Kms		7
					Area in Ha.	Area In Sq. Kms	
1	2	3	4	5	6	6	7
1		Ankarantipur	Village Forest U/S 30	19412 F&EDt.04.11.1991	3.00	0.03	-
1	Dhenkanal	Ankarantipur		19412 F&EDt.04.11.1991	5.00	0.05	-
2		Mulasingh		29570 F&EDt.09.12.1992	3.00	0.03	-
3		Mulasingh		19412 F&E Dt.04.11.1991	5.00	0.05	-
4		Mulasingh		19412 F&EDt.04.11.1991	5.00	0.05	-
5		Siminai		19412 F&EDt.04.11.1991	3.50	0.0350	-
6		Siminai		19412 F&EDt.04.11.1991	5.00	0.05	-
7		Siminai		19412 F&E Dt.04.11.1991	5.00	0.05	-
8		Siminai		19412 F&EDt.04.11.1991	2.00	0.02	-
9		Sankarpratapur		19412 F&EDt.04.11.1991	10.00	0.1	-
10		Sankarpratapur		29570 F&EDt.09.12.1992	4.78	0.0478	-
11		Panchupati		19412 F&EDt.04.11.1991	1.00	0.01	-
12		Panchupati		19412 F&EDt.04.11.1991	1.00	0.01	-
13		Sainbiri		19412 F&EDt.04.11.1991	1.91	0.0191	-
14		Gadasila		19412 F&EDt.04.11.1991	5.00	0.05	-
15		Chalnpur		29570 F&EDt.09.12.1992	2.00	0.02	-
16		Maidharpur		19412 F&EDt.04.11.1991	20.00	0.20	-
17		Kandabindha		29570 F&EDt.09.12.1992	12.00	0.12	-
18		Tamada		29570 F&EDt.09.12.1992	5.00	0.05	-
19		Tamada		29570 F&EDt.09.12.1992	5.00	0.05	-
20		Besalia		19412 F&EDt.04.11.1991	17.00	0.17	-
21		Besalia		19412 F&EDt.04.11.1991	3.11	0.0311	-
22		Besalia		29570 F&EDt.09.12.1992	1.00	0.01	-
23		Khuntajhari		19412 F&EDt.04.11.1991	8.00	0.08	-
24		Khuntajhari		29570 F&EDt.09.12.1992	10.20	0.102	-
25		Indipur		19412 F&EDt.04.11.1991	10.00	0.10	-
26		Indipur		29570 F&EDt.09.12.1992	2.60	0.026	-
27		Kalinga		19412 F&EDt.04.11.1991	2.50	0.025	-
28		Kalmati		29570 F&EDt.09.12.1992	5.00	0.05	-
29		Kukudajhar-Khamar		2061 F&E Dt.03.01.1993	2.00	0.02	-
30		Ostapal		29570 F&EDt.09.12.1992	5.00	0.05	-
31		Gobindprasad		29570 F&EDt.09.12.1992	6.00	0.06	-
32		Jankhira		2061 F&E Dt.03.01.1993	5.00	0.05	-
33		Bhaliapat		2061 F&E Dt.03.01.1993	5.00	0.05	-
34		Bhaliapat		29570 F&EDt.09.12.1992	5.00	0.05	-

35	Ballapat	2861 F&E Dt.03.01.1993	0.00	0.1	-
36	Latadelpur	2861 F&E Dt.03.01.1993	5.00	0.05	-
37	Mandar	2861 F&E Dt.03.01.1993	10.00	0.1	-
38	Deulasahl	2861 F&E Dt.03.01.1993	10.00	0.1	-
39	Chitalpur	2861 F&E Dt.03.01.1993	10.00	0.1	-
40	Karanda	2861 F&E Dt.03.01.1993	5.00	0.05	-
41	Jhill	2861 F&E Dt.03.01.1993	10.00	0.1	-
42	Jhill	2861 F&E Dt.03.01.1993	10.00	0.1	-
43	Jhill	2861 F&E Dt.03.01.1993	9.00	0.09	-
44	Atinda	2861 F&E Dt.03.01.1993	3.50	0.035	-
45	Chhatta	2861 F&E Dt.03.01.1993	4.50	0.045	-
46	Joranda	2861 F&E Dt.03.01.1993	5.00	0.05	-
47	Kunda	24465 F&EDt.10.10.1990	6.00	0.06	-
48	Murdanga	24465 F&EDt.10.10.1990	6.00	0.06	-
49	Murdanga	2861 F&E Dt.03.01.1993	8.00	0.08	-
50	Kunda	2861 F&E Dt.03.01.1993	6.00	0.06	-
51	Sarangapur	2861 F&E Dt.03.01.1993	4.00	0.04	-
52	Anlajhari	24465 F&EDt.10.10.1990	10.00	0.1	-
53	Anlajhari	2861 F&E Dt.03.01.1993	7.00	0.07	-
54	Ballbo	2861 F&E Dt.03.01.1993	5.00	0.05	-
55	Gurudabandi	2861 F&E Dt.03.01.1993	10.00	0.1	-
56	Gurudabandi	2861 F&E Dt.03.01.1993	4.76	0.0476	-
57	Kesharpur	2861 F&E Dt.03.01.1993	10.00	0.1	-
58	Baruan	3764 F&EDt.18.02.1992	6.00	0.06	-
59	Baruan	3764 F&E Dt.18.02.1992	0.15	0.0015	-
60	Odisha-Samlll	3764 F&EDt.18.02.1992	5.00	0.05	-
61	Odisha	3764 F&EDt.18.02.1992	8.89	0.0889	-
62	Odisha	3764 F&EDt.18.02.1992	30.00	0.3	-
63	Maulagoda	29570 F&EDt.09.12.1992	4.12	0.0412	-
64	Kunida	2861 F&E Dt.03.01.1993	6.07	0.0607	-
65	Dhalapada	2861 F&E Dt.03.01.1993	10.00	0.1	-
66	Dhalapada	2861 F&E Dt.03.01.1993	6.00	0.06	-
67	Dhalapada	2861 F&E Dt.03.01.1993	15.00	0.15	-
68	Rendapatna	2861 F&E Dt.03.01.1993	3.79	0.0379	-
69	Rendapatna	2861 F&E Dt.03.01.1993	4.734	0.04734	-
70	Kirttanpur	2861 F&E Dt.03.01.1993	5.00	0.05	-
71	Kirttanpur	2861 F&E Dt.03.01.1993	10.00	0.1	-
72	Asurabandha	2861 F&E Dt.03.01.1993	3.48	0.0348	-
73	Chandar	10536 F&EDt.15.04.1993	6.00	0.06	-
74	Shyamal	27514 F&EDt.17.12.1993	4.00	0.04	-
74	Kunida				

