



# DISTRICT SURVEY REPORT

FOR

**MINOR MINERAL – STONE**

[OTHER THAN SAND MINING OR RIVER-BED MINING]

IN

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**GODDA DISTRICT OF JHARKHAND STATE**

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As per Gazette Notification No. - S.O. - 3611(E), dated 25<sup>th</sup> July, 2018  
by Ministry of Environment, Forest & Climate Change, Government of India

Prepared by:

**Sub-Divisional Committee, Godda District**  
Jharkhand





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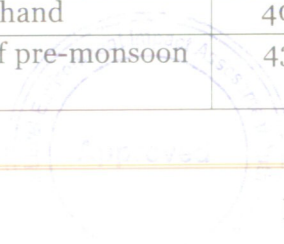
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Recommended by Sub-Divisional Committee and Deputy Commissioner, Godda

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## 1. PREFACE

The need for District Survey Report (DSR) have been necessitated by Ministry of Environment, Forest and Climate Change (MoEF & CC) vide their Notification No. - 125 (Extraordinary, Part II Section 3, Sub-section ii), S.O. - 141 (E), dated 15<sup>th</sup> January 2016. The notification was addressed to bring certain amendments with respect to the EIA notification 2006 and in order to have a better control over the legislation, District level committees have been introduced in the system. As a part of this notification, preparation of District Survey Report has been emphasized. Subsequently, MoEF & CC has published Notification No. - 3611 (E), dated 25<sup>th</sup> July 2018 regarding inclusion of the format of District Survey Report (DSR) for "Minor minerals other than Sand Mining or River-bed Mining". This DSR has been prepared in conformity with the Notification No. - S.O. - 141 (E), S.O. - 3611 (E) and the requirement specified in Jharkhand Minor Mineral Concession Rules 2017.

The main purpose of DSR is to identify the mineral potential areas to develop the mining activities along with relevant current geological data of the District where mining can be allowed; and also to distinguish the areas where mining will not be allowed due to proximity to infrastructural structures and installations. The District Survey Report shall guide for systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. This report will be a model and guiding document which is a compendium of available mineral resources, geographical set up, environmental and ecological set up of the district and is based on data of various departments, published reports and websites, details of leases and mining activity in the district along with mining royalty/revenue of minerals is also incorporated. This report also contains details of Forest, Rivers, Soil, Agriculture, Road, Transportation and Climate etc. of the Godda district.

The district of Godda was created on 17<sup>th</sup> May, 1983 out of old Santhal Pargana district which was upgraded to the level of division. Present Santhal Pargana division comprises 6 districts, viz., Godda, Dumka, Deoghar, Sahebganj, Jamtara and Pakur. Godda(M), the only one town of the district is the headquarter of Godda district and Godda subdivision. The history of Godda district is inseparable from the history of parent district of Santhal Pargana. Santhal Pargana was created as a separate district in the year 1855 by transferring out portions of Bhagalpur and Birbhum districts. The entire area comprising present divisions of Santhal Pargana, Hazaribag, Munger and Bhagalpur was termed as Jungleterry (Jungle Terai) by the English on assumption of Diwani in 1765.

Godda district is one of the twenty four districts of Jharkhand State in eastern India with its district headquarter at Godda. It lies in the north-eastern part of the State. The geographical area that now comprises Godda district, used to be part of the erstwhile Santhal Pargana district. The district lies between 25°13'38.47"N, 87°23'55.62"E to 24°30'4.34"N, 87°23'39.21"E (North-South), 25° 0'49.81"N, 87° 8'53.15"E to 24°47'58.32"N, 87°30'30.73"E (West-East)

Godda district is sharing border with Banka district of Bihar to the West, Bhagalpur district to the North, Dumka district to the South, Sahibganj and Pakur district to the East. The district lies in Survey of India Toposheets Nos. - 72O/4, 8, 12, 72P/1, 2, 5, 6. The area of the district is 2110 km<sup>2</sup>, with a population of around 1,313,551 (population density 580/Km<sup>2</sup>). Tribals like Santhals, Paharias and Lohras make a sizeable chunk of the population of the district. Being tribal dominated its culture and creed is unique. This district is covered with mountains, rivers and forests. Its natural phenomena are fascinating and rare.

The principal rivers of the district are Kajhia, Harna, Sunder, Sapin, Kao, Chir and Geura. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district. Sand mining is mainly practiced in Godda, Mahagama and Basantrai, Pathargama, Poreyahat blocks of Godda district. Rivers in which Sand mining takes place in Godda district are - Bansloi, Burigeria, Chir, Kajhia, Sundargaria River. The general trend of the drainage is from SE-NW. The

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structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district.

During 1980's after the successful exploration by GSI and CMPDI the district is well known for its Coal mining. The entire scenario changed after coal was first discovered in abundance under the Rajmahal Hills by a team of the Geological Survey of India. Central Mine Planning and Design Institute Ltd. conducted a detailed survey of the area. The Rajmahal Opencast Coal mine project was conceived in early 1980s, initially to supply coal to Farakka Super Thermal Power Project of NTPC, with an initial annual capacity of 5 million tonne. For expansion of this Coal mine project to 10.5 million tonne per annum, an agreement was signed between Coal India Limited and Canadian Commercial Corporation in January 1989 where MET-CHEM Canada Inc. was designated as the Canadian Executing Agency for implementing the project. The Project was completed in July 1994 and is being run by Eastern Coalfields Limited personnel. Sand mining is mainly practiced in Godda, Mahagama and Basanrai blocks of Godda district.

The occurrence of Minor minerals in the district have been established by Department of Mines and Geology, Government of Jharkhand and others in previous instances. It requires further systematic and scientific approach to quantify the resource along with their grade assessment. This report also recommends to undertake detail exploration program to assess the Minor mineral occurrences in the district and should have a proper development and production plan for the specified minerals so as to satisfy the demand and supply gap of Minor minerals in the district.





## 2. INTRODUCTION

The District Survey Report of Godda district has been prepared as per the guidelines of Ministry of Environment, Forest & Climate Change (MoEF & CC), Government of India vide Notification S.O. - 1533(E) dated 14<sup>th</sup> Sept. 2006 and subsequent MoEF & CC Notification S.O. - 141(E) dated 15<sup>th</sup> Jan. 2016. This report shall guide systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. Further, MoEF & CC published Gazette Notification No. - S.O. - 3611(E), dated 25<sup>th</sup> July, 2018 and recommended the format for District Survey Report for Minor minerals other than Sand Mining or River-bed Mining.

The Objectives of the District Survey Report are as following:

1. Identification and Quantification of mineral resource and its optimal utilization.
2. To regulate the Minor mineral's mining in the Country, identification of site specific end-use consumers and reduction in demand & supply gaps.
3. Use of information technology (IT) & latest scientific method of mining for surveillance of the Minor mineral's mining at each step.
4. District Survey Report shall enable Environmental Clearance for cluster of Minor mineral. It shall assist concerned Department during post Environmental Clearance Monitoring.
5. To control the instance of illegal mining.
6. To maintain the livelihood of nearby village's peoples.
7. To keep accumulated data records viz. Details of Mineral Resource, Potential area, Lease, Approved Mining Plan, Co-ordinates of a District at one place.
8. To maintain the records of Royalty/Revenue generation.
9. A concise guideline can be framed considering the point discussed in the DSR for Minor mineral's mining in the district.

The District Survey Report (DSR) is comprised of data published and endorsed by various Departments and websites about geology of the area, mineral resources, climate, topography, land form, forest, rivers, soil, agriculture, road, transportation, irrigation etc. Data on lease and mining activities in the district, revenue etc. are collected and collated from concern District Mining Office.

### 2.1 Statutory Framework:

The below table has mentioned the requirement of District Survey Report and its year wise modification;

Table 2.1: Requirement of District Survey Report & its year-wise modification

| Year | Particulars  |
|------|--|
| 1994 | The Ministry of Environment, Forest & Climate Change (MoEF & CC) published Environmental Impact Assessment Notification 1994 which is only applicable for the Major minerals having mining lease area more than 5 Ha.  |
| 2006 | In order to cover the minor minerals also into the preview of EIA, the MoEF & CC issued EIA Notification S.O. - 1533 (E), dated 14 <sup>th</sup> September 2006, made mandatory to obtain Environmental Clearance for both Major & Minor mineral having mining lease area more than 5 Ha.  |
| 2012 | Further, Hon'ble Supreme Court wide order dated 27 <sup>th</sup> February 2012 in I.A. No. - 12-13 of 2011 in Special Leave Petition (C) No. - 19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc., ordered that "leases of minor minerals including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from MoEF & CC"; and Hon'ble National Green Tribunal, order dated 13 <sup>th</sup> January, 2015 in the matter regarding Sand mining has directed for making a policy on Environmental Clearance for mining leases in cluster for Minor minerals. |

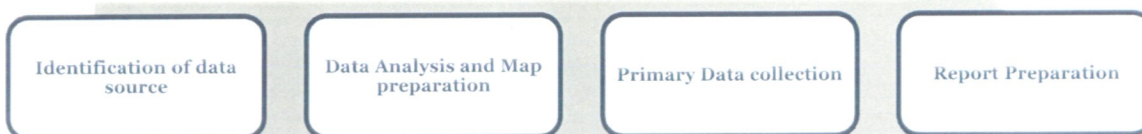


|                    |  |
|--------------------|--|
| <p><b>2016</b></p> | <p>The MoEF &amp; CC in compliance of above Hon'ble Supreme Court's and NGT's order has prepared "Sustainable Sand Mining Guidelines (SSMG), 2016" in consultation with State Governments, detailing the provisions on Environmental Clearance (EC) for cluster, creation of District Environment Impact Assessment Authority, preparation of District Survey Report and for proper monitoring of minor mineral. Thereby issued Gazette Notification dated 15.01.2016 for making certain amendments in the EIA Notification, 2006, and made mandatory to obtain EC for all Minor minerals. Provisions have been made for the preparation of District Survey Report (DSR) of River-bed material and other Minor minerals.</p> |
| <p><b>2018</b></p> | <p>MoEF &amp; CC published Gazette Notification No. - S.O. - 3611(E) Dated 25<sup>th</sup> July 2018 and recommended the format for District Survey Report for Minor minerals other than Sand mining or River-bed mining. The notification stated about the objective of DSR, i.e. "identification of the mineral potential areas to develop the mining activities along with relevant current geological data of the District where mining can be allowed; and also to distinguish the areas where mining will not be allowed due to proximity to infrastructural structures and installations."</p>  |

➤ The Ministry of Environment Forest & Climate Change formulated the format of District Survey Report for Minor minerals other than Sand Mining or River-bed Mining which focuses on the management of Minor mineral's mining in the country. But in the recent past, it has been observed that apart from management and systematic mining practices there is an urgent need to have a guideline for effective enforcement of regulatory provision and their monitoring. Section 23 C of MMDR 1957 empowered the State Government to make rules for preventing illegal mining, transportation and storage of minerals but in the recent past, it has been observed that there was large number of illegal mining cases in the Country and in some cases, many of the officers lost their lives while executing their duties for curbing illegal mining incidence. The illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

## 2.2 Methodology of DSR Preparation:

The data related to district profile, geology, mineralization, mining activity are sketchy and disjointed. There are multiple data sources, which are in the public domain, as well as in government website. To prepare District Survey Report, need to collate all the available databases on these regards. A comprehensive and a meaningful interpretable database created, which would be necessary to demonstrate the district overview. Workflow for the DSR job is as follows.



**Data source Identification:** District Survey Report has been prepared based on the Primary data base collected from different sources. The data sources which are used in DSR are mostly based on Government published data or the published report in reputed journal. District profile has been prepared based on the District Census 2011. Mining lease details and the revenue generated from Minor minerals has been prepared based on available data from District Mining

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Office of the District. Satellite imagery has been used for map preparation related to physiography and land utilization pattern of the district.

**Data Analysis and Map preparation:** Dataset which are captured during the report preparation, are gone through detail analysis work. District Survey Report involves the analytical implication of captured dataset to prepare relevant maps. Methodology adopted for preparation of relevant maps is explained below.





### Land Use and Land Cover Map:

Land Use and Land Cover classification is a complex process and requires consideration of many factors. The major steps of image classification may include determination of a suitable classification system via Visual Image Interpretation, selection of training samples, Satellite image (FCC - False Color Composition) pre-processing, selection of suitable classification approaches, post-classification processing, and accuracy assessment.

Here LISS-III Satellite Imagery has been taken for Supervised Classification as supervised classification can be much more accurate than unsupervised classification, but depends heavily on the training sites, the skill of the individual processing the image, and the spectral distinctness of the classes in broader scale.

According to the Visual Image Interpretation (Tone, Texture, Colour etc.) training set of the pixel has been taken.

**Table 2.2: Pictorial Descriptions of Physiographic Classification**


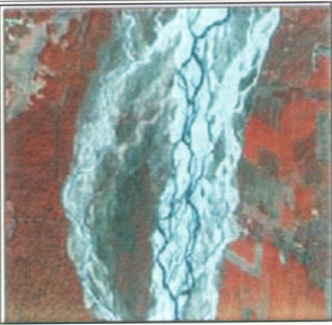
|   |   |
|---|---|
|   |                                      |
| <b>Agricultural Land</b> - Based on their Geometrical shape, Red and Pink color tone, Agricultural Land has been identified.                                      | <b>Vegetation Covered Area</b> - Based on their continuous Red color tone, Vegetation Covered Area has been identified. |
|    |                                     |
| <b>Agricultural Fallow Land</b> - Based on their Geometrical shape, Light and dark Cyan with light Pink color tone, Agricultural Fallow Land has been identified. | <b>Bad Land Topography</b> - Light Yellowish mixed with Cyan color has been identified as Bad Land Topography.          |

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|   |  |
|---|--|
|                                    |  |
| <p><b>Settlement</b> – Area with Cyan color including geometrical shape has been recognized as Settlement Area.</p> | <p><b>Water Bodies</b> – Dark Blue color has been classified as Water Bodies.</p>  |

### Geomorphological Map:

The major steps of preparing Geomorphological Map is identifying features like – Alluvial Fan, Alluvial Plain, Hilly region etc. from Satellite imagery (FCC - False Color Composition) via Visual Image Interpretation and then digitization has been taken into the consideration to prepare map including all the Geomorphological features according to their location.

### Physiographical Map:

The major step of preparing Physiographical Map is generating contour at a specific interval to show the elevation of the area using Cartosat DEM.

### Block Map:

- Raw Data collected from **National Informatics Centre (NIC Website)** during March 2022 and October 2022.
- Data has been geo-referenced using GIS software.
- Digitization of Block boundary, District Boundary, State Boundary, International Boundary, and District Headquarter, sub-district Headquarter, Places, Road, Railway, River, Nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

### Transportation Map:

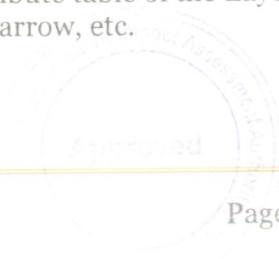
- Raw Data collected from **National Informatics Centre (NIC Website)** during March 2022 and October 2022.
- Data has been geo-referenced using GIS software.
- Digitization of Block boundary, District Boundary, State Boundary, International Boundary, and District Headquarter, sub-district Headquarter, Places, Road, Railway, River, Nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

### Drainage Map:

- Raw Data collected from **National Informatics Centre (NIC Website)** during March 2022 and October 2022.
- Data has been geo-referenced using GIS software.
- Block boundary, District Boundary, State Boundary, International Boundary & District Headquarter, sub-district Headquarter, Places, Road, Railway, River, Nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

### Earthquake Map:

- Raw data collected from **Ministry of Earth Science.**



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- Data has been geo-referenced using GIS software.
- Digitization of Earthquake zone and superimposed it over Block Boundary.
- Zone name has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

#### Soil Map:

- Raw data collected from **National Bureau of Soil Survey and Land Use Planning**.
- Data has been geo-referenced using GIS software.
- Digitization of Soil classification zone and superimposed it over District Boundary.
- Soil classification has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

#### Wildlife Sanctuary and National Park Location Map:

- Raw data collected from **ENVIS Centre on Wildlife & Protected Areas** during August 2022.
- Data has been geo-referenced using GIS software.
- Digitization of Wildlife Sanctuary & National park and superimposed it over Block Boundary.
- Wildlife Sanctuary & National Park name has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

**Primary Data Collection:** Field data collection is an integral part of DSR preparation. This report has been prepared with the holistic approach and data provided by District Mining Office. The DSR with all updated data has been prepared.

**Report Preparation:** District Survey Report has been prepared to fulfil the purpose of identification of mining area for minor mineral and their impact on environment. Report provides details of the mineral potential zones. Assessing mining prospect with respect to minor minerals, List of Letter of Intent (LOI) incorporated in this report. Report also provides the socio-environmental study for establishing mines of minor minerals in the district.





### 3. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

Minerals such as Stone, Coal, Fire Clay, Dolerite, Quartzite etc. are found in the district. There are 13 operative and non-operative mines in the district, which generates an average revenue of around Rupees 200 Crores per year. The deposition of Dolerite is mainly noticed in southern part of Poreyahat block. Some part of Poreyahat block, mostly in central region also has the deposition of Quartzite and Quartz Schist. Pathargama, Godda and Poreyahat block is mostly covered with Laterite and Lateritic Soil. There are number of villages in the district having potential of producing kiln bricks in the non-cultivated land, which can be made cultivable after using 1 or 2 metre of earth cutting for manufacturing the kiln bricks.

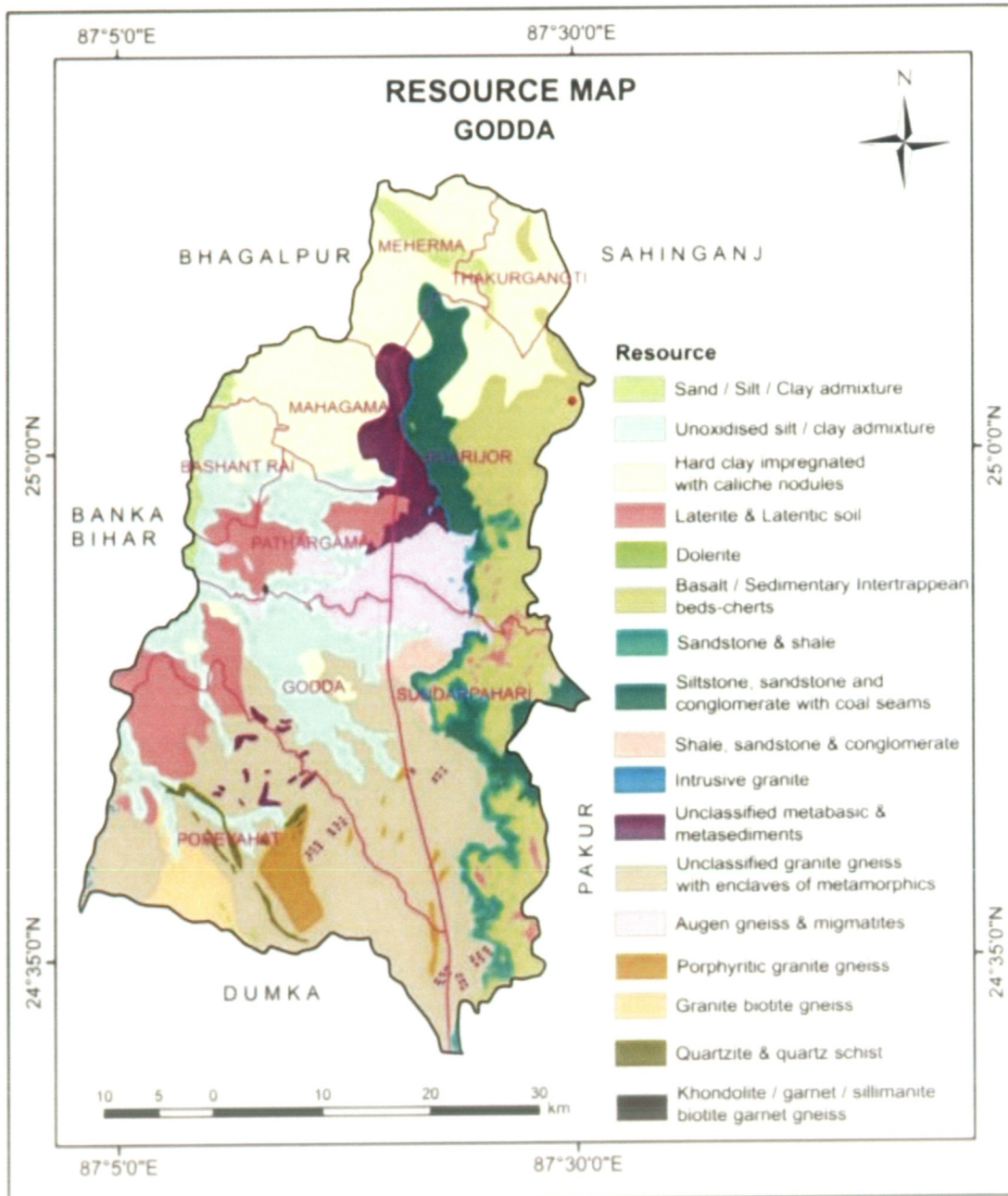


Fig. 3.1: Resource Map of Godda District

(Source: Geological Survey of India)

**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
BOKARO DISTRICT OF JHARKHAND**



**3.2 DETAILS OF EXPIRED MINING LEASES IN THE DISTRICT:**

| Sl. No. | Name of the Mineral | Name of the Lessee   | Address of the Lessee  | Area of Mining Lease (Acres) | Location of the Mining Lease                     | Period of Mining Lease |                     |
|---------|---------------------|--|--|------------------------------|--|------------------------|---------------------|
| 1       | 2                   | 3  | 4  | 6                            | 7  | 8                      | 9                   |
| 1       | Stone               | Shri Rajkumar Bhagat<br>S/o Shri Badri Prasad bhagat                                     | Village – Poreyahat<br>District - Godda                              | 2.80                         | Mouza – Bhataundha<br>Plot No. – 5942 & 5767     | 22.12.2009             | 21.12.2019          |
| 2       | Stone               | Smt. Anita Bhagat<br>W/o Shri Shyam Ji Bhagat  | Village – Naharchok<br>Dist. - Godda                                 | 3.00                         | Mouza – Bargachha<br>Hariyari<br>Plot No. - 3542 | 30.04.2010             | 29.04.2020          |
| 3       | Stone               | Smt. Anita Bhagat<br>W/o Shri Shyam Ji Bhagat  | Village – Naharchok<br>Dist. - Godda                                 | 3.50                         | Mouza – Hathi Hariyari<br>Plot No. - 3150        | 23.09.2011             | 22.09.2021          |
| 4       | Stone               | Shri Surendra Marandi<br>S/o Late Mohanlal Marandi                                       | Village + P.O. + P.S. –<br>Poreyahat<br>Dist. - Godda                | 1.00                         | Mouza – Saampur<br>Plot No. – 226(P) &<br>229(P) | 27.05.2011             | 26.05.2021          |
| 5       | Stone               | Shri Prabhakar Kumar Bhagat<br>S/o Shri Manohar Bhagat                                   | Village + P.O. + P.S. –<br>Poreyahat<br>Dist. - Godda                | 2.00                         | Mouza – Gundhasa<br>Plot No. – 858(P)            | 07.07.2011             | 06.07.2021          |
| 6       | Stone               | M/s Bam Baski Stone Works of<br>Shri Shrawan Kumar Agrawal<br>S/o Late Ramavatar Agrawal | Village – Rautara Chowk<br>Dist. - Godda                             | 4.00                         | Mouza – Siarkatia<br>Plot No. – 1057(P)          | 03.05.2011             | Up to<br>31.03.2022 |
| 7       | Stone               | Shri Rakesh Kumar<br>S/o Shri Sudama Prasad Singh  | Village – Khapura<br>P.O. + P.S. - Paliganj<br>Dist. – Patna (Bihar) | 5.00                         | Mouza – Ramkol<br>Plot No. – 847(P)              | 07.07.2011             | 06.07.2021          |
| 8       | Stone               | Shri Manish Kumar<br>S/o Late Shiv Shankar Rai   | Village - Purandaha<br>Dist. - Deoghar                               | 1.90                         | Mouza – Ramkol<br>Plot No. – 847(P)              | 07.07.2011             | 06.07.2021          |
| 9       | Stone               | Shri Jaikant Shah<br>S/o Shri Ratan Shah   | Village + P.O. + P.S. –<br>Lalmatia<br>Dist. - Godda                 | 2.15                         | Village – Deodand<br>Plot No. – 200              | 07.07.2011             | 06.07.2021          |

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## 4. GENERAL PROFILE OF THE DISTRICT

### 4.1 General Information:

Godda district is one of the twenty-four districts of Jharkhand State in eastern India. It lies in the north-eastern part of the State. The geographical area that now comprises Godda district used to be part of the erstwhile Santhal Pargana district. Godda town is the headquarter of Godda district. The area of the district is 2110 km<sup>2</sup>, with a population of around 1313551. The Godda district is connected with rail link. The nearest railway station is Godda. The main economic activity of the people is agriculture and major crops are paddy, wheat and maize. Godda is the land of a tribe called Santhals. Godda is not only a land of tribes, the local inhabitants also include the non-tribal and urban people. Godda is a Silk City with a municipal Council in the Godda subdivision & Mahagama sub division the Godda district in the Indian State of Jharkhand. Godda was a part of undivided Santhal Pargana district until 1981 census. Later the old Godda sub-division of Santhal Pargana was separated and formed as a new district. As a consequence of the Santhal rebellion of 1845-55 the district of Santhal Paragna was created from portions of Bhagalpur and Birbhum. Godda district at present comprises nine Blocks. Godda is the only town in the district. There are 2311 villages in the district.

(Source – godda.nic.in)

The principal rivers of the district are Kajhia, Harna, Sunder, Sapin, Kao, Chir and Gerua. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district. Sand mining is mainly practiced in Godda, Mahagama and Basantarai, Pathargama, Poreyahat blocks of Godda district. Rivers in which Sand mining takes place in Godda district are - Bansloi, Burigeria, Chir, Kajhia, Sundargaria River.

The district lies in Survey of India Toposheets nos. 72O/4, 8, 12, 72P/1, 2, 5, 6.

|              |                    |
|--------------|--------------------|
| <b>EAST</b>  | Pakur District     |
| <b>WEST</b>  | Banka District     |
| <b>NORTH</b> | Bhagalpur District |
| <b>SOUTH</b> | Dumka District     |

### Administrative Set up of the Godda District:

Godda town is the District headquarter of Godda itself. For administrative purpose the district has been divided into 2 sub divisions – Godda & Mahagama and 9 nos. of Blocks/Tehsils as follows: -

#### Blocks

- Godda Sadar
- Poreyahat
- Sunderpahari
- Pathragama
- Basantrai
- Mahagama
- Meharma
- Boarijore
- Thakurgangti



(Source – godda.nic.in)

# DISTRICT SURVEY REPORT OF “MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING” IN GODDA DISTRICT OF JHARKHAND



## Villages & Panchayats:

There are 201 panchayats and 1634 villages in the district: Table 4.1: -

| Blocks       | No. of Panchayats | No. of Villages |
|--------------|-------------------|-----------------|
| Basantraï    | 14                | 82              |
| Boriajore    | 22                | 296             |
| Godda        | 34                | 196             |
| Mahagama     | 29                | 140             |
| Meherma      | 23                | 136             |
| Pathargama   | 19                | 141             |
| Poreyahat    | 31                | 194             |
| Sundarpahari | 13                | 208             |
| Thakurgangti | 16                | 141             |
| <b>Total</b> | <b>201</b>        | <b>1634</b>     |

(Soucre – Census 2011)

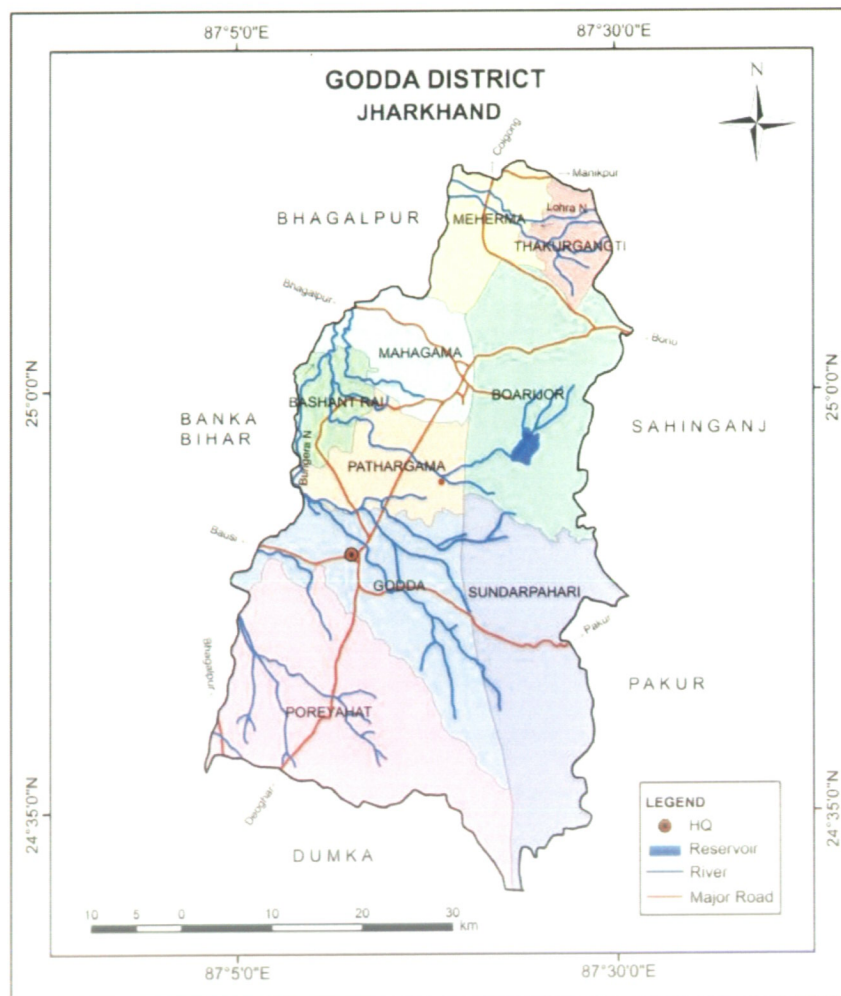


Figure 4.1: Block Map of Godda District





### 4.2 Topography & Terrain:

The predominant physical feature over major part of the district is the rolling topography dotted with isolated inselbergs except in the Borijore and Sundarpahari blocks. A substantial part of Borijore and Sundarpahari block is under forest cover. The altitude of the land surface increases from west to the east. The major hills are confined to the eastern part of the district comprising the Gandeshwari Pahar (238.41m) and Kesgari Pahar (268.29m) while in the western part of the district isolated hills are in the form of the inselbergs and other small hillocks. The soil is mostly acidic, reddish yellow, light textured and highly permeable with poor water holding capacity.

