

Khunti District Survey Report for Stone

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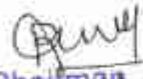
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09/09/24
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State Level Environment Impact
Assessment Authority, Jharkhand


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CHAPTER - I INTRODUCTION

1.1 Regulatory Frame Work

EIA notification 1994 published by MoEF & CC mandated that all mining project of all major minerals having lease area more than 5Ha. will have to obtain environment clearance from designated regulatory authority. Mining projects for minor minerals were exempted from obtaining environment clearance.

EIA notification No. 1533 dated 14/09/2006 mandates that all activities listed in the schedule attached with the notification are required to obtain environment clearance from competent regulators. Mining activities are listed at Sl. No. 1(a) in the schedule. This notification exempted mining activities having lease area less than 5 Ha. from obtaining environment clearance.

Hon'ble Supreme Court in its judgement at 27th February, 2012 in 1A No. 12-13 of 2011 in special leave petition (C) No. 10628-19629 of 2009 in the matter of Deepak Kumar VS State of Haryana & other made prior environment clearance mandatory for minor minerals irrespective of area of mining lease.

1.2 Preparation of District Survey Report

Procedure For Preparation Of District Survey Report Of Minor Minerals Other Than Sand Mining Or River Bed Mining

The District Survey Report shall be prepared for each minor mineral in the district separately and its draft shall be placed in the public domain by keeping its copy in Collectorate and posting it on district's website for twenty-one days. The comments received shall be considered and if found fit, shall be incorporated in the final Report to be finalised within six months by the SEIAA. The District Survey Report for minor minerals other than sand mining or River bed mining shall be as per structure mentioned below: -

Format For Preparation Of District Survey Report For Minor Minerals Other Than Sand Mining Or River Bed Mining

- (1) Introduction;
- (2) Overview of Mining Activity in the District;
- (3) General Profile of the District;
- (4) Geology of the District;
- (5) Drainage of Irrigation pattern;
- (6) Land Utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining etc.
- (7) Surface Water and Ground Water scenario of the district
- (8) Rainfall of the district and climatic condition;



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(9) Details of the mining leases in the District as per the following format

Sl. No.	Name of the Minera	Name of the Lessee	Address & Contact No. of Lessee	Mining lease Grant Order No. & date	Area of Mining lease (ha)	Period of Mining lease (Initial)		Period of Mining lease (1st/2nd...renewal)	
						From	To	From	To
1	2	3	4	5	6	7	8	9	10

Date of commencement of Mining Operation	Status (Working / Non-Working / Temp. 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)
11	12	13	14	15	16

(10) Details of Royalty or Revenue received in last three years;

(11) Details of Production of Minor Mineral in last three years;

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

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- (14) Total Mineral Reserve available in the District;
- (15) Quality /Grade of Mineral available in the District;
- (16) Use of Mineral;
- (17) Demand and Supply of the Mineral in the last three years;
- (18) Mining leases marked on the map of the district;
- (19) details of the area of where there is a cluster of mining leases viz. number of mining leases, location (latitude and longitude);
- (20) Details of Eco-Sensitive Area, if any, in the District;
- (21) Impact on the Environment (Air, Water, Noise, Soil, Flora & Fauna, land use, agriculture, forest etc.) due to mining activity;
- (22) Remedial Measures to mitigate the impact of mining on the Environment;
- (23) Reclamation of Mined out area (best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan);
- (24) Risk Assessment & Disaster Management Plan;
- (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);
- (26) Plantation and Green Belt development in respect of leases already granted in the District;
- (27) Any other information.

The State Environment Impact Assessment Authority (SEIAA) based on the nature and type of minor mineral in the District may include the additional parameters in the District Survey Report in consultation with the Department of Mines and Geology of the concerned State Government. The District Survey Report shall form the basis for application for environmental clearance, preparation of reports and appraisal of projects. The Report shall be updated once every five years";



Khunti District Survey Report for Stone

Chapter - II Overview of Mining Activity in the District;

The mineral resources of Khunti have played a great role in industrialization, social and economic development of the district. Khunti is rich in minerals such as granite, building stone, sand etc. are available in the District.

Mineral	Operation	Lease Expired	Proposed
Stone	18	70	14 <i>Applied for LOI : 08 Letter of Intent (LOI) Holders : 02 Proposed By Department Of Geology : 01 Potential Zone : 03</i>
Earthwork	7	0	0
Sand	1	0	26

Source : District Mining Office

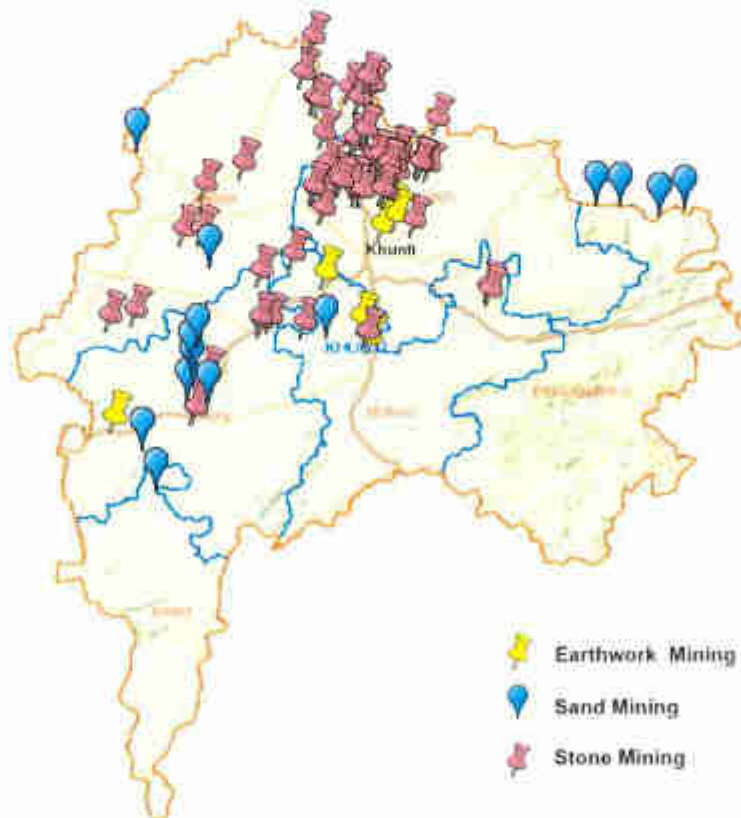


Figure 1 Mineral Map of the District

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Chapter - III General Profile of the District;

Table 1 General Profile of the District

District	Khunti	
Headquarter	Khunti	
No. of Sub Division	01	
No. of Blocks	06	
No. of Panchayats	86	
No. of Villages	768	
Area (Sq. Km.)	2,535	
No. of Police Stations	09	
Water Bodies	Karo River Tajna River Banai River Chatta River	Chengarjor River Kanchi River North Koel River Lohagara River North Karkari River
Toposheet	F45B3, F45B4, F45B8, F45B12, F45A16, F45G13, F45H1, F45H2, F45H5 & F45H9	
Co-ordinate	Longitude: 22°34' N to 23°17' N Latitude: 84°56' E to 85°40' E	
Total Population	5,31,885	
Male Population	2,66,335	
Female Population	2,65,550	
Percentage of Rural Population	91.54%	
Percentage of Urban Population	8.46%	
Sex Ratio	997	
Child Sex Ratio (0-6)	964	
Percentage Literacy	74.08%	
Male-	53.69%	
Female-	3,89,626	
ST Population	24,037	
SC Population	2,59,984	
Total Workers	1,41,123	
Total Male Worker	1,18,861	
Total Female Worker	1,53,087	
Total Main Workers	93,812	
Total Male Main Workers	59,275	
Total Female Main Workers	1,06,897	
Total Marginal Worker	47,311	
Total Male Marginal Worker	59,586	
Total Female Marginal Worker	2,71,901	
Total Non-Worker	1,25,212	
Total Male Non-Worker	1,46,689	
Total Female Non-Worker		

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Source : Approved District Survey Report (Sand) & Census Report, 2011

General slope of the District:

1. More than 60% (i.e., 64.28%) of the Khunti district is covered by nearly level (0-1% slope) and very gently sloping (1-3% slope) ground.
2. Nearly level (0-1% slope) and very gently sloping (1-3% slope) ground is mostly located in the north-western half of the district.
3. Strongly sloping to very steep sloping (>10% slope) ground is located in the south-eastern part of the district.
4. Major part of the district is in the altitudinal zone of 500-700m.
5. A minor part of the district is in the altitudinal zones of 200-500m and 700-900m. The altitudinal zone of 200-500m is located in the extreme eastern and southern parts of the district and 700-900m zone is located in the north-western and south-eastern parts of this district.
6. Khunti town is located in the altitudinal zone of 600m to 700m.

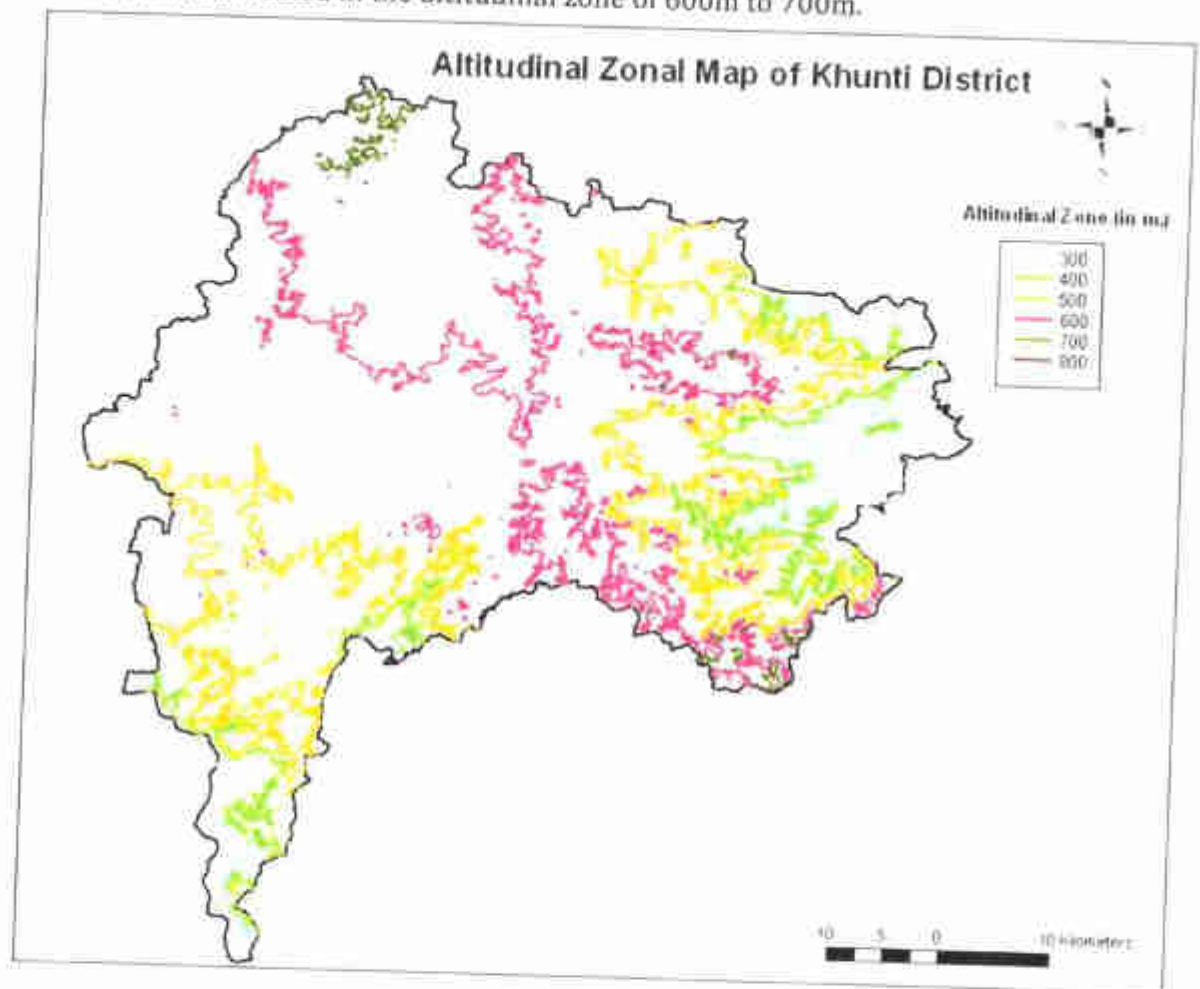


Figure 2 Altitude of the district (Source- JSAC)

JSAC



**Chapter - IV Geology of the District;
Regional Geology**

The geology of the area is mainly characterized by Chhotanagpur Granite Gneiss Complex of Archaean age, which has complex geological structures and different rock types of varying ages and forms the basement rock. The Chhotanagpur Granite Gneiss Complex includes high-grade meta-sediments, gneisses, migmatites, khondalite, leptynite, granulites, and meta-igneous rocks, which have been intruded by mafic-ultramafic rocks, gabbro-anorthosite, granite, rapakivi granite, syenite, pegmatite, aplite, and dolerite, as well as tholeiitic basalts (Rajmahal Traps) at different geological periods. The regional trend in the area varies from N-S in the west to E-W in the east-central part to ENE-WSW in the extreme east, and numerous short and discontinuous shear zones are present almost throughout the area and have affected almost all the rock types, as indicated by the development of augens and mylonite banding. The lithounit consists mainly of granitic gneiss, and patches of amphibolites can also be seen in places. The Chhotanagpur Granite Gneiss Complex is overlain by patches of Gondwana formations in the southwest and south portion of the district exposed in the area. These formations are traversed by pegmatites and dolerite dykes. The central portion of the district is covered by Quaternary sand and alluvium.

General Geological succession in and around Khunti:

<i>Age</i>	<i>Formation</i>	<i>Lithology</i>
Quaternary	Sand and Alluvium
Cretaceous } Jurassic } Triassic } Permian }	Gondwana Formation	Dolerite dykes and pegmatites Alternating layers of sandstone, shale, coal and siltstone
Precambrian	UNCONFORMITY Chhotanagpur Granite Gneiss Complex	Granite Gneiss, Amphibolite and Older metamorphics



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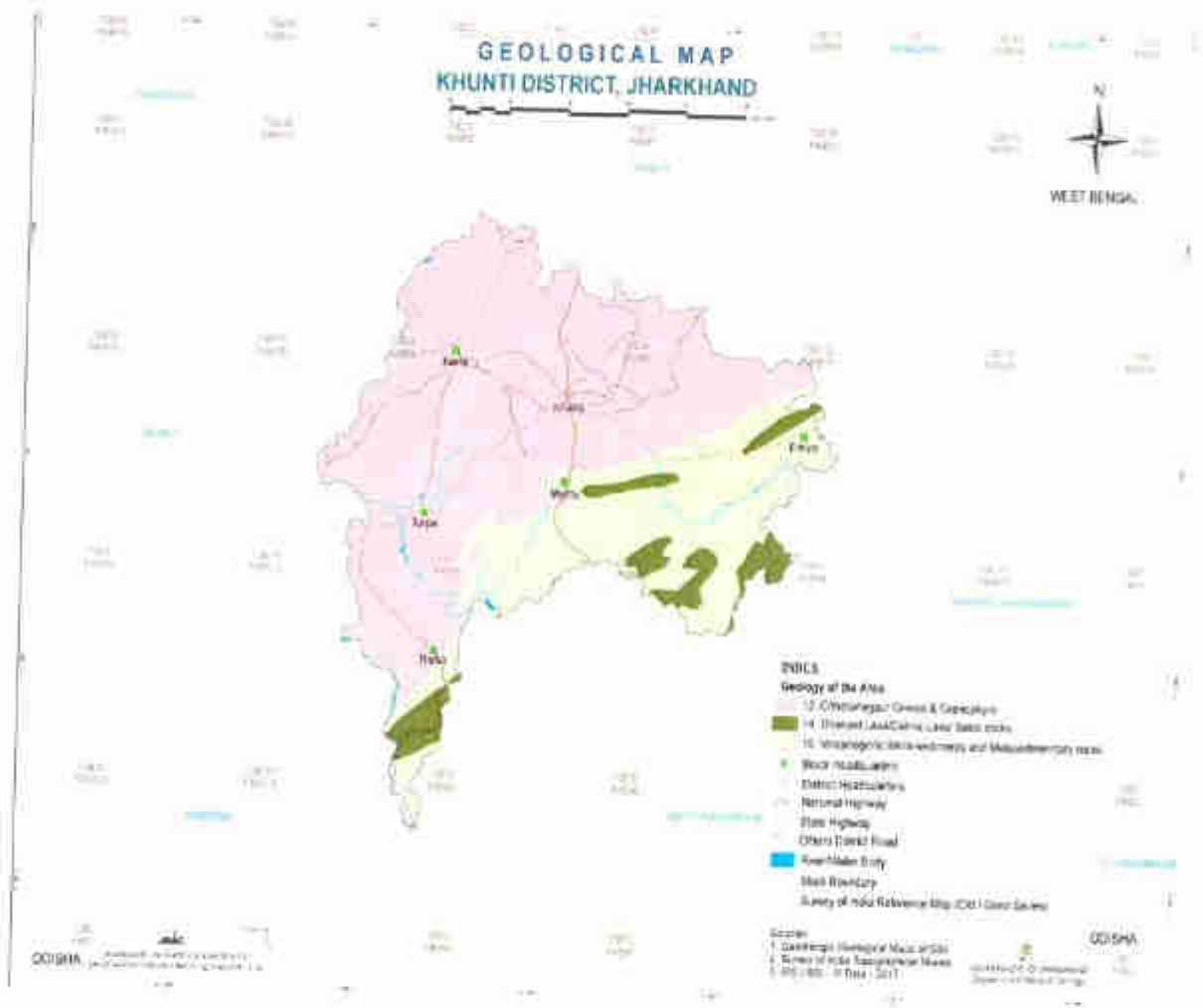


Figure 3 Geological Map of Khunti (Source-JSAC)

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Chapter - V Drainage of Irrigation pattern

The drainage of the district is mainly controlled by the Major rivers flowing in the district are Tajna, Banai, Chata and Karo. (Fig-3)

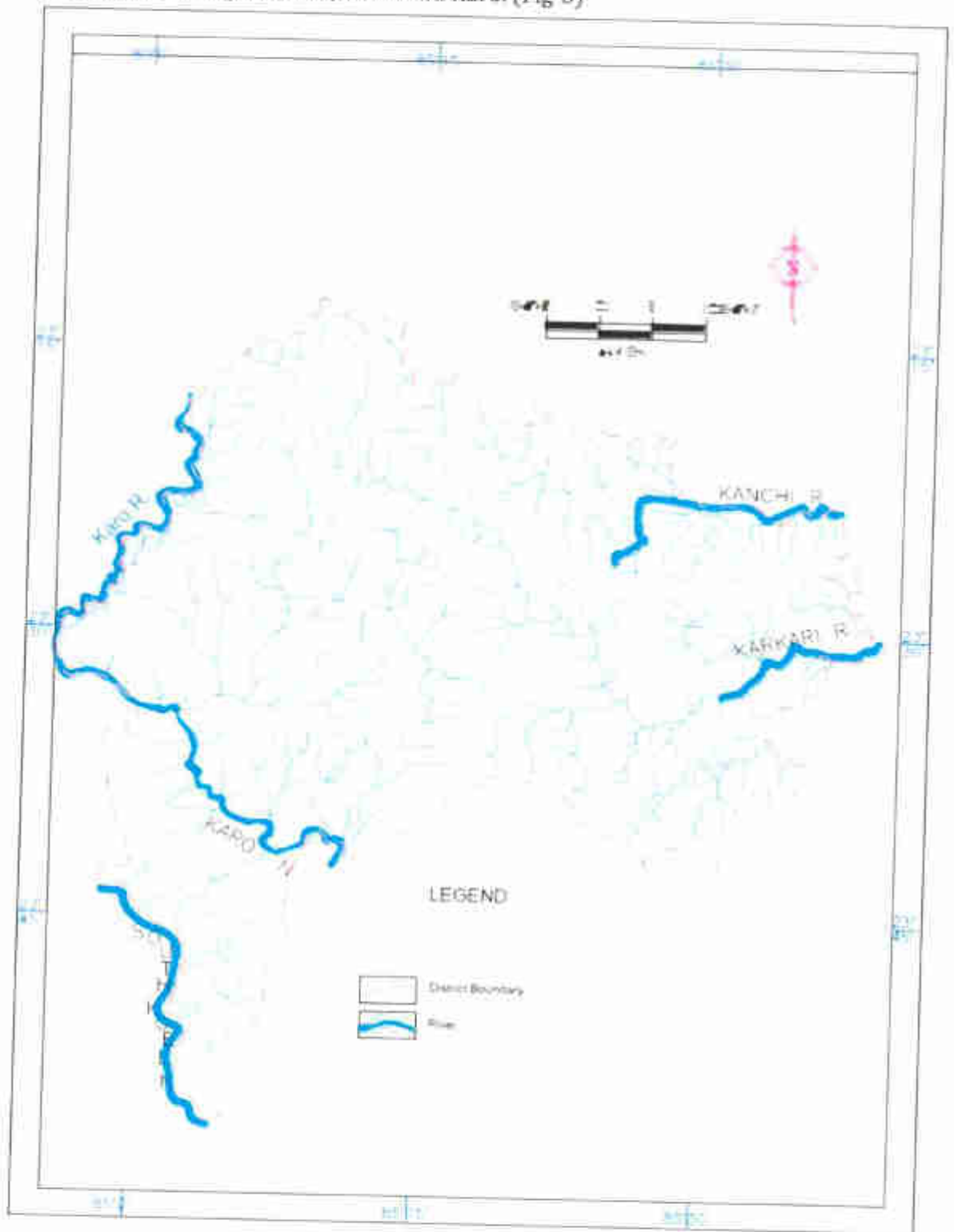


Figure 4 Drainage Map of Khunti (Source-CGWB)

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Chapter - VI Land Utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining etc.
Classification of Land Utilisation Statistics in the district of Khunti is given below in Table 2:

Table 2 Classification of Land Utilisation Statistics in the district of Khunti

Year	Reporting Area	Forest Area	Area under Non-agricultural use	Barren & unculturable land	Permanent pastures & other grazing land	Land under misc. tree groves not included in Net area sown	Culturable waste land	Fallow land other than Current fallow	Current fallow	Net area sown
2008-09	260.014	44.395	17.707	19.656	1.256	0.370	12.921	46.034	57.730	59.945
2009-10	260.014	44.395	17.749	19.656	1.256	0.370	12.917	51.568	54.508	57.594
2010-11	260.014	44.395	17.749	19.656	1.256	0.370	12.917	52.944	58.150	52.576
2011-12	260.014	44.395	17.747	19.656	1.256	0.370	12.920	50.223	50.531	62.916
2012-13	260.014	44.395	18.115	19.656	1.256	0.370	12.917	51.932	53.569	57.804

Source: DSO, Khunti



7.1 Surface Water

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin
1.	Karo River	65	Katarpa	749 m
2.	Chhata River	41	Chatta	713 m
3.	Chengarjor River	13	Bandhtoli	573 m
4.	Koel River	25	Piska Nagri	715 m
5.	Kanchi River	35	Bandhea	756 m
6.	Sundari River	14	Mahuatoli	598 m
7.	Tajna River	51	Lodhma	680 m
8.	Banai River	40	Dumardaga	632 m

Source : Approved District Survey Report (SAND)

7.2 Ground Water

Hydrogeology

The district is having varied characteristics due to which ground water potential differs from one region to another. It is underlain by Chotanagpur granite gneiss of pre-Cambrian age in three-fourth of the district.

Aquifer Systems

Two types of aquifers are found. Weathered aquifer and fractured aquifers. Thickness of weathered aquifers varies from 10-25 m in granite terrain and 30-60m in lateritic terrain. In weathered aquifer ground water occurs in unconfined condition while in fractured aquifer ground water occurs in semi confined to confined condition

Aquifer Geometry

The aquifer geometry for shallow and deeper aquifer has been established through hydro geological studies, exploration and the surface and sub-surface geophysical studies in the district.

Shallow Aquifer

The shallow aquifers are being tapped through dug wells, dug -cum borewells and hand pumps. The thickness of weathered mantle varies from 5 to 20 m.bgl. In lateritic terrain many dug wells dry up during summer months. Hand pumps generally tap first fracture zones and its depth is 30-40 m.bgl.

Deeper Aquifer

In granite gneiss terrain area first fracture occurs between 50-70 m and second fracture is found between 100-120 m depth. Discharge of borewells varies between 10 to 30 m³/hr in these areas. Drawdown varies between 13 to 20 m. Discharge may vary between 15 to 25 m³/hr. Drawdown may vary between 20-25 m.



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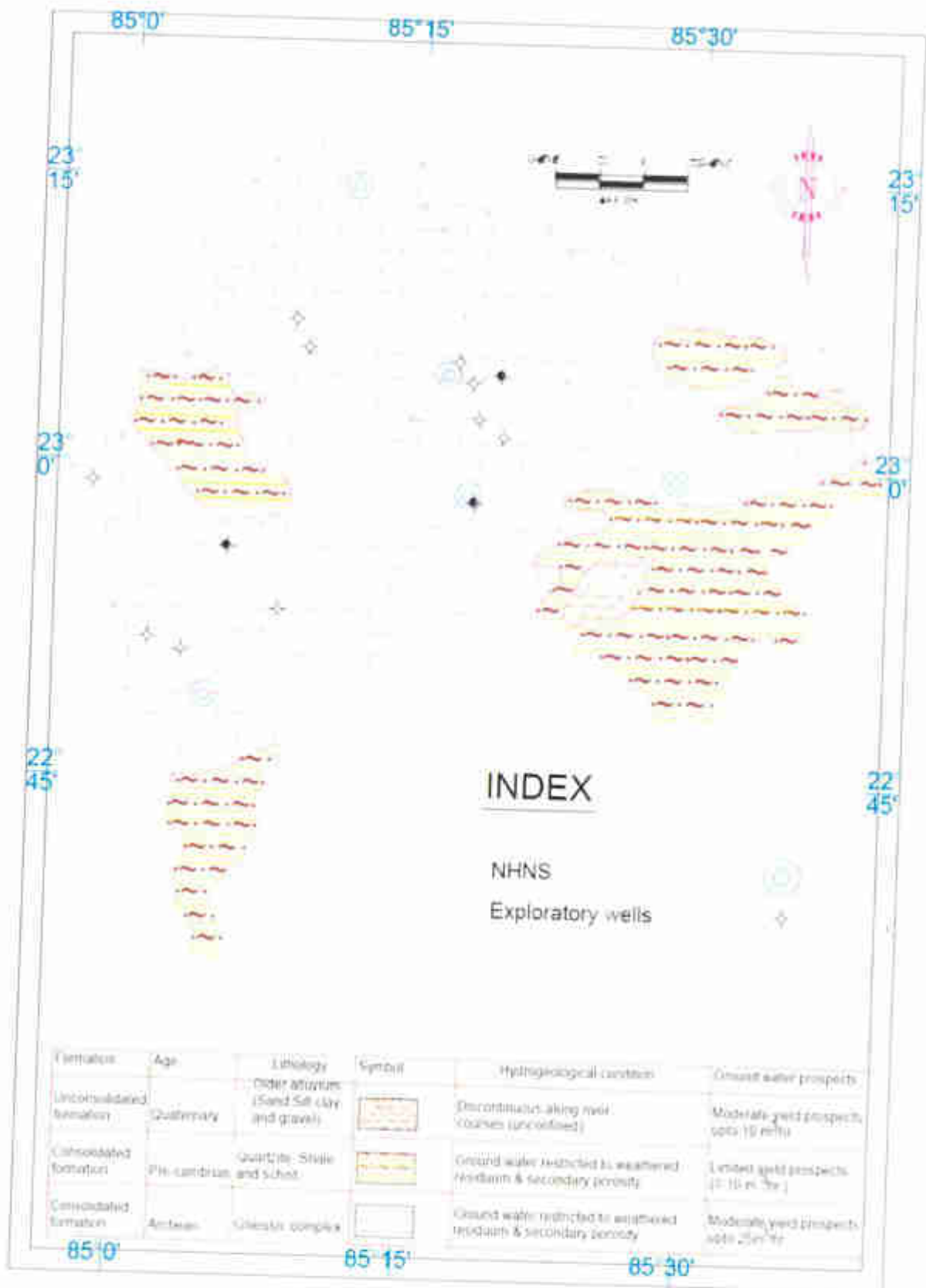


Figure 5 Hydrogeological map of Khunti district (Source-CGWB)

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7.3 Depth to Water Level

Shallow Aquifer

Sl. No.	District	Administrative Units	Ground water Assessment Sub- Unit	Average Pre monsoon Water level (mbgl)	Average Post- monsoon Water level	Average Water level Fluctuation
1	Khunti	Erki	Non-Command	6.24	4.10	2.14
2	Khunti	Karra	Non-Command	7.27	3.69	3.58
3	Khunti	Khunti	Non-Command	8.65	3.48	5.17
4	Khunti	Murhu	Non-Command	4.08	3.10	0.98
5	Khunti	Rania	Non-Command	7.01	3.86	3.15
6	Khunti	Torpa	Non-Command	8.68	4.98	3.70
District Average /Total				6.99	3.87	3.12

SOURCE : REPORT ON DYNAMIC GROUND WATER RESOURCE OF JHARKHAND (2020)

Prepared by: Central Ground Water Board, State Unit Office, Ranchi / Mid-Eastern Region, Patna, Dept of Water Resources, River Development & Ganga Rejuvenation Ministry of Jal Shakti, Government of India & Ground Water Directorate Water Resources Department, Ranchi, Government of Jharkhand



PRESENT SCENARIO

In the district, ground water table in series of open wells lying in the identified potential mining zones were measured in wells on 14/08/2024. Table below gives details of such wells, their location, ground RL, Longitude of ground water table & RL of GWT.

Sl.No	LATITUDE	LONGITUDE	GROUND RL (m)	Depth of Ground Water Table (m)
1	23°07'54.7"N	85°16'4.4"E	641	3.3
2	23°08'30.7"N	85°17'39.8"E	614	1.5
3	23°08'44.2"N	85°18'29.2"E	590	4.2
4	23°08'43.4"N	85°19'35.5"E	570	9.5
5	22°53'23.1"N	85°07'46.6"E	514	3.3
6	22°53'43.3"N	85°09'34.5"E	527	8.5
7	23°01'53.1"N	85°11'58.1"E	609	5.5
8	23°00'35.4"N	85°10'8.9"E	572	6.6
9	22°56'0.1"N	85°06'43.3"E	534	3.3
10	22°56'20.5"N	85°05'8.3"E	525	7.8
11	22°59'17.3"N	85°05'50.5"E	542	3.0
12	22°54'28.4"N	85°06'17.4"E	537	6.2
13	23°11'49.0"N	85°12'57.8"E	676	1.8
14	23°06'52.3"N	85°08'16.7"E	632	4.1
15	23°06'57.1"N	85°08'19.6"E	652	8.4
16	23°05'42.7"N	85°07'9.3"E	633	5.5
17	23°02'40.8"N	85°06'02.8"E	567	3.3
18	23°08'42.7"N	85°14'37.3"E	656	3.5
19	23°05'45.4"N	85°15'21.0"E	659	4.3
20	23°05'47.5"N	85°15'09.7"E	654	6.2

Khunti District Survey Report for Stone

Table 3 Summarised hydrogeological data of exploratory drilling of Khunti district

Sl No	Location	Block	Co-ordinate	Depth Drilled	Length of Casing pipe	Granular Zone / fracture Tapped	Static Water level	Discharge	Formation	Year
1.	2	3	4	5	6	7	8	9	9	10
EXPLORATORY WELLS DRILLED BY DEPARTMENTAL BGS										
1	Khunti/Judges Colony, E.W.	Khunti	23°05'30" 85°16'25"						Chhotanagpur Granite Gneiss	2010-11
2	Karra Block Campus, E.W.	Karra	23°07'40" 85°07'25"	123.60	9.88	100-101, 114-116	10.82	37.8	Chhotanagpur Granite Gneiss	2011-12
	Karra Block Campus, O.W.	Karra	23°07'40" 85°07'27"	117.50	11.82	25-25, 109-110	10.82	37.8	Chhotanagpur Granite Gneiss	2011-12
3	Kumbhari EW	Karra	22°57'00" 85°59'00"	90.46			5.44	21.39	Chhotanagpur Granite Gneiss	1977
4	Kanbar EW	Rama	22°51'00" 85°59'20"	83.19				9	Chhotanagpur Granite Gneiss	1977
	DW	Buapla	22°51'00" 85°59'25"	90.80			4.73		Chhotanagpur Granite Gneiss	1977
5	Tuplana E.W.	Torpa	22°52'45" 85°07'55"	200.00	4			Dry	Chhotanagpur Granite Gneiss	2010-11
6	Kanla E.W.	Khunti	23°03'10" 85°16'55"	99.10	17.78	22-26, 60-61	3.79	69.84	Chhotanagpur Granite Gneiss	2010-11
	Kanla O.W.	Khunti	23°03'11" 85°16'55"	105.20	18.78	22-26, 60-62	3.79	69.84	Chhotanagpur Granite Gneiss	2010-11
7	Khunti Forest Nursery Campus, E.W.	Khunti	23°04'30" 85°17'30"	166.20				Dry	Chhotanagpur Granite Gneiss	2010-11
BY OUTSOURCED BGS										
8	SS High School, Khunti EW		23°04'30" 85°16'25"	71.16	20.8	50-51, 70-71	3.25	28.8	Chhotanagpur Granite Gneiss	31/01/2005
9	Block Campus Murua EW		22°58'20" 85°17'25"	150.00	18.5		6.1	5.4	Chhotanagpur Granite Gneiss	02/02/2005
10	Block Campus, Torpa RW		22°56'30" 85°03'25"	123.65	6.14	122-123	6.98	28.0	Chhotanagpur Granite Gneiss	02/02/2005



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7.4 Ground Water Resources

As per the latest resource estimation carried out following GEC 97 methodology, the overall stage of ground water development in Khunti district is 28.26% indicating sufficient scope of development. Net ground water availability is 14359.58 ham whereas total draft 4058.84 ham.

7.5 Ground Water Quality

Ground water in the phreatic aquifers in Khunti district is alkaline in nature. The specific electrical conductance of ground water in phreatic zone during May 2011 was in the range of 193 - 1081 $\mu\text{S}/\text{cm}$ at 25°C. The suitability of ground water for drinking purpose has been evaluated on the basis of pH, Total hardness (T.H), Ca, Cl, F and NO₃. The chemical concentration of these constituents, when compared with the drinking water specification recommended by IS:10500,1991, indicates that in two samples pH exceeded the permissible limit of 8.5.

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Table 4 ASSESSMENT OF DYNAMIC GROUND WATER RESOURCES OF KHUNTI DISTRICT, (2009) (in ham)

Assessment Unit/District	Net Annual Ground water Availability	Existing Gross Ground Water Draft for Irrigation	Existing Gross Ground water Draft for Domestic and Industrial Water Supply	Existing Gross Ground Water Draft For all Uses	Allocation for Domestic and Industrial Requirement supply upto next 25 years	Net Ground Water Availability for future irrigation development	Stage of Ground Water Development (%)
Arki	1867.65	141.98	113.56	255.55	139.20	1586.47	13.68
Karra	2830.21	1077.41	153.15	1230.55	214.48	1538.31	43.48
Khunti	3422.95	769.08	132.27	901.35	185.25	2468.62	26.33
Murhu	2172.27	421.78	122.55	544.32	171.63	1578.86	25.06
Rania	1730.57	323.29	57.04	380.34	69.92	1337.36	21.98
Torpa	2335.93	616.58	130.14	746.72	182.26	1537.08	31.97
TOTAL	14359.58	3350.12	708.71	4058.84	962.75	10046.70	28.26



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Table 5 CHEMICAL ANALYSIS RESULTS OF WATER SAMPLES FROM NHS OF KHUNTI DISTRICT

Block	Location	E.C. micro Siemens/cm at 25o C	pH	CO3	HCO3	Cl	Ca	Mg	TH as CaCO3	Na	K
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
KHUNTI	Khunti	1081	8.5	9	276.75	170.16	24	72.9	360	72	5.8
KARRA	Karra	411	7.88	0	55.36	63.81	42	9.7	95	16	9.3
KHUNTI	Kalimati	652	8.51	9	196.8	95.71	62	18.22	230	38	2.7
MURHU	Murhu	193	7.67	0	92.25	7.09	20	6.1	75	7.5	4.3
LODHMA	Lodhma	435	8.43	3	110.7	53.17	30	13.36	130	33	2.8

June-01



7.6 Status of Ground Water Development

In the rural areas the entire water supply is dependent on ground water. Ground water development is mainly carried out in the district through dug wells and Hand pumps. Dug wells are in general of 2 m diameter and between 8 to 15 m depth, depending on the thickness of the weathered zone, tapping the shallow ground water in the weathered zone and uppermost slice of the basement. Large number of dug wells used for drinking water is under private ownership for which there is no reliable data. Over the years Mark II/ Mark III hand pumps are being drilled in large numbers for ground water development. These hand pumps have the following two major advantages i) are less susceptible to contamination from surface sources and ii) they tap fractures between 20-60m depth which have been found to be less affected by seasonal water level fluctuation and thus have lesser chances of failure even during extreme summer. In rural areas of Khunti district the number of hand pumps drilled by PHED is 9207 of which 8007 are under working condition as on April 2012. There are 6463 dug wells, 40 shallow tube wells and 1 tubewells as per minor irrigation census 2006-07. In the urban areas ground water plays a supplementary role in water supply, the major supply being made through dams, reservoirs or weirs across rivers or streams. No authentic data is available on the number of ground water structures catering the urban water supply.

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Figure 6 Stage of Ground Water development of Khunti district (Source- CGWB)

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Chapter - VIII Rainfall of the district and climatic condition;

Table 6 Monthly Rainfall in the District of Khunti (Unit - mm)

District - Khunti

Year/Month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2001	1.2	7.2	32.0	5.0	28.1	648.1	326.5	223.0	127.0	73.5	0.0	0.0	1471.6
2002	17.3	11.4	17.5	5.9	10.4	413.1	151.6	444.7	525.0	167.8	0.0	0.0	1764.7
2003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
2004	2.7	1.0	3.0	14.9	29.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.4
2005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	183.9	26.6	27.4	5.3	243.2
2006	0.0	0.0	69.6	0.0	105.0	129.0	487.3	384.6	342.2	60.0	0.0	0.0	1577.7
2007	0.0	0.0	0.0	15.0	8.8	107.2	428.0	297.2	404.2	41.6	0.0	0.0	1302.0
2008	2.4	2.5	6.6	12.2	40.8	456.9	481.8	301.1	275.4	35.0	0.0	0.0	1614.7
2009	3.1	0.0	4.0	0.0	83.8	70.2	371.4	290.8	269.6	70.8	15.2	0.6	1179.5
2010	0.0	1.8	0.0	7.5	13.3	57.4	192.2	191.6	169.3	30.6	22.5	28.0	714.2
2011	3.1	0.0	0.0	30.6	47.6	410.3	262.6	485.8	547.2	62.4	0.0	0.0	1849.6
2012	54.9	16.3	0.0	31.7	8.1	182.6	170.6	349.6	372.2	19.5	15.0	1.9	1222.4
2013	3.5	5.7	4.7	26.0	28.0	299.5	281.1	282.3	118.6	174.7	0.0	0.0	1224.1
2014	0.0	24.1	12.8	0.0	0.0	0.0	115.8	327.0	126.4	42.6	0.0	0.0	648.7
2015	0.0	0.0	67.0	82.0	28.2	159.6	522.6	234.2	66.2	41.4	0.0	0.0	1201.2
2016	17.4	5.6	22.2	0.0	38.6	78.0	463.4	392.6	182.4	37.0	0.0	0.0	1237.2
2017	0.0	0.0	0.0	0.0	19.0	253.8	580.0	368.0	244.8	73.4	3.6	0.0	1542.6
2018	0.0	6.2	0.0	0.0	0.0	69.2	0.0	0.0	0.0	0.0	3.6	0.0	79.0
Total	105.6	81.8	239.4	230.8	489.5	3334.9	4834.9	4572.5	3954.4	956.9	87.3	41.8	18929.8
Average	5.9	4.5	13.3	12.8	27.2	185.3	268.6	254.0	219.7	53.2	4.9	2.3	1051.7

Source: DSO, Khunti



CLIMATIC CONDITION IN THE DISTRICT

The climate of this district is characterized by a dry hot summer, mild humid post monsoon season and well distributed rainfall during the monsoon season. The year may be divided into four seasons. The summer season is from March to first week of June. The period from June to September is the southwest monsoon season and October is a transitional month between monsoon and winter conditions. The winter season is from December to February.

RAINFALL

The records of rainfall are available for six raingauge stations for period ranging from 14 to 46 years. The average annual rainfall in the district is 1395.3 mm. During the monsoon season June to September the district receives rainfall of about 85% of the annual rainfall. July and August are the rainiest months with an average rainfall of about 357.1 mm. The variation in the rainfall from year to year is not large. In the fifty year period 1951 to 2000, the highest annual rainfall amounting to 161% of the annual normal occurred in 1995, while the lowest annual rainfall which was 63% of the normal occurred in 1991. In the fifty year period there were only 4 years in which the annual rainfall in the district was less than 80% of the normal and none of them were consecutive. The rainfall was between 1101 mm and 1700 mm in 33 years out of 40. On an average there are 74 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 65 at Kurra to 84 at Murhu. The heaviest rainfall recorded in 24 hours at any station in the district was 350.0 mm at Adkhi on 04 August 1988.

TEMPERATURE

There is no meteorological observatory in the district is at Khunti. The temperature and other meteorological data recorded at Ranchi observatory in the neighbouring district may be taken as representative of the climatic conditions in the district as a whole. Temperatures begin to drop rapidly from mid November. January is the coldest month of the year with the mean maximum temperature at about 23oC and the mean minimum temperature at about 10oC. In association with cold waves which affect the district in winter months in the wake of western disturbances which move across north India, the minimum temperature may go down to 5oC on individual days. Temperatures begin to rise rapidly after February till first week of June. May is the hottest month with the mean maximum temperature at about 37oC and mean minimum temperature at about 24oC. On some days in April, May and early part of June, the maximum temperature may be well above 40oC on individual days. The weather cools down with the advance of the southwest monsoon season into the district by about the second week of June. The temperature begins to drop appreciably with the withdrawal of monsoon by first week of October.

HUMIDITY

In the southwest monsoon season air is generally humid with the relative humidity above 80%. The air is generally dry in winter and summer seasons. The summer months are the driest part of the year with the relative humidity especially in the afternoon of the order of 30%.



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CLOUDINESS

In the southwest monsoon season skies are heavily clouded to overcast. Cloudiness decreases from October. In winter and early part of summer skies are generally clear or lightly clouded. Some days in winter, when western disturbances affect the weather of the district skies are heavily clouded. Cloudiness increases in latter part of summer, especially in the afternoon.

WINDS

Winds are generally light to moderate in latter part of summer and southwest monsoon season and light in the rest of the year. In winter months, winds are mainly from northwesterly direction. In April south-westerlies begin to appear and become predominant with the advance of the monsoon season. In southwest monsoon season though winds blow from southwesterly or westerly direction. On some days in the afternoon, winds blow from southeasterly or easterly directions. In October, northerly and northwesterly winds appear and strengthen in the winter season.

SPECIAL WEATHER PHENOMENA

Depressions originating in the Bay of Bengal during the southwest monsoon season affect the weather of the district and its neighbourhood during their westward or northwest ward movement after crossing the coast. This causes gusty winds and widespread heavy rain. Thunderstorms occur throughout the year. Its frequency is more in latter part of summer and southwest monsoon season. Thunderstorms during the period February to June are sometimes accompanied by squally weather, less frequently with hail and dust storm. Fog occurs frequently in winter months.