75	Danpasi	2861 F&E Dt.03.01.1993	1.11	0.0311	-
76	Danpasi	2861 F&E Dt.03.01.1993	7.00	0.07	-
77	Anlaberani	1719 F&EDt.25.01.1992	10.00	0.1	-
78	Khatuahata	3764 F&EDt.18.02.1992	2.70	0.0270	-
79	Mahulpal	27514 F&EDt.17.12.1993	10.00	0.01	-
80	Mahulpal	27514 F&EDt.17.12.1993	40.00	0.4	-
81	Mahulpal	29570 F&EDt.09.12.1992	0.19	0.0019	-
82	Mahulpal	29570 F&EDt.09.12.1992	6.44	0.0644	-
83	Rayanrushingpur	3764 F&E Dt.18.02.1992	5.00	0.05	-
84	Rayanrushingpur	29570 F&E Dt.09.12.1992	1.00	0.01	-
85	Rayanrushingpur	10536 F&E Dt.15.04.1993	10.00	0.1	-
86	Upparjhada	2861 F&E Dt.03.01.1993	8.00	0.08	-
87	Godabhaga	2861 F&E Dt.03.01.1993	4.00	0.04	-
88	Sogar	27514 F&EDt.17.12.1993	6.00	0.06	-
89	Jautukapasi	3764 F&EDt.18.02.1992	1.46	0.0146	-
90	Miktapasi	3764 F&EDt.18.02.1992	20.00	0.2	-
91	Kamarda	3764 F&EDt.18.02.1992	5.00	0.05	-
92	Kamarda	3764 F&EDt.18.02.1992	5.00	0.05	-
93	Kamarda	3764 F&EDt.18.02.1992	5.00	0.05	-
94	Kamarda	3764 F&EDt.18.02.1992	5.00	0.05	-
95	Kamarda	29570 F&EDt.09.12.1992	10.00	0.1	-
96	Kamarda	29570 F&EDt.09.12.1992	8.00	0.08	-
97	Kamarda	29570 F&EDt.09.12.1992	32.26	0.3226	-
98	Siarimalia	29570 F&EDt.09.12.1992	5.00	0.05	-
99	Anlaberani	1719 F&EDt.25.01.1992	10.00	0.1	-
100	Kadalipal	1719 F&EDt.25.01.1992	5.00	0.05	-
101	Khuntabati	3764 F&EDt.18.02.1992	5.00	0.05	-
102	Basantapada	29570 F&EDt.09.12.1992	5.00	0.05	-
103	Basantapada	29570 F&EDt.09.12.1992	5.00	0.05	-
104	Basoi	29570 F&EDt.09.12.1992	10.00	0.1	-
105	Barihapur	27514 F&EDt.17.12.1993	10.00	0.1	-
106	Godarbilli	3764 F&EDt.18.02.1992	5.00	0.05	-
107	Tulasipasi	3764 F&EDt.18.02.1992	5.00	0.05	-
108	Lokanthapur	2861 F&E Dt.03.01.1993	10.00	0.1	-
109	Lokanthapur	2861 F&E Dt.03.01.1993	7.00	0.07	-
110	Lokanthapur	2861 F&E Dt.03.01.1993	0.76	0.0076	-
111	Arachua	2861 F&E Dt.03.01.1993	6.00	0.06	-
112	Arachua	3764 F&EDt.18.02.1992	6.00	0.06	-
113	Khadagiri	2861 F&E Dt.03.01.1993	20.00	0.2	-
114	Ralbole				

115	Raihole	27514 F&EDt.17.12.1993	10.00	0.1	-
116	Bhalumunda	3764 F&EDt.18.02.1992	5.00	0.05	-
117	Rahani	2861 F&E Dt.03.01.1993	3.00	0.03	-
118	Rahani	2861 F&E Dt.03.01.1993	1.80	0.018	-
119	Rahani	2861 F&E Dt.03.01.1993	6.00	0.06	-
120	Birasal	3764 F&EDt.18.02.1992	5.00	0.05	-
121	Panisia	2861 F&E Dt.03.01.1993	10.00	0.1	-
122	Korianpal	2861 F&E Dt.03.01.1993	5.00	0.05	-
123	Kankana	27514 F&EDt.17.12.1993	10.00	0.1	-
124	Haladikundi	3764 F&EDt.18.02.1992	5.00	0.05	-
125	Haladikundi	2861 F&E Dt.03.01.1993	5.00	0.05	-
126	Tandimunda	2861 F&E Dt.03.01.1993	35.00	0.35	-
127	Khajuria	3764 F&EDt.18.02.1992	5.00	0.05	-
128	Khajuria	27514 F&E Dt.17.12.1993	20.00	0.2	-
129	Patharakata	2861 F&E Dt.03.01.1993	15.00	0.15	-
130	Kolabaniakateni	2861 F&E Dt.03.01.1993	1.74	0.0174	-
131	Kolabaniakateni	2861 F&E Dt.03.01.1993	5.26	0.0526	-
132	Makuakateni	27514 F&EDt.17.12.1993	5.00	0.05	-
133	Jatia	1719 F&EDt.25.01.1992	5.00	0.05	-
134	Katabahal	1719 F&EDt.25.01.1992	5.00	0.05	-
135	Lodhani	1719 F&EDt.25.01.1992	4.00	0.04	-
136	Katarpada	1719 F&EDt.25.01.1992	3.00	0.03	-
137	Barabanka	1719 F&EDt.25.01.1992	5.00	0.05	-
138	Patrapada	1719 F&EDt.25.01.1992	5.00	0.05	-
139	Patrapada	1719 F&EDt.25.01.1992	6.00	0.06	-
140	Ludhani	1719 F&EDt.25.01.1992	3.00	0.03	-
141	Patrapada	1719 F&EDt.25.01.1992	8.00	0.08	-
142	Surangi	3764 F&EDt.18.02.1992	13.02	0.1302	-
143	Basantapur	29570 F&EDt.09.12.1992	5.00	0.05	-
144	Jatia	1719 F&EDt.25.01.1992	5.00	0.05	-
145	Katabahal	1719 F&EDt.25.01.1992	5.00	0.05	-
146	Lodhani	1719 F&EDt.25.01.1992	5.00	0.05	-
147	Lodhani	1719 F&EDt.25.01.1992	4.00	0.04	-
148	Patrapada	1719 F&EDt.25.01.1992	3.00	0.03	-
149	Patrapada	1719 F&EDt.25.01.1992	6.00	0.06	-
150	Patrapada	1719 F&EDt.25.01.1992	5.00	0.05	-
151	Patrapada	3764 F&EDt.18.02.1992	4.18	0.0418	-
152	Palasahi	2861 F&E Dt.03.01.1993	5.00	0.05	-
153	Palasahi	27514 F&EDt.17.12.1993	10.00	0.1	-
154	Katarpada	1719 F&EDt.25.01.1992	3.00	0.03	-