### 4.3 Drainage System:

The principal rivers of the district are Kajhia, Harna, Sunder, Sapin, Kao, Chir and Geura. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district. Sand mining is mainly practiced in Godda, Mahagama and Basantrai, Pathargama, Poreyahat blocks of Godda district.

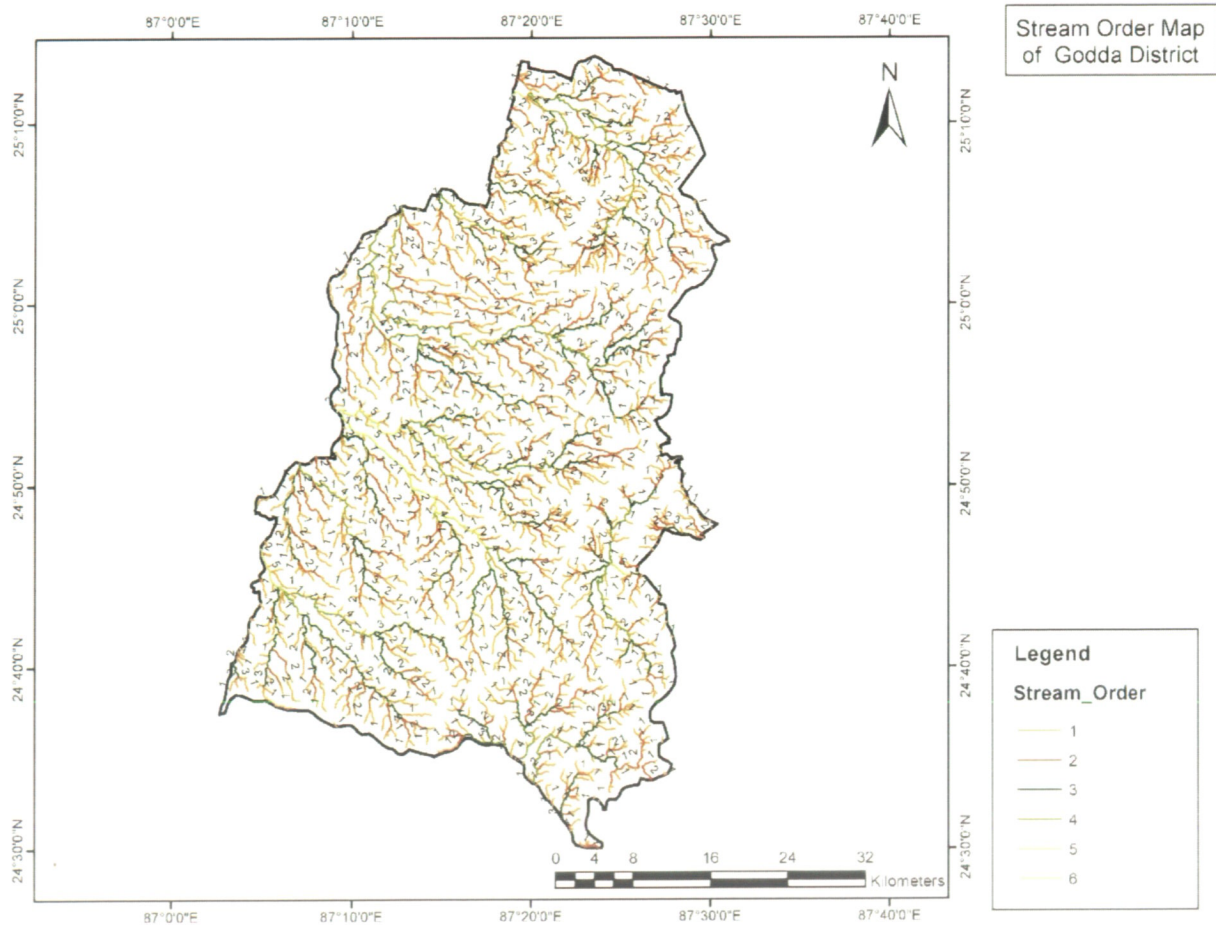


Figure 4.2: Stream Order Map of Godda District

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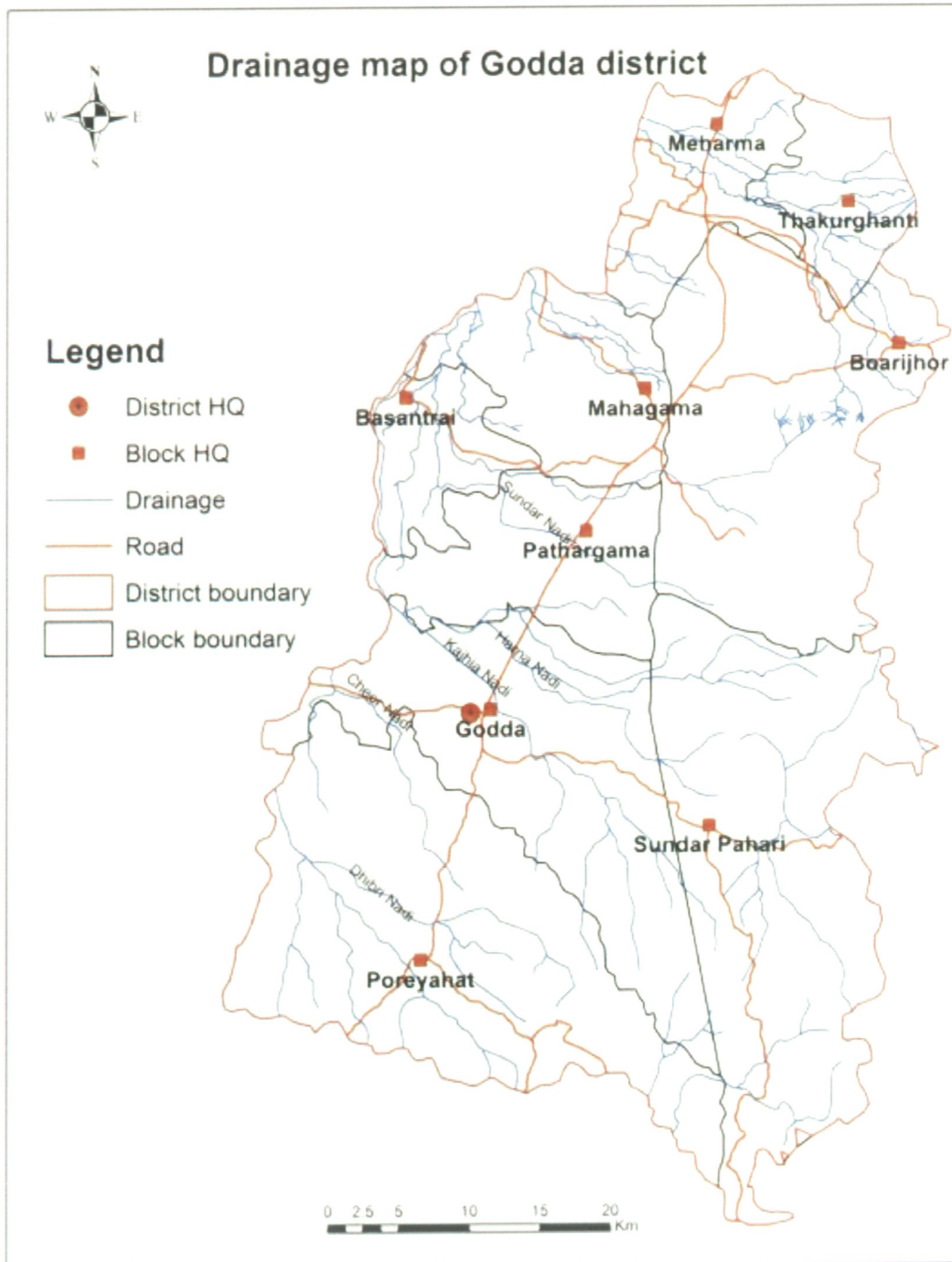


Fig. 4.3: Drainage Map of Godda District

(Source: Final NAQUM-Godda District, Jharkhand.pdf)

#### 4.4 Demography:

In 2011, Godda had population of 1,313,551 of which male and female were 677,927 and 635,624 respectively. In 2001 census, Godda had a population of 1,047,939 of which males were 544,043 and remaining 503,896 were females. Godda District population constituted 3.98 percent of total Maharashtra population. In 2001 census, this figure for Godda District was at 3.89 percent of Maharashtra population. There was change of 25.35 percent in the population compared to population as per 2001. In the previous census of India 2001, Godda district recorded increase of 21.68 percent to its population compared to 1991.

**DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND**



Table - 4.2: Demography Details of Godda District

| Description                        | 2011        | 2001        |
|------------------------------------|-------------|-------------|
| Population                         | 13.14 Lakhs | 10.48 Lakhs |
| Actual Population                  | 1,313,551   | 1,047,939   |
| Male                               | 677,927     | 544,043     |
| Female                             | 635,624     | 503,896     |
| Population Growth                  | 25.35%      | 21.68%      |
| Area Km <sup>2</sup>               | 2,266       | 2,266       |
| Density/km <sup>2</sup>            | 580         | 497         |
| Proportion to Jharkhand Population | 3.98%       | 3.89%       |
| Sex Ratio (Per 1000)               | 938         | 926         |
| Child Sex Ratio (0-6 Age)          | 960         | 978         |
| Average Literacy                   | 56.40       | 43.13       |
| Male Literacy                      | 67.84       | 57.52       |
| Female Literacy                    | 44.14       | 27.39       |
| Total Child Population (0-6 Age)   | 241,784     | 204,371     |
| Male Population (0-6 Age)          | 123,368     | 103,324     |
| Female Population (0-6 Age)        | 118,416     | 101,047     |
| Literates                          | 604,519     | 363,825     |
| Male Literates                     | 376,212     | 253,504     |
| Female Literates                   | 228,307     | 110,321     |
| Child Proportion (0-6 Age)         | 18.41%      | 19.50%      |
| Boys Proportion (0-6 Age)          | 18.20%      | 18.99%      |
| Girls Proportion (0-6 Age)         | 18.63%      | 20.05%      |

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### Population of Godda District

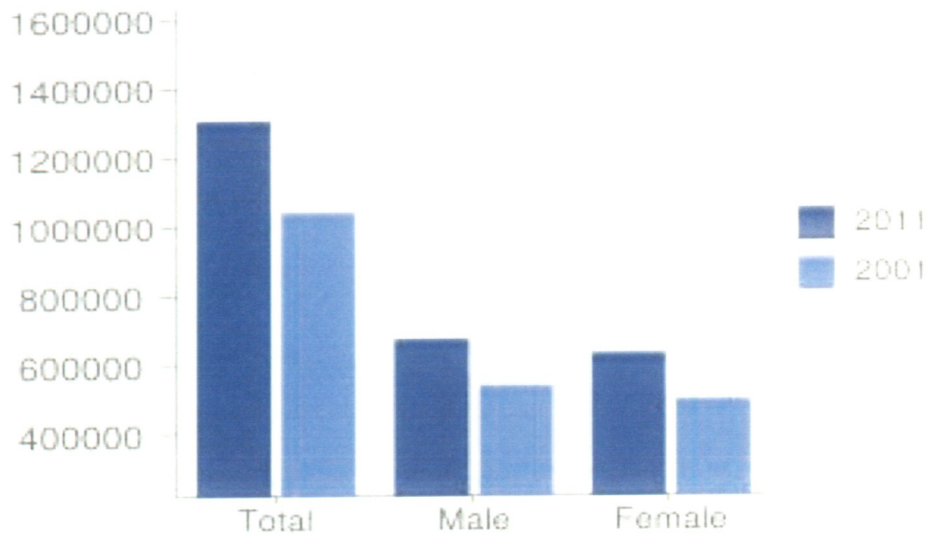


Fig. 4.4: Population Map

### Rural Urban Godda



Fig. 4.5: Population Chart

(Source - <https://www.census2011.co.in/census/district>)

#### 4.5 Connectivity in Godda District:

Godda is well connected with road and rail link. The Godda Railway Station is situated around 4 kms from city centre. Humsafar Express was the first train depart from the Godda Railway Station on 8<sup>th</sup> April 2021. This weekly train will connect Godda to New Delhi via Bhagalpur and Gaya. The national highway NH-133 pass through Godda. Godda is about 297 kms by road to Ranchi (Capital of Jharkhand). There is a network of good roads in the district. Both the sub divisional headquarters are connected with the district headquarters by black topped all weather roads. No important place in the district is unconnected by a good metalled road. There is road link with Calcutta through Jamtara. The Jamtara-Dumka-Sahebganj road provides a link with Assam after ferry across the Ganges and is quite busy.



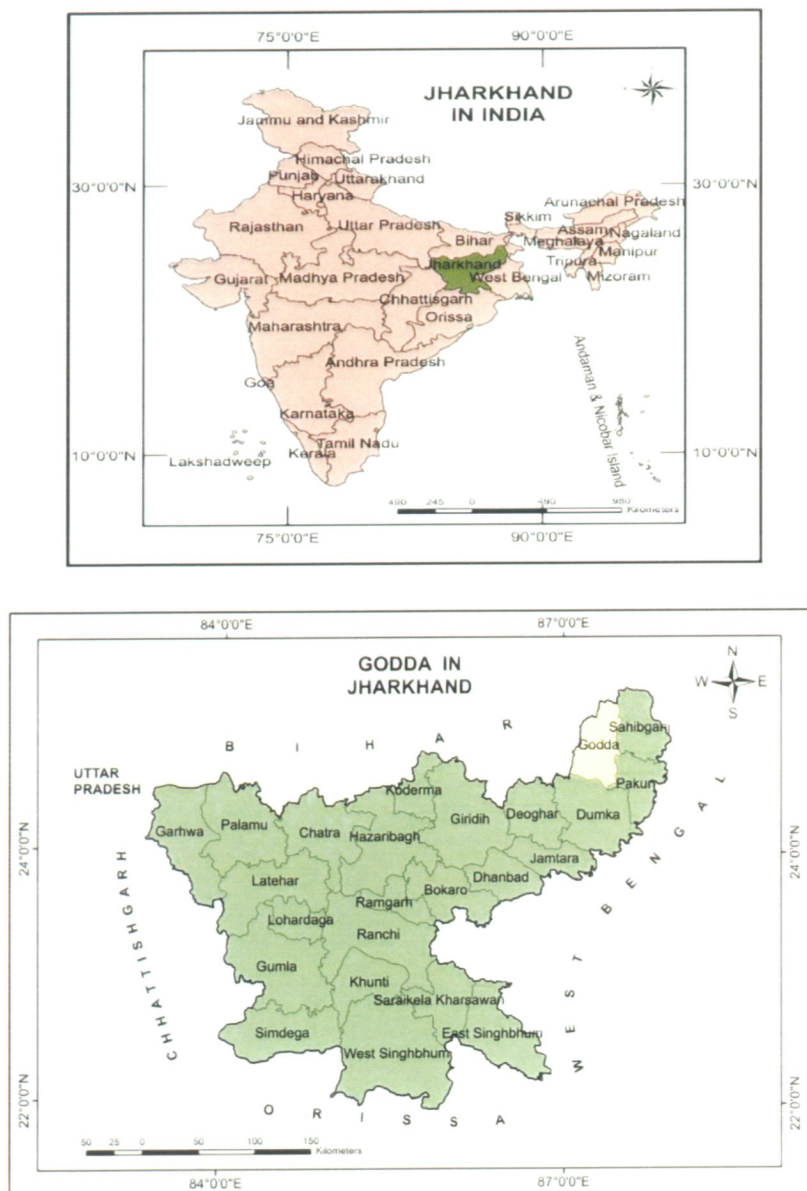


Fig. 4.6: Location Map of Godda District

## 4.6 Flora & Fauna:

### Flora:

The district is abundantly covered with trees in rural as well as urban areas which play an important role in the economy of the district. Trees of the district exhibit a great variety including Mango, Date-Palm, Palm, Jack fruit, Wood Apple, Custard Apple, Black Palm, Sheesham, Sal, Bamboo and many more. Besides this, a number of medicinal plants are also found in the district. Many of these medicinal plants have been identified to be useful in the medication of several incurable diseases. Most of the plants are found in the tribal areas of Godda district.

### Fauna:

A vast variety of fauna is also found in the district. Common fauna includes wild animals like Monkey, Pig, Rabbit, Jackal etc. A plethora of birds are also prevalent in the district. Apart from this Peacock, Leopard, Bear are also found. Poisonous species like Karait, Cobra and Scorpions are also common.

(Source - DSR – Stone - 2018)



## 5. PHYSIOGRAPHY OF THE DISTRICT

### 5.1 General Landforms:

The predominant physical feature over major part of the district is the rolling topography dotted with isolated inselbergs except in the Borijore and Sundarpahari blocks. A substantial part of Borijore and Sundarpahari block is under forest cover. The altitude of the land surface increases from west to the east. The major hills are confined to the eastern part of the district comprising the Gandeshwari Pahar (238.41m) and Kesgari Pahar (268.29m) while in the western part of the district isolated hills are in the form of the inselbergs and other small hillocks. The district consists of the undulating uplands, long ridges and depressions. The isolated high hills like Masanjore are in the adjoining part of Dumka. The western portion of the Rajmahal hills passes through Godda. Geologically, the area has basaltic trap and sedimentary beds.

The principal rivers of the district are Kajhia, Harna, Sunder, Sapin, Kao, Chir and Geura. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district.

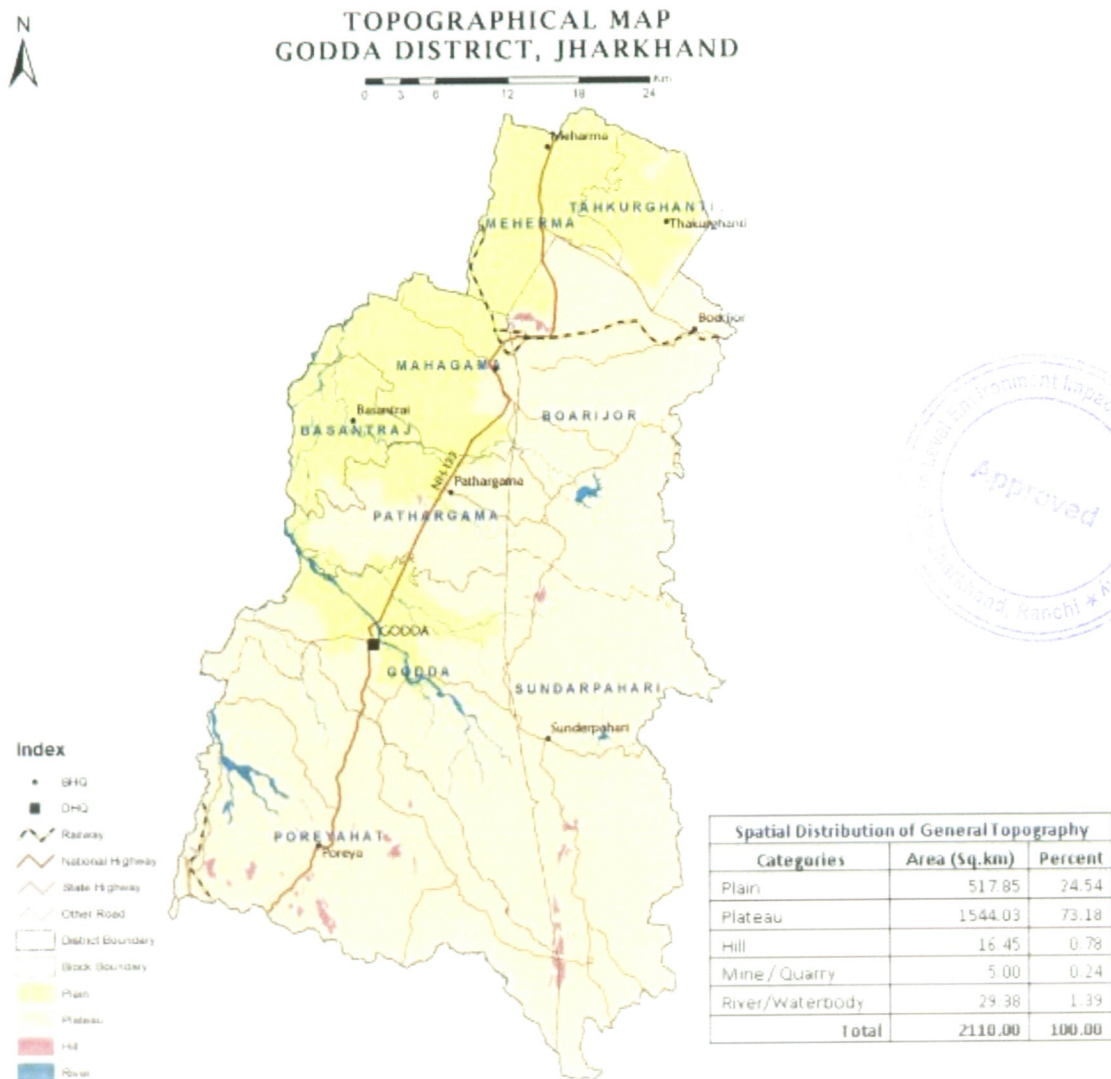


Fig. 5.1: Topographical Map of Godda District

(Source: JSAC, Jharkhand)



## 5.2 Soil:

The soil is mostly acidic, reddish yellow, light textured and highly permeable with poor water holding capacity. The soils occurring in different landforms have been characterised during soil resource mapping of the state on 1:250,000 scale (Halder et al. 1996) and three soil orders namely Entisols, Inceptisols and Alfisols were observed in Godda district. Alfisols were the dominant soils covering 43.1 percent of TGA followed by Inceptisols (39.4 %) and Entisols (15.7 %).

The area is characterized by the following type of soil –

- (i) Old Alluvium-Grey-Greyish-Yellow heavy textured cracking Soil.
- (ii) Old Alluvium Reddish-Yellow-Yellow-Grey Catenary Soil.
- (iii) Old Alluvium–Yellowish-Red-Yellow Soil of foot hill.
- (iv) Hill & Forest Soil of steep slopes and highly dessected region.
- (v) Red-Yellow-light Grey Catenary Soil.
- (vi) Yellow–Red, Yellow–Black Soil Catenary Soil of Rajmahal.

• Old Alluvium-Grey-Greyish Yellow heavy textured Cracking Soil - These are greyish yellow to grey in color, medium to heavy in texture, neutral to slightly alkaline in reactions, cracks in drying, very weakly developed profiles.

• Old Alluvium Reddish Yellow-Yellow-Grey Catenary Soil - The well-drained soils are strongly to moderately acidic containing ferruginous concretions. The poorly drained low land soils area greenish in color, slightly acidic to slightly alkaline in reaction containing ferruginous concretions in most of the cases showing a tendency to crack during dry months.

• Old Alluvium Yellowish-Red-Yellow Soil of foot hill - These soils resemble the soils of old alluvium reddish yellow, yellow-grey catenary excepting frequent extensive saline and alkali patches. Carbonates are present throughout the soil. Clay minerals found in soil are hydrous mica, kaolinite, chlorites etc.

• Hill & Forest Soil of steep slopes and highly dessected region - These are shallow to medium deep over rocks and regoliths, well drain to excessively well drained, very strongly to moderately acidic, light textured gravelly or stony covered with forest of various kind with few cultivated patches.

• Red-Yellow-light Grey Catenary Soil - Slopy and upland soils are well drained generally strongly to moderate acidic shallow to medium deep over rocks and morums. The low land valley soils are poorly drained, neutral to slightly alkaline, fairly deep and most fertile soils.

• Yellow–Red, Yellow–Black Soil Catenary Soil of Rajmahal - Soils developed on Granites are red or yellow colored depending upon their topographical positions. Soils developed on trap rocks are grey, heavy textured, neutral to lightly alkaline in reaction, sandy loam to loam on top and heavier below, slightly to moderate acidic and medium fertility. Soil map of Godda district is given below in figure -



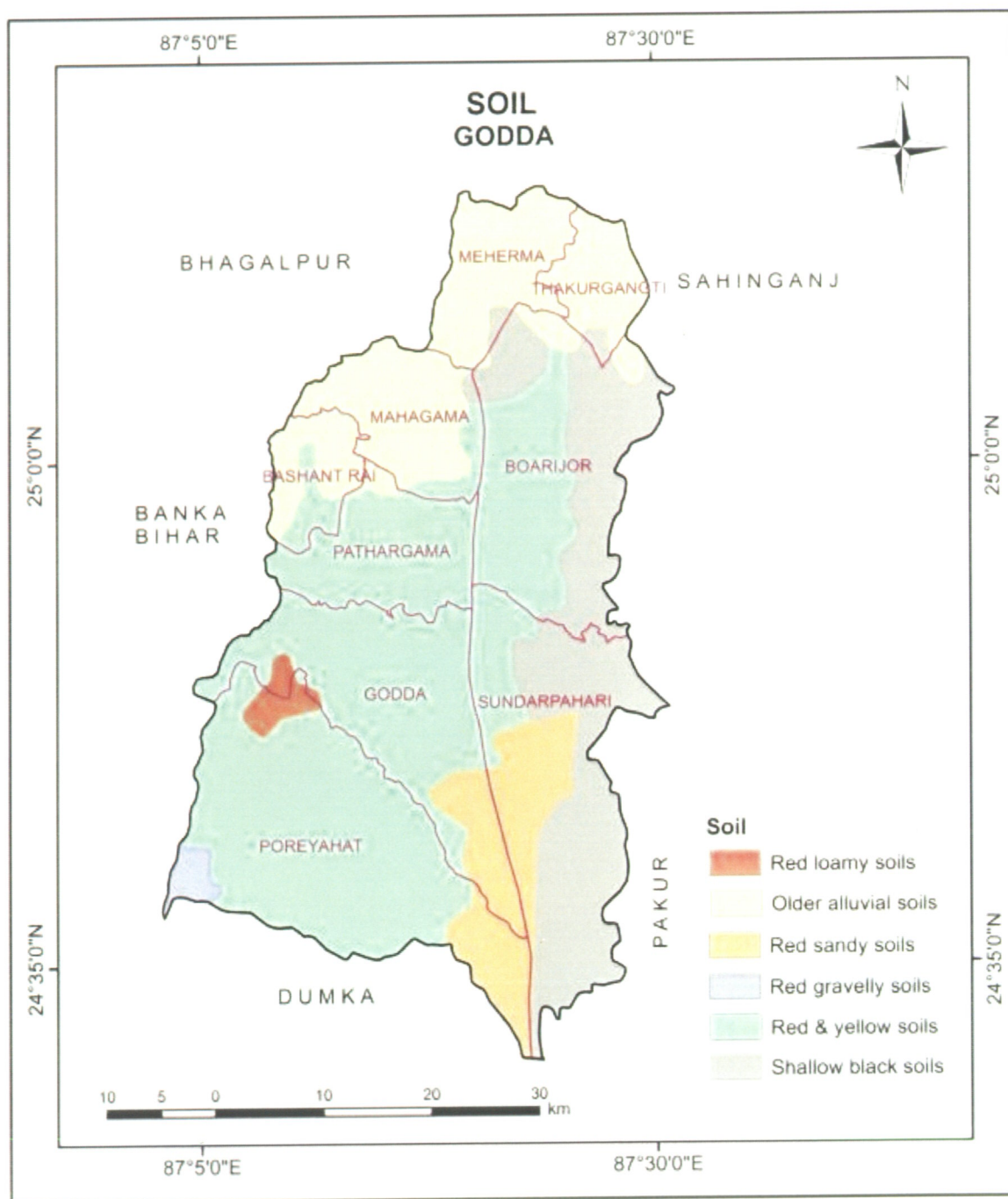


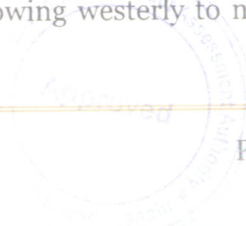
Fig. 5.2: Soil Map of Godda District

(Source: Final NAQUIM-Godda District, Jharkhand.pdf)

### 5.3 Geomorphology:

Geomorphologically, (GSI, 2009) the southern part of the district represents the northern most extremities of Chhotanagpur plateau and comprises rolling plains with isolated hills in the form of tors, inselburgs, small hillocks, ridges and mound. The central part of the area is covered by gently sloping undulatory hills. The northern part is represented by a more or less flat land with gently northerly slope. Burigeria River drains the area along the western margin of the district and is fed by the tributaries like Harna and other streams flowing westerly to north-westerly.

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Based on visual interpretation of Landsat imageries, the various hydro geomorphic features in the district are: -

- i) Alluvial plain: - These are loam to sandy loam deposited over gneissic surface. The streams in this area show structural control. The ground water potential is very good.
- ii) Older alluvial plain: - These are characterized by sandy loam at the top with highly oxidized sandy and gravelly horizons at moderate depth.
- iii) Burried pediment (Gneissic): - These are gently sloping broad surface of weathered gneiss overlain by alluvium and colluviums of medium texture. Many prominent lineaments are occurring in this area. The ground water condition is good to moderate.
- iv) Burried pediment (Volcanic): - This surface is mainly pediment cut out Rajmahal trap rock concealed under a thick pile of alluvium gravelly weathered soil.
- v) Pediment (Volcanic): - The underlying lithology is basaltic rocks with thin veneer of fine soil. These are highly fractured.
- vi) Pediment (Sedimentary): - These consist of mainly Sandstone and Shale as underlying rocks. The stratas are gently dipping with local small scale faulting.
- vii) Pediment (Gneissic): - These are highly fractured region with Gneiss and Schist as the underlying rocks.
- viii) Denudational hills (Volcanic): - Rajmahal traps are the main rock constituting these hills.
- ix) Denudational hills (Gneissic): - These are low hill groups with high rugged topography with Gneiss as underlying lithology.
- x) Denudational hills (Sedimentary): - These are hills of moderate height made up of horizontal gently dipping Sandstone and Shale.
- xi) Low dissected hills (Gneissic): - The hills of low height mainly composed of gneissic rocks.
- xii) Low dissected hills (Sedimentary): - An elevated tract with Sandstone and Shale as dominant rock types.
- xiii) Structural Ridge (Gneissic): - These are long narrow ridges of low height with Gneiss as the dominant rock types.