Source : Climate of Jharkhand



Chapter - IX Details of the mining leases in the District

Table 7 Operational Mining Leases in the District

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 (ha)	Period of Mining lease (Initial)		Date of commencement of Mining Operation	Status (Working / Non Working / Temp. 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)
						To	From						
1	Stone	JHARKHAND STONE MINERALS DEVELOPMENT NT NIGAM LTD	Nepal House, Dhanida, Ranchi		0.8092	22-01-2011	21-01-2031		Working	Non-Captive	Letter No- EC/DEIAA/2017-19/40, Dated-21-06-2017	1. N 23° 08' 16.95" E 85° 17' 22.40" 2. N 23° 08' 16.88" E 85° 17' 22.90" 3. N 23° 08' 16.85" E 85° 17' 25.68" 4. N 23° 08' 16.75" E 85° 17' 29.31" 5. N 23° 08' 14.86" E 85° 17' 30.02" 6. N 23° 08' 13.63" E 85° 17' 31.08" 7. N 23° 08' 13.72" E 85° 17' 31.67" 8. N 23° 08' 12.95" E 85° 17' 31.61" 9. N 23° 08' 11.77" E 85° 17' 31.39" 10. N 23° 08' 10.95" E 85° 17' 31.53" 11. N 23° 08' 09.56" E 85° 17' 31.97" 12. N 23° 08' 11.22" E 85° 17' 34.61" 13. N 23° 08' 12.04" E 85° 17' 33.31" 14. N 23° 08' 13.35" E 85° 17' 33.72" 15. N 23° 08' 20.81" E 85° 17' 27.09"	Opencast
2	Stone	Rabindra Choudhary	S/o. Sri Dhaneswar Choudhary Viji-Tupudana Ps. o-Batiya Dist- Ranchi, 834303		2.023	07-12-2014	06-12-2024		Working	Non-Captive	Letter No- EC/SEIAA/2014-15/344/569, Dated-20-11-2014	1. N 23° 12' 38.20" E 85° 15' 27.40" 2. N 23° 12' 42.90" E 85° 15' 28.40" 3. N 23° 12' 42.70" E 85° 15' 32.90" 4. N 23° 12' 37.00" E 85° 15' 31.60"	Opencast



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3	Stone	Shri Manju Horo	S/O Shri Manjra Munda Vill- Huzar, Toyatikri Po., Gucorra, Dist- Khamti, 833210	0.8092	04-09-2015	03-09-2025	Working	Non-Captive	Letter No. EC/SEIAA/2014-15/499/2014/83 1. Dated-30-04-2015.	1. N 23° 07' 30.60" E 85° 15' 50.60" 2. N 23° 07' 30.00" E 85° 15' 49.90" 3. N 23° 07' 30.40" E 85° 15' 45.20" 4. N 23° 07' 29.30" E 85° 15' 44.70" 5. N 23° 07' 28.50" E 85° 15' 44.50" 6. N 23° 07' 28.00" E 85° 15' 45.90" 7. N 23° 07' 29.10" E 85° 15' 46.00" 8. N 23° 07' 28.90" E 85° 15' 50.10"	Opencast
4	Stone	Sri Anjay Korman,	S/O Shri Kisto Maho, Vill- Ghapi, Po- Ghansal, Ps- Karra, Dist- Khamti,	0.8092	15-05-2016	14-05-2026	Working	Non-Captive	Letter No. EC/SEIAA/2015-16/1849/15/258 9. Dated-	1. N 23° 12' 01.60" E 85° 13' 22.40" 2. N 23° 12' 00.74" E 85° 13' 26.52" 3. N 23° 11' 58.58" E 85° 13' 26.36" 4. N 23° 11' 59.36" E 85° 13' 22.10"	Opencast
5	Stone	Shri Pericharla Anjaneyulu Bala,	S/O, Shri Sairaja Pericharla, Aoid- Ashok Nagar, Ranchi, P.S- Argara, Dist- Ranchi,	8.6584	21-06-2016	20-06-2026	Working	Non-Captive	Letter No. EC/SEIAA/2015-16/2016/2493, dated-31-12-2015	1. N 23° 12' 04.43" E 85° 13' 28.88" 2. N 23° 12' 04.98" E 85° 13' 29.61" 3. N 23° 12' 06.31" E 85° 13' 30.28" 4. N 23° 12' 08.60" E 85° 13' 35.44" 5. N 23° 12' 09.30" E 85° 13' 34.63" 6. N 23° 12' 12.06" E 85° 13' 41.71" 7. N 23° 12' 11.76" E 85° 13' 42.03" 8. N 23° 12' 14.19" E 85° 13' 42.39" 9. N 23° 12' 14.26" E 85° 13' 39.53" 10. N 23° 12' 12.93" E 85° 13' 39.11" 11. N 23° 12' 14.09" E 85° 13' 33.98" 12. N 23° 12' 15.70" E 85° 13' 33.44" 13. N 23° 12' 17.59" E 85° 13' 37.27" 14. N 23° 12' 17.71" E 85° 13' 35.34" 15. N 23° 12' 16.49" E 85° 13' 33.91" 16. N 23° 12' 14.48" E 85° 13' 28.62" 17. N 23° 12' 12.75" E 85° 13' 27.32" 18. N 23° 12' 11.41" E 85° 13' 26.28" 19. N 23° 12' 09.52" E 85° 13' 24.06" 20. N 23° 12' 08.48" E 85° 13' 25.04" 21. N 23° 12' 07.05" E 85° 13' 26.75"	Opencast
6	Stone	Vikral Construction,	Part-Satyaa saVankar Yam, S/O M Y V Suba Raw, Vill- Ashok Nagar, Po- Argara, Ps- Argara, Dist- Ranchi, 834001	4.8552	08-06-2016	06-07-2026	Working	Non-Captive	Letter No. EC/SEIAA/2015-16/759/2015/13 10. Dated-17-08-2015	1. N 23° 11' 56.45" E 85° 13' 40.67" 2. N 23° 11' 57.92" E 85° 13' 41.80" 3. N 23° 12' 00.40" E 85° 13' 40.73" 4. N 23° 12' 03.24" E 85° 13' 39.50" 5. N 23° 12' 06.53" E 85° 13' 38.06" 6. N 23° 12' 06.54" E 85° 13' 36.45" 7. N 23° 12' 05.83" E 85° 13' 35.62" 8. N 23° 12' 07.22" E 85° 13' 35.42" 9. N 23° 12' 04.83" E 85° 13' 32.30" 10. N 23° 12' 05.36" E 85° 13' 32.35" 11. N 23° 12' 04.86" E 85° 13' 31.48" 12. N 23° 12' 04.85" E 85° 13' 31.01" 13. N 23° 12' 03.60" E 85° 13' 30.72" 14. N 23° 12' 03.23" E 85° 13' 30.93" 15. N 23° 12' 02.62" E 85° 13' 31.24"	Opencast



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Khunti District Survey Report for Stone

7	Stone	M/s Nieme Infra Pvt Ltd	Sri Narne shrinwas rao S/o Sri N. Appa rao Add- Flat No. 101-B-Block, SI ram garden,Kanke road Dist- Ranchi (Uttarband)	42888	02-09- 2016	01-09- 2026	Working	Non- Captive	Letter No- EC/SEIAA/2015- 16/1763/2610, Dated -31-12- 2015	16. N 23° 12' 01.25" E 85° 13' 33.15" 17. N 23° 12' 00.10" E 85° 13' 35.38" 18. N 23° 12' 00.58" E 85° 13' 37.39" 19. N 23° 11' 57.86" E 85° 13' 38.50" 20. N 23° 11' 57.86" E 85° 13' 38.51" 1. N 23° 05' 01.28" E 85° 06' 51.80" 2. N 23° 05' 03.42" E 85° 06' 51.08" 3. N 23° 05' 03.64" E 85° 06' 49.47" 4. N 23° 05' 03.90" E 85° 06' 48.02" 5. N 23° 05' 05.15" E 85° 06' 48.24" 6. N 23° 05' 05.43" E 85° 06' 46.63" 7. N 23° 05' 07.32" E 85° 06' 46.51" 8. N 23° 05' 07.75" E 85° 06' 49.17" 9. N 23° 05' 07.50" E 85° 06' 50.49" 10. N 23° 05' 08.00" E 85° 06' 51.71" 11. N 23° 05' 09.49" E 85° 06' 50.06" 12. N 23° 05' 10.07" E 85° 06' 49.97" 13. N 23° 07' 11.45" E 85° 06' 51.38" 14. N 23° 05' 13.63" E 85° 06' 50.08" 15. N 23° 05' 14.57" E 85° 06' 51.41" 16. N 23° 05' 13.84" E 85° 06' 52.03" 17. N 23° 05' 13.92" E 85° 06' 53.04" 18. N 23° 05' 12.95" E 85° 06' 54.28" 19. N 23° 05' 10.70" E 85° 06' 55.34" 20. N 23° 05' 00.53" E 85° 06' 56.31" 21. N 23° 05' 06.66" E 85° 06' 56.58" 22. N 23° 05' 06.64" E 85° 06' 53.79" 23. N 23° 05' 07.27" E 85° 06' 53.76" 24. N 23° 05' 07.27" E 85° 06' 53.76" 25. N 23° 05' 08.39" E 85° 06' 53.25" 26. N 23° 05' 07.30" E 85° 06' 51.76" 27. N 23° 05' 04.75" E 85° 06' 52.30" 1. N 23° 08' 25.60" E 85° 20' 00.10" 2. N 23° 08' 25.73" E 85° 19' 58.95" 3. N 23° 08' 26.43" E 85° 19' 58.63" 4. N 23° 08' 26.54" E 85° 19' 57.17" 5. N 23° 08' 26.92" E 85° 19' 56.71" 6. N 23° 08' 27.48" E 85° 19' 56.84" 7. N 23° 08' 27.86" E 85° 19' 57.18" 8. N 23° 08' 28.54" E 85° 19' 57.50" 9. N 23° 08' 29.06" E 85° 19' 57.85" 10. N 23° 08' 29.12" E 85° 19' 56.69" 11. N 23° 08' 29.71" E 85° 19' 56.90" 12. N 23° 08' 29.58" E 85° 19' 57.02" 13. N 23° 08' 29.76" E 85° 19' 57.72" 14. N 23° 08' 30.28" E 85° 19' 50.10" 15. N 23° 08' 31.11" E 85° 19' 58.48" 16. N 23° 08' 31.28" E 85° 19' 59.92" 17. N 23° 08' 30.68" E 85° 20' 00.23" 18. N 23° 08' 30.64" E 85° 20' 00.61" 19. N 23° 08' 30.24" E 85° 20' 00.88"	Opencast
B	Stone	Shiv kumar sahu	S/o Arjuni Saha Belothali road, Pipestali, Khunti	14506	06-09- 2017	05-09- 2027	Working	Non- Captive	Letter No- EC/DEIAA/2016- 17/28, Dated-18- 03-2017	16. N 23° 12' 01.25" E 85° 13' 33.15" 17. N 23° 12' 00.10" E 85° 13' 35.38" 18. N 23° 12' 00.58" E 85° 13' 37.39" 19. N 23° 11' 57.86" E 85° 13' 38.50" 20. N 23° 11' 57.86" E 85° 13' 38.51" 1. N 23° 05' 01.28" E 85° 06' 51.80" 2. N 23° 05' 03.42" E 85° 06' 51.08" 3. N 23° 05' 03.64" E 85° 06' 49.47" 4. N 23° 05' 03.90" E 85° 06' 48.02" 5. N 23° 05' 05.15" E 85° 06' 48.24" 6. N 23° 05' 05.43" E 85° 06' 46.63" 7. N 23° 05' 07.32" E 85° 06' 46.51" 8. N 23° 05' 07.75" E 85° 06' 49.17" 9. N 23° 05' 07.50" E 85° 06' 50.49" 10. N 23° 05' 08.00" E 85° 06' 51.71" 11. N 23° 05' 09.49" E 85° 06' 50.06" 12. N 23° 05' 10.07" E 85° 06' 49.97" 13. N 23° 07' 11.45" E 85° 06' 51.38" 14. N 23° 05' 13.63" E 85° 06' 50.08" 15. N 23° 05' 14.57" E 85° 06' 51.41" 16. N 23° 05' 13.84" E 85° 06' 52.03" 17. N 23° 05' 13.92" E 85° 06' 53.04" 18. N 23° 05' 12.95" E 85° 06' 54.28" 19. N 23° 05' 10.70" E 85° 06' 55.34" 20. N 23° 05' 00.53" E 85° 06' 56.31" 21. N 23° 05' 06.66" E 85° 06' 56.58" 22. N 23° 05' 06.64" E 85° 06' 53.79" 23. N 23° 05' 07.27" E 85° 06' 53.76" 24. N 23° 05' 07.27" E 85° 06' 53.76" 25. N 23° 05' 08.39" E 85° 06' 53.25" 26. N 23° 05' 07.30" E 85° 06' 51.76" 27. N 23° 05' 04.75" E 85° 06' 52.30" 1. N 23° 08' 25.60" E 85° 20' 00.10" 2. N 23° 08' 25.73" E 85° 19' 58.95" 3. N 23° 08' 26.43" E 85° 19' 58.63" 4. N 23° 08' 26.54" E 85° 19' 57.17" 5. N 23° 08' 26.92" E 85° 19' 56.71" 6. N 23° 08' 27.48" E 85° 19' 56.84" 7. N 23° 08' 27.86" E 85° 19' 57.18" 8. N 23° 08' 28.54" E 85° 19' 57.50" 9. N 23° 08' 29.06" E 85° 19' 57.85" 10. N 23° 08' 29.12" E 85° 19' 56.69" 11. N 23° 08' 29.71" E 85° 19' 56.90" 12. N 23° 08' 29.58" E 85° 19' 57.02" 13. N 23° 08' 29.76" E 85° 19' 57.72" 14. N 23° 08' 30.28" E 85° 19' 50.10" 15. N 23° 08' 31.11" E 85° 19' 58.48" 16. N 23° 08' 31.28" E 85° 19' 59.92" 17. N 23° 08' 30.68" E 85° 20' 00.23" 18. N 23° 08' 30.64" E 85° 20' 00.61" 19. N 23° 08' 30.24" E 85° 20' 00.88"	Opencast



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9	Stone	Nitesh Sarda	S/o. Sri N.K. Sarda 101-Krishna Apartment PPCompound, Ranchi, 834001	1.4485	07-09- 2017	06-09- 2027	Working	Non- Captive	Letter No- EC/DEIAA/2017- 18/49, Dated-21- 08-2017	<p>20. N 23° 08' 30.20" E 85° 20' 01.39"</p> <p>21. N 23° 08' 28.99" E 85° 20' 01.31"</p> <p>22. N 23° 08' 27.95" E 85° 20' 00.47"</p> <p>23. N 23° 08' 26.88" E 85° 20' 00.46"</p> <p>1. N 23° 08' 40.20" E 85° 15' 50.60"</p> <p>2. N 23° 09' 42.00" E 85° 15' 51.30"</p> <p>3. N 23° 09' 44.20" E 85° 15' 52.20"</p> <p>4. N 23° 09' 45.80" E 85° 15' 51.80"</p> <p>5. N 23° 09' 41.10" E 85° 15' 51.90"</p> <p>6. N 23° 09' 47.80" E 85° 15' 49.40"</p> <p>7. N 23° 09' 45.50" E 85° 15' 49.40"</p> <p>8. N 23° 09' 44.30" E 85° 15' 51.30"</p> <p>9. N 23° 09' 44.10" E 85° 15' 51.70"</p> <p>10. N 23° 09' 43.90" E 85° 15' 49.70"</p> <p>11. N 23° 09' 40.70" E 85° 15' 50.00"</p>	Opencast
10	Stone	Nitesh Sarda	S/o. Sri N.K. Sarda 101-Krishna Apartment PPCompound, Ranchi, 834001	1.5213	07-09- 2017	06-09- 2027	Working	Non- Captive	Letter No- EC/DEIAA/2017- 18/51, Dated-21- 08-2017	<p>1. N 23° 08' 30.40" E 85° 19' 37.10"</p> <p>2. N 23° 08' 32.50" E 85° 19' 36.40"</p> <p>3. N 23° 08' 33.40" E 85° 19' 34.60"</p> <p>4. N 23° 08' 32.60" E 85° 19' 33.50"</p> <p>5. N 23° 08' 30.20" E 85° 19' 34.50"</p> <p>6. N 23° 08' 28.40" E 85° 19' 35.10"</p>	Opencast
11	Stone	Nitesh Sarda	S/o. Sri N.K. Sarda 101-Krishna Apartment PPCompound, Ranchi, 834001	2.9131	07-09- 2017	06-09- 2027	Working	Non- Captive	Letter No- EC/DEIAA/2017- 18/59, Dated-21- 08-2017	<p>1. N 23° 10' 11.3" E 85° 13' 55.4"</p> <p>2. N 23° 10' 09.0" E 85° 13' 58.7"</p> <p>3. N 23° 10' 06.1" E 85° 14' 01.7"</p> <p>4. N 23° 10' 05.5" E 85° 13' 57.5"</p> <p>5. N 23° 10' 06.3" E 85° 13' 53.1"</p> <p>6. N 23° 10' 07.9" E 85° 13' 58.0"</p>	Opencast
12	Stone	Palmeshwar Prasad	S/o Shiv Shankar Prasad Vill- Chikbar, P.O- Bhandra, P.S- Khunti Dist- Khunti	1.6548	19-09- 2017	18-09- 2027	Working	Non- Captive	Letter No- EC/DEIAA/2017- 18/52, Dated-21- 08-2017	<p>1. N 23° 07' 00.70" E 85° 17' 40.80"</p> <p>2. N 23° 07' 04.20" E 85° 17' 43.30"</p> <p>3. N 23° 07' 05.50" E 85° 17' 43.30"</p> <p>4. N 23° 07' 06.20" E 85° 17' 39.40"</p> <p>5. N 23° 07' 05.10" E 85° 17' 36.60"</p> <p>6. N 23° 07' 02.80" E 85° 17' 35.90"</p>	Opencast
13	Stone	VNS Infrastructure Pvt.Ltd	Director Vijay Kr Sahu Ac-H.No. 75 Old AG Colony, Kadru, Ranchi	2.1444	04-04- 2018	03-04- 2025	Working	Non- Captive	Letter No- EC/DEIAA/2017- 18/64, Dated-18- 01-2018	<p>1. N 23° 09' 16.99" E 85° 18' 18.92"</p> <p>2. N 23° 09' 14.59" E 85° 18' 20.23"</p> <p>3. N 23° 09' 09.41" E 85° 18' 19.64"</p> <p>4. N 23° 09' 09.73" E 85° 18' 16.70"</p> <p>5. N 23° 09' 11.09" E 85° 18' 15.70"</p> <p>6. N 23° 09' 14.00" E 85° 18' 15.01"</p> <p>7. N 23° 09' 18.18" E 85° 18' 15.19"</p> <p>8. N 23° 09' 18.73" E 85° 18' 18.12"</p>	Opencast



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14	Stone	Sandcube Infrastructure Pvt Ltd	Director: Vijay Kr Sabu A- H.No. 75 Old AG Colony, Kadru, Ranchi	3.0911	04-04-2018	03-04-2025	Working	Non-Captive	Letter No- EC/SEIAA/2021-22/2327/2021/78, Dated-03-08-2021	1. N 23° 10' 58.30" E 85° 20' 30.89" 2. N 23° 10' 56.57" E 85° 20' 33.13" 3. N 23° 10' 50.00" E 85° 20' 31.31" 4. N 23° 10' 52.76" E 85° 20' 26.01" 5. N 23° 10' 57.57" E 85° 20' 28.03" 1. N 23° 00' 05.30" E 85° 10' 22.00" 2. N 23° 00' 07.90" E 85° 10' 21.00" 3. N 23° 00' 12.30" E 85° 10' 23.90" 4. N 23° 00' 11.00" E 85° 10' 25.10" 5. N 23° 00' 08.40" E 85° 10' 23.00" 6. N 23° 00' 08.50" E 85° 10' 24.40" 7. N 23° 00' 10.40" E 85° 10' 25.10" 8. N 23° 00' 10.90" E 85° 10' 28.10" 9. N 23° 00' 08.70" E 85° 10' 26.50" 10. N 23° 00' 07.40" E 85° 10' 24.40"	Opencast
15	Stone	Sri Dharmendra Bhagat	S/o Late Raghunath Bhagat, A- Mohanoli, Khunti, P.O.- Khunti, P.S.- Khunti	2.6704	05-10-2017	04-10-2027	Working	Non-Captive	Letter No- EC/SEIAA/2015-16/1757/2613, Dated-31-12-2015	1. N 23° 08' 23.73" E 85° 17' 29.24" 2. N 23° 08' 24.45" E 85° 17' 31.82" 3. N 23° 08' 23.60" E 85° 17' 32.72" 4. N 23° 08' 22.70" E 85° 17' 32.53" 5. N 23° 08' 22.24" E 85° 17' 34.33" 6. N 23° 08' 23.14" E 85° 17' 34.59" 7. N 23° 08' 22.28" E 85° 17' 36.62" 8. N 23° 08' 19.46" E 85° 17' 35.54" 9. N 23° 08' 18.22" E 85° 17' 34.18" 10. N 23° 08' 17.81" E 85° 17' 33.08" 11. N 23° 08' 20.02" E 85° 17' 31.37" 12. N 23° 08' 21.58" E 85° 17' 31.67" 13. N 23° 08' 22.07" E 85° 17' 31.01"	Opencast
16	Stone	Nitesh Sarma	S/o. Sit N K Sharda 101-Krishna Apartment PF-Compounds, Ranchi, 834001	1.9461	31-12-2021	30-12-2026	Working	Non-Captive	Letter No- EC/SEIAA/2021-22/2455/2021/190, Dated-30-10-2021	1. N 23° 08' 47.86" E 85° 17' 09.03" 2. N 23° 08' 48.10" E 85° 17' 09.79" 3. N 23° 08' 44.88" E 85° 17' 12.53" 4. N 23° 08' 43.20" E 85° 17' 12.89" 5. N 23° 08' 42.30" E 85° 17' 11.11" 6. N 23° 08' 42.92" E 85° 17' 10.15" 7. N 23° 08' 45.36" E 85° 17' 11.05" 1. N 23° 07' 28" E 85° 07' 02" 2. N 23° 07' 28" E 85° 07' 04" 3. N 23° 07' 27" E 85° 07' 02" 4. N 23° 07' 25" E 85° 07' 03" 5. N 23° 07' 24" E 85° 07' 02" 6. N 23° 07' 23" E 85° 06' 59" 7. N 23° 07' 24" E 85° 06' 59" 8. N 23° 07' 26" E 85° 07' 00" 9. N 23° 07' 27" E 85° 07' 01"	Opencast
17	Stone	Josef Sanyal	S/o Benodini Sanyal, Kansadib, Gajpara, Khunti	0.6474	22-10-2022	21-10-2027	Working	Non-Captive	Letter No- EC/SEIAA/2022-23/2602/2022, Dated-12-08-2022	1. N 23° 07' 28" E 85° 07' 02" 2. N 23° 07' 28" E 85° 07' 04" 3. N 23° 07' 27" E 85° 07' 02" 4. N 23° 07' 25" E 85° 07' 03" 5. N 23° 07' 24" E 85° 07' 02" 6. N 23° 07' 23" E 85° 06' 59" 7. N 23° 07' 24" E 85° 06' 59" 8. N 23° 07' 26" E 85° 07' 00" 9. N 23° 07' 27" E 85° 07' 01"	Opencast
18	Stone	Josef Sarma,	S/o Markus sanyal Vill- Baruch gangara, P.S- Baro, Simulga	0.9387	20-03-2023	19-02-2028	Working	Non-Captive	Letter No- EC/SEIAA/2022-23/2603/2022/280, Dated-27-10-2022	1. N 23° 07' 28" E 85° 07' 02" 2. N 23° 07' 28" E 85° 07' 04" 3. N 23° 07' 27" E 85° 07' 02" 4. N 23° 07' 25" E 85° 07' 03" 5. N 23° 07' 24" E 85° 07' 02" 6. N 23° 07' 23" E 85° 06' 59" 7. N 23° 07' 24" E 85° 06' 59" 8. N 23° 07' 26" E 85° 07' 00" 9. N 23° 07' 27" E 85° 07' 01"	Opencast

Source - District Mining Officer, Khumi

NOTE: Any other area which may be found feasible for Stone Mining shall be included in the DSR prospectively.



Table 8 Closed Mining Lease in the District

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 (ha)	Period of Mining lease (Initial)		Period of Mining lease (1st/2nd... renewal)	Date of commencement of Mining Operation	Status (Working / Non Working / Temp. 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)
						To	From							
1	Stone	Sri Bajrath Mahato	S/o. Late Ghura Mahato Vill-Daria, Po- Gupraha Dist- Khunti, 835210	04-04-2011	0.4946	03-04-2021				Non-Working	Non-Captive	NA	23°10'1.05"N 85°12'51.65"E 22°59'57.85"N 85°12'52.23"E 23°00'41"N 85°13'0.18"E 23°03.67"N 85°12'57.71"E	Opencast
2	Stone	Sri Bajrath Kumar Agrawal	S/o. Mohan Lal Agrawal Vill-Hashal, Near Devi Mandap, Ratu Road Ranchi, Po- Sudehev Nagar, Dist- Ranchi, Pin No.	13-06-2011	0.6069	12-06-2021				Non-Working	Non-Captive	NA	23°6'11.39"N 85°13'57.62"E 23°6'13.29"N 85°14'3.33"E 23°6'9.25"N 85°14'5.13"E 23°6'7.59"N 85°14'0.32"E	Opencast
3	Stone	Sri Shama Munda	S/o. Late Depty Munda Vill-Dugdigha, Po.- Fuddi, Ps- Khunti, Dist- Khunti, 835210	13-04-2010	0.2792	12-04-2020				Non-Working	Non-Captive	NA	23°9'26.26"N 85°17'42.04"E 23°8'29.46"N 85°17'54.32"E 23°8'37.52"N 85°17'51.35"E 23°8'32.15"N 85°17'41.85"E	Opencast
4	Stone	Anwar Ansari	S/o. Late Mid. Hussain Ansari Vill- Fuddi, Po.- Fuddi, Dist- Khunti, 835210	07-08-2006	0.8092	06-08-2016				Non-Working	Non-Captive	NA	23°10'29.62"N 85°16'19.12"E 23°10'27.81"N 85°16'20.24"E 23°10'30.83"N 85°16'22.48"E 23°10'31.15"N	Opencast



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Sl. No.	Stone	Name	S/o. Mr. Kamru Zana Khan Vill- Torpa, Ps.+Po.- Torpa Dist- Khunti, 835227	1.0358	02-11-2003	02-10-2013				Non-Working	Non-Captive	NA	22°57'27.22"N 85°7'17.44"E 22°57'20.71"N 85°7'17.98"E 22°57'20.36"N 85°7'14.51"E 22°57'24.06"N 85°7'11.76"E	Opencast
11	Stone	Sri Rameshwar Sahu	S/o. Sri Chaitar Sahu Vill- Torpa, Ps.+Po.- Torpa Dist- Khunti, 835227	0.9144	30-11-02	29-11-2012				Non-Working	Non-Captive	NA	23°2'48.3"N 85°10'18.3"E 23°2'48.5"N 85°10'18.3"E 23°2'17.5"N 85°10'42.3"E 23°2'50.8"N 85°10'40"E	Opencast
12		Sri U. Narayan Singh	S/o. Sri Ramesh Singh Vill- Roro, Po- Angraht, Ps.- Khunti Dist- Khunti, 835210	0.4046	16-08-2002	15-08-2012				Non-Working	Non-Captive	NA	23°13'26.45"N 85°12'42.45"E 23°13'20.91"N 85°12'42.87"E 23°13'20.59"N 85°12'46.2"E 23°13'25.77"N 85°12'47.35"E	Opencast
13	Stone	Hindushwar Bhagat	S/o. LATE BUKHAN BHAGAT vill+ Po- Lodhna ps- Narra, Dist- Khunti, 834804	0.4046	29-03-2003	28-03-2013				Non-Working	Non-Captive	NA	23°8'37.5" 85°9'12.2" 23°8'12.8" 85°9'5.3" 23°8'11" 85°9'11.7" 23°8'32.8" 85°9'23.6"	Opencast
14	Stone	Smt Jeevan Heven	S/o. Lata Hevan Vill- Uritel, Ps.+Ps.- Hingaura, Dist- Khunti,	0.3641	20-05-2003	19-05-2013				Non-Working	Non-Captive	NA	23°8'29.65"N 85°17'53.63"E 23°8'39.15"N 85°17'52.93"E 23°8'38.33"N 85°17'57.99"E 23°8'29.86"N 85°18'10.12"E	Opencast
15	Stone	Srimati Budhani Tuli	W/o Late Sukhram Munda A/cr- 1.20 S/o. Sri Budhram Munda Vill- Dugongia, (Hazar)	0.4855	21-08-2003	20-08-2013				Non-Working	Non-Captive	NA		Opencast

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20	Stone	Md Kayam Ansari	S/o. Shek Sakhar Vill- Machrol, Po., Nayasaray, P.S., Jagannathpur, Dist- Ranchi, 835383	0.6069	17-10-2009	16-10-2014				Non-Working	Non-Captive	NA		Opencast
21	Stone	Kunal Tiwari	S/O- Sri vinay kr, Tiwari Vill- Dandipath po-p.s-Khunti	1.2136	15-12-2004	14-12-2014				Non-Working	Non-Captive	NA		Opencast
22	Stone	Faruq Ansari	S/o,Md. Masim, Ansari Vill- Sudin, Rughozol Post, P.S., Dharwai Dist-Ranchi, 834001	0.4046	03-05-2005	02-05-2015				Non-Working	Non-Captive	NA	23°13'26.45"N 85°12'42-45"E 23°13'20.91"N 85°12'42.87"E 23°13'20.59"N 85°12'46.2"E 23°13'25.77"N 85°12'47.35"E	Opencast
23	Stone	JAY PRAKASH BHALA	S/o. Sit SatyaNarayan Bhalai Vill-Karra Road Khunti, P.O-Khunti, Dist-Khunti	0.6069	06-01-1999	05-01-2009				Non-Working	Non-Captive	NA	23°6'11.19"N 85°13'57.62"E 23°6'13.29"N 85°14'3.33"E 23°6'9.29"N 85°14'5.13"E 23°6'7.56"N 85°14'0.32"E	Opencast
24	Stone	LAKHI LOJIN SANDIL	S/o. Late Sudarshan Sandil Vill-Chalangi, P.O-Fudhi, P.S-Khunti, Dist-Khunti	0.4855	02-06-1999	01-06-2009				Non-Working	Non-Captive	NA	23°6'11.75"N 85°17'10.58"E 23°6'10.61"N 85°17'4.71"E 23°6'17.75"N 85°17'3.08"E 23°6'18"N 85°17'9.11"E	Opencast
25	Stone	SHIV STONE WORKS	Pro. Sri Rajendar Kumar S/o. Sri Shiv Narayan Paswan Vill-Kokar Jatra tar, P.O-Kokar, Dist-Ranchi	0.9104	03-02-2004	02-02-1994				Non-Working	Non-Captive	NA	23°12'5.24"N 85°16'1.78"E 23°11'59.88"N 85°16'1.24"E 23°11'59.42"N 85°16'9.58"E 23°12'3.15"N 85°16'9.16"E	Opencast
26	Stone	OM PRAKASH PRASAD	S/O. Late Hiralal Sabu Vill-P.O- Murhi, Dist-Khunti	1.1774	07-02-2002	06-02-2012				Non-Working	Non-Captive	NA		Opencast

Approved

(Signature)

Khunti District Survey Report for Stone

27	Stone	C.L.P. STONE WORKS	Prs.-Srimati Kalavati Devi W/O. Late Chotalal Paswan Vill-Kokar Intruar, P.O.-Kokar Dist-Banchi.	1.5092	26-12-1999	25-12-2009				Non-Working	Non-Captive	NA	23°12'46.83"N 85°16'50.43"E 23°12'38.84"N 85°16'50.24"E 23°12'39.48"N 85°16'58"E 23°12'46.4"N 85°16'58.39"E 23°12'38.75"N 85°15'45.36"E 23°12'34.54"N 85°15'56.08"E 23°12'28.87"N 85°15'48.5"E 23°12'26.47"N 85°15'47.06"E 23°12'30.75"N 85°14'6.95"E 23°12'43.75"N 85°14'5.1"E 23°12'43.54"N 85°14'13.48"E 23°12'49.72"N 85°14'15.03"E	Opencast
28	Stone	SATYA PRAKASH KHILKO	S/O. Late L. Khalko Vill- Birhu, P.O.-Birhu Dist-Khunti	2.7311	12-11-1999	11-11-2009				Non-Working	Non-Captive	NA		Opencast
29	Stone	BIRSHA AUDHOGIK PATHEAR KADHAN SAWABLAMBI SARYOG SAMATI L.T.D.	VILL-REAWA, P.O.-BIRHU, P.S.-DIST-KHUNTI	0.8092	15-03-2007	14-03-1907				Non-Working	Non-Captive	NA		Opencast
30	Stone	GAYAN PRAKASH	S/O. Sri Mudekiya Prasad Singh Kusum Bihar, Morabadi Bivayanti Road, Ranchi	1.0924	04-12-2001	03-12-2011				Non-Working	Non-Captive	NA		Opencast
31	Stone	Kanambir Mahto	S/O- Kiswar Mahto, Gujara, Khunti	0.4653	24-08-2011	23-08-2021				Non-Working	Non-Captive	NA	23°12'35.5"N 85°14'10.6"N 23°12'38.15"N 85°14'10.93"E 23°12'38.07"N 85°14'11.26"E 23°12'35.71"N 85°14'18.4"E	Opencast
32	Stone	Sri Villesh Kumar	S/O. Sri Rajendra Sahu Vill-Torpa, P.O.-Torpa, Dist- Khunti, 835227	0.5664	19-12-2006	18-12-2016				Non-Working	Non-Captive	NA	22°55'26.8"N 85°16'32.92"E 22°55'28.64"N 85°16'33.66"E 22°55'16.38"N 85°16'48.48"E 22°55'19.4"N 85°16'36.09"E	Opencast

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Khunti District Survey Report for Stone

33	Stone	Sri Dinesh Kumar	Sri Devandar Kr. Sahu Vill-Torpa, Ps.+Po.- Torpa Dist- Khunti, 835227	24276	24-04-2009	23-04-2019				Non-Working	Non-Captive	Letter No- EC/SRIAA/15 16/1409/20 15/2100, Dated-15- 12-2015	22°55'26.8"N 85°6'32.92"E 22°55'28.44"N 85°6'43.66"E 22°55'16.38"N 85°6'48.49"E 22°55'19.4"N 85°6'36.09"E	Opencast
34	Stone	Sri Surjit Kumar	S/o Sri Bhutan saw Vill-Torpa, Ps.+Po.- Torpa Dist- Khunti, 835227	12745	11-01-2014	10-01-2024				Non-Working	Non-Captive	NA	22°55'26.8"N 85°6'32.92"E 22°55'28.44"N 85°6'43.66"E 22°55'16.38"N 85°6'48.49"E 22°55'19.4"N 85°6'36.09"E	Opencast
35	Stone	Niraj Kumar	S/o Sri Devandar Kr. Sahu Vill-Torpa, Ps.+Po.- Torpa Dist- Khunti, 835227	08497	23-11-2010	22-11-2020				Non-Working	Non-Captive	NA	22°55'26.8"N 85°6'32.92"E 22°55'28.44"N 85°6'43.66"E 22°55'16.38"N 85°6'48.49"E 22°55'19.4"N 85°6'36.09"E	Opencast
36	Stone	Sanjay Ansari	S/o Md. Ahsanul Amin Vill- Murhu, Po.- Puddi, 835210	04055	12-03-2007	11-03-2017				Non-Working	Non-Captive	NA	23°8'25.76"N 85°18'14.7"E 23°8'25.77"N 85°18'4.31"E 23°8'23.18"N 85°18'3.25"E 23°8'23.41"N 85°18'1.26"E	Opencast
37	Stone	Sri Murali Lal Poddar	Late Anama Ram Poddar Vill- To Ratu Road, Ps.- Subdivnagar, Dist- Ranchi, 834001	26097	30-07-2011	29-07-2021				Non-Working	Non-Captive	NA	23°7'5.27"N 85°16'16.26"E 23°7'2.78"N 85°16'20.80"E 23°7'15.35"N 85°16'30.05"E 23°7'15.38"N 85°16'10.92"E	Opencast
38	Stone	Sri Dinesh Kumar	S/o Sri Satya naryam Singh Vill- Hadya, Po.- Hadya Dist- Ranchi, 834003	06078	26-06-2010	25-06-2020				Non-Working	Non-Captive	NA	23°12'30.71"N 85°16'13.97"E 23°12'29.51"N 85°16'15.79"E 23°12'32.84"N 85°16'20.95"E 23°12'35.15"N 85°16'18.69"E	Opencast



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Khunti District Survey Report for Stone

39	Stone	Sohari Paham	S/o. Sri Sagar Paham Vill- Khijari, Po. Guzora, P.S.- Khunti Dist- Khunti	0.8092	22-11-2010	21-11-2020				Non- Working	Non- Captive	NA	23°7'48.22"N 85°14'51.07"E 23°7'48.18"N 85°15'4.24"E 23°7'32.77"N 85°15'2.46"E 23°7'32.51"N 85°14'50.6"E 23°7'36.41"N 85°15'1.61"E 23°7'28.81"N 85°15'1.42"E 23°7'28.38"N 85°15'5.86"E 23°7'36.37"N 85°15'5.67"E	Opencast
40	Stone	Sunil Willam Kerakta	S/o. Sri Muzmad Kerakta Vill- Birhu, Po. Birhu, P.S.- Khunti Dist- Khunti, 835210	0.8092	31-05-2010	30-05-2020				Non- Working	Non- Captive	NA	23°12'34.76"N 85°16'18.03"E 23°12'31.81"N 85°16'20.81"E 23°12'33.27"N 85°16'23.13"E 23°12'36.53"N 85°16'21.76"E	Opencast
41	Stone	Sri Rajesh Kumar	S/o. Sri Botaran Singh Vill- Hulla Po- Hulla, P.S. Jagannathpur Dist- Ranchi, 834003	0.5907	04-04-2011	03-04-2021				Non- Working	Non- Captive	NA	23°12'34.76"N 85°16'18.03"E 23°12'31.81"N 85°16'20.81"E 23°12'33.27"N 85°16'23.13"E 23°12'36.53"N 85°16'21.76"E	Opencast
42	Stone	Sri Akhbar Alam	S/o. Md. S.K Hasil Vill- Kaddra, (Hirao) Po. P.S.- Ranchi, Dist- Ranchi, 834002	0.4127	29-08-11	20-08-2021				Non- Working	Non- Captive	NA	23°12'34.76"N 85°16'18.03"E 23°12'31.81"N 85°16'20.81"E 23°12'33.27"N 85°16'23.13"E 23°12'36.53"N 85°16'21.76"E	Opencast
43	Stone	Sri Vivekanand Bam	S/o. Sri Natthan Bam, Vill- Dermo, Po- Dermo, P.S.- Torpa Dist- Khunti, 835227	0.6069	23/08/2011	22/08/2021				Non- Working	Non- Captive	NA	23°0'18.5"N 85°10'25.91"E 23°0'5.28"N 85°10'19.75"E 23°0'4.57"N 85°10'24.04"E 23°0'16.44"N 85°10'34.43"E 23°0'12.37"N 85°10'51.46"E 23°0'10.58"N 85°11'2.82"E 23°0'18.16"N 85°11'5.91"E 23°0'20.46"N 85°10'54.78"E	Opencast
44	Stone	Sri Garpati Mineral	Pro. Vaid Prakash Kashyap Lohm bagan Road No. 2, Khunti, 835210	1.1329	17-10-2009	16-10-2019				Non- Working	Non- Captive	NA	23°0'18.5"N 85°10'25.91"E 23°0'5.28"N 85°10'19.75"E 23°0'4.57"N 85°10'24.04"E 23°0'16.44"N 85°10'34.43"E 23°0'12.37"N 85°10'51.46"E 23°0'10.58"N 85°11'2.82"E 23°0'18.16"N 85°11'5.91"E 23°0'20.46"N 85°10'54.78"E	Opencast



Khunti District Survey Report for Stone

45	Stone	Sri Englesh Bhenpra	S/o Late Jashyap Bhengra Vill- Pipratoli(Marh), Po.+Pc.- Khunti, Dist.-Khunti, 835210	0.6878	12-11-2009	11-11-2019				Non-Working	Non-Captive	Letter No- EC/SRIAA/15 - 16/1768/20 Dated-31-12-2015	73°42'5.35"W 85°18'12.21"E 23°49'5.06"N 85°18'17.19"E 23°49'14.38"N 85°18'19.09"E 23°49'14.83"N 85°18'12.4"E	Opencast
46	Stone	Nitesh Sarda	S/o Sri N.R Sharda 101-Krishna Apartment PPCompound,	3.1963	12-01-2015	11-01-2020				Non-Working	Non-Captive	Letter No- EC/SRIA/2014 - 15/377/2014/578, dated-20-11-2014	23°48'25.30"N 85°17'22.52"E 23°48'25.95"N 85°17'30.78"E 23°48'17.83"N 85°17'33.31"E 23°48'16.32"N 85°17'30.94"E	Opencast
47	Stone	Srimati Vinita Sanga	W/o Late (Kande Munda) Area.L.00 S/o Late Sakil Munda Vill-Kanadhi, (Dugdugya), Po.+Pc.- Khunti, Dist.-Khunti, 835210	0.4046	28-04-2006	27-04-2016				Non-Working	Non-Captive	NA	23°48'57.16"N 85°17'15.06"E 23°48'57.02"N 85°17'18"E 23°48'47"N 85°17'15.45"E 23°48'48.15"N 85°17'14.02"E	Opencast
48	Stone	Santosh Kumar Mahato	S/o late jainu mahato Gayatri Nagar Pipra-Toli Khunti,835210	0.4046	12-09-2017	31-03-2020				Non-Working	Non-Captive	Letter No- EC/DEIAA/2 017-18/54, Dated-24-04-2017		Opencast
49	Stone	M/s Bird Enterprises	Prop Dilip kr. singh Qr.No. B.II 221, Sector-2, Dhurva, Ps. Jagarnathpur Ranchi, 834004	1.0115	28-10-2004	27-10-2014				Non-Working	Non-Captive	NA	23°15'18.28"N 85°13'15.18"E 23°15'24.2"N 85°13'10.79"E 23°15'23.46"N 85°12'50.88"E 23°15'18.58"N 85°13'0.73"E	Opencast
50	Stone	Sri Nishant Kumar	S/O Dinp Kumar Gurudwara Road, Haria, Po.- Haria, Dist.-Ranchi, 834003	0.6069	04-09-2003	03-09-2013				Non-Working	Non-Captive	NA	23°12'52.15"N 85°16'32.63"E 23°12'47.93"N 85°16'33.4"E 23°12'49.38"N 85°16'45.41"E 23°12'54.70"N 85°16'44.02"E	Opencast



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51	Stone	Sri Ashok Sahu	S/o. Sri Budha Sahu Vill- Tupudana Po- Tupudana, Po- hastiya Dist- Ranchi, 834003	1.0115	31-05-2010	30-05-2020				Non- Working	Non- Captive	Letter No- EC/DEIAA/2 017-18/55, dated-25-08- 2017	23°12'46.83"N 85°16'50.43"E 23°12'38.84"N 85°16'50.24"E 23°12'39.48"N 85°16'58"E 23°12'46.4"N 85°16'58.39"E	Opencast
52	Stone	Srimati Vimta Sainp	S/o Late Sakhl Munda Vill- Kanadha, (Duglagiya), Po-+Po- Khunti, Dist- Khunti, 835210	0.9104	11-06-2010	10-06-2020				Non- Working	Non- Captive	Letter No- EC/DEIAA/2 017-18/67, Dated-18- 01-2018	23°8'27.38"N 85°17'19.83"E 23°8'25.26"N 85°17'38.05"E 23°8'20.45"N 85°17'35.92"E 23°8'19.07"N 85°17'28.7"E	Opencast
53	Stone	Sri Shripal Chand Jain	S/o. Late Suparash Mai Jain Vil- DoleBunglow Road Khunti PO-+ Po- Khunti Dist- Khunti, 835210	0.9104	28-06-2010	27-06-2020				Non- Working	Non- Captive	Letter No- EC/SEIAA/15 16/1456/20 15/2261, Dated-30- 12-2015	23°12'5.24"N 85°16'1.78"E 23°11'59.88"N 85°16'1.24"E 23°11'59.42"N 85°16'9.58"E 23°12'3.15"N 85°16'9.16"E	Opencast
54	Stone	M/s Y.F.C Project Pvt. Ltd	Sri Vikash Mani Tripathi, S/o- Sri Sanja dev Tripathi At- Prithviqueer, PO-+PS- Handrya, Dist- Allahabad (UP)	1.9097	29-08-2018	28-08-2020				Non- Working	Non- Captive	Letter No- EC/DEIAA/2 018-19/86, Dated-03- 07-2018	23°1'48.51"N 85°23'37.42"E 23°1'55.97"N 85°23'50.2"E 23°1'58.57"N 85°23'35.91"E 23°1'50.53"N 85°23'31.28"E	Opencast
55	Stone	Anwar Ansari	S/o. Late Md. Hussain Ansari Vill- Faddi, Po- Faddi, Dist- Khunti, 835210	0.5058	12-11-2010	11-11-2020				Non- Working	Non- Captive	Letter No- EC/SEIA/201 5- 16/1596/20 15/2352, Dated-30- 12-2015	23°8'25.76"N 85°18'3.47"E 23°8'25.72"N 85°18'4.31"E 23°8'23.18"N 85°18'3.25"E 23°8'23.41"N 85°18'1.26"E	Opencast
56	Stone	Santosh Sainp and Nigal Pahan	S/o. Late Dhocha Pahan & Sri Sainp Pahan Vill- Kanadhi, Po- - Faddi, PS-+ Dist- Khunti, 835210	0.4298	11-11-2010	10-11-2020				Non- Working	Non- Captive	Letter No- EC/SEIA/201 5- 16/1691/20 15/2107, Dated-30- 12-2015	23°8'56.72"N 85°10'53.22"E 23°8'54.95"N 85°16'53.88"E 23°8'56.76"N 85°17'1.22"E	Opencast



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57	Stone	M/s V.F.C Project Pvt Ltd	Sri Kuntal Das S/o Sri Ashi Das Add- Bawoli, P.S- Noolakhi, Dist- Saurashtra, Jh purgana (W Bansal)	2.0796	10-12-2016	09-12-2020				Non- Working	Non- Captive	Letter No- EC/DEIAA/1 3/2016-17, Dated-28- 10-2016	N 23° 13' 44.3" E 84° 34' 58.17"	Opencast
58	Stone	Sri Jaypal Ram	S/o, late Bhadram Ram vill- Rawa, P.O- Birhu Dist- Khunti, Pm No. 835210	0.4046	11-05-2016	10-05-2021				Non- Working	Non- Captive	Letter No- EC/SEIAA/20 15- 16/1827/20 15/501, Dated-31- 12-2015	23°7'20.01"N 85°13'23.92"E 23°7'13.5"N 85°13'24.45"E 23°7'13.97"N 85°13'32.23"E 23°7'20.19"N 85°13'28.57"E	Opencast
59	Stone	Md. Azzad Allam	S/o, Late Ravul Ansari Vill- Batangi, Po, Guzora, Dist- Khunti, Pm No. 835210	0.4046	23-06-2011	22-06-2021				Non- Working	Non- Captive	NA	23°8'57.16"N 85°17'15.06"E 23°8'57.62"N 85°17'38"E 23°8'47"N 85°17'15.45"E 23°8'48.35"N 85°17'34.02"E	Opencast
60	Stone	Sri Rampratap Deo	S/o, Late Mahendra Nath Deo Vill- Bhagalpur, (Juhala) Po- Birtow, Ps.- Karra Dist- Khunti,	0.4046	23-08-2011	22-08-2021				Non- Working	Non- Captive	Letter No- EC/SEIAA/15 - 16/1902/20 15/2609, Dated-31- 12-2015	N 23° 10' 35.73" E 85° 11' 38.49"	Opencast
61	Stone	Sri Rajiv Kr. Mahto,	S/o, Late Keshi Nath Mahto, Vill- Dorna, Po- dorna, Ps.- Dorna Dist- Khunti, 835227	0.7161	25/11/201	24/11/202				Non- Working	Non- Captive	NA	23°0'18.5"N 85°10'10.91"E 23°0'5.28"N 85°10'19.75"E 23°0'4.57"N 85°10'24.08"E 23°0'16.44"N 85°10'34.43"E	Opencast