156	Kadallpal	1719 F&E Dt.25.01.1992	5.00	0.05	-
157	Badajhara	3764 F&EDt.18.02.1992	0.53	0.0053	-
158	Badajhara	3764 F&EDt.18.02.1992	5.00	0.05	-
159	Badajhara	3764 F&EDt.18.02.1992	10.00	0.1	-
160	Badajhara	3764 F&EDt.18.02.1992	10.00	0.1	-
161	Berhampur	19412 F&EDt.04.11.1991	5.00	0.05	-
162	Giridhariprasad	19412 F&EDt.04.11.1991	8.00	0.08	-
163	Giridhariprasad	19412 F&EDt.04.11.1991	2.00	0.02	-
164	Bhingira	19412 F&EDt.04.11.1991	3.30	0.033	-
165	Asarada	19412 F&EDt.04.11.1991	4.00	0.04	-
166	Asrada	19412 F&EDt.04.11.1991	1.31	0.0131	-
167	Sana Hindol	19412 F&EDt.04.11.1991	2.20	0.022	-
168	Ranjagola	2861 F&E Dt.03.01.1993	7.00	0.07	-
169	Barasingha	2861 F&E Dt.03.01.1993	10.00	0.1	-
170	Nua Bag	19412 F&EDt.04.11.1991	5.00	0.05	-
171	Ostapal	19412 F&E Dt.04.11.1991	4.30	0.043	-
172	Badagole	19412 F&EDt.04.11.1991	2.23	0.0223	-
173	Badagole	2861 F&E Dt.03.01.1993	4.00	0.04	-
174	Sarasing	24465 FFAHDt.10.10.1990	6.00	0.06	-
175	Kaingurunja	2861 F&E Dt.03.01.1993	10.00	0.1	-
176	Thenga	19412 F&EDt.04.11.1991	1.77	0.0177	-
177	Balikiari	24465 FFAHDt.10.10.1990	5.00	0.05	-
178	Panchupada	19412 F&EDt.04.11.1991	2.11	0.0211	-
179	Panchupada	2861 F&E Dt.03.01.1993	20.00	0.2	-
180	Nandapur	19412 F&EDt.04.11.1991	3.64	0.0364	-
181	Nandapur	19412 F&EDt.04.11.1991	2.12	0.0212	-
182	Gorillo	2861 F&E Dt.03.01.1993	8.00	0.08	-
183	Dudhukote	24465 FFAHDt.10.10.1990	4.00	0.04	-
184	Rajamohanpur	24465 FFAHDt.10.10.1990	2.00	0.02	-
185	Rajamohanpur	24465 FFAHDt.10.10.1990	9.00	0.09	-
186	Rajamohanpur	2861 F&E Dt.03.01.1993	10.00	0.1	-
187	Saradhapur	2861 F&E Dt.03.01.1993	10.00	0.1	-
188	Mangalapur	24465 FFAHDt.10.10.1990	5.00	0.05	-
189	Gobindabereni	2861 F&E Dt.03.01.1993	20.00	0.2	-
190	Tarakabeda	24465 FFAHDt.10.10.1990	4.00	0.04	-
191	Madhupur	2861 F&E Dt.03.01.1993	5.00	0.05	-
192	Kumurisinga	2861 F&E Dt.03.01.1993	10.00	0.1	-
193	Kantamila	2861 F&E Dt.03.01.1993	5.00	0.05	-
194	San Munda	2861 F&E Dt.03.01.1993	5.00	0.05	-

195	Patla	24465 FFAH Dt.10.10.1990	3.00	0.05	-
196	Jharbeda	2861 F&E Dt.03.01.1993	5.00	0.04	-
197	Nuapada	24465 FFAH Dt.10.10.1990	4.00	0.05	-
198	Nuapada	24465 FFAH Dt.10.10.1990	5.00	0.0238	-
199	Panubereni	19412 F&E Dt.04.11.1991	2.38	0.05	-
200	Bedapada	24465 FFAH Dt.10.10.1990	5.00	0.1	-
201	Kaduamada	29570 F&E Dt.09.12.1992	10.00	0.1632	-
202	Kaduamada	29570 F&E Dt.09.12.1992	16.32	0.1	-
203	Kaduamada	29570 F&E Dt.09.12.1992	10.00	0.1	-
204	Bahandei	29570 F&E Dt.09.12.1992	10.00	0.1	-
205	Kansara	24465 FFAH Dt.10.10.1990	6.00	0.06	-
206	Kansara	2861 F&E Dt.03.01.1993	5.00	0.05	-
207	Gobardhanpur	2861 F&E Dt.03.01.1993	5.00	0.05	-
208	Bileikhal	2861 F&E Dt.03.01.1993	5.00	0.05	-
209	Bileikhal	2861 F&E Dt.03.01.1993	10.06	0.1006	-
210	Anlabeda	2861 F&E Dt.03.01.1993	5.00	0.05	-
211	Nuakiari	2861 F&E Dt.03.01.1993	6.00	0.06	-
212	Brahmaniapal	2861 F&E Dt.03.01.1993	10.00	0.1	-
213	Bompa	2861 F&E Dt.03.01.1993	1.78	0.0178	-
214	Bompa	2861 F&E Dt.03.01.1993	2.00	0.02	-
215	Jhobaninandar	2861 F&E Dt.03.01.1993	10.00	0.1	-
216	Bangu	2861 F&E Dt.03.01.1993	5.00	0.0500	-
217	Thakar	19412 F&E Dt.04.11.1991	7.68	0.0768	-

Divisional Forest Officer,
Dhenkanal Division

As per the data provided by the **Divisional Forest Officer, Eco-sensitive Zone of Kapilash Sanctuary , Dhenkanal** ; the land use in the division is as follows

Sl.No	Name of the village	Latitude			Longitude		
		Degree	Minute	Seconds	Degree	Minute	Seconds
1.	Achhanda	20	38	6.65	85	40	40.21
2.	Dahimal	20	39	46.97	85	41	04.42
3.	Harekrishnapur	20	39	07.65	85	40	57.67
4.	Khajuria	20	37	45.41	85	41	34.45
5.	Krushnakumarpur	20	40	01.23	85	42	45.31
6.	Sankhua	20	38	44.75	85	40	44.53
7.	Baunsagotha	20	37	16.12	85	40	54.41
8.	Biradia	20	40	12.82	85	42	50.71
9.	Chanabolua	20	40	03.22	85	41	50.21
10.	Ambanali	20	40	57.91	85	42	50.23
11.	Bania	20	41	56.51	85	48	40.22
12.	Chandrasekharpur	20	42	55.75	85	43	22.47
13.	Chhatia	20	44	22.93	85	41	40.62
14.	Chhotatentuli	20	45	20.56	85	55	18.05
15.	Deogan	20	41	53.35	85	45	06.95
16.	Ghoraghor	20	43	13.25	85	56	13.45
17.	Mahisiakada	20	44	09.82	85	52	23.87
18.	Mahulkhali	20	41	27.19	85	44	09.11
19.	Kolha	20	40	55.56	85	53	33.92
20.	Mundamari	20	44	35.96	85	52	19.22
21.	Neulpoi	20	44	00.78	85	42	46.07
22.	Neulpoi	20	42	29.42	85	51	53.61
23.	Similia	20	42	8.63	85	50	56.21
24.	Sorisiapada	20	44	19.47	85	51	39.11
25.	Talapada	20	44	32.23	85	51	57.12
26.	Haraberena	20	43	36.53	85	50	19.67
27.	Deojhar	20	43	29.72	85	51	0.31
28.	Ramei	20	43	07.51	85	50	51.42
29.	Nuachaulia	20	42	27.12	85	50	57.63
30.	Jamuria	20	40	39.42	85	50	56.16
30.	Chatighar	20	40	39.42	85	50	56.16

Agriculture & Horticulture:

Land utilization pattern in the district as per the department of agriculture Dhenkanal is as follows;

1	Geographical area	430477 m ²	
2	Cultivated area	I) high:	91321 m ²
		II) Medium:	54343 m ²
		III) Low:	40336 m ²
		Total	186000 m ²
3	Paddy area	91933 m ²	
4	Non- Paddy area	94067 m ²	

Land utilization pattern in the district as per the department of Horticulture Dhenkanal is as follows;