The geomorphological map of Godda district have been presented in Fig. – 4.3

The predominant physical feature over major part of the district is the rolling topography dotted with isolated inselbergs except in the Borijore and Sundarpahari blocks. A substantial part of Borijore and Sundarpahari block is under forest cover. The altitude of the land surface increases from west to the east. The major hills are confined to the eastern part of the district comprising the Gandeshwari Pahar (238.41m) and Kesgari Pahar (268.29m) while in the western part of the district isolated hills are in the form of the inselbergs and other small hillocks. The district consists of the undulating uplands, long ridges and depressions. The isolated high hills like Masanjore are in the adjoining part of Dumka. The western portion of the Rajmahal hills passes through Godda. Geologically, the area has basaltic trap and sedimentary beds.



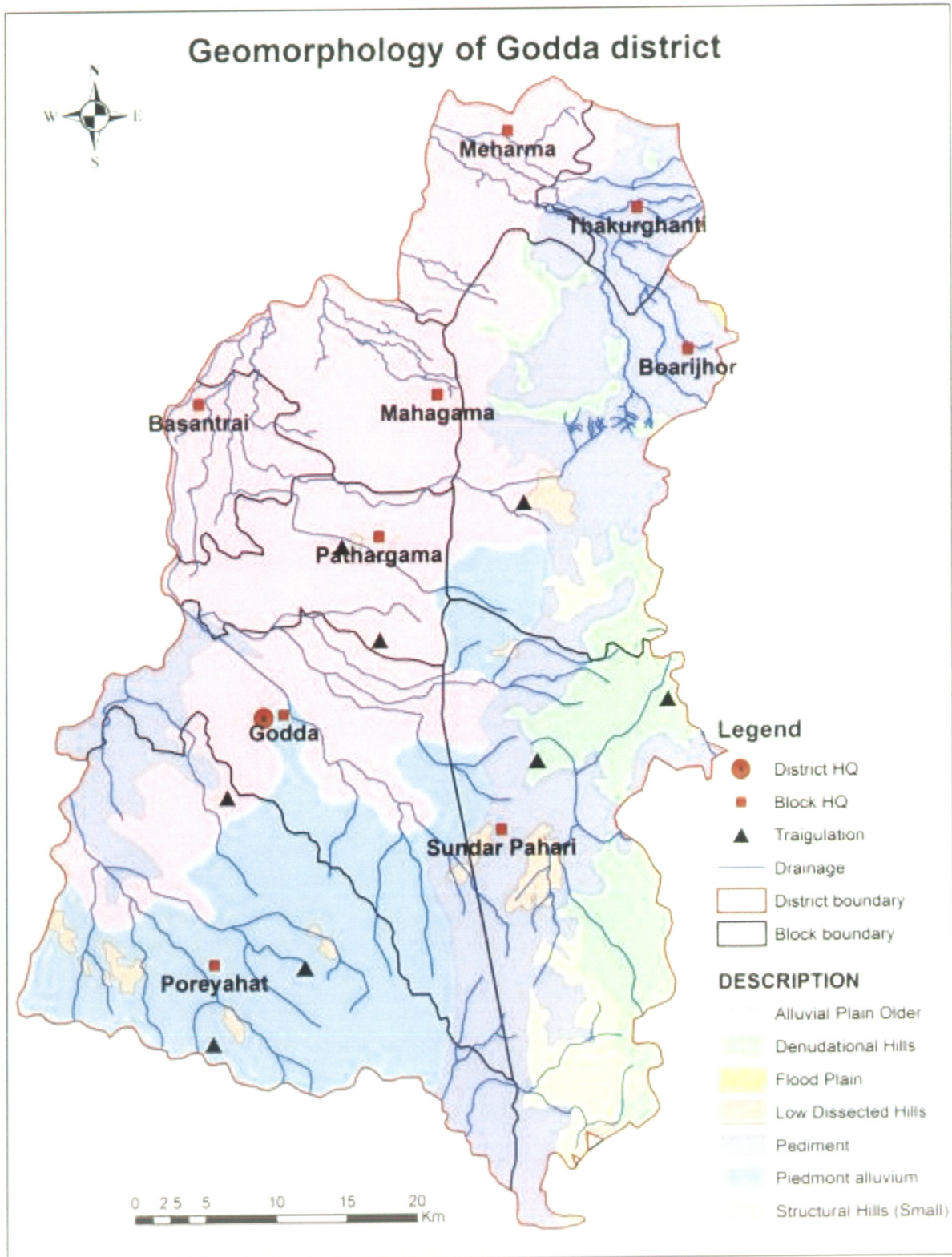
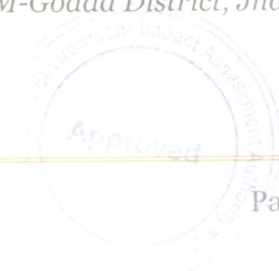


Fig. 5.3: Geomorphology of Godda District

(Source: Final NAQUIM-Godda District, Jharkhand.pdf)

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# DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND

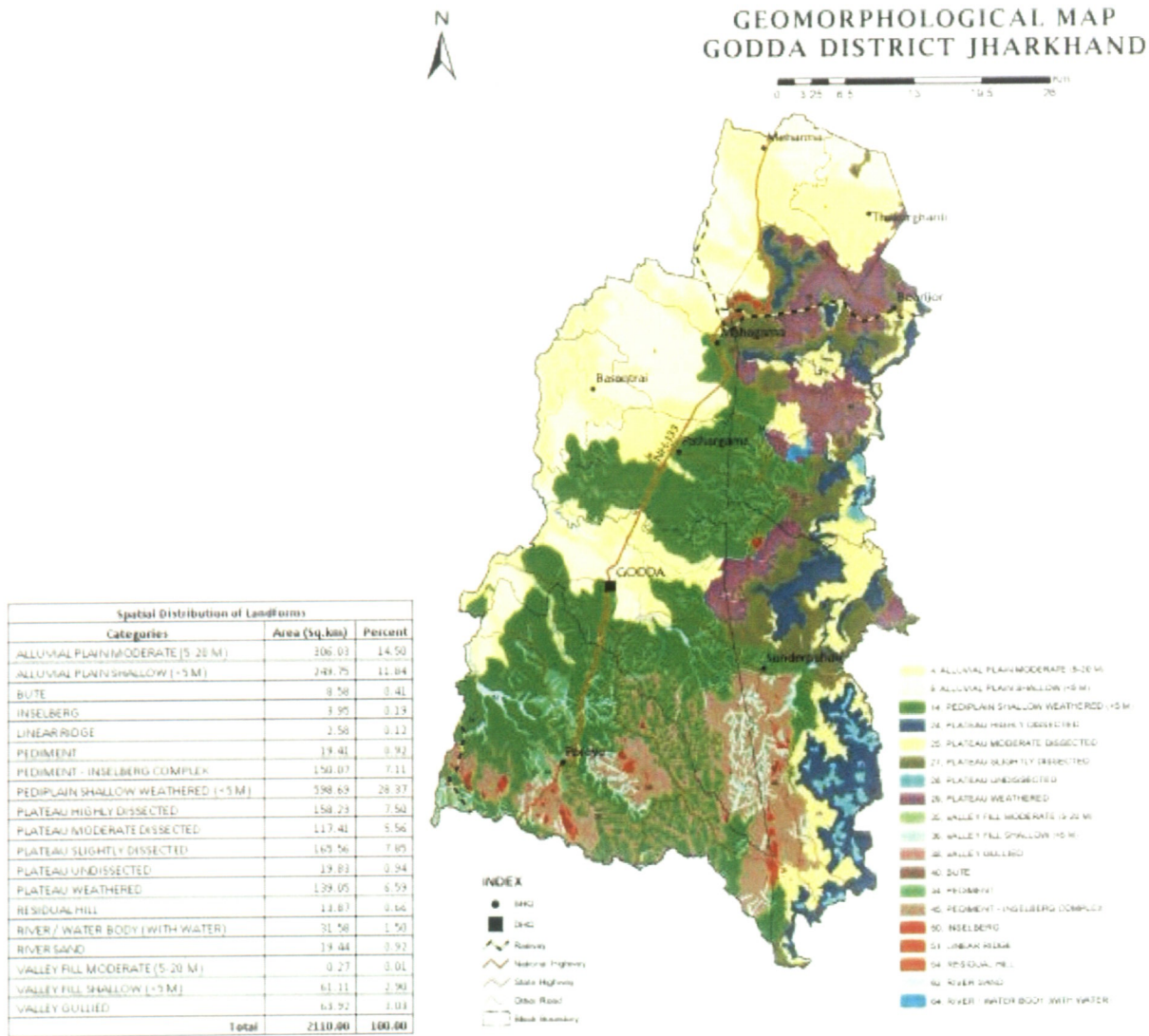


Fig. 5.4: Geomorphological Map of Godda District

(Source: JSAC, Jharkhand)





## 6. GEOLOGY & MINERAL WEALTH OF THE DISTRICT

### 6.1 Geology:

The southern part of the district is underlain by Granite-gneiss of Archaean age forming the basement. These occur as large batholiths and are intruded by basic rocks. In the central and northern part of the district, the rocks of Barakar formation consisting of Feldspathic Sandstones, Shales and Coal seams overlying the metamorphics are exposed. In the western and northern part of the district alluvial cover of moderate thickness, caps the Archaean crystallines and the Gondwana sedimentaries.

The district is underlain by diverse geological formations with complex tectonic framework. The geological formations have been grouped under three main categories -

- The Gneissic complex in the southern and the central part.
- The Rajmahal traps in the eastern and south eastern part.
- Gondwanas overlain by thin mantle of alluvial cover in the northern and central part.

Geologically, the study area represents highly deformed Archaean Gneisses called Chhotanagpur Granite Gneissic Complex, Older meta-sedimentaries, Pegmatites, Metabasics etc. The pre-cambrian formations are unconformably overlain by Lower Gondwanas comprising Talchir & Barakar formation. Barakar Sandstone and Shale contains coal seams found in major Coal belt of the area. The upper Gondwana are represented by Dubrajpur formation. Rajmahal Traps and intra-trappeans overlie the Dubrajpur formation and in places overstep onto Barakar formation and Precambrian basement. Tertiary Laterites occur as capping in some of the parts, while Quaternary sediments represented by Sautadih, Belhar and Diara formation consisting of older and newer alluvium are found in considerable part of the area.

### Stratigraphic Succession:

The general Stratigraphic succession found in Godda district as per GSI, 2009 are as follows: -

| Lithology   | Formation                          |                      | Age                                  |
|---|------------------------------------|----------------------|--------------------------------------|
| Sand/Silt/Clay mixture                                | Diara Formation                    |                      | Late Holocene to Present             |
|   | Belhar formation                   |                      | Middle to Late Holocene              |
|   | Sautadih formation/Jamui Formation |                      | Middle Pleistocene to early Holocene |
| -----EROSIONAL SURFACE-----                           |                                    |                      |                                      |
| Laterites and Lateritic Soil                          |                                    |                      | Cainozoic                            |
| -----EROSIONAL SURFACE-----                           |                                    |                      |                                      |
| Dolerite  |                                    |                      |                                      |
| Basalt with Intra-trappeans                           | Rajmahal Trap                      |                      | Jurrassic to Cretaceous              |
| -----UNCONFORMITY-----                                |                                    |                      |                                      |
| Sandstone and Shale                                   | Dubrajpur Formation                | Gondwana Super Group | Triassic to Jurassic                 |
| Siltstone, Sandstone and Conglomerate with Coal seams | Barakar Formation                  |                      | Permian                              |
| Shale, Sandstone and Conglomerate                     | Talchir Formation                  |                      | Carboniferous to Permian             |

**DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND**



|   |  |                             |
|---|--|-----------------------------|
| -----UNCONFORMITY-----  |  |                             |
| Intrusive Granite   |  | Proterozoic                 |
| -----UNCONFORMITY-----  |  |                             |
| Unclassified Metabasics and metasedimentaries   | Metamorphics of Chhotanagpur mica belt | Lower to Middle Proterozoic |
| Unclassified Granite-Gneiss with enclaves of metamorphic, Augen Gneiss and Migmatites, Porphyritic Granite Gneiss, Granite-Biotite Gneiss | Chhotanagpur Gneissic Complex          | Archaean to Proterozoic     |
| Quartzite and Quartz Schist   | Unclassified Metamorphics              | Archaean to Proterozoic     |
| Khondalite/Garnet/Sillimanite biotite garnet gneiss, Acid to Basic Granulite/Charnockite  | Eastern Ghat Super Group               |                             |

**Geological formation**

The Lithological units identified can broadly be divided into: - Precambrian Formation, Gondwana Super Group, Rajmahal traps and Quaternary Formations.

**Precambrian Formation:**

The study area comprises of highly deformed and metamorphosed Precambrian terrain. This group consists of -

- (a) Eastern Ghat Super Group & Chhotanagpur Gneissic Complex
- (b) Intrusive Granites
- (c) Metabasics
- (d) Pegmatites/Quartz veins

**a) Eastern Ghat Super Group & Chhotanagpur Gneissic Complex:**

The Oldest rocks of the area are represented by Charnockites, Granite-gneiss, Khondalite, Quartzite, granites and migmatites belonging to Eastern Ghat Super Group and Chhotanagpur Gneissic Complex of Archaean age.

Chhotanagpur Granite-Gneiss represents the extensive plateau region to the south and central part of the study area. These rocks comprise broadly Granite-gneiss, porphyritic Gneiss, Augen Gneiss, Charnokitic Gneiss, Migmatites etc. The varieties of one of the most important rock types Granite Gneisses include Biotite Granite Gneiss, Hornblende Granite Gneiss etc. These are generally medium to coarse grained with prominent gneissic banding and foliation. The presence of foliation in Granite Gneiss is due to presence flaky minerals like Biotite and Sillimanite. A considerable area has been occupied by porphyritic Gneiss. It has been found in the form of Augen Gneiss in some of the area, where as in some parts its intrusive relationship with Granite Gneiss is observed.

**b) Intrusive Granites:**

The Precambrian rocks exhibit several phases of intrusive granites. The non-foliated, pink coloured coarse grained Granite occur as Intrusive in all rock types except dolerites.

**c) Metabasics:**

The metabasics include meta dolerite and meta-gabbro. The syn-tectonic basic rocks are represented by meta-dolerite and meta-gabbro shows mostly conformable relationship with the enclosing rocks.

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d) Pegmatites/Quartz vein:

All the rocks types described above have been intruded by numerous veins of pegmatites of various dimensions with quartz vein and is found to occur throughout the area. These are generally of crusted nature.

**Gondwana Super Group:**

The Gondwana Super Group rocks are confined to the area occupied by the Rajmahal hills and its adjoining areas. Gravity study of Rajmahal hills show that Gondwana Super Group sediments were deposited over a rifted and highly faulted sheared margin (Choudhary 1975, Mukhopadhyay 1986). They unconformably overlie the Precambrian formations. In the study area, Gondwana Super Group rocks with ages ranging from Carboniferous to Triassic is represented by Talchir formation comprising Shale, Sandstone and Conglomerate; Barakar formation consisting of Siltstone, Sandstone and Conglomerate with number of Coal seams and Dubrajpur formations containing Sandstone and Shale. Common plant fossils occurring in Barakar Shales include Gangamopteris, Cyclopteris, Glossopteris indicol and vertebraria Indica.

**Rajmahal Traps:**

The Rajmahal hills extend with a north-south trend for more than 120 kms through the districts of Santhal Parganas (including Godda district) in Jharkhand and Birbhum in West Bengal (GSI, 1989). It consists of long flat topped hills attaining a maximum altitude of about 600 m. The basaltic lava flows of the Rajmahal Trap of middle Jurassic to lower cretaceous age occupy the major part of the district. The basaltic lava flows are associated with sedimentary intra-trappeans beds. Amagdales of the flows are made up of Calcite and Chalcedony. The basaltic rocks are hard and fine to medium grained. It has been found that there are more than 8 nos. of basaltic flows area exposed (GSI, 1985) with individual thickness ranging from 10-80m.

**Laterites:**

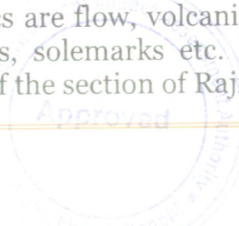
Laterites, occurring as capping on Rajmahal Trap, show well developed profile at many places which are represented by brown latosol, pisolitic laterite, bauxite, aluminous laterites, goethite and mottled lithonmergic clays.

**Quaternary formations:**

The quaternary sediments identified in the study area have been classified (Sinha and Verma, GSI 1995 and GSI, 2009) into three distinct morphographic units Viz. Sautadih/Jamui formation, Belhar formation and Diara formation. Sautadih/Jamui Formation and Belhar Formation are represented by light grey to buff sticky silty Clay and is mainly composed of Silt, Clay and fine Sand characterized by occasional caliches and ferruginous concretions. The Diara formation is represented by fine Sand and Silt. A marked erosional unconformity lies between them. Its thickness increases from south to north. Major sediments have been derived from the Precambrian rocks as revealed by the composition of the quaternary formations. The maximum thickness of alluvium may be in the range of 80-90 m.

**Structural Features:**

The studies show that the Precambrian rocks of the area have undergone several period of tectonic disturbances (Shekhar, 1999). The earlier phase appears to be folding and metamorphism on a regional scale. The high metamorphism resulted in the formation of Khondalites, Charnokites, Granulites and rocks of Migmatites etc. In the study area, Gondwana beds usually rest on the Precambrian basement with a pronounced unconformity. Only certain segments, Gondwana formation are faulted against the metamorphics. Regionally contact with Precambrian basement is aligned in NNW-SSE direction. The north-south trending Rajmahal Coal belt is characterized by a major fault. The faults are possibly of pre-Rajmahal in age as they do not affect the volcanics. The prominent igneous structure noted in Rajmahal volcanics are flow, volcanic cone, fissured vent, plug, dyke, primary lineament of vesicles, mudcracks, solemarks etc. have also been encountered in the Intra-trappean Mudstone, Shale in some of the section of Rajmahal series.



DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND

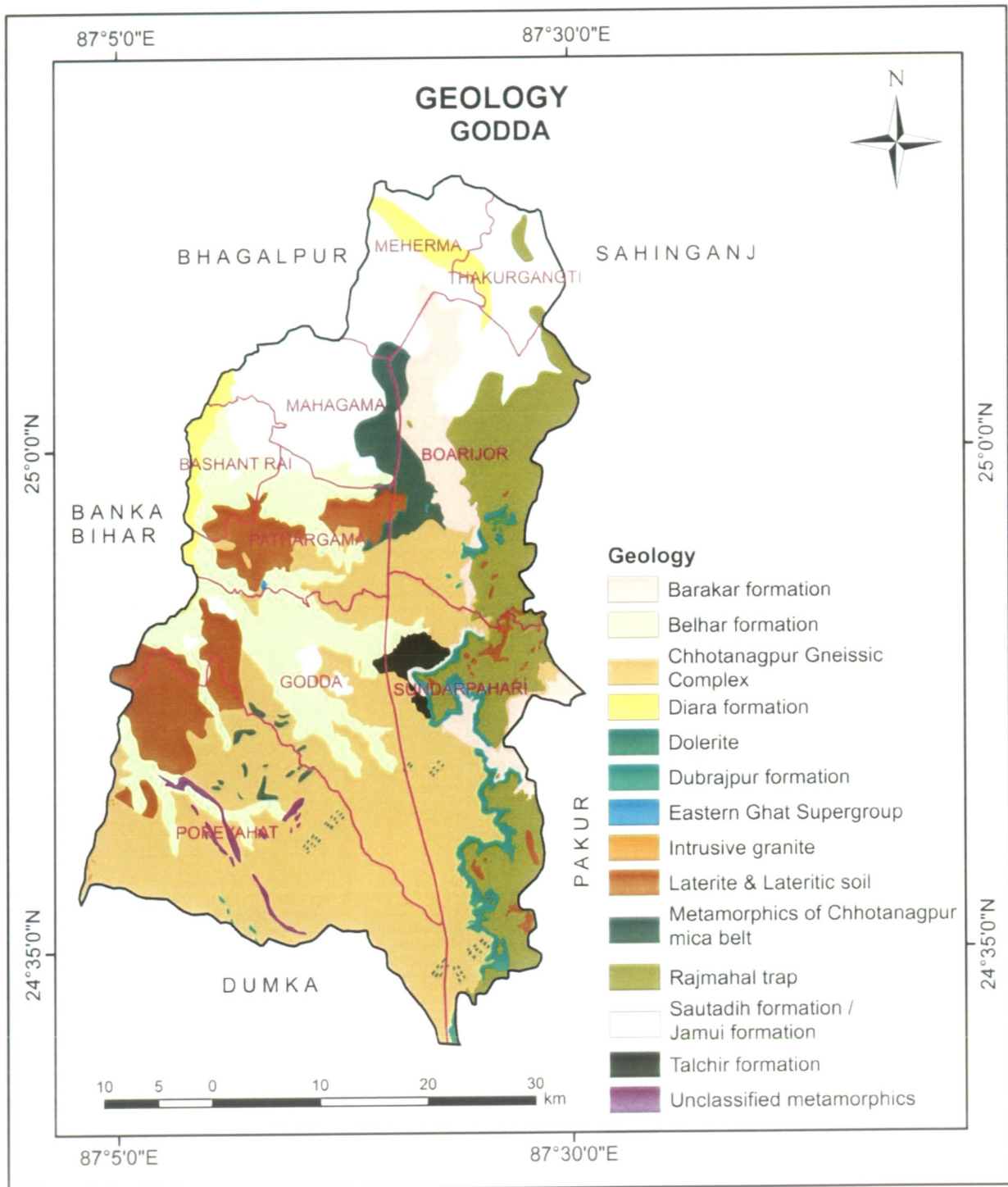


Fig. 6.2: Geology of Godda District

(Source: Geological Survey of India)



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### 6.2 Overview of Mineral Resources:

Minerals such as Sandstone, Coal etc. are found in the district. The deposition of Dolerite is mainly noticed in southern part of Poreyahat block. Some part of Poreyahat block, mostly in central region also has the deposition of Quartzite and Quartz Schist. Pathargama, Godda and Poreyahat block is mostly covered with Laterite and Lateritic soil. Sand mining is mainly practiced in Godda, Mahagama and Basantarai, Pathargama, Poreyahat blocks of Godda district. Rivers in which Sand mining takes place in Godda district are - Bansloi, Burigeria, Chir, Kajhia, Sundargaria River.



Fig. 6.2: Mineral Map of Godda District  
(Source: JSAC, Deptt. of Mines & Geology, Govt. of Jharkhand)



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## 7. DRAINAGE SYSTEM & IRRIGATION PATTERN

The principal rivers of the district are Kajhia, Harna, Sunder, Sapin, Kao, Chir and Gerua. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district.

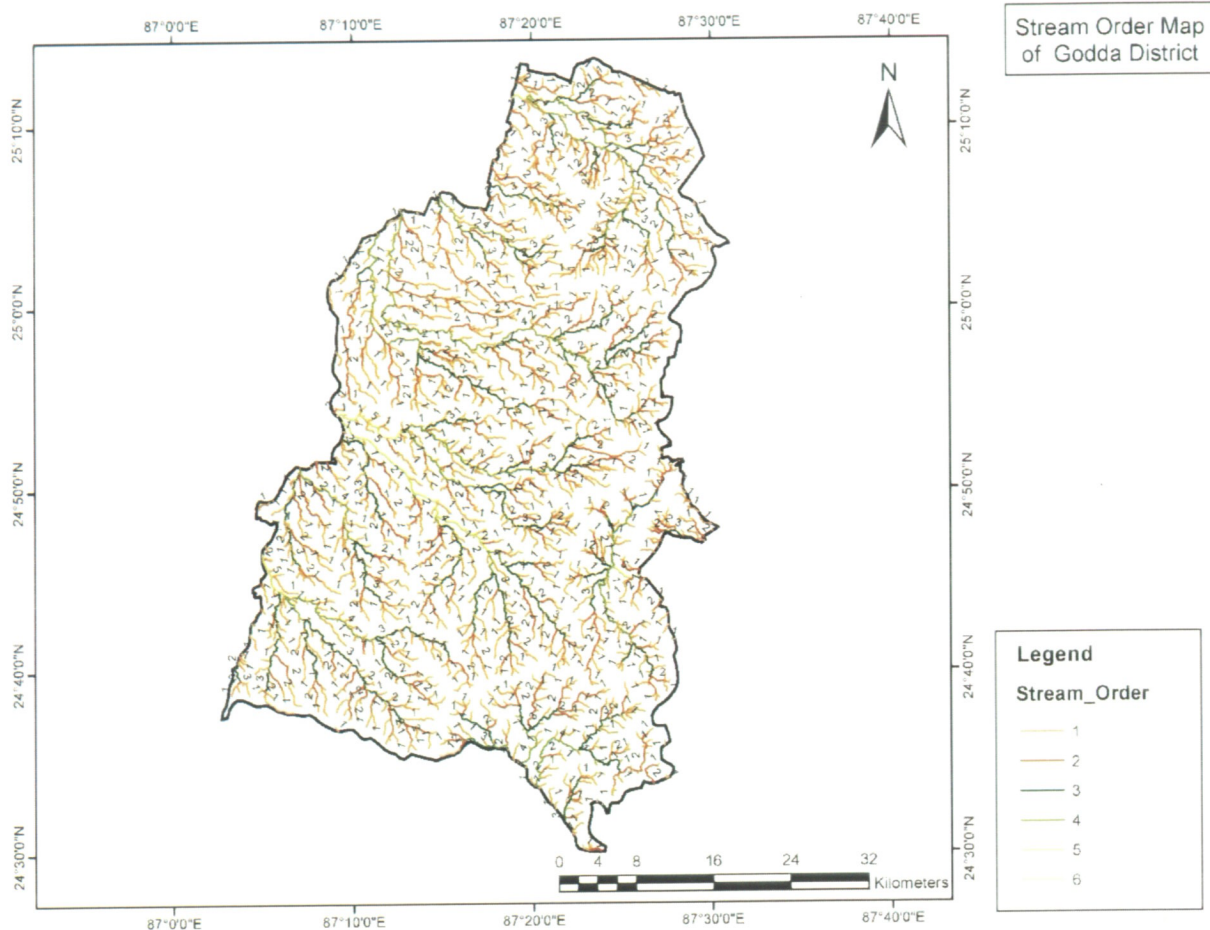


Fig. 7.1 – Stream Order Map of Godda District



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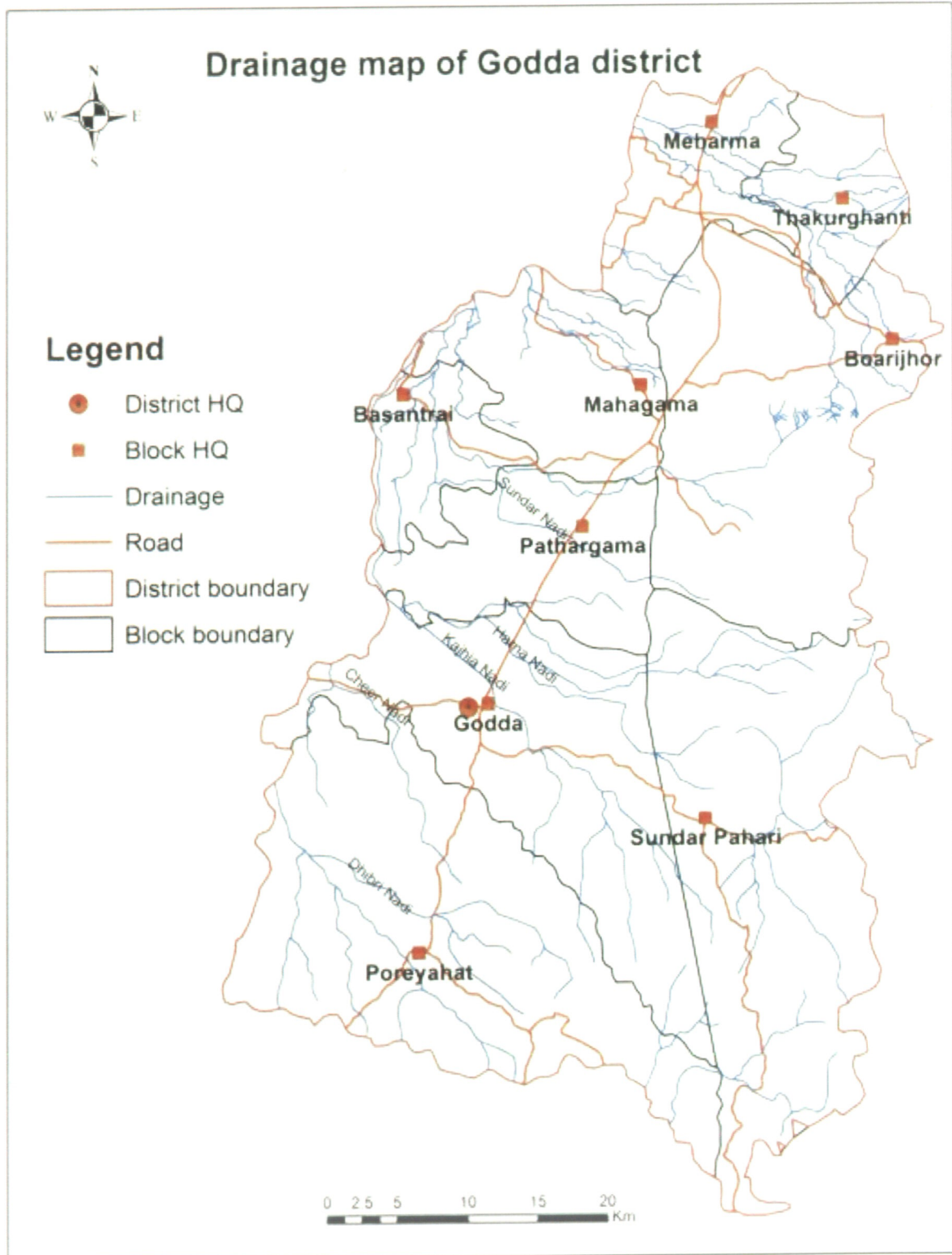