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62	Stone	Sri Dhiraj Kumar	S/o. Sri Ram Lal Prasad Vill-Marhu, Po- Marhu Dist- Khunti, 835210	0.4046	25/11/2011	24/11/2021				Non-Working	Non-Captive	Letter No- EC/SEIAA/15 16/1698/20 15/2306, Dated-30- 12-2015	22°19'29.4"N 85°16'33.16"E 22°59'26.52"N 85°16'33.35"E 22°59'27.48"N 85°16'42.08"E 22°59'30.25"N 85°16'41.62"E	Opencast
63	Stone	Sri Soma Munda	S/o. Late Duppy Munda Vill-Dugbugia, Po. Faddi, P.S.- Khunti, Dist- Khunti, 835210	1.0003	28-03-2012	27/3/2022				Non-Working	Non-Captive	Letter No- EC/SEIAA/13 14/116/201 3/217, Dated-03- 01-2014	23°8'37.1"N 85°17'43.37"E 23°8'25.49"N 85°17'43.1"E 23°8'25.17"N 85°17'55.62"E 23°8'37.31"N 85°17'53.92"E	Opencast
64	Stone	Smt Anju Devi	H/O Anand Kumar Vill-Hatar chokh, po- Guzjira Dist- Khunti	2.3467	28-03-2012	27/3/2022				Non-Working	Non-Captive	Letter No- EC/SEIAA/20 14- 15/461/201 4/1149, Dated-27- 07-2015	23°8'37.67"N 85°17'42.87"E 23°8'26.97"N 85°17'44.57"E 23°8'29.69"N 85°17'53.7"E 23°8'35.81"N 85°17'51.21"E	Opencast
65	Stone	Nitesh Sarthi	S/o. Sri N.K Sharda 101-Rishnia Appartment PPCompound,	2.023	21-12-2012	20-12-2022				Non-Working	Non-Captive	Letter No- EC/SEIAA/20 13- 14/92/2013 /274, Dated- 10-02-2014	23°9'51.7"N 85°15'44.99"E 23°9'35.72"N 85°15'49"E 23°9'35.89"N 85°15'55.68"E 23°9'51.23"N 85°15'55.72"E	Opencast
66	Stone	Sri Ramnath Bhagat	S/o Late Damri Bhagat Bhagat Singh choik Khunti, Po.- Khunti, Dist- Khunti, 835210	4.5113	30-11-2012	29-11-2022				Non-Working	Non-Captive	Letter No- EC/SEIAA/20 13- 14/115/201 3/2433, Dated-30- 12-2015	23°7'9.47"N 85°17'25.4"E 23°6'58.71"N 85°17'27.5"E 23°6'59.17"N 85°17'40.97"E 23°7'0.67"N 85°17'40.20"E	Opencast
67	Stone	Hemanta Singh	W/o Sanjay Singh At- Sarvoday Nagar, Ranko Road, Ranchi, Dist- Ranchi	4.046	04-04-2018	03-04-2023				Non-Working	Non-Captive	Letter No- EC/DEIAA/2 017-18/66, Dated-18- 01-2018	N 23° 11' 57.526" E 85° 13' 35.497"	Opencast



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68	Stone	Smt. Vidya Devi	w/o. Jato Hiralal Smt. Vidya Devi, 3 Kalab Road Ranchi Dist- Ranchi, 834001	3.138	01-07-2013	30-06-2023				Non-Working	Non-Captive	Letter No- EC/SEIAA/20 13- 14/98/2013 /144, Dated- 28-09-2013	23°13'8.25"N 85°16'29.23"E 23°13'6.01"N 85°16'31.35"E 23°13'4.28"N 85°16'01.55"E 23°13'17.87"N 85°16'37.89"E	Opencast
69	Stone	Nitesh Sarda	S/o. Sri N.K Sharda 101-Krishna Apartment PPCompound,	0.0069	20-11-2013	19-11-2023				Non-Working	Non-Captive	Letter No- EC/SEIAA/20 13- 14/91/2013 /102, Dated- 06-08-2013	23°9'51.7"N 85°15'44.99"E 23°9'36.72"N 85°15'40"E 23°9'35.89"N 85°15'55.68"E 23°9'51.33"N 85°15'55.72"E	Opencast
70	Stone	Arvind Kumar Singh	S/o. Sri Ram Rekha Singh Qr No. B-II 437, Dhurwa, Jatis Ranchi, 834004	1.2138	08-12-2013	07-12-2023				Non-Working	Non-Captive	Letter No- EC/SEIAA/15 16/1778/20 15/2400, Dated-30- 12-2015	23°15'18.28"N 85°13'15.18"E 23°15'24.2"N 85°13'10.79"E 23°15'23.46"N 85°12'59.86"E 23°15'18.58"N 85°13'07.7"E	Opencast

Source - District Mining Office, Khunti

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Khunti District Survey Report for Stone

Chapter -X Details of Royalty or Revenue received in last three years;

Table 9 Details of Royalty received in last three years

UNIT: INR

Minor Mineral	2021-2022	2022-2023	2023-2024
Stone	36810074	93779105	114106815
Sand	426000	426000	142000
Bricks	741000	537500	471500

Source: District Mining Office, Khunti



Khunti District Survey Report for Stone

Chapter - XI Details of Production of Minor Mineral in last three years;

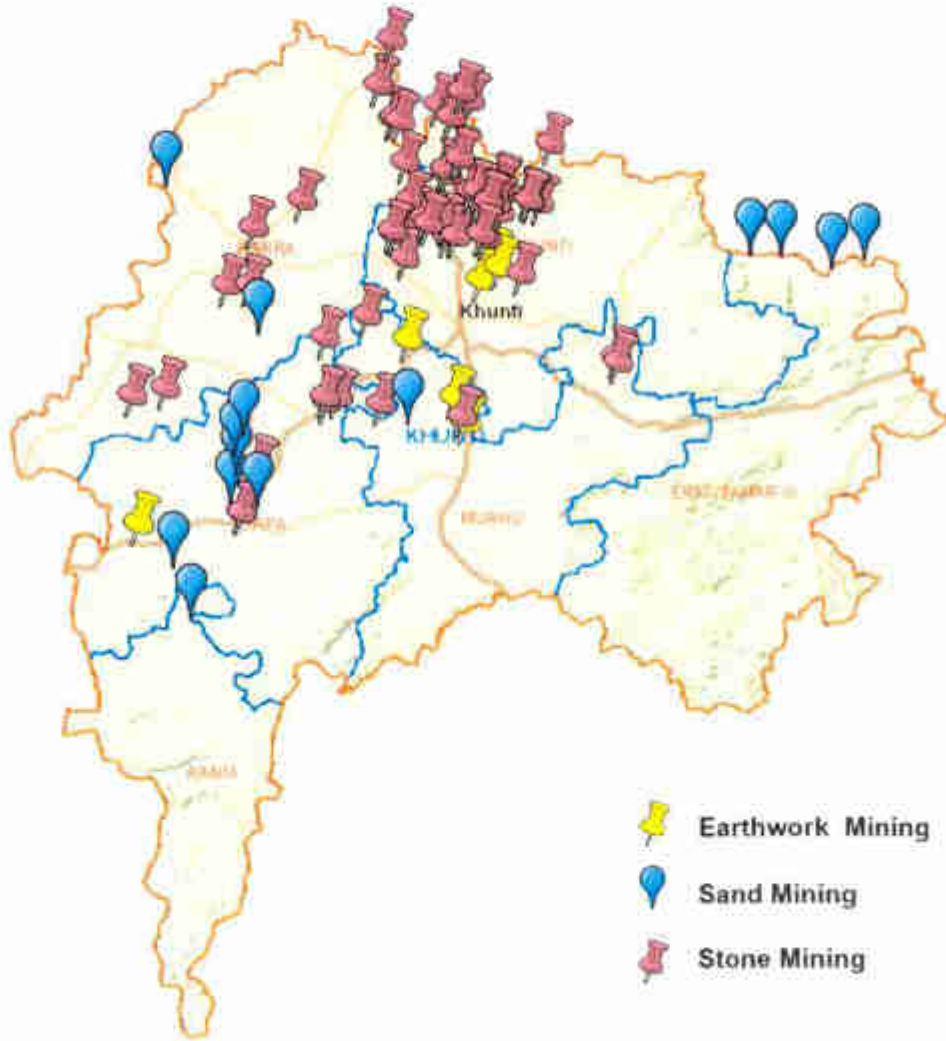
Table 10 Production of Minor Mineral in last three years

Minor Mineral	2021-2022	2022-2023	2023-2024
Stone	3592000.93	11312803	14794128
Sand	8050	435300	95200
Bricks	741594	459082	406111

Source: District Mining Office, Khunti



Chapter - XII Mineral Map of the District;



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Khunti District Survey Report for Stone

Chapter - XIII List of Letter of Intent (L.OI) 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 Lol	Use (Captive / Non - Captive)	Location of the Mining lease (Latitude & Longitude)	Remarks
1	Stone	Sri Satyendra Kumar Singh	Tangritola, New Sai Mandir, Power Station Road, Ratu, Ranchi	Director, Mines Letter number - 849/M, Dated - 24.04.2023	5.80 Acre		Non-captive	Lat -23.08' 27.64" N to 23.08' 34.42" N Long - 85 17' 43.00" E to 85 17' 51.90" E	EC Granted
2	Stone	M/s Vivaan Enterprises, Partner - Shri Ishan	Shop no. - 04 C, 2 nd Floor, R N Complex, Sonar Gali, Upper Bazar, Ranchi, Jharkhand	Director Mines, Letter no. - 852/M, Dated - 24/04/2023	2.67 Acre		Non-captive	Lat - 23.08' 28.365" N to 23.08' 31.793" N Long. - 85 17' 46.962" E to 85 17' 51.785" E	EC Granted

Source - District Mining Office, Khunti

NOTE: Any other area which may be found feasible for Stone Mining shall be included in the DSR prospectively.



Khunti District Survey Report for Stone

Table 11 Application for LOI

S. No.	Name of Applicant	Block	Mineral	Details of Land Location	Coordinates
1	Mr. Rajiv Kumar Mahto, S/o Late Kashinath Mahto, Village : Dodma, PO : Dodma, Thana : Torpa, District : Khunti, Jharkhand	Torpa	Stone	Village : Dodma, Khata No.:16, Plot No.:4306, Area:1.03 Acres	23°8'50.52"N 85°17'0.51"E 23°8'50.3"N 85°17'4.14"E 23°8'46.22"N 85°17'3.52"E 23°8'46.68"N 85°16'59.54"E
2	Mr. Bhudwa Munda, S/o Late Tadkan Munda, Village : Kanadih, PO : Gujora, Thana Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Kanadih, Khata No. 25, Plot No. : 987(P), Area :2.5 Acres	23°9'2.49"N 85°17'5.97"E 23°8'55.95"N 85°17'3.96"E 23°8'56.52"N 85°16'59.79"E 23°9'2.77"N 85°17'3.38"E
3	Mr. Komta Munda, S/o Late Mangra Munda, Village : Kanadih, PO : Gujora, Thana Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Kanadih, Khata No. 25, Plot No. : 213(P), Area :1.79 Acres	23°8'44.04"N 85°17'8.6"E 23°8'40.52"N 85°17'6.9"E 23°8'40.91"N 85°17'5.03"E 23°8'47.29"N 85°17'4.68"E
4	Mr. Nagai Sanga, S/o Shri Sasu Munda, Village : Kanadih, PO : Gujora, Thana Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Kanadih, Khata No. 25 & 26, Plot No. : 980 (P), 981 & 1008, Area :1.50Acres	23°1'58.07"N 85°23'32.71"E 23°1'56.79"N 85°23'45.06"E 23°1'50.3"N 85°23'46.89"E 23°1'48.23"N 85°23'27.71"E
5	Mr. Pravin Jain, S/o Shripal Chand Jain, Dakbanga Raod, Khunti, Thana : Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Gutuhatu, Khata No. : 72, 73, 51, 60 & 62, Plot No. 3069 (P), 3071, 3070, 3056 (P),2774, 3066 & 3065, Area : 3.02 Acres	23°8'38.64"N 85°19'29.71"E 23°8'37.79"N 85°19'41.57"E 23°8'30.17"N 85°19'40.43"E 23°8'31.05"N 85°19'29.19"E
6	Mr. Rajkumar Kashyap, S/o Bandi Ram Kashyap, Vilalge : Birhu, PO : Birhu, Thana : Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Teram, Khata No. : 10, 13 & 16, Plot No.	23°7'13.61"N 85°13'27"E 23°7'5.59"N 85°13'43.84"E



Jain

Khunti District Survey Report for Stone

S. No.	Name of Applicant	Block	Mineral	Details of Land Location	Coordinates
7	Mr. Santosh Kumar Mahto, S/o Late Jainu Mahto, Village : Dumardaga, PO : Jaltanda (Birhu), Thana : Khunti, District : Khunti, Jharkhand	Khunti	Stone	Village : Dumardaga, Khata No. : 49, Plot No. : 77 (P), Area : 1.30 Acres	23°6'58.26"N 85°13'40.25"E 23°7'6.84"N 85°13'22.18"E 23°5'1.58"N 85°5'49.31"E 23°4'51.80"N 85°5'50.01"E 23°4'50.37"N 85°6'4.71"E 23°5'0.89"N 85°6'3.96"E
8	M/s Aadhya Laxmi Mining and Infracon Pvt. Ltd., Director : Mr. Rafik Ansari, Village : Karra, PO : Karra, Thana : Karra, District : Khunti, Jharkhand	Karra	Stone	Village : Jaltanda, Khata No. : 61, Plot No. : 391, 392, 393, 401, 402, 403, 404, 405 & 406, Area : 5.05 Acres.	23°8'50.52"N 85°170.51"E 23°8'50.3"N 85°174.14"E 23°8'46.22"N 85°173.52"E 23°8'46.68"N 85°16'59.54"E

Source - District Mining Office, Khunti

NOTE: Any other area which may be found feasible for Stone Mining shall be included in the DSR prospectively.



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Khunti District Survey Report for Stone

झारखण्ड सरकार
खान एवं भूतत्व विभाग
जिला भूतात्विक कार्यालय, राँची
Email Id:- astdirgeo-ranchi@jarkhandmail.gov.in

पत्रांक- सर्वेक्षण/ 22/23-79 350 886 दिनांक- 12/01/2024

प्रेषक-

सहायक निदेशक, भूतत्व
जिला भूतात्विक कार्यालय
राँची।

सेवा में-

जिला खान पर्यवेक्षक
सूरी, झारखण्ड।

विषय- जिलाधी योग्य सामान्य पत्थर ब्लॉक बनाने हेतु सूरी क्षेत्र में पुराने पर्याप्त स्थित भूजा- सलगा का वर्णित स्थिति उपलब्ध कराने के संबंध में।

कारण-

उपरोक्त विषयक कारण है कि सूरी क्षेत्र में पुराने पर्याप्त स्थित भूजा- सलगा में (पैलामी) योग्य सामान्य पत्थर ब्लॉक तैयार करने का कार्य किया जाता है। उपरोक्त क्षेत्र का वैधानिक एवं सांख्यिक जल संपत्ती की स्थिति को निम्न जलकारी-संपत्ती करवा जाय, जिसकी विवरणी निम्न प्रदान है।

भूजा- सलगा/जिला- सूरी

क्र. सं.	प्लॉट सं.	समा संख्या	Limiting Coordinate	भूमि का वर्णन (Nature of Land) गैरसंयुक्त/रिप्टेड	अवस्थिति
1	677	82	23°02'53.47"N- 85°22'01.53"E- 23°03'00.72"N- 85°22'10.69"E	गैरसंयुक्त	

1. न्यायालय में तमिल (फॉर्म-समाप्त)।
2. Forest में सर्वेक्षित (फॉर्म-समाप्त)।
3. खान पर्यवेक्षक के आदेश/सूचीकृत से-सर्वेक्षित सुधाराय।
4. संपत्ती पर्याप्त स्थिति के समीप सूचीकृत या अनसूचीकृत खान पर्यवेक्षक द्वारा पर्यवेक्षित जलकारी।

विश्वरामचन्द्र

(सहायक निदेशक)
सहायक निदेशक, भूतत्व
जिला भूतात्विक कार्यालय, राँची।

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Khunti District Survey Report for Stone

Chapter - XIV Total Mineral Reserve available in the District;

SI No.	Lessee names	Total Available Resource (Tonne) (As per approved mine plan)
1	Parmeshwar Prasad	7,54,020
2	Nitesh Sharda (7.20 Ac)	19,98,163.92
3	Nitesh Sharda (3.58 Ac)	7,21,828.88
4	Mangu Horo	83,003.36
5	Rabindra Choudhary	7,73,096.60
6	Arbind Kr. Singh	2,36,858.88
7	Pericharla Anjanayulu Raju	33,57,472.00
8	Anjay Kumar	2,03,048.00
9	Vishal Construction Private limited	18,57,919.00
10	Name Infrastructure Pvt. Ltd.	74,13,953.55
11	Dharmendra Bhagat	7,49,675
12	Shiv Kr. Sahu	1,11,621
13	Hemanta Singh	11,29,652.50
14	VKS Infrastructure Pvt. Ltd.	4,72,247.66
15	Sandcube Infrastructure Pvt. Ltd.	9,02,407.55
16	Vidya Devi	10,72,411
17	Nitesh Sharda (1.50 Ac)	1,42,310
18	Nitesh Sharda (3.76 Ac)	6,17,428.20
19	Nitesh Sharda (4.81 Ac)	8,20,764.00
20	Josef Sanga	1,84,032.00
	Total	2,25,97,117.50

Source: District Mining Office, Khunti

Note: This will be update at the time of preparation of Mining Plan for each proposed block or upcoming stone blocks.

Assumption that the active mining area would be 30% of the zone area and depth of ground water table as 6m (average).

Then, the resource has been estimated on these two assumptions is

23,52,40,550 cum.

D. S. S.



Khunti District Survey Report for Stone

Chapter - XV Quality /Grade of Mineral available in the District;

Mineral	Quality / Grade
Sand	Coarse Sand
Stone	Granite/Gneiss Rock
Soil / Brick	Clay / Silt / Sandy / Loamy

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Khunti District Survey Report for Stone

Chapter - XVI Use of Mineral;

Stone mined from stone projects have multiple uses.

They include:

1. Road Construction
2. Building Construction
3. Water Resource Projects including Dams, Embankment, Flood Protection, Structures, etc.
4. Slope Stability Structures
5. Construction of Airports Runway
6. Railway Tracks Stability
7. Bridge Construction



Khunti District Survey Report for Stone

Chapter - XVII Demand and Supply of the Mineral in the last three years;
Demand for the stone and brick was fulfilled by the operational mines in the district.

Table 12 Below shows quantity of stone produced (in CFT) in the district during last three years

Minor Mineral	2021-2022	2022-2023	2023-2024
Stone	3592000.93	11312803	14794128

Source: District Mining Office, Khunti

Predicted growth in infrastructure sector 8.2 % (Source - Invest India) keeping this figure in view estimated demand for Building stone in next 05 years are given below :-

2024 - 2025: 16007246

2025 - 2026: 17319840

2026 - 2027: 18740067

2027 - 2028: 20276752

2028 - 2029: 21939446

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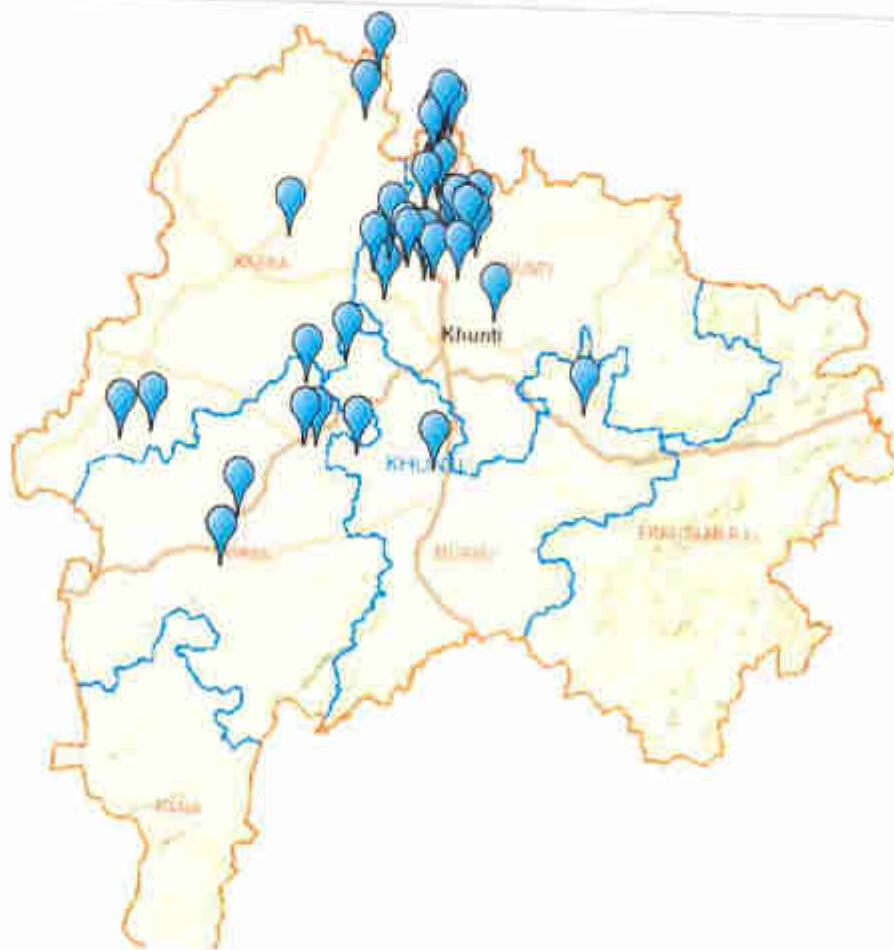


Figure 9 Showing lapsed leases in the district.

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Khunti District Survey Report for Stone



Figure 10 Showing lapsed leases in the district (numbers showing Si. no. of lapsed leases of Table



7)

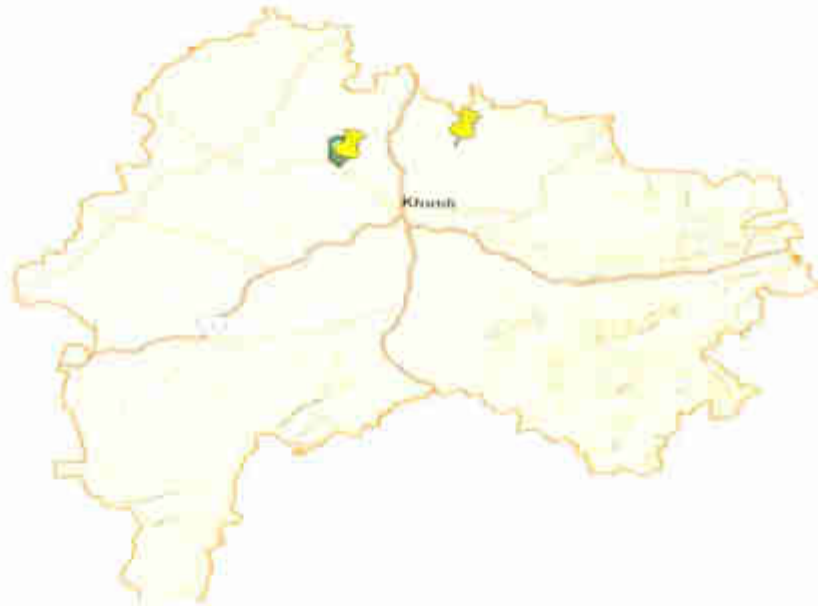


Figure 11 Lol Holders in the District

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Khunti District Survey Report for Stone

Chapter - XIX **Details of the area of where there is a cluster of mining leases viz. number of mining leases, location (latitude and longitude);**

Currently, there is no cluster situation among the running mining leases and Letter of Intent (LOI) holders. However, the District Mining Officer will declare a cluster of mining leases before granting Environmental Clearance.



Khunti District Survey Report for Stone

Chapter – XX Details of Eco-Sensitive Area, if any, in the District;
Eco-Sensitive Zones notified by Ministry of Environment, Forest and Climate Change in Jharkhand are listed below;

1. Dalma Wildlife Sanctuary
2. Hazaribagh Wildlife Sanctuary
3. Betla National Park
4. Palamau Wildlife Sanctuary
5. Mahuadanr Wolf Sanctuary
6. Udwa Lake Bird Sanctuary
7. Gautam Buddha Sanctuary
8. Palkot Wildlife Sanctuary
9. Parasnath & Topchanachi Sanctuary
10. Koderma Wildlife Sanctuary
11. Lawalong Wildlife Sanctuary

No eco-sensitive area in the district as per Ministry of Environment, Forest and Climate Change.

Source : <https://moef.gov.in/moef/rules-and-regulations/esz-notifications/index.html>



Chapter – XXI Impact on the Environment (Air, Water, Noise, Soil, Flora & Fauna, land use, agriculture, forest etc.) due to mining activity;

21.1 General

Project activities relating to stone mining projects result into impact on various environmental attributes including land, soil, ambient air, water quality, noise, bio-environment including flora & fauna & socio-economic profile in the area. For stone mining project to be sustainable, on long term basis, these impacts need to be assessed & be mitigated. Extent of impact on environmental attributes in a project would depend on base line environmental quality profile & planned capacity of the mine, method of mining etc. This being so, project environmental impact specific to every project needs to be assessed for their proper mitigation. In this section of the Report effort has been made to identify environmental impacts due to project related activities & mitigation measures to minimise their impact.

21.2 Activities Likely to affect Ambient Air Quality

21.2.1 Site Preparation

In most of cases first project activity is site preparation which involves clearing the site of vegetation including shrubs, trees etc, grading & levelling the site. These activities generate dust & noxious gases on account of use of diesel for operating diesel generated earth moving equipments.

21.2.2 Removal of Overburden

In case there is overburden in form of soil or weathered stone, over the stone deposit, it needs to be removed before mining of stone activity are initiated. In such cases where overburden is soft material, it would be removed by grader without blasting. But if O.B is hard, it would require blasting with use of explosives. Removal of O.B & its transportation & storage would generate dust & noxious gases.

21.2.3 Removal & Storage of Top Soil

Area within the lease over which top soil occurs will be identified. Before the lease area is graded & levelled top soil would be removed and stored for future use. They would be properly stored. This activity of removal, transportation & storage of top soil would generate dust & noxious gases.

(A) Stone Mining

(B) Drilling of blast Holes

Mining of stone would require blasting using explosive. For this purpose Blast holes need to be drilled using Drill machine. Drilling operation would generate dust & noxious gases if Drill is diesel operated.

(C) Blasting

Blasting operation would generate dust & noxious gases.



Khunti District Survey Report for Stone

Mining of stone and its handling

After OB is removed, activities relating to mining of stone are initiated. This involves drilling blast holes using drill, blasting using explosives, loading blasted material on tippers and transport them to stockyard or crushing cum screening unit. Most of mining and haulage equipment are diesel based. As such stone mining activities & transportation generate dust and noxious gases.

Crushing & Screening

In stone cases crushing & screening plants are located within lease area and in other cases they are located outside lease area. Crushing and screening activities are also source for generation of dust and noxious gases. **Air**

Environment

Sl. No.	Particular	Activity	Pollutant	Impact
1.	O.B. Removal A. If soft O.E.	Removal by using HEMM	<ul style="list-style-type: none"> • Dust • Noxious Gases 	Rise in Level of air pollution
2.	B. Hard Material	1. Drilling Blast holes 2. Blasting	<ul style="list-style-type: none"> • Dust • Noxious Gases 	
3.	O.B. transport by Road to Dump yard	<ul style="list-style-type: none"> • Dust • Noxious Gases • OB Handling 	<ul style="list-style-type: none"> • Dust • Noxious Gases 	
4. 4.1.	Mining of stone	<ul style="list-style-type: none"> • Drilling Blast Holes • Dust • Noxious Gases 	Rise in level of particulate Matters	
4.2.	Blasting	<ul style="list-style-type: none"> • Blasting • Dust • Noxious Gases 	Do	Properly designed geometry of Blast holes
4.3	Handling of Run of Mine store			
4.4	Loading Blasted Material on Tippers	• Material on Tippers	Do	
4.5	Transport of Blast Material to crusher cum screening plant		Do	

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Khunti District Survey Report for Stone

5.	Sizing of ROM stone	A. CRUSHING B. SCREENING	• Dust • Noxious Gases	Rise in level of particulate Matter in Ambient Air
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Anticipated Environment Impact on Air Environment

Proposed mining of stone by opencast method, their handling i.e., crushing, screening & transportation finished product will result into impact on environmental attributes in the area. Anticipated impact would be on land, ambient air, water, noise level & soil.

However, assessment of these anticipated impact at this stage is constrained by the fact that capacity of individual mine in identified lease is not available.

In this scenario an attempt has been made to identify likely sources of environment pollution & their impact is a typical opencast stone mine.

Activity wise sources of the dust generation & their emission factor are tabulated below:

Emission Factor have been taken from AP42 & IPA;

Sl. No.	Activity	Emission Factor
1	Drilling	0.11 Kg/Hole
2	Blasting	0.52 Kg/Blast
3	Loading	1.4×10^{-4} Kg/t
4	Transportation	0.4 kg/VKT
5	Crushing	0.056 Kg/t

Anticipated impact on ambient air quality in study area need to be calculated using Air Modelling software and emission factor given above in table.

Impact of above activities on ambient air quality will mostly be confined to release of particulate matter. SO_2 & NO_x due to use of diesel for haulage vehicles & mining equipment's be following expression;

$$\text{Emission rate of } SO_2 \text{ (gm/day)} = Q \times C / 100 \times M_w / E_w$$

Where;

Q = Fuel use per hour (Litre)

C = Concentration of Pollutant Fuel percent (%) Sulphur

M_w = Molecular weight of emitted pollutant (Kg/Kg-mol)

E_w = Elemental weight of emitted pollutant in fuel (Kg/Kg-mol)



Ambient Air Quality in the District

Source: Ambient Air Quality Data from JSPCB	PM10	PM2.5	NO2	SO2
	75.00	43.00	19.00	07.20
	65.00	35.00	24.00	10.40
	82.19	36.42	20.76	09.32
	75.33	48.30	27.99	14.46
	73.90	42.10	16.40	25.40
	78.00	36.60	28.10	14.00
	86.00	42.36	23.56	15.65
	70.00	35.00	25.70	12.20
	70.40	29.70	13.90	08.00
	76.60	30.40	29.90	18.60
	62.00	38.00	24.00	11.00
	55.00	32.00	18.50	08.20
Average	72.45	37.40	22.65	12.86

The Air Quality Index is 72, which falls into the "Satisfactory" category, indicating that air quality is generally acceptable with minor breathing discomfort to sensitive people.

Good (0-50)	<i>Minimal Impact</i>	Poor (201 - 300)	<i>Breathing discomfort to people on prolonged exposure</i>
Satisfactory (51-100)	<i>Minor breathing discomfort to sensitive people</i>	Very Poor (301-400)	<i>Respiratory illness to the people on prolonged exposure</i>
Moderate (101-200)	<i>Breathing discomfort to the people with lung, heart disease, children and older adults</i>	Severe (>401)	<i>Respiratory effects even on healthy people</i>

21.2 Impact on Water Environment

In most of cases of opencast mines for stone there is no generation of effluent. Quarrying are not likely to intersect ground water table. As such there is no seepage of groundwater into quarry.

However, sewage is generated from washroom provided in office and rest shelter. Run-Off from active mining zone surface run-off from active mining zone also contain high suspended solid.

However, sources of generation of polluted water will include; water collected in quarry during monsoon will be pumped out to facilitate mining this water make contain suspended solid. Discharge of pump out water to natural water body will degrade quality of water or choke the natural water courses. Water pollutants are not chemical or biological run-off from external over burden dump. Surface run-off generated from external dumps are likely to contain high amount of suspended solid.



Khunti District Survey Report for Stone

Water Environment

Sl. No.	Particular	Activity	Pollutant	Impact
1.	Mining of stone by opencast method of mining	Collection of water in Quarry due to seepage of ground water & its pumping out <ul style="list-style-type: none"> • Collection of rain water in Quarry • Collection of surface 	Suspended solid	High level of suspended solid in water
2.	Mining of stone by opencast method	Provision of wash rooms	Generation of sewage having high level of BOD & other pollutants	Discharge of sewage untreated impact quality of surface & ground water
3.	Mining of stone by opencast method & allied activities	Surface Run-off from lease area during rainy season	Generation of surface Run-off with high level of suspended solid & flowing to surface water source near lease area	Quality of surface deterioration of water

21.3 Impact on Noise Environment

Operation of mining equipment and haulage of stone by road are major source for noise generation in stone mine.

21.4 Impact due to Vibration

The unplanned blasting may cause ground vibration outside the lease area that may affect stability of structures located in close vicinity.

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Khunti District Survey Report for Stone

21.5 Impact on Landuse

Mining and other project activities lead to change in land use pattern in project area. This may lead to loss of vegetative cover or forest if present, in the project area. Change in land use also alter topography and drainage pattern in project area.

21.6 Impact on Agriculture Land

Care has been taken to identify potential site for mining projects avoiding forest land and agriculture land particularly prime agriculture land (Dhan 1 & Dhan 2). As such anticipated impact on agricultural land will be minimal.

21.7 Impact of Road Transportation

Run-of-Mine stone boulders are to be transported to crushing-cum-screening plant for crushing and screening to required size as per market demand. Crusher plant may be located within the lease area or beyond the lease area.

Crushed and Screened stone product are to be transported to the consumers by road / rail.

Mining operations often require the use of heavy trucks and machinery, leading to increased traffic on local roads. The continuous movement of these heavy vehicles can cause congestion, especially on narrow or poorly maintained roads. This can also result in cracks, and other forms of road damage

21.8 Impact on Soil Environment

Mining and allied project activities have impact on soil environment in study area particularly project area. Such impacts are briefed below;

Loss of Topsoil

If topsoil are not removed before mining operation, they are mixed with overburden material and fertile soil is lost.

Impact on Soil Structure

Movement of heavy equipment on soil changes the soil structure including specific gravity, porosity and permeability. Such changes affects productivity of soil.

There are instances of soil contamination on account of leakage of oil & grease from mining equipment.

21.9 Impact on Flora & Fauna

Project activities associated with stone mining have impact on environment attributes i.e. ambient air, noise, ground vibration, water & land.



Khunti District Survey Report for Stone

Flora

Si No.	Common Name	Botanical Name	Family
1	Sal	Shorea robusta	Dipterocarpaceae
2	Asan	Terminalia tomentosa	Combretaceae
3	Piyar	Buchanania latifolia	Anacardiaceae
4	Mahua	Madhuca indica	Sapotaceae
5	Sidha	Lagerstromia parviflora	Lythraceae
6	Bhelwa	Semecarpus anacardium	Anacardiaceae
7	Kend	Diospyros melanoxylon	Ebenaceae
8	Dhautha	Anogeissus latifolia	Combretaceae
9	Salal	Boswellia serrate	Burseraceae
10	Karam	Adina cordifolia	Rubiaceae
11	Amaltas	Cassia fistula	Caesalpinaceae
12	Putri	Croton oblongifolius	Euphorbiaceae
13	Koraiya	Apocynaceae	Koraiya, Kurchi
14	Aam	Mangifera Indica	Anacardiaceae
15	Jamun	Syzygium cumini	Myrtaceae
16	Rohan	Soymida febrifuga	Meliaceae
17	Palash	Butea monosperma	Fabaceae(Pea family)
18	Kaj	Bridelia retusa	Euphorbiaceae
19	Semal	Bombax ceiba	Bombacaceae
20	Paisar	Pterocarpus marsupium	Paisar
21	Bel	Aegle marmelos	Rutaceae (Citrus family)
22	Baheda, Belliric Myrobalan, Beach Almond - Bahera	Terminalia bellirica	Combretaceae (Rangoon creeper family)
23	Raipan	Ehretia laevis	Boraginaceae
24	Khair	Mimosaceae	Khair
25	Bargad	Ficus bengalensis	Moraceae
26	Imli	Tamarindus indica	Caesalpinaceae

Charo



Khunti District Survey Report for Stone

27	Pipal	Ficus religiosa	Moraceae
28	Neem	Azadirachta Indica	Meliaceae
29	Chakundi	Cassia siame	Caesalpiniaceae
30	Kusum	Schleichera oleosa	Sapindaceae
31	Dhaw	Anogeissus pendula	Combretaceae
32	Ghorkaranj	Ailanthus excelsa	Simaroubaceae
33	Gamhar	Gmelina arborea	Verbenaceae (Verbena family)
34	Awala	Emblica officinalis	Awala
35	Sisam	Dalbergia sissoo	Fabaceae

Fauna

Sl. No.	Fauna Name	Schedule
1	Elephants (<i>Elephas maximus</i>)	Schedule I
2	Leopard (<i>Panthera pardus</i>)	Schedule I
3	Hyena (<i>Hyaena hyaena</i>)	Schedule III
4	Indian Hare (<i>Lepus nigricollis</i>)	Schedule IV
5	Sloth Bear (<i>Melursus ursinus</i>)	Schedule I
6	Wild Boar (<i>Sus scrofa</i>)	Schedule III
7	Wild Cat (<i>Felis chaus</i>)	Schedule II
8	Indian Wild Dog (<i>Cuon alpinus</i>)	Schedule II
9	Indian Fox (<i>Vulpes bengalensis</i>)	Schedule II
10	Indian Jackal (<i>Canis aureus</i>)	Schedule II
11	Indian Grey Mongoose (<i>Herpestes edwardsii</i>)	Schedule II
12	Indian Giant Squirrel (<i>Ratufa indica</i>)	Schedule II
13	Indian (Three-striped) Palm Squirrel (<i>Funambulus palmarum</i>)	Schedule IV
14	Black-naped Hare (<i>Lepus nigricollis</i>)	Schedule IV
15	Large Bandicoot Rat (<i>Bandicota indica</i>)	Schedule V
16	Common Yellow Bat (<i>Scotophilus kuhlii</i>)	Schedule V
17	Barking Deer (<i>Muntiacus muntjak</i>)	Schedule III

- **Schedule I:** Species listed under this schedule are provided with the highest level of protection. Offenses related to these species attract significant penalties.
- **Schedule II:** These species are also protected, but the level of protection is slightly lower than Schedule I.
- **Schedule III & IV:** These schedules include species that are protected but with lower penalties compared to Schedule I and II species.
- **Schedule V:** This schedule includes species that are considered vermin, and their hunting is not prohibited.

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BIRDS

The other birds commonly found in this area are listed below

Sl. No.	English Name	Latin Name
1	Babbler, Common	Turdoides caudatus
2	Barbet, Crimson-breasted or Coppersmith	Megalaima haemacephala
3	Bird, Black	Turdus merula
4	Bird, Tailor	Orthotomus sutorius
5	Bittern, Chestnut	Ixobrychus cinnamomeus
6	Bulbul, Red-vented	Pycnonotus cafer
7	Crow, House	Corvus splendens
8	Crow, Jungle	Corvus macrorhynchos
9	Curlew	Numenius arquata
10	Dove, Little Brown	Streptopelia senegalensis
11	Duck, Pintail	Anas acuta
12	Eagle, Crested Hawk	Sprizaetus cirratus
13	Eagle, Crested Serpent	Spilornis cheela
14	Eagle, Short-toed	Circaetus gallicus
15	Eagle, Tawny	Aquila rapax
16	Fowl, Red Jungle	Gallus gallus
17	Heron, Grey	Ardea cinerea
18	Hoopoe	Upupaepops
19	Hornbill, Common Grey	Tockus birostris
20	Hornbill, Malabar Pied	Anthracoceros coronatus
21	Ibis, Black	Pseudibis papillosa
22	Kingfisher, White-breasted	Halcyon smyrnensis
23	Kite, Brahminy	Haliastur indus
24	Koel	Eudynamis scolopacea
25	Lapwing, Redwattled	Vanelius indicus
26	Lapwing, Yellow-wattled	Vaniellus malabaricus
27	Lark, Red-winged Bush	Mirafra erythroptera
28	Lark, Rufous-tailed Finch	Ammonites phoenicurus
29	Lorikeet	Loriculus vernalis
30	Minivet, Scarlet	Pencrocotus flammeus
31	Munia, Black-headed	Lonchura Malacca
32	Munia, Green	Estrilda Formosa
33	Munia, Red or Waxbill	Estrilda amandava
34	Munia, Spotted	Lonchura punctulata
35	Munia, White-backed	Lonchura striata

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36	Myna, White-throated	<i>Lonchura malabarica</i>
37	Myna, Bank	<i>Acridotheres ginginianus</i>
38	Myna, Grey-headed	<i>Sturnus malabaricus</i>
39	Myna, Indian	<i>Acridotheres tristis</i>
40	Myna, Jungle	<i>Acridotheres fuscus</i>
41	Myna, Pied	<i>Sturnus contra</i>
42	Myna, Brahminy or Black-headed	<i>Sturnus pagodarum</i>
43	Nighthawk, Common Indian	<i>Caprimulgus asiaticus</i>
44	Nuthatch, Chestnut-bellied	<i>Sitta castanea</i>
45	Oriole, Black-headed	<i>Oriolus xanthornus</i>
46	Oriole, Golden	<i>Oriolus oriolus</i>
47	Owl, Barn or Screech	<i>Tyto alba</i>
48	Owl, Brown Fish	<i>Bubo zeylonensis</i>
49	Parakeet, Alexandrine or Large Indian	<i>Psittacula eupatria</i>
50	Parakeet, Blossom-headed	<i>Psittacula cya nocephala</i>
51	Pigeon, Common	<i>Treron phoenicoptera</i>
52	Pipit, Indian	<i>Anthus novaeseelandiae</i>
53	Pitta, Indian	<i>Pitta trachyura</i>
54	Plover, Little Ringed	<i>Charadrius dubius</i>
55	Redshank	<i>Tringa totanus</i>
56	Robin, Indian	<i>Scolecoides fulcata</i>
57	Robin, Magpie	<i>Copsychus saularis</i>
58	Roller or Blue Jay	<i>Coracias benghalensis</i>
59	Sandgrouse, Common	<i>Pterocles exustus</i>
60	Sandgrouse, Painted	<i>Pterocles indicus</i>
61	Shrike, Large Cuckoo	<i>Coracina novaeseelandiae</i>
62	Shrike, Rufous-backed	<i>Lanius schach</i>
63	Skyfark, Indian Small	<i>Alauda gurgula</i>
64	Sparrow, House	<i>Passer domesticus</i>
65	Sparrow, Yellow-Throated	<i>Petronia xanthocephala</i>
66	Spurfowl, Red	<i>Gallinago spadicea</i>
67	Stit, Blackwinged	<i>Himantopus himantopus</i>
68	Stint, Little	<i>Calidris minutus</i>
69	Stork, White	<i>Ciconia ciconia</i>
70	Stork, White-necked	<i>Ciconia episcopus</i>
71	Stork, Black neck	<i>Ephippiorhynchus asiaticus</i>
72	Sunbird purple	<i>Nectarinia asiatica</i>
73	Sunbird, Purple-rumped	<i>Nectarinia zeylonica</i>
74	Swallow, Red-rumped or Striped	<i>Hirundo</i>
75	Swallow, common	<i>Hirundo rustica</i>
76	Swallow, Wire-tailed	<i>Hirundo smithii</i>
77	Swift, crested tree	<i>Hemiprocne longipennis</i>
78	Swift, House	<i>Apus affinis</i>
79	Swift, Palm	<i>Cypselurus parvus</i>

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80	Teal, Common	<i>Anas crecca</i>
81	Tern, Indian Whiskered	<i>Chlidonias hybrid</i>
82	Tern, River	<i>Sterna aurantia</i>
83	Tit, Grey	<i>Parus major</i>
84	Vulture, White Scavenger or pharaoh's chicken	<i>Neophron percnopterus</i>
85	Vulture, White-backed or Bengal	<i>Gyps bengalensis</i>
86	Wagtail, Grey	<i>Motacila caspica</i>
87	Wagtail, Large Pied	<i>Motacila maderaspatensis</i>
88	Wagtail, White	<i>Motacila alba</i>
89	Wagtail, Yellow	<i>Motacila flava</i>
90	Wagtail, Yellow-headed	<i>Motacila citreola</i>
91	Warbler, Ashy Vireo	<i>Pinia socialis</i>
92	Warbler, Indian Vireo	<i>Pinia subflava</i>
93	Warbler, Streaked Fantail	<i>Cisticola juncidis</i>
94	Waterhen, White-breasted	<i>Ardea utornis phoenicurus</i>
95	Weaver Bird, Baya	<i>Ploceus philippinus</i>
96	Weaver Bird, Black-breasted	<i>Ploceus benghalensis</i>

REPTILES

1. Monitor Lizard
2. Chameleon
3. King Cobra
4. Python
5. Viper
6. Karet
7. Rat Snake
8. Common Blind Snake
9. Common Green Whip-snake
10. Water Snake
11. Wolf Snake
12. Tortoises

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Fish

Siluriformers	Cypriniformes
Ompok bimaculatus (Bloch)	Labeo rohita (Ham)
Wallago attu (Bl & Schn.)	Labeo calbasu (ham)
Mystus bleekeri (Day)	Labeo bata (Ham.)
Mystus tengara (Ham.)	Catla catla (Ham.)
Mystus vittatus (Bloch)	Cirrhinus mrigala (Ham.)
Bagarius bagarius (Ham.)	Puntius ticto (Ham.)
Ailia colia (Ham.)	P. sarana sarana (Ham.)
Clupisoma garua (Ham.)	Osteobrama cotio cotio (Ham.)
Heteropneustes fossilis (Bloch.)	Synbranchiformes
Ciarius batrachus (Linn.)	Monopterusuchia (Ham.)
Siluriformes	Mastacembelus pancalus (Ham.)
Ompok bimaculatus (Bloch)	Mastacembelus armatus (Lac.)
Wallago attu (Bl & Schn.)	Macrognathus aual (Schn)
Mystus bleekeri (Day)	Labeo rohita (Ham.)
Mystus tengara (Ham.)	Labeo calbasu (ham.)
Mystus vittatus (Bloch.)	Perciformes
Bagarius bagarius (Ham.)	Channa punctatus (Bloch.)
Ailia colia (Ham.)	Channa orientalis (Sch.)
Clupisoma garua (Ham.)	Channa striata (Bloch.)
Heteropneustes fossilis (Bloch.)	
Ciarius batrachus (Linn.)	
Osteoglossiformes	Cyprinodontiformes
Notopterus notopterus (Pallas.)	Gambusia affinis (Baird & Girard)
Chitala chitala (Ham.)	Mugiliformes
Clupeiformes	Rhinomugil corsula (Ham.)
Gudusia chapra (Ham.)	Cyprinodontiformes

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Chapter - XXII Remedial Measures to mitigate the impact of mining on the Environment;

Mitigation Measures on Air Environment

It is suggested to adopt a wet drilling system this will minimise dust generation during drilling process

- ✓ Use of optimal quantity of exploration in blasting
- ✓ Practice controlled blasting to minimise generation of dust.
- ✓ Regular water sprinkling on haul road.
- ✓ Install wet dust suppression system in crushing and screening plant.
- ✓ Raise Green Belt in safety zone.
- ✓ Avenue plantation along a both sides of Link Road

Air Environment

Sl. No.	Particular	Activity	Pollutant	Impact	Mitigation Measures
1.	O.B. Removal A. If soft O.B.	Removal by using HEMM	<ul style="list-style-type: none"> • Dust • Noxious Gases 	Rise in Level of air pollution	<ul style="list-style-type: none"> • Water sprinkling on area from where OB is to be removed • Proper maintenance of HEMM
2.	B. Hard Material	1. Drilling Blast holes 2. Blasting	<ul style="list-style-type: none"> • Dust • Noxious Gases 		<ul style="list-style-type: none"> • Water sprinkling on area identified for Drilling, Blasting • Proper, regular maintenance of HEMM
3.	O.B. transport by Road to Dump yard	<ul style="list-style-type: none"> • Dust • Noxious Gases • OB Handling 	<ul style="list-style-type: none"> • Dust • Noxious Gases 		<ul style="list-style-type: none"> • Water sprinkling on Haul Road • Proper maintenance of transport vehicles
4. 4.1.	Mining of stone	<ul style="list-style-type: none"> • Drilling Blast Holes 	Rise in level of		Water sprinkling on

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		<ul style="list-style-type: none"> • Dust • Noxious Gases 	particulate Matters		area identified for Drilling
4.2.	Blasting	<ul style="list-style-type: none"> • Blasting • Dust • Noxious Gases 	Do	<ul style="list-style-type: none"> • Properly designed geometry of Blast holes 	<ul style="list-style-type: none"> • Use of optimum quantity of explosives (Powder Factor) • Blasting during noon time
4.3	Handling of Run of Mine store				
4.4	Loading Blasted Material on Tippers	<ul style="list-style-type: none"> • Material on Tippers 	Do		Water sprinkling on Blast Material
4.5	Transport of Blast Material to crusher cum screening plant.		Do		<ul style="list-style-type: none"> • Water sprinkling on Haul Road • Water to be mixed with chemical developed by CMRI for effective dust control
5.	Sizing of ROM stone	C. CRUSHING D. SCREENING	<ul style="list-style-type: none"> • Dust • Noxious Gases 	Rise in level of particulate Matter in Ambient Air	Provide wet type control system. This will have two components <ul style="list-style-type: none"> ❖ Dust Containment Enclosures • For crusher discharge area • For vibratory / rotary system ❖ Dust Suppression System

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					Spraying water at Key dust generation location
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22.2 Mitigation Measures on Water Environment

- ✓ Provide garland drains around quarry to intercept surface runoff from high elevation to quarry and divert it to collection cum desilting pond.
- ✓ Water pump out from quarry will need to be diverted to storage cum desilting pond for treatment.
- ✓ Provide foot drain along toe of external dump. Foot drain will collect run of from external dump and divert to storage cum desilting pond for proper treatment.