Fruit Crops		
Sl. No	Name of the Crop	Area covered (in Ha)
1	Aonla	77.04
2	Bael	258.04
3	Banana Ripe var.	568.07
4	Ber	221.06
5	Guava	266.03
6	Custard Apple	36.54
7	K. Lime	972.16
8	Litchi	14.84
9	Other Citrus	18.17
10	Other Fruit Crops	680.04
11	Jack Fruits	386.3
12	Pineapple	27.02
13	Pomegranate	32.26
14	Mango	11038.4
15	Papaya	268.29
16	Sapota	80.15
17	Dragon Fruit	11.52
	Total	14955.93
Vegetable		
Sl. No	Name of the Crop	Area covered (in Ha)
1	Banana	147.258
2	Beans	408.17
3	Bitter Ground	539.28
4	Bottle ground	463.12
5	Brinjal	5713.37
6	Cabbage	2152.37
7	Capsicum	4.46

8	Carrot	13.28
9	Cauliflower	1938.26
10	Coccinea	0
11	Cowpea	310.55
12	Cucumber	76.51
13	Garlic	209.6
14	Leafly vegetables	430.94
15	Mushroom	0
16	Muskmelon	6.4
17	Okra	2979.09
18	Onion	1622.1
19	Other Gourds	442.82
20	Other root crops	323.71
21	Other vegetable	1080.35
22	Pea	141.17
23	Point Gourd	124.69
24	Potato	1489.16
25	Pumpkin	560.95
26	Radish	535.48
27	Ridge gourd	123.73
28	Sweet Potato	1066.01
29	Tapioca	22.89
30	Tomato	4227.38
31	Watermelon	3068.6
32	Yam	41.04
	Total	30262.76
Ornamental crop		
Sl. No	Name of the Crop	Area covered (in Ha)
1	Gebra	3.95
2	Gladioli	12.17
3	Marigold	70.55
4	Rose	48.89
5	Tube Rose	23.05
	Total	158.61
Spices crop		
Sl. No	Name of the Crop	Area covered (in Ha)
1	Chilli	992.67
2	Coriander	1874.18
3	Ginger	1186.83
4	Other Spices	1099.6
5	Turmeric	1160.53
	Total	6313.81
Plantation Crops		
Sl. No	Name of the Crop	Area covered (in Ha)
1	Arecanut	8.16

2	Cashew	10767.63
3	Coconut	2161.49
4	Oil Palm	6.62
	Total	12943.9

Mining:-

Dhenkanal district in Odisha is not a hub for major mineral mining like its neighboring districts such as Angul and Keonjhar. However, the district does have some occurrences of minor minerals and limited deposits of certain major minerals. The land utilization pattern of Dhenkanal district for mining purposes is limited compared to agriculture, forestry, and other uses. However, certain areas of the district are allocated for small-scale quarrying and extraction activities, which influence the overall land utilization. Here's a breakdown of the land utilization pattern from a mining perspective

Land Utilization for Mining in Dhenkanal

- **Stone and Granite Quarrying:**

Quarrying for construction materials such as stone, and granite is the primary mining activity in the district.

These activities are generally confined to barren and non-agricultural lands, minimizing impacts on productive areas.

- **Soil and Sand Extraction:**

Soil is extracted for brick-making and local construction needs.

Sand is extracted from riverbeds (such as the Brahmani River) for construction activities.

- **Morum and Laterite:**

Morum is typically extracted from surface deposits in low-lying areas or along slopes where laterite weathering is prominent.

It is also found along the riverbeds and banks, especially in regions near the Brahmani River and its tributaries.

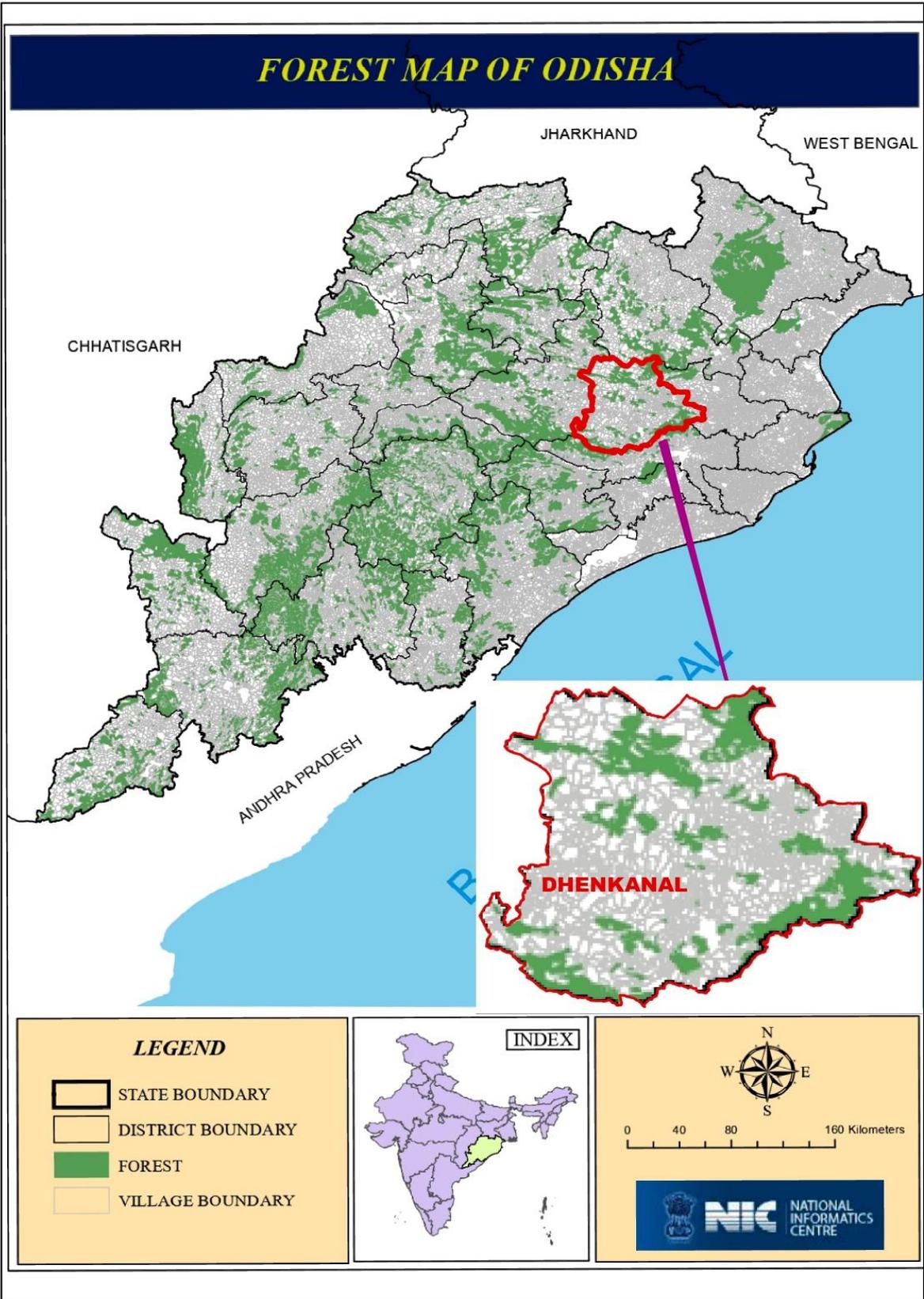
It is valued for its easy workability and is often used as a substitute for sand in construction and as a surface material for roads.