Fig. 7.2 – Drainage Map of Godda District

(Source: Final NAQUIM-Godda District, Jharkhand.pdf)





### 7.1 Drainage system with description of main River:

| Sl. No. | Name of the River | Area Drained (km <sup>2</sup> ) | % Area Drained in the District |
|---------|-------------------|---------------------------------|--------------------------------|
| 1       | Gerua Nadi        | 4.9                             | 0.23                           |
| 2       | Kajhia Nadi       | 3.9                             | 0.18                           |
| 3       | Chir Nadi         | 2.44                            | 0.11                           |
| 4       | Bansloi           | 1.62                            | 0.07                           |

### 7.2 Salient features of Important Rivers and Streams:

| Sl. No. | Name of the River Stream | Total Length in the District (in km) | Place of Origin | Altitude at Origin (in m) |
|---------|--------------------------|--------------------------------------|-----------------|---------------------------|
| 1       | Gerua Nadi               | 24.5                                 | Tangajhar       | 64                        |
| 2       | Kajhia Nadi              | 19.5                                 | Banka           | 109                       |
| 3       | Chir Nadi                | 25.7                                 | Mohani          | 110                       |
| 4       | Bansloi                  | 20.3                                 | Ambadiha        | 166                       |

### 7.3 Irrigation Pattern:

The local population of the district mostly depends on agriculture and forestry for their sustenance. The agriculture activity of the area is solely dependent upon the monsoon rainfall. Paddy is the main crop of the district. Wheat, Maize, Gram, Mustard oil Potato are other crops grown widely in Godda and its adjoining areas. Irrigational facilities are not adequate in this district. The most common source is the dug well, but this is not a very dependable source of irrigation. The major part of the district being rocky in nature, it is difficult to dig wells. The undulating nature of land makes it possible to store rain water by bunding. Apart from being dependent upon rains, these are by no means adequate. The result is that failure of rains invariably involves failure of crops except in small pockets. Minor irrigation structures like surface water, tanks and ponds are the other source for irrigation. In the district irrigation potential for about 8600 hectare has been created from Bateshwar Ganga pump canal projects (Ganga stem Basin). Available source-wise irrigation for the 2012-13 is given in table - 7.3-

| Block        | Surface water |             |           | Ground water |           |           | Other sources |
|--------------|---------------|-------------|-----------|--------------|-----------|-----------|---------------|
|              | Canal         | Tank        | LI        | DTW          | STW       | DW        |               |
| Basantrai    | 0             | 67          | 0         | 226          | 0         | 19        | 0             |
| Boarijor     | 0             | 172         | 17        | 695          | 0         | 1         | 72            |
| Godda        | 0             | 177         | 1         | 1201         | 0         | 0         | 20            |
| Mahagama     | 0             | 80          | 20        | 411          | 0         | 0         | 19            |
| Meherma      | 0             | 65          | 20        | 382          | 6         | 0         | 28            |
| Pathargama   | 0             | 104         | 0         | 498          | 0         | 24        | 14            |
| Poreyahat    | 0             | 234         | 0         | 1556         | 8         | 4         | 23            |
| Sunderpahari | 0             | 163         | 16        | 518          | 7         | 0         | 42            |
| Thakurghanti | 0             | 42          | 5         | 563          | 16        | 0         | 12            |
| <b>Total</b> | <b>0</b>      | <b>1104</b> | <b>79</b> | <b>6050</b>  | <b>37</b> | <b>48</b> | <b>230</b>    |



**DISTRICT SURVEY REPORT OF “MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING” IN GODDA DISTRICT OF JHARKHAND**



Table 7.4: Irrigation details of Godda District

| <b>IRRIGATION BY DIFFERENT SOURCES</b>                             | <b>Number of Structures</b> | <b>Area (Ha.)</b>  |
|--|-----------------------------|--|
| (Areas in Ha. and Number of Structures)<br>( MIP Census-2000-2001) | Structures                  |  |
| Dugwell  | 17015                       | 9364   |
| Tubewell/Borewell  | 184                         | 537  |
| Tank/ponds   | 100                         | 587  |
| Canals   | 2                           | 2  |
| Other sources  | 69.50                       | Bhaurna Bandh, Triveni Weir Scheme and Dania Weir Scheme |

(Source – CGWB Report, Godda)



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## 8. LAND UTILIZATION PATTERN OF THE DISTRICT

Table 8.1: Land Use Pattern of Godda District (Figure in Hectare)

|  |        |
|--|--------|
| District                                 | Godda  |
| Total Area                               | 211142 |
| Forest Land                              | 23671  |
| Barren & Non-Agricultural Land           | 38336  |
| Cultivable Waste Land                    | 9267   |
| Permanent Pastures & other Grassing Land | 6256   |
| Land under Miscellaneous Trees           | 5893   |
| Current Fallow                           | 54644  |
| Fallow Land other than Current Fallow    | 22201  |
| Net Area Sown                            | 69312  |

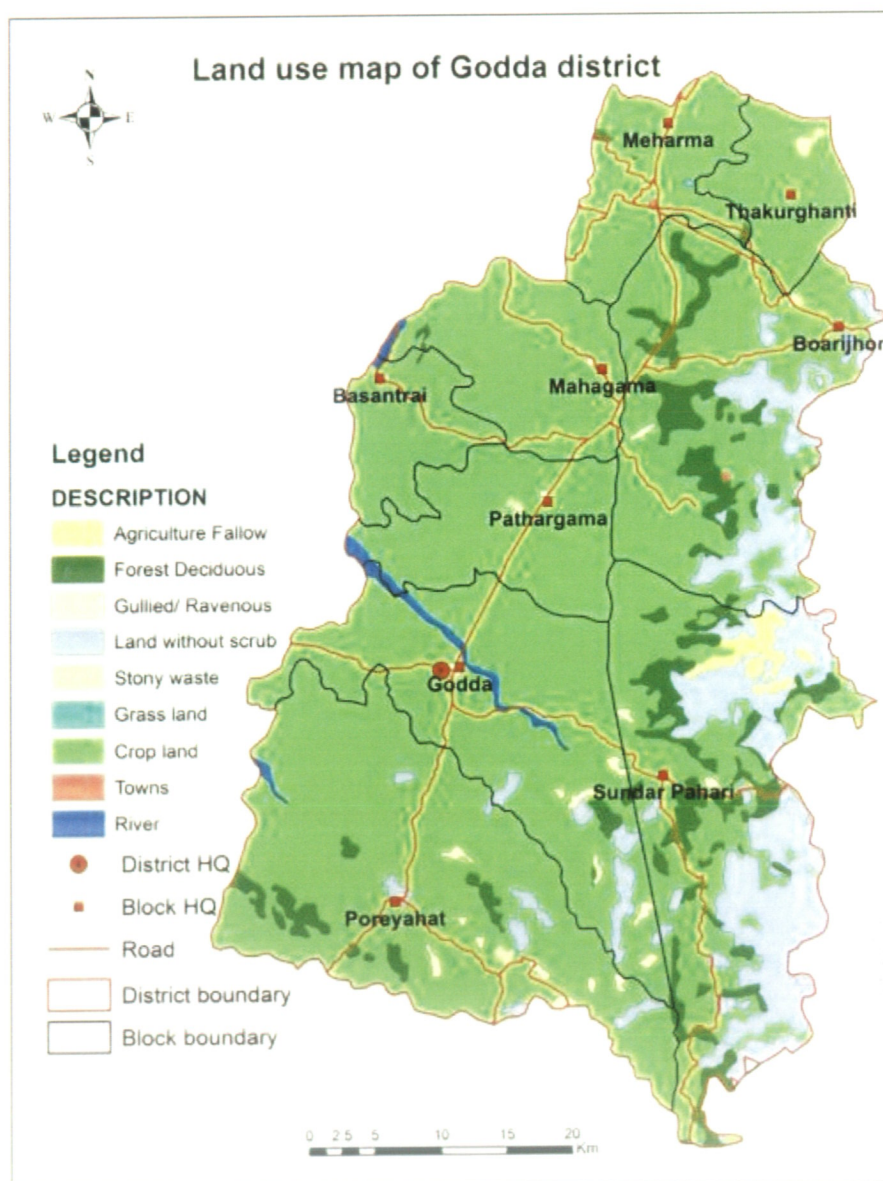


Fig. 8.1: Land Use Map of Godda District

(Source: Final NAQUIM-Godda District, Jharkhand.pdf)





### 8.1 Forest:

Out of total geographical area of 2266 km<sup>2</sup>, forest area covers nearly 423.35 km<sup>2</sup>. The tribal economy revolves around using forest products, by products and minor products. Kendu leaves, Bamboo and its manufactured products, Mahua fruits, leaves lac etc. play a role in the economic activity of the people. People also hunt animals for food and ‘Jani shikar’ festival is related to this hunting habit.

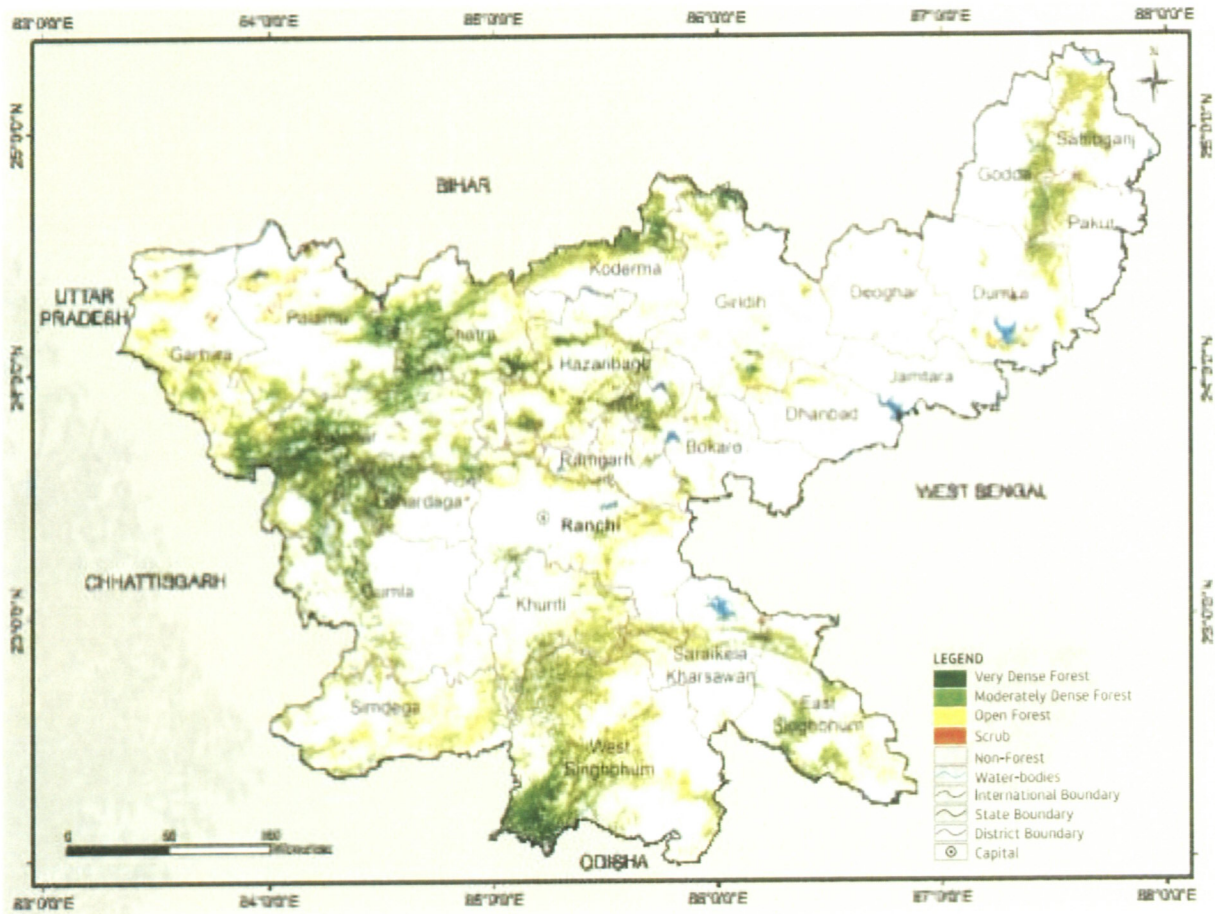


Fig. 8.2: Forest Cover Map of Jharkhand

(Source: India State of Forest Report, 2021)



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# DISTRICT SURVEY REPORT OF “MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING” IN GODDA DISTRICT OF JHARKHAND



Table 8.2: District wise Forest Cover Area in Jharkhand (Area in Km<sup>2</sup>)

| District                         | Geo-graphical Area (GA) | 2021 Assessment   |                   |                  |                  | %of GA       | Change wrt 2019 assessment | Scrub         |
|----------------------------------|-------------------------|-------------------|-------------------|------------------|------------------|--------------|----------------------------|---------------|
|                                  |                         | Very Dense Forest | Mod. Dense Forest | Open Forest      | Total            |              |                            |               |
| Bokaro                           | 2,883                   | 60.99             | 231.94            | 283.07           | 576.00           | 19.98        | 2.45                       | 37.95         |
| Chatra                           | 3,718                   | 244.28            | 871.73            | 666.08           | 1,782.09         | 47.93        | 4.74                       | 23.57         |
| Deoghar <sup>T</sup>             | 2,477                   | 0.00              | 14.30             | 191.50           | 205.80           | 8.31         | 2.09                       | 14.04         |
| Dhanbad                          | 2,040                   | 0.00              | 44.00             | 174.18           | 218.18           | 10.70        | 4.67                       | 16.05         |
| Dumka <sup>T</sup>               | 3,761                   | 0.00              | 259.40            | 318.23           | 577.63           | 15.36        | 0.32                       | 44.55         |
| East Singhbhum <sup>T</sup>      | 3,562                   | 54.81             | 591.69            | 434.19           | 1,080.69         | 30.34        | 1.31                       | 20.91         |
| Garhwa <sup>T</sup>              | 4,093                   | 125.14            | 415.60            | 890.98           | 1,431.72         | 34.98        | 40.13                      | 44.32         |
| Giridih                          | 4,962                   | 77.16             | 338.56            | 490.19           | 905.91           | 18.26        | 4.67                       | 28.92         |
| <b>Godda<sup>T</sup></b>         | <b>2,266</b>            | <b>12.81</b>      | <b>271.88</b>     | <b>138.66</b>    | <b>423.35</b>    | <b>18.68</b> | <b>0.00</b>                | <b>14.27</b>  |
| Gumla <sup>T</sup>               | 5,360                   | 304.69            | 585.81            | 552.65           | 1,443.15         | 26.92        | 0.89                       | 8.25          |
| Hazaribagh                       | 3,555                   | 230.11            | 348.54            | 784.54           | 1,363.19         | 38.35        | 10.42                      | 15.99         |
| Jamtara <sup>T</sup>             | 1,811                   | 0.00              | 20.84             | 85.18            | 106.02           | 5.85         | 5.38                       | 5.32          |
| Khunti <sup>T</sup>              | 2,535                   | 72.97             | 344.59            | 496.18           | 913.74           | 36.04        | 8.25                       | 3.11          |
| Koderma                          | 2,540                   | 80.80             | 494.43            | 447.82           | 1,023.05         | 40.28        | -0.42                      | 6.37          |
| Latehar <sup>T</sup>             | 4,291                   | 480.36            | 1,308.93          | 613.75           | 2,403.04         | 56.00        | -3.30                      | 9.30          |
| Lohardaga <sup>T</sup>           | 1,502                   | 174.03            | 218.40            | 111.99           | 504.42           | 33.58        | -0.20                      | 7.66          |
| Pakur <sup>T</sup>               | 1,811                   | 2.96              | 172.40            | 111.64           | 287.00           | 15.85        | -0.13                      | 20.06         |
| Palamu <sup>T</sup>              | 4,393                   | 62.82             | 512.73            | 640.18           | 1,215.73         | 27.67        | 14.95                      | 84.23         |
| Ramgarh                          | 1,341                   | 30.96             | 109.32            | 190.98           | 331.26           | 24.70        | 2.26                       | 14.49         |
| Ranchi <sup>T</sup>              | 5,097                   | 62.89             | 363.91            | 741.98           | 1,168.78         | 22.93        | 4.29                       | 27.98         |
| Sahibganj <sup>T</sup>           | 2,063                   | 17.74             | 258.73            | 297.48           | 573.95           | 27.82        | 1.60                       | 47.53         |
| Saraikela-Kharsawan <sup>T</sup> | 2,657                   | 22.03             | 213.84            | 338.73           | 574.60           | 21.63        | 0.56                       | 21.87         |
| Simdega <sup>T</sup>             | 3,774                   | 21.97             | 343.54            | 877.89           | 1,243.40         | 32.95        | 2.48                       | 20.28         |
| West Singhbhum <sup>T</sup>      | 7,224                   | 461.53            | 1,353.80          | 1,553.11         | 3,368.44         | 46.63        | 2.32                       | 47.18         |
| <b>Grand Total</b>               | <b>79,716</b>           | <b>2,601.05</b>   | <b>9,688.91</b>   | <b>11,431.18</b> | <b>23,721.14</b> | <b>29.76</b> | <b>109.73</b>              | <b>584.20</b> |

(Source: India State of Forest Report 2021 - Jharkhand)



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### FOREST COVER GODDA DISTRICT, JHARKHAND

0 2 7 5 5 11 16 5 22 Km



Source: Forest Cover from FSI (Forest Survey of India)

Fig. 8.3: Forest Cover Map of Godda District  
(Source: JSAC, Jharkhand)



## 9. GROUND WATER SCENARIO OF THE DISTRICT

### 9.1 Water Courses and Hydrogeology:

The southern part of the district is underlain by Granite-gneiss of Archaean age forming the basement. These occur as large batholiths and are intruded by basic rocks. In the central and northern part of the district the rocks of Barakar formation consisting of Feldspathic Sandstones, Shales and Coal seams overlying the metamorphics are exposed. In the western and northern part of the district alluvial cover of moderate thickness, caps the Archaean crystallines and the Gondwana sedimentaries.

The district is underlain by diverse geological formations with complex tectonic framework. The geological formations have been grouped under three main categories -

- The Gneissic Complex in the southern and the central part.
- The Rajmahal traps in the eastern and southeastern part.
- Gondwanas overlain by thin mantle of alluvial cover in the northern and central part.

Ground water occurs mostly under phreatic condition in all the lithological units within the shallow aquifers and locally under semiconfined and confined condition in deeper aquifers.

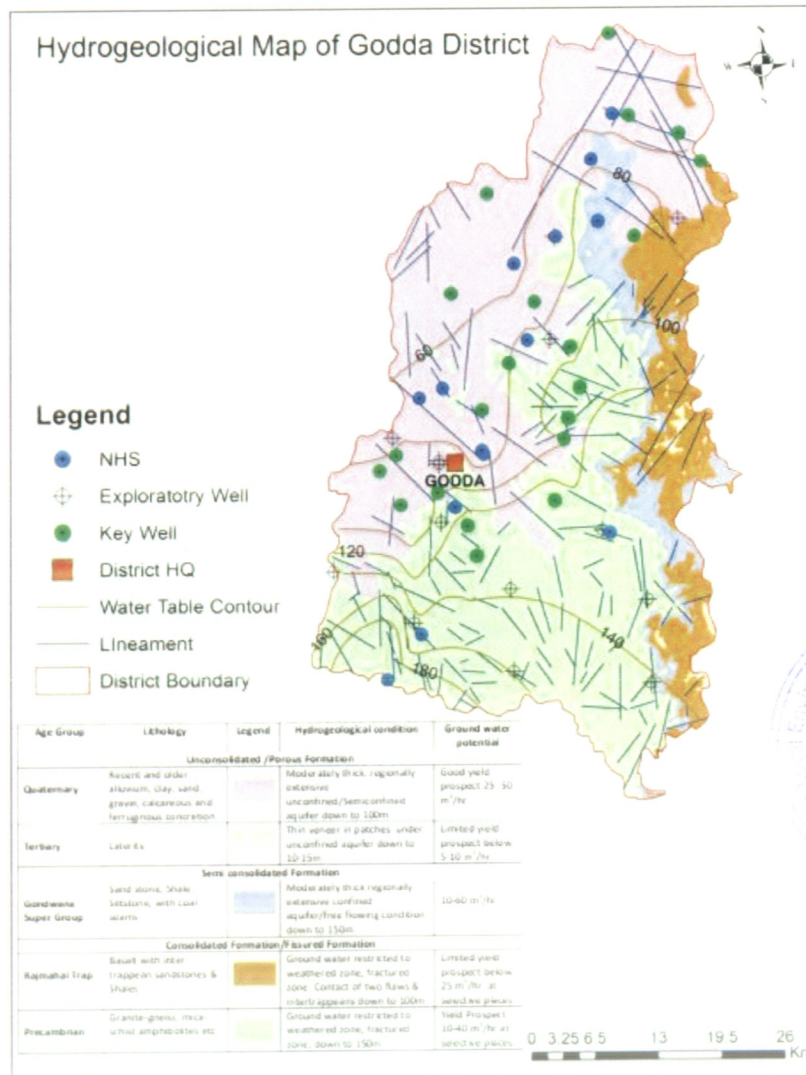


Figure 9.1: Hydrogeological Map of Godda District

(Source – CGWB Report)



### Depth to Water Level:

During May 2012, the depth to water levels in HNS, wells tapping shallow aquifer ranged from 4.55 to 9.90 m bgl. Depth to ground water levels during the post monsoon period (November 2012) varied between 2.25 and 8.34 m bgl. Categorization of depth to water level of pre-monsoon period (May 2012) for HNS in Godda district is presented below in Table-3.4.

Table - 9.1: Categorization of depth to water level of pre-monsoon period (May 2012)

| No. of wells measured | Depth to water level (mbgl) |      | 0-2 (m) |   | 2-5 (m) |    | 5-10 (m) |    | 10-20(m) |   |
|-----------------------|-----------------------------|------|---------|---|---------|----|----------|----|----------|---|
|                       | Min.                        | Max. | No.     | % | No.     | %  | No.      | %  | No.      | % |
| 8                     | 4.55                        | 9.90 | 0       | 0 | 2       | 20 | 8        | 80 | 0        | 0 |

### Aquifer Parameters:

A total of 13 exploratory wells and 12 observation wells have been drilled down to depth of 191 m in hard rock formation to decipher the potential fracture zones. The morphotectonic analysis of crystalline formation has revealed that rocks have been subjected to several stages of deformation leading to development of deep seated tensile and shear fracture. The most potential fracture zones trend along NNE-SSW, WNW-SSE and NW-SE direction. The exploratory data reveals presence of potential fractures between 17-163 m bgl. The deeper fractures are also found in few cases upto 140 m bgl. The depth of fracture at which maximum yield was obtained in bore well ranges from 75-135 m bgl. The thickness of the weathered zone varies from 9 to 26.5 m. The yield of the well is in the range of 0.25-49.2 m<sup>3</sup>/hr.

Table – 9.2 Summarized hydrogeological data of exploratory drilling

| Rock Type      | Depth range (m bgl) | No. of fractures tapped | Depth of Zone Range fracture | Water level (m bgl) | Yield (m <sup>3</sup> /hr.) | Draw down (m) | T (m <sup>2</sup> /day) | S                       |
|----------------|---------------------|-------------------------|------------------------------|---------------------|-----------------------------|---------------|-------------------------|-------------------------|
| Granite-gneiss | 81-191              | 1-5                     | 17-163                       | 2-8.63              | 0.25-49.2                   | 7.04          | 17.95-                  | 4.3* 10 <sup>-3</sup> - |
|                |                     |                         |                              |                     |                             | 22.11         | 177                     | 1.01* 10 <sup>-5</sup>  |

### Ground Water Quality:

Ground water in the phreatic aquifers in Godda district slightly alkaline in nature, which is also colourless, odourless. The specific electrical conductance of ground water in phreatic zone during May 2011 was in the range of 655-2408 μS/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 NO<sub>3</sub>. The chemical concentration of these constituents, when compared with the drinking water specification recommended by IS:10500,1991 as presented below in table.

Table – 9.3: Number of samples exceeding permissible limit in the district

| Quality         | IS:10500, 1991  |                   | No. of samples in the district exceeding permissible limit |
|-----------------|-----------------|-------------------|--|
|                 | Desirable limit | Permissible limit |  |
| pH              | 6.5-8.5         | No relaxation     | 0  |
| T.H             | 300             | 600               | 0  |
| Ca              | 75              | 200               | 0  |
| Cl              | 250             | 1000              | 0  |
| F               | 1.0             | 1.5               | 0  |
| NO <sub>3</sub> | 45              | 100               | 0  |



# DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND

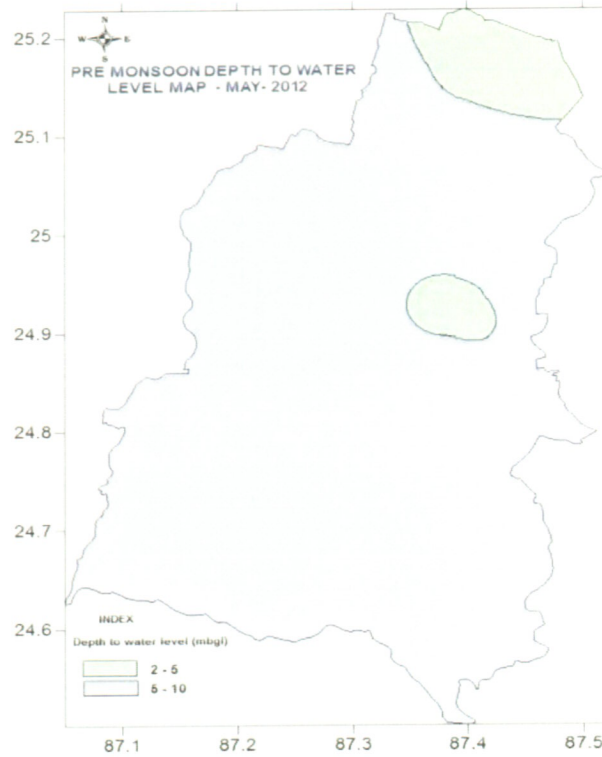


Fig. 9.2: Pre-monsoon Depth of Water Level Map

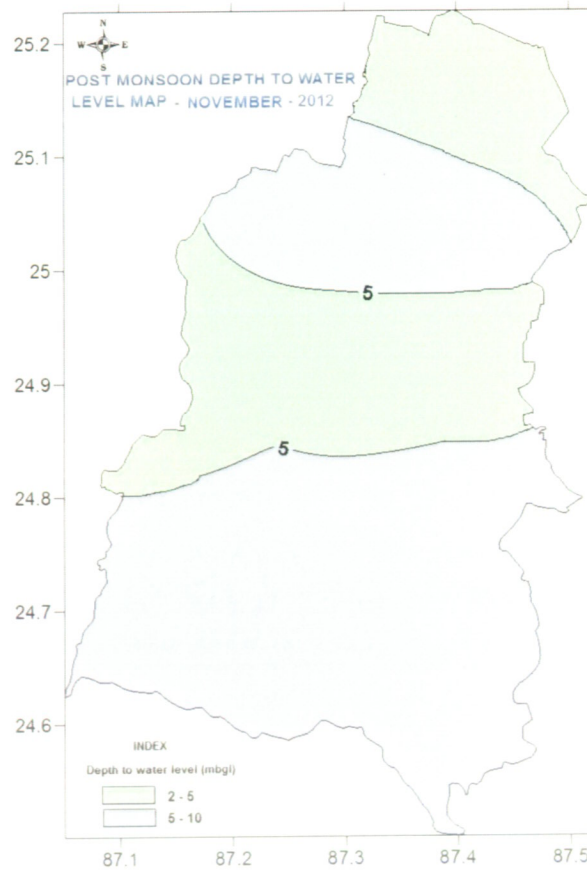


Fig. 9.3: Post-monsoon Depth of Water Level Map

(Source: Central Ground Water Board)



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## 9.2 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. In general, dug wells are of 2m diameter and the depth ranges between 8 to 15 m depending on the thickness of the weathered zone, tapping the shallow aquifer 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) less susceptible to contamination from surface sources and
- ii) 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 Godda district, the number of hand pumps drilled by PHED is 12311 of which 9342 are under working condition. There are 574 dug wells constructed by Government departments that are under regular use.

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.

As per the latest ground water resource estimation carried out adopting GEC 97 methodology, the overall stage of ground water development in Godda district has been found to be 38.68.

### Ground Water Related Issue and Problems:

Some of key ground water related issues are -

- a) Locating suitable sites for bore wells.
- b) Suitable design of dug wells and hand pumps.
- c) Taking up artificial recharge projects to augment the resource availability in Godda district.
- d) Optimal development of irrigation potential by developing ground water available for future uses.
- e) Creating public awareness for conserving ground water through awareness camps, NGO's and mass media.

### Awareness and Training Activity:

The Mass Awareness Programme (MAP) By CGWB - Nil

Participation in Exhibition, Mela, Fair etc. - Nil

Area Notified by CGWB – None

### Recommendation:

As the district suffers from water scarcity, it is recommended to take artificial recharge at suitable locales. On the basis of the hydrogeological criteria such as post monsoon water level below 8 m bgl indicating availability of sufficient space in the unsaturated zone to retain additional water and availability of surplus surface runoff, 313 km<sup>2</sup> area in Godda district has been demarcated as suitable for artificial recharge. Through this 22.54 cm water can be recharged.

In the hard rock areas, pin pointing suitable sites for bore wells is always a challenge. Considering the anisotropy in distribution of fractures at deeper level, suitable sites may be selected using remote sensing techniques in association with geophysical and hydro-geological investigations. For deriving optimal benefit from aquifers in areas under fissured formation, the dug wells should be designed to penetrate the weathered zone as well as top part (1-2 m) of the underlying bed rock, so as to get the full benefit, from the total thickness of the shallow aquifer. For hand pumps and shallow tube wells the casing provided against the weathered zone should be slotted at the bottom



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so that the well can extract shallow ground water also. In urban areas use of shallow aquifers should be encouraged.