Water Environment

Sl. No.	Particular	Activity	Pollutant	Impact	Mitigation Measures
1.	Mining of stone by opencast method of mining	Collection of water in Quarry due to seepage of ground water & its pumping out <ul style="list-style-type: none"> • Collection of rain water in Quarry • Collection of surface 	Suspended solid	High level of suspended solid in water	Store pumped out water in Desilting pond for removal of suspended solid.
2.	Mining of stone by opencast method	Provision of wash rooms	Generation of sewage having high level of BOD & other pollutants	Discharge of sewage untreated impact quality of surface & ground water	Provision of septic tank & cess pool
3.	Mining of stone by opencast method & allied activities	Surface Run-off from lease area during rainy season	Generation of surface Run-off with high level of suspended	Quality of surface deterioration of water	Network of open drain in the lease area to intercept surface Run-off & divert it to Desilting pond

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			solid & flowing to surface water source near lease area		before discharge to outside lease area
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Mitigation Measures on Noise Environment

- ✓ Mining operation to be confined to day shift only
- ✓ At machineries to be repaired and maintained regularly.
- ✓ Green Belt in safety zone.
- ✓ Acoustic Barrier along the periphery of mining lease at critical points.

22.4 Mitigation Measure on Vibration

- ✓ Proper design of Blasting pattern to ensure ground vibration within limit
- ✓ Use of optimal quantity of explosives
- ✓ Hooter should be used to inform & warn workman before blasting in done.

22.5 Mitigation Measures on Landuse

In most of opencast stone mine generation of overburden will be minimal. Hence, land degradation on account of storage of overburden will be minimal.

In this scenario it is recommended that;

- ✓ As much as possible at the end of mining operation O.B material stored in external dump will be liquidated and backfilled into quarry void.
- ✓ Quarry void should be reclaimed with water to create a water body with fencing and gates this could be used for agriculture or source of water for local people and it may facilitate in groundwater recharge or for pisciculture.

22.6 Mitigation Measures on Agriculture Land

At stated earlier agriculture area will be avoided. However, if in a case agriculture land is used in all cases care would be taken to remove & conserve topsoil from mining area before project activities are started.

For proper conservation of topsoil following steps would be taken;

- ✓ Area for storage of topsoil would be identified.
- ✓ Edge of topsoil dump would be protected with brick lining.
- ✓ Grass would be raised on topsoil dump to arrest erosion and to conserve nutrients.

22.7 Mitigation Measure for Transportation

- ✓ To ensure that transportation vehicles have "Pollution Under Control Certificate".
- ✓ Regular repair and maintenance of transportation vehicle.
- ✓ Proper repair and maintenance of road.
- ✓ Regular water sprinkling on unpaved roads.



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- ✓ Tree plantation on both side of haulage road.
- ✓ Dust generation from road also depends on speed of transport vehicles.
- ✓ There should be speed restriction of 20 KMPH on unpaved road.
- ✓ Traffic Impact Assessment will be done before start project activities in order to congestion.

22.8 Mitigation Measure on Soil Environment

Following mitigation measures are to be taken;

- ✓ Topsoil are to be removed & stored in an identified area. In order to conserve the quality of topsoil, grass cover are to be developed on topsoil dumps, Such conserved topsoil may be used for land reclamation & development of greenbelt.
- ✓ Movement of heavy mining machineries on agriculture land and productive land should be restricted.
- ✓ Movement of heavy vehicles may be restricted to lease area and road so that leaking oil & grease may not contaminate soil quality.

22.9 Mitigation Measures for Flora & Fauna

Considering importance of impact of environmental impact on eco-system in the study area, a series of mitigation measures are incorporated in planning of stone mine & its operation such mitigation measures are given below;

Site Selection Criteria

- ✓ Mine site are selected considering siting criteria prescribed by JSEIAA / JSPCB / MOEF & CC.
- ✓ Avoid site which have tree cover.
- ✓ Avoid site through which drainage channels passes through.
- ✓ **Ecological Assessment:** Conduct a thorough ecological survey to identify species and habitats present.
- ✓ **Buffer Zones:** Establish buffer zones around sensitive habitats to minimize disturbance.
- ✓ **Minimize Habitat Destruction:** Plan site layout to avoid key habitats and minimize vegetation clearing.
- ✓ **Translocation:** Consider translocating significant flora and fauna to safe areas.
- ✓ **Restoration Plans:** Develop a habitat restoration plan for post-mining activities.
- ✓ **Wildlife Corridors:** Currently all running mining lease and proposed are located outside from wildlife corridor. However, ensure wildlife corridors are maintained to facilitate animal movement. If a wildlife corridor passes through or around a mining lease area, a Wildlife Conservation Plan will be prepared.

These measures help protect biodiversity and mitigate the environmental impact of stone mining.

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Environment Pollution Control Measures

Project design & operation integrate appropriate pollution control measures to control air pollution, water pollution, noise control, etc.

Mitigation Measures for Impact due to Air	<ul style="list-style-type: none">✓ Practice controlled blasting to minimise generation of dust.✓ Regular water sprinkling on haul road.✓ Raise Green Belt in safety zone.✓ Avenue plantation along a both sides of Link Road
Mitigation Measures for Impact due to Noise	<ul style="list-style-type: none">✓ Acoustic Barrier along the periphery of mining lease at critical points.✓ Mining operation to be confined to day shift only✓ At machineries to be repaired and maintained regularly.✓ Raise Green Belt in safety zone.✓ Avenue plantation along a both sides of Link Road
Mitigation Measures for Impact due to Water	<ul style="list-style-type: none">✓ Provision for desilting pond & check dam at regular interval along the discharge channel.

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Chapter – XXIII Reclamation of mined out area (best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan);

23.1 General

In most of cases stone is mined out by opencast method of mining which creates a quarry pit. It constitutes loss of value of a Land Resource. Also, a potential risk to human being & animal. with this consideration, mine pit must be Reclaimed after resource is exhausted & mining operations are closed.

Reclamation of mined-out areas is crucial for restoring ecological balance and ensuring sustainable land use post-mining. In Khunti district, one of the best practices already implemented for reclamation is the creation of water reservoirs in mined-out areas.

23.2 Options for Remediation

Scenario A: Mining Area with Overburden

In this scenario, the stone reserve is covered by a layer of overburden consisting of soil or weathered rock. Mining operations should proceed with the removal of this overburden, which should be stored in a non-mining area. Once mining operations are complete, the overburden can be used to backfill the pit, or it can be left as is and reclaimed biologically. After backfilling, the quarry will be reclaimed.

Benefits:

- **Environmental Restoration:** Backfilling the pit with overburden or biologically reclaiming it ensures that the landscape is restored, reducing visual impact and preventing soil erosion.
- **Land Reuse:** Reclaimed land can be used for various purposes, such as agriculture, recreation, or natural habitat, promoting sustainable land management.
- **Ecosystem Recovery:** Biological reclamation supports the restoration of local flora and fauna, enhancing biodiversity and ecological balance.

Scenario B: Mining Area without Overburden

In this scenario, there is no overburden. Therefore, the quarry will be reclaimed immediately after mining operations are completed. Rainwater will naturally fill the void, creating a water reservoir.

Benefits:

Groundwater Recharge: The water body facilitates groundwater recharge in the area, helping to restore and sustain local aquifers.

Pisciculture: The newly created water body can be utilized for pisciculture (fish farming), providing economic opportunities and supporting local fish populations.

Irrigation: The water stored in the reservoir can be used for irrigation in nearby agricultural areas, enhancing crop yields and supporting local agriculture.

In Khunti district, one of the best practices already implemented for reclamation is the creation of water reservoirs in mined-out areas.



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23.3 Safety measures

Mine pit- filled with water after mining operation are over & mine is closed is a major Source for drowning of people & animals.

Measures must be taken to restrict free access to water body. One quarry must be fenced & wicket gate with locking arrangement must be provided.



Chapter – XXIV Risk Assessment & Disaster Management Plan

24.1 General

Mining activities are associated with risk that can turn into hazard to life & health if not addressed in time & adequately. This need to be identified & mitigation measures are to be provided to prevent it on measures to be taken to minimise its effects.

24.2 Categorisation of Risks

Risk associated with mining projects may be, broadly, categorised into two categories namely on site & off site Risk. They are described below.

24.3 On Site Risks

On site risks that need to be addressed are described.

Offsite Risks: Mining and allied activities may also cause offsite risk.



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Risk Assessment & its Preventive Measures

Particulars	Risk Assessment	Preventive Measures
<p>Natural</p> <p>Flooding of opencast working due to heavy rains ingress of water from nearby water body i.e. river, reservoir etc.</p> <p>Earthquake</p> <p>Earthquake in the area may cause damage to life & property.</p> <p>Land slide</p> <p>There might be Land slide in external dump or high wall of opencast mine</p>	<p>Flooding</p> <p>The drainage plan (Dewatering scheme) of the mine has to be prepared considering the maximum rainfall in the area corresponding to maximum quantity of water accumulated in quarry, sufficient capacity of pump need to be provided for preventing flooding of quarry.</p> <p>Earthquake</p> <p>If the mine is in zone iii & above of impact of earthquake must be integrated with planning & design of the project.</p> <p>Land Slide</p> <p>To prevent land slide in the mine following measures need to be taken care nature of rock corresponding to</p> <ul style="list-style-type: none"> ✓ Proper slope to be provided to advancing bench of the mine ✓ Proper slope (45° - 50°) to be provided for terminal slope to the quarry ✓ External dump has to be properly planned with proper side slope to prevent slope failure. ✓ External dump should be located on a stable ground with load bearing capacity to support load of external dump. ✓ External dump should be proper drainage plan to prevent building up of internal hydraulic pressure. 	<p>Flooding</p> <p>The drainage plan (Dewatering scheme) of the mine has to be prepared considering the maximum rainfall in the area corresponding to maximum quantity of water accumulated in quarry, sufficient capacity of pump need to be provided for preventing flooding of quarry.</p> <p>Earthquake</p> <p>If the mine is in zone iii & above of impact of earthquake must be integrated with planning & design of the project.</p> <p>Land Slide</p> <p>To prevent land slide in the mine following measures need to be taken care nature of rock corresponding to</p> <ul style="list-style-type: none"> ✓ Proper slope to be provided to advancing bench of the mine ✓ Proper slope (45° - 50°) to be provided for terminal slope to the quarry ✓ External dump has to be properly planned with proper side slope to prevent slope failure. ✓ External dump should be located on a stable ground with load bearing capacity to support load of external dump. ✓ External dump should be proper drainage plan to prevent building up of internal hydraulic pressure.
<p>Mechanical</p>	<p>Operation of mine involves use of a number of Heavy earth moving Machines including Drills, Backhoe, Shovel, dumper</p>	<ul style="list-style-type: none"> ✓ Toe wall with foot drain. ✓ Regular training to equipment operator ✓ Regular repair & maintenance of equipment



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	<p>etc. Operation of these equipment's may cause accident leading to loss of life or equipment's similarly material including row material, waste material & product are to be transported by road using dumper, tipper.</p> <p>Unregulated transportation may lead to road accident</p>	
<p>Electrical</p>	<p>Project operation requires operation of electrical equipment. They are operated on high voltage & use cables. Use of electrical equipment may cause fire or electrocution</p>	<ul style="list-style-type: none"> ✓ Electrical system needs to be designed following relevant prevailing rules as per Act. ✓ Regular maintenance and upkeep of cables, switches etc.
<p>Fire</p>	<p>Operation of mine requires use of electrical power & diesel oil. Use of electrical power & oil may cause Fire</p>	<ul style="list-style-type: none"> ✓ Safe storage of diesel. ✓ No Smoking Zone. ✓ Maintenance of electrical wires ✓ The electrical cables with PVC sheath to prevent over heating and fire. ✓ The cables should have wire with appropriate size of core to carry required current. ✓ Provision for fire alarm and arrangement for firefighting appliances.
<p>Blasting & Vibration</p>	<p>Operation of mine needs blasting using explosives.</p>	<ul style="list-style-type: none"> ✓ Proper design of Blasting pattern to ensure ground vibration within limit ✓ Use of optimal quantity of explosives



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	<p>Unattended & unplanned blasting may cause accident.</p> <p>The planned blasting may cause ground vibration outside the lease area that may affect stability of structures located in close vicinity</p> <p>Ground Vibration</p> <p>The planned blasting may cause ground vibration outside the lease area that may affect stability of structures located in close vicinity</p>	<p>✓ Hooter should be used to inform & warn workman before blasting in done.</p>
<p>Environmental Pollution</p>	<p>Mining activities may cause health risks for workmen they may be due to exposure to high level of dust or noise in work area.</p> <p>Project activities may generate environmental pollution that may affect health of people living in vicinity of lease area</p>	<p>✓ All workmen to be provided with ear mutt & mask</p> <p>✓ Pollution control measures to minimise environmental pollution such as raised plantation in Safety Zone, avenue plantation and dust suppression.</p> <p>✓ Regular health check-up of workman as per DGMS Rules.</p> <p>✓ Trucks with Pollution under control certificate to be allowed</p>
<p>Road Accidents</p>	<p>Major Causes of road accidents are;</p> <p>Over Speed</p>	<p>Follow provision in Motor Vehicles Act, 1988 & its amendment</p>



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Non-Observance of traffic rules & traffic signs
Mechanical Failure of Vehicle

Ministry of Road Transport has published S.O. 1522 (E) prescribing speed limits on different types of roads for different category of vehicle State Govt. are empowered to fix speed limits within their state.

In addition, Section 112 of Motor Vehicles (Driving) Regulation, 2017 prohibits drivers to exceed prescribed speed limit on a road.

Table below gives speed limits prescribed by Central Govt. Speed limit sign board need to fixed on access road.

Maximum speed per hour in kilometres on roads in India					
					April 2018
S. No.	Class of Motor Vehicles	Expressway with Access Control	4 lane and above divided carriageway (roads with Median strip/Dividers)	Road within Municipal Limits	Other Roads
(1)	(2)	(3)	(4)	(5)	(6)
1.	Motor vehicles used for carriage of passengers comprising not more than eight seats in addition to the driver's seat (M1 category vehicles)	120	100	70	70
2.	Motor vehicles used for carriage of passengers comprising nine or more seats in addition to the driver's seat (M2 and M3 category vehicles)	100	80	60	60
3.	Motor vehicles used for carriage of goods (All N category Vehicles)	80	80	60	60
4.	Motor Cycles	80*	80	60	60
5.	Quadricycle	-	60	50	50
6.	Three wheeled vehicles	-	50	50	50

* If permitted to ply on Expressway.

In addition, proper sign boards to be provided near densely populated area, school, hospital, etc. & road intersections.

Road ramblers to be provided near school, hospital, densely populated area and road intersection.



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24.4 Disaster Management Plan

Provision of Siren

Arrangement to be made to provide siren to inform workman about occurrence of accident and instruction that on hearing siren mining activities to be stopped & assemble at pre - determined area

First Aid centre

A first aid centre to be provided next to mine office.

Arrangement for Medical Aid

Arrangement shown be in place so that services ambulance can be available for rescue of injured workmen Provided medical attendance to them. For this purpose, Hospital/Nursing homes with ambulance facility need to be identified.

Arrangement to be made for information to police and local administration

An executive to be nominated who is responsible for handling disaster situation.

Mine office should serve as control room with telephone facility phone number of hospitals, police station, local administration should be readily available.

24.5 Conclusion

Keeping above in consideration, proper risk and disaster management plan need to be developed along with mining plan for all mining project. Operated strictly following DGMS rules. D.M.P. Will have following components. All mines should be planned.



24.5 Risk & their Probability

RISK IDENTIFIED	PROBABILITY
<p>Fire in diesel stored for operation of equipments. In most of places electrical power is not available.</p>	<p>LOW As proponents procure diesel on daily basis in absence of proper storage.</p>
<p>Blasting for mining of stone. On an average a stone mine would produce 250 T / Day in small stone mines. This will use approx. 35 Kg of explosives. This produces ground vibration and fly rock. Vibration may affect stability of structure & fly rock may injure people.</p>	<p>LOW Since mines are located 500m away from habitated area problem of ground vibration & fly rock are of low risk.</p>
<p>Road Accident This may be due to movement of vehicles on road carrying minerals.</p>	<p>LOW As number of vehicles per day in small mine may be 25-30 trips per day. Advice vehicles operator to control speed near habitation area.</p>
<p>Electrocution In case of mines which operated on electrical power. Power cables are used. There is risk of electrocution.</p>	<p>LOW</p>
<p>Environmental Pollution Due to;</p> <ul style="list-style-type: none"> ✓ Blasting ✓ Drilling ✓ Handling ✓ Transporting 	<p>MEDIUM Environmental Pollution can be controlled by suitable mitigative measures including;</p> <ul style="list-style-type: none"> ✓ Using optimal quantity of explosive. ✓ Water Sprinkling on drilling site. ✓ Trucks carrying product stone to be covered. ✓ Regular water sprinkling on haul road. ✓ Vehicles with pollution under control certificate. ✓ Plantation in safety zone. ✓ Avenue plantation along link road.

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Khunti District Survey Report for Stone

Natural Risk		
Earthquake	LOW As district fall in Zone II which is low risk zone.	
Flood	LOW ✓ All identified potential areas are away from river. ✓ Proper arrangement for dewatering of quarry during the monsoon period.	
Slope Failure	LOW Mineral resource is massive deposit having no shear planes. Hence land slide risk is low. Moreover, running slope will be maintain at 75° to avoid slope failure.	
LOW	MEDIUM	HIGH
0% to 30%	30% to 60%	60% to 100%

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Khunti District Survey Report for Stone

Chapter - XXV 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);

कार्यालय- जिला यक्ष्मा केन्द्र, खूंटी

पत्रांक 62 खूंटी/ दिनांक 07.06.2024

प्रेषक
जिला यक्ष्मा परामर्शकारी
खूंटी।

संस्था में
जिला सार्वजनिक स्वास्थ्य अधिकारी
खूंटी।

विषय- खूंटी जिले में पिछले पाँच वर्षों में कुल मिलाकर Silicosis & Tuberculosis के मरीजों की संख्या उपरोक्त अलग-अलग वर्षों में।

संदर्भ- उपरोक्त विषय को लेकर मेरे पत्रिका संख्या 24/2024 के तहत प्रेषित प्रतिक्रिया उपरोक्त अलग-अलग वर्षों में।
खूंटी जिले में पिछले पाँच वर्षों में Silicosis & Tuberculosis के मरीजों की संख्या उपरोक्त अलग-अलग वर्षों में।

Year	No patient of silicosis	No patient of Tuberculosis	Remarks
2019	0	605	
2020	0	478	
2021	0	514	
2022	0	639	
2023 Up to March	0	165	

पत्रांक 63 दिनांक 07.06.2024

प्रतिक्रिया- STDC Ranchi को सूचनाएं दीं।
प्रतिक्रिया- उपरोक्त खूंटी को सूचनाएं दीं।
प्रतिक्रिया- जिला सार्वजनिक स्वास्थ्य अधिकारी, खूंटी को सूचनाएं दीं।

The **TB Scheme** in Khunti, Jharkhand, operates under the National Tuberculosis Elimination Program (NTEP) of India, which aims to eliminate tuberculosis (TB) by 2025. The program focuses on early diagnosis, treatment, and prevention of TB through a network of government health facilities.

1. *Free Diagnosis and Treatment*
2. *DOTS (Directly Observed Treatment, Short-course)*
3. *Nutritional Support*
4. *Awareness Campaigns*

Ch...



Chapter - XXVI Plantation and Green Belt development in respect of leases already granted in the District;

26.1 Status of Plantation & Greenbelt Development in respect of lease already granted in the District

Plantation were raised in safety zone as prescribed in Environment Clearance (EC) & Consent to Operate (CTO) conditions. Average survival rate was 40% -50%. However, on closure of mine the project site was abandoned. In such circumstances, the tree covers were decreases due to lack of maintenance and absence of security. Only in a few cases some of trees planted in safety zone are available.

Table given below show the current status of plantation in terms of proposed number of plants vis-e-vis the actual existing plants.

Sl. No.	Name of Lessee	Area for Safety Zone (Ha)	No. of Plants proposed @1600 plants per hectare	Actual Existing Trees on site	Difference
			A	B	A-B
1	Jharkhand State Mineral Development Nigam Ltd.	0.257	412	05	407
2	Rabindra Choudhry	0.386	618	150	568
3	Shri Mangu Horo	0.162	260	10	250
4	Sri Anjay Kumar	0.26	416	30	386
5	Sri Pericharla Anjaneyulu Raju	1.20	1920	60	1860
6	Vishal Construction	1.60	2560	60	2500
7	M/s Narne Infra Pvt. Ltd.	0.85	1360	100	1260
8	Shiv Kumar Sahu	0.41	656	60	596
9	Nitesh Sharda	0.46	736	80	658
10	Nitesh Sharda	0.43	688	50	638
11	Nitesh Sharda	0.74	1184	20	1164
12	Parmeshwar Prasad	0.50	800	25	855
13	Sandcube Infrastructure Pvt. Ltd.	0.607	972	150	822

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Khunti District Survey Report for Stone

Sl. No.	Name of Lessee	Area for Safety Zone (Ha)	No. of Plants proposed @1600 plants per hectare	Actual Existing Trees on site	Difference
			A	B	A-B
14	Sri Dharmendra Bhagat	0.87	1392	120	1272
15	Nitesh Sharda	0.60	960	150	810
16	Josef Sanga	0.34	544	3	541
17	Josef Surin	0.334	535	50	485
18	Vijay Kumar Sahu	0.607	972	50	922

The authority will direct the concerned leases to carry out plantation in the safety zone as per provision in approved mining plan/EC/CTO within December, 2024.

26.1 Propose Plantation and green belt within the lease area and around it serve different purposes including

- Mitigate air pollution
- Minimise the carbon foot print as it serves as sink & sequester carbon di - oxide produce oxygen
- Control soil erosion & helps in maintaining soil moisture
- It has aesthetic function as it screens the sight of the mine
- It also abets noise

26.2 Location

- Plantation / green belt in mining project should be developed at following location
- Safety zone - 7.5m wide strip along edge of lease area they should be planted @ 2.5m c/c.
- Backfield Area - of part of quarry is proposed to be backfield with overburden material removed in course of mining of stone then plantation has to be raised over this area.
- Upper Benches of Mine - in lease it is proposed to use the quarry for water storage, then at post closure stage upper benches of quarry should be used for raising plantation.
- Unused Area -in those caser remains, unused then that area has to be used for development of green belt
- External dump
External Dumps, if not liquidated at closure of mine has to be used for raising plantation.
- Strip Plantation along. Both sides of link road

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Khunti District Survey Report for Stone

26.3 Species

Green belt/plantation, should be developed using tree & Shrubs. Species should be selected on following consideration.

- Native species
- Require less Maintenance
- Are resistant to pollution

Species should be selected in consultation with local forest officials.

26.4 Protection & Care

Arrangement for protection of plantation against grazing by animals & other anthropogenic pressure Should be made.

Arrangement for proper watering has to be provided.

Plantation needs protection & care for at least 3 years.



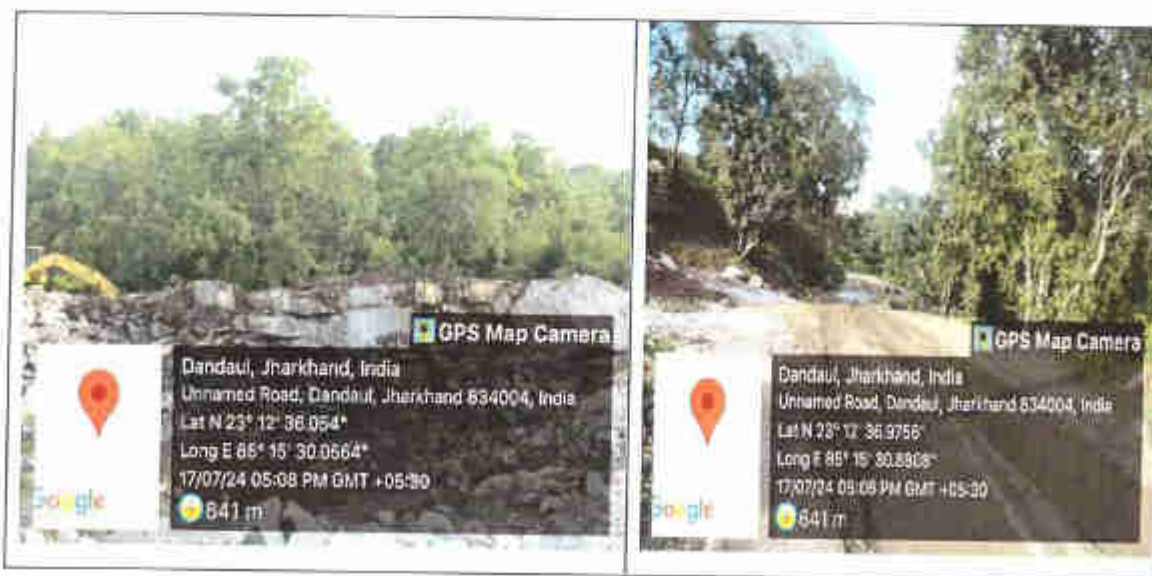
Khunti District Survey Report for Stone



Number of tree on site	05
Name of Mining Lease Holder	JHARKHAND STONE MINERALS, DEVELOPMENT NIGAM L.T.D
Location	Mouza–Chalangi Plot No. 1060, Area-- 2.00 Ps. Khunti
Area for plantation as per plan	0.257 Ha
Number of tree proposed in Mining Plan	412



Khunti District Survey Report for Stone



Number of tree on site	150
Name of Mining Lease Holder	Rabindra Choudhary
Location	Mouza - Dandol Plot No.170, Area--5.00 Ps. Khunti
Area for plantation as per plan	0.386 Ha
Number of tree proposed in Mining Plan	618

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Khunti District Survey Report for Stone



Number of tree on site	10
Name of Mining Lease Holder	Shri Mangu Horo
Location	Mouza-Hutar, Toyatole Plot No.214, Area-- 2.00 Ps. Khunti
Area for plantation as per plan	0.162 Ha
Number of tree proposed in Mining Plan	260

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Khunti District Survey Report for Stone



Number of tree on site	30
Name of Mining Lease Holder	Sri Anjay Kumar
Location	Mouza- Chapj, Plot No.983 Part, Area-- 2.00 Ps. Karra
Area for plantation as per plan	0.26 Ha
Number of tree proposed in Mining Plan	416

Chapj 02



Khunti District Survey Report for Stone



Number of tree on site	60
Name of Mining Lease Holder	Shri Pericharla Anjaneyulu Raju,
Location	Mouza-Sirka Plot No.1572(P), Area-- 21.40, Ps. Karra,
Area for plantation as per plan	1.20 Ha
Number of tree proposed in Mining Plan	1920

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Khunti District Survey Report for Stone



Number of tree on site	60
Name of Mining Lease Holder	Vishal Construction
Location	Mouza- Sirka, Plot No.1590(I st), Area--12.00, Ps. Karra
Area for plantation as per plan	1.60 Ha
Number of tree proposed in Mining Plan	2560

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Khunti District Survey Report for Stone



Number of tree on site	100
Name of Mining Lease Holder	M/s Narne Infra Pvt Ltd
Location	Mouza-Jaltanda Plot No- 845, 810(P), Area-- 10.60 Acre, Ps. Karra,
Area for plantation as per plan	0.85 Ha
Number of tree proposed in Mining Plan	1360

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Khunti District Survey Report for Stone



Number of tree on site	60
Name of Mining Lease Holder	Shiv Kumar Sahu
Location	Mouza- Teram Plot No. 436 Area-- 3.61 Acre Ps. Khunti
Area for plantation as per plan	0.41 Ha
Number of tree proposed in Mining Plan	656

Shiv Kumar Sahu



Khunti District Survey Report for Stone



Number of tree on site	80
Name of Mining Lease Holder	Nitesh Sarda
Location	Mouza- Jiyarappa Plot No.272 Area-- 3.58 Acre Ps, Khunti
Area for plantation as per plan	0.46 Ha
Number of tree proposed in Mining Plan	736

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Khunti District Survey Report for Stone



Number of tree on site	50
Name of Mining Lease Holder	Nitesh Sarda
Location	Mouza- Teram Plot No. 63 Area- 3.76 Acre Ps. Khunti
Area for plantation as per plan	0.43 Ha
Number of tree proposed in Mining Plan	688

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Khunti District Survey Report for Stone



Number of tree on site	20
Name of Mining Lease Holder	Nitesh Sarda
Location	Mouza- Dari Plot No. 13 (P) Area— 7.20 Acre Ps. Khunti
Area for plantation as per plan	0.74 Ha
Number of tree proposed in Mining Plan	1184

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Khunti District Survey Report for Stone



Number of tree on site	25
Name of Mining Lease Holder	Parmeshwar Prasad
Location	Mouza- Chikor Plot No. 480, 482, 483, 484, 486 (P) Area-- 4.09 Acre Ps. Khunti
Area for plantation as per plan	0.50 Ha
Number of tree proposed in Mining Plan	800

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Khunti District Survey Report for Stone



Number of tree on site	150
Name of Mining Lease Holder	Sandcube Infrastructure Pvt Ltd
Location	MouzaHatudami Plot No. 185 Area-- 7.64 Acre Ps. Khunti
Area for plantation as per plan	0.607 Ha
Number of tree proposed in Mining Plan	972

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Khunti District Survey Report for Stone



Number of tree on site	120
Name of Mining Lease Holder	Sri Dharmendra Bhagat
Location	Mouza- Dorma Plot No. 3501 (P) Area-- 6.60 Ps. Torpa.
Area for plantation as per plan	0.87 Ha
Number of tree proposed in Mining Plan	1392

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Khunti District Survey Report for Stone



Number of tree on site	150
Name of Mining Lease Holder	Nitesh Sarda
Location	Mouza- Dugdugia Plot No. 1339, 1341(P) Area-- 4.81Acre Ps. Khunti
Area for plantation as per plan	0.60 Ha
Number of tree proposed in Mining Plan	960

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Khunti District Survey Report for Stone



Number of tree on site	3
Name of Mining Lease Holder	Josef Sanga
Location	Mouza- Kanadih Plot No. 975(P) Area-- 1.60 Acre Ps. Khunti
Area for plantation as per plan	0.34 Ha
Number of tree proposed in Mining Plan	544

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Khunti District Survey Report for Stone



Number of tree on site	50
Name of Mining Lease Holder	Josef Surin
Location	Mouza- Timra Bartoli Plot No. 1367 Area-- 2.32 Ps. Karra
Area for plantation as per plan	0.334 Ha
Number of tree proposed in Mining Plan	535



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Khunti District Survey Report for Stone

Chapter - XXVII Other Information

27.1 Reference

Content as per Notification No.- S.O.3611 (E), dated: 25th July, 2018,	Status	Reference
(1) Introduction;	Complied In Chapter - I	Sub-Divisional Committee
(2) Overview of Mining Activity in the District;	Complied In Chapter - II	District Mining Office JSAC
(3) General Profile of the District;	Complied In Chapter - III	Approved DSR (SAND) Census Report, 2011 & District Mining Office
(4) Geology of the District;	Complied In Chapter - IV	Department of Mines & Geology & JSAC
(5) Drainage of Irrigation pattern;	Complied In Chapter - V	Ground Water Information Booklet RANCHI District, Jharkhand State Published by CGWA
(6) Land Utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining etc.	Complied In Chapter - VI	<i>District Statistical Handbook, Khunti (2021)</i>
(7) Surface Water and Ground Water scenario of the district	Complied In Chapter - VII	Approved DSR (SAND) CGWA Water Resources Information System REPORT ON DYNAMIC GROUND WATER RESOURCE OF JHARKHAND (2020) Published in February, 2022
(8) Rainfall of the district and climatic condition;	Complied In Chapter - VIII	<i>District Statistical Handbook, Khunti (2021) & Climate of Jharkhand, issued by Climatological Publication Section of Indian Meteorological Department, Government of Jharkhand.</i>
(9) Details of the mining leases in the District as per the following format	Complied In Chapter - IX	District Mining Office



Khunti District Survey Report for Stone

(10) Details of Royalty or Revenue received in last three years;	Complied In Chapter - X	District Mining Office
(11) Details of Production of Minor Mineral in last three years;	Complied In Chapter - XI	District Mining Office
(12) Mineral Map of the District;	Complied In Chapter - XII	JSAC
(13) List of Letter of Intent (LOI) Holders in the District along with its validity as per the following format:-	Complied In Chapter - XIII	District Mining Office
(14) Total Mineral Reserve available in the District;	Complied In Chapter - XIV	District Mining Office
(15) Quality /Grade of Mineral available in the District;	Complied In Chapter - XV	Department of Mines & Geology
(16) Use of Mineral;	Complied In Chapter - XVI	Sub-Divisional Committee
(17) Demand and Supply of the Mineral in the last three years;	Complied In Chapter - XVII	District Mining Office
(18) Mining leases marked on the map of the district;	Complied In Chapter - XVIII	Department of Mines & Geology
(19) details of the area of where there is a cluster of mining leases viz. number of mining leases, location (latitude and longitude);	Complied In Chapter - XIX	Department of Mines & Geology
(20) Details of Eco-Sensitive Area, if any, in the District;	Complied In Chapter - XX	Ministry of Environment, Forest & Climate Change
(21) Impact on the Environment (Air, Water, Noise, Soil, Flora & Fauna, land use, agriculture, forest etc.) due to mining activity;	Complied In Chapter - XXI	Sub-Divisional Committee
(22) Remedial Measures to mitigate the impact of mining on the Environment;	Complied In Chapter - XXII	Sub-Divisional Committee
(23) Reclamation of Mined out area (best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan);	Complied In Chapter - XXIII	Sub-Divisional Committee
(24) Risk Assessment & Disaster Management Plan;	Complied In Chapter - XXIV	Sub-Divisional Committee
(25) Details of the Occupational Health issues in the District. (Last	Complied In Chapter - XXV	District TB Officer, Khunti

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Khunti District Survey Report for Stone

five-year data of number of patients of Silicosis & Tuberculosis is also needs to be submitted);		
(26) Plantation and Green Belt development in respect of leases already granted in the District;	Complied In Chapter - XXVI	Sub-Divisional Committee
(27) Any other information.	Complied In Chapter - XXVII	

27.2 Public Consultation

The District Survey Report was prepared for Stone (Minor Mineral) in the District separately and its draft was placed in the public domain dated 16/06/2024 by keeping its copy in Collectorate and posting it on district's website for twenty-one days.

No comments/suggestions were received during the period of public consultation. This report is being recommended and forwarded to SEIAA from Sub-Divisional Committee, Khunti for its approval.



27.3 Impact on Environment due to Mining Activities & Its Mitigation Measures

AMBIENT AIR QUALITY	
IMPACT	MITIGATION MEASURES
<p>Typical impact on Air Quality due to mining activities are;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Dust Generation due to <ul style="list-style-type: none"> ✓ Site Preparation ✓ Drilling ✓ Blasting ✓ Crushing ✓ Transportation on haul road or unpaved road <input type="checkbox"/> Emission of Noxious Gases <ul style="list-style-type: none"> ✓ Operation of mining equipment ✓ Blasting ✓ Transportation 	<p>To mitigate the impact some suggestive measures are;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Dust Generation <ul style="list-style-type: none"> ✓ Adopt a wet drilling system this will minimize dust generation during drilling process . ✓ Practice controlled blasting to minimize generation of dust. ✓ Regular water sprinkling on haul road. ✓ Install wet dust suppression system in crushing and screening plant. ✓ Regular water sprinkling on unpaved roads. ✓ Dust generation from road also depends on speed of transport vehicles. There should be speed restriction of 20 KMPH on unpaved road <input type="checkbox"/> Emission of Noxious Gases <ul style="list-style-type: none"> ✓ Use of optimal quantity of explosive in blasting. ✓ To ensure that transportation vehicles have "Pollution Under Control Certificate". ✓ Regular repair and maintenance of mining equipment & transportation vehicle. ✓ Proper repair and maintenance of road. ❖ Raise Green Belt in safety zone. ❖ Avenue plantation along a both sides of Link Road



Khunti District Survey Report for Stone

WATER QUALITY	
IMPACT	MITIGATION MEASURES
<p>Typical impact on Water Quality due to mining activities are;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Run-off of sediments due to <ul style="list-style-type: none"> ✓ Site Preparation ✓ Dumping of OB ✓ Crushing ✓ Drilling <input type="checkbox"/> Contamination of oil or chemical in water (surface & ground water) due to <ul style="list-style-type: none"> ✓ Dumping of OB ✓ Drilling ✓ Blasting ✓ Spills due to transportation 	<p>To mitigate the impact some suggestive measures are;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Run-off <ul style="list-style-type: none"> ✓ Provide garland drains around quarry to intercept surface run-off from high elevation to quarry and divert it to collection cum desilting pond. ✓ Provide foot drain along toe of external dump. Foot drain will collect run-off from external dump and divert to storage cum desilting pond for proper treatment <input type="checkbox"/> Water Contamination <ul style="list-style-type: none"> ✓ Water pump out from quarry will need to be diverted to storage cum desilting pond for treatment. ✓ Proposed effluent treatment plant (ETP). ✓ Regular repair & maintenance of equipment & vehicles. ✓ Movement of heavy vehicles may be restricted to lease area and road so that leaking oil & grease may not contaminate water quality. <p>❖ PROMOTE ZERO LIQUID DISCHARGE (ZLD).</p>



Khunti District Survey Report for Stone

NOISE LEVEL	
IMPACT	MITIGATION MEASURES
Increase in noise level due to various mining activities such as operation of mining equipment, movement of vehicles, drilling, blasting & crushing.	<p>To mitigate the impact some suggestive measures are;</p> <ul style="list-style-type: none"> ✓ Mining operation to be confined to day shift only ✓ At machineries to be repaired and maintained regularly. ✓ Raise Green Belt in safety zone. ✓ Avenue plantation along a both sides of Link Road ✓ Regular repair and maintenance of mining equipment & transportation vehicle. ✓ Proper repair and maintenance of road. ✓ Speed restriction of 20 KMPH on unpaved road. ✓ Acoustic Barrier along the periphery of mining lease at critical points.

Material	STC (Noise Reduction Coefficient)	Transmission Loss (dB)	Other Properties
Concrete	0.20 - 0.30	30 - 40	High density, durable, long lifespan
Metal (Steel)	0.05 - 0.10	25 - 35	Lightweight, can be perforated
Wood	0.15 - 0.25	20 - 30	Natural, aesthetically pleasing.
Acrylic/Polycarbonate	0.05 - 0.10	20 - 30	Transparent, UV resistant
Green Walls	0.40 - 0.50	15 - 25	Environmentally friendly, absorbs CO2
Earth Berms	0.30 - 0.40	20 - 25	Natural appearance, requires space

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Khunti District Survey Report for Stone

SOIL QUALITY	
IMPACT	MITIGATION MEASURES
<p>Mining Activities are likely to impact on soil quality as;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Loss of topsoil <input type="checkbox"/> Productivity of Soil <input type="checkbox"/> Contamination of oil or chemical in Soil 	<p>To mitigate the impact some suggestive measures are;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Loss of topsoil <ul style="list-style-type: none"> ✓ Topsoil are to be removed & stored in an identified area. In order to conserve the quality of topsoil, grass cover are to be developed on topsoil dumps, Such conserved topsoil may be used for land reclamation & development of greenbelt. <input type="checkbox"/> Productivity of Soil <ul style="list-style-type: none"> ✓ Movement of heavy mining machineries on agriculture land and productive land should be restricted. <input type="checkbox"/> Contamination of oil or chemical in Soil <ul style="list-style-type: none"> ✓ Movement of heavy vehicles may be restricted to lease area and road so that leaking oil & grease may not contaminate soil quality.



Khunti District Survey Report for Stone

BIO-DIVERSITY	
IMPACT	MITIGATION MEASURES
<p>Mining Activities are likely to impact on Bio-Diversity of the region as;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Habitat Destruction <input type="checkbox"/> Ecosystem Disruption <input type="checkbox"/> Damaging 	<p>Considering importance of impact of environmental impact on eco-system in the study area, a series of mitigation measures are incorporated in planning of stone mine & its operation such mitigation measures are given below;</p> <ul style="list-style-type: none"> ✓ Mine site are selected considering siting criteria prescribed by Government (JSEIAA / JSPCB / MOEF & CC). ✓ Avoid site which have tree cover. ✓ Avoid site through which drainage channels passes through. ✓ Ecological Assessment: Conduct a thorough ecological survey to identify species and habitats present. ✓ Buffer Zones: Establish buffer zones around sensitive habitats to minimize disturbance. ✓ Minimize Habitat Destruction: Plan site layout to avoid key habitats and minimize vegetation clearing. ✓ Translocation: Consider translocating significant flora and fauna to safe areas. ✓ Restoration Plans: Develop a habitat restoration plan for post-mining activities. ✓ Wildlife Corridors: Ensure wildlife corridors are maintained to facilitate animal movement. If a wildlife corridor passes through or around a mining lease area, a Wildlife Conservation Plan will be prepared. These measures help protect biodiversity and mitigate the environmental impact of stone mining.