Laterite mining operations are small-scale and primarily focused on areas with barren or less agriculturally productive lands.

Laterite is used as construction material for rural housing and boundary walls.

Land Utilization Summary

The land utilized for mining in Dhenkanal district is a small fraction of the total land area. It mainly includes barren and rocky regions, riverbeds, and marginal lands unsuitable for agriculture. Due to regulatory frameworks, mining has not significantly impacted agricultural lands or forest areas. With industrial development and infrastructure growth, there may be an increase in demand for mining-related activities, emphasizing the need for balanced land use management.



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:

Depth of water level (mbgl)/ Period	April	August	November	January
Minimum	2.5	0.15	1.25	1.80
maximum	12.5	5.80	7.69	9.0

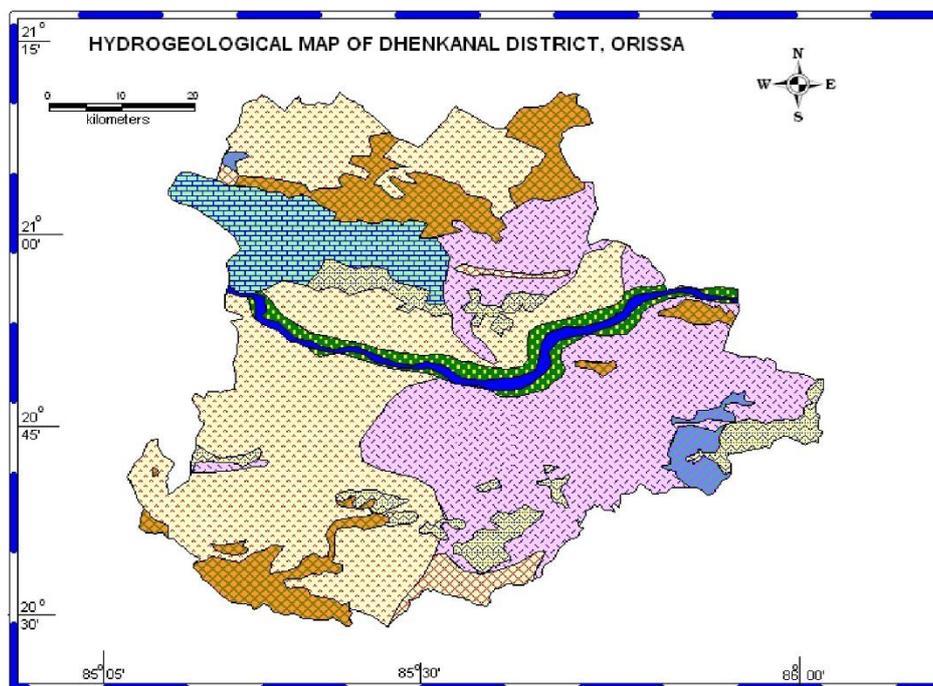


Fig :- 5

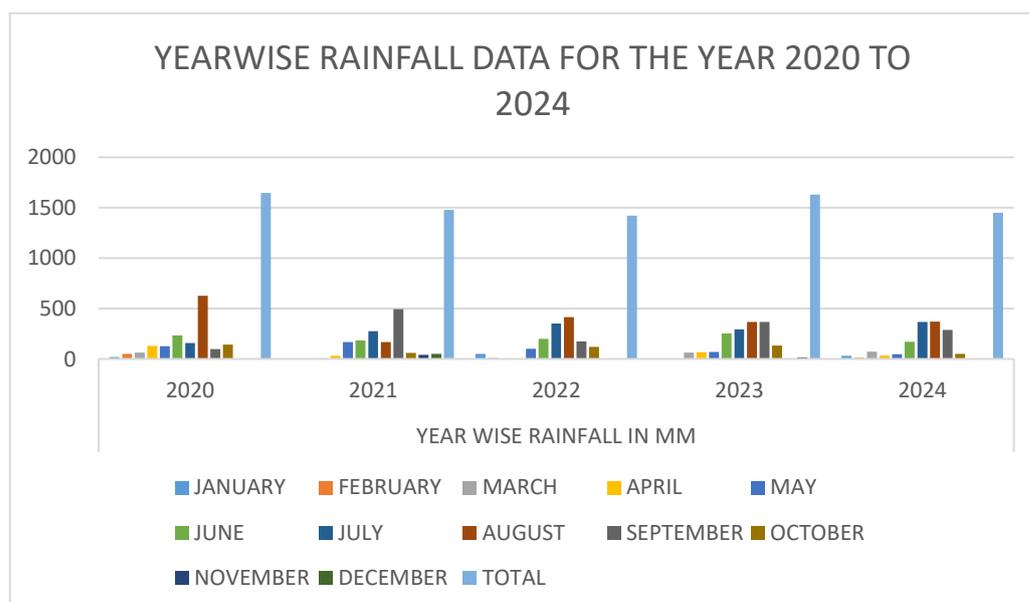
		LEGEND		
	<u>AGE GROUP</u>	<u>LITHOLOGY</u>	<u>HYDROGEOLOGICAL CONDITION</u>	<u>GROUND WATER POTENTIAL</u>
UN-CONSOLIDATED	RECENT TO SUB-RECENT	ALLUVIUM	OCCURS AS NARROW LINEAR PATCHES UPTO 25m THICKNESS ADJOINING RIVER COURSE - CONFINED AQUIFER	5 - 6 lps
		LATERITE	OCCURS AS CAPPING OVER OLDER FORMATION UPTO 13m THICKNESS - UNCONFINED AQUIFER	4 - 7 lps
	GONDWANA SEMI-CONSOLIDATED	SANDSTONE & SHALE	MODERATELY THICK (300m) DISCONTINUOUS - CONFINED AND UNCONFINED AQUIFER	1 - 4 lps
CONSOLIDATED	PRE-CAMBRIAN	GRANITE, GNEISS	GROUND WATER RESTRICTED TO WEATHERED ZONES AND UNDERLYING FRACTURED ZONES - CONFINED & UNCONFINED AQUIFERS	1 - 5 lps
	ARCHEAN	QUARTZITE		
		KHONDALITE	HILLY TERRAIN GROUND WATER POTENTIAL VERY LIMITED	Limited yield
		HILLY AREAS	AREA WITHOUT PRODUCTIVE AQUIFER EXCEPT IN PATCHES	0.1 lps

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:

YEARWISE RAINFALL DATA FOR THE YEAR 2020 TO 2024					
MONTH	YEAR WISE RAINFALL IN MM				
	2020	2021	2022	2023	2024
JANUARY	18.47	0	52.09	0	31.13
FEBRUARY	50.37	0	8.74	0	13.69
MARCH	62.95	5.4	0	62.54	73.31
APRIL	128.43	31.42	3.38	66.98	35.44
MAY	126.32	167.39	101.14	70.47	49.04
JUNE	233.67	184.75	198.77	252.7	170.13
JULY	157.73	275.32	352.3	293.68	368.87
AUGUST	625.65	167.82	413.27	367.26	370.69
SEPTEMBER	99.23	494.71	172.86	366.61	287.57
OCTOBER	142.18	59.91	119.18	133.14	49.64
NOVEMBER	0	41.14	0	1.01	0
DECEMBER	0	49.59	0	15.36	0
TOTAL	1645	1477.45	1421.73	1629.75	1449.51