The surface runoff in urban areas and its peripheral parts should be harnessed to augment the ground water resource through appropriate recharge techniques. For urban areas roof top rain water harvesting and artificial recharge is most suitable. Location and design of the structures should be guided by findings from hydrogeological and geophysical surveys. Sites for artificial recharge should be taken up at places where sufficient thickness of weathered zone as well as fracture/fracture zones are available. The depth of the recharge well should be governed by the depth of occurrence of the fractures.





## 10. RAINFALL AND CLIMATE OF THE DISTRICT

### 10.1 Rainfall & Humidity:

Godda typically receives about 32.67 millimeters (1.29 inches) of precipitation and has 34.36 rainy days (9.41% of the time) annually.

Table 10.1: Rainfall Data of Godda from 2017-2020

| Year    |       | 2017   | 2018   | 2019   | 2020   |
|---------|-------|--------|--------|--------|--------|
| Sl. No. | Month | Avg.   | Avg.   | Avg.   | Avg.   |
| 1       | Jan   | 11.50  | 13.00  | 17.80  | 12.10  |
| 2       | Feb   | 9.20   | 32.00  | 8.30   | 6.40   |
| 3       | Mar   | 5.40   | 4.70   | 8.60   | 7.30   |
| 4       | Apr   | 4.80   | 15.00  | 84.00  | 22.30  |
| 5       | May   | 90.60  | 80.30  | 30.30  | 60.80  |
| 6       | Jun   | 195.90 | 200.00 | 272.70 | 120.90 |
| 7       | Jul   | 148.30 | 305.30 | 370.90 | 290.50 |
| 8       | Aug   | 387.10 | 255.40 | 260.70 | 180.10 |
| 9       | Sep   | 252.10 | 263.80 | 180.50 | 250.50 |
| 10      | Oct   | 75.60  | 39.40  | 30.70  | 35.20  |
| 11      | Nov   | 0.00   | 0.00   | 0.00   | 0.00   |
| 12      | Dec   | 0.00   | 0.00   | 0.00   | 0.00   |

In Godda, the climate is warm and temperate. The summers here have a good deal of rainfall, while the winters have very little. According to Köppen and Geiger, this climate is classified as Cwa. The average annual temperature in Godda is 25.5°C. In a year, the average rainfall is 1081 mm.

### 10.2 Climatic Condition:

Located at an elevation of None meters (0 feet) above Sea level, Godda has a Humid subtropical, dry winter climate (Classification: Cwa). The district’s yearly temperature is 29.22°C (84.6°F) and it is 3.25% higher than India’s averages. Godda typically receives about 32.67 millimeters (1.29 inches) of precipitation and has 34.36 rainy days (9.41% of the time) annually.

Table 10.2: Monthly Average Temperature of Godda District

| Month                                 | Jan              | Feb              | Mar              | Apr              | May              | Jun               | Jul              | Aug              | Sep              | Nov              | Oct              | Dec              | Year             |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Record high °C (°F)                   | 29.0<br>(84.2)   | 34.0<br>(93.2)   | 40.0<br>(104.0)  | 44.0<br>(111.2)  | 44.0<br>(111.2)  | 46.0<br>(114.8)   | 40.0<br>(104.0)  | 39.0<br>(102.2)  | 37.0<br>(98.6)   | 35.0<br>(95.0)   | 32.0<br>(89.6)   | 28.0<br>(82.4)   | 46.0<br>(114.8)  |
| Average high °C (°F)                  | 23.54<br>(74.37) | 27.31<br>(81.16) | 33.85<br>(92.93) | 37.61<br>(99.7)  | 39.0<br>(102.2)  | 37.91<br>(100.24) | 34.16<br>(93.49) | 34.28<br>(93.7)  | 33.04<br>(91.47) | 31.24<br>(88.23) | 29.41<br>(84.94) | 24.88<br>(76.78) | 32.19<br>(89.94) |
| Daily mean °C (°F)                    | 19.68<br>(67.42) | 23.38<br>(74.08) | 30.15<br>(86.27) | 34.36<br>(93.85) | 35.66<br>(96.19) | 35.51<br>(95.92)  | 32.18<br>(89.92) | 32.24<br>(90.03) | 30.97<br>(87.75) | 28.68<br>(83.62) | 26.32<br>(79.38) | 21.46<br>(70.63) | 29.22<br>(84.6)  |
| Average low °C (°F)                   | 14.0<br>(57.2)   | 16.71<br>(62.08) | 22.25<br>(72.05) | 26.48<br>(79.66) | 28.22<br>(82.8)  | 29.86<br>(85.75)  | 28.1<br>(82.58)  | 27.88<br>(82.18) | 26.81<br>(80.26) | 23.75<br>(74.75) | 20.69<br>(69.24) | 15.91<br>(60.64) | 23.39<br>(74.1)  |
| Record low °C (°F)                    | 10.0<br>(50.0)   | 10.0<br>(50.0)   | 14.0<br>(57.2)   | 23.0<br>(73.4)   | 21.0<br>(69.8)   | 23.0<br>(73.4)    | 24.0<br>(75.2)   | 22.0<br>(71.6)   | 18.0<br>(64.4)   | 18.0<br>(64.4)   | 16.0<br>(60.8)   | 9.0<br>(48.2)    | 9.0<br>(48.2)    |
| Average precipitation mm (inches)     | 6.45<br>(0.25)   | 6.25<br>(0.25)   | 3.22<br>(0.13)   | 17.38<br>(0.68)  | 36.07<br>(1.42)  | 41.06<br>(1.62)   | 106.56<br>(4.2)  | 62.48<br>(2.46)  | 93.7<br>(3.69)   | 22.45<br>(0.88)  | 0.06<br>(0.0)    | 2.3<br>(0.09)    | 32.67<br>(1.28)  |
| Average precipitation days (≥ 1.0 mm) | 0.18             | 1.0              | 0.64             | 2.36             | 3.45             | 5.18              | 6.55             | 6.73             | 6.0              | 2.18             | 0.0              | 0.09             | 2.86             |
| Average relative humidity (%)         | 53.91            | 49.4             | 31.33            | 38.18            | 47.85            | 54.37             | 70.18            | 70.87            | 73.53            | 64.92            | 48.92            | 44.96            | 54.03            |
| Mean monthly sunshine hours           | 8.47             | 8.42             | 11.08            | 12.57            | 13.07            | 12.93             | 11.5             | 11.63            | 9.45             | 10.62            | 10.17            | 8.53             | 10.7             |



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The chart below shows the mean monthly temperature and precipitation of Godda in recent years.

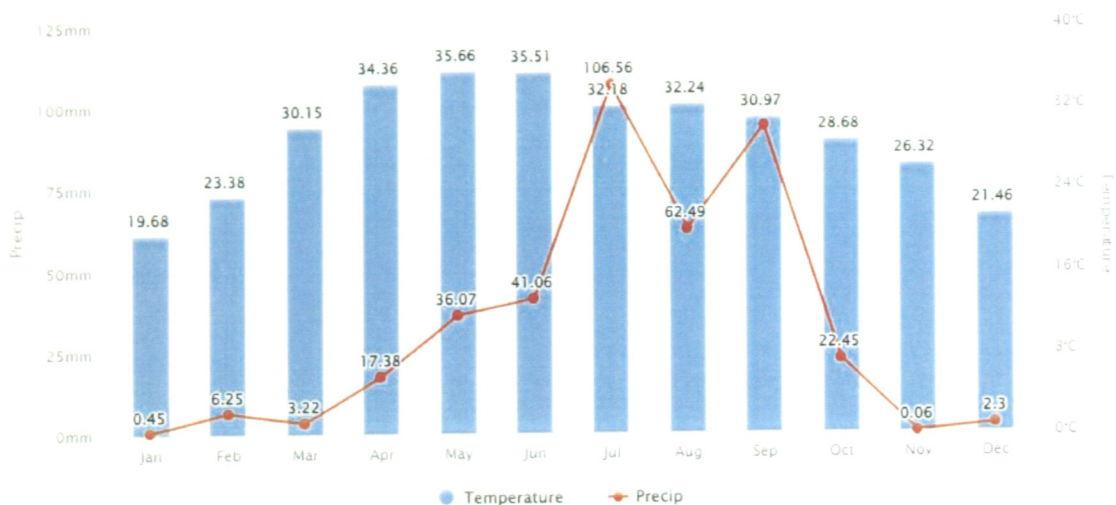


Figure 10.1: Graphical representation of monthly temperature and precipitation of Godda

(Source: Indian Meteorological Department)



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GODDA DISTRICT OF JHARKHAND**



**11. DETAILS OF EXISTING/WORKING MINING LEASES IN THE DISTRICT**

| Sl. No. | Mineral | Name of the Lessee  | Address & Contact No. of Lessee |                    | Mining Lease Grant Order No. & Date | M. L. Area (in Acres) | Period of Mining Lease (in D/M/Y) |      | Period of Mining Lease (1st /2nd...renewal) |                      | Address of the Mining Lease | Status (Working/Non-working/Temp./Working for dispatch) | Captive/Non-Captive                                 | Obtained E C (Yes/No), If Yes, Letter No. with Date of grant of EC     | Location of the Mining Lease (Latitude & Longitude) | Method of Mining (Opencast/Underground) |
|---------|---------|---|---------------------------------|--------------------|-------------------------------------|-----------------------|-----------------------------------|------|---|----------------------|-----------------------------|---|---|--|---|---|
|         |         |   | 4                               | 5                  |                                     |                       | 7                                 | 8    | 9   | 10                   |                             |   |   |  |   |   |
| 1       | Stone   | Shri Karma Soren  | Vill. - Harla                   | Letter No. - 288   | 2.50                                | 20.07.2015            | 19.07.2025                        | N.A. | N.A.  | Mouza - Madhukupi    | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 2263<br>Dated - 30.12.2015 | 24°38'29.6" N to<br>24°38'27.9" N<br>87°14'44.3" E to<br>87°14'48.2" E | Opencast  |   |
|         |         | S/o Shri Girish Soren   | P.O. - Chatra                   | Dated - 02.03.2016 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | P.S. - Poreyahat                |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | Dist. - Godda                   |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
| 2       | Stone   | Shri Krishna Pd. Ram  | Vill. - Badadhamni              | Letter No. - 421   | 1.67                                | 27.12.2013            | 26.12.2023                        | N.A. | N.A.  | Mouza - Ramkol       | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 120<br>Dated - 04.03.2016  | 24°05'58.8" N to<br>24°05'05.3" N<br>87°23'19.5" E to<br>87°23'16.4" E | Opencast  |   |
|         |         | S/o - Late Hiralal Ram  | P.O. - Dhamni Bazar             | Dated - 23.03.2016 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | P.S. - Sunderpahari             |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | Dist. - Godda                   |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
| 3       | Stone   | M/s Maa Tara Stone Works of Partner:                                      | Vill. - Pathargama              | Letter No. - 138   | 3.03                                | 15.06.2015            | 14.06.2025                        | N.A. | N.A.  | Mouza - Lohatamba    | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 2361<br>Dated - 30.12.2015 | 24°57'48.7" N to<br>24°57'51.1" N<br>87°25'44.9" E to<br>87°25'41.6" E | Opencast  |   |
|         |         | Shri Dipnarayan Shah  | P.O. - Pathargama               | Dated - 30.01.2016 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         | S/o - Shri Ramdhani Shah  | P.S. - Pathargama               |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | Dist. - Godda                   |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
| 4       | Stone   | M/s M. N. Enterprise of Shri Hriday Narayan Singh                         | Branch Office - N.G. - 259      | Letter No. - 137   | 2.50                                | 23.03.2016            | 22.03.2026                        | N.A. | N.A.  | Mouza - Lohatamba    | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 2350<br>Dated - 30.12.2015 | 24°57'47.2" N to<br>24°57'49.7" N<br>87°25'37.6" E to<br>87°25'39.0" E | Opencast  |   |
|         |         | S/o Shri Ram Pd. Singh  | P.O. - Mahagama                 | Dated - 30.01.2016 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | P.S. - Mahagama                 |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | Dist. - Godda                   |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
| 5       | Stone   | M/s Boss Infra Pvt. Ltd. of Director:                                     | 8-Basti Radha Nagar Road        | Letter No. - 219   | 19.82                               | 08.03.2016            | 07.03.2026                        | N.A. | N.A.  | Mouza - Dumariya, 30 | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 1560<br>Dated - 09.09.2015 | 24°57'41.9" N to<br>24°57'38.8" N<br>87°25'26.7" E to<br>87°25'12.1" E | Opencast  |   |
|         |         | Shri Vimal Kumar Singh & Other  | P.O. - Santa                    | Dated - 17.02.2016 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | P.S. - Barnapura                |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         |   | Dist. - Bardhaman - 713325      |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
| 6       | Stone   | M/s Arun Construction & Golden Construction (Joint Venture) of Partner 1: | Mahabir Prasad Lane             | Letter No. - 433   | 5.65                                | 20.01.2020            | 19.01.2025                        | N.A. | N.A.  | Mouza - Thakurnahan  | Working                     | Non-Captive   | (Yes)<br>EC Letter No. - 337<br>Dated - 02.08.2019  | 24°39'45.1" N to<br>24°39'36.9" N<br>87°03'23.1" E to<br>87°03'13.7" E | Opencast  |   |
|         |         | Shri Arun Kumar   | Nayachak                        | Dated - 05.02.2021 |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         | Partner 2:  | P.O. + P.S. - Isaquechak        |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |
|         |         | Shri Shankar Prasad Chourasiya  | Dist. - Bhagalpur, Bihar        |                    |                                     |                       |                                   |      |   |                      |                             |   |   |  |   |   |

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**12. DETAILS OF ROYALTY OR REVENUE RECEIVED IN  
LAST THREE YEARS**

| Sl. No. | Financial Year | Royalty/Revenue Received<br>(in Rupees) |
|---------|----------------|---|
| 1       | 2019-20        | 34500.22 Lakhs                          |
| 2       | 2020-21        | 25585.37 Lakhs                          |
| 3       | 2021-22        | 11096.09 Lakhs                          |
| 4       | 2022-23        | 157.46 Lakhs                            |



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**13. DETAILS OF PRODUCTION OF MINOR MINERALS  
IN LAST THREE YEARS**

| Sl. No. | Year    | Production (in m <sup>3</sup> ) |
|---------|---------|---------------------------------|
| 1       | 2020-21 | 1,79,964.90                     |
| 2       | 2021-22 | 95,961.55                       |
| 3       | 2022-23 | 3,12,755.30                     |





## 14. MINERAL MAP OF THE DISTRICT

### 14.1 Mineral Wealth

Minerals such as Sand, Stone, Coal etc. are found in the district. The deposition of Dolerite is mainly noticed in southern part of Poreyahat block. Some part of Poreyahat block, mostly in central region also has the deposition of Quartzite and Quartz schist. Pathargama, Godda and Poreyahat block is mostly covered with Laterite and Lateritic Soil. Sand mining is mainly practiced in Godda, Mahagama and Basantra, Pathargama, Poreyahat blocks of Godda district. Rivers in which sand mining takes place in Godda district are - Bansloi, Burigeria, Chir, Kajhia, Sundargaria River.

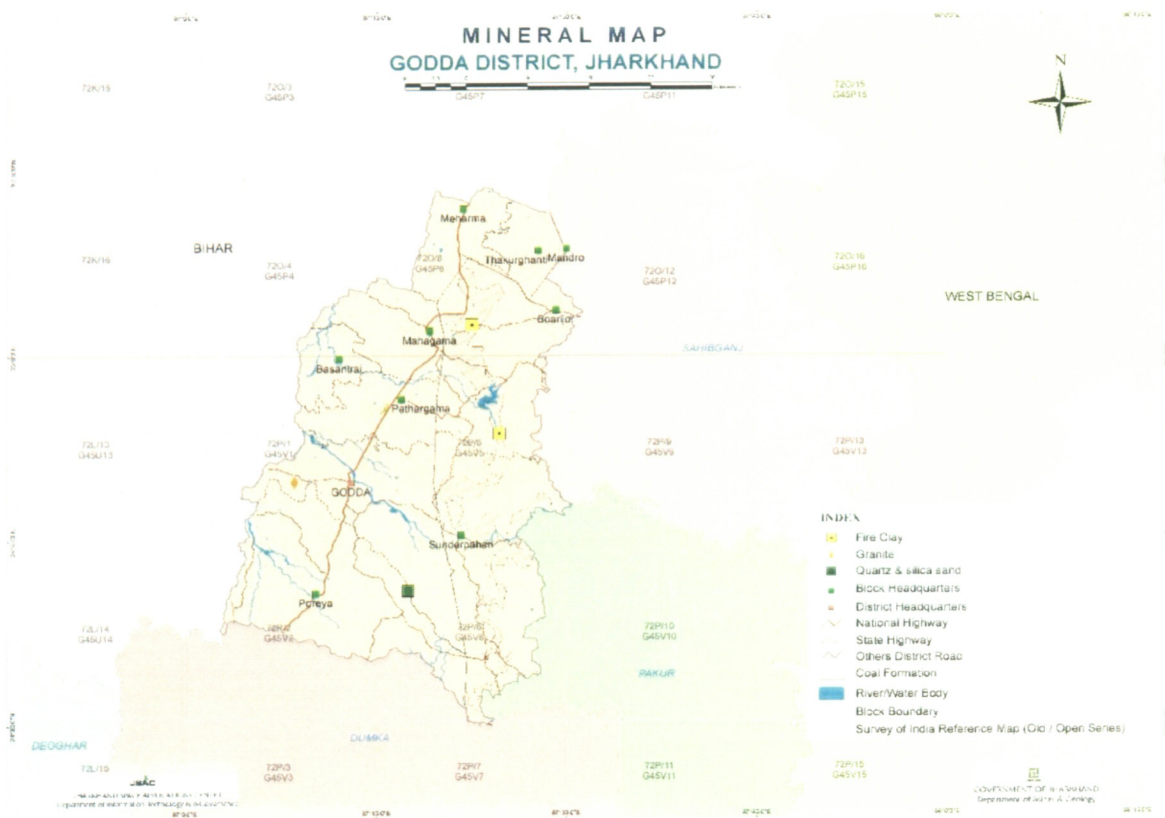


Fig. 14.1: Mineral Map of Godda District

(Source: JSAC, Deptt. of Mines & Geology, Govt. of Jharkhand)



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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
GODDA DISTRICT OF JHARKHAND**



**15. LIST OF LETTER OF INTENT HOLDERS IN THE DISTRICT**

**15.1 List of Letter of Intent holders in the district:**

| 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 (Acres) | Validity of LoI | Use (Captive/ Non-Captive) | Location of the Mining Lease  |
|---------|---------------------|--|---|---|---|-----------------|----------------------------|---|
| 1       | 2                   | 3  | 4   | 5                                       | 6   | 7               | 8                          | 9   |
| 1       | Stone               | M/s M. N. Enterprises of Shri Hriday Narayan Singh | Village - Sadar Gangti<br>P.O. + P.S. - Thakurgangti<br>Dist. - Godda | Letter No. - 378/M<br>Date - 12.03.2021 | 4.09  | -               | Non-Captive                | Mouza - Loha Tamba<br>Circle - Boriajor<br>Khata No. - 6 & 46<br>Plot Nos. - 848 & 849  |
| 2       | Stone               | M/s M. N. Enterprises of Shri Hriday Narayan Singh | Village - Sadar Gangti<br>P.O. + P.S. - Thakurgangti<br>Dist. - Godda | Letter No. - 379/M<br>Date - 12.03.2021 | 7.30  | -               | Non-Captive                | Mouza - Loha Tamba<br>Circle - Boriajor<br>Khata No. - 5, 8, 18, 28, 35 & 49<br>Plot Nos. - 568, 574, 582, 569, 570, 571, 578, 566, 581, 576, 577, 580, 565(P), 567, 572, 573 & 579 |



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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
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|   |       |  |  |   |      |   |             |   |
|---|-------|--|--|---|------|---|-------------|---|
| 3 | Stone | M/s M. N. Enterprises of Shri Hriday Narayan Singh   | Village - Sadar Gangti<br>P.O. + P.S. - Thakurgangti<br>Dist. - Godda  | Letter No. - 377/M<br>Date - 12.03.2021 | 6.83 | - | Non-Captive | Mouza - Loha Tamba<br>Circle - Boriajor<br>Khata No. - 6, 45, 46 & 26<br>Plot Nos. - 760, 768, 757(P), 765, 766 & 767 |
| 4 | Stone | Shri Ajit Anand<br>S/o Shri Pramod Bhagat<br>&<br>Shri Jatu Paharia<br>S/o Late Suryanarayan Paharia                 | Village + P.O. + P.S. - Mahagama<br>Dist. - Godda, Jharkhand - 814154<br>&<br>Village - Bada Kotha<br>P.O. - Lohandia Bazar<br>Dist. - Godda, Jharkhand - 814165 | Letter No. - 254/M<br>Date - 24.02.2020 | 2.49 | - | Non-Captive | Mouza - Bada Kotha<br>Circle - Boriajor<br>Khata No. -<br>Plot Nos. - 295, 296, 302 & 303                             |
| 5 | Stone | M/s Rajveer Construction Pvt. Ltd. Of<br><u>Director:</u><br>Shri Vimal Kumar Agrawal<br>S/o Shri Veer Kumar Agrawal | Mohalla - 614, Hari Om Tower<br>Circular Road, Ranchi, Jharkhand - 834001 &<br>Represe<br><br>Village - Asanbani   | Letter No. - 735/M<br>Date - 11.05.2020 | 3.14 | - | Non-Captive | Mouza - Simrakol<br>Circle - Poreyahat<br>Khata No - 24<br>Plot Nos. - 387 & 401                                      |

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|   |       |   |  |  |      |   |             |  |
|---|-------|---|--|--|------|---|-------------|--|
|   |       | & Shri Veer Kumar Agrawal<br>S/o Late Ramdhari Lal Agrawal<br>& Representative – Imran Khan<br>S/o – Late Imam Baksh  | P.S. – Raneshwar<br>Dist. Dumka,<br>Jharkhand - 816118   |  |      |   |             |  |
| 6 | Stone | M/s Varun Singh Sisodiya Pvt. Ltd. Of<br><u>Director:</u><br>Shri Varun Singh<br>S/o Shri Kumar Bharat<br>&<br>Smt. Yashomati Kumari<br>W/o Shri Kumar Bharat | H. No. – 12,<br>Kishore Bhawan,<br>Justice Mandal<br>Path, Patna -<br>800023                     | Letter No. – 2754/M<br>Date – 16.10.2019 | 6.31 | - | Non-Captive | Mouza – Bada Bararo<br>Circle – Boriajor<br>Khata No. – 24<br>Plot Nos. – 341 & 350                    |
| 7 | Stone | M/s Dilip Buildcon Ltd.   | Plot No. – 5, Inside Govind Narayan Singh Gate, Chunna Bhatti, Kolar Road, Bhopal, M.P. - 462016 | Letter No. – 150/M<br>Date – 06.02.2023  | 7.40 | - | Non-Captive | Mouza – Bhataundha<br>Circle – Poreyahat<br>Khata No. –<br>Plot Nos. – 4273 to 4291, 4298, 4271 & 4319 |



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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
GODDA DISTRICT OF JHARKHAND**



**15.2 List of Application pending for issuance of Letter of Intent in the district:**

| Sl. No. | Name of the Mineral | Area of Mining Lease to be allotted (Acres) | Use (Captive/Non-Captive) | Location of the Mining lease   |
|---------|---------------------|---|---------------------------|--|
| 1       | 2                   | 3   | 4                         | 5  |
| 1       | Stone               | 5.65  | Non-Captive               | Mouza – Thakurnahan<br>Circle - Poreyahat<br>Khata No. –<br>Plot No. – 7(P) & 58(P)                                      |
| 2       | Stone               | 3.69  | Non-Captive               | Mouza – Charaktand<br>Circle - Poreyahat<br>Khata No. –<br>Plot No. – 26   |
| 3       | Stone               | 4.85  | Non-Captive               | Mouza – Vabhangama No. - 31<br>Circle - Boriajor<br>Khata No. –<br>Plot No. – 142  |
| 4       | Stone               | 6.80  | Non-Captive               | Mouza – Malmala<br>Circle - Godda<br>Khata No. –<br>Plot No. – 180, 181(P) & 184   |
| 5       | Stone               | 5.70  | Non-Captive               | Mouza – Loha Tamba<br>Circle - Boriajor<br>Khata No. – 7, 10, 13, 37, & 45<br>Plot No. – 812 to 817, 834 to 836<br>& 838 |
| 6       | Stone               | 4.41  | Non-Captive               | Mouza – Thakurnahan<br>Circle - Poreyahat<br>Khata No. –   |



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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
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|    |       |      |             |   |
|----|-------|------|-------------|---|
|    |       |      |             | Plot No. – 1  |
| 7  | Stone | 4.90 | Non-Captive | Mouza – Modemo Chhota Sini<br>Circle - Boriajor<br>Khata No. –<br>Plot No. – 3(P) & 4(P)  |
| 8  | Stone | 6.00 | Non-Captive | Mouza – Bhalsumbhia<br>Circle – Pathargama<br>Khata No. –<br>Plot No. – 567, 568, 569(P),<br>680(P), 681, 682, 683, 751, 752 &<br>753 |
| 9  | Stone | 6.29 | Non-Captive | Mouza – Mahuabathan<br>Circle – Boriajor<br>Khata No. – 3 & 5<br>Plot No. – 414, 427 to 431, 435 to<br>438, 440, 474, 475 & 478       |
| 10 | Stone | 7.27 | Non-Captive | Mouza – Dighhi<br>Circle – Boriajor<br>Khata No. – 5<br>Plot No. – 147(P)   |
| 11 | Stone | 4.96 | Non-Captive | Mouza – Dighhi<br>Circle – Boriajor<br>Khata No. – 5<br>Plot No. – 147(P)   |
| 12 | Stone | 5.00 | Non-Captive | Mouza – Bhataundha<br>Circle – Poreyahat<br>Khata No. –<br>Plot No. – 4038(P)   |
| 13 | Stone | 6.00 | Non-Captive | Mouza – Bero Dombari  |



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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR  
GODDA DISTRICT OF JHARKHAND



|    |       |      |             |  |
|----|-------|------|-------------|--|
|    |       |      |             | Circle – Poreyahat<br>Khata No. – 6<br>Plot No. – 1(P)                       |
| 14 | Stone | 6.00 | Non-Captive | Mouza – Bero Dombari<br>Circle – Poreyahat<br>Khata No. – 6<br>Plot No. – 39 |



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## 16. TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

The district consists of the undulating uplands, rolling topography marked by isolated hills and valleys, long ridges and depressions. The western portion of the Rajmahal hills passes through Godda. Geologically, the area has basaltic trap and sedimentary beds. Quartz and Gneiss are found in some places.