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झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद
JHARKHAND STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE, C.T.I. COLONY, E-1, DHURWA, RANCHI

पत्रांक 820

दिनांक 15.07.2024

प्रेषक,

रामानन्द अन्जान
क्षेत्रीय पदाधिकारी,
क्षेत्रीय कार्यालय, राँची।

सेवा में,

जिला खनन पदाधिकारी,
खूँटी।

विषय:- खूँटी जिला में अवस्थित इकाईयों का परिवेशीय, वायु की गुणवत्ता का विश्लेषण प्रतिवेदन उपलब्ध कराने के संबंध में।

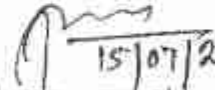
प्रसंग - जिला खनन कार्यालय, खूँटी का पत्रांक- 426/एम0 दिनांक- 21.05.2024।

महाराज,

उपर्युक्त विषयक एवं प्रासंगिक पत्र के संघ में सूचित करना है खूँटी जिला में अवस्थित इकाईयों का परिवेशीय, वायु की गुणवत्ता का विश्लेषण प्रतिवेदन सलन्न कर आवश्यक कार्रवाई हेतु ई-मेल द्वारा भेजी जा रही है।

अनु०-यथो०

विश्वासभाजन


15/07/2024
(रामानन्द अन्जान)
क्षेत्रीय पदाधिकारी, राँची।







SCIENTIFIC RESEARCH LABORATORY

An ISO 9001:2015 (QMS) & OHSMS 45001:2018 Certified Organization

Accredited by Jharkhand State Pollution Control Board

Analytical & Environmental Engineering Laboratory

C- 144, Aman Green City, Pundag, Ranchi- 834 004, Jharkhand

Tele No.: 0651-4057244, Mobile: 94701 30700, E-mail: nirajksingh2003@yahoo.co.in

TEST REPORT

Test Report No. : SRL/AM/MAR-AAQ/24/151	Report Issue Date : 30.03.2024
Application No. : 18729883	Application Date : 05.03.2024

Customer's Name & Address	Sample Details
M/s Anjaniputra Minerals, (Proposed Site for Sand Stock Yard) At.: Plot No. 2187 (P), Khata No. 68, Mauza: Jiyarappa, P.S.: Khunti, District: Khunti, Jharkhand.	Type of Sample : Ambient Air
	Date of Sampling : 23.03.2024 to 24.03.2024
	Sample Receipt Date : 24.03.2024
	Analysis Date : 27.03.2024 to 29.03.2024
	Sample Collected by : SRL Team

Weather Condition: Partly Cloudy	Ambient Temperature ($^{\circ}$ C) : 29	Relative Humidity (%) : 46
Atmospheric Pressure (mmHg): 759	Wind Speed (km/hr.) : 2.0	Wind Direction : NW

TEST RESULTS

Sl. No.	Parameters	Unit	Results	Standards Value*	Test Method
1. Sampling Location: Eastern Side of Sand Stock Yard					
I.	Respirable Particulate Matter (PM ₁₀)	μ g/m ³	75.00	100	IS: 5182 (Part- 23) 2006
II.	Respirable Particulate Matter (PM _{2.5})	μ g/m ³	43.00	60	IS: 5182 (Part- 24) 2006
III.	Sulphur Dioxide (SO ₂)	μ g/m ³	07.20	80	IS: 5182 (Part- 2) 2001
IV.	Nitrogen Dioxide (NO ₂)	μ g/m ³	19.00	80	IS: 5182 (Part- 6) 2006
2. Sampling Location: North – West Side of Sand Stock Yard					
I.	Respirable Particulate Matter (PM ₁₀)	μ g/m ³	72.00	100	IS: 5182 (Part- 23) 2006
II.	Respirable Particulate Matter (PM _{2.5})	μ g/m ³	41.00	60	IS: 5182 (Part- 24) 2006
III.	Sulphur Dioxide (SO ₂)	μ g/m ³	06.80	80	IS: 5182 (Part- 2) 2001
IV.	Nitrogen Dioxide (NO ₂)	μ g/m ³	18.40	80	IS: 5182 (Part- 6) 2006
3. Sampling Location: South – West Side of Sand Stock Yard					
I.	Respirable Particulate Matter (PM ₁₀)	μ g/m ³	73.00	100	IS: 5182 (Part- 23) 2006
II.	Respirable Particulate Matter (PM _{2.5})	μ g/m ³	42.00	60	IS: 5182 (Part- 24) 2006
III.	Sulphur Dioxide (SO ₂)	μ g/m ³	07.00	80	IS: 5182 (Part- 2) 2001
IV.	Nitrogen Dioxide (NO ₂)	μ g/m ³	18.50	80	IS: 5182 (Part- 6) 2006

*National Ambient Air Quality Standards (NAAQS).

Note:

1. The results relate only to the items sampled and tested.
2. Test report shall not be reproduced except in full without written approval of the laboratory.

(Dr. Niraj Kumar Singh)
Authorized Signatory

-- End of the Report --

SAVE THE EARTH WITH THE RIGHT PRACTICE





ENVIRONMENTAL LABORATORIES &

PLGT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)

Email: info@elespl.co.in; eles.ranchi@gmail.com

Website: www.elespl.co.in

GST NO:- 20AAECE9713D124 / : 0651-2290103, 9931289451

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Environmental Pollution Monitoring & Analysis



TEST REPORT

Test Report No. : ELES/RNC/2022/0690	Report Release Date : 06.04.2022
Application No. : 12883096	Application Date : 28.03.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	DM Polyplast	Sampling Date	04.04.2022 to 05.04.2022
Address	At-Kornkel, Murhu, Dist.- Khunti, Jharkhand	Sample Received Date	05.04.2022
		Type of Sample	Ambient Air
Plant Status	Proposed	Sampling Procedure	ELES/DOC/SMP/02
		Sample Drawn By	ELES Pvt. Ltd.
		Period of Analysis	05.04.2022 to 06.04.2022

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Parameters	Test Protocol	Particulate Matter (PM10)		Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)	
		IS 5182 (P-23)	µg/m ³	USEPA CTR40	µg/m ³	IS 5182 (P-2)	µg/m ³	IS 5182 (P-6)	µg/m ³
Location	Limit	100	60	80	80	80	80	80	80
	Unit	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
	10:04 - 14:11	69	37	9.8	37	24.2	37	24.2	
	14:11 - 18:01	59		10.7		26.5			
18:09 - 22:14	9.6			25.1					
22:14 - 02:08	8.5			23.5					
Latitude : 22°58'4.69"N	02:13 - 06:11	67	35	9.2	35	23.7			
Longitude : 85°16'4.5"E	06:11 - 10:00	65		7.7		20.5			
Sample ID	Average			37		9.3	23.7		
ELES/RNC/PCB/AA/4428									
West Side of Proposed Site	10:14 - 14:12	76	35	11.8	35	24.2			
	14:12 - 18:08	58		9.2		28.5			
	18:16 - 22:12			10.8		25.2			
	22:12 - 02:04			10.5		23.8			
Latitude: 22°58'4.80"N	02:11 - 06:14	69	35	9.8	35	20.5			
Longitude : 85°16'03.89"E	06:14 - 10:05	68		10.2		21.9			
Sample ID	Average			35		10.4	24.0		
ELES/RNC/PCB/AA/4429									

Page 1 of 2

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Charvi

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ENVIRONMENTAL LABORATORIES &



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CHN: U74999JH2018PTC021125

GST NO:- 20AAECE9715D124 / 0651-2290103, 9931289451

TEST REPORT

Test Report No. : ELES/RNC/2022/0690	Report Release Date : 06.04.2022
Application No. : 12883090	Application Date : 28.03.2022

Parameters	Particulate Matter (PM10)		Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)	
	Test Protocol	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-6)	
Locations	Limit	Unit	Limit	Unit	Limit	Unit	Limit	Unit
South Side of Proposed Site	10:25 - 14:19	70	34	60	80	µg/m ³	80	µg/m ³
	14:19 - 18:20							
	18:25 - 22:21							
	22:21 - 02:18							
Latitude: 22°58'4.29"N	02:24 - 06:18	60			7.5	25.7		
Longitude: 85°16'3.44"E	06:18 - 10:19	60			5.8	20.5		
Sample ID ELES RNC PCB AA 4430	Average	62	34		9.2	21.9		
					8.7	23.1		


Authorized Signatory
SANDIP BERÄ
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****


Authorized Signatory
Dr. Deependra Kumar Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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BIOCRAT ENVIRONMENTAL SERVICES

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Sarveshwari Nagar, IAI Road, Bajra, P.O. Bahal, Dist: Ranchi, PIN: 834005 Email Id: biocratenv@gmail.com
MOB: 9369019812, 8340465751, 9978708177

Test Report (Ambient Air Quality Monitoring)

Unique Lab Report No : LAB-BES2300000114A
Application No : 16089533, dated 14-04-2023 at 11:48
Report Issue Date : 06/05/2023

Name of Client & Address

General Information

: Dugdugia Stone Mine
Mauza – Dugdugia, PS – Khunti
Dist – Khunti

Type of Industry / Plant

: Stone Mines

Field Data Sheet Code
Type of Sample
Plant Status
Source of Emission
Sampling Date
Sample Receiving & Registration Date
Sampling Location
Sample Collected by
Protocol

Sample Description

: BES/JSPCB/AAQ/16089533
: Ambient Air
: Operational
: Movement of Vehicles & Surrounding Activities
: 02/05/2023 to 03/05/2023
: 03/05/2023
: Dugdugia Village
: BES Team
: Ambient Air

Cloud Cover
Avg. Temp (°C)
Avg. Relative Humidity (%)
Rain
Predominant Wind Direction

Metrological Information

: Cloudy
: 28
: 64
: Light Rain
: From NW towards SE

Pollutants Analysis Result

Pollutants	Unit	Time Weighted Average	Method No.	Norms NAAQS 2009	Sampling Point & Co- ordinate		
					Near Entrance 23°08'25.51"N 85°17'37.34"E	West Side of Unit 23°08'24.17"N 85°17'32.82"E	South East Side of Unit 23°08'21.86"N 85°17'35.45"E
SO ₂	(µg/m ³)	24 Hours	IS 5182 (Part-2)	80	09.32	10.67	08.45
NO ₂	(µg/m ³)	24 Hours	IS 5182 (Part-2)	80	20.76	22.05	17.93
PM ₁₀	(µg/m ³)	24 Hours	IS 5182 (Part-23)	100	82.19	87.41	76.33
PM _{2.5}	(µg/m ³)	24 Hours	IS 5182 (Part-24)	60	36.42	40.59	31.64

---END OF REPORT---

Note: - NAAQS (National Ambient Air Quality Standards as per published in the gazette of India: Extraordinary CPCB Notification No. B.29016/2019/PCI-L of 18th November 2009)

Inference: - With reference to the testing report, SO₂ & NO₂ pollution level is low While PM₁₀ pollution level is in higher range and all the parameters are within the prescribed limit.





BIOCRAT ENVIRONMENTAL SERVICES

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Satveshwar Nagar, 11th Road, Bagra, P.O. Tirthal, Dist: Ranchi PIN - 834005 Email to: biocratenv@gmail.com

Mob. - 7869019812, 8340466751, 9608708172

Test Report (Ambient Noise Level Monitoring)

Unique Lab Report No. : LAB-BES2300000114D
Application No. : 18089533, dated 14-04-2023 at 11:48
Report Issue Date : 06/05/2023

General Information

Name of Client & Address : Dugdugia Stone Mine
Mauza - Dugdugia, PS - Khunti
Dist - Khunti
Type of Industry / Plant : Stone Mines

Sample Description

Field Data Sheet Code : BES/JSPCB/NOISE/18089533
Type of Sample : Ambient Noise
Plant Status : Operational
Source of Noise : Movement of Vehicles & Nearby Activities
Sampling Date : 02/05/2023 to 03/05/2023
Sample Receiving & Registration Date : 03/05/2023
Sampling Location : Dugdugia Village
Sample Collected by : BES Team
Protocol : Ambient Noise Monitoring

Metrological Information

Cloud Cover : Cloudy
Avg. Temp (°C) : 28
Avg. Relative Humidity (%) : 64
Rain : Light Rain
Predominant Wind Direction : From NW towards SE
Ground Frost : No

Noise Monitoring Result (dB(A) Leq)

Sampling Point	Sampling Co-ordinate	Duration of measurement	Day Time	Night Time
			(6 AM to 10 PM)	(10 PM to 6 AM)
Near Entrance	23°08'25.25"N 85°17'35.49"E	24 hours	68	52
West Side of Unit	23°08'23.09"N 85°17'32.69"E	24 hours	70	53
South East Side of Unit	23°08'22.64"N 85°17'35.17"E	24 hours	65	50
CPCB Limit in dB(A) Leq (As per Pollution Control Law Series:PCLS/06/2000-01)		A Industrial Area	75	70
		B Commercial Area	65	55
		C Residential Area	55	45
		D Silence Zone	50	40

—END OF REPORT—

Note: - "dB(A)Leq" denotes the time weighted average of sound in decibels on scale A which is reliable to human hearing

Inference: - On the basis of specified standard of ambient noise level, the result shows that it is suitable for workers to work properly and results are within the prescribed limit.





SHIVA ENVIRO LAB AND RESEARCH CENTRE RANCHI

Recognized by Govt of Jharkhand under the Environmental Protection Act, 1986
 (REGISTRATION NO. 100/1001/2015, Dt. 12/04/2015)

TEST REPORT

Test Report No.:	SELRC/2023/0212	Report Release Date:	30-11-2023
Job ID:	Application No - 17844385	Job ID Date:	23-11-2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	M/s Kanadih Stone Deposit,	Sample Description	Ambient Air Quality Monitoring
		ULR No.	
		Sampling Date	28-11-2023 to 29-11-2023
		Sample Received Date	29-11-2023
Address:	Kanadih Dist - Khunti	Sample Procedure	IS 5182
		Type of Industry	Stone Mines
		Industry Status	Operational
		Period of Analysis	29-11-2023 to 30-11-2023
		Sample Collected By	P N Singh and Team

METEOROLOGICAL CONDITION

Ambient Temperature (°C): 28	Relative Humidity (%): 55	Weather Condition: Clear
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Parameters				Sulphur Dioxide (SO ₂)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM ₁₀)	Particulate Matter (PM _{2.5})
Test Protocol				IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-23)	IS 5182 (Part-24)
Sample ID:	Time	Limit					
Sample ID: SELRC/2023/AAQ/1071 Sampling Location 1: - Near Stockyard <small>23°19'59" 2437" N / 85°17'14" 2832" E</small>	11:15 AM	03:15 PM	60 µg/m ³	12.52	29.38	76	45.30
	03:20 PM	07:20 PM		08.05	22.17		
	07:25 PM	11:25 PM		10.73	23.83		
	11:30 PM	03:30 AM		14.31	26.05	82	
	03:35 AM	07:35 AM		18.78	32.15	68	
	07:40 AM	11:40 AM		22.36	34.36		
	Average			14.46	27.99	75.33	
Sample ID: SELRC/2023/AAQ/1072 Sampling Location 2: - North-West Side of Mines <small>23°16'58" 7169" N / 85°17'7" 1542" E</small>	11:25 AM	03:25 PM	60 µg/m ³	11.63	25.50	80	53
	03:30 PM	07:30 PM		15.20	27.71		
	07:35 PM	11:35 PM		16.99	30.48	87	
	11:40 PM	03:40 AM		08.05	24.94		
	03:45 AM	07:45 AM		17.89	28.82	78	
	07:50 AM	11:50 AM		20.57	31.59		
	Average			15.06	28.17	81.67	

Address - 2206A, Baidan Road, Jagmohan Nagar, near Pearl Creek Apartment, P.O. - Aspora Dist. - Ranchi
 State - Jharkhand India. Contact - 0651 4350125 (M) 9419170196 (Sk) Email - shivaenviro@rediffmail.com
 GST - 20AEMPH57231 V2G

(Handwritten Signature)





SHIVA ENVIRO LAB AND RESEARCH CENTRE, RANCHI


Recognized by Government of Jharkhand
 (ISO 9001:2015, ISO 14001:2015, ISO 45001:2018)

Parameters			Sulphur Dioxide (SO ₂)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM ₁₀)	Particulate Matter (PM _{2.5})	
Test Protocol			IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-23)	IS 5182 (Part-24)	
Sample ID: SELRC/2023/AAQ/1073	Time		Limit	80 µg/m ³	80 µg/m ³	100 µg/m ³	60 µg/m ³
Sampling Location 3: - South-West Side of Mines 23°8'58.9801" N/ 85°17'8.3370" E	11:35 AM	03:35 PM		10.73	25.50	86	42.08
	03:40 PM	07:40 PM		13.41	26.05		
	07:45 PM	11:45 PM		15.20	27.71	70	
	11:50 PM	03:50 AM		16.10	28.82		
	03:55 AM	07:55 AM		19.67	31.59	88	
	08:00 AM	12:00 PM		21.46	33.61		
Average				16.10	28.91	81.33	

End of Report

Remarks:	All parameters were found within the prescribed limit.
Abbreviation used	µg/m ³ - Microgram per meter cube, IS - Indian Standard
Note	<p>The document stated as Test Report is issued by the Laboratory under General Terms and Conditions, only on Laboratory letterhead in the approved format</p> <p>The Results stated in the Test Report are based on the findings of the Laboratory done at the time of monitoring and analysis only.</p> <p>The report in full or in part, shall not be used for publishing, or advertising for any legal evidence unless prior permission is obtained from the management of the Laboratory</p> <p>The collected samples shall be destroyed after 30 days from the date of issue of the certificate</p> <p>Any type of complaint regarding the Reports shall be made within 15 days from the issue date of the Test Report. Thereafter no complaints will be accepted</p> <p>The liability of the Laboratory is limited to the allotted job only</p> <p>All disputes are subject to Ranchi Jurisdiction</p>


 24/11/2023
Verified By
(N.B. Kachhap)
Technical Manager


 30/11/2023
Issued By
(R. N. Kashyap)
Laboratory Head







SHIVA ENVIRO LAB AND RESEARCH CENTRE, RANCHI

Recognized by Jharkhand State Pollution Control Board
(DP/1981/2017/ISO 15001:2015, ISO 14001:2015)

TEST REPORT

Test Report No.:	SELRC/2023/0212	Report Release Date:	30-11-2023
Job ID:	Application No - 17844385	Job ID Date:	23-11-2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	M/s Kanadih Stone Deposit,	Sample Description	Ambient Air Quality Monitoring
		ULR No.	
		Sampling Date	28-11-2023 to 29-11-2023
		Sample Received Date	29-11-2023
Address:	Kanadih, Dist - Khunti.	Sample Procedure	IS 9989:1981 RA:2020
		Type of Industry	Stone Mines
		Industry Status	Operational
		Sample Collected By	P N Singh and Team

METEOROLOGICAL CONDITION

Ambient Temperature (°C): 28	Relative Humidity (%): 55	Weather Condition: Clear
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Sample ID:	Unit	Test Method	Result		Permissible limit
			Day Time dB(A)	Night Time dB(A)	
SELRC/2023/SLM/1074					
Sampling Location 1: - Near Stockyard 23°8'59.2437" N/ 85°17'14.2332" E	dB(A)	IS 9989:1981:2020	70	45	
SELRC/2023/SLM/1075					75 dB(A) Day Time & 70 dB(A) Night Time
Sampling Location 2: - North-West Side of Mines 23°8'58.7189" N/ 85°17'7.1542" E	dB(A)	IS 9989:1981:2020	65	44	
SELRC/2023/SLM/1076					
Sampling Location 3: - South West Side of Mines 23°8'58.9801" N/ 85°17'8.3370" E	dB(A)	IS 9989:1981:2020	60	40	

End of Report






SHIVA ENVIRO LAB AND RESEARCH CENTRE, RANCHI

Recognized by Government of Jharkhand, Government of India
ISO 9001:2015 and ISO 14001:2015 Certified, Jharkhand

Remarks:	Noise Level were found within the permissible limit.
Abbreviation used	dB – Decibel, IS – Indian Standard
Note -	Day Time : From 6:00 AM to 10:00 PM & Night Time : From 10:00 PM to 6:00 AM
	The document stated as Test Report is issued by the Laboratory under General Terms and Conditions only on Laboratory letterhead in the approved format
	The Results stated in the Test Report are based on the findings of the Laboratory done at the time of monitoring only
	The report in full or in part, shall not be used for publishing, or advertising for any legal evidence unless prior permission is obtained from the management of the Laboratory. The time schedule mentioned in Test Report is in 24-hour format.
	All disputes are subject to Ranchi Jurisdiction.


22/11/2023
Verified By
(N. B. Kachhap)
Technical Manager


22/11/2023
Issued By
(R. N. Kashyap)
Laboratory Head







YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by - Jharkhand State Pollution Control Board (JSPCB)
Certified by - An ISO 9001:2015 & ISO 45001:2018



ANALYTICAL TEST REPORT

URL (Unique Lab Report) No.		T C 7 8 1 3 2 1 2 0 0 0 0 6 9 5											
Discipline	Chemical	Group	Atmospheric Pollution				Sample Description	Ambient Air Quality					
Report Release Date	03 rd September, 2021				Report ID	YBAEEL-210813-135629- A01							
W. Order/ JSPCB App. No.	10954338				Work Order Date	13.08.2021							
Type of Industry (if any)	Chemical Processing				Job code/ Ref. no.	YBAEEL/WA/LA/Aug-21/43							
Report issue to	M/s K. P. Minerals Pvt. Ltd. At.-Village:Hansa, P.O.- Murhu, Dist.- Khunti, Jharkhand.												
Sampling Period	27/08/2021 - 28/08/2021				Mode of sample collection	By YBAEEL Team							
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)												
Sampling Locations	A. Near Office (23°00'18.47"N, 85°17'12.60"E)			B. Near Main Gate (23°00'30.45"N, 85°17'20.46"E)			C. Near Parking Area (23°00'20.60"N, 85°17'36.70"E)						
Meteorological Cond.	W.C.-Cloudy		RH % - 72		Temp. - 25°C			W.D.- East - West					
Sample receipt Date	28/08/2021		Analysis Started on		28/08/2021		Analysis completed on		01/09/2021				

*****Test Results*****

Parameters	Test Methods	Units	MU %	Sampling Location			Limits
				Site A	Site B	Site C	
Particulate matter (PM ₁₀)	IS:5182 (P-23) 2006, RA 2017	µg/m ³	2.68	78.0	82.0	74.8	100
Particulate matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	2.60	36.6	37.7	32.8	60
Sulphure Dioxide (SO ₂)	IS:5182 (P-2) 2001, RA 2017	µg/m ³	7.64	14.0	15.3	16.6	80
Nitrogen Dioxide (NO ₂)	IS:5182 (P-6) 2006 RA 2017	µg/m ³	4.17	28.1	30.5	31.7	80

*****End of Report*****

Limit is specified as	The Environmental (Protection) Rule - 1986
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit, MU - Measurement Uncertainty
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the Lab in-charge. The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Patna Jurisdiction.
Remarks	Sample Comply with prescribed limits in respect of decision rule.

City CONCERN for
Jharkhand State Pollution Control Board
Application No. 10954338
Allotted Date 13.08.2021
Submission Date 03.09.2021



Tested by Anil Kumar Singh Lab Analyst	Verified by Brij Nandan Kumar Section In-Charge	Authorized Signatory Umesh Das Technical Manager	Issued by Umesh Das
--	---	--	------------------------

Branch Office - Jamshedpur | Dhanbad | Enr | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidrout, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in



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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018



ANALYTICAL TEST REPORT

URL (Unique Lab Report) No.		T C 7 8 1 3 2 1 2 0 0 0 0 6 9 6											
Discipline	Chemical	Group	Atmospheric Pollution			Sample Description	Stationary Source Emission						
Report Release Date	03 rd September, 2021			Report ID	YBAEEL-210813-135629- S1								
W. Order/ JSPCB App. No.	10954338			Work Order Date	13.08.2021								
Type of Industry (if any)	Chemical Processing			Job code/ Ref. no.	YBAEEL/WA/LA/Aug-21/43								
Report issue to	M/s K. P. Minerals Pvt. Ltd. At.-Village: Hansa, P.O.-Murhu, Dist.- Khunti, Jharkhand.												
Sampling Period	28 th August, 2021			Mode of sample collection	Sampling team of YBAEEL								
Sampling Protocol	IS: 11255 & CPCB Guideline (Lata/80/2013-14)												
Meteorological Cond.	W.C.- Cloudy			RH % - 68 %	Temp. - 24°C								
Sample receipt Date	28/08/2021	Analysis Started on	28/08/2021	Analysis completed on	01/09/2021								

General Information

As observed while sampling		As reported by customer	
Location	Port Hole	Type of fuel Used	Coal
Platform	Permanent	Quantity of Fuel Used	500 Kg/Day
Stack Description (Shape & Material)	Rectangular/Bricks	Total production Capacity of Boiler	300 Kg/Hr. (Steam)
Sampling port	Available	Height of Stack from ground level	38.1
Stack Identification	Single - 01	Inner Diameter of Stack	0.914 X 0.914
Height of port hole from Ground level	6.096	Pollution Controlling Device (if any)	N/A
Running Oven during sampling (if any)	N/A	Total No. of Oven (if any)	N/A

*****Test Results*****

Sl	Parameters	Test Method	Units	MU %	Results	Limits
1.	Stack gas Temperature	IS 11255 (Part 3)2008	k	--	385.0	-
2.	Stack gas Velocity	IS 11255 (Part 3)2008	m/s	--	13.2	-
3.	Volumetric Flow Rate	IS 11255 (Part 3)2008	Nm ³ /hr	--	9810.8	-
3.	Particulate Matter (PM)	IS 11255 (Part 1)2009	mg/Nm ³	2.12	128.4	1200 ¹
4.	Sulphure Dioxide (SO ₂)	IS 11255 (Part 2)2009	mg/Nm ³	3.06	103.6	-
5.	Oxide of Nitrogen (as NO _x)	IS 11255 (Part 7)2005 RA 2012	mg/Nm ³	2.70	65.8	-

*****End of Report*****

Limit is specified as	The Environmental (Protection) Rule - 1986
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit, MU - Measurement Uncertainty
Specific contractual notes	All values are expressed in its unit and results listed refer only to the tested sample and applicable parameter. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the Lab In-charge. The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Samples Comply with prescribed limits in respect of decision rule.

Jharkhand State Pollution Control Board
Application No. 10954338
Altted Date 13.08.2021
Submission Date 01.09.2021



Issued by Amit Kumar Sinha Lab Analyst	Verified by Bijay Nandan Kumar Section In-Charge	Issued by Umesh Das Technical Manager

Branch Office :- Jamshedpur | Dhanbad | Hazratbag | Ranchi | Patna

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in





YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by - Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018



ANALYTICAL TEST REPORT

URL (Unique Lab Report) No.		T C 7 8 1 3 2 1 3 0 0 0 0 0 6 3													
Discipline	Chemical	Group	Pollution & Environment				Sample Description	Waste Water / Effluent Water							
Report Release Date	03 rd September, 2021				Report ID	YBAEEL-210813-135529- WW01									
W. Order/ JSPCB App. No.	10954338				Work Order Date	13.08.2021									
Type of Industry (if any)	Chemical Processing				Job code/ Ref. no.	YBAEEL/WAL/W/Aug-21/09									
Report issue to	M/s K. P. Minerals Pvt. Ltd. At.-Village: Hansa, P.O.-Murhu, Dist.- Khunti, Jharkhand.														
Sampling Date	28/08/2021				Mode of sample collection	By YBAEEL Team									
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003				Sample Code	210828-WW-W01									
Sampling Location	ETP out let				Sampling Source	Waste Water									
Sample pkg. Condition	Sealed Pack in PP Bottle				Sample Quantity	3000 ml									
Meteorological Cond.	W.C.- Cloudy				RH % - 72	Temp.-29°C									
Sample receipt Date	28/08/2021		Analysis Started on	28/08/2021		Analysis completed on	01/09/2021								

*****Test Results*****

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	2.53	7.34	5.5-9.0
2.	Temperature	IS 3025 (P-09)	°C	1.55	27.7	-
3.	Total Solids	IS 3025 (P-15):2009	mg/l	7.33	306.0	-
4.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	0.38	278.0	-
5.	Total Suspended Solids	IS 3025 (P-17):2012	mg/l	8.26	28.0	100
6.	BOD (3 days at 27°C)	IS 3025 (P-44):2009	mg/l	6.85	8.0	30
7.	COD (Open reflux)	IS 3025 (P-58):2006	mg/l	4.02	52.0	250
8.	Oil & Grease	IS 3025 (P-39):2003	mg/l	14.60	2.0	10
9.	Sulphate (as SO ₄ ²⁻)	IS 3025 (P-24):2003	mg/l	4.37	13.6	-
10.	Phenols (C ₆ H ₅ OH)	IS 3025 (P-43)	mg/l	3.78	0.075	1

*****End of Report*****

Limit is specified as	The Environmental (Protection) Rule 1560
Abbreviation	MDL : Minimum detection limit. BDL : Below detection limit.
Specific contractual notes	All values are expressed in its unit and results listed refer only to the tested sample and applicable parameter. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the Lab in-charge. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample is Comply with prescribed limits in respect of decision rule.

Only CONCERN for

Jharkhand State Pollution Control Board
Application No. 10954338
Allotted Date 13.08.2021
Submission Date 03.09.2021



Tested by <i>Singh</i> Shweta Kr. Singh Lab Analyst	Verified by <i>Brij Nandan Kumar</i> Brij Nandan Kumar Section In-Charge	Issued by <i>Umesh Das</i> Umesh Das Authorized Signatory Pollution & Environment Technical Manager
--	---	--

Branch Office - Jamshedpur Dhanbad Hazaribag Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in



Signature



GEMS PROJECTS PVT. LTD.

[ENVIRONMENTAL LABORATORY DIVISION]

APPROVED BY JHARKHAND STATE POLLUTION CONTROL BOARD (JSPCB) & CHSEAS (HWT) CERTIFIED

TEST REPORT

Sample Description		Ambient Air Quality		Sampling Details		
Job Registration ID	G/JRN/240412/AR-01	Sampling Date	11th-12th April, 2024			
U.L.R Number	-----	Sample collected by	Birju & Team			
Work Order No./Date	JSPCB-19072670	Sample receiving date	12-04-2024			
Report Release Date	15-04-2024	Test Starting Date	13-04-2024			
Issue to:		Test Completion date	15-04-2024			
M/s Nitesh Sarda Plot no - 1325, 1326, 1327, khata no. 42, Mauza - Dugdugja, PO - Khunti, PS - Khunti, Dist - Khunti (Jharkhand)		Sampling Protocol	IS 5182 (Parts-4,2,6)			
		Industry Type	Stone Crusher			
		Meteorological Information				
		Avg Temperature (°C)	31			
Company Status	Operating	Weather Condition	Clear			
Barometric Pressure (mm Hg)	702.24	Relative Humidity (%)	40			
		Wind Direction	South-East			
Sampling Location	(A) Near Main Gate	(B) Near Scarp Room	(C) Near Service Reception			
Latitude	(23° 14' 69" N)	(23° 14' 70" N)	(23° 14' 71" N)			
Longitude	(85° 27' 49" E)	(85° 27' 50" E)	(85° 27' 51" E)			
Sampling Time	09:15 Am to 09:15 Am	09:30 Am to 09:30 Am	09:45 Am to 09:45 Am			
Test Results						
Parameters	Test Method	Units	Sampling Location			NAAQS
			Site A	Site B	Site C	
Total Suspended Particulate Matter	IS 5182 (Part-4)	µg/m ³	588.96	584.36	580.58	2009 600
Sulphur Dioxide (SO ₂)	IS 5182 (Part-2)	µg/m ³	28.40	25.80	22.78	80
Nitrogen Dioxide (NO ₂)	IS 5182 (Part-6)	µg/m ³	32.96	29.68	30.11	80

Remarks: The Environment (Protection) Act, 1986, Section 31. The Site/stacks with a little water measured between 2 meters to 10 meters from any process.

- 1) Test values are found within the prescribed limit of CPCRI, 2000
- 2) Results relate only to the items sampled and tested
- 3) The Test report shall not be reproduced except in full without approval of the Laboratory
- 4) Sample will be disposed after 30 days from the issue date of the report.
- 5) This certificate is subject to compliance with the Act.


 Neeraj Kumar Pat Pingua
 Tested by/Analyst




 Kumari Soumi Mehta

Issued by (Lab In-charge)
Lab In-Charge



End of Test Report GEMS Projects Pvt. Ltd



GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

APPROVED BY JHARKHAND STATE POLLUTION CONTROL BOARD (JSPCB) & OMSA (MS) 1317/2024

TEST REPORT

Sample Description	Noise Level Monitoring	Sampling Details		
Job Registration ID	G/IRN/240412/NOISE-01	Sampling Date	11th-12th April, 2024	
U/R Number	-----	Sample collected by	Birju & Team	
Work Order No.-	JSPCB-19072670	Sample receiving date	12-04-2024	
Report Release Date	15-04-2024	Test Starting Date	13-04-2024	
Issue to:		Test Completion date	13-04-2024	
M/s Nitesh Sarda Plot no - 1325, 1326, 1327, khata no.42, Mauza - Dugdugia, PO - Khunti, PS - Khunti Dist - Khunti (Jharkhand)		Sampling Protocol	IS 9989-1981(RA-2001)	
		Test Method	IS 9989-1981(RA-2001)	
		Industry Type	Stone Crusher	
		Company Status	Operating	
		Metrological Information		
		Average Temperature (C)	31	
Wind Direction	South- East	Weather Condition	Clear	
		Relative Humidity, %	40	

Test Results

Sampling Time	Sampling Location	Parameters	Units	Day Time	Night Time
09:20 AM - 09:20 AM	(A)- Near Main Gate	Leq	dB (A)	60.3	48.5
	Latitude (23°14'69" N)				
	Longitude (85°27'49" E)				
09:35 AM - 09:35 AM	(B)- Near Scarp Room	Leq	dB (A)	56.5	46.5
	Latitude (23°14'70" N)				
	Longitude (85°27'50" E)				
09:50 AM - 09:50 AM	(C)- Near Service Reception	Leq	dB (A)	52.7	40.5
	Latitude (23°14'71" N)				
	Longitude (85°27'51" E)				

Remarks

- All values are observed well within the limit
- (2) Leq = Level Equivalent
- (3) Day Time - From 6:00 AM to 10:00 PM, Night Time - From 10:00 PM to 6:00 AM
- (4) The Noise Pollution (Regulation and Control) Rules, 2000, (CNCB)
- | | |
|-----------------|---------------------|
| Area/Zone | Day Time/Night Time |
| Industrial Area | 57/46 dB(A) |
- 5) The Test report shall not be reproduced or put in full without approval of the laboratory
- 6) Sample will be retained for 30 days from the issue date of the reports
- 7) Any dispute related to the test results shall be referred to the laboratory only

Neesha Patra
 Neeraj Karan Patra
 Tested By (Analyst)



Komal Saha
 Komal Saha
 Lab In Charge



End of Report

Gems Projects Pvt. Ltd

[Handwritten Signature]



SHRI V. ENVIRO LAB & RESEARCH CENTRE PRIVATE LIMITED
RANCHI

Proposed by: *[Signature]*
For: *[Signature]*



TEST REPORT

Test Report No.: SELRCPL/2024/0004	Report Release Date: 08-01-2024
Job ID: Application No - 18052158	Job ID Date: 18-12-2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name: M/s Parwati Lakh Lidyog	Sample Description: Ambient Air Quality Monitoring	ULR No: TC1250824000000004F	Sampling Date: 29-12-2023 to 30-12-2023
Address: Belahathi Road, Khunti, Dist - Khunti	Sample Received Date: 30-12-2023	Sample Procedure: IS 5182	Type of Industry: Shellac Industry
	Sample Collected By: Sagar Kumar and Team	Industry Status: Operational	Period of Analysis: 30-12-2023 to 06-01-2024

METEOROLOGICAL CONDITION

Ambient Temperature (°C): 23.8 Relative Humidity (%): 64 Weather Condition: Clear

Parameters			Sulphur Dioxide (SO ₂)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM ₁₀)	Particulate Matter (PM _{2.5})
Test Protocol			IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-23)	IS 5182 (Part-24)
Sample ID: SELRC/2023/AAQ/1204	Time	Limit	80 µg/m ³	80 µg/m ³	100 µg/m ³	60 µg/m ³
Sampling Location 1: - Near Entrance Gate 23°08'76.157" N / 85°23'70.893" E	02:30 PM - 06:30 PM		8.94	17.18	86	42.36
	06:35 PM - 10:35 PM		11.63	20.51		
	10:40 PM - 02:40 AM		15.20	22.17	80	
	02:45 AM - 06:45 AM		16.99	23.83		
	06:50 AM - 10:50 AM		19.67	28.27	92	
	10:55 AM - 02:55 PM		21.46	29.38		
Average			15.65	23.56	86.00	
Sample ID: SELRC/2023/AAQ/1205	Time	Limit	80 µg/m ³	80 µg/m ³	100 µg/m ³	60 µg/m ³
Sampling Location 2: - Near Office 23°08'91.106" N / 85°28'80.637" E	02:40 PM - 06:40 PM		8.05	17.18	78	46.11
	06:45 PM - 10:45 PM		11.63	18.29		
	10:50 PM - 02:50 AM		14.31	18.85	82	
	02:55 AM - 06:55 AM		16.99	22.73		
	07:00 AM - 11:00 AM		18.10	25.50	84	
	11:05 AM - 03:05 PM		19.67	30.48		
Average			14.46	22.17	81.33	

[Signature]





SHREE ENVIRO LAB & RESEARCH CENTRE PRIVATE LIMITED
RANCHI

Recognized by Government of Jharkhand (G.O. No. 100/2019/1000001/2019)
G.O. No. 100/2019/1000001/2019



Parameters			Sulphur Dioxide (SO ₂)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM ₁₀)	Particulate Matter (PM _{2.5})
Test Protocol			IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-23)	IS 5182 (Part-24)
Sample ID:	Time	Limit	80 µg/m ³	80 µg/m ³	100 µg/m ³	50 µg/m ³
SELRC/2023/AAQ/1206 Sampling Location 3: - Near Godown 23°08'31.442" N/ 85°28'77.901" E	02:50 PM	06:50 PM	7.15	21.06	70	49.06
	06:55 PM	10:55 PM	13.41	24.94		
	11:00 PM	03:00 AM	16.10	25.50	76	
	03:05 AM	07:05 AM	17.89	27.15		
	07:10 AM	11:10 AM	16.99	28.27	74	
	11:15 AM	03:15 PM	19.67	30.48		
Average			15.20	26.24	73.33	

*****End of Report*****

Remarks:	All parameters were found within the prescribed limit.
Abbreviation used	µg/m ³ - Microgram per meter cube. IS - Indian Standard
Note	The document stated as Test Report is issued by the Laboratory under General Terms and Conditions, only on Laboratory letterhead in the approved format. The Results stated in the Test Report are based on the findings of the Laboratory done at the time of monitoring and analysis only. The report in full or in part, shall not be used for publishing, or advertising for any legal evidence unless prior permission is obtained from the management of the Laboratory. The collected samples shall be destroyed after 30 days from the date of issue of the certificate. Any type of complaint regarding the Reports shall be made within 15 days from the issue date of the Test Report. Thereafter no complaints will be accepted. The liability of the Laboratory is limited to the allotted job only. All disputes are subject to Ranchi Jurisdiction.

N.B. Kachhap
25/01/2024
Verified By
(N.B. Kachhap)
Technical Manager
Authorized Signatory

R. N. Kashyap
Issued By
(R. N. Kashyap)
Director/Laboratory Head
Authorized Signatory



[Handwritten Signature]



SHEVA ENVIRO LAB & RESEARCH CENTRE PRIVATE LIMITED
RANCHI

Recognized by Government of India - Ministry of Environment & Forests
No. 881/2015, Dt. 14/01/2015, G.O. MSN 12114/2015-Conservation



TEST REPORT

Test Report No.:	SELRCPL/2024/0004	Report Release Date:	08-01-2024
Job ID:	Application No - 18052158	Job ID Date:	18-12-2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	Mrs Parwati Lakh Udyog,	Sample Description	Ambient Noise Level Monitoring
Address:	Belahathi Road, Khunti, Dist - Khunti	ULR No.	TC1250824000000004F
		Sampling Date	29-12-2023 to 30-12-2023
		Sample Received Date	30-12-2023
		Sampling Procedure	IS 9889:1981 RA 2020
		Type of Industry	Shellac Industry
		Industry Status	Operational
		Sample Collected By	Sagar Kumar and Team

METEOROLOGICAL CONDITION

Ambient Temperature (°C): 23.8 Relative Humidity (%): 54 Weather Condition: Clear

Sample ID:	Unit	Method	Result		Permissible Limit
			Day Time dB(A)	Day Time dB(A)	
SELRC/2023/SLM/1207					
Sampling Location 1: - Near Entrance Gate 23°08'78.157" N/ 85°23'70.893" E	dB(A)	IS 9889:1981:2020	68	42	75 dB(A) Day Time & 70 dB(A) Night Time
SELRC/2023/SLM/1208					
Sampling Location 2: - Near Office 23°08'91.105" N/ 85°28'80.637" E	dB(A)	IS 9889:1981:2020	65	40	
SELRC/2023/SLM/1209					
Sampling Location 3: - Near Godown 23°08'91.442" N/ 85°28'77.901" E	dB(A)	IS 9889:1981:2020	60	38	

End of Report






SHREE ENVIRO LIFE & RESEARCH CENTRE PRIVATE LIMITED
RANCHI

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ISO 14001:2015 Certified
ISO 45001:2018 Certified



Remarks:	Noise Level were found within the permissible limit.
Abbreviation used	dB - Decibel, IS - Indian Standard
Note -	<p>Day Time - From 6:00 AM to 10:00 PM & Night Time - From 10:00 PM to 6:00 AM</p> <p>The document stated as Test Report is issued by the Laboratory under General Terms and Conditions only on Laboratory letterhead in the approved format.</p> <p>The Results stated in the Test Report are based on the findings of the Laboratory done at the time of monitoring only.</p> <p>The report in full or in part, shall not be used for publishing, or advertising for any legal evidence unless prior permission is obtained from the management of the Laboratory. The time schedule mentioned in Test Report is in 24-hour format.</p> <p>All disputes are subject to Ranchi Jurisdiction.</p>


28/04/2024
Verified By
(N.B. Kachhap)
Technical Manager
Authorized Signatory


28/04/2024
Issued By
(R. N. Kashyap)
Director/Laboratory Head
Authorized Signatory







SHREE ENVIRO LAB & RESEARCH CENTRE PRIVATE LIMITED RANCHI

Registered to carry out Environmental Testing & Research
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 17025:2017



TEST REPORT

Test Report No.: **SELRCPL/2024/0004** Report Release Date: **08-01-2024**
Job ID: Application No - 18052158 Job ID Date: **18-12-2023**

CUSTOMER DETAILS

Customer Name: **M/s Parwati Lakh Udyog.**
Address: **Belahathi Road, Khunti,
Dist - Khunti**

SAMPLE DETAILS

Sample Description: **Effluent Water**
ULR No.: **TC 1250824000000004F**
Sampling Date: **29-12-2023 to 30-12-2023**
Sample Received Date: **30-12-2023**
Sampling Procedure: **IS 17814 (Part - 01) 2021**
Type of Industry: **Shellac Industry**
Industry Status: **Operational**
Period of Analysis: **30-12-2023 to 06-01-2024**
Sample Collected By: **Sagar Kumar and Team**

TEST RESULT

Sample ID: **SELRC/2023/EF/1210**

Test Started on: **30-12-2023**

Test Completed on: **06-01-2024**

Sl. No.	Tested Parameter	Unit	Results	Methods	Permissible Limit
1	Temperature	(°C)	19.0	IS 3025 (Part - 9) 2023	--
2	pH (21.6 °C)	---	7.45	IS 3025 (Part - 11) 2022	5.5 - 9.0
3	Chloride (as Cl)	mg/L	57.5	IS 3025 (Part - 32) 2019	--
4	Chemical Oxygen Demand (COD)	mg/L of O ₂	130	IS 3025 (Part - 58) 2023	250.0
5	Biochemical Oxygen Demand (BOD) 3 days at 27 °C	mg/L	40.0	IS 3025 (Part - 44) 2023	30.0
6	Sulphate (as SO ₄ ²⁻)	mg/L	26.2	APHA 24 th Edition 4500 SO ₄ ²⁻ E 2023	--
7	Oil & Grease	mg/L	1.64	APHA 24 th Edition 5520 B 2023	10.0
8	Total Solids (TS)	mg/L	475	IS 3025 (Part - 15) 2019	--
9	Total Dissolved Solids (TDS)	mg/L	463	IS 3025 (Part - 16) 2023	--
10	Total Suspended Solids (TSS)	mg/L	9.8	IS 3025 (Part - 17) 2022	100.0

End of Report

Remarks:

Abbreviation used
Note:

BOD parameter was found beyond the Permissible Limits.

°C - Degree Celsius, mg/L - Milligram per litre, IS - Indian Standard, EF - Effluent water
The document stated as Test Report is issued by the Laboratory under General Terms and Conditions, only on Laboratory letterhead in the approved format.
The Results stated in the Test Report are based on the findings of the Laboratory done at the time of sampling and analysis only.
The report in full or in part, shall not be used for publishing, or advertising for any legal evidence unless prior permission is obtained from the management of the Laboratory.
The collected samples shall be destroyed after 30 days from the date of issue of the certificate.
Any type of complaint regarding the Reports shall be made within 15 days from the issue date of the Test Report. Thereafter no complaints will be accepted.
The liability of the Laboratory is limited to the allotted job only.
All disputes are subject to Ranchi Jurisdiction.