09. DETAILS OF THE MINING LEASES IN THE DISTRICT AS PER THE FOLLOWING FORMAT. (Please refer Annexure-I)

Sl.No.	Name of the Mineral	Name of the Lessee	Address & 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.)	Obtained Environmental clearance (Y/N) if Y letter No. with date of grant of E.C	Location of the mining lease Land Schedule and (Latitude & Longitude)
						From	To				
1	2	3	4	5	6	7	8	11	12	14	15
A. Name of the Tahasil:- Dhenkanal Sadar											
A1	Sankarpur Morrum Quarry-II	Krushna Chandra Swain	At/Po-Brahmanig oan,Ps-Baranga,Dist-Cuttack	1551 & 23.02.2021	12.15A/4.91 6Ha	29.09.20 21	28.09.20 26	29.09.2021	Non-Working	Yes, letter no-2022/SEIAA & 05.08.2021	Mouza:-Sankarpur, Khata No-1321, Plot No-2557, (12.15 Ac & Kissam-Unnat Jojana Jogy), Lat-20°32'04.78"N to 20°32'11.54"N Long-85°35'02.51"E to 85°35'14.94"E
A2	Sankarpur Morrum Quarry-I	Krushna Chandra Swain	At/Po-Brahmanig oan,Ps-Baranga,Dist-Cuttack	1552 & 23.02.2021	12.20A/4.93 Ha	01.08.20 22	31.07.20 27	01.08.2022	Non-Working	Yes, letter no-3351/SEIAA & 12.10.2021	Mouza:-Sankarpur, Khata No-1321, Plot No-5962,(12.20 Ac & Kissam-Bhagayat-2), Lat- 20°31'32.34"N to 20°31'38.74"N Long-85°35'08.65"E to 85°35'20.72"E
B. Name of the Tahasil:- Gondia											
B1	Chandrasekharpur Morrum Quarry	M/s Aruni Stone Crusher & Transport services Pvt. Ltd, Directed by Ajit Sahu	At-Baraman, Po-Puruna, Boulamala, Baraman, Jajpur	3383 & 24.08.2020	5.10A/2.06Ha	10.05.20 21	09.05.20 26	10.05.2021	Non-Working	Yes, letter no-108/SEIAA & 19.1.2021	Mouza:- Chandrasekharpur, Khata No-337, Plot No-1331, (5.10 Ac & Kissam-Patharabani), Lat-20°43'30.361"N to 20°43'35.091"N Long-85°43'16.123"E to 85°43'24.916"E

B2	Nihakprasad Morrum Quarry				7 Ac/2.832Ha				Non- Working		Mouza:-Nihalprasad, Khata No-1513, Plot No-1170/9933, (7 Ac &Kissam- Patharabani),
C. Name of the Tahasil:- Hindol											
C1	Ranjagol Morrum Quarry No.3	Krushna Chandra Swain	At/Po- Brahmanig oan,Ps- Baranga,Di st-Cuttack	4380 & 21.10.2020	0.94A/0.38H a	14.10.20 22	13.10.20 27	14.10.2022	Non- Working	Yes, EC Identification no- EC22B001OR14 3570 & 07.09.2022	Mouza:-Ranjagol, Khata No-352, Plot No-1378, (0.94 Ac & Kissam-Patharabani), Lat- 20°42'59.30"N to 20°43'05.13"N Long- 85°17'24.32"E to 85°17'26.96"E

NB: in the above table omitted Columns are,

Column- 09 & 10 Period of Mining lease (Renew) -NA

Column-13 Use (Captive/ Non-Captive) - All Non-Captive

Column- 16 Method of Mining (Opencast/Underground) - All Open cast

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

Revenue collected for **Morrum**.

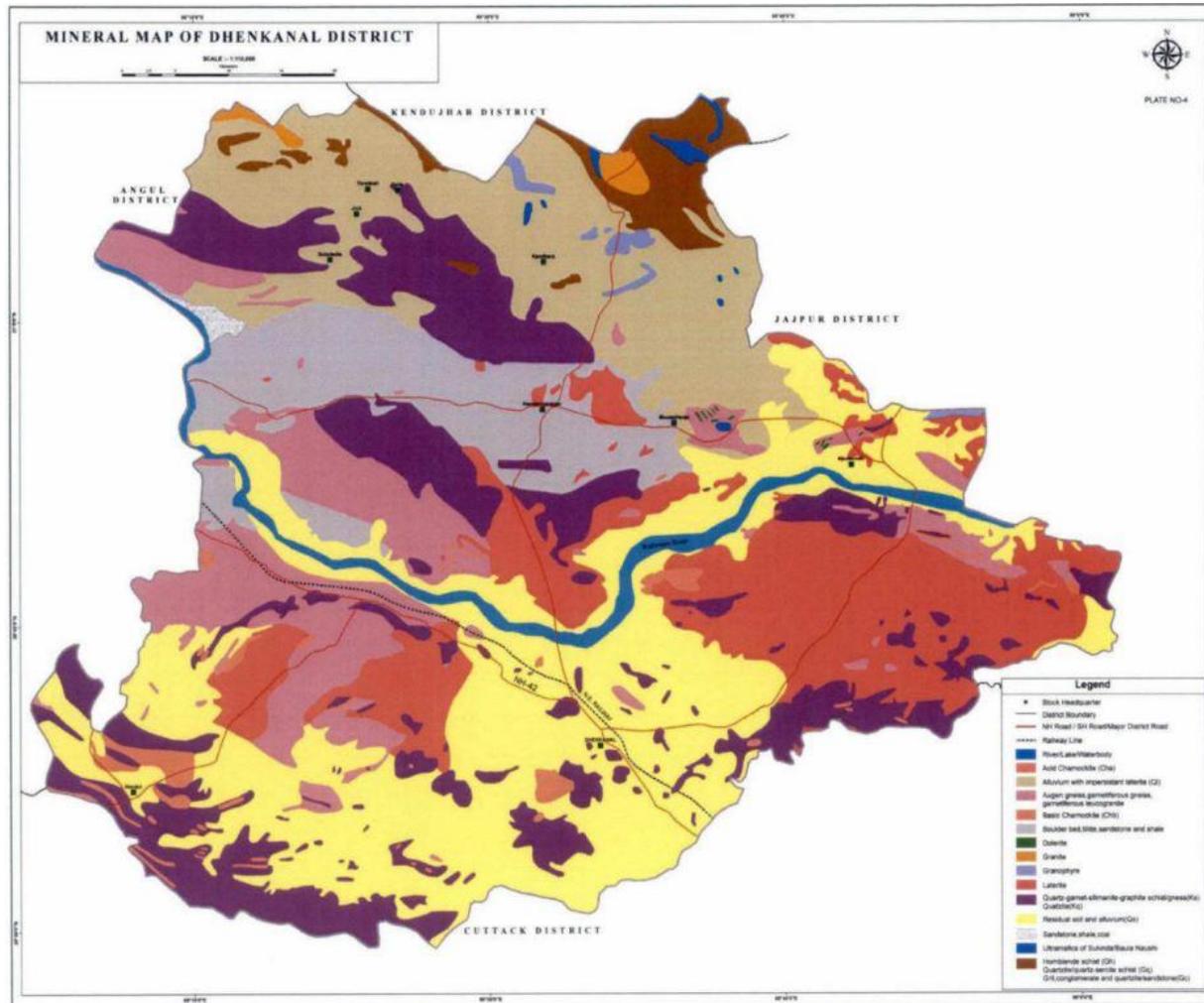
ROYALTY FOR MORRUM					
Sl. No.	Name of the Tahasil	Name of Source	Revenue Collected for last three years (in Rs)		
			2021-22	2022-23	2023-24
A1	Dhenkanal	Sankarpur Morrum Quarry-II	796250	568750	0
A2		Sankarpur Morrum Quarry-I	0	890000	445000
B1	Gondia	Chandrasekharpur Morrum Quarry	1123850	1225875	102025
B2		Nihalprasda Morrum Quarry	0	0	0
C1	Hindol	Ranjagol Morrum Quarry No.3	0	98400	59040
D1	Parjang	Kankadasoda Morrum Quarry	0	0	