At present, based on existing running mining leases and available mining plans (6 registered mining leases) a total of 819087 m<sup>3</sup>/2211503 Tonnes of mineable reserve of Stone are found in the Godda district. The Letter of Intent (LoI) have been issued to 6 Nos. of applicant for Stone mining in the district however 14 Nos. of application are pending & under consideration for issuance of Letter of Intent. There are 40 Nos. of potential Stone deposit have been identified in Godda district.

| Sl. No. | Existing/Working Mining Lease Details | Mineable Reserve     |             |
|---------|---------------------------------------|----------------------|-------------|
|         |                                       | (in m <sup>3</sup> ) | (in Tonnes) |
| 1       | Mouza – Madhukupi                     | 58962                | 159197      |
|         | P.S. – Poraiyahat                     |                      |             |
|         | Circle - Poraiyahat                   |                      |             |
|         | Khata No. – 44                        |                      |             |
|         | Plot No. – 420(P)                     |                      |             |
|         | Area – 2.50 Acres                     |                      |             |
| 2       | Mouza – Ramkol                        | 7520                 | 20300       |
|         | P.S. – Lalmatia                       |                      |             |
|         | Circle – Boriajore                    |                      |             |
|         | Khata No. – 12                        |                      |             |
|         | Plot No. – 847(P)                     |                      |             |
|         | Area – 1.67 Acres                     |                      |             |
| 3       | Mouza – Lohatamba                     | 120370               | 324996      |
|         | Circle - Boriajore                    |                      |             |
|         | P.S. – Rajabhita                      |                      |             |
|         | Khata No. – 67                        |                      |             |
|         | Plot No. – 867(P)                     |                      |             |
|         | Area – 3.03 Acres                     |                      |             |
| 4       | Mouza – Lohatamba                     | 21915                | 59166       |
|         | Circle - Boriajore                    |                      |             |
|         | P.S. – Rajabhita                      |                      |             |
|         | Khata No. – 67                        |                      |             |
|         | Plot No. – 867(P)                     |                      |             |
|         | Area – 2.50 Acres                     |                      |             |
| 5       | Mouza – Dumariya, 30                  | 360410               | 973090      |
|         | Circle – Rajabhitha                   |                      |             |

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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



|              |                            |               |                |
|--------------|----------------------------|---------------|----------------|
|              | P.S. – Boriajore           |               |                |
|              | Khata No. – 44             |               |                |
|              | Plot No. – 256 & 263       |               |                |
|              | Area – 19.82 Acres         |               |                |
|              |                            |               |                |
| 6            | Mouza – Thakur Nahan       | 249910        | 674754         |
|              | Circle + P.S. – Poraiyahat |               |                |
|              | Khata No. – 29,34          |               |                |
|              | Plot No. – 07(P) & 58(P)   |               |                |
|              | Area – 5.65 Acres          |               |                |
| <b>TOTAL</b> |                            | <b>819087</b> | <b>2211503</b> |

| Sl. No. | Letter of Intent issued Stone Deposit Details  | Mineable Reserve     |             |
|---------|--|----------------------|-------------|
|         |  | (in m <sup>3</sup> ) | (in Tonnes) |
| 1       | Circle - Boriajore   | 744425               | 2011025     |
|         | Mouza - Loha Tamba   |                      |             |
|         | Khata No. - 6 & 46   |                      |             |
|         | Plot No. - 848 & 849   |                      |             |
|         | Area – 4.09 Acres  |                      |             |
| 2       | Circle - Boriajore   | 1329400              | 3589365     |
|         | Mouza - Loha Tamba   |                      |             |
|         | Khata No. - 5, 8, 18, 28, 35 & 49  |                      |             |
|         | Plot No. - 568, 574, 582, 569, 570, 571, 578, 566, 581, 576, 577, 580, 565(P), 567, 572, 573 & 579 |                      |             |
|         | Area – 7.30 Acres  |                      |             |
| 3       | Circle - Boriajore   | 1243800              | 3358270     |
|         | Mouza - Loha Tamba   |                      |             |
|         | Khata No. - 6, 45, 46 & 26   |                      |             |
|         | Plot No. - 760, 768, 757(P), 765, 766 & 767  |                      |             |
|         | Area – 6.83 Acres  |                      |             |
| 4       | Circle - Boriajore   | 453450               | 1224300     |
|         | Mouza - Bada Kotha   |                      |             |
|         | Khata No. – 32, 49   |                      |             |
|         | Plot No. - 295, 296, 302 & 303   |                      |             |
|         | Area – 2.49 Acres  |                      |             |
| 5       | Circle - Poraiyahat  | 571800               | 1543900     |
|         | Mouza - Simrakol   |                      |             |
|         | Khata No. - 24   |                      |             |

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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND  
MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



|              |  |                |                 |
|--------------|--|----------------|-----------------|
|              | Plot No. - 387 & 401<br>Area - 3.14 Acres  |                |                 |
| 6            | Circle - Boriajore<br>Mouza - Bada Bararo<br>Khata No. - 24<br>Plot No. - 341 & 350<br>Area - 6.31 Acres     | 1149100        | 3102600         |
| 7            | Circle - Poraiyahat<br>Mouza - Bhataundha<br>Plot No. - 4273 to 4291, 4298, 4271 & 4319<br>Area - 7.40 Acres | 1347600        | 3638500         |
| <b>TOTAL</b> |  | <b>6839575</b> | <b>18467960</b> |

| Sl. No. | 'Application pending for issuance of Letter of Intent' Stone Deposit Details   | Mineable Reserve     |             |
|---------|--|----------------------|-------------|
|         |  | (in m <sup>3</sup> ) | (in Tonnes) |
| 1       | Circle - Poraiyahat<br>Mouza - Thakurnahan<br>Plot No. - 7(P) & 58(P)<br>Area - 5.65 Acres/2.28 Ha.  | 684000               | 1846800     |
| 2       | Circle - Poraiyahat<br>Mouza - Charaktand<br>Plot No. - 26<br>Area - 3.69 Acres/1.49 Ha.   | 447000               | 1206900     |
| 3       | Circle - Boriajore<br>Mouza - Vabhangama No. - 31<br>Plot No. - 142<br>Area - 4.85 Acres/1.96 Ha.  | 588000               | 1587600     |
| 4       | Circle - Godda<br>Mouza - Malmala<br>Plot No. - 180, 181(P) & 184<br>Area - 6.80 Acres/2.75 Ha.  | 825000               | 2227500     |
| 5       | Circle - Boriajore<br>Mouza - Loha Tamba<br>Khata No. - 7, 10, 13, 37, & 45<br>Plot No. - 812 to 817, 834 to 836 & 838<br>Area - 5.70 Acres/2.31 Ha. | 693000               | 1871100     |

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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|    |  |        |         |
|----|--|--------|---------|
| 6  | Circle - Poraiyahat  | 534000 | 1441800 |
|    | Mouza - Thakurnahan  |        |         |
|    | Plot No. - 1   |        |         |
|    | Area - 4.41 Acres/1.78 Ha.   |        |         |
| 7  | Circle - Boriajore   | 594000 | 1603800 |
|    | Mouza - Modemo Chhota Sini   |        |         |
|    | Plot No. - 3(P) & 4(P)   |        |         |
|    | Area - 4.90 Acres/1.98 Ha.   |        |         |
| 8  | Circle - Pathargama  | 729000 | 1968300 |
|    | Mouza - Bhalsumbhia  |        |         |
|    | Plot No. - 567, 568, 569(P), 680(P), 681, 682, 683, 751, 752 & 753 |        |         |
|    | Area - 6.00 Acres/2.43 Ha.   |        |         |
| 9  | Circle - Boriajore   | 762000 | 2057400 |
|    | Mouza - Mahuabathan  |        |         |
|    | Khata No. - 3 & 5  |        |         |
|    | Plot No. - 414, 427 to 431, 435 to 438, 440, 474, 475 & 478        |        |         |
| 10 | Circle - Boriajore   | 882000 | 2381400 |
|    | Mouza - Dighhi   |        |         |
|    | Khata No. - 5  |        |         |
|    | Plot No. - 147(P)  |        |         |
| 11 | Circle - Boriajore   | 603000 | 1628100 |
|    | Mouza - Dighhi   |        |         |
|    | Khata No. - 5  |        |         |
|    | Plot No. - 147(P)  |        |         |
| 12 | Circle - Poraiyahat  | 606000 | 1636200 |
|    | Mouza - Bhataundha   |        |         |
|    | Plot No. - 4038(P)   |        |         |
|    | Area - 5.00 Acres/2.02 Ha.   |        |         |
| 13 | Circle - Poraiyahat  | 729000 | 1968300 |
|    | Mouza - Bero Dombari   |        |         |
|    | Khata No. - 6  |        |         |

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**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



|              |                            |                |                 |
|--------------|----------------------------|----------------|-----------------|
|              | Plot No. - 1(P)            |                |                 |
|              | Area – 6.00 Acres/2.43 Ha. |                |                 |
| 14           | Circle - Poraiyahat        | 729000         | 1968300         |
|              | Mouza - Bero Dombari       |                |                 |
|              | Khata No. - 6              |                |                 |
|              | Area – 6.00 Acres/2.43 Ha. |                |                 |
| <b>TOTAL</b> |                            | <b>9405000</b> | <b>25393500</b> |

| Sl. No. | Identified Potential Stone Deposit Details | Mineable Reserve (Approx.) |             |
|---------|--|----------------------------|-------------|
|         |  | (in m <sup>3</sup> )       | (in Tonnes) |
| 1       | Mouza – Malmala & Jamkudar                 | 6600000                    | 17820000    |
|         | Circle - Godda                             |                            |             |
|         | Area – 55.00 Ha. (Approx.)                 |                            |             |
| 2       | Mouza – Sabalpur                           | 6600000                    | 17820000    |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 55.00 Ha. (Approx.)                 |                            |             |
| 3       | Mouza – Ghatiari                           | 2520000                    | 6804000     |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 21.10 Ha. (Approx.)                 |                            |             |
| 4       | Mouza – Narayanpur                         | 4200000                    | 11340000    |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 35.00 Ha. (Approx.)                 |                            |             |
| 5       | Mouza – Khesalani                          | 11040000                   | 29808000    |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 92.00 Ha. (Approx.)                 |                            |             |
| 6       | Mouza – Tetariya                           | 2400000                    | 6480000     |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 20.00 Ha. (Approx.)                 |                            |             |
| 7       | Mouza – Chandana                           | 2400000                    | 6480000     |
|         | Circle - Sundarpahari                      |                            |             |
|         | Area – 20.00 Ha. (Approx.)                 |                            |             |
| 8       | Mouza – Losinghna & Kandaniya              | 2400000                    | 6480000     |
|         | Circle - Boarijore                         |                            |             |
|         | Area – 20.00 Ha. (Approx.)                 |                            |             |
| 9       | Mouza – Hathi Hariyari                     | 1800000                    | 4860000     |
|         | Circle - Poraiyahat                        |                            |             |
|         | Area – 15.00 Ha. (Approx.)                 |                            |             |
| 10      | Mouza – Kharisirsa                         | 18048.98                   | 52164000    |
|         | Circle - Poraiyahat                        |                            |             |
|         | Area – 4.46 Acres                          |                            |             |
| 11      | Mouza – Mahua Bathan                       | 666000                     | 1798200     |

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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|    |  |          |           |
|----|--|----------|-----------|
|    | Circle - Boarijore   |          |           |
|    | Plot No. - 491, 492, 495, 496, 498 to 501                    |          |           |
|    | Area - 2.22 Ha.  |          |           |
| 12 | Mouza - Loha Tamba   | 828000   | 2235600   |
|    | Circle - Boarijore   |          |           |
|    | Plot No. - 757, 760, 765 to 768                              |          |           |
|    | Area - 2.76 Ha.  |          |           |
| 13 | Mouza - Loha Tamba   | 900000   | 2430000   |
|    | Circle - Boarijore   |          |           |
|    | Plot No. - 539, 541 to 545, 564-583                          |          |           |
|    | Area - 3.00 Ha.  |          |           |
| 14 | Mouza - Shear Katiya   | 1200000  | 3240000   |
|    | Circle - Godda   |          |           |
|    | Khata No. - 54   |          |           |
|    | Plot No. - 1057  |          |           |
|    | Area - 4.00 Ha.  |          |           |
| 15 | Mouza - Thakur Nahan   | 40468.56 | 109265.1  |
|    | Circle - Poraiyahat  |          |           |
|    | Plot No. - 805, 810-815, 790, 792, 794, 789, 887, 889, 7, 58 |          |           |
|    | Area - 10.00 Acres   |          |           |
| 16 | Mouza - Bara Kotha   | 600000   | 1620000   |
|    | Circle - Boarijore   |          |           |
|    | Plot No. - 295, 296, 302, 303                                |          |           |
|    | Area - 2.00 Ha.  |          |           |
| 17 | Mouza - Loha Tamba   | 1140000  | 3078000   |
|    | Circle - Boarijore   |          |           |
|    | Plot No. - 237, 239 to 242                                   |          |           |
|    | Area - 3.80 Ha.  |          |           |
| 18 | Mouza - Mopahari   | 60000000 | 162000000 |
|    | Block - Thakurgangti   |          |           |
|    | Plot No. - 29  |          |           |
|    | Area - 20.00 Ha.   |          |           |
| 19 | Mouza - Charkatanr   | 450000   | 1215000   |
|    | Block - Poraiyahat   |          |           |
|    | Plot No. - 26  |          |           |
|    | Area - 1.50 Ha.  |          |           |
| 20 | Mouza - Bara Bohraro   | 780000   | 2106000   |
|    | Block - Boarijore  |          |           |
|    | Plot No. - 341, 350  |          |           |
|    | Area - 2.60 Ha.  |          |           |
| 21 | Mouza - Malmala  | 825000   | 2227500   |
|    | Block - Godda  |          |           |

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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|    |   |          |           |
|----|---|----------|-----------|
|    | Plot No. - 180, 181, 184  |          |           |
|    | Area - 2.75 Ha.   |          |           |
| 22 | Mouza - Simrakola   | 390000   | 1053000   |
|    | Block - Poraiyahat  |          |           |
|    | Plot Nos. - 387, 401  |          |           |
|    | Area - 1.30 Ha.   |          |           |
| 23 | Mouza - Charkatanr  | 447987   | 1209564.9 |
|    | Block - Poraiyahat  |          |           |
|    | J. L. No. - 12  |          |           |
|    | Plot No. - 26   |          |           |
|    | Area - 3.69 Acres   |          |           |
| 24 | Mouza - Bamangama   | 588817.5 | 1589807.3 |
|    | Revenue Circle - Rajabhittha  |          |           |
|    | Plot Nos. - 142   |          |           |
|    | Area - 4.85 Acres   |          |           |
| 25 | Mouza - Akashi (151)  | 435846.3 | 1176785   |
|    | Circle - Poraiyahat   |          |           |
|    | JB No. - 95   |          |           |
|    | Plot Nos. - 1089, 1079, 1069, 1101, 1088, 1074, 1094, 1066, 1075, 1069, 1096, 1072, 1067, 1095 & 1065     |          |           |
|    | Area - 3.59 Acres   |          |           |
| 26 | Mouza - Akashi (151)  | 339936   | 917827.2  |
|    | Circle - Poraiyahat   |          |           |
|    | JB No. - 105/2, 36, 56  |          |           |
|    | Plot Nos. - 1097, 1099, 1103, 1104, 1064  |          |           |
|    | Area - 2.80 Acres   |          |           |
| 27 | Mouza - Birbal Tola (No. 551)   | 819488.4 | 2212618.7 |
|    | Circle - Godda  |          |           |
|    | JB No. - 15   |          |           |
|    | Plot No. - 142, 143, 145, 147, 148, 223, 224, 226, 227, 228, 230, 231, 233, 234, 235, 236, 240, 241 & 243 |          |           |
|    | Area - 6.75 Acres   |          |           |
| 28 | Mouza - Dadu Ghutu, Paharpur No. - 117  | 412779.3 | 1114504.1 |
|    | Circle - Poraiyahat   |          |           |
|    | JB No. - 8, 26  |          |           |
|    | Plot Nos. - 206, 308, 307   |          |           |
|    | Area - 3.40 Acres   |          |           |
| 29 | Mouza - Beldiha No. - 54  | 755143.5 | 2038887.5 |
|    | Circle - Boarijore  |          |           |
|    | JB No. - 3  |          |           |
|    | Plot Nos. - 56, 57, 58, 66, 67 & 68   |          |           |
|    | Area - 6.22 Acres   |          |           |

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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|              |  |                    |                    |
|--------------|--|--------------------|--------------------|
| 30           | Mouza – Malmala No. – 567                          | 5633223            | 15209702.1         |
|              | Circle – Godda                                     |                    |                    |
|              | Plot Nos. – 31, 69, 133, 172, 175, 370             |                    |                    |
|              | Area – 46.40 Acres                                 |                    |                    |
| 31           | Mouza – Sahari No. – 565                           | 2657570.7          | 7175440.9          |
|              | Circle – Godda                                     |                    |                    |
|              | Plot Nos. – 10, 645                                |                    |                    |
|              | Area – 21.89 Acres                                 |                    |                    |
| 32           | Mouza – Damma No. – 566                            | 4230987            | 11423664.9         |
|              | Circle – Godda                                     |                    |                    |
|              | Plot Nos. – 1, 139, 208                            |                    |                    |
|              | Area – 34.85 Acres                                 |                    |                    |
| 33           | Mouza – Jamkundar No. 570                          | 1443513.6          | 3897486.7          |
|              | Circle – Godda                                     |                    |                    |
|              | Plot Nos. – 763, 771                               |                    |                    |
|              | Area – 11.89 Acres                                 |                    |                    |
| 34           | Mouza – Chhota Chapari No. – 52                    | 755143.5           | 2038887.5          |
|              | Circle – Godda                                     |                    |                    |
|              | J.B. No. - 18                                      |                    |                    |
|              | Plot Nos. – 12, 15, 16                             |                    |                    |
|              | Area – 6.22 Acres                                  |                    |                    |
| 35           | Mouza – Lohatamba (Agaiya) No. – 7                 | 363003             | 980108.1           |
|              | Circle – Godda                                     |                    |                    |
|              | J.B. Nos. - 8, 23, 35, 27                          |                    |                    |
|              | Plot Nos. – 544, 545, 539, 541, 542, 543, 538, 575 |                    |                    |
|              | Area – 2.99 Acres                                  |                    |                    |
| 36           | Mouza – Baghmara-Kendua-Ambadih                    | 3900000            | 10530000           |
|              | Area – 13.00 Ha.                                   |                    |                    |
| 37           | Mouza – Amjor                                      | 3300000            | 8910000            |
|              | Area – 11.00 Ha.                                   |                    |                    |
| 38           | Mouza – Banshipur                                  | 3000000            | 8100000            |
|              | Area – 10.00 Ha.                                   |                    |                    |
| 39           | Mouza – Debipur                                    | 3000000            | 8100000            |
|              | Area – 10.00 Ha.                                   |                    |                    |
| 40           | Mouza – Kundapani & Hilaljor                       | 4500000            | 12150000           |
|              | Area – 15.00 Ha.                                   |                    |                    |
| <b>TOTAL</b> |  | <b>144380956.3</b> | <b>389828582.1</b> |

A qualified surveyor accompanied by a Geologist visited the area and conducted survey and reconnaissance exploration of the area. The area was contoured by Total Station survey instrument coupled with GPS. Since, this is an igneous rock (Granite gneiss Rock); there should be no doubt on its continuation to a greater depth. Moreover, any other area which may be found feasible for Stone mining shall be incorporated in the DSR prospectively.

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**GOVERNMENT OF JHARKHAND  
DEPARTMENT OF MINES AND GEOLOGY**

**A Geological Report on Siyarkatiya Stone Mines  
(4.00 ACRES) 1.62 Ha. at Mouza- Siyarkatiya Block- Godda, District-  
Godda , Jharkhand**

**(Total lease area: 1.62 Ha.)**



**FEBRUARY-2022**





A Compiled Geological Report on M/S Bom Baski Stone Works of Siyarkatiya Stone Mine(1.62Ha) of Godda Block, District - Godda, Jharkhand



Figure 6:- Showing the mining activity in Pit



Figure 7:- Water logged pit.



DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



Part-III A  
Reporting of Minor Mineral Resources

| Sl. No.              | Contents                          | Explanation  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
|----------------------|-----------------------------------|--|---------------|-----------------------------|---------------|------------|----|------------|---------------|----------|----------|-------------------------|------------|----------|-----------|---|--|----------|---|---------|-----------|---|----|------|---|-------------------|----------------|---|------------|-------|---|-------|----------|---|-------|-------|---|-----------|---------|---|-------|----------------------|---|--|---------------|-----------------------------------|--|----------|-----------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|----|----------------|----------------|----|----------------|----------------|
| 1.                   | Title & Ownership                 | <ul style="list-style-type: none"> <li>Title of Report: Geological report on General Stone occurring in Siyarkatiya mouza of Godda Block, Godda District, Jharkhand of Siyarkatiya Stone Mines. Lessee: M/S Bom Baski stone Works.</li> <li>Details of Period of prospecting: February 2022</li> <li>Mineral right if any: Govt of Jharkhand</li> <li>Ownership: Presently Mine belongs to Lessee :- M/S Bom Baski stone Works.</li> <li>Details of Exploration Agency: Govt. of Jharkhand Deptt. of Mines &amp; Geology, Directorate of Geology</li> <li>Qualification, experience of associated technical persons engaged in exploration:</li> </ul> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Associated Technical Person</th> <th>Qualification</th> <th>Experience</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Niral Dhan</td> <td>M.Sc, Geology</td> <td>08 Years</td> </tr> <tr> <td>2.</td> <td>Bibhash Kumar, Surveyor</td> <td>ITI &amp; B.A.</td> <td>33 Years</td> </tr> </tbody> </table>   | Sl. No.       | Associated Technical Person | Qualification | Experience | 1. | Niral Dhan | M.Sc, Geology | 08 Years | 2.       | Bibhash Kumar, Surveyor | ITI & B.A. | 33 Years |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Sl. No.              | Associated Technical Person       | Qualification  | Experience    |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 1.                   | Niral Dhan                        | M.Sc, Geology  | 08 Years      |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 2.                   | Bibhash Kumar, Surveyor           | ITI & B.A.   | 33 Years      |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 2.                   | Details of the area               | <table border="1"> <tbody> <tr> <td>Mauza/Village</td> <td>-</td> <td>Siyarkatiya</td> </tr> <tr> <td>Panchayat</td> <td>-</td> <td>Godda</td> </tr> <tr> <td>Post Office</td> <td>-</td> <td>Burikura</td> </tr> <tr> <td>Taluka</td> <td>-</td> <td>Jarmundi</td> </tr> <tr> <td>Thana No.</td> <td>-</td> <td></td> </tr> <tr> <td>Plot No.</td> <td>-</td> <td>1057(P)</td> </tr> <tr> <td>Khata No.</td> <td>-</td> <td>54</td> </tr> <tr> <td>Area</td> <td>-</td> <td>4 Acre (1.62 Ha.)</td> </tr> <tr> <td>Nature of Land</td> <td>-</td> <td>Government</td> </tr> <tr> <td>Block</td> <td>-</td> <td>Godda</td> </tr> <tr> <td>District</td> <td>-</td> <td>Godda</td> </tr> <tr> <td>State</td> <td>-</td> <td>Jharkhand</td> </tr> <tr> <td>OSM No.</td> <td>-</td> <td>G45V6</td> </tr> <tr> <td>Limiting Coordinates</td> <td>-</td> <td>latitude 24°38'15.4"N to 24°38'08.5"N and longitude 87°19'25.8"E to 87°19'29.2"E</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Survey of India Toposheet No.- G45V6</li> <li>Georeferenced - coordinates of the area of all Corner Points :</li> </ul> <table border="1"> <thead> <tr> <th rowspan="2">Corner Points</th> <th colspan="2">GPS Coordinates: (Datum - WGS 84)</th> </tr> <tr> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>86°19'25.221"E</td> <td>24°38'15.974"N</td> </tr> <tr> <td>2</td> <td>86°19'29.355"E</td> <td>24°38'15.888"N</td> </tr> <tr> <td>3</td> <td>86°19'29.312"E</td> <td>24°38'13.918"N</td> </tr> <tr> <td>4</td> <td>86°19'27.641"E</td> <td>24°38'13.789"N</td> </tr> <tr> <td>5</td> <td>86°19'27.342"E</td> <td>24°38'13.211"N</td> </tr> <tr> <td>6</td> <td>86°19'29.954"E</td> <td>24°38'11.669"N</td> </tr> <tr> <td>7</td> <td>86°19'29.954"E</td> <td>24°38'10.191"N</td> </tr> <tr> <td>8</td> <td>86°19'25.393"E</td> <td>24°38'10.106"N</td> </tr> <tr> <td>9</td> <td>86°19'25.457"E</td> <td>24°38'11.369"N</td> </tr> <tr> <td>10</td> <td>86°19'25.029"E</td> <td>24°38'11.434"N</td> </tr> <tr> <td>11</td> <td>86°19'25.029"E</td> <td>24°38'13.040"N</td> </tr> </tbody> </table> | Mauza/Village | -                           | Siyarkatiya   | Panchayat  | -  | Godda      | Post Office   | -        | Burikura | Taluka                  | -          | Jarmundi | Thana No. | - |  | Plot No. | - | 1057(P) | Khata No. | - | 54 | Area | - | 4 Acre (1.62 Ha.) | Nature of Land | - | Government | Block | - | Godda | District | - | Godda | State | - | Jharkhand | OSM No. | - | G45V6 | Limiting Coordinates | - | latitude 24°38'15.4"N to 24°38'08.5"N and longitude 87°19'25.8"E to 87°19'29.2"E | Corner Points | GPS Coordinates: (Datum - WGS 84) |  | Latitude | Longitude | 1 | 86°19'25.221"E | 24°38'15.974"N | 2 | 86°19'29.355"E | 24°38'15.888"N | 3 | 86°19'29.312"E | 24°38'13.918"N | 4 | 86°19'27.641"E | 24°38'13.789"N | 5 | 86°19'27.342"E | 24°38'13.211"N | 6 | 86°19'29.954"E | 24°38'11.669"N | 7 | 86°19'29.954"E | 24°38'10.191"N | 8 | 86°19'25.393"E | 24°38'10.106"N | 9 | 86°19'25.457"E | 24°38'11.369"N | 10 | 86°19'25.029"E | 24°38'11.434"N | 11 | 86°19'25.029"E | 24°38'13.040"N |
| Mauza/Village        | -                                 | Siyarkatiya  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Panchayat            | -                                 | Godda  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Post Office          | -                                 | Burikura   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Taluka               | -                                 | Jarmundi   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Thana No.            | -                                 |  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Plot No.             | -                                 | 1057(P)  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Khata No.            | -                                 | 54   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Area                 | -                                 | 4 Acre (1.62 Ha.)  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Nature of Land       | -                                 | Government   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Block                | -                                 | Godda  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| District             | -                                 | Godda  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| State                | -                                 | Jharkhand  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| OSM No.              | -                                 | G45V6  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Limiting Coordinates | -                                 | latitude 24°38'15.4"N to 24°38'08.5"N and longitude 87°19'25.8"E to 87°19'29.2"E   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| Corner Points        | GPS Coordinates: (Datum - WGS 84) |  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
|                      | Latitude                          | Longitude  |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 1                    | 86°19'25.221"E                    | 24°38'15.974"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 2                    | 86°19'29.355"E                    | 24°38'15.888"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 3                    | 86°19'29.312"E                    | 24°38'13.918"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 4                    | 86°19'27.641"E                    | 24°38'13.789"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 5                    | 86°19'27.342"E                    | 24°38'13.211"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 6                    | 86°19'29.954"E                    | 24°38'11.669"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 7                    | 86°19'29.954"E                    | 24°38'10.191"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 8                    | 86°19'25.393"E                    | 24°38'10.106"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 9                    | 86°19'25.457"E                    | 24°38'11.369"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 10                   | 86°19'25.029"E                    | 24°38'11.434"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |
| 11                   | 86°19'25.029"E                    | 24°38'13.040"N   |               |                             |               |            |    |            |               |          |          |                         |            |          |           |   |  |          |   |         |           |   |    |      |   |                   |                |   |            |       |   |       |          |   |       |       |   |           |         |   |       |                      |   |  |               |                                   |  |          |           |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |   |                |                |    |                |                |    |                |                |

*[Handwritten Signature]*



DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



|    |  |   |                |                |
|----|--|---|----------------|----------------|
|    |  | 12  | 86°19'24.686"E | 24°38'13.061"N |
|    |  | 13  | 86°19'25.093"E | 24°38'13.939"N |
|    |  | 1   |                |                |
|    |  | <ul style="list-style-type: none"> <li>Mineral(s) Under Investigation: General Stone</li> </ul>   |                |                |
| 3. | Infrastructure & Environment                             | Nearest Railway Station - Dumka Railway Station, 45 Km west of lease area<br>Nearest Airport - Dumka Airport 40km aprx .<br>Road - SH133 is about 30 Km from the area.<br>Sources of water - Nearby areas have bore wells and tube wells. and Local Nala  |                |                |
| 4. | Previous exploration                                     | Details of previous exploration carried out by other agencies/ parties: - According to the approved mining plan the existence of stone in the ML area had been established by Geology and Mines Department of Govt. Jharkhand, to access the mineralization, 2 trenches were done in the past to ascertain the mineral existence in concealed area. (Source: approved mining plan).   |                |                |
| 5. | C<br>O<br>M<br>Geology                                   | <ul style="list-style-type: none"> <li>Brief Regional Geology of the area outlining the broad Geological Structural Framework</li> <li>Regional Geology-<br/>Based on the geological map of India the following geological succession has been established by the GSI<br/>Soil/Alluvium and intrusive rocks<br/>Rajmahal Basalt and intrapapeans<br/>Gondwana super Group<br/>Vindhyan Super Group<br/>Kolhan Group</li> <li>Younger Granites, Granophyres and Granite<br/>Bihar Mica Belt<br/>CGGC (with High Grade enclaves)<br/>Metabasites, anorthosites and charnokites<br/>Singhbhum Group<br/>Proterozoic Volcano Sedimentary Groups<br/>Iron Ore Groups and associated ultramafic rocks<br/>Singhbhum Granite Complex and equivalents<br/>Older Metamorphics</li> <li>The ML area falls under the Rajmahal Basalt and Intertrappean &amp; Gondwana Super Group terrain of Jharkhand. (Source: approved mining plan).</li> </ul> |                |                |
| 6. | Aerial/<br>Ground<br>Geophysical/<br>Geochemical<br>Data | Not Done  |                |                |
| 7. | Technological investigation                              | Georeferencing of map   |                |                |
| 8. | Type of  | Not Done  |                |                |



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DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



|  | Sampling  |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
|--|---|--|----------|------|---------------------------------|-------------------|----------------------------------|----------------------|----------------------------|---------------------------------|--|--|
| 9.   | Drilling technique & drill sampling employed      | Not Done   |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 10.  | Grade and chemical analysis                       | Not Done   |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 11.  | Bulk Density/<br>Specific Gravity                 | 2.7 as per approved mining plan  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 12.  | Resource estimation techniques                    | <p>On the basis of data available in the approved mining plan and field visit on 18/02/2022 following observations can be made:</p> <p><b>Table- Resource of stone of the Siyarkatiya stone Mine situated in the Siyarkatiya Dist- Godda , Jharkhand as per approved mining plan and data provided by the DM</b></p> <table border="1"> <thead> <tr> <th>Category</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td><b>Total Mineable Resources</b></td> <td><b>345830 cum</b></td> </tr> <tr> <td><b>Total Previous Production</b></td> <td><b>36768.148 cum</b></td> </tr> <tr> <td><b>Rest of the Deposit</b></td> <td><b>(345830 - 36768.148) cum</b></td> </tr> <tr> <td colspan="2"><b>Rest of the deposit in = 309061.86cum</b></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>A total <b>309061.86 cum</b> of resource in C1 category of general stone for this expiring mining lease.</li> <li>A detailed Hydrogeological study of the area should be carried out</li> <li>No detailed survey has been carried out due to time constraint</li> </ul> <ul style="list-style-type: none"> <li>The area contains granite gneiss which is generally hard, compact, medium to fine grained and grey to blackish in color.</li> <li>As there found a school near the granted lease area at a distance of 116 meters so this mine may be dangerous and cause health issue to the school children</li> <li>Two open pits was observed. one is main working pit in which mining activity was continue and other pit is water logged</li> </ul> <p>In view of the above, the area is potential but due to the presence of school near it, it may be cause health issue to the school children..</p> | Category | Unit | <b>Total Mineable Resources</b> | <b>345830 cum</b> | <b>Total Previous Production</b> | <b>36768.148 cum</b> | <b>Rest of the Deposit</b> | <b>(345830 - 36768.148) cum</b> | <b>Rest of the deposit in = 309061.86cum</b> |  |
| Category                                     | Unit  |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| <b>Total Mineable Resources</b>              | <b>345830 cum</b>                                 |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| <b>Total Previous Production</b>             | <b>36768.148 cum</b>                              |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| <b>Rest of the Deposit</b>                   | <b>(345830 - 36768.148) cum</b>                   |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| <b>Rest of the deposit in = 309061.86cum</b> |   |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 13.  | Geotechnical Studies for Dimensional stone report | Not Required.  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 14.  | Annexure/ enclosures to the report                | Annexed with report.   |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |
| 15.  | Any other information                             |  |          |      |                                 |                   |                                  |                      |                            |                                 |  |  |

Bibhash Kumar  
Surveyor  
District Geological Office  
Dumka

Nural dhan  
Assistant Director, Geology  
District Geological Office  
Dumka



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DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



Exploration Carried out by M/s Dilip Buildicon Ltd in Project Area Mahagama to Hansadih during 2022.