Ritul Bharti
08/01/2024
Tested By
(Ritul Bharti)
Senior Analyst
Authorized Signatory

N. B. Kachhap
08/01/2024
Verified By
(N. B. Kachhap)
Technical Manager
Authorized Signatory



R. N. Kashyap
08/01/2024
Issued By
(R. N. Kashyap)
Director/Laboratory Head
Authorized Signatory

Address - 2206/A, Jagannath Nagar, Near Poon Crest Apartment, Ranchi, Jharkhand, India. Contact - 0651 3130125 (M) 9430700000 (W) 9430700000
State - Jharkhand (India). Contact - 0651 3130125 (M) 9430700000 (W) 9430700000
GST - 20ABLC56892B1ZB

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: National Accreditation Board for Testing Laboratory (NABL) & Jharkhand State Pollution Control Board (JSPCB)
Certified by: An ISO 9001:2015 & BS OHSAS 18001:2007



Certificate No. - TC 7813

ANALYTICAL TEST REPORT

Atmospheric Pollution Test Report		URL/Unique Lab Report No.	TC78132020000178F
Report Release Date	16 th July 2020	Report ID	YBAEEL-200627-102405-A01
Sample Description	Ambient Air Quality	Job code/ Ref. no.	YBAEELWAL/AJ.Jul.-20/09
Type of Industry	Stone Crusher(Apply for CTO renewal)	Work Order No./ Date	Application No. (8359306)
Issue to	M/s RavindraChoudhary, Dandoul Stone Mines & Crusher Mauza- Dandoul, PS- Dandoul, Dist.- Khunti, Jharkhand		
Sampling Period	11/07/2020 – 12/07/2020	Mode of sample collection	By YBAEEL Team
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAGM/36/2012-13)		
Sampling Locations	A. 9.8mtr. towards East Direction from Crusher unit	B. 9.4mtr. towards North- West Direction from Crusher unit	C. 9.5mtr. towards South- West Direction from Crusher unit
Meteorological Cond.	W.C.- Partly Cloudy	RH % - 74%	Temp. -28°C
Sample receipt Date	13/07/2020	Analysis Started on	13/07/2020
		Analysis completed on	16/07/2020

Test Results

Parameters	Test Method	Units	Sampling Location			CPCB Green Book
			Site A	Site B	Site C	
Particulate matter (TSPM)	IS:5182 (P-23) 2006	µg/m ³	524.5	568.1	577.8	600
Sulphure Dioxide (SO ₂)	IS:5182 (P-2) 2001 RA 2012	µg/m ³	9.4	11.5	12.5	-
Nitrogen Dioxide (NO ₂)	IS:5182 (P-6) 2006 RA 2012	µg/m ³	26.3	28.2	29.1	-

End of Report

Remarks	Samples Comply with the prescribed specification		
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit		
Note	The parameters marked with * are not accredited by NABL		
Specific contractual notes	All values are expressed in SI unit		
	The results listed refer only to the tested sample and applicable parameter.		
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law		
	This report cannot be reproduced, except when in full, without the written permission of the Lab in-charge		
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise		
	The liability of the laboratory is limited to the invoiced amount!		
	All disputes are subjected to the Ranchi Jurisdiction		
	Tested by Amit Kumar Sinha Lab Analyst	Verified by Brij Nandan Kumar Section In-Charge	Issued by Umesh Das Technical Manager



Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical &
Environmental Engineering Laboratory



Branch Office - | Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in





YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

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Certified by - An ISO 9001:2015 & BS OHSAS 18001 : 2007



Certificate No. - TC 7813

ANALYTICAL TEST REPORT

Atmospheric Pollution Test Report		URL (Unique Lab Report) No.	TC78132020000179F
Report Release Date	16 th July 2020	Report ID	YBAEEL-200627-102405-N01
Sample Description	Ambient Noise	Job code/ Ref. no.	YBAEEL/WA/LA/Jul. - 20/08
Type of Industry	Stone Crusher (Apply for CTO renewal)	Work Order No./ Date	Application No. (8359306)
Issue to	M/s Ravindra Choudhary, Dandoul Stone Mines & Crusher Mauza- Dandoul, PS- Dandoul, Dist.- Khunti, Jharkhand		
Sampling Period	11/07/2020 - 12/07/2020	Mode of sample collection	By YBAEEL Team
Sampling Protocol	IS 9876:1981 (RA 2007) & CPCB Method S.O.50 (E) dated 11/01/2010		
Meteorological Cond.	Temp. - 28°C	RH % - 74%	W.C. - Partly Cloudy
Sample receipt Date	13/07/2020	Analysis Started on	13/07/2020
		Analysis completed on	16/07/2020

Test Results

Sl.NO.	Locations	Parameters	Units	Day Time	Night Time	Limits
1.	East Direction	Leq	dB (A)	72.0	49.8	Day - 75 Night - 70
2.	North-West Direction	Leq	dB (A)	72.9	50.8	
3.	South-West Direction	Leq	dB (A)	73.5	50.1	

End of Report

- Day time shall mean from 6.00 a.m. to 10.00 p.m.
- Night time shall mean from 10.00 p.m. to 6.00 a.m.
- Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
- Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.
- dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale (A) which is relative to human hearing.

Remarks	Samples Comply with the prescribed Specification		
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit		
Note	The parameters marked with * are not accredited by NABL.		
Specific contractual notes	All values are expressed in as unit. The results listed refer only to the tested sample and applicable parameter. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the Lab in-charge. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.		
	 Tested by Amit Kumar Sinha Lab Analyst	 Verified by Brij Nandan Kumar Section in-Charge	 Issued by Umesh Das Technical Manager



Authorized Signatory
Atmospheric Pollution
Yugantar, Analytical &
Environmental Engineering Laboratory



Branch Office - Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 088351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in



JHARKHAND STATE POLLUTION CONTROL BOARD

Central Laboratory, Hatia, Ranchi, Phone: - 0651- 2291449

Ref. No.: 150 (A)
Application No. - 18953946
Date : 30.03.2024

Ranchi, Dated 04/04/2024

R&D AMBIENT AIR QUALITY REPORT

Name of the Industry : M/s Sandhya Devi Sand Stock Yard
 Mouza-Armare, Khata No-17 Plot No-310
 P.O-Torpa, Dist-Khunti, Jharkhand

No. of Sampling Points : 3

Date of Sampling : 01-02/04/2024

Weather Condition : Clear

Sampling Position :
 1. Near North Side
 2. Near East South Side
 3. Near West South Side

Time	SO ₂	NO _x	RSPM
Point 1			
11.00 A.M. to 3.00 P.M.	18.15	20.29	83.62
3.00 P.M. to 7.00 P.M.	17.12	19.98	
7.00 P.M. to 11.00 P.M.	14.13	17.15	79.52
11.00 P.M. to 3.00 AM.	13.91	14.99	
Maximum	18.15	20.29	83.62
Average	15.83	18.10	81.37
Point 2			
11.15 A.M. to 3.15 P.M.	19.25	21.17	81.88
3.15 P.M. to 7.15 P.M.	18.19	20.02	
7.15 P.M. to 11.15 P.M.	17.35	19.65	78.22
11.15 P.M. to 3.15 AM.	16.56	17.29	
Maximum	19.25	21.17	81.88
Average	17.84	19.66	80.05
Point 3			
11.30 A.M. to 3.30 P.M.	20.17	22.98	85.91
3.30 P.M. to 7.30 P.M.	19.21	20.95	
7.30 P.M. to 11.30 P.M.	18.65	20.01	78.65
11.30 P.M. to 3.30 AM.	16.02	17.89	
Maximum	20.17	22.98	85.91
Average	18.51	20.46	82.28

Note : All values are expressed in micro gram/cubic metre :

Remarks :- The Average value of RSPM (PM₁₀) at all points were found within the prescribed standard limit of 100 µg/m³.

Usha
04/04/24
(Kumari Usha)
ASO

R.N. Anjan
04/04/2024
(R.N. Anjan)
Board Analyst

Chakraborty





ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, BANCHI-834003 (JHARKHAND)
GST NO - 20AAECES7130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website: www.elespl.co.in



LINE: 07488093201&PTC011375

TC-0809

TEST REPORT

Test Report No. : ELES/RNC/2023/4811	Report Release Date : 22.12.2023
Application No. : 18016218	Application Date : 14.12.2023
ULR No. : TC883923000002934F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Shiv Kumar Sahu (Stone Crusher Unit)	Sampling Date	: 18.12.2023 to 19.12.2023
Address	: Mauza- Terom, Dist- Khunti.	Sample Received Date	: 19.12.2023
		Type of Sample	: Ambient Air
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed
		Period of Analysis	: 19.12.2023 to 22.12.2023

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 20	2	Barometric Pressure (mmHg) : 715
3	Relative Humidity (%) : 46	4	Weather Condition : Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameters	Particulate Matter (PM10)								Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)	
	Test Protocol		IS 5182 (P-23)		IS 5182 (P-24)		IS 5182 (P-2)		IS 5182 (P-6)					
Locations	Limit	Unit	100	µg/m ³	60	µg/m ³	80	µg/m ³	80	µg/m ³				
Near Main Gate	09:15 - 13:23		76	35	11.8	22.7	17.1	30.8	10.7	26.7				
	13:23 - 17:11													
	17:18 - 21:26													
	21:26 - 01:15													
	01:23 - 05:31													
	05:31 - 09:14													
Sample ID ELES/RNC/2023/AA/4629	Average		70		35		12.2		25.7					
Near Crusher Area	09:25 - 13:33		82	41	13.5	23.9	10.7	26.2	15.5	33.5				
	13:33 - 17:20													
	17:27 - 21:35													
	21:35 - 01:24													
	01:31 - 05:39													
	05:39 - 09:23													
Sample ID ELES/RNC/2023/AA/4630	Average		73		41		11.4		24.3					

Page 1 of 2

The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Test Report refer or relates only to the job/analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report in full or its part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized alteration & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in 24hours format. Abbreviation used: N/A (Not Applicable); LOD (Below Detection Limit); LDL (Lower Detection Limit).

"Save Environment, Save Future"

(Handwritten signature)





ENVIRONMENTAL LABORATORIES &

PLT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO.: 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



IC-8839

CR: 174896/J2018PFC11125

TEST REPORT

Test Report No. : ELES/RNC/2023/4811	Report Release Date : 22.12.2023
Application No. : 18016218	Application Date : 14.12.2023
ULR No. : TC883923000002934F	

Discipline : Chemical		Group : Atmospheric Pollution								
Parameters		Particulate Matter (PM10)		Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)		
Test Protocol		IS 5182 (P-23)		IS 5182 (P-24)		IS 5182 (P-2)		IS 5182 (P-6)		
Locations	Limit	Unit	100	µg/m ³	60	µg/m ³	80	µg/m ³	80	µg/m ³
Near Stock Yard	09:36 – 13:44		72	38			12.9	26.3		
	13:44 – 17:34						10.2	23.5		
	17:41 – 21:48		13.0				21.7			
	21:48 – 01:35	55	8.1				19.2			
	01:42 – 05:50	67	6.8				17.8			
	05:50 – 09:34		11.3				28.3			
Sample ID ELES/RNC/2023/AA/4631	Average		65	38		10.4	22.8			



****End of Report****


Authorised Signatory
Dr. Deependra Kumar Sinha
 Ph. D Environmental Engg.
 ELES Pvt. Ltd. Technical Manager





Page 2 of 2

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Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74909JH2018PTC011121

TC-4335

TEST REPORT

Test Report No. : ELES/RNC/2023/4812	Report Release Date : 22.12.2023
Application No. : 18016218	Application Date : 14.12.2023
ULR No. : TC883923000002935F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Shiv Kumar Sahu (Stone Crusher Unit)	Sampling Date	: 18.12.2023 to 19.12.2023
Address	: Mauza- Terom, Dist- Khunti.	Sample Received Date	: 19.12.2023
		Type of Sample	: Ambient Noise
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 19.12.2023 to 22.12.2023

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 715
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution				
Location	Unit	Test Protocol	Result			Regulatory Limit
Near Main Gate	dB(A)	IS 9989:1981, RA 2020	L _{Max}	L _{Min}	L _{eq}	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2023/AN/4632			69.4	40.5	62	
Near Crusher Area	dB(A)	IS 9989:1981, RA 2020	L _{Max}	L _{Min}	L _{eq}	
Sample ID: ELES/RNC/2023/AN/4633			74.7	46.5	66	
Near Stock Yard	dB(A)	IS 9989:1981, RA 2020	L _{Max}	L _{Min}	L _{eq}	
Sample ID: ELES/RNC/2023/AN/4634			73.8	42.7	64	



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.
cLES Pvt. Ltd. Technical Manager

Page 1 of 1

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JHARKHAND STATE POLLUTION CONTROL BOARD

Central Laboratory, Hatia, Ranchi, Phone: - 0651- 2291449

Ref No:- 164 (A)
Application No - 16205280
Date - 30.04.2023

Ranchi, Dated... 04/05/2023

AMBIENT AIR QUALITY REPORT

Name of the Industry : M/S Sirka Stone Deposit,
At- Sirka, P.S -Karma, Kunti, Jharkhand

Date of Sampling : 2-3/05/2023
Weather Condition : Clear

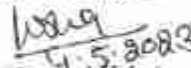
No of Sampling Points : 3

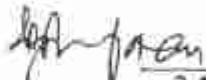
1. East Side
2. West Side
3 North Side
RSPM

Time	SO ₂	NO _x	RSPM
Point 1			
08 : 00 AM to 12.00 P.M.	10.98	29.52	78.26
12.00 P.M. to 4.00 P.M.	12.30	31.43	
4:00 P.M. to 8:00 P.M.	13.07	33.33	89.75
8:00 P.M. to 12.00 AM.	11.50	27.62	
Maximum	13.07	33.33	89.75
Average	11.96	30.47	84.00
Point 2			
8:05 A.M. to 12:05 P.M.	10.46	28.57	81.34
12:05 P.M. to 04:05 P.M.	12.55	30.47	
04:05 P.M. to 08:05 PM.	13.60	32.38	91.66
08:05 P.M. to 12:05 AM.	10.98	34.28	
Maximum	13.60	34.28	83.71
Average	11.89	31.42	86.50
Point 3			
08:10 A.M. to 12:10 P.M.	11.50	27.62	85.46
12:10 P.M. to 04:10 P.M.	13.60	31.43	
04:10 P.M. to 08:10 P.M.	14.12	35.24	94.44
08:10 A.M. to 12:10 AM.	12.55	33.33	
Maximum	14.12	35.24	94.44
Average	12.94	31.90	89.95

Note : All values are expressed in micro gram/cubic metre :

Remarks :- The average value of RSPM(PM₁₀) at all points were found within the prescribed Standard limit of 100µg/m³.


(Kumari Usha)
A.S.O


(R.N. Anjaan) 04/05/2023
Board Analyst

Ambient Air Quality 2023







JHARKHAND STATE POLLUTION CONTROL BOARD
Central Laboratory, Main Baram Bhowan, Patna, Ranchi, Phone: - 0651- 2291449

Lab. Ref. No. - 164 (N)

Ranchi, Dated: 04/05/2023

Application No - 16305280

Date - 30/04/2023

R&D

The Equivalent Noise Level in Leq dB(A) at various locations inside the premises of M/S Sirka Stone Depositor, At Sirka, P.S.- Kurma, Dist.- Khunti, Jharkhand. Taken On 02.05.2023 at Day Time (from 6.00 A.M to 10.00P.M) is as follows:-

Sl. No.	Monitoring Location	Time	Avg. Noise level in Leq dB (A)	Standard Limit In Day Time
1	East Side	2.00 PM	73.8	75dB(A)
2	West Side	2.20 PM	79.9	75dB(A)
3	North Side	2.40 PM	69.0	75dB(A)

Remarks The Value of Noise Level at all points were found within the prescribed standard limit.

Kumari Usha
4.5.2023

(Kumari Usha)
A.S.O


(R.N. Anjan)
04/05/2023
Board Analyst







A Unit of Technology Solution Consultants LLP

Mobile: - (91) 9835781406, 9031655783, 9128726772

E-mail: - tsc.techno@gmail.com, Website: - www.tscindia.com

Lab Address: - Vrindavan Colony, Opp. "KHABAR MANTRA" Phono-4,

Road no - 2, Boreya, Ranchi - 834006 (Jharkhand)

Certified by ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018



ISO-9001

AIR QUALITY REPORT

Report No: TSC/R/23-24/TR-No- 0826

Issue Date: 26.12.2023

Issue To,	: SOLID WASTE PROCESSING FACILITY AT KHUNTI, MAUZA-BELAHATHI Dist-KHUNTI		
Work Order no.	: JSPCB Application No: 17929264	JSPCB Application Date: 05.12.2023	
Type of Industry	: Waste Compost		
Job Code No.	: TSC/LAB-2/EV/S - 162	Sample Code	: TSC/PB/EV/23-24/162
Sampling Period	: 20.12.2023 - 21.12.2023	Sample Collected By:	: TSC Team
Sampling Protocol	: IS-5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)		
Sampling Location	Site 1	Site 2	Site 3
	Lat - 23°05'32.8"	Lat - 23°05'36.3"	Lat - 23°05'34.9"
	Long - 85°17'15.9"	Long - 85°17'17.0"	Long - 85°17'21.6"
Meteorological Cond.	: W.C - Clear	Avg Temp.(°C) - 21.0°	RH (%) - 61.1

TEST RESULTS

Parameters	Test Method	Units	Sampling Location			As per required NAAQS (2009)
			Site 1	Site 2	Site 3	
Particulate Matter (PM ₁₀)	IS 5182 (P-23) 2006	µg/m ³	70.4	75.6	80.4	100
Particulate Matter (PM _{2.5})	IS 5182 (P-24) 2019	µg/m ³	29.7	32.5	35.8	60
Sulphur Dioxide (SO ₂)	IS 5182 (P-2) 2001	µg/m ³	<8	<8	08.7	80
Nitrogen Dioxide (NO _x)	IS 5182 (P-6) 2006	µg/m ³	13.9	15.8	18.5	80

END OF RESULT

1. Samples Comply with the prescribed specification as per NAAQS 2009.
2. The results relate only to the items tested.
3. The test report shall not be reproduced without written approval of the laboratory.

LAB ANALYST



Handwritten signature



JHARKHAND STATE POLLUTION CONTROL BOARD

Central Laboratory, Hatia, Ranchi, Phone:- 0651- 2291449

Ref. No.:153/21

Ranchi, Dated

R&D AMBIENT AIR QUALITY REPORT

Name of the Industry : M/s Stock Yard of Soud for Sri Hemant Kumar
 Sabu, At.+ Mauza-Bakaspur, PO- Lapa, Dist-Khunti
 No. of Sampling Points : 3
 Sampling Position :
 1. Near Rail Line
 2. Near Police Pocket Road
 3. Near Middle of the unit

Date of Sampling : 16-17/12/2021
 Weather Condition : Clear

Time	SO ₂	NO _x	RSPM
Point 1			
1.00 P.M. to 5.00 P.M.	13.12	15.91	67.24
5.00 P.M. to 9.00 P.M.	12.91	14.81	
9.00 P.M. to 1.00 A.M.	11.88	13.63	59.28
1.00 A.M. to 5.00 A.M.	11.71	12.99	
Maximum	13.12	15.91	67.24
Average	12.41	14.34	63.26
Point 2			
1.15 P.M. to 5.15 P.M.	14.81	16.09	75.71
5.15 P.M. to 9.15 P.M.	13.75	15.81	
9.15 P.M. to 1.15 A.M.	12.63	14.75	60.02
1.15 A.M. to 5.15 A.M.	12.71	13.79	
Maximum	14.81	16.09	75.71
Average	13.48	15.11	67.87
Point 3			
1.30 P.M. to 5.30 P.M.	13.98	15.34	73.10
5.30 P.M. to 9.30 P.M.	13.11	14.21	
9.30 P.M. to 1.30 A.M.	12.17	13.41	61.21
1.30 A.M. to 5.30 A.M.	12.29	13.55	
Maximum	13.98	15.34	73.10
Average	12.80	14.13	67.16

Note : All values are expressed in micro gram/cubic metre

Remarks :- The value of all parameters were found within the prescribed limit.

(S.K. Singh)
ASO

(R.N. Kashyap)
Board Analyst





A Unit of Technology Solution Consultants LLP

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Road no - 2, Boreya, Ranchi - 834006 (Jharkhand)

Certified by ISO 9001:2015, ISO 14001:2015 & ISO 5001:2018



AMBIENT AIR QUALITY REPORT

Report No: TSC/R/23-24/TR-No- 0519

Issue Date: 19.09.2023

Issue To,	TAJNA SHELLAC PRIVATE LIMITED TAJNASHELLAC PRIVATE LIMITED P.O. KHUNTI: 835210, DIST: KHUNTI, JHARKHAND. Dist-KHUNTI		
Work Order no.	JSPCB Application No: 17188742	JSPCB Application Date: 04-09-2023	
Type of Industry	SHELLAC		
Job Code No.	TSC/LAB-2/EV/S - 98	Sample Code	TSC/PB/EV/23-24/98
Sampling Period	11.09.2023 - 12.09.2023	Sample Collected By:	TSC Team
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)		
Sampling Location	Site 1 Lat - 23.06'36"N Long - 85.16'36"E	Site 2 Lat - 23.06'35"N Long - 85.16'35"E	Site 3 Lat - 23.06'34"N Long - 85.16'34"E
	Meteorological Cond.	W.C - Cloudy	Avg Temp (°C) - 30.1 RH(%) - 72

TEST RESULTS

Parameters	Test Method	Units	Sampling Location			As per required NAAQS (2009)
			Site 1	Site 2	Site 3	
Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2006	µg/m ³	75.6	72.0	68.7	100
Particulate Matter (PM _{2.5})	USEPA- 40 CFR (PART 50) (50.7)	µg/m ³	36.4	33.9	30.2	60
Sulphur Dioxide (SO ₂)	IS:5182 (P-2) 2001	µg/m ³	18.6	16.9	14.2	80
Nitrogen Dioxide (NO _x)	IS:5182 (P-6) 2006	µg/m ³	29.9	27.9	25.6	80

END OF RESULT

1. Samples Comply with the prescribed specification as per NAAQS 2009.
2. The results relate only to the items tested.
3. The test report shall not be reproduced without written approval of the laboratory.

LAB ANALYST

AUTHORIZED SIGNATORY



Registered Office: - 2nd floor office (1st flr) 23/5-2, Boreya, Ranchi - 834006 (Jharkhand)
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Certified by ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018



NOISE MONITORING REPORT

Report No: TSC/R/23-24/TR-No- 0519/01

Issue Date: 19.09.2023

Issue To:	TAJNA SHELLAC PRIVATE LIMITED TAJNASHELLAC PRIVATE LIMITED		
Work Order no.	P.O. KHUNTI: 835210, DIST: KHUNTI, JHARKHAND. Dist-KHUNTI		
Type of Industry	JSPCB Application No: 17188742	JSPCB Application Date: 04-09-2023	
Job Code No.	TSC/LAB-2/NOISE/S - 65	Sample Code	TSC/PB/NOISE/23-24/65
Sampling Period	11.09.2023 - 12.09.2023	Sample Collected By:	TSC Team
Sampling Protocol	IS:9989 - 1981 (RA-2001)		
Sampling Location	Site 1 Lat - 23.06'36.5"N Long - 85.16'36.5"E	Site 2 Lat - 23.06'35.5"N Long - 85.16'35.5"E	Site 3 Lat - 23.06'34.5"N Long - 85.16'34.5"E
Meteorological Cond.	W.C - Cloudy	Avg Temp (°C) - 30.1	RH(%) - 72

TEST RESULTS

Sampling Location	Site 1			
	Day Time	Leq in dB(A)	Night Time	Leq in dB(A)
Site 1 Lat - 23.06'36.5"N Long - 85.16'36.5"E	11:25 AM	64.1		
	03:25 PM	64.5		
	06:25 AM	64.8	10:20 PM	54.2
	10:25 AM	64.2	02:20 AM	54.0
Maximum		64.8		54.2
Average		64.4		54.1
Sampling Location	Site 2			
	Day Time	Leq in dB(A)	Night Time	Leq in dB(A)
Site 2 Lat - 23.06'35.5"N Long - 85.16'35.5"E	11:35 AM	63.6		
	03:35 PM	62.3		
	06:35 AM	63.1	10:30 PM	52.8
	10:35 AM	63.4	02:30 AM	52.6
Maximum		63.6		52.8
Average		63.1		52.7



Handwritten signature

Report No: TSC/R/23-24/TR-No-0519/01

Issue Date: 19.09.2023

Sampling Location	Site 3			
	Day Time	Leq in dB(A)	Night Time	Leq in dB(A)
Site 3 Lat - 23.06'34.5"N Long - 85.16'34.5"E	11.50 AM	62.2		
	03.50 PM	62.8		
	06.50 AM	62.7	10.45 PM	53.1
	10.50 AM	62.3	02.45 AM	53.7
Maximum		62.8		53.7
Average		62.5		53.4

END OF RESULT

Remarks: All values are observed well within the limit.

Note: 1. Day Time - From 6:00 AM to 10:00 PM,

Night Time - From 10:00 PM to 6:00 AM

2. The Noise Pollution (Regulation and Control) Rules, 2000, (CPCB)

Area / Zone

Day Time dB(A)

Night Time dB(A)

A. Industrial Area

75.0

70.0

B. Commercial Area

65.0

55.0

C. Residential Area

55.0

45.0

D. Silence Zone

50.0

40.0

3. The results relate only to the items tested.

4. The test report shall not be reproduced without written approval of the laboratory.



LAB ANALYST



AUTHORIZED SIGNATORY





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Certified by: ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018



EFFLUENT TEST REPORT

Report No: TSC/R/23-24/TR-No-0519/02

Issue Date: 19.09.2023

Issue To:	TAJNA SHELLAC PRIVATE LIMITED TAJNASHELLAC PRIVATE LIMITED P.O. KHUNTI: 835210, DIST: KHUNTI, JHARKHAND. Dist-KHUNTI		
Work Order no.	JSPCB Application No: 17188742	JSPCB Application Date: 04-09-2023	
Type of Industry	SHELLAC	Sampling Date	11.09.2023
Job Code No.	TSC/LAB-2/WT/S-24	Sample Code	TSC/PB/23-24/24
Sample Collected By:	TSC Team	Sample Source	Effluent Water
Sample Package Condition	Sealed pack in PP Jar	Sample Quantity	05 Liters
Sampling Location	ETP-Outlet	Sampling Protocol	IS 3025-P-1: 1987 RA-2003
Test Started on	12.09.2023	Test Completed on	16.09.2023
Test Method	IS: 3025 Relevant part (RA 2017 & 2019).		

TEST RESULTS

Sl. No.	Test Parameter	Units	Result	Test Method	Limits
1.	pH Value.	--	6.85	IS 3025 (Part-11): 1983 (RA-2002)	5.5- 9.0
2.	Temperature	°C	24.8	IS 3025(P-09)	40 Max
3.	Total Solids	mg/l	240	IS 3025 (P-15):2009	--
4.	BOD (Biological Oxygen Demand), (3 days at 20°C)	mg/l	12	IS 3025 (Part-44): 1993 (RA-2006)	30 Max
5.	COD (Chemical Oxygen Demand)	mg/l	67	IS 3025 (Part-56): 2006	250 Max
6.	TSS (Total Suspended Solid)	mg/l	27	IS 3025 (Part-17): 1984 (RA-2012)	100 Max
7.	TDS (Total Dissolve Solid)	mg/l	213	IS 3025 (Part-16): 1984 (RA-2006)	2100 Max
8.	Oil & Grease	mg/l	BOD (MDL 4.0)	IS 3025 (Part-30): 2003	10
9.	Sulphate (as SO ₄ ²⁻)	mg/l	51	IS 3025 (Part-24): 2003	--

END OF RESULT

Note:

1. The results relate only to the items tested.
2. The test report shall not be reproduced without written approval of the laboratory.

LAB ANALYST

AUTHORIZED SIGNATORY





Test Report

ULR No.:	T	C	1	1	5	1	5	2	4	0	0	0	0	0	0	8	3	0
Discipline: Chemical	Group: Atmospheric Pollution						Sub-Group: Ambient Air											
Report Issue Date: 11-07-2024	Test Report No.: RN-240704001A																	
Sample ID: 240709AP01001-002-003	Sample Description: Ambient Air																	
Challan No./P.O. No.: 19708031	Challan No./ P.No. Date: 04-07-2024																	
Issued to:																		
M/S TANGENT CONSTRUCTION INDIA PVT. LTD., VILLAGE – SIRKA, THANA NAME – KARRA, THANA NUMBER- 126, DISTRICT – KHUNTI, JHARKHAND, KHUNTI (Jharkhand)																		
Type of Industry: Stone Crusher									Customer Representative: SRI SHABU K SANKARAN									
Sample Drawn by: IEM Team									Sampling Date: (08-07-2024 to 09-07-2024)									
Protocol: CPCB Guideline(NAAQMS/36/2012-13) & IS Method 5182 Series																		
Sampling Location	A Near Main Gate									Co-ordinates: 23°12'13.67"N to 85°13'29.70"E								
	B Near Office									Co-ordinates: 23°12'12.34"N to 85°13'33.25"E								
	C Near North Corner									Co-ordinates: 23°12'16.00"N to 85°13'34.83"E								
Field Meteorological Information			A. Temp. (°C): 29			R.H. (%): 68			W.C.: Partly Cloudy			W.D.: South to North						
Sample Receiving Date: 09-07-2024						Testing Started: 09-07-2024						Testing Ended: 11-07-2024						

---Test Results---

Sl.No.	Parameters	Test Method No.	Unit	Standard Norms**	Results		
					A	B	C
1	Particulate Matter (PM ₁₀)	IS 5182 Part 23	µg/m ³	100	62	57	72
2	Particulate Matter (PM _{2.5})	IS 5182 Part 24	µg/m ³	60	38	41	46
3	Sulphur Dioxide (SO ₂)	IS 5162 Part-02	µg/m ³	80	11	14	17
4	Nitrogen Dioxide (NO ₂)	IS 5182 Part-06	µg/m ³	80	24	27	32

---End of Report---

Env. Condition of Lab.	Laboratory is maintaining Temperature 27± 2°C and Relative Humidity 65±5 % in all testing area as per IS 1596:1966(1).
Abbreviation	MDL: Minimum Detection Limit, BDL: Below Detection Limit
Norms** is Specified	National Ambient Air Quality Standards (NAAQS), 2009
Remark	Sample Comply with prescribed specification.

Tested By: Akenksha Sourabh

Sample Drawn By: Aniket Muridu & Team

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	<i>T. A. Ahmad</i>	<i>S. C. Jain</i>
	(Taqeer Ahmad) Technical Manager	(S. C. Jain) Director

On the basis of Quality Checked and Technical data verified by the Authorized signatory, the report is issued by the Director of the Organization.

Page 1 of 1

Corporate Office: A/P, Akola (Highway) - 431001 India (Khatu Station, Khatu Road, Khatu, Jharkhand - 834001)

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Pin: 834207, Jharkhand, India.

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ENGINEERING SERVICES PVT. LTD.

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 CERTIFIED
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Environmental Pollution Monitoring & Analysis

TEST REPORT

Test Report No. : ELES/RNC/2023/2678	Report Release Date : 25.07.2023
Application No. : 16782582	Application Date : 12.07.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Timra Stone Deposit	Sampling Date	: 14.07.2023 to 15.07.2023
Address	: At- Timra, PS- Kara, Dist- Khunti.	Sample Received Date	: 17.07.2023
Plant Status	: Proposed	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/L02
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 17.07.2023 to 22.07.2023

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Parameters	Particulate Matter (PM10)		Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)			
	IS 5182 (P-23)	IS 5182 (P-24)	IS 5182 (P-2)	IS 5182 (P-6)						
Test Protocol	Limit	Unit	Limit	Unit	Limit	Unit	Limit	Unit		
Locations			100	µg/m ³	60	µg/m ³	80	µg/m ³	80	µg/m ³
North East Side of Site	09:10 - 13:18		65	32	10.4		20.7			
	13:18 - 17:05				8.1		19.0			
	17:11 - 21:19		6.5		17.4					
	21:19 - 01:05		5.7		15.6					
	01:10 - 05:18		7.1		18.8					
	05:18 - 09:06		11.4		19.3					
Sample ID ELES/RNC/PCB/AA/0825	Average		55	32	8.2		18.5			
South East Side of Site	09:25 - 13:33		69	37	13.5		23.8			
	13:33 - 17:20				9.2		20.5			
	17:26 - 21:29		11.1		18.4					
	21:29 - 01:18		8.4		20.1					
	01:24 - 05:27		7.5		19.6					
	05:27 - 09:17		10.7		22.0					
Sample ID ELES/RNC/PCB/AA/0826	Average		60	37	10.1		20.7			



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Chang



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Environmental Pollution Monitoring & Analysis

TEST REPORT

Test Report No. : ELES/RNC/2023/2678	Report Release Date : 25.07.2023
Application No. : 16782582	Application Date : 12.07.2023

Parameters		Particulate Matter (PM10)		Fine Particulate Matter (PM2.5)		Sulphur Di-Oxide (SO ₂)		Nitrogen Di-Oxide (NO ₂)		
Test Protocol		IS 5182 (P-23)		IS 5182 (P-24)		IS 5182 (P-2)		IS 5182 (P-6)		
Locations	Limit	Unit	100	µg/m ³	60	µg/m ³	80	µg/m ³	80	µg/m ³
West Side of Site	09:40 – 13:43		62	34			13.3	15.1	22.1	
	13:43 – 17:35						9.5		20.0	
	17:41 – 21:44		45				7.8		17.3	
	21:44 – 01:35		66				5.4		19.7	
	01:40 – 05:43						6.1		15.1	
	05:43 – 09:33						12.0		21.8	
Sample ID ELES/RNC/PCB/AA/0827	Average		58	34			9.0		19.3	



****End of Report****

Authorized Signatory
Jr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager



Page 2 of 2

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"Save Environment, Save Future"



कार्यपालक अभियंता का कार्यालय
जलपथ प्रमण्डल, खूँटी।



Email:- eewwdkhunti@gmail.com

पत्रांक :- 355

खूँटी, दिनांक :- 19.7.2024

प्रेषक,

कार्यपालक अभियंता,
जलपथ प्रमण्डल, खूँटी।

म.सि.
Dsk(stone) सफ़िलेड रे.
Chunp 20/07/2024

सेवा में,

जिला खनन पदाधिकारी।
खूँटी।

विषय:- आगामी पाँच वर्षों में संचालन किये जाने वाले योजनाओं एवं उसमें उपयोग होने वाले पत्थर खनिज की मात्रा उपलब्ध कराने के संबंध में।

प्रसंग:- भवदीय का पत्रांक 425/एम० दिनांक 21.05.2024

महाशय,

उपर्युक्त विषयक के संबंध में कहना है कि आगामी पाँच वर्षों में संचालन किये जाने वाले योजनाओं में उपयोग होने वाले पत्थर खनिज की मात्रा निम्नवत् है:

SL. No	Item of Stone Material	Quantity (M ³)
1	Stone Chips	2,16,550.00
2	Stone Boulders	53,700.00
3	Metal	21,025.00

19.07.2024

19.07.24

कार्यपालक अभियंता,
जलपथ प्रमण्डल खूँटी।

19.07.24

Chunp



कार्यपालक अभियंता का कार्यालय
पथ निर्माण विभाग, पथ प्रमण्डल, खूँटी।

पत्रांक 550/(खन)

दिनांक 28/6/24

प्रेषक,

कार्यपालक अभियंता
पथ निर्माण विभाग
पथ प्रमण्डल, खूँटी।

जिला
D.R. (S.R.O.B.E.) अफिलेन में
29/06/2024

सेवा में,

जिला खनन पदाधिकारी,
खूँटी।

विषय:-

आगामी पांच वर्षों में संचालन किये जाने वाले योजनाओं एवं उसमें उपयोग होने वाले पत्थर खनिज की मात्रा उपलब्ध कराने के संबंध में।

प्रसंग:-

आपका पत्रांक 425/एम0 दिनांक 21.05.2024

महाराज,

उपर्युक्त विषयक के संबंध में कहना है कि आगामी पांच वर्षों में संचालन किये जाने वाले योजनाओं में उपयोग होने वाले पत्थर खनिज की मात्रा निम्नवत् है:-

Sl. No.	Item of Stone Material	Quantity (M ³)
1.	Boulder	66135.00M ³
2.	Stone Chips	35638.00M ³
3.	Metal	116529.00M ³

28/06/24

विश्वासभाजन

Dublagal
28/6/24
कार्यपालक अभियंता
प0नि0वि0, पथ प्रमण्डल, खूँटी।



POTENTIAL ZONE IN THE DISTRICT

Potential Resource Area for stone mining in the district have been identified and marked on a map.

This identification has been done on basis of:

1. Existence of closed mines
2. Existence of running mines
3. Site visit to sites for which LOI have been issued by the District Mining Office
4. Applications have been filed by prospective proponents on raiyat land
5. Area identified by district Geology Dept.

These resource areas have been surveyed and limiting co-ordinated have been determined. All such zones are listed in DSR.

These zones indicate areas where resource is available. However, while issuing Lol for mining, it must be ensured by the authority that mining area for which Lol is being issued must be complied to all statutory siting criteria prescribed by competent state/central Govt. agency.

Chang

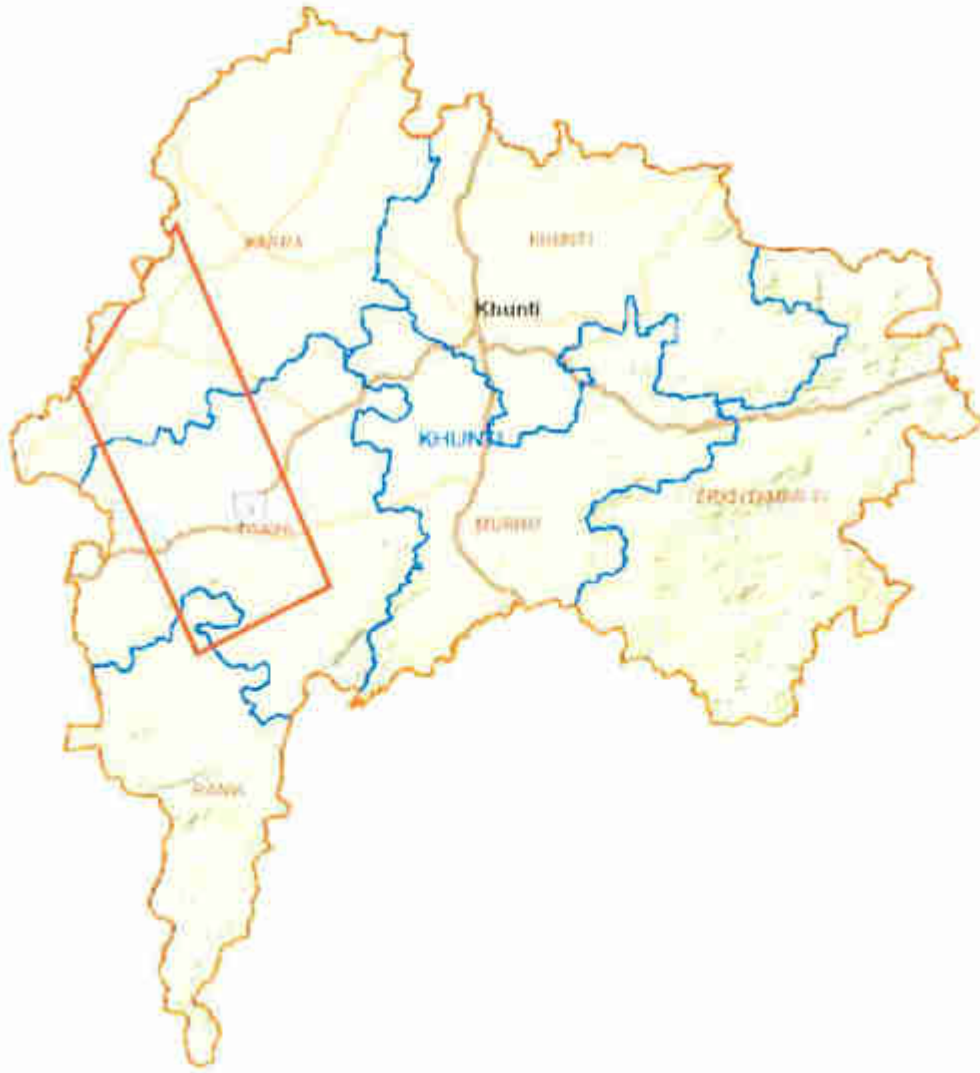


ZONE - I

Bounding Coordinate

22°50'56.47"N to 23° 7'36.00"N

85°10'26.36"E to 84°59'18.08"E



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Chang



Villages under Zone 1

Village	Block	Village	Block
1. Muruchkel	Karra	2. Barka Regre	Karra
3. Chhotka Rang	Karra	4. Hochor	Karra
5. Ukrimanri	Torpa	6. Roykera	Torpa
7. Kanakloya	Torpa	8. Ulihatu	Torpa
9. Jarakel	Raniya	10. Koinara	Raniya
11. Icha	Torpa	12. Budu	Torpa
13. Jojodog	Karra	14. Mitkora	Karra
15. Ethe	Karra	16. Bamhan Toli	Karra
17. Barwadag	Karra	18. Tilma	Karra
19. Masko	Karra	20. Murup	Karra
21. Dehkela	Karra	22. Tirla	Karra
23. Kurid	Karra	24. Jamhar	Karra
25. Bhusur	Karra	26. Chanpi	Karra
27. Bikuadag	Karra	28. Gara Toli	Karra
29. Dhobisoso	Torpa	30. Tati	Torpa
31. Eremere		32. Kulda	Torpa
33. Nichtpur	Torpa	34. Koinara	
35. Ranhe		36. Poirra	Torpa
37. Mamrala	Torpa	38. Uyur	Torpa
39. Tapkara	Torpa	40. Dumangdiri	Torpa
41. Bamnam		42. Barda	Torpa
43. Keyondtoli	Torpa	44. Patrauyur	
45. Chanho	Karra	46. Soteya	Karra
47. Konahopa	Karra	48. Kotlo	Karra
49. Sarlo	Karra	50. Bamarja	Karra
51. Aoro Toli	Karra	52. Runju	Karra
53. Samundar	Karra	54. Konra	
55. Hutub	Karra	56. Deswali	Karra
57. Garganj	Torpa	58. Tati	
59. Chiddi	Karra	60. Kajurda	Torpa
61. Jhatni Tola	Torpa	62. Digri	Torpa
63. Birda	Karra	64. Baski	Torpa
65. Barda	Torpa	66. Ubka	Torpa
67. Guphu	Torpa	68. Churji	Torpa
69. Patrauyur	Torpa	70. Limra	Torpa
71. Komra	Torpa	72. Barda	Torpa
73. Ramjay	Torpa	74. Urikel	Karra
75. Konahapa	Karra	76. Gumru	Karra
77. Jalanga	Karra	78. Kotsimla	Karra
79. Raisimla	Torpa	80. Rehargara	Karra

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ZONE - II

Bounding Coordinate

22°53'11.91"N to 23°12'35.95"N

85° 3'41.84"E to 85°15'51.06"E



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Ch 2



Villages under Zone 2

Village	Block	Village	Block
1. Palsa	Karra	2. Sardulla	Karra
3. Baragain	Karra	4. Dumari	Karra
5. Siankel	Karra	6. Diuri	Karra
7. Jaltanra	Karra	8. Jorko	Karra
9. Suari	Karra	10. Kanki	Khunti
11. Silafari	Karra	12. Bala	Karra
13. Kudari	Torpa	14. Chandarpur	Torpa
15. Chakla	Torpa	16. Korla	Torpa
17. Churgi	Torpa	18. Rirung	Torpa
19. Daintoli		20. Kokeya	Torpa
21. Gerenda	Torpa	22. Bandu	Torpa
23. Tirla	Torpa	24. Panriya	Torpa
25. Nawatoli	Torpa	26. Torpa (C T)	Torpa
27. Husir	Torpa	28. Patpur	Torpa
29. Sonpurgarh	Torpa	30. Sundari	Torpa
31. Dorma	Torpa	32. Botlo	Torpa
33. Sungi	Karra	34. Pora	Karra
35. Ludru	Karra	36. Loyangkel	Karra
37. Kosambi	Karra	38. Hasibera	
39. Masmano	Karra	40. Lota	Karra
41. Kone	Karra	42. Tunel	Karra
43. Meha	Karra	44. Karra	Karra
45. Merle	Karra	46. Konowa	Murhu
47. Murhu	Karra	48. Ghaghri	Murhu
49. Jariya	Karra	50. Balo	Murhu
51. Bamhani	Murhu	52. Toner	Murhu
53. Oskeya	Murhu	54. Gangira	Murhu
55. Ganaloya	Murhu	56. Darla	Murhu
57. Biramkel	Murhu	58. Ghaghra	Murhu
59. Saradkela	Torpa	60. Sarangloya	Torpa
61. Kanharatoli	Torpa	62. Roro	Torpa
63. Japud	Torpa	64. Angarabari	Torpa
65. Bichna	Murhu	66. Gonharia	
67. Okra	Torpa	68. Bhonda	Murhu
69. Asanmanri	Karra	70. Jardag	Khunti
71. Sonmer	Karra	72. Erahatu	Karra
73. Kudlum	Karra	74. Masmano	Karra
75. Muchia	Arki	76. Digadon	Karra
77. Malgo	Karra	78. Tapesara	Karra
79. Rohne	Karra	80. Chhata	Karra
81. Barigara	Karra	82. Rolagutu	Karra
83. Bala	Karra	84. Toner	
85. Sonpurgarh	Torpa	86. Patpur	Torpa
87. Sundari	Torpa	88. Kurse	Karra
89. Botlo	Torpa	90. Daintoli	
91. Digadon	Karra	92. Rologutu	
93. Kudlum	Karra	94. Husir	Karra