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

Production of **Morrum**

PRODUCTION OF MORRUM					
Sl. No.	Name of the Tahasil	Name of Source	Production for last three years (in Cum)		
			2021-22	2022-23	2023-24
A1	Dhenkanal	Sankarpur Morrum Quarry-II	8,750	6,250	0
A2		Sankarpur Morrum Quarry-I	0	10,000	5,000
B1	Gondia	Chandrasekharpur Morrum Quarry	6,422	7,005	583
B2		Nihalprasad Morrum Quarry	0	0	0
C1	Hindol	Ranjagol Morrum Quarry No.3	0	1,200	720
D1	Parjang	Kankadasoda Morrum Quarry	4,205	4,205	0

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 allotted	Validity of LOI	Use(Captive/Non-Captive)	Location of the Mining lease (Latitude & Longitude)
1	2	3	4	5	6	7	8	9
NA	NA	NA	NA	NA	NA	NA	NA	NA

* The selected bidder shall be required to execute quarry lease in Form-N within three weeks from the date of intimation of his selection, if the approval of the mining plan and environment clearance has been obtained before auction, and in other cases, three months from the date of intimation, failing which, the intimation shall stand cancelled and the security deposit shall stand forfeited:

Provided that the Controlling Authority may, for genuine and sufficient reasons, extend the said period, if it is satisfied that the delay in execution of lease deed is not due to reasons attributable to the selected bidder (See **Rule-27(13) of OMMCR-2016**).

14. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT.

Potential Reserve as per Approved Mining plan of Existing Sources of Morrum				
SI No.	Name of Tahasil	Name of Source with Location	Geological reserve as per approved Mining Plan of existing quarries (in m3)	Mineable reserve as per approved Mining Plan of existing quarries (in m3)
A1	Dhenkanal Sadar	Sankarpur Morrum Quarry-II, Mouza:-Sankarpur, Khata No-1321, Plot No-2557, (12.15 Ac & Kissam-Unnat Jojana Jogya), Lat- 20°32'04.78"N to 20°32'11.54"N Long- 85°35'02.51"E to 85°35'14.94"E	1,47,510	1,24,266
A2		Sankarpur Morrum Quarry-I, Mouza:-Sankarpur, Khata No-1321, Plot No-5962,(12.20 Ac & Kissam-Bhagayat-2), Lat- 20°31'32.34"N to 20°31'38.74"N Long-85°35'08.65"E to 85°35'20.72"E	1,48,119	1,26,066
B1	Gondia	Chandrasekharpur Morrum Quarry, Mouza:- Chandrasekharpur, Khata No-337, Plot No-1331, (5.10 Ac & Kissam-Patharabani), Lat- 20°43'30.361"N to 20°43'35.091"N Long-85°43'16.123"E to 85°43'24.916"E	56,817	39,936
B2	Gondia	Nihalprasad Morrum Quarry , Mouza:-Nihalprasad, Khata No-1513, Plot No-1170/9933, (7 Ac & Kissam-Patharabani),	0	0
C1	Hindol	Ranjagol Morrum Quarry No.3, Mouza:-Ranjagol, Khata No-352, Plot No-1378, (0.94 Ac & Kissam-Patharabani), Lat- 20°42'59.30"N to 20°43'05.13"N Long- 85°17'24.32"E to 85°17'26.96"E	19,025	6,045

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

Morrum of the district is very much suitable for filling purposes particularly of road.

16. USE OF MINERAL.

Morrum of the district is used mainly in the road construction purpose apart from some domestic constructions.

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

As per the data provided by the DDM the demand of the morrum in the district is as follows,

SI No	Department	2021-22 (Cum)	2022-23 (Cum)	2023-24 (Cum)
1	Superintending Engineer Dhenkanal (R & B) Division, Dhenkanal	41334.8	32637.8	69069
2	NHI Division, Dhenkanal	14000		

Supply of the mineral details are given in the production table.