Bore Hole Logging Report:

| Project :- Magma to Hansadih |             |       |                       |                      |                  | Starting Date:- 01-08-2022   |         |                       |                             |             |         |
|------------------------------|-------------|-------|-----------------------|----------------------|------------------|------------------------------|---------|-----------------------|-----------------------------|-------------|---------|
| RL :-                        |             |       |                       |                      |                  | Completion Date:- 02-08-2022 |         |                       |                             |             |         |
| Bore hole No. 01,            |             |       |                       |                      |                  | Testing Date:- 21-08-2022    |         |                       |                             |             |         |
| Sr. NO.                      | Depth (Mtr) |       | Type of rock          | Colour of rock       | Specific Gravity | Water Absorption (%)         | AFV (%) | Core Recovery in (CM) | Wastage core (Soil) in (CM) | RQD in (CM) | Remarks |
|                              | From        | To    |                       |                      |                  |                              |         |                       |                             |             |         |
| 1                            | 0.00        | 6.00  | Sandy Soil            | -                    |                  |                              |         |                       |                             |             |         |
| Sample Nil                   |             |       |                       |                      |                  |                              |         |                       |                             |             |         |
| 2                            | 6.00        | 7.50  | Sandy Stone Soft Rock | Grayish mix Blackish | 2.774            | 0.660                        | 22.18   | 74.0                  | 76.0                        | 13.0        |         |
| 3                            | 7.50        | 9.00  | Hard Rock             | Grayish mix Blackish | 2.803            | 0.650                        | 26.54   | 111.0                 | 99.0                        | 95.0        |         |
| 4                            | 9.00        | 12.00 | Hard Rock             | Grayish              | 2.804            | 0.690                        | 22.24   | 268.0                 | 92.0                        | 244.0       |         |
| 5                            | 12.00       | 15.00 | Hard Rock             | Grayish mix Blackish | 2.800            | 0.690                        | 28.41   | 209.0                 | 91.0                        | 165.0       |         |
| 6                            | 15.00       | 18.00 | Hard Fractured Rock   | Grayish mix Blackish | 2.774            | 1.040                        | 25.15   | 103.0                 | 197.0                       | 93.0        |         |
| 7                            | 18.00       | 21.00 | Hard Fractured Rock   | Grayish              | 2.840            | 0.180                        | 20.92   | 282.0                 | 18.0                        | 257.0       |         |
| 8                            | 21.00       | 24.00 | Hard Fractured Rock   | Grayish              | 2.790            | 0.590                        | 20.15   | 209.0                 | 91.0                        | 181.0       |         |
| 9                            | 24.00       | 27.00 | Hard Fractured Rock   | Grayish              | 2.839            | 0.270                        | 17.17   | 229.0                 | 71.0                        | 213.0       |         |
| 10                           | 27.00       | 30.00 | Hard Fractured Rock   | Grayish mix Blackish | 2.843            | 0.220                        | 16.64   | 199.0                 | 161.0                       | 99.0        |         |
| Remarks:-                    |             |       |                       |                      |                  |                              |         |                       |                             |             |         |
| QA/QC Representative         |             |       |                       |                      |                  | Mines Representative         |         |                       |                             |             |         |

| Project :- Magma to Hansadih |             |       |                           |                      |                  | Starting Date:- 02-08-2022   |         |                       |                             |             |         |
|------------------------------|-------------|-------|---------------------------|----------------------|------------------|------------------------------|---------|-----------------------|-----------------------------|-------------|---------|
| RL :-                        |             |       |                           |                      |                  | Completion Date:- 03-08-2022 |         |                       |                             |             |         |
| Bore hole No. 02,            |             |       |                           |                      |                  | Testing Date:- 08-08-2022    |         |                       |                             |             |         |
| Sr. NO.                      | Depth (Mtr) |       | Type of rock              | Colour of rock       | Specific Gravity | Water Absorption (%)         | AFV (%) | Core Recovery in (CM) | Wastage core (Soil) in (CM) | RQD in (CM) | Remarks |
|                              | From        | To    |                           |                      |                  |                              |         |                       |                             |             |         |
| 1                            | 0.00        | 3.00  |                           |                      |                  |                              |         |                       |                             |             |         |
| Sample Nil                   |             |       |                           |                      |                  |                              |         |                       |                             |             |         |
| 2                            | 3.00        | 6.00  | Sandy Stone Soft Rock     | Brownish Mix Grayish |                  |                              | 54.41   | 187.0                 | 169.0                       | 58.0        |         |
| 3                            | 6.00        | 9.00  | Sandy Hard Fractured Rock | Grayish              | 2.646            | 2.130                        | 27.96   | 95.0                  | 245.0                       | 18.0        |         |
| 4                            | 9.00        | 12.00 | Sandy Hard Fractured Rock | Grayish              | 2.754            | 0.950                        | 17.91   | 80.0                  | 220.0                       | 93.0        |         |
| 5                            | 12.00       | 15.00 | Hard Fractured Rock       | Grayish              | 2.812            | 0.690                        | 14.48   | 234.0                 | 76.0                        | 207.0       |         |
| 6                            | 15.00       | 18.00 | Hard Fractured Rock       | Grayish mix Blackish | 2.795            | 0.620                        | 14.88   | 266.0                 | 94.0                        | 266.0       |         |
| 7                            | 18.00       | 21.00 | Hard Fractured Rock       | Grayish              | 2.855            | 0.620                        | 14.65   | 177.0                 | 129.0                       | 191.0       |         |
| 8                            | 21.00       | 24.00 | Hard Fractured Rock       | Grayish mix Blackish | 2.818            | 0.580                        | 15.70   | 300.0                 | 0.0                         | 300.0       |         |
| 9                            | 24.00       | 27.00 | Hard Fractured Rock       | Grayish mix Blackish | 2.777            | 0.770                        | 12.74   | 257.0                 | 43.0                        | 249.0       |         |
| 10                           | 27.00       | 30.00 | Hard Fractured Rock       | Grayish              | 2.810            | 0.440                        | 11.68   | 289.0                 | 11.0                        | 278.0       |         |
| Remarks:-                    |             |       |                           |                      |                  |                              |         |                       |                             |             |         |
| QA/QC Representative         |             |       |                           |                      |                  | Mines Representative         |         |                       |                             |             |         |



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# DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



| Project :- Magma to Hansadih |             |       |                       |                    |                  | Starting Date:- 06-08-2022   |         |                       |                             |             |         |
|------------------------------|-------------|-------|-----------------------|--------------------|------------------|------------------------------|---------|-----------------------|-----------------------------|-------------|---------|
| RL :-                        |             |       |                       |                    |                  | Completion Date:- 06-08-2022 |         |                       |                             |             |         |
| Bore hole No. 03,            |             |       |                       |                    |                  | Testing Date:- 30-08-2022    |         |                       |                             |             |         |
| Sr. NO.                      | Depth (Mtr) |       | Type of rock          | Colour of rock     | Specific Gravity | Water Absorption (%)         | AIV (%) | Core Recovery in (CM) | Wastage core (Soll) in (CM) | RQD in (CM) | Remarks |
|                              | From        | To    |                       |                    |                  |                              |         |                       |                             |             |         |
| 1                            | 0.00        | 5.00  |                       |                    |                  | Sample Nil                   |         |                       |                             |             |         |
| 2                            | 5.00        | 6.00  | Highly Fractured Rock | Yellowish Brownish | 2.684            | 1.070                        | 40.49   | 71.0                  | 29.0                        | 30.0        |         |
| 3                            | 6.00        | 9.00  | Highly Fractured Rock | Yellowish Grayish  | 2.767            | 0.400                        | 27.42   | 102.0                 | 198.0                       | 23.0        |         |
| 4                            | 9.00        | 12.00 | Hard Fractured Rock   | Grayish            | 2.843            | 0.230                        | 21.85   | 175.0                 | 125.0                       | 188.0       |         |
| 5                            | 12.00       | 15.00 | Highly Fractured Rock | Yellowish Grayish  | 2.716            | 1.510                        | 40.02   | 137.0                 | 163.0                       | 98.0        |         |
| 6                            | 15.00       | 18.00 | Highly Fractured Rock | Yellowish Grayish  | 2.673            | 0.460                        | 32.69   | 112.0                 | 188.0                       | 42.0        |         |
| 7                            | 18.00       | 21.00 | Highly Fractured Rock | Grayish            | 2.684            | 1.200                        | 30.80   | 68.0                  | 232.0                       | 13.0        |         |
| 8                            | 21.00       | 24.00 | Hard Fractured Rock   | Grayish            | 2.754            | 0.500                        | 29.95   | 233.0                 | 67.0                        | 203.0       |         |
| 9                            | 24.00       | 27.00 | Hard Fractured Rock   | Grayish            | 2.807            | 0.320                        | 17.53   | 216.0                 | 84.0                        | 198.0       |         |
| 10                           | 27.00       | 30.00 | Hard Fractured Rock   | Grayish            | 2.790            | 0.180                        | 18.07   | 115.0                 | 185.0                       | 90.0        |         |
| Remarks:-                    |             |       |                       |                    |                  |                              |         |                       |                             |             |         |
| QA/QC Representative         |             |       |                       |                    |                  | Mines Representative         |         |                       |                             |             |         |

| Project :- Magma to Hansadih |             |       |                       |                  |                  | Starting Date:- 07-08-2022   |         |                       |                             |             |         |
|------------------------------|-------------|-------|-----------------------|------------------|------------------|------------------------------|---------|-----------------------|-----------------------------|-------------|---------|
| RL :-                        |             |       |                       |                  |                  | Completion Date:- 11-08-2022 |         |                       |                             |             |         |
| Bore hole No. 04,            |             |       |                       |                  |                  | Testing Date:- 30-08-2022    |         |                       |                             |             |         |
| Sr. NO.                      | Depth (Mtr) |       | Type of rock          | Colour of rock   | Specific Gravity | Water Absorption (%)         | AIV (%) | Core Recovery in (CM) | Wastage core (Soll) in (CM) | RQD in (CM) | Remarks |
|                              | From        | To    |                       |                  |                  |                              |         |                       |                             |             |         |
| 1                            | 0.00        | 1.50  | Hard Fractured Rock   | Whitish          | 2.664            | 0.430                        | 31.28   | 75.0                  | 75.0                        | 66.0        |         |
| 2                            | 1.50        | 3.00  | Hard Fractured Rock   | Whitish Brownish | 2.675            | 0.790                        | 40.47   | 110.0                 | 40.0                        | 105.0       |         |
| 3                            | 3.00        | 6.00  | Highly Fractured Rock | Grayish          | 2.633            | 0.600                        | 31.29   | 56.0                  | 244.0                       | 10.0        |         |
| 4                            | 6.00        | 9.00  | Hard Fractured Rock   | Grayish          | 2.749            | 0.470                        | 18.59   | 190.0                 | 110.0                       | 185.0       |         |
| 5                            | 9.00        | 12.00 | Hard Fractured Rock   | Grayish          | 2.675            | 0.650                        | 21.33   | 189.0                 | 111.0                       | 180.0       |         |
| 6                            | 12.00       | 15.00 | Hard Fractured Rock   | Grayish          | 2.734            | 0.430                        | 20.97   | 208.0                 | 92.0                        | 185.0       |         |
| 7                            | 15.00       | 18.00 | Hard Fractured Rock   | Grayish          | 2.762            | 0.230                        | 24.81   | 207.0                 | 93.0                        | 157.0       |         |
| 8                            | 18.00       | 21.00 | Hard Fractured Rock   | Grayish          | 2.810            | 0.170                        | 16.12   | 299.0                 | 1.0                         | 299.0       |         |
| 9                            | 21.00       | 24.00 | Hard Fractured Rock   | Grayish          | 2.857            | 0.180                        | 15.25   | 278.0                 | 22.0                        | 270.0       |         |
| 10                           | 24.00       | 27.00 | Hard Fractured Rock   | Grayish          | 2.851            | 0.080                        | 16.30   | 299.0                 | 1.0                         | 290.0       |         |
| 11                           | 27.00       | 30.00 | Hard Fractured Rock   | Grayish          | 2.855            | 0.260                        | 16.94   | 298.0                 | 2.0                         | 290.0       |         |
| Remarks:-                    |             |       |                       |                  |                  |                              |         |                       |                             |             |         |
| QA/QC Representative         |             |       |                       |                  |                  | Mines Representative         |         |                       |                             |             |         |



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# DISTRICT SURVEY REPORT OF "MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING" IN GODDA DISTRICT OF JHARKHAND



| Project :- Magma to Hensadih |             |       |                       |                   | Starting Date:- 11-08-2022   |                      |         |                       |                             |             |         |
|------------------------------|-------------|-------|-----------------------|-------------------|------------------------------|----------------------|---------|-----------------------|-----------------------------|-------------|---------|
| RL :-                        |             |       |                       |                   | Completion Date:- 12-08-2022 |                      |         |                       |                             |             |         |
| Bore hole No. 05,            |             |       |                       |                   | Testing Date:- 04-09-2022    |                      |         |                       |                             |             |         |
| Sr. NO.                      | Depth (Mtr) |       | Type of rock          | Colour of rock    | Specific Gravity             | Water Absorption (%) | AIV (%) | Core Recovery in (CM) | Wastage core (Soil) in (CM) | ROD in (CM) | Remarks |
|                              | From        | To    |                       |                   |                              |                      |         |                       |                             |             |         |
| 1                            | 0.00        | 3.00  |                       |                   |                              | Sample Nil           |         | 0.0                   | 0.0                         | 0.0         |         |
| 2                            | 3.00        | 6.00  | Highly Fractured Rock | Grayish           | 2.685                        | 0.690                | 40.42   | 219.0                 | 81.0                        | 113.0       |         |
| 3                            | 6.00        | 9.00  | Hard Fractured Rock   | Grayish & Reddish | 2.746                        | 0.290                | 26.04   | 273.0                 | 27.0                        | 268.0       |         |
| 4                            | 9.00        | 12.00 | Hard Fractured Rock   | Grayish           | 2.727                        | 0.780                | 22.07   | 268.0                 | 32.0                        | 247.0       |         |
| 5                            | 12.00       | 15.00 | Hard Fractured Rock   | Grayish           | 2.757                        | 0.140                | 20.98   | 292.0                 | 8.0                         | 285.0       |         |
| 6                            | 15.00       | 18.00 | Hard Fractured Rock   | Grayish           | 2.755                        | 0.980                | 22.21   | 274.0                 | 26.0                        | 274.0       |         |
| 7                            | 18.00       | 21.00 | Hard Fractured Rock   | Grayish           | 2.744                        | 0.990                | 24.05   | 266.0                 | 34.0                        | 280.0       |         |
| 8                            | 21.00       | 24.00 | Hard Fractured Rock   | Grayish           | 2.706                        | 0.290                | 29.65   | 300.0                 | 0.0                         | 300.0       |         |
| 9                            | 24.00       | 27.00 | Hard Fractured Rock   | Grayish           | 2.715                        | 0.810                | 22.67   | 299.0                 | 1.0                         | 299.0       |         |
| 10                           | 27.00       | 30.00 | Hard Fractured Rock   | Grayish           | 2.691                        | 0.530                | 27.86   | 300.0                 | 0.0                         | 285.0       |         |
| Remarks -                    |             |       |                       |                   |                              |                      |         |                       |                             |             |         |
| QA/QC Representative         |             |       |                       |                   |                              | Mines Representative |         |                       |                             |             |         |



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## 17. QUALITY/GRADE OF MINERAL AVAILABLE IN THE DISTRICT

### ➤ GRANITE GNEISS:

Granite gneiss is a rock consisting of an orthogenesis or paragenesis having the composition of a granite. Gneiss is an old German word meaning bright or sparkling. It is a high grade metamorphic rock, meaning that it has been subjected to higher temperature and pressure than Schist. It is formed by the metamorphosis of Granite or sedimentary rock. Gneiss displays distinct foliation, representing alternating layers composed of different minerals. However, unlike Slate and Schist, Gneiss does not preferentially break along planes of foliation because less than 50% of the minerals formed during the metamorphism are aligned in thin layers. Because of the coarseness of the foliation, the layers are often subparallel, i.e. they do not have a constant thickness.

**Mineralogy** - The granite gneiss includes several varieties: banded Gneiss, Schistose Granite, porphyroblastic Gneissose Granite and Granodiorite.

**Grain size** - Medium to coarse grained; can see crystals with the naked eye.

**Hardness** - Hard.

The Granite Gneiss is full of mafic enclaves at places. The Gneiss is composed of Quartz, Microcline, Plagioclase (An<sub>20</sub>-An<sub>44</sub>), Biotite, Hornblende and other accessory minerals but lacks in Muscovite. Felsic minerals such as Feldspar (Orthoclase, Plagioclase) and Quartz generally form the light coloured bands; mafic minerals such as Biotite, Pyroxene (Augite) and Amphibole (Hornblende) generally form the dark coloured bands.

**Texture** - Foliated, foliation on a scale of cm or more.

**Colour** - Variable - generally alternating lighter and darker sub-parallel discontinuous bands Garnet porphyroblasts common.

**Occurrence** - The Granite Gneiss complex is a composite mass consisting mainly of Granite Gneiss, Migmatites and massive Granite with enclaves of para and orthometamorphics, dykes of Dolerite and innumerable veins of Pegmatite; Apatite and Quartz. Because of repeated folding, high grade regional metamorphism and profuse granitic activities, the elucidation of the stratigraphic succession in the area poses a great problem.

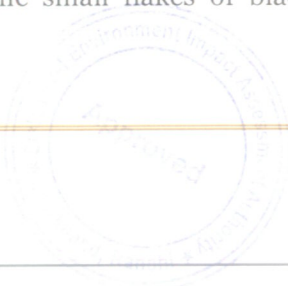
**Geographical Location of Granite Gneiss in Godda District:**

In Godda district Granite Gneiss is found in

- (i) Paharpur Mouza (Sundarpahari Block) Latitude - 24°52'39.12"N to 24°52'6.97"N: Longitude - 87°21'36.78"E to 87°21'55.14",
- (ii) Tasria Village (Sundarpahari Block) Latitude - 24°50'23.56"N to 24°50'11.76"N: Longitude - 87°22'4.41"E to 87°21'41.44"E;
- (iii) Tasria Village (Sundarpahari Block) Latitude - 24°50'22.69"N to 24°50'13.54" N: Longitude - 87°21'41.85"E to 87°22'5.68"E;
- (iv) Paharpur Village Latitude - 24°52'16.89" N to 24°51'59.77" N: Longitude -87°21'19.23" E to 87°21'5.05" E;
- (v) Granite gneiss with Dolerite dyke in Hati Hariyari Village (Poreyahat block) Latitude - 24°39'52.15" N to 24°39'20.50" N: Longitude- 87°19'37.41" E to 87°19'43.86" E.

### ➤ AMPHIBOLITE:

Amphibolite is a grouping of rocks composed mainly of Amphibole and Plagioclase Feldspar with little or no Quartz. It is typically dark-colored and heavy, with a weakly foliated or schistose (flaky) structure. The small flakes of black and white in the rock often give it a salt-and-pepper appearance.





Amphibolites need not be derived from metamorphosed mafic rocks. Because metamorphism creates minerals entirely based upon the chemistry of the protolith, certain 'dirty marls' and volcanic sediments may actually metamorphose to an Amphibolite assemblage. Deposits containing Dolomite and Siderite also readily yield Amphibolites (Tremolite-Schists, Grunerite-Schists and others) especially where there has been a certain amount of contact metamorphism by adjacent Granitic masses. Metamorphosed Basalts create ortho-amphibolites and other chemically appropriate lithologies create para-amphibolites. Tremolite, while it is a metamorphic Amphibole, is derived most usually from highly metamorphosed ultramafic rocks, and thus Tremolite-Talc Schists are not generally considered as 'Amphibolites'. A holocrystalline plutonic igneous rock composed primarily of Hornblende Amphibole is called a Hornblendite, which is usually a crystal cumulate rock. Igneous rocks with >90% Amphiboles, which have a Feldspar groundmass, may be a Lamprophyre.

Geographical Location of Amphibolite in Godda District -

In Godda district Amphibolite is found in Ghatiari Mouza (Sundarpahari Block), Latitude - 24°51'28.67"N to 24°51'31.35" N: Longitude - 87°20'18.55"E to 87°20'54.19"E.

#### ➤ AUGEN GNEISS/MIGMATITE:

Augen (from German "eyes") are large, lenticular eye-shaped mineral grains or mineral aggregates visible in some foliated metamorphic rocks. In cross section they have the shape of an eye. Feldspar, Quartz, and Garnet are common minerals which form Augen. Augen form in rocks which have undergone metamorphism and shearing. The core of the Augen is a porphyroblast or porphyroclast of a hard, resilient mineral such as Garnet. The Augen grows by crystallization of a mantle of new mineral around the porphyroblast. The mantle is formed contiguous with the foliation which is imparted upon the rock, and forms a blanket which tapers off from either side of the porphyroblast within the strain shadows. During shearing, the porphyroblast may rotate, to form a characteristic Augen texture of asymmetric shearing. In this case, the position of the tails is unequal across the foliation, with some Augen showing clear drag folding of the mantle into the strain shadow. This derives a form of shear direction information. A metamorphic rock which is clotted with Augen is often called an Augen Gneiss.

#### MIGMATITE:

The migmatic rocks are exposed in several parts, both as an 'in situ' migmatites and as an injection migmatites. There are innumerable enclaves of Mica-Schist and Hornblende-Schist of varying size in the Granitic rocks. Biotite rich schlierens show considerable amount of contortion and flowage. Thin leucocratic Granites are commonly seen to form 'lit-per-lit' veins in the enclaves. Sometimes, the leucocratic Granites and the metamorphic country rocks are intermingled in layer in fine scale so that the resulting rock is a banded Gneiss or a banded Augen Gneiss. The minerals in the schlierens or melanoscenes are recrystallized and show schistose structure with marked variation in the proportion of mafics. The leucosomes generally show hypidiomorphic texture with subhedral laths of Microcline, and Plagioclase (Albite-Orthoclase), anhedral grains of Quartz and some thin flakes of Biotite with minor amounts of Apatite, Sphene, Epidote and opaque ores. Perthites (Microcline-micro Perthite) and Myrmekites are quite common. Potash Feldspar rimmed with Albite and occurring within Potash feldspars is also noted. Some Potash Feldspar plates show sieve structure with quartz inclusions. Muscovite is generally absent but whenever present, is seen gradually being replaced by Orthoclase from the borders and along the cleavage planes.

Geographical Location of Augen Gneiss and Migmatite in Godda District:

In Godda district, Augen-Gneisses is well foliated with Augen of Feldspar is found in Chandana Village (Sundarpahari block)

- (i) Latitude - 24°54'51.48" N to 24°54'34.58" N: Longitude - 87°21'39.67" E to 87°21'58.08" E;
- (ii) Latitude - 24°55'5.07" N to 24°54'45.72" N: Longitude - 87°22'0.50" E to 87°22'18.91" E.



➤ **RAJMAHAL TRAP- BASALT (RAJMAHAL FORMATION):**

By definition, Basalt is dark coloured aphanitic (fine-grained) igneous rock with generally 45-53% Silica (SiO<sub>2</sub>) and less than 10% Feldspathoid by volume, and where at least 65% of the rock is Feldspar in the form of Plagioclase. This is as per definition of the International Union of Geological Sciences (IUGS) classification scheme. It most commonly forms as an extrusive rock, such as a lava flow, but can also form in small intrusive bodies, such as an igneous dyke or a thin sill.

**Mineralogy:**

Essential minerals are Augite, Calcic-Plagioclase and Iron oxide. Usually Olivine is also present. Labradorite Feldspar is the chief constituent of the groundmass where as more Calcic-Plagioclase (Bytownite or Anorthite) may occur as phenocrysts.

**Geological formation:**

The Rajmahal formation exposed in the Rajmahal area is represented by 450 to 550m thick predominantly basaltic lava flows (4-15 individual flows) intercalated with fresh-water sedimentary beds. This formation is well developed in the Rajmahal hills of Jharkhand, Bihar and West Bengal. It is made up of extensive lava flows of basic composition, called the Rajmahal Traps. The Basalts are intercalated with Claystone, Siltstone, some of which are silicified and porcellanoid. The Rajmahal formation can be divided into four units: lower lava flows with intercalated unfossiliferous sedimentary beds from the lowermost unit. The second unit comprises five to six lava flows with four to five sedimentary beds composed of Tuff, Claystone, Siltstone, etc. The fourth unit comprises series of basalt flows with or without sedimentary beds. The radiometric dating of the Rajmahal traps has shown that they are of Albian age.

**Geographical Location of Rajmahal Trap:**

In Godda district, Basalt is found in Boarijor block, Sundarpahari block, Thakurgangti block.

➤ **SANDSTONE, SHALE & CONGLOMERATE:**

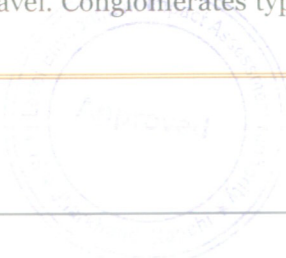
Sandstone is a clastic sedimentary rock composed mainly of sand-sized (0.0625 to 2 mm) mineral particles or rock fragments. It is clastic in origin (as opposed to either organic, like Chalk and Coal, or chemical, like Gypsum and Jasper). They are formed from cemented grains that may either be fragments of a pre-existing rock or be monomineralic crystals. The cements binding these grains together are typically Calcite, Clays, and Silica. Grain sizes in Sand are defined (in geology) within the range of 0.0625 mm to 2 mm (0.002–0.079 inches). Clays and sediments with smaller grain sizes not visible with the naked eye, including Siltstones and Shales, are typically called argillaceous sediments; rocks with larger grain sizes, including Breccias and Conglomerates, are termed rudaceous sediments.

**Mineralogy:**

The chemical compounds like Silicon dioxide or Silica, Calcium carbonate, and Iron dioxide act as natural cementing agents to hold together the Sand in the form of a rock that we know by the name of Sandstone. Chemically, Sandstone is an absolutely impervious and mono-mineralic rock that is primarily composed of Quartz.

Shale is a fine-grained, clastic sedimentary rock composed of mud that is a mix of flakes of Clay minerals and tiny fragments (silt-sized particles) of other minerals, especially Quartz and Calcite. Shale is characterized by breaks along thin laminae or parallel layering or bedding less than one centimeter in thickness, called fissility. It is the most common sedimentary rock.

Conglomerate is a coarse-grained clastic sedimentary rock that is composed of a substantial fraction of rounded to sub angular gravel-size clasts, e.g., granules, pebbles, cobbles, and boulders, larger than 2 mm (0.079 in) in diameter. Conglomerates form by the consolidation and lithification of gravel. Conglomerates typically contain finer grained sediment, e.g., either Sand,





Silt, Clay or combination of them, called matrix by geologists, filling their interstices and are often cemented by Calcium carbonate, Iron oxide, Silica, or hardened Clay. The size and composition of the gravel-size fraction of a Conglomerate may or may not vary in composition, sorting, and size. In some Conglomerates, the gravel-size class consist almost entirely of what were Clay clasts at the time of deposition. Conglomerates can be found in sedimentary rock sequences of all ages but probably make up less than 1 percent by weight of all sedimentary rocks. In terms of origin and depositional mechanisms, they are closely related to sandstones and exhibit many of the same types of sedimentary structures, e.g., tabular and trough cross-bedding and graded bedding.

#### Properties:

The key characteristic of Conglomerate is the presence of readily visible, rounded clasts bound within a matrix. The clasts tend to feel smooth to the touch, although the matrix can be either rough or smooth. The hardness and color of the rock is highly variable.

#### Geographical Location of Shale, Sandstone and Conglomerate in Godda District-

In Godda district, Sandstone, Shale and Conglomerate are found in Boarjor & Sundarpahari Blocks.

#### ➤ QUARTZITE AND QUARTZ SCHIST:

Quartzite is a hard, non-foliated metamorphic rock which was originally pure Quartz Sandstone. Sandstone is converted into Quartzite through heating and pressure usually related to tectonic compression within orogenic belts. Pure Quartzite is usually white to grey, though Quartzites often occur in various shades of pink and red due to varying amounts of iron oxide ( $Fe_2O_3$ ). Other colors, such as yellow, green, blue and orange, are due to other minerals. When Sandstone is cemented to Quartzite, the individual Quartz grains recrystallize along with the former cementing material to form an interlocking mosaic of Quartz crystals. Most or all of the original texture and sedimentary structures of the Sandstone are erased by the metamorphism. The grainy, sandpaper-like surface becomes glassy in appearance. Minor amounts of former cementing materials, iron Oxide, Silica, Carbonate and Clay, often migrate during recrystallization and metamorphosis. This causes streaks and lenses to form within the quartzite. Ortho-Quartzite is a very pure Quartz Sandstone composed of usually well-rounded Quartz grains cemented by Silica. Ortho-Quartzite is often 99%  $SiO_2$  with only very minor amounts of Iron oxide and trace resistant minerals such as Zircon, Rutile and Magnetite. Although few fossils are normally present, the original texture and sedimentary structures are preserved. The term is also traditionally used for Quartz-cemented Quartz Arenites, and both usages are found in the literature. The typical distinction between the two (since each is a gradation into the other) is a metamorphic Quartzite is so highly cemented, diagenetically altered, and metamorphosed so that it will fracture and break across grain boundaries, not around them. Quartzite is very resistant to chemical weathering and often forms ridges and resistant hilltops. The nearly pure Silica content of the rock provides little for Soil; therefore, the Quartzite ridges are often bare or covered only with a very thin layer of Soil and (if any) little vegetation.

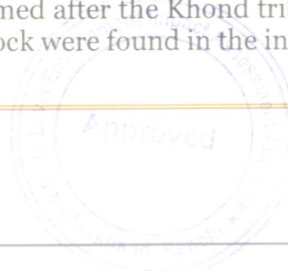
Quartz Schist is a metamorphosed schistose rock composed essentially of Quartz often with some mica or tourmaline or both. Schist is a medium-grade metamorphic rock. Quartz often occurs in drawn-out grains to such an extent that a particular form called Quartz schist is produced. Schist forms at a higher temperature and has larger grains than Phyllite.