Ch 101



Zone - III

Bounding Coordinate

23°16'28.13"N to 22°54'6.20"N

85°16'38.81"E to 85°29'1.49"E



Chang



Villages under Zone 3

Village	Block	Village	Block
1. Murhu	Murhu	49. Belahathi	
2. Selda	Murhu	50. Bhanrra	Khunti
3. Jilingkel	Murhu	51. Chikor	Khunti
4. Rugri	Murhu	52. Dokar	Khunti
5. Kurapurti		53. Hesahatu	Khunti
6. Kitahatu	Murhu	54. Kanki	Khunti
7. Sokoy	Murhu	55. Murhi	Khunti
8. Saedba	Murhu	56. Dugdugia	Khunti
9. Salga	Murhu	57. Hesang	Khunti
10. Saprum	Murhu	58. Phuddi	Khunti
11. Bhursu	Murhu	59. Rai	Khunti
12. Patratoli	Khunti	60. Dadi	Karra
13. Bhut	Khunti	61. Gutjora	Khunti
14. Jilinga	Khunti	62. Belangi	Khunti
15. Barbanda	Khunti	63. Ghaghra	Khunti
16. Jamri	Khunti	64. Manhu	Khunti
17. Chamri	Khunti	65. Jaltanda	Karra
18. Kanki	Khunti	66. Rewa	Khunti
19. Teram	Khunti	67. Ganaloya	Murhu
20. Chhota Baru	Khunti	68. Idri	Khunti
21. Bada Baru	Khunti	69. Bagru	Arki
22. Kurkutiya	Khunti	70. Suti	Murhu
23. Bargarki		71. Chhata	Karra
24. Dundidih	Khunti	72. Pandu	Murhu
25. Akta	Khunti	81. Idri	
26. Kalamati	Khunti	82. Amjora	Karra
27. Harsul		83. Hesal	Murhu
28. Dundi	Arki	84. Meral	Murhu
29. Dungra	Khunti	85. Jobe	Murhu
30. Chitir		86. Mahil	Murhu
31. Darjitorar		87. Pokla	Murhu
32. Dandaul	Khunti	88. Perka	Murhu
33. Silda	Khunti	89. Hensa	
34. Ghasibari	Karra	90. Gajgaon	
35. Phuddi		91. Gurhami	
36. Kanadih	Khunti	92. Margaon	Murhu
37. Jiarappa	Khunti	93. Rongo	Murhu
38. Hutar	Khunti	94. Anidih	Murhu
39. Chalangi		95. Jikilata	Khunti
40. Eranda	Khunti	96. Digri	Murhu
41. Khunti	Khunti	97. Kotna	Murhu
42. Chiruhatu	Khunti	98. Bari	Murhu
43. Budhudih	Khunti	99. Balangi	Khunti
44. Ithe	Murhu	100. Otongora	
45. Pokla	Murhu	101. Chalam	Khunti
46. Chord		102. Dabgama	Khunti
47. Senegutu	Khunti	103. Jiuri	Murhu
48. Torangel	Khunti	104. Lumluma	Murhu

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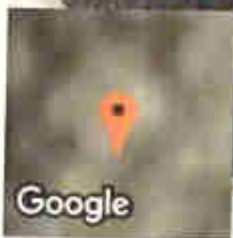
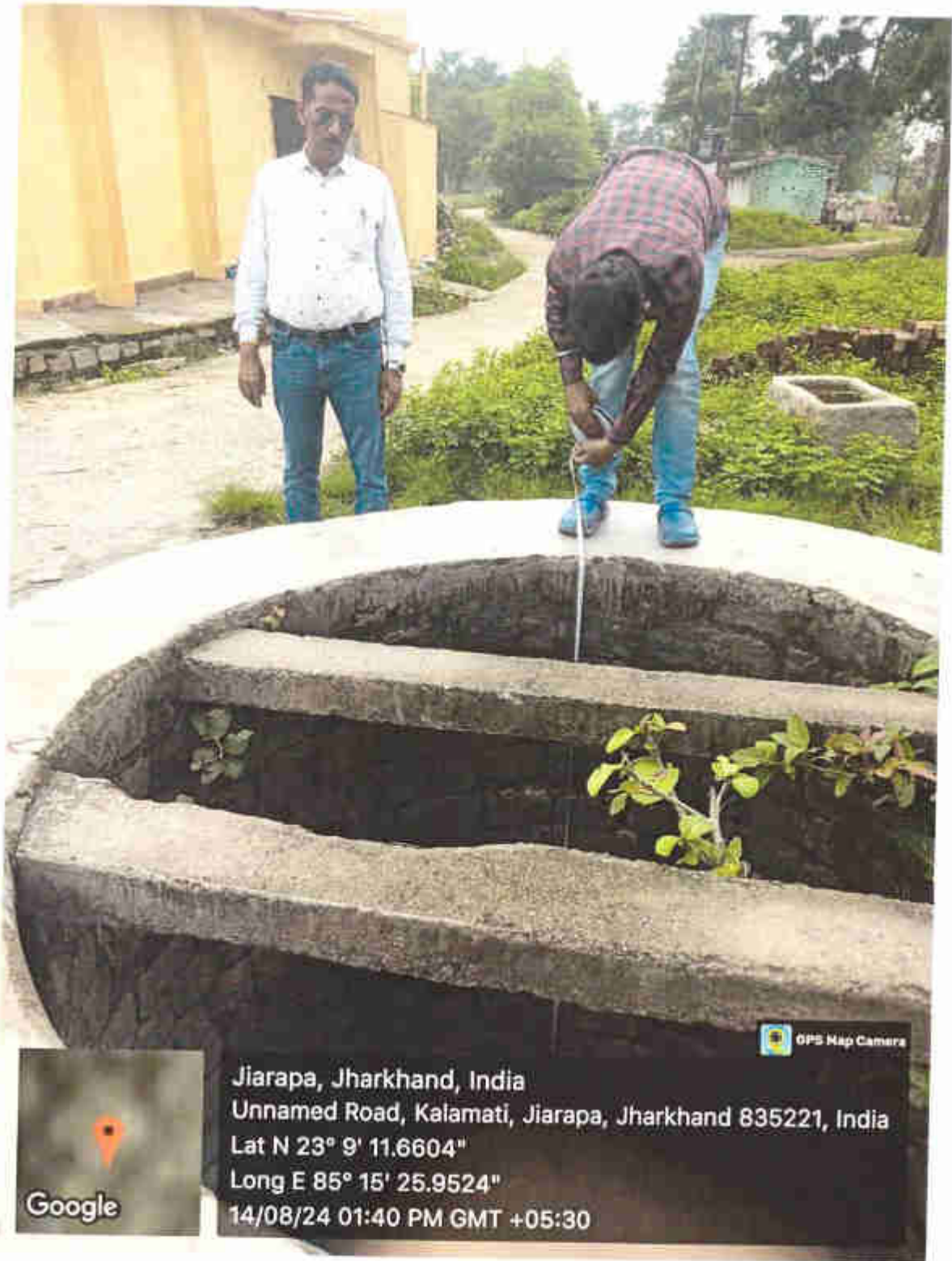
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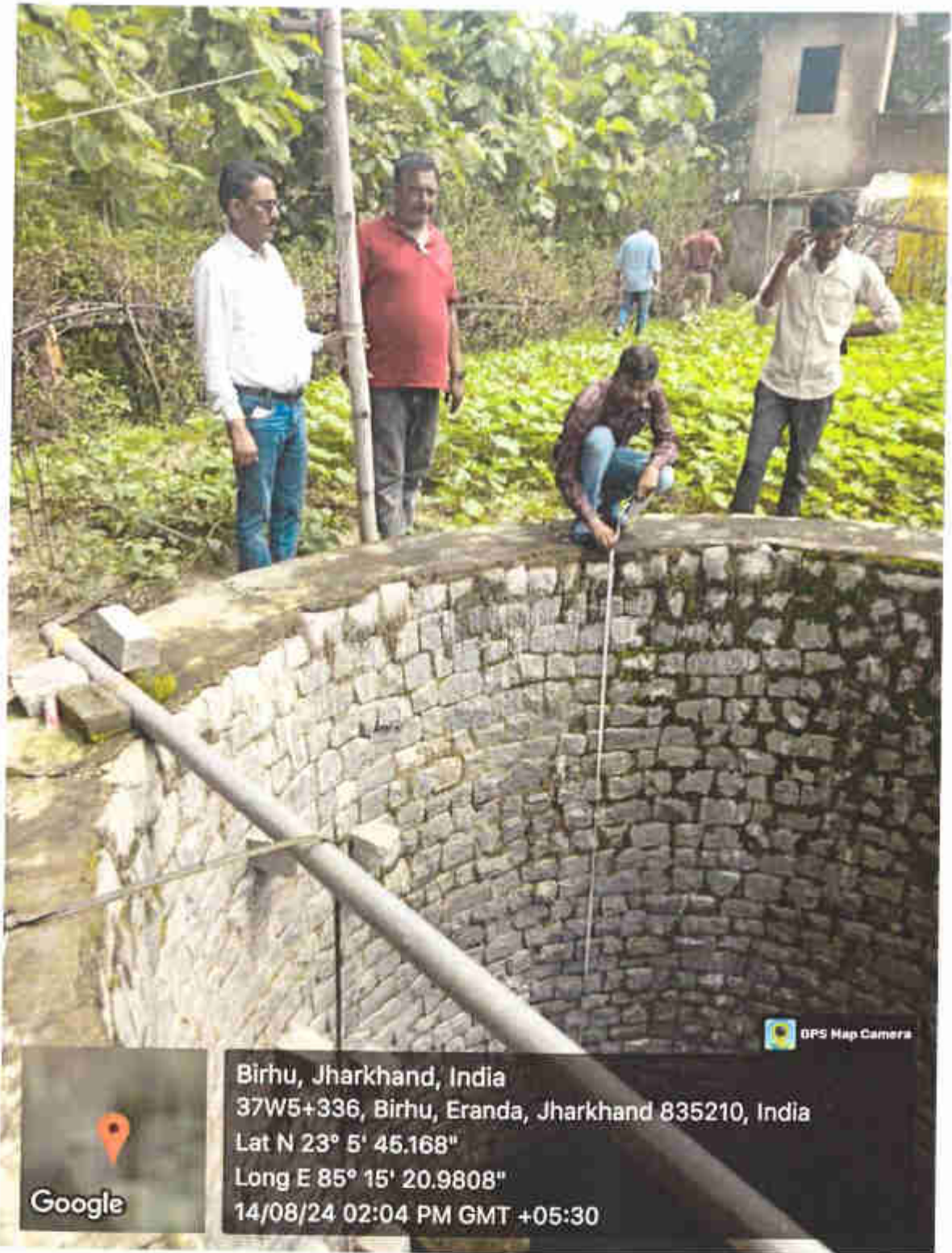




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Long E 85° 15' 25.9524"
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GPS Map Camera





GPS Map Camera



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37W5+336, Birhu, Eranda, Jharkhand 835210, India
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Long E 85° 15' 20.9808"
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Chaitanya





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 47QQ+VPQ, Chalangi, Jharkhand 835221, India
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 Long 85.29058°
 20/08/24 03:00 PM GMT +05:30





Chalangi



Chalangi, Jharkhand, India
47QQ+VPQ, Chalangi, Jharkhand 835221, India
Lat 23.139737°
Long 85.29058°
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GPS Map Camera



Bichna, Jharkhand, India
25JX+9VJ, Bichna, Jharkhand 835216, India
Lat 23.03138°
Long 85.199506°
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 GPS Map Camera

Bichna, Jharkhand, India
25JX+9VJ, Bichna, Jharkhand 835216, India
Lat 23.03138°
Long 85.199506°
20/08/24 02:59 PM GMT +05:30

 Google

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GPS Map Camera



Bichna, Jharkhand, India
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25JX+9VJ, Bichna, Jharkhand 835216, India
Lat 23.03138°
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Chandra
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 GPS Map Camera



Bichna, Jharkhand, India
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20/08/24 02:59 PM GMT +05:30



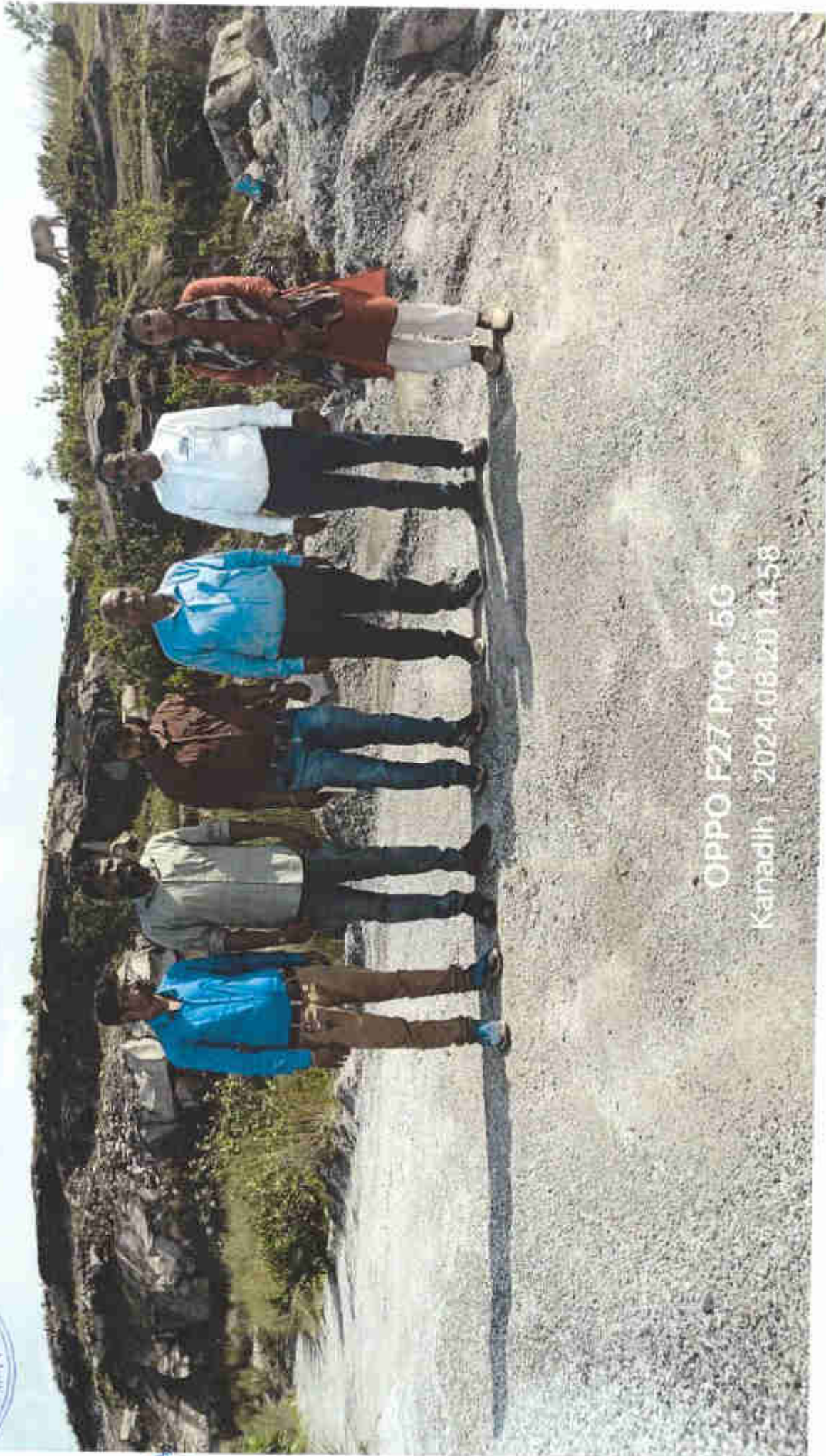
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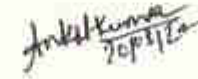
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Kailashpur : 2024.08.29 14:58


उपायुक्त-सह-जिला दण्डाधिकारी का कार्यालय, खूँटी
(खनन शाखा)

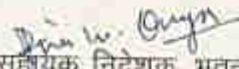
दिनांक 20.08.2024 को उपायुक्त, खूँटी की अध्यक्षता में पत्थर खनिज का DSR (Stone) के Sub divisional Committee के साथ की गयी बैठक की कार्यवाही।


1. उपस्थिति- पंजी के अनुसार।
2. जिला खनन पदाधिकारी, खूँटी द्वारा बताया गया कि राज्य स्तरीय पर्यावरण समाघात निर्धारण प्राधिकरण, झारखण्ड (SEIAA) के पत्रांक 71 दिनांक 03.05.2023 द्वारा सूचित किया गया है कि जिन जिलों का District Survey Report (DSR) की अवधि 05 वर्ष हो गयी है उनको update किया जाना है। खूँटी जिला का पत्थर खनिज का DSR (Stone) दिनांक 22.07.2019 को अनुमोदित हुआ था। जिसकी अवधि दिनांक 21.07.2024 को समाप्त हो चुकी है। तदालोक में उक्त DSR को Update किये जाने की कार्यवाई की जा रही है।
3. DSR हेतु गठित Sub-Divisional Committee द्वारा आवश्यक संशोधनों के साथ पत्थर का Updated DSR MOEF के Notification No. S.O.3611(E) New Delhi, Dated- 25th of July 2018 के आलोक में तैयार किया गया है, जिसे जिला के Website पर Public comments हेतु 15.08.2024 को 30 दिनों के लिये Publish किया गया था। जिसपर कोई आपत्ति/सुझाव प्राप्त नहीं हुआ है।
4. DSR की प्रति एवं संबंधित दस्तावेज Sub divisional Committee के सभी सदस्यों को पूर्व में प्रेषित है।
5. जिला खनन पदाधिकारी, खूँटी द्वारा बताया गया कि तैयार किये गये District Survey Report (DSR) को Sub divisional Committee द्वारा ज्ञापनांक- 719/एम०, दिनांक- 20.08.2024 द्वारा अनुमोदित किया गया है।
6. उपायुक्त, खूँटी द्वारा Committee के समक्ष उपलब्ध कराये गये DSR के बावत सभी सदस्यों से पुनः राय/सुझाव की पृच्छा की गई, जिस पर उपस्थित सभी सदस्यों द्वारा DSR पर हस्ताक्षर करते हुये अनुमोदन प्रदान किया गया तथा सर्वसम्मति से सदस्य, सचिव, SEIAA को अग्रसारित करने का निर्णय लिया गया।
7. बैठक के अन्त में DSR के प्रत्येक पन्ना पर हस्ताक्षर करने हेतु जिला खनन पदाधिकारी, खूँटी को प्राधिकृत किया गया एवं धन्यवाद ज्ञापन के साथ बैठक की कार्यवाही समाप्त की गयी।


क्षेत्रीय पदाधिकारी,
झारखण्ड राज्य प्रदुषण
नियंत्रण पर्वद,
राँची।



श्री अंकित कुमार
सहायक अभियंता
लघु सिंचाई प्रमण्डल,
खूँटी।


श्री अमरनाथ भगत
सहायक वन संरक्षक
-सह-
प्रभारी वन क्षेत्र पदाधिकारी,
तमाड वन प्रक्षेत्र तमाड।


सहायक निदेशक, भूतत्व
जिला भूतात्विक कार्यालय,
राँची।


जिला खनन पदाधिकारी,
खूँटी।


अनुमण्डल पदाधिकारी,
खूँटी।


उपायुक्त,
खूँटी।





Chapter 2

Flora & Fauna

2.1 Introduction:

Jharkhand is the one of the most prolific State in the country, consisting chotanagpur plateau and santhal pargana. The State covers 79714 sq. K.M. which represents 2.41 % of total area of country. Topography of the State is mostly undulating, hilly and sloping with mountains, forests, river basins and valleys. It has sizeable Tribal population (26.3%).

State is very rich in forest of the state its geographical area. from the developed community, forest & diversity, the recorded is 23605 km² which is 29.61 % of its geographical areas. Reserved forests constituting 18.58%, protected forest 81.28% and unclassed forest 0.14%.

It has a rich endowment of mineral resources. It has some of the richest deposits of coal and iron Ore in the world. It is the largest producer of coal, copper, kynite and mica in the country. It is blessed with rich fauna and flora. This Division also a striking part of this diversified state. The plant community and faunal community exhibit perceptible variedness and diversity in form size, shape, structure and density. Plant community, right imperceptible protophytes to the most colossal tree forms and the animal starting from the simplest protozoan to the largest mammals, exist in nature trying to establishing dynamic equilibrium — referred to as the balance of nature — involving complexly intermingled, inter-acting and interdependent floral and faunal chains. These communities, jointly referred to as eco-complex, vary in composition and in mass, both in space and time, depending on the locality or habitat factors that include climatic edaphic, geographic and biotic conditions and also on the interaction among themselves and extraneous influences. However, it is evident that the most dynamic components in this perplexing eco-complex are the flora and fauna. The various aspects regarding these elements are to be considered in detail while attempting to manage and conserve this vital dynamic entity.



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Chandra



Chapter-2A
FOREST FLORA

2.A.1 Trees

Forest is indeed a most beautiful, precious & vital feature of the earth surface, sprawling across varied geographical terrains that composed of precipitous ridges, placid foothills, ravines, dales and plains ramified by a myriad of rills and rivulets, and forming safe and pleasant abode for the wildlife and of course playing a most vital role for keeping this planet earth blue.

The most conspicuous and mystifying element in this complex heterogeneous bio-system is the plant community comprised of a multitude of plants of varied ages, sizes, shapes and characters. As elsewhere in the Khunti Forst Division, the natural forests of this tract form a rich reservoir of biological diversity, endowed with prosperous fertile vegetation, rich in number of species and their density, due to the heterogeneous environmental conditions in the tract. Almost all the plant species common to this part of South Chotanagpur are represented in this tract too.

All units of this forest division comprise natural forests of almost all the types met with in the tract, reed belts, manmade plantations etc. As such, it will be better and proper to enumerate the tree species met with and to discuss the floristic composition while dealing with the forest types in detail.



2. A.2 General Description of Growing Stock

2. A.2.1 General : The vegetation type present in a particular locality is the product of the locality factors operating there. The climatic factors such as the variations in temperature, the amount of precipitation and its distribution, moisture condition during the growing season, and the edaphic features such as the nature and type of soil, its depth, fertility, chemical nature, moisture retaining capacity, etc influence and determine the type of vegetation and its growth and development.

Geographical features such as the altitude, aspect, and slope cause differences in the climatic and edaphic factors and give rise to varied types of vegetation. The presence or absence of biotic interferences will also help or retard the progress of the vegetation greatly. In other words, the physiognomy, species diversity, floristic composition and stratification, biomass production and phenology of the stand are ruled by the locality factors. The existence of different types of forests in this tract is the result of the influence exerted by the varied locality factors existing in various locales within the tract.

2. A.2.2 Forest Type : This Forest Division is blessed with vast expanse of natural forests. It is estimated that the extent of the natural forests will be about 47702.6 ha, comprising tropical & deciduous type of forests of a forest is the resultant reconciliation of the floristic inheritance of the locality with the habitat. A forest type can be defined as a unit of vegetation that possesses broad characteristics in physiognomy and structure, sufficiently pronounced to permit its differentiation from other such units. Usually, a forest type will be described with reference to its geographical location, climatic and edaphic features, composition, and condition. For ascertaining the type of forest, the vegetation present at the time being only is considered, without taking in to account the influence of physiographic, edaphic, and biotic factors up on it.

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2. *A,22 Forest Type* : According to Harry. G. Champion and S. K. Seth the main forest types met with in this tract are:

1. Northern Tropical Moist Deciduous Forest. 3B/C, (B2a)
2. Northern tropical dry deciduous forest b/c2

The following distinct types of forests are noticeable in different parts of this division.

1. Sal Forests.
2. Miscellaneous Forests.
3. Scrub with Lantana.

SAL FORESTS: - Sal is the pioneer species in Khunti

Forest division. In some patches of narrow valley the crop tends to be moist. The forest in eastern, southern, central and northern zones is found everywhere but they have suffered badly from over- exploitation. Due to repeated cutting the crop is severely destroyed and has reached to sapling and rooted waste stage. In the central Zone the topography is easier and the forests have reduced in several places to patches of few acres by the intense pressure of population and cultivation. Commonly the crop consists of Sal saplings. The quality of Sal is IV of seedling origin and 'C' of coppice origin.

The associates of Sal are Terminalia tomentosa, Diospyros melanoxylon. Buchanajia latifolia. Anogeissus latifolia, Adina cordifolia, Butea frondosa, Albizzia spp. Lannea grandis. Boswellia serrata. Eagle marmelos, Ougenia dalbergoides. Legerstromia parviflora, Emblica Officinalis, Terminalia, Chebula, Terminalia bole Schleichera trijuga etc.

The common shrubs are — Flemingia chlappar, Croton indigofera, Puiche, Wedlandia excerta, Woodfordia floribunda. Symlocos racemosa and antidysentrica etc. amongst the climbers the following are prominent: - Bauhinia vahil, Centilag adraspetana, Mullatia auriculata, Combretum decandrum, Spatholobus roxburg Acacia pinnata etc. The devastation of forests has been heavy and some of the hill groups as



either bear or having only few poles over a bed of lantana and other thorny species.

MISCELLANEOUS FORESTS: - There is a great impact of geology on the distribution of the miscellaneous forests. Mostly dry deciduous miscellaneous species are found in quartzite and Gondawana formation along with Sal. The relative compositions of crop are found according to aspect, biotic factors and topography. Miscellaneous forests occur in all the zones. Somewhere it is confined to a small patch; else where it forms a continuous belt. In the eastern and southern zones i.e Tamar thana the forests are driest in the division and miscellaneous species are prominent. In upper storey are *Terminalia tomentosa*, *Anogeissus latifolia*, *Terminalia bellerica*, *Terminalia chebula*, *Adina cordifolia*, *Lannea grandis*, *Madhuca latifolia*, *Butea frondosa*, *Diospyros mela noxylon*, *Hymenodictyon excelsum*, *Cassia fistula*, *Bursera serrata*, *Lagerstromia parviflora*, *Emblica officinlis*, *Schleichdra trijuga*, *Sterculia urens*, *Albizzia Spp.*, *Buchnania latifolia*, *Aegle marmelos* etc.

In the under story are found *Holauhona*, *antidysontrica*, *Antidosma*, *Croton oblongifolius*, *Nycranthes arbortrists*, *Gardenia Spp.*, *Zizyphus Spp.*, *Acacia pinnata*. Invasion of *Lantana* is almost menacing in the plains. The commonest climbers are *Bauhinia vahlii*, *Milletia auriculata* and *Combretum decandrum* etc.

THORNY SCRUB WITH LANTANA this is the deciduous scrub forest falling under group 2S/2 of Champion's classification. In Miscellaneous forest a distinct category of thorny scrub on bare hills can be recognized. This is notification in parts of Tamar. In the Central zone of Khunti Forest Division due to intensive pressure of population and cultivation consequently hills are either bare or are seriously invaded by thick growth of thorny scrub and mostly lantana. Eastern and Soqhem Zones have also suffered considerably from over felling as well as from shifting cultivation in the past. In Sonahatu thana nothing but bare hills occur. Glaring example of this type are Birgaon, Ichadil and Nawadih of Tamar Range.



2. A.2.3 Floristic Composition:

The tree species present in the tract belonging to several families. The prominent families are listed below:

- ✓ Dipterocarpaceae
- ✓ Ebenaceae .i. Fabaceae
- ✓ Anacardiaceae
- ✓ Flacourtiaceae
- ✓ Lythraceae
- ✓ Mimosaceae
- ✓ Rubiaceae
- ✓ Sapindaceae .. Tiliaceae
- ✓ Arecaceae
- ✓ Bombacaceae .. Buthidae
- ✓ Combretaceae
- ✓ Moraceae
- ✓ Meliaceae
- ✓ Guttiferae
- ✓ Euphorbiaceae

There are several other families are also present in the tract. The important species found in these forests are given below.

Top Canopy: Shorea robusta, Terminalia tomentosa, Terminalia arjuna, Buchanania latifolia, Butea monosperma, Lagerostroemia parviflora, Pongamia glabra, Lannea grandis, Ficus religiosa, Syzygium cumini, Azadirachta indica, Acacia catechu, Arotocarpus integrifolia, Boswellia serrata, Bombax ceiba, etc.

Middle Canopy: This tier consists of the younger members of the top canopy and other species like Diospyros melanoxylon, Carisa spinarum, Croton oblongifolius, Cleistanthus collinus, etc.

Lower Canopy: It comprises the pole crop of species found in the upper canopies and other shade-tolerant or shade-loving species, calamus and phoenix species are also seen. In certain localities holarrhena antidysenterica & lantana are found growing gregariously.

Ground Vegetation: The forest floor is patchy covered by growth of many shade-loving species, specific to this type of tract. They include



many medicinal plants widely used in the indigenous system of treatments, *Asparagus racemosus*, *Carissa spinarum*, *Mimosa Pudica*

Hemidesmus indicus, *Curcuma aromatica*, *Ocimum sanctum*, *Croton oblongifolius*, *Mimosa pudica*, *Urginea indica*, *Cynodon dactylon*, eEFif1T variety of ferns, orchids, aroids and mosses.

Climbers: *Acacia pennata*, *Butea superbi*- *Bauhinia vahlii*, *Butea parviflora*, *Casytha* spp, *Cryptolepis Buchanani*, *Smilax prolifera*, *Smilax zeylanica*, *Pogonia* spp, *Pueraria tuberosa*, *Vitis repanda*, *Ichnocarpus* etc are the important climbers found.

2 A.2.4 Regenerations Status:

In forests of this tract, the natural regeneration appears to be a complex process. Most of the species do not exhibit the same type of liking to all the localities within the forest. They favour certain type of areas to regenerate profusely. The dominant species regenerate under their own shade. At the dawn of the favable season, the natural regeneration of the important species can be found to be prolific. Along the banks of the streams, nalas, river and valley are where the conditions are more favorable accelerating the rate of regeneration of species.

However, their establishment is seldom achieved due to the drought conditions caused by the breaks in monsoon, suppression by fast growing ground vegetation and damage caused by squirrels etc, high grazing and human interference. Generally speaking, the natural regeneration in these tracts can be termed as unsatisfactory. The details of regeneration are given in Annexure:

2 A. 2.6 Dominant & Interesting Plant Species of the tract:

1. SAL

Botanical Name: - *Shorea robusta*

Family: - Dipterocarpaceae



Local Name: - Sal, Sakhua, Saray, Sarjom

General Description: It is a large gregarious tree attaining a height up to 36-40 m (in favorable condition)

with rounded crown and shining foliage, the mature leaves are somewhat coriaceous, and ovate-oblong. In its natural habitat, the absolute maximum shade temperature varies from about 34°C at high elevation to about 47°C in the hottest part of Chota Nagpur, and the absolute minimum varies from under -1°C to about 7°C while the normal rainfall varies from 100 to 450 cm. The well drained moist deep sandy loam with good subsoil drainage is the most favorable soil for the growth of sal. Important feature:

i. Sal is a light demander, good coppicer, wind firm does not produce root-suckers and withstands frost

better than many of its associates.

ii. Sal is one of the most fire resistant of all species of its regions.

iii. The sap wood is small, pale coloured, heartwood brown, hard, cross grained, very strong and durable, seasoning slowly.

iv. Sal is also known as a timber tree while its wood is used for building construction of all kinds, railway sleepers, wagons and a large number of other purposes.

v. Sal seeds are used for oil extraction which is used in chocolate manufacturing & other fashionable items.

NTFP Value: - Sal Leaves is used for making 'Pattal plates' which is used in marriage ceremony, parties and in other functional activities. Its leaves are also used for making "Dona" which is generally used in small hotels. The market rate of pattal plate is Rs-30/- per 1000 Pcs.. Many people derives their livelihoods by selling pattal plates & Dona.

Chandra



2. *Asan*

Botanical Name: - *Terminalia tomentosa*

Family: - Combretaceae

Local Name: - Asan, Asana

General Description: - It is commonly called Laurel. *Terminalia tomentosa* is a large, deciduous tree with a long clean bole, spreading branches and heavy crown, attaining a height up to 30-36 m. It has a very thick dark coloured bark, deeply cracked longitudinally, resembling very much the back of a crocodile. The tree attains its largest dimensions on deep, rich alluvial soil. In its natural habitat, the absolute maximum shade temperature varies from 35°C to 48°C and the absolute minimum from 0°C to 18°C and the rainfall ranges from 130 cm to 250 cm.

Important feature:

- i. Laurel (Asan) is a light demander, drought tender, frost resistant, good coppicer and tolerant of waterlogging.
- ii. It is fairly tolerant to damage by fire and is readily browsed by animals especially deer.
- iii. The timber of Laurel is used for building and construction works for making furniture, oil mills, electric casing, rough carpentry, railway wagon, floor boards and doors.
- iv. It is also used for agricultural implements and for veneers and plywood.

Medicinal Value: - Asana is astringent, antiseptic, bactericidal, demulcent, and detergent.

NTFP Value: - It is used as a host tree for Silkworm in this tract.



3. Piyar

Botanical Name: - *Buchanania latifolia*

Family: - Anacardiaceae

Local Name: - Piyar, Achar, Chironji

General Description: - It is moderate sized tree almost evergreen, with a straight trunk; bark dark grey or black reddish inside, regularly divided into small rectangular plates, somewhat resembling crocodile hide. In its natural habitat the absolute maximum shade temperature varies from 41°C to 46°C, the absolute minimum from -1°C to 13°C, and the normal rainfall from 75 cm to 213 cm.

Important feature:

- i. The tree is a moderate light demander, very sensitive to frost and somewhat sensitive to drought.
- ii. It produces root suckers and coppice shoots.

Medicinal Value: - Fever, burns, dysuria, cholera, phthisis, and asthma.

NTFP Value: It has some economic importance for the gum and edible fruits, which it yields.

4. Mahua

Botanical Name: - *Madhuca indica*

Family: - Sapotaceae

Local Name: - Mahua, modhcam, moha

General Description: - It is a large deciduous tree distributed in most parts of the mainland India. The young parts are pubescent, bark grey or blackish, with shallow wrinkles and vertical cracks.

Medicinal Value: - Used in coughs, colds, bronchitis, snake-bite, Piles.



NTFP Value: - Its flowers are eaten raw or cooked or made into sweetmeats. Its flower also fermented to produce the alcoholic drink mahuwa, a country liquor. Tribals of Santhal Paraganas (Jharkhand) and tribals of consider the tree and the mahuwa drink as part of their cultural heritage. The fruit is eaten and gives thick oil when pressed which is used for burning chirags and is also used to adulterate Ghee, the oil cake is used to polish fish.

Special Remark: - Fresh juice of madhuka is alterative and sprit distilled from the flowers is a powerful diffusible stimulant and an astringent. Mahua cake is insecticidal and pesticidal; used with Shikakai for hair wash.

5. *Sidha* **Botanical Name:** - Lagerstromia parviflora

Family: - Lythraceae

Local Name: - Sidha

General Description: - It is a large deciduous tree. Bark is light grey to reddish, thin, smooth, exfoliating in narrow longitudinal flakes, light brown inside. The tree is a light demander, fairly frost-hardy, it coppices and pollards vigorously.

Important feature:

- i. Its wood is very hard and durable.
- ii. It is also used for building, agricultural implements, carts, boats, shafts, axehandle etc.

6. Bhelwa

Botanical Name: - Semecarpus anacardium **Family:** - Anacardiaceae

Local Name: - Bhelwa, Bhela **General Description:** - It is commonly called marking nut tree. It is a moderate sized deciduous tree with rough dark brown bark yielding an acid juice. The tree has large ovate leaves and typical fruits consisting of an oblique drupe, black when ripe,



situated on fleshy orange coloured receptacle, the black pericarp contains a corrosive juice used as marking ink.

Important feature:

i. The tree is a moderate shade bearer, a good coppicer and the seedlings are rather sensitive to frost.

Medicinal Value: - Use in acute rheumatism, asthma, neuralgia, piles, dysentery, fevers, loss of appetite, urinary discharges, epilepsy and psoriasis.

7. Kend

Botanical Name: - *Diospyros melanoxylon*

Family: - Ebenaceae

Local Name: - Kend, Kendu, Chirchiri

Description: - It is a small to moderate-sized, occasionally large tree, with leaves opposite, sub-opposite, or alternate, coriaceous and varying much in size and form. Bark grayish black, exfoliating in regular rectangular scales. Wood hard, reddish brown, with irregular black heartwood, sometimes streaked with purple or brown. It is common also in Sal forest, often replacing the Sal where the ground becomes too poor to support the latter. In its natural habitat the absolute maximum shade temperature varies from 41°C to 48°C, the absolute minimum from -1°C to 13°C and the normal rainfall from 50 cm to 150 cm.

Important feature:

i. rdy and drought resistant.

ii. The wood is used for building, shafts, shoulder- poles and other purposes and is carved into walking sticks, picture-frames and fancy articles.

Medicinal Value: - Use in intermittent fever, dysentery and diarrhea.



NTFP Value:- its leaves used in making of "Biddi" a country alternative of cigarettes.

8. Dhautha

Botanical Name: - Anogeissus latifolia

Family: - Combretaceae

Local Name: - Dhau, Dhautha

General Description: - It is a moderate sized to large deciduous tree with a somewhat feathery rounded crown and drooping branch lets. Bark thin smooth, greenish or grayish white, exfoliating in irregular thin rounded scales which leave shallow depressions; the outer layer contains chlorophyll. The bark sheds rapidly. In its natural habitat, the absolute maximum shade temperature varies from 39°C to 48°C, the absolute minimum from -1°C to 16°C and the normal from 62 cm to 225 cm.

Important feature:

- i. The wood which is hard, very strong and tough is used for cart axle, axe handles, agricultural implements, poles and rafters, boat building and other purposes.
- ii. The leaves are rich in tannin and are collected for the purposes; the bark is also used for tanning and yields a gum much used in calico-printing.

9. Salai

Botanical Name: - Boswellia serrata

Family: - Burseraceae

Local Name: - Salai

General Description: - It is moderate-sized to large deciduous gregarious tree; attaining a height up to 9 to 15 m with light spreading crown, somewhat drooping branches and compound imparipinnate



leaves, bark greenish grey to yellow or reddish, fairly thick, smooth, exfoliating in thin papery flakes, resinous inside. In its natural habitat the absolute maximum shade temperature varies from 43°C to 49°C. the absolute

minimum from -1°C to 7°C and the normal rainfall from 50 cm to 125cm.

Important feature:

- i. Its wood is moderately hard, whitish, resinous, with small brown heartwood, used for rough planking, boxes, well construction etc.
- ii. Its wood is also used in manufacturing the 'Match sticks'.
- iii. A fragrant gum resin exudes from wounds in the bark and is used as incense and in medicine.

Medicinal Value: - Useful in diarrhea, dysentery, piles, rheumatism, nervous and skin diseases.

10. Karam

Botanical Name: - *Adina cordifolia*

Family: - Rubiaceae

Local Name: - Karam

General Description: - It is commonly called Haldu and is a large deciduous tree with a large dark green crown, erect trunk and horizontal branches, attaining a height up to 40 m. In its natural habitat, the absolute maximum shade temperature varies from 38°C to 50°C and the absolute minimum from 3°C to 15°C. The rainfall ranges from 90 to 400 cm.

Important feature:

- i. It is a strong light demander, fairly resistant to fire, drought and frost and coppices readily.



ii. Its timber is used for furniture, building, agricultural implements, railways carriages etc.

11. Amaltas

Botanical Name: - *Cassia fistula*

Family: - Caesalpinaceae

Local Name: - Amaltas, Banderlori

General Description: - It is commonly called laburnum. It is a moderate-sized deciduous tree with a rather open crown. Bark in younger tree is smooth, light grey, reddish brown inside, in older trees reddish brown exfoliating in hard scales. This is one of the most beautiful of Indian flowering trees. In its natural habitat the absolute maximum shade temperature varies from 38°C to 49°C, the absolute minimum from -4°C to 18°C and the normal rainfall from 50 cm to 300 cm or more.

Important feature:

- i. The wood is hard and durable used for house-post, carts and agricultural implements.
- ii. The pulp of the pods is a strong purgative while the bark is much in demand for tanning.
- iii. It coppices vigorously and produces root-suckers freely.

Medicinal Value: - Useful in skin diseases, tuberculous glands and syphilis. It also cures burning sensation.

12. Putri

Botanical Name: - *Croton oblongifolius*

Family: - Euphorbiaceae

Local Name: - Putri

General Description: -



Medicinal Value: - Useful in diarrhoea, dysentery, liver diseases, headache, fever, icterus, scabies, spleen trouble, madness, epilepsy, ulcer, cholera, pleurisy.

NTFP Value: - Putri is a Host tree for lac.

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13. Koraiya

Botanical Name: - *Holarrhena antidysenterica*

Family: - Apocynaceae

Local Name: - Koraiya, Kurchi

General Description: - It is small deciduous tree bark greyish brown, scaly, is a useful accessory species in clothing the ground and acting as a nurse to more valuable species. The tree is important for re-clothing waste lands. The tree stands a slight amount of shade but develops best in full light. It coppices well and shoot up readily after severe damage by fire. It produces root- suckers in abundance.

Medicinal Value: - Useful in diarrhoea, dysentery, snake-bite, heart diseases, asthma, skin diseases, leprosy, dyspepsia, ulcers, sores, toothache.

14. Aam

Botanical Name: - *Mangifera indica*

Family: - Anacardiaceae

Local Name: - Aam

General Description: -

Medicinal Value: - Useful in throat troubles, burns, dysuria, cholera, phthisis, bronchitis, asthma, ulcers, and blood diseases.

NTFP Value: - A common tree all over India cultivated for its delicious fruits.

15. Jamun

Botanical Name: - *Syzygium cumini*

Family: - Myrtaceae

Local Name: - Jamun

General Description: - A tall evergreen tree found in moist ground, waste lands, along river banks, nala banks and valleys. There are three varieties according to the size of the fruit. It has a fairly wide distribution and the wood is particularly useful for underwater conditions.

Medicinal Value: - Useful in asthma, diarrhea, diabetes, cough, dysentery.

NTFP Value: - A common tree all over India known for its delicious & medicated fruits.

16. Rohan



Botanical Name: - *Soymida febrifuga*

Family: - Meliaceae

Local Name: - Rohan

Medicinal Value: - Useful in Malaria, dysentery, general debility, intermittent fevers, diarrhoea. It is applied to rheumatic swelling and used as a gargle in stomatitis.

17. Palas

Botanical Name: - *Butea monosperma*

Family: - Fabaceae

Local Name: - Palas, Dhak

Medicinal Value: - Useful in sprue, piles, ulcers, tumors, dropsy, worms, eye diseases, puerperal women, colic, bleeding piles.

NTFP Value: - Palas is a Host tree for lac.

18. Kaj

Botanical Name: - *Bridelia retusa*

Family: - Euphorbiaceae

Local Name: - Kaj

General Description: - It is a moderate- sized or large deciduous tree with variable coriaceous leaves with straight parallel lateral veins. Bark grey to dark brown, longitudinally cracked. Young trees often have the stems covered with strong spines.

Important feature:

i. Wood grey to olive- brown, durable, used for house-post, carts, cart-shafts agricultural implements.

ii. The bark is used for tanning and the leaves for cattle fodder.

Medicinal Value: - Useful in Prevent pregnancy, rheumatism, earache, snake bite etc.

19. Semal

Botanical Name: - *Bombax ceiba*

Family: - Bombacaceae

Local Name: - Semal

General Description: - It is commonly called Silk Cotton Tree, Cotton Wood, Red Cotton Tree and Semal. It is lofty deciduous trees attaining a height up to 40 m. mature stems are invariably buttressed. The



branches are whorled, spreading horizontally. The bark is a ashy to silver grey, smooth up to middle age, becoming rough with irregular vertical cracks on older trees, young stems and branches are covered with sharp, straight, stout prickles. In its natural habitat, excluding hilly locations, the absolute maximum shade temperature varies from 38°C to 50°C, the absolute minimum from 3°C to 18°C.

Important feature:

- i. Simal timber is used in the match industry, in the manufacture of plywood and packing cases and in construction works.
- ii. The floss from simal seeds yields the silk cotton or Indian Kapok of commerce.
- iii. It is also used in the manufacture of life belts and other life saving appliances.
- iv. The bark exudes a gum which has medicinal value.
- v. The inner bark of Simal yields a good fibre suitable for cordage.

Medicinal Value: - Useful in Toothache, cankers, sores in mouth, pain in leg, fever, enlarged spleen, rheumatism, cholera, dysentery.

NTFP Value:

- i. Oil is also yield from Simal seeds.
- ii. The leaves are also used as fodder.
- iii. The floss from simal seeds yields the silk cotton or Indian Kapok of commerce.

20. Paisar

Botanical Name: - Pterocarpus marsupium

Family: - Fabaceae

Local Name: - Paisar, Bijasal

General Description: - It is commonly called kino tree, Gum Kino tree or Bijasal. Bijasal is a tall deciduous tree attaining a height of 31 m with spreading branches, forming a large rounded crown. Bark rough, thick, dark grey, longitudinally fissured with the outer softer corky layer exfoliating in small pieces of irregular shape and size, inner bark



reddish-brown, fibrous. In its natural habitat, the absolute maximum shade temperature varies from 35°C to 48°C and the absolute minimum from 0°C to 18°C. The normal rainfall varies from 76- 190 cm.

Important feature:

i. Its bark is the source of an important gum, the Kino which has Medicinal value.

ii. It is a moderate light demander and good coppice.

Medicinal Value: - Useful in Diabetes, diseases of blood, eruptions on body, leucoderma, urinary discharges, leprosy etc.

NTFP Value: - The leaves are used as a fodder for cattle.

21. Bel

Botanical Name: - *Aegle marmelos*

Family: - Rutaceae

Local Name: - Bel

General Description: -

Medicinal Value: - Useful in Colitis, colic, dysentery, diarrhea, flatulence, fever, vomiting, thirst, stomach pain, constipation, diarrhea, dysentery, cholera, night fever, puerperal fever, breast pain, snake bite etc.

NTFP Value: - Its fruit marketed at very high rate for its medicinal value.

22. Bahera

Botanical Name: - *Terminalia bellerica*

Family: - Combretaceae

Local Name: - Bahera

General Description: - It is a large deciduous tree attaining a height up to 37 m often Buttressed at the base. The Species is found in deciduous forests throughout the greater part of India. It is common associate of Sal, Teak and other important trees occurring more or less scattered. In its natural habitat the absolute maximum shade temperature varies from 36°C to 46°C, the absolute minimum from -1°C to 16°C and the normal rainfall from 102 cm to 305 cm.