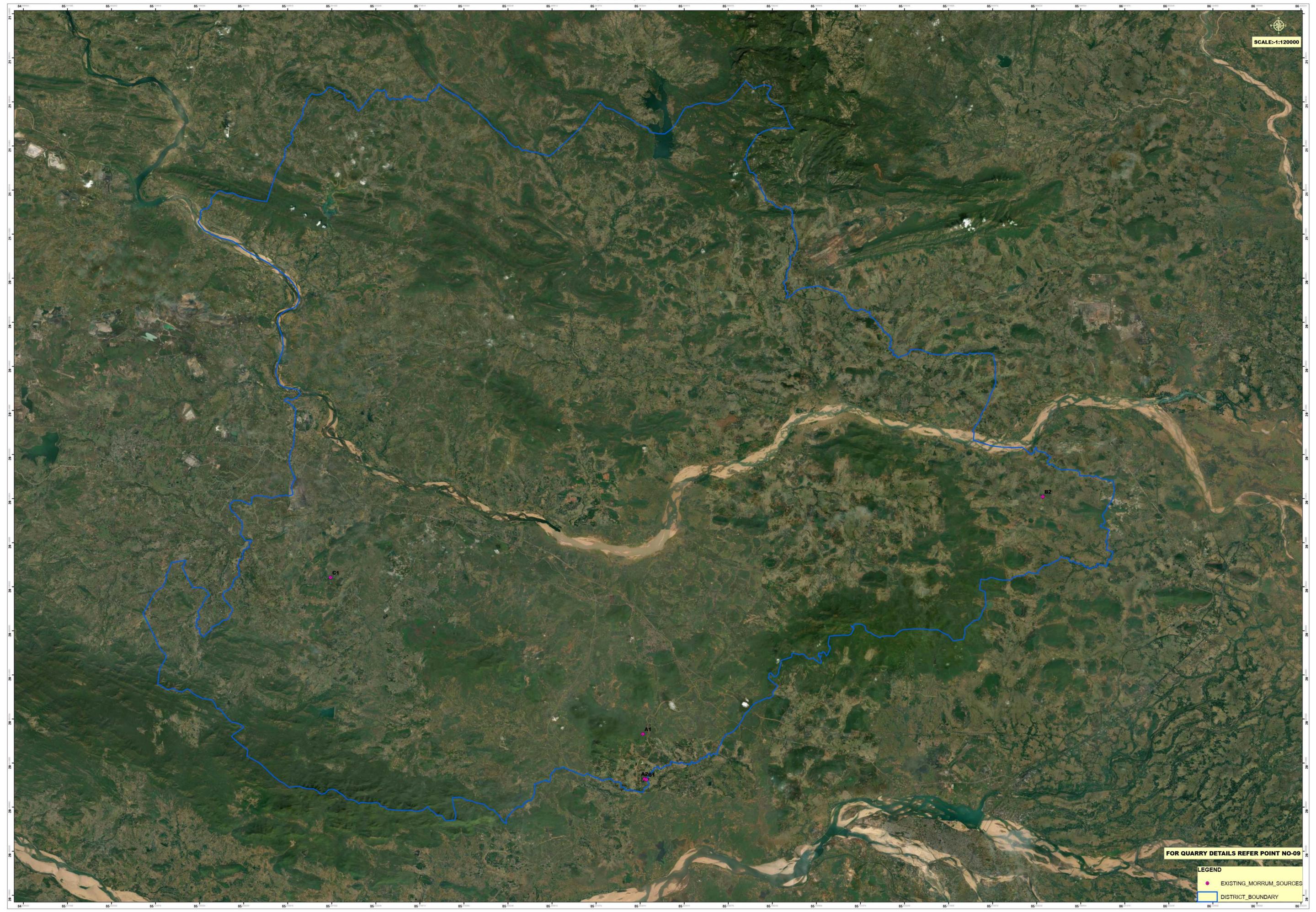
FOR QUARRY DETAILS REFER POINT NO-09

- LEGEND
- EXISTING_MORRUM_SOURCES
 - DISTRICT_BOUNDARY

MINING LEASES (MORRUM) MARKED ON THE DISTRICT SATELLITE-MAP OF DHENKANAL



SCALE:1:120000



FOR QUARRY DETAILS REFER POINT NO-09

LEGEND	
	EXISTING_MORRUM_SOURCES
	DISTRICT_BOUNDARY

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.

SI No.	Name of Tahasil	Cluster Name	Details of the area & Location	Number of Mining leases in Cluster
1	Dhenkanal Sadar	Sankarpur-Chandrasekharpur Cluster	Sankarpur Morrur Quarry-I, Mouza:- Sankarpur, Khata No-1321, Plot No-5962, (12.20 Ac & Kissam-Bhagayat-2), Lat- 20°31'32.34"N to 20°31'38.74"N Long-85°35'08.65"E to 85°35'20.72"E	2
	Gondia		Chandrasekharpur Morrur Quarry, Mouza:-Chandrasekharpur, Khata No-337, Plot No-1331, (5.10 Ac &Kissam-Patharabani), Lat- 20°43'30.361"N to 20°43'35.091"N Long-85°43'16.123"E to 85°43'24.916"E	

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

Kapilash Wildlife Sanctuary

• **Location:**

Situated in the hilly terrain of Dhenkanal, Kapilash Wildlife Sanctuary is known for its rich biodiversity, lush forests, and cultural significance.

Latitude: Approximately 20.45°N to 20.55°N

Longitude: Approximately 85.50°E to 85.60°E

Elevation: The sanctuary is part of the Eastern Ghats, with an elevation ranging from 457 meters (1,500 feet) to 900 meters (2,950 feet) above sea level.

• **Eco-Sensitive Zone (ESZ) Boundary:**

The ESZ typically extends around the sanctuary's periphery to act as a buffer zone, varying in width depending on ecological, geographical, and human factors.

The exact area of the ESZ is determined by the Ministry of Environment, Forest, and Climate Change (MoEFCC) under the Environment Protection Act, 1986.

- **Biodiversity in Kapilash:**

Flora: Dominated by sal, teak, and bamboo forests, along with a variety of medicinal plants.

Fauna: Includes leopards, elephants, deer, and various bird species, along with reptiles and amphibians.

- **Activities Permitted and Restricted in the ESZ**

Permitted Activities:

Sustainable agriculture and horticulture.

Eco-tourism and nature trails, subject to guidelines.

Regulated construction of basic public amenities.

Restricted Activities:

Mining, quarrying, and large-scale industrial activities are strictly prohibited within ESZ limits.

Commercial tree felling and deforestation.

Setting up industries that cause environmental pollution.

Prohibited Activities:

Large-scale construction and infrastructure projects that may harm the ecosystem.

Use of hazardous chemicals and pesticides.

- **Conclusion**

The Eco-Sensitive Zone of Dhenkanal, particularly around the **Kapilash Wildlife Sanctuary**, plays a critical role in balancing environmental conservation with sustainable development. Proper management of the ESZ can help preserve the district's rich biodiversity while supporting eco-friendly growth.

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

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.

Impacts 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 NO_x , SO₂ and CO emissions, usually at low levels. Dust can be of significant nuance surrounding land user and potential health risk in some circumstances.

Impacts on Water

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 impacts

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

Water

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

Noise

- Periodic maintenance of machineries, equipments shall be ensured to keep the noise generated within acceptable limit.
- Development of thick green belt around mining/cluster area, haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities like blasting, 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).

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

1. If, substantial amount of waste is there, the exhausted quarry can be fully or partly backfilled using the stored waste. The backfilled areas are to be brought under plantation of local species.

2. If the generation of waste is much less as in the case of minor mineral mining, the exhausted quarries can be reclaimed by

a. Plantation on the broken-up surface if the depth of quarry is not much below the surrounding surface level.

b. Converted to water reservoir after stabilization of the slopes if the exhausted quarry continues much below the surrounding surface level. It is preferred to cordon the water reservoir either through wire fencing or retaining wall with plantation from the safety point of view.

Most of the quarry/mining lease areas are yet to be exhausted from ore point of view. Hence, reclamation would be taken up only after exhaustion of the

ore/mineral content from these areas. The exhausted minor mineral quarries of the district have been converted to water reservoirs.

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 salvage operations in this same order of priorities. For effective implementation of the disaster management plan, it should be widely circulated through rehearsal/induction conducted by the respective department from time to time.

General responsibilities of employees' during an emergency:

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

Co-ordination with local authorities:

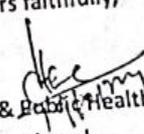
The Mine Manger who is responsible for emergency will always keep a jeep ready at site. In case of any eventuality, the victim will be taken to the nearby hospitals after carrying out the first aid at the site. The Manger should collect and have adequate information of the nearby hospitals, fire station,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

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 equipments such as helmet, safety goggles, earplugs, earmuffs ets are to be provided to mine workers as per Mines Rules. All operators and mechanics are to be trained to handle fire fighting equipments.

Year	No. of TB patients Notified	No. of Silicosis patient detected
2019	879	Information not available on Silicosis
2020	893	
2021	925	
2022	1098	
2023	1101	

Yours faithfully,

Chief District Medical & Public Health Officer
Dhenkanal.

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.

Dhenkanal district in Odisha is not known for extensive deposits of major minerals, unlike its neighboring districts such as Keonjhar and Angul. However, it has minor mineral resources that are significant for local and regional development. The district's mineral resources support small-scale industries such as brick kilns, construction materials, and road development. Proximity to major industrial hubs like Talcher and Angul influences mining-related activities, especially in the extraction and transportation of construction materials. While Dhenkanal district does not have significant major mineral deposits, its minor minerals such as laterite, morrum, clay, sand, and stone play a crucial role in local construction and infrastructure. Sustainable mining practices and proper regulation are essential to minimize environmental impacts and ensure long-term resource availability.