Medicinal Value: - Useful in Piles, dropsy, diarrhea, headache, leprosy, dyspepsia, coughs, hoarseness, eye diseases, vomiting, thirst, bronchitis, corneal ulcers.

23. Raipan

Botanical Name: - *Ehretia laevis*

Family: - Boraginaceae

Local Name: - Raipan

General Description: - It is a Moderate Sized deciduous tree with an irregularly-shaped stem and smooth light grey to whitish bark, yellow and soft inside. This tree occurs throughout the greater part of India in deciduous forest, extending into dry regions. It is very common in Sai forest. It is somewhat frost tender, resistant, good coppice and produced root common drought suckers.

24. Khair

Botanical Name: - *Acacia catechu*

Family: - Mimosaceae

Local Name: - Khair

General Description: - It is commonly called the cutchtree or Khair. Khair is a small or medium sized deciduous tree attaining a height of 12-15 m with light feathery crown, the branch let's armed with paired and recurved spines. Bark thick, dark grey or geryish brown, rough exfoliating in long narrow strips, brown and red inside.

Medicinal Value: - useful in melancholia, conjunctivitis, haemoptysis and skin diseases. Various plant parts are used in sore mouth, pain in chest, asthma colicky pain, cancer, gravel, dysentery, phthisis, bronchitis, consumption and strangulation of intestine. Juice of bark along with asafetida is used in haemoptysis. Mixture of flower tops cumins, is given gonorrhoea. Katha from heartwood is astringent, cooling and digestive and is used in relaxed conditions of throat, mouth, gums and for cough and diarrhoea.

NTFP Value: - Khair wood is used for the production of cutch and Katha

Special Remark: - The timber has a variety of uses.



25. Bargad

Botanical Name: - *Ficus bengalensis*

Family: - Moraceae

Local Name: - Bargad

General Description: - A very large tree with many aerial roots.

Medicinal Value: - Bargad is widely used in the treatment of skin diseases. Plant is used in ophthalmia and other eye troubles, mouth sores, fever madness, atrophy, emaciation or cachexy, cholera and rinderpest. Paste of root applied scalp to grow hair long and used for menorrhagia. It cures erysipelas, burning sensation and vaginal disorders. Root fibers are used in gonorrhoea. Leaves are applied as poultice on swelling and inflamed parts for relief. Bark is astringent, cooling and alleviates vitiated kapha and pitta. An infusion of bark cures dysentery, nervous disorders, diarrhoea, leucorrhoea, menorrhagia, and reduces blood sugar in diabetes. Milky juice is beneficial as local application in toothache, sores and ulcers, for rheumatism and lumbago and for soles of feet when cracked. Infusion of young buds is used in diarrhoea and dysentery and young tips of roots for obstinate vomiting. Juice mixed with sesam oil is applied to burns. Latex used in genital disorders. Seeds are Cooling and tonic. Powder of seeds is progenerative

26. Imli

Botanical Name: - *Tamarindus indica*

Family: - Caesalpinaceae

Local Name: - Imli

General Description: - Moderate - sized to large, evergreen tree.

Medicinal Value: - Leaves of Amlika reduced inflammatory swellings and are applied externally for inflammation of ulcers. Flowers are applied externally on eyes Netraab hishyanda. Bark is astringent and tonic; heals ulcers. Fruit, refrigerant from the acids they contain, digestive, carminative, slightly laxative, antiscorbutic and antibilios; useful in diseases caused by deranged bile. An infusion of pulp forms very grateful drink in febrile diseases. Pulp as well as a poultice of leaves is recommended for external application to inflammatory



very grateful drink in febrile diseases. Pulp as well as a poultice of leaves is recommended for external application to inflammatory swellings to relieve pain. Ash of shells of fruit used in menorrhagia and gonorrhoea.

NTFP Value: - Fruit of Imli used in many Indian dishes as a ingredients.

27. Pipal

Botanical Name: - *Ficus religiosa*

Family: - Moraceae

Local Name: - Pipal

General Description: - A very large tree. It is very sacred tree for "Hindus."

Medicinal Value: - Various parts of Ashwattha used in otitis media, suppurativa, mouth sores, atrophy, emaciation or cachexy, rheumatism, smallpox, carbuncle rinderpeast, mucus in urine, apermatorrhoea, gravel, cholera, etc. Leave with other ingredients is an aborticide. Leave and young shoots are purgative. Bark is astringent and is found efficacious in gonorrhoea. Pulverised bark is applied externally on unhealthy ulcers or wounds to promote granulation. Infusion of bark given internally in scabies, ulcers and skin disease, decoction given in gonorrhoea. It is aphrodisiac and good for lumbago. Fruit is mild laxative and digestive. Seeds are cooling, laxative and alternative. Powder of seeds taken for three days during menses sterilizes woman for long time.

28. Neem

Botanical Name: - *Azadirachta indica*

Family: - Meliaceae

Local Name: - Neem

General Description: - A large, evergreen tree. Wild in forest of Maharashtra, often planted all over India.

Medicinal Value: - Neem is used in Ayurvedic medicine for leprosy and skin diseases, fever, for purification of blood. Leave are applied as poultice to boils. Decoction of leaves is antiseptic, used in ulcers and eczema. Bark, root bark and young fruit are bitter tonic, alternative,



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astringent, anthelmintic and antiperiodic. Gum is demulcent, tonic in catarrh affections. Dry flower are tonic and stomachic. Oil is stimulant, antiseptic, alternative, and useful in rheumatism and skin diseases. Bark, gum, leaf and seed are used in snakebite and scorpion sting. Flowers and berries are purgative, emollient and anthelmintic. Alcoholic extract of bark is anticancer, antiviral and spasmogenic.

29. Chakundi

Botanical Name: - Cassia siamea

Family: - Caesalpinaceae **Local Name:** - Chakundi

General Description: - It is moderate sized evergreen tree with a dense crown, probably indigenous to Burma and southern most part of Tamil Nadu largely planted for ornament. The yellow flowers, in large pyramidal terminal panicles, appear mainly in the hot season but the flowering period is comparatively long and flowers may often be found at various season. The pods ripen toward the end of the hot season; they hang in clusters and give the tree a somewhat untidy appearance. The tree grows fairly rapidly and is easy to cultivate; it grows well on moist soil provided drainage is good.

30. Kusum

Botanical Name: - Schleicheria oleosa

Family: - Sapindaceae

Local Name: - Kusum

General Description: - A large or medium sized deciduous tree. Common in dry forest in India.

Medicinal Value: - Bark of Kusum is astringent. It is used to cure kapha. Rubbed up with oil it is used as a cure for itch, leprosy, skin diseases, inflammation, ulcers. Oil is efficacious in alopecia, also used for acne, itch and for massage in rheumatism. Unripe fruit is used for vaata. Powder of seeds is applied to ulcers of animals and removing maggots.

NTFP Value: - It is used as Host plant for famous "Rangini lac".

31. Dhaw

Botanical Name: - Anogeissus pendula



Family: - Combretaceae **Local Name:** - Dhaw

General Description: - It is a small tree, with a short usually crooked bole. This species has a decidedly limited distribution. It extends from the Aravalli hills in Rajputana to Bundelkhand and from the kishangarh state and the Jhansi, Hamirpur and Banda districts of U.P. on the north to the Panchmahals in the south. Within its natural habitat the absolute minimum temperature form -1°C to 3°C and the normal rainfall from 42 cm to 88 cm. The tree stands a fair amount of shade, is frost hardy, coppices and pollards well and produces root suckers freely. The bole yields little or no timber but poles cut from the branches are in demand for building and others purposes. The leaves contain tannin. In the dry region in which it occurs, this is an important tree, not only as a source of timber and fuel but also clothing dry tracts.

32. . Ghorkaranj

Botanical Name: - *Ailanthus excelsa*

Family: - Simaroubaceae

Local Name: - Ghorkaranj

Medicinal Value: - Leaves of Ghorkaranj are especially useful in asthma, bronchitis, dyspepsia and in the treatment of weakness after child birth. Paste of leaves applied as poultice in erysipelas, bitter tonic, and febrifuge, expectorant and antispasmodic; used for dyspeptic complaints and as astringent in diarrhea and dysentery and given in chronic bronchitis and asthma. Bark is used as tonic especially in debility after childbirth.

33. Gamhar

Botanical Name: - *Gmelina arborea*

Family: - Verbenaceae **Local Name:** - Gamhar

General Description: - It is a moderate-sized to large deciduous tree with numerous spreading branches, which form a large shady crown. It occurs scattered in deciduous forest throughout the greater part of Indian sub-continent and the Andaman up to an altitude of 1500 m. It is found in all the state but is nowhere common. In its natural habitat the absolute minimum from 1°C to 16°C and the normal rainfall From 75 cm to 450 cm or more. It reaches its largest dimensions in the mixed forests



of moist regions, as in the eastern sub- Himalayan tract, Assam and elsewhere. It shows a preference for moist fertile valleys. The tree is a light demander, moderately frost-hardy, and does not stand excessive drought. It coppices very well, saplings are readily browsed by deer and other cattle. Leaves from fod Jer for cattle.

Medicinal Value: -Gamhar root an important dashamula. It is astringent, bitter tonic, stomachic, digestive, cardio tonic, laxative, galactagogue, pulmonary and nervine tonic. It improves memory, overcomes giddiness and is useful in burning sensation, fever, thirst, emaciation, heart diseases, nervous disorders and piles. Pulverized root is applied locally for gout. The drupes are sweetish and bitter and are used as an astringent of refrigerant decoctions for fevers and bilious affections. The tender leaves are demulcent. A paste of the leaves is applied to the head for the relief of headache in fevers. The leaf juice is used as a wash for foul ulcers. Flowers are given in blood diseases. Fruit are bitter, cooling, tonic and overcome thirst, pitta, vatarakta and useful in pleural and lung diseases.

Special Remark: - Gmelina yields timber used for construction work, planking furniture, cabinet work, penelling, carriage, box, boat building agricultural implements, musical instrument, etc. Wood is used in plywood manufacture also.

34. Awala

Botanical Name: - *Emblica officinalis*

Local Name: - Awala

General Description: - It is moderate sized deciduous tree with feathery light green foliage and small narrow linear leaves. The bark is smooth, grey, exfoliating in irregular rounded scales. The tree occurs in mixed deciduous forest throughout the greater part of India, ascending the Himalaya to 1350 m. It is not found in the arid region. It is a light demander. It is sensitive both to frost and to drought. The tree yields wood, red in color, hard, apt to split, durable under water, used for agricultural implements, well construction, and inferior building and furniture. The bark leaves and fruits are used for tanning and the tree is important as a yielder of tannin. Fruit are edible and have medicinal value.



Medicinal Value: - Various plant parts of awala are used in toothache, sores, fever, anaemia, epilepsy, pimples, tubercular fistula, rinder pest, gonorrhoea and convulsion. Root and bark are astringent. Fresh roots as a remedy for jaundice. Leaves are cerebral and gastrointestinal tonic, cardio-tonic, aphrodisiac, and antipyretic, antidiabetic. Leaf extract is antibacterial. Decoction of leaves is useful for ulcers in mouth. Infusion of leaves mixed with fenugreek seeds is useful in chronic dysentery. Flowers are cooling, refrigerant and aperients. Fruit is acid, cooling, refrigerant, diuretic, and laxative, is a pronounced expectorant and has anticancerous properties. Fresh fruit is mild purgative diuretic, improving liver function. Raw fruit is aperients. Dried fruit is cooling, and anti-haemorrhagic, useful in haemorrhage, diarrhea and dysentery. It is especially good for abundant growth hair. It has been found to be effective in the treatment of peptic ulcer and scurvy. Fruit, juice and its sediment and residue are antioxidant due to gallic acid, carminative and stomachic. Fruit juice with lemon juice and sugar is taken for arresting bacillary dysentery. Juice with turmeric powder and honey used to cure diabetes insipidus. Fruit preparations are used in indurations of liver, in collyrium and in warts of eyes.

35. Sisam

Botanical Name: - Dalbergia sissoo

Family: - Fabaceae

Local Name: - Sisam

General Description: - It is commonly called sissoo. It is a medium-sized to large, gregarious, deciduous tree with grey bark, attaining a height up to 30 m. It occurs throughout the sub-Himalayan tract and outer Himalayan valleys from Indus to Assam, usually up to 900 m but sometime up to 1500 m elevation. It has been extensively planted along roads and canals, especially in Punjab and Uttar Pradesh and in many other parts of the country. It grows well on mostly on sand or gravel along the bank of rivers or on islands, very often gregariously. The rainfall in its zone ranges from 75 cm to 450 cm.

Special Remark: - The tree yields timber valued for construction and general utility purposes e.g. in building construction, boat building,



musical instruments, in the manufacture of sport equipment. Sisam wood is classed as an excellent fuel. Sisam leaves are used as fodder.

BAMBOO

Botanical Name: *Dendrocalamus strictus*

Bamboo is a group of perennial evergreens in the true grass family Poaceae, subfamily Bambu- soideae, tribe Bambuseae. Giant bamboos are the largest members of the grass family. In bamboo, the internodal regions of the stem are hollow and the vascular bundles in the cross section are scattered throughout the stem instead of in a cylindrical arrangement. The dicotyledonous woody xylem is also absent. The absence of secondary growth wood causes the stems of monocots, even of palms and large bamboos, to be columnar rather than tapering. Bamboos are some of the fastest growing plants in the world, due to a unique rhizome-dependent system. Bamboos are of notable economic and cultural significance in South Asia, South East Asia and East Asia, being used for building materials, as a food source, and as a versatile raw product.



Chapter 2A
FOREST FAUNA

2.B.1 Introduction :-

The term 'wildlife' with respect to a tract will denote the entire animal community therein, covering all forms of life. The natural fauna in a locality is characterized by the habitat conditions that were created and influenced by the Vegetation types met with in that locality. Some part of this tract are geographically shows the presence of different regional, climatic and edaphic climaxes and offers a wide range of habitat types which favours wild life but due to heavy biotic pressure, illegal felling, drought condition and some cultural activity are also dominant in this region which are influenced the wild life badly. The important wild animals found in the area are the following.

2B1.1A MAMALS :

Indian Hare (*Lepus nigricollis*):- These are small mammals found in every parts of the India. It has long ears, which can be more than 10 cm (4 in) long, are probably an adaptation for detecting predators. They have large, powerful hind legs. The two front paws have 5 toes, the extra called the dewclaw. The hind feet have 4 toes They are plantigrade animals while at rest; however, they move around on their toes while running, assuming a more digitigrade form. The fur is most commonly long and soft, with colors such as shades of brown, gray, and buff. The tail is a little plume of brownish fur. They are herbivores that feed by grazing on grass, forbs, and leafy weeds. In consequence, their diet contains large amounts of cellulose, which is hard to digest.

Indian Elephant (*Elephas maximus*):-This large terrestrial herbivore represents the order proboscides in the Asian continent. Apart from its great size, the most striking feature of the animal is the proboscis or trunk, which is the elongated nose and upper lip, used for seizing food, taking up water for drinking and bathing, blowing dust over body, testing air for danger etc. This trunk ends in a small 'tip', which will help the animal to pick up even small objects. In males, the incisors of the upper jaw grow out to form tusks, used in defence and combat, for levering up small trees, for digging grip etc. The tusks of females scarcely protrude



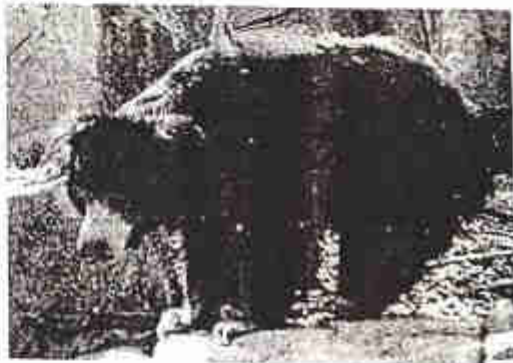
and they are often described as tusk-less. The tusk-less males are called makanas usually healthy and large in build. Though six molar teeth will be present in each half of upper and lower jaws, only two teeth are used at a time. The two molars move forward continuously and in the process they will wear out and drop and the next pair in succession takes up the function. Longevity of this animal is really controlled by its teeth-wear. When the last pair drops, mastication becomes impossible and the animal suffers. Eyes are small and sight is poor, but the senses of smell and hearing are acute. The animal requires about 250 to 320 Kgs of food in a day and always in the lookout for the same. They roam usually in herds, but lone individuals that are often aggressive and dangerous, can also be seen. They are diurnal in habit. Male elephants, both wild and tamed, occasionally exhibit peculiar periodical paroxysms of excitement. Then the elephant is said to be in 'musth'. A musth elephant will be arrogant and aggressive. As this tract lies eastern part of Rajmahal hills area, elephants from the adjoining Divisions migrate in to this area, especially during the Kharif season.

SLOTH BEAR

Zoological Name : *Melursus ursinus*

The Sloth bear locally known as ^{bhalu}

This is nocturnal & insectivorous. Adult sloth bears weigh 100 kg (on average, though weight can vary variously from 55 kg (121 lbs) to 190 kg (400 lbs). They are 60-90 cm (2-3 ft) at the shoulder, and have a body length of 1.4-1.9 m (4.6-6.3 ft).



Females are smaller than males, and have more fur between the shoulders. Attacks by bhalu are reported some from deep forests villages. The number does not seem very large. Adult sloth bears may travel in pairs, with the males being gentle with cubs. They may fight for food. They walk in a slow, shambling motion, with their feet being set down

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in a noisy, flapping motion. They are capable of galloping faster than running humans. Although they appear slow and clumsy, sloth bears are excellent climbers. They climb to feed and rest, though not to escape enemies, as they prefer to stand their ground. They are capable of climbing on smooth surfaces and hang upside down like sloths. They are good swimmers, and primarily enter water to play.

HYAENA

Zoological Name : Hyaena hyaena

Kingdom : Animalia **Phylum:** Chordata **Class:** Mammalia **Order**
: Carnivora

Suborder : Feliformia **Family:** Hyaenidae

The hyaena locally known as Lakkar Bagghais dog like built with massive head and forebody but weak hindquarters. The hyaena generally keeps to open country. It is nocturnal in habit, scavenger by profession and emits foul smells. It usually feeds on carrion and occasionally preys on sheep, goats, calves, and stray dogs. It is commonly found in the whole Khunti division forests, but many times killed at night due to similarity of stripes of tiger.

Neelgai or Blue Bull (*Boselaphus tragocamelus*):-It is the largest Asian antelope. Nilgai have thin legs and a robust body that slopes down from the shoulder. They show marked sexual dimorphism, with only the males having horns. Adult males have a grey to bluish-grey coat, with white spots on the cheeks and white colouring on the edges of the lips. They also have a white throat bib and a narrow white stripe along the underside of the body that widens at the rear. The tips of the long tufted tail and of the ears are black. They also possess a tubular shaped "pennant" of long, coarse, hair on the midsection of the throat. The males have two black conical horns, arising close together just behind the eyes. The horns are project upwards, but are slightly curved forward; they measure between 15 and 24 centimetres (5.9 and 9.4 in)



in a fully grown adult. Although the horns are usually smooth, in some older males they may develop ring-shaped ridges near the base. In contrast, females and young are tawny brown in colour, although otherwise with similar markings to the male; they have no horns and only a very small "pennant". Both sexes have an erectile man on the back of the neck, terminating in a bristly "hog-tuft" just above the shoulders. Nilgai are diurnal, and tend to form single sex herds outside of the breeding season. They can be found in large numbers on the banks of the streams.

Wild Boar (*Sus scrofa*). These animals are found everywhere in in this tract. In past time they are present in large number but due to preying activity they are at their eve. They often raid the agricultural crops raised by the residents and damage them. They also cause damage to nurseries and younger plantations by digging up in search for tubers. These formidable animals will turn with ferocity on any one disturbing them. They are omnivorous by nature and consume anything that's comes their way.

Leopard (*Panthera pardus*). This carnivore with a fulvous coat marked with black spots arranged in rosettes in tawny — yellow background can thrive in almost all habitats. Usually, except in breeding season they are solitary animals. The animal is a good swimmer, good climber and a powerful leaper. Its wariness, keen senses and ability to hide make it almost impossible to track it down easily. They prefer rocky slopes with abundant bushes for cover. Being more tolerant to high temperature, they frequently hunt during day time. They hunt any animal that can be overpowered, like Sambar, wild boars and other small games. Its habits bring it in to far more contact with man than the tiger.

Wild Cat (*Felis chaus*). This common wild cat of India resembles the house cat in many respects, but has a distinctive appearance with the heavy build, long legs and comparatively small tail. Fur is also richer than the domesticated tabby. Usually it is a solitary animal and pairing is observed only during the breeding season. They reside in wooded areas with a safe retreat among rocks. It hunts on small mammals, birds, reptiles etc, mainly during night, using stealth. Being very swift and



exceedingly strong for its size, it can bring down games larger than the animal. Raids on poultry are often reported from this tract.

Indian Wild Dog- Dhole (*Cuon alpinus*). It is similar to a domestic dog, but shorter in limbs and muzzle. These red * coated animals prefer forest areas with ample food, shade and water. They are social animals going about in packs. These powerfully built animals have great stamina and they go on tracking the prey with the acute sense of smell, scouring forests and meadows for miles around, during daytime. Their persistence in running down the prey is remarkable. They may even force a tiger to give up its kill by their strong will and group work. In this tract these animals are sighted in some part, hunting in small packs.

Indian Fox — common Fox (*Vulpes bengalensis*). They resemble the domestic dogs, but the tail is with more tufts of hairs. They are found near to human habitation. The eeries howling of the animal at dusk is perhaps more familiar to most of the people than the animal. They live in burrows dug by them. The burrow will be with very many openings. They will sleep in the burrows by day and will come out at dusk to seek its food. They hunt on small games, reptiles, insects, crabs etc, and also feed on carrions. Poultry raids by these animals are quite common in this area.

Indian Jackal (*Canis aureus*). These animals are a little larger than the common fox. Its nearest wild relative is the wolf, but the jackal is smaller in build and meaner in aspect. They live in any environment. In this tract they reside in the open forests in the vicinity of the populated part. They are found in pairs or in small packs. Solitary animals can also be seen. They come out in dusk, hunt and retire at dawn. They hunt small animals which they can overpower. They usually look for carrion, especially the remnants of the kills of larger carnivores. They also raid the poultry, try to lift lambs etc.

Indian Grey Mongoose- common mongoose (*Herpestes edwardsi*). They are uniformly grey or rufous in colour. They are usually found in pairs or small family groups. They prefer areas with thick undergrowth and shun dense forest areas. They are diurnal in habit and feed on rats,





mice, lizards, birds, insects, snakes, eggs and fruits. They live in holes dug by them.

Indian Giant Squirrel. (*Ratufa indica*). This species is endemic to India. They can be found only in forests. They often stay at the tops of lofty trees and seldom come to the ground. They usually move from tree tops to tree tops by remarkably giant leaps. They are very active and agile animals. This beautiful squirrel is with a long bushy tail. The black fur coat has characteristic reddish brown stripes and marks. They are shy animals that stay motionless when intruders are sighted and so not easy to discover. They live alone or in pairs in a globular nest made of twigs and leaves. The nests will be constructed among the slender branches where the heavier predators cannot reach and hunt them. A single animal may build several nests on different trees to be used as sleeping quarters, nurseries etc. They feed on fruits, shoots and insects.

Indian (three striped) Palm Squirrel (*Funambulus palmarum*). This is the common squirrel found in the homesteads. The three white stripes on the dorsal side of the black coat and the profusely bushy tail are the salient features of this animal. They feed on fruits, nuts, tubers, young shoots, buds and other vegetative materials. They have the habit of storing the food materials for using at the time of adverse conditions.

Black-naped Hare (*Lepus nigricollis*). This hare has got a black patch on the back of its neck and hence the name. It is also called as the Indian hare. They are often sighted in open areas with thickets of bushes. Though they are usually nocturnal, they seek food during day time too. It relies on grass, leaves and succulent herbaceous materials. They cause damage to seedlings by nipping off the apical portion.

Large Bandicoot Rat (*Bandicota indica*). These rodents are found in areas near to human habitation. Their large size helps to distinguish them from other rats. They prefer the outskirts of human dwellings such as the gardens, stables, etc. They make extensive burrows and do much damage. They feed on household refuse, grains, vegetables, etc.

Lesser Bandicoot Rat (*Bandicota bengalensis*). It is also called as the Indian Mole Rat. It is a smaller bandicoot with a dark greyish coat. It



is found in almost all places — in forests, pasture lands, gardens and even in waste lands. It dug up burrows with special chambers to store food grains for periods of famine. It multiplies like any thing. It is the most destructive rat that causes considerable damage to crops and stored food grains.

Common Yellow Bat (*Scotophilous heathi*). The Yellowish brown colour of the dorsal parts and the canary yellow colour of the under parts of the body is the distinctive feature of this bat. They roost in small colonies in crevices, roofs and holes in ceilings. They appear in the evenings and flies round in company. They feed on insects as well as fruits. **Painted Bat (*Kerivoula picta*).** This small bat with yellow 'wings' painted with black stripes and spots are sighted frequently in the populated part of this tract. As its colour perfectly matches with the dry leaves among which it roosts during day singly or in pairs, it is not easy to spot them.

BARKING DEER (*Muntiacus muntjak*) (Barking deer are shy and elusive. They are also known by the name of Kakad deer or the Barking deer in India. Indian Barking deer counts amongst the ten subspecies of the Barking deer in the world. Its horns rarely exceed 13 cms. Its favourite haunts are thick forests. Their height in India is somewhere between 50 cm to 75 cm. Their average lifespan is 20 to 30 years and they weigh somewhere around 20 to 30 kg. They can be easily distinguished from the other deer. The deer have two raised dark ridges on their forehead, which extend till their antlers. One of the unique features of Kakad deer is that they have both, a pair of antlers as well as overgrown canines (tushes). They make use of the tushes mainly as weapons in a fight. The Barking deer are mostly seen inhabiting dense forests of India. Even while grazing, they will rarely move into open grasslands and usually remain near the edge of dense forests. However, one can frequently find the Muntjac deer of India at salt licks. Apart from the Kalesar forest of Haryana, they are found in almost all the dense jungles of the Indian subcontinent.



2.B.1.2 - BIRDS

All the birds common to Jharkhand and South Chotanagpur can be met with in this tract. In this tract there are no perennial water bodies and as a result the aquatic birds can be sighted very rarely.

The other birds commonly found in this area are listed below.

Sl. No.	English Name	Latin Name
1.	Babbler, Common	Turdoides caudatus
2.	Barbet, Crimson-breasted or Coppersmith	Megalaima haemacephala
3.	Bird, Black	Turdus merula
4.	Bird, Tailor	Orthotomus sutorius
5.	Bittern, Chestnut	Ixobrychus cinnamomeus
6.	Bulbul, Red-vented	Pycnonotus cafer
7.	Crow, House	Corvus splendens
8.	Crow, Jungle	Corvus macrorhynchos
9.	Curlew	Numenius arquata
10.	Dove, Little Brown	Streptopelia senegalensis
11.	Duck, Pintail	Anas acuta
12.	Eagle, Crested Hawk	Spizaetus cirrhatus
13.	Eagle, Crested Serpent	Spilornis cheela
14.	Eagle, Short-toed	Circaetus gallicus
15.	Eagle, Tawny	Aquila rapax
16.	Fowl, Red Jungle	Gallus gallus
17.	Heron, Grey	Ardea cinerea
18.	Hoopoe	Upupaepops
19.	Hornbill, Common Grey	Tockus birostris
20.	Hornbill, Malabar Pied	Anthracoceros coronatus
21.	Ibis, Black	Pseudibis papillosa
22.	Kingfisher, White-breasted	Halcyon smyrnensis
23.	Kite, Brahminy	Haliastur Indus
24.	Koel	Eudynamys scolopacea
25.	Lapwing, Redwattled	Vanellus indicus
26.	Lapwing, Yellow-wattled	Vanellus malabaricus
27.	Lark, Red-winged Bush	Mirafra erythroptera
28.	Lark, Rufous-tailed Finch	Ammomanes phoenicurus
29.	Lorikeet	Loriculus vernalis
30.	Minivet, Scarlet	Pericrocotus flammeus
31.	Munia, Black-headed	Lonchura Malacca
32.	Munia, Green	Estrilda Formosa
33.	Munia, Red or Waxbill	Estrilda amandava
34.	Munia, Spotted	Lonchura punctulata
35.	Munia, White-backed	Lonchura striata



36.	Munia, White-throated	<i>Lonchura malabarica</i>
37.	Myna, Bank	<i>Acridotheres ginginianus</i>
38.	Myna, Grey-headed	<i>Sturnus malabaricus</i>
39.	Myna, Indian	<i>Acridotheres tristis</i>
40.	Myna, Jungle	<i>Acridotheres fuscus</i>
41.	Myna, Pied	<i>Sturnus contra</i>
42.	Myna, Brahminy or Black-headed	<i>Sturnus pagodarum</i>
43.	Nightjar, Common Indian	<i>Caprimulgus asiaticus</i>
44.	Nuthatch, Chestnut-bellied	<i>Sitta castanea</i>
45.	Oriole, Black-headed	<i>Oriolus xanthornus</i>
46.	Oriole, Golden	<i>Oriolus oriolus</i>
47.	Owl, Barn or Screech	<i>Tyto alba</i>
48.	Owl, Brown Fish	<i>Bubo zeylonensis</i>
49.	Parakeet, Alexandrine or Large Indian	<i>Psittacula eupatria</i>
50.	Parakeet, Blossom-headed	<i>Psittacula cya nocephala</i>
51.	Pigeon, Common	<i>Treron phoenicoptera</i>
52.	Pipit, Indian	<i>Anthus novaeseelandiae</i>
53.	Pitta, Indian	<i>Pitta brachyuran</i>
54.	Plover, Little Ringed	<i>Charadrius dubius</i>
55.	Redshank	<i>Tringatotanus</i>
56.	Robin, Indian	<i>Saxicoloides fulicata</i>
57.	Robin, Magpie	<i>Copsychus saularis</i>
58.	Roller or Blue Jay	<i>Coracias benghalensis</i>
59.	Sandgrouse, Common	<i>Pterocles exustus</i>
60.	Sandgrouse, Painted	<i>Pterocles indicus</i>
61.	Shrike, Large Cuckoo	<i>Coracina novaehollandiae</i>
62.	Shrike, Rufous-backed	<i>Lanius schach</i>
63.	Skylark, Indian Small	<i>Alauda guagula</i>
64.	Sparrow, House	<i>Passer domesticus</i>
65.	Sparrow, Yellow-Throated	<i>Petronia xanthocollis</i>
66.	Spurfowl, Red	<i>Galloperdix spadicea</i>
67.	Stilt, Blackwinged	<i>Himantopus himantopus</i>
68.	Stint, Little	<i>Calidris minutes</i>
69.	Stork, White	<i>Ciconia ciconia</i>
70.	Stork Whit-necked	<i>Ciconia episcopus</i>
71.	Stork Black neck	<i>Ephippiorhynchus asiaticus</i>
72.	Sunbird purple	<i>Nectarinia asiatica</i>
73.	Sunbird, Purple-rumped	<i>Nectarinia zeylonica</i>
74.	Swallow, Redrumped or Striated	<i>Hirundo</i>
75.	Swallow, common	<i>Hirundo rustica</i>
76.	Swallow, Wire-tailed	<i>Hirundo smithii</i>
77.	Swift, crested tree	<i>Hemiprocne longipennis</i>
78.	Swift, House	<i>Apus affinis</i>
79.	Swift, Palm	<i>Cypsiurus parvus</i>

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80.	Teal, Common	Anas crecca
81.	Tern, Indian Whiskered	Chlidonias hybrid
82.	Tern, River	Sterna aurantia
83.	Tit, Grey	Parus major
84.	Vulture, White Scavenger or pharaoh's chicken	Neophron percnopterus
85.	Vulture, White-backed or Bengal	Gyps bengalensis
86.	Wagtail, Grey	Motacilla caspica
87.	Wagtail, Large Pied	Motacilla maderaspatensis
88.	Wagtail, White	Motacilla alba
89.	Wagtail, Yellow	Motacilla flava
90.	Wagtail, Yellow-headed	Motacilla citreola
91.	Warbler, Ashy Wren	Prinia socialis
92.	Warbler, Indian Wren	Prinia subflava
93.	Warbler, Streaked Fantail	Cisticola juncidis
94.	Waterhen, White-breasted	Ama uromis phoenicurus
95.	Weaver Bird, Baya	Ploceus philippinus
96.	Weaver Bird, Black-breasted	Ploceus benghalensis

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2B.1.3. - REPTILES.

This tract posses variety of lizards and snakes. Both poisonous and non-poisonous snakes are seen in the forests. The important species found in this tract are listed below.

Monitor Lizard (*Varanus monitor*). This is the largest lizard found in the drier plains of this tract. The animal is much sought after by the tribes for its meat and skin, as it is believed that the blood and meat have medicinal properties. The tribal people use their pet dogs to chase this animal and catch it. Due to these indiscriminate killings, the species is becoming rare and rare in this area. If this trend is not checked, it is certain that the species will become extinct in this tract in the very near future.

Chameleon (*Chamelion calcarata*) This arboreal lizard is an interesting species. They are cryptically coloured and it cannot be recognised easily when they stay among the foliage. Its ability to change the colour in accordance with the surrounding is remarkable. The large protruding eyes can be revolved and used to watch the surrounding without actually turning the head. Though it is very clumsy in its movements, it stealth the prey and shoots it's long sticky tongue to catch the prey. This animal thrives mainly on insects

King Cobra (*Ophiophagus Hannah*). It is the most dreadful poisonous snake, as it attacks the intruders without any provocation. They are found in dense forests at higher altitudes as they prefer to avoid human interferences. It may attain a length of about six M. The hood is not wide as in cobra. It feeds on other snakes and rodents. It makes nest with the dried bamboo leaves and twigs. The eggs are laid in the lower compartment. Eventhe young ones coming out of the eggs are capable of killing large animals with the poison they possess. The poison is neuro—toxic and death is imminent. **Cobra (*Naja naja*).** This is the commonest poisonous snake found in this tract. It is characterised by the bicellate mark on the dorsal part of the hood that will be clearly visible when the hood is expanded with the intention to strike. The neck region comprises long ribs and it helps the snake to dilate the neck portion and expand the hood. The male members are heavier in build and possess longer tails and larger hoods. It feeds on rodents, frogs,



birds etc. The poison is neuro-toxic and the death is due to respiratory failure.

Python (*Python molurus*). It is the largest snake found in this tract. It is a non-poisonous snake, nonetheless dangerous as it coils round its victim and kills by strangulation. When disturbed it hisses loudly. Usually they prefer moist areas. It is a good swimmer as well as climber. It seems to be very lethargic, but when it sights a prey, turns very active. It may sometimes coil round on the branches of trees waiting the prey passing beneath. When the prey reaches just below, it may fall on it and coils round to constrict and kill it. It feeds on small animals, birds, frogs etc.

Viper (*Vipera ruselli*). It is another common poisonous snake found in the area. It is dark brown in colour with elliptical patches that run in three rows. The head is distinctively triangular in shape. They inhabit rocky and bushy areas, where the colour of its skin merges with the surroundings. Usually it remains coiled with the head at the centre of the coil. When provoked, it will raise its head, the body will be swelled rhythmically and hiss loudly and continuously. It hurls itself at the victim and the big fangs are pressed. They feed on small animals, birds, lizards etc.

Krait (*Bungarus caeruleus*). This poisonous snake is steel blue in colour with white bands around the body. These white bands are not distinct in anterior region. This snake is nocturnal in habit and feeds on other snakes, birds, rodents, lizards etc. The venom is neuro-toxic in action. The victim feels sleepy and dies.

Rat Snake (*Ptyas mucosus*). It is a common non-poisonous snake that is considered as the true friend of farmers as it helps them by preying upon and destroying the rats and mice. It is very agile and a good climber. When cornered, it will bite viciously. It will emit a foul smell on touch or even secrete a bad smelling black liquid from the anal glands.

Common Blind Snake (*Typhiops braminus*). It is a primitive snake, resembling a large earthworm, with a shining chocolate hue. They are found in rotting vegetation and also in cool damp places. The head is not distinct and the eyes are more or less concealed by imbricate scales. They burrow easily in soft soil. They feed on larvae, worms and soft insects.





Common Green whip-snake (*Dryophis nasutus*). It is a slender snake, almost green in colour. The dorsal part is full of black and white oblique lines, which are well defined in the anterior region. The head is elongated with a pointed tip. The eyes are well-defined with horizontal pupil and bright golden iris. It can be found in the foliage of small trees and bushes. It remains suspended with its tail and the head is held free to catch preys. It has the habit of swaying the head slowly and trying to take aim at shining objects or victims. It strikes viciously. Its diet consists of insects, lizards, small birds etc

Checkered Keel back (*Natrix piscator*). It is an aquatic non-poisonous snake, found frequently in the stagnant water in ditches in the rivers and streams. It seldom comes out of water. When cornered it strikes viciously. Its diet includes frogs, small fishes, worms, insects etc.

Water Snake (*Enhydryis enhydryis*). This is another aquatic snake that seldom leaves the water. It is nonpoisonous and harmless. It feeds on frogs, worms etc.

Tree Snake (*Dendrophis species*). This non-poisonous snake is sighted rarely among the foliages of small trees and bushes.

Wolf Snake (*Oligodon venustus*). The colour of this harmless non-poisonous snake is grey with brownish tinge. It resembles the krait in appearance. But here the brown bands of anterior region will be clear and distinct. They are found in open areas with bushy thickets. It comes out in the evenings seeking food. It feeds on small rodents, lizards, insects etc.

Tortoises (*Testudo travancorica*). These armoured animals are found in damp places near to the perennial streams of the upper reaches of this tract. Indeed they are few in number at present as they were sought for meat by the tribals staying within the forests.

2B. 1.4. -AMPHIBIANS.

Amphibians are represented by frogs and toads in this tract. The common frogs belonging to the genera *Rana* are found in the water holes and damp places. The common frogs found here are the following.

- *Rana hexadactyla*
- *Rana tigrina*



- Rana semipalmata
- Rana malabarica
- Rana aurentiaca.

Toads belonging to the genera Bufo are common in this tract. The prominent toads that can be met with in this tract are the following.

- Bufo melanostictus
- Bufo parietalis
- Bufo microtypanum.

Charan



2B.1.5. - FISHES,

This tract is not very good abode for the Piscean fauna. During the monsoon period when the water flow is steady, fishes are shown in water bodies.

The prominent fish species found growing in the streams & water bodies of the tract are given below:

Siluriformers	Cypriniformes
Ompok bimaculatus (Bloch.)	Labeo rohita (Ham.)
Wallago attu (Bl. & Schn.)	Labeo calbasu (ham.)
Mystus bleekeri (Day)	Labeo bata (Ham.)
Mystus tengara (Ham.)	Catla catla (Ham.)
Mystus vittatus (Bloch.)	Cirrhinus mrigala (Ham.)
Bagarius bagarius (Ham.)	Puntius ticto (Ham.)
Allia colia (Ham.)	P. sarana sarana (Ham.)
Clupisoma garua (Ham.)	Osteobrama cotio cotio (Ham.)
Heteropneustes fossilis (Bloch.)	Syngbranchiformes
Clarius batrachus (Linn.)	Monopterusuchia (Ham.)
Siluriformes	Mastacembelus pancalus (Ham.)
Ompok bimaculatus (Bloch.)	Mastacembelus armatus (Lac.)
Wallago attu (Bl. & Schn.)	Macrognathus aual (Schn)
Mystus bleekeri (Day)	Labeo rohita (Ham.)
Mystus tengara (Ham.)	Labeo calbasu (ham.)
Mystus vittatus (Bloch.)	Perciformes
Bagarius bagarius (Ham.)	Channa punctatus (Bloch.)
Allia colia (Ham.)	Channa orientalis (Sch.)
Clupisoma garua (Ham.)	Channa striata (Bloch.)
Heteropneustes fossilis (Bloch.)	
Clarius batrachus (Linn.)	
Osteoglossiformes	Cyprinodontiformes
Notopterus notopterus (Pallas.)	Gambusia affinis (Baird & Girard)
Chitala chitala (Ham.)	Mugiliformes
Clupeiformes	Rhinomugil corsula (Ham.)
Gudusia chapra (Ham.)	Cyprinodontiformes

Chandra 02



2B.2. - INJURIES TO WHICH THE FAUNA IS LIABLE

2B.2.1. - INTRODUCTION.

In Past this tract is affording good abode and shelter to many forms of wild life. On that time the richness and variety of the fauna of this tract is really admirable. The major threat factors faced by the wild life population in this tract are discussed below.

2B.2.2. - HABITAT FRAGMENTATION AND ALIENATION.

In the past extensive forest tracts were clear felled for various purposes. In this tract also the natural forests were cleared to be regenerated with valuable species and the evergreen stretches were worked under selection felling system. All these resulted in the increased human interferences and indeed it adversely affected the well being of the wildlife. In this stretch of forests, few settlements within the tract cause disturbance to the harmonious life in their habitat.

2B.2.3. - CARRYING CAPACITY.

When the existing forest vegetation is clear felled for raising plantations of required species, the environmental and ecological factors of the locality will be altered drastically. Food, water and shelter are the most important requirements of the fauna to thrive successfully. The carrying capacity of a habitat is determined by considering the abundance or inadequacy of these components. If the domestic cattle intrude, the available food is to be shared and it brings out competition between the wild fauna and domestic cattle. In the absence of palatable vegetation, the population of herbivores will dwindle and it will adversely affect the existence of carnivores too. Likewise, water is an important requirement that determines the existence of life.

It is the same case with shelter. Shelter is essential for the wild animals to rest in the hot hours of the day and to hide from the predators. In the absence sufficient shelter the fauna may retreat to other safer areas. In addition to these, the changes in the environmental factors such as temperature, humidity, precipitation etc also influences the animal life in a particular territory. All these are interlinked factors that directly influence the animal community.



2B.2.4. - EPIDEMICS.

Due to the existence of human settlements, the wild fauna is forced to share their domain with the domestic cattle. They will be grazing together in the same area. As the domestic cattle and wild herbivores are prone for almost similar diseases, the chances of mutual transmission increases. If once an epidemic breaks out in a territory, it may wipe out the whole population of the affected species. It is very difficult to treat the wild fauna against any disease.

2B.,2.5. - FIRE.

Fire will annihilate many small forms of wild life directly. Small invertebrates, snakes, ground roosting birds; rodents residing in burrows etc will get killed. The fire also causes deterioration of the soil, destruction of vegetation and depletion of the habitat. If the fire sweeps the area regularly without any check, it will ultimately pave way for the dwindling of wild life population, due to scarcity of food /fodder

2B.2.6. - PREDATION.

The life forms in a habitat are interlinked in many ways. They will interact with each other and also with the environment. They also have to depend directly or indirectly on the members of the community. This interdependence and interaction are essential to maintain the balance in nature. The herbivores are the primary consumers in this ecosystem and their success depends on the availability of sufficient food materials in the area. If the populations of the herbivores increase without any check due to the absence of predators, it will tell upon the carrying capacity of the area. The food scarcity due to over population may ultimately lead to the total destruction of the herbivores. Similarly, if the number of the predators in an area is more, there will be excessive predation which will wipe out the prey base and result in the extermination of the carnivores also. So it is evident that the wildlife community should maintain a balance that will help to keep equilibrium in nature unaltered.

2B.2.7. - HUMAN ACTIVITIES.

Men indulge in illegal activities like poaching and trade of wild life articles. Wild animals are often hunted for their meat or other animal



products like hide, musk, certain body parts, etc. Capturing of live animals for the purpose of trade is another factor that causes dwindling of the population of certain species. Snaring and poisoning the wild animals in an effort to protect the crops is another human activity that causes destruction of wild life. The public has to be enlightened in this regard so as to ensure the protection of wildlife. Dependence of local tribals on many of are smaller animals for food is a serious issue.

2B2.8. - ANIMAL_HUMAN CONFLICT.

A crop raid by wild life often occurs in this tract. Wild Boar and nilgai is the main culprit in these cases. Instances of crop raids by wild elephants are very rare. Villagers are killed or made harm to wild to prevent their crop field. This one is a serious issue.

2B.3. - FAUNA MANAGEMENT

At present this tract is not considered as an area where wildlife management activities are to be carried out with much significance or as a corridor to be developed more to facilitate the movement of wild animals. No activities are carried out till this date exclusively to manage the wild fauna of this tract. During the peak summer days the streams crisscrossing this tract will become dry, the grasses and other edible plants in the open areas will perish and there will be the threat of annual wild fires. Owing to these, the animals will be congregating around certain spots where water and food materials will be available in diminutive quantity. In such condition, it is imperative to chalk out some simple measures to provide essential facilities to the wild life at various ideal spots within this tract. For securing water throughout the year, small check dams can be constructed across the streams at sites regularly haunted by the wild animals during the favorable season. Small ponds can be dug in areas where the water table is high and desilting of the existing water holes can be attempted to provide water to the wild animals. Salt licks can also be established near these spots. Other facilities relished by certain animals, such as wallowing pits, can also be prepared. While afforesting the denuded forest areas by planting local species, care should be taken to include some species that will provide fodder to herbivores, fruits and shelter to arboreal animals and birds. Live and let live is to be the policy to be adopted and for this there



LULC Statistics			
Sl No	Description	Area_Ha	%
1	Build up	128	0.050126
2	Agricultural Land	68577	26.85555
3	Current fallow	87489	34.26171
4	Deciduous forest	79623	31.1813
5	Scrub/Deg. forest	3529	1.381998
6	Scrub with Land	35	0.013706
7	Scrub without Land	9496	3.718744
8	Water bodies	1001	0.392003
9	River/Nala	4699	1.840183
	Total Area Ha	254577	100

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