#### Geographical Location of Quartzite and Quartz Schist in Godda District-

In Godda district Quartzite and Quartz Schist is found in Boriajor and Sundarpahari block.

#### ➤ KHONDALITE:

Khondalite is a foliated metamorphic rock. In India, it is also called Bezwada Gneiss and Kailasa Gneiss. It was named after the Khond tribe of Odisha and Andhra Pradesh because well-formed examples of the rock were found in the inhabited hills of these regions of eastern India.





**Composition:**

Khondalite is Quartz–Manganese rich Garnet–Rhodonite Schist. It may also contain Sillimanite and Graphite. Feldspar may occur in some cases.

**Formation:**

Khondalites are considered to be metasedimentary rocks formed during Archaean era. According to Lewis Leigh Fermor, the Khondalite and the related Charnockite of the Eastern Ghat region were formed when the Eastern Ghat belt was faulted and buried. It was uplifted later, bringing these metamorphic rocks to the surface.

**Geographical Location of Khondalite in Godda District:**

In Godda district Khondalite is present in Mahagama, Borijor and Pathargama blocks.

**➤ CHARNOCKITE:**

Charnockite is applied to any orthopyroxene-bearing Quartz-Feldspar rock, formed at high temperature and pressure, commonly found in Granulite facies metamorphic regions, as an end-member of the Charnockite series.

**Composition:**

The Charnockite series includes rocks of many different types, some being felsic and rich in Quartz and Microcline, others mafic and full of Pyroxene and Olivine, while there are also intermediate varieties corresponding mineralogically to Norites, Quartz-Norites and Diorites. A special feature, recurring in many members of the group, is the presence of a strongly pleochroic, reddish or green orthopyroxene (formerly known as Hypersthene). The alkali Feldspar in the group are generally Perthites with intergrowths of Albite and Orthoclase or Microcline. Rocks of the Charnockite series may be named by adding orthopyroxene to the normal igneous nomenclature (e.g. Orthopyroxene-Granite), but specific names are in widespread use such as Norite, Magnerite, Enderbite, Jotunite, Farssundite, Opdalite and Charnockite (in the strict sense) equivalents of Gabbro, Monzonite, Tonalite, Monzodiorite, Granodiorite and Granite.

**Formation:**

All Charnockites were once thought to be igneous, but it is now recognized that many are metamorphic, because, despite the high temperatures and pressures, the original protolith never actually melted. However, some Orthopyroxene-bearing Granites with distinct igneous features exist, and these rocks also fall within the definition of Charnockite. Many of the minerals of these rocks are schillerized, as they contain minute platy or rod-shaped inclusions, disposed parallel to certain crystallographic planes or axes. The reflection of light from the surfaces of these inclusions gives the minerals often a peculiar appearance, e.g. the Quartz is blue and opalescent, the Feldspar has a milky shimmer like moonshine, the Hypersthene has a bronzy metalloidal gleam. Very often the different rock types occur in close association as one set forms bands alternating with another set, or veins traversing it, and where one facies appears the others also usually are found. The term Charnockite in this sense is consequently not the name of a rock, but of an assemblage of rock types. The assemblage is connected by origin, the differentiation of the same parent magma. The banded structure which these rocks commonly present in the field is only in a small measure due to plastic deformation, but is to a large extent original, and has been produced by flow in a viscous crystallizing intrusive magma, together with differentiation or segregation of the mass into bands of different chemical and mineralogical composition. There have also been, of course, earth movements acting on the solid rock at a later time and injection of dykes both parallel to and across the primary foliation.

**Geographical Location of Charnockite in Godda District:**

In Godda district Charnockite are found in Poreyahat Block.





### ➤ COAL:

Coal is a combustible black or brownish-black sedimentary rock usually occurring in rock strata in layers or veins called Coal beds or Coal seams. The harder forms, such as Anthracite Coal, can be regarded as metamorphic rock because of later exposure to elevated temperature and pressure. Coal is composed primarily of carbon, along with variable quantities of other elements, chiefly Hydrogen, Sulphur, Oxygen, and Nitrogen. Coal is a fossil fuel that forms when dead plant matter is converted into Peat, which in turn is converted into Lignite, then Sub-Bituminous Coal, after that Bituminous Coal, and lastly Anthracite. This involves biological and geological processes. The geological processes take place over millions of years.

Throughout human history, Coal has been used as an energy resource, primarily burned for the production of electricity and heat, and is also used for industrial purposes, such as refining metals. Coal is the largest source of energy for the generation of electricity worldwide, as well as one of the largest worldwide anthropogenic sources of Carbon-di-oxide releases. The extraction of Coal, its use in energy production and its byproducts are all associated with environmental and health effects including climate change.

#### Formation:

At various times in the geologic past, the Earth had dense forests in low-lying wetland areas. Due to natural processes such as flooding, these forests were buried underneath soil. As more and more soil deposited over them, they were compressed. The temperature also rose as they sank deeper and deeper. As the process continued the plant matter was protected from biodegradation and oxidation, usually by mud or acidic water. This trapped the Carbon in immense Peat bogs that were eventually covered and deeply buried by sediments. Under high pressure and high temperature, dead vegetation was slowly converted to Coal. As Coal contains mainly Carbon, the conversion of dead vegetation into Coal is called carbonization. The wide, shallow seas of the Carboniferous period provided ideal conditions for Coal formation, although Coal is known from most geological periods. The exception is the Coal gap in the Permian–Triassic extinction event, where Coal is rare. Coal is known from Precambrian strata, which predate land plants—this Coal is presumed to have originated from residues of algae.

#### Ranks:

As geological processes apply pressure to dead biotic material over time, under suitable conditions, its metamorphic grade increases successively into:

- Peat, considered to be a precursor of Coal, which has industrial importance as a fuel in some regions. In its dehydrated form, Peat is a highly effective absorbent for fuel and oil spills on land and water, and also used as a conditioner for soil to make it more able to retain and slowly release water.
- Lignite, or brown Coal, the lowest rank of Coal, used almost exclusively as fuel for electric power generation
- Jet, a compact form of Lignite, sometimes polished; used as an ornamental stone since the Upper Palaeo-lithic.
- Sub-Bituminous Coal, whose properties range between those of Lignite and those of Bituminous Coal (It is used primarily as fuel for steam-electric power generation and is also an important source of light aromatic hydrocarbons for the chemical synthesis industry.)
- Bituminous Coal, a dense sedimentary rock, usually black, but sometimes dark brown, often with well-defined bands of bright and dull material (It is used primarily as fuel in steam-electric power generation, with substantial quantities used for heat and power applications in manufacturing and to make Coke)





- Steam Coal, a grade between Bituminous Coal and Anthracite (It was once widely used as a fuel for steam locomotives.
- Anthracite, the highest rank of Coal (It is a harder, glossy black Coal used primarily for residential and commercial space heating; it may be divided further into metamorphically altered Bituminous Coal and "petrified oil", as from the deposits in Pennsylvania.)
- Graphite; It is one of the more difficult Coals to ignite and not commonly used as fuel; it is most used in pencils, or powdered for lubrication.)

#### Geographical Location of Coal in Godda District:

The district houses Asia's largest Rajmahal Coalfields. Coal seams suitable for thermal power generation have been found around Phulbaria and Dhamni.

#### ➤ CHINA CLAY:

Rocks that are rich in Kaolinite are known as Kaolin or China Clay. Kaolinite is a Clay mineral, part of the group of industrial minerals, with the chemical composition  $Al_2Si_2O_2(OH)_4$ . It is a layered silicate mineral, with one tetrahedral sheet of Silica ( $SiO_4$ ) linked through oxygen atoms to one octahedral sheet of alumina ( $AlO_6$ ) octahedral. Owing to their following features, these clays are widely demanded and appreciated:

Good plasticity.

Ability to withstand high temperature.

Accurate composition.

Longer shelf life.

#### Occurrence:

China clay occurs in abundance in soils that have formed from the chemical weathering of rocks in hot, moist climates—for example in tropical rainforest areas. Comparing soils along a gradient towards progressively cooler or drier climates, the proportion of Kaolinite decreases, while the proportion of other clay minerals such as illite (in cooler climates) or smectite (in drier climates) increases. Such climatically-related differences in clay mineral content are often used to infer changes in climates in the geological past, where ancient soils have been buried and preserved.

#### Composition:

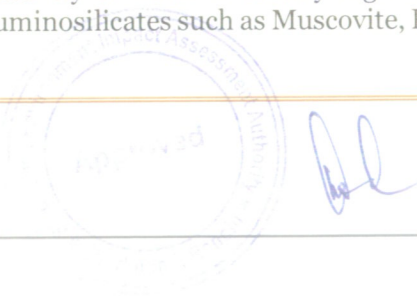
In its natural state China clay is a white, soft powder consisting principally of the mineral Kaolinite, which, under the electron microscope, is seen to consist of roughly hexagonal, platy crystals ranging in size from about 0.1 micrometer to 10 micrometers or even larger. These crystals may take vermicular and book like forms, and occasionally macroscopic forms approaching millimeter size are found. Kaolin as found in nature usually contains varying amounts of other minerals such as Muscovite, Quartz, Feldspar, and Anatase. In addition, crude Kaolin is frequently stained yellow by Iron hydroxide pigments. It is often necessary to bleach the clay chemically to remove the Iron pigment and to wash it with water to remove the other minerals in order to prepare Kaolin for commercial use.

#### Geographical Location of China clay in Godda District:

China clay deposits are located in the south western corner of the district.

#### ➤ KYANITE:

Kyanite is a typically blue Aluminosilicate mineral, commonly found in Aluminium-rich metamorphic Pegmatites and/or sedimentary rock. Kyanite in metamorphic rocks generally indicates pressures higher than four kilobars. Although potentially stable at lower pressure and low temperature, the activity of water is usually high enough under such conditions that it is replaced by hydrous aluminosilicates such as Muscovite, Pyrophyllite, or Kaolinite. Kyanite is also





known as Disthene, Rhaeticite and Cyanite. Kyanite is a member of the aluminosilicate series, which also includes the polymorph Andalusite and the polymorph Sillimanite. Kyanite is strongly anisotropic, in that its hardness varies depending on its crystallographic direction. In Kyanite, this anisotropism can be considered an identifying characteristic. At temperatures above 1100 °C Kyanite decomposes into Mullite and vitreous Silica via the following reaction:  $3(\text{Al}_2\text{O}_3 \cdot \text{SiO}_2) \rightarrow 3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 + \text{SiO}_2$ . This transformation results in an expansion.

Geographical Location of Kyanite in Godda District:

Bladed and fine grained aggregates of Kyanite occurs as small pockets within the intrusive Granite at about 1 km north of Bamyara.

➤ **CHALCEDONY/AGATE:**

Chalcedony is a cryptocrystalline form of Silica, composed of very fine intergrowths of Quartz and Moganite. These are both Silica minerals, but they differ in that Quartz has a trigonal crystal structure, while Moganite is monoclinic. Chalcedony's standard chemical structure (based on the chemical structure of Quartz) is  $\text{SiO}_2$  (Silicon dioxide). Chalcedony has a waxy luster, and may be semitransparent or translucent. It can assume a wide range of colors, but those most commonly seen are white to gray, greyish-blue or a shade of brown ranging from pale to nearly black. The color of Chalcedony sold commercially is often enhanced by dyeing or heating. Agate is a variety of Chalcedony characterized by either transparency or color patterns, such as multi-colored curved or angular banding. Opaque varieties are sometimes referred to as Jasper. Fire Agate shows iridescent phenomena on a brown background; iris agate shows exceptional iridescence when light (especially pinpointed light) is shone through the stone. Landscape agate is Chalcedony with a number of different mineral impurities making the stone resemble landscapes.

Geographical Location of Chalcedony/Agate in Godda District:

Chalcedony and Agate, derived from Rajmahal Trap occurs as stay boulders at about 1 km east of Tetaria village.

➤ **BAUXITE:**

Bauxite is a sedimentary rock with a relatively high aluminium content. It is the world's main source of aluminium. Bauxite consists mostly of the aluminium minerals gibbsite ( $\text{Al}(\text{OH})_3$ ), Boehmite ( $\gamma\text{-AlO}(\text{OH})$ ) and diaspore ( $\alpha\text{-AlO}(\text{OH})$ ), mixed with the two Iron Oxides Goethite and Hematite, the aluminium clay mineral Kaolinite and small amounts of Anatase ( $\text{TiO}_2$ ) and Ilmenite ( $\text{FeTiO}_3$  or  $\text{FeO} \cdot \text{TiO}_2$ ).

Composition:

Bauxite does not have a specific composition. It is a mixture of hydrous aluminum oxides, aluminum hydroxides, clay minerals, and insoluble materials such as Quartz, Hematite, Magnetite, Siderite, and Goethite. The aluminum minerals in Bauxite can include: Gibbsite  $\text{Al}(\text{OH})_3$ , Boehmite  $\text{AlO}(\text{OH})$ , and Diaspore,  $\text{AlO}(\text{OH})$ .

Physical properties of Bauxite:

Bauxite is typically a soft material with a hardness of only 1 to 3 on the Moh's Scale. It is white to grey to reddish brown with a pisolitic structure, earthy luster and a low specific gravity of between 2.0 and 2.5. These properties are useful for identifying Bauxite; however, they have nothing to do with Bauxite's value or usefulness. This is because bauxite is almost always processed into another material with physical properties that are distinctly different from Bauxite.

Geographical Location of Bauxite in Godda District:

Bauxite occurs as sheets, lenses and pockets within the high level cappings over the Rajmahal Traps around the south eastern part of the district





## 18. USE OF MINERAL

Stones form one of the most important building materials in civil engineering. Stones are derived from rocks, which form the earth's crust and have no definite shape or chemical combination but are mixtures of two or more minerals. The mineral is a substance which is formed by the natural inorganic process and possesses a definite chemical combination and molecular structure. They are strong, durable and descent in appearance.

Stone is an essential and more permanent building material in construction than other natural building materials. Based on the type, stones can be used in buildings for flooring, roofing, masonry paving roads and also as aggregates for concrete.

Most of the prehistoric monuments are built with natural stones as they remain stable with time. Before the advent of concrete stones were highly preferred for heavy engineering works like bridge piers, harbour walls, sea side walls and for facing works.

Stones for construction purposes are obtained by quarrying from solid massive rocks. The stone used for masonry construction should be hard, durable, tough and should be free from weathered soft patches of material, cracks and other defects that are responsible for the reduction of strength and durability.

Based on Geology, stones or rocks are classified into three types:

- Igneous Rocks – Basalt, Trap, Andesite, Rhyolite, Diorite, Granite.
- Sedimentary Rocks – Limestone, Dolomite and Sandstone.
- Metamorphic Rocks – Gneiss, Quartzite, Marble, Slate.

### ➤ **GRANITE GNEISS, AUGEN GNEISS & MIGMATITE:**

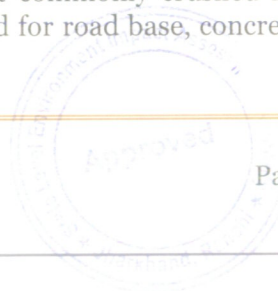
#### **Uses of Granitic rocks:**

- **Building Stone:-** Granitic rocks have been extensively used as a dimension stone and as flooring tiles in public and commercial buildings and monuments.
- **Sub base and base material in road and highway construction:** - Crushed stone has the most basic use of Granite. Crushed Granite is used as a sub base and base material in road and highway construction. It is used as crushed stone media in sewage system drain fields and as a base material for foundations and construction slabs. Crushed Granite in attractive colors is used as a landscape stone and in planters. It also makes great railroad ballast, and in larger sizes it makes good riprap.
- **Engineering:** - Engineers have traditionally used polished Granite surface plates to establish a plane of reference, since they are relatively impervious and inflexible. Sandblasted concrete with a heavy aggregate content has an appearance similar to rough Granite, and is often used as a substitute when use of real Granite is impractical. Granite block is usually processed into slabs, which can be cut and shaped by a cutting center. Granite tables are used extensively as bases for optical instruments because of Granite's rigidity, high dimensional stability, and excellent vibration characteristics.
- **Granite Paving Stone:** - Granite paving stones or "pavers" can make a colourful and interesting way of paving a driveway or patio. The beauty of natural stone combined with expert craftsmanship and design can produce a unique and lasting result. In the past, Granite blocks were often used to pave city streets.

### ➤ **RAJMAHAL TRAP- BASALT (RAJMAHAL FORMATION):**

#### **Uses of Basalt:**

- Basalt is used for a wide variety of purposes. It is most commonly crushed for use as an aggregate in construction projects. Crushed Basalt is used for road base, concrete aggregate,





asphalt pavement aggregate, railroad ballast, filter stone in drain fields, and may other purposes.

- Basalt is also cut into dimension stone. Thin slabs of Basalt are cut and sometimes polished for use as floor tiles, building veneer, monuments, and other stone objects.

➤ **SANDSTONE:**

**Uses:**

- It has also been used for artistic purposes to create ornamental fountains and statues.
- Some Sandstones are resistant to weathering, yet are easy to work. This makes Sandstone a common building and paving material including in asphalt concrete.

➤ **SHALE:**

**Uses:**

- Shale is relatively fragile, as far as rock fragility goes, so it is rarely used for building materials or industrial uses in its raw form. When properly processed, it can be used as an additive in cement and art clay products.
- Shale uses in construction industry include Cement manufacture, Construction aggregate, for road aggregate, making natural cement, raw material for the manufacture of mortar.

➤ **CONGLOMERATE:**

**Uses:**

- When the matrix is soft, conglomerate may be crushed for use as a fill material in the construction and transportation industries.
- Hard Conglomerate may be cut and polished to make dimension stone for interesting-looking walls and floors.

➤ **AMPHIBOLITE:**

**Uses:**

- It is crushed and used for highway construction and as railroad ballast.
- It is cut for use as dimension stone.
- The highest quality pieces are cut, polished, and sold under the name "Black Granite" for use as building facing, floor tiles, countertops, and other architectural uses.

➤ **QUARTZITE:**

**Uses:**

- Because of its hardness and angular shape, crushed Quartzite is often used as railway ballast.
- Quartzite is a decorative stone and may be used to cover walls, as roofing tiles, as flooring, and stair steps.
- Its use for countertops in kitchens is expanding rapidly. It is harder and more resistant to strains than Granite.
- Crushed Quartzite is sometimes used in road construction.
- High purity Quartzite is used to produce ferrosilicon, industrial Silica Sand, Silicon and Silicon carbide.

➤ **KHONDALITE:**

**Uses:**





- Khondalites weather easily but still have been used in buildings and temples, for example, the Konark Sun Temple and Jagannath Temple.

➤ **CHARNOCKITE:**

**Uses:**

- Charnockite are used as dimension stone.
- It is also used in making Artifacts, Monuments, Sculpture, Small Figurines.
- Curling, Gemstone, Laboratory bench tops, Tombstones.

➤ **COAL:**

Different types of coal have different uses.

- Steam Coal - also known as thermal Coal - is mainly used in power generation.
- Coking Coal - also known as metallurgical Coal - is mainly used in steel production.
- Coal seams of **Godda** are suitable for Thermal Power Generation.

➤ **CHINA CLAY:**

**Uses:**

- Kaolin, also called China Clay, soft white Clay that is an essential ingredient in the manufacture of china and porcelain and is widely used in the making of paper, rubber, paint, and many other products.
- When Kaolin is mixed with water in the range of 20 to 35 percent, it becomes plastic (i.e., it can be molded under pressure), and the shape is retained after the pressure is removed. With larger percentages of water, the kaolin forms a slurry or watery suspension.

➤ **KYANITE:**

**Uses:**

- Kyanite is used to manufacture a wide range of products. An important use is in the manufacture of refractory products such as the bricks, mortars, and kiln furniture used in high-temperature furnaces.
- **Kyanite in Refractory material:**—Kyanite has properties that make it exceptionally well suited for the manufacture of high-refractory-strength porcelain—porcelain that holds its strength at very high temperatures.
- **Kyanite in Electrical Components:**—Kyanite and Mullite are widely used in the manufacture of electrical products due to its low electrical conductivity, high thermal stability and chemical inertness. It is used in electronics, burner tips, spark plugs, heating elements and high voltage electrical insulations.
- **Kyanite in Ceramics:** - Calcined Kyanite (Mullite) is used in ceramic products.

➤ **CHALCEDONY/AGATE:**

**Uses:**

- Chalcedony is the source of a host of different gemstones. Most gem forms are polished as cabochons and beads for use in jewellery.
- They are also used as animal carvings and cameos.
- Besides for all the named varieties that are used as gems, the translucent grey and blue forms of Chalcedony have recently gained much popularity.

➤ **BAUXITE:**

**Uses:**





- **Metallurgy:**

Bauxite is the best and only material for making Aluminum. There are several process like Bayer Process and Hall-Heroult Process involved in extraction of aluminium from Bauxite. And once extracted, Aluminium and Aluminium based alloys are used extensively in electronics, construction, vehicles and even in utensils.

- **Industries:**

Bauxite is used in a lot of industries like the chemical industry, refractory, abrasive, cement, steel, and petrol industry amongst others. In chemical, Bauxite along with alumina is used in the manufacturing of aluminium chemicals. In refractory, it is used as a raw material for making several products. Bauxite is the main constituent material in airplane making industry, electric industry, machinery and civil tool making industry. It is also used as desiccating agent, adsorbent, catalyst and in the manufacture of dental cements.

- **In Building Material and Road Aggregates:**

Lateritic Bauxite is often used as building material when no other materials are available. Calcined Bauxite is used by construction companies as an anti-skid road aggregate which is used in selected areas to prevent accidents.

**Other Uses:**

Bauxite has limited uses but wide application of paper making, water purifying, and petroleum refining. Additionally, Bauxite is also used is some other sectors like rubber, plastic, paint and cosmetics.



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### 19. DEMAND AND SUPPLY OF THE MINOR MINERAL IN LAST THREE YEARS

In the present scenario, the Stone boulders & Chips have good market in all regions of the country for construction of buildings, roads, bridges, railway line and other constructional purposes. As such there are huge infrastructural activities such as road, building, railways are coming up by Govt. of India & PSUs under “Make in India” programme. The production of Stone boulders & Chips are the main raw minerals for the above activities and considering the last three years’ actual production of Godda with respect to the requirement of the State has a huge gap. It is proposed to start the stone production from larger areas to at least double the production of the district which will enhance the revenue of the district and also support the livelihood of the local people.

The mining project will also bring economic benefits to the State by the ways of royalty of Stone as well as benefit to the lessee. It will help in general of employment in rural areas in Jharkhand State where tribal people are starving due to unemployment. A single mining project shall be providing employment to approximately 10 to 20 people of the poorest section of the society and benefitting more than 50 to 60 people indirectly. Further, infrastructure development will help in development of nation. Socio-economic condition of the area will be improved as mining activity will create additional employment for the local habitants for raising their socio-economic status. Significant contribution will be made by lessee towards societal development of the surrounding area in the form of CSR fund.

There is a huge demand of Stone chips for domestic and infrastructure sector. Only a few Stone mines have environmental clearance for extraction of Stone. There is limited supply of Stone and there is huge gap. There are no statistical data, regarding demand and supply of minerals in Godda district. Due to construction of roads and public buildings for development works in the district a large number of stone chips & boulders are required. This will meet only by granting new leases in the district.





## 20. MINING LEASES MARKED ON THE MAP OF THE DISTRICT

As per record of Godda District Mining Office, 06 Stone mining leases are registered which only are in operational in current. The location of mining leases is given in Table 20.1 & Figure 20.1  
Figure: 20.1: Location of Mining Lease in the Map of Godda district.

- Attached as **Annexure – I.**

Table 20.1: Location of Mining Lease in the Godda district

| Sl. No. | Name of the Lessee  | Address & Contact No. of the Lessee  | Mouza/Block  | Location of the Mining Lease (Latitude & Longitude)                    | Working /Non-working |
|---------|---|--|--|--|----------------------|
| 1       | Shri Karma Soren & S/o Shri Girish Soren  | Vill. - Harla<br>P.O.- Chatra<br>P.S.- Poreyahat<br>Dist.- Godda                                 | Mouza –<br>Madhukupi<br>Plot No. – 420(P)              | 24°38'29.6" N<br>to 24°38'27.9" N<br>87°14'44.3" E to<br>87°14'48.2" E | Working              |
| 2       | Shri Krishna Pd. Ram<br>S/o – Late Hiralal<br>Ram   | Vill. - Badadhamni<br>P.O. - Dhamni Bazar<br>P.S. - Sunderpahari<br>Dist. - Godda                | Mouza – Ramkol<br>Circle –<br>Plot No. – 847(P)        | 24°05'58.8" N to<br>24°05'05.3" N<br>87°23'19.5" E to<br>87°23'16.4" E | Working              |
| 3       | M/s Maa Tara Stone<br>Works of<br><u>Partner:</u><br>Shri Dipnarayan<br>Shah<br>S/o – Shri<br>Ramdhani Shah   | Vill. + P.O. + P.S. -<br>Pathargama<br>Dist. - Godda   | Mouza –<br>Lohatamba<br>Plot No. – 867(P)              | 24°57'48.7" N to<br>24°57'51.1" N<br>87°25'44.9" E to<br>87°25'41.6" E | Working              |
| 4       | M/s M. N.<br>Enterprise of<br>Shri Hriday Narayan<br>Singh<br>S/o Shri Ram Pd.<br>Singh   | Branch Office - N.G.-<br>259, Urjanagar,<br>Mahagama<br>Dist. - Godda                            | Mouza –<br>Lohatamba<br>Plot No. – 867(P)              | 24°57'47.2" N to<br>24°57'49.7" N<br>87°25'37.6" E to<br>87°25'39.0" E | Working              |
| 5       | M/s Boss Infra Pvt.<br>Ltd. of<br><u>Director:</u><br>Shri Vimal Kumar<br>Singh & Others  | 8-Basti Radha Nagar<br>Road<br>P.O. - Santa,<br>P.S. – Barnapur<br>Dist. – Bardhaman -<br>713325 | Mouza –<br>Dumariya, 30<br>Plot No. – 256 &<br>263     | 24°57'41.9" N to<br>24°57'38.8" N<br>87°25'26.7" E to<br>87°25'12.1" E | Working              |
| 6       | M/s Arun<br>Construction &<br>Golden Construction<br>(Joint Venture) of<br><u>Partner 1:</u><br>Shri Arun Kumar<br><u>Partner 2:</u><br>Shri Shankar Prasad<br>Chourasiya | Mahabir Prasad<br>Lane, Nayachak<br>P.O. + P.S. –<br>Isaquechak<br>Dist. – Bhagalpur,<br>Bihar   | Mouza – Thakur<br>Nahan<br>Plot No. – 07(P) &<br>58(P) | 24°39'45.1" N to<br>24°39'36.9" N<br>87°03'23.1" E to<br>87°03'13.7" E | Working              |





**21. DETAILS OF THE AREA OF WHERE THERE IS A  
CLUSTER OF MINING LEASES**

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

There is no such cluster of mining lease found in Godda district. However, it is proposed to consider the cluster of mining lease while planning for new lease area in coming years.





## **22. DETAILS OF ECO-SENSITIVE AREA**

Currently, As per Notification from MoEF & CC, there is no eco-sensitive area has been identified in Godda district. However, SEIAA can propose such area as “No Mining Zone” if required.





## **23. IMPACT ON THE ENVIRONMENT DUE TO MINING**

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

#### **Impact on Air Environment**

The mine sites of Godda district are located in barren small hilly area and located in remote village where limited agriculture is practiced during rainy season only. In some lease surroundings only a few households are living in the area and population density of village is very less. The area does not have any industrial activity in the core/buffer zone and hence, the ambient air quality of the area is good. Mining will be carried out in a limited area with OTFM mining method. Hence, impact on air quality due to mining will not be significant.

#### **Impact on Water Environment**

##### **Surface Water**

There is no any surface water body in and around the lease area of Godda district. Hence, effect on surface water quality will be negligible. In order to arrest rain water flowing from the lease boundary to surrounding area, a garland drain will be recommended & constructed in the lower side of the all the leasehold area and runoff water will be accumulated in the settling pond/water harvesting pit. Rainwater accumulated in the mine pit will be pumped to the settling pond before discharging into the agricultural field during heavy rainfall. Many rivers are flowing in and around the mine site, but all are far away from the mine leases and effect on water quality of the river is not expected as no water is allowed to flow directly from the mine site.

##### **Ground Water**

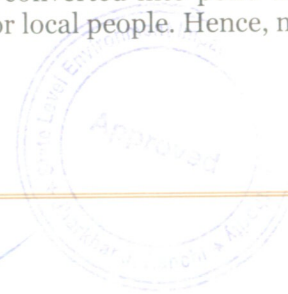
Mining operation will be carried out in limited scale on a small hilly area above groundwater level in Godda district. The mineral formation does not contain any harmful elements; hence no contamination will take place into ground water. Moreover, settling pond/pit sump will be constructed for rain water harvesting and ground water recharge. Finally, all the mine pits will be converted into pond after mine closure, which will further help in ground water recharge and utilization of pond water for irrigation and other domestic uses.

##### **Impact on Noise Level**

Noise will be created by the movement of the tractors/dumpers/heavy machines etc. However, noise generated by these will be occurring at the very low level and ambient noise level in the buffer zone shall be within permissible limit of CPCB. Noise level in the core zone shall be maintained as per DGMS standard for continuous noise exposure level. Controlled blasting is proposed, hence effect of ground vibration and blasting generated noise shall be within in the DGMS standard.

##### **Impact on Land Environment**

Mining operation in Godda district will be carried out in limited scale on a small barren hilly area only. Very little amount of soil is present in small patches. Soil within the leasehold area will be used for plantation purpose. In order to arrest siltation during rainy season, runoff water will be accumulated in the settling pond/water harvesting pit. Further, plantation/green belt shall be developed along transport road. The open pit will be converted into pond after mine closure, which will further help in use of water for agriculture for local people. Hence, no negative impact on land environment is expected.





### **Impact on Biological Environment**

All the leasehold area in Godda district is barren. Hence, impact on biological environment is not expected. As mentioned earlier, it is proposed to develop a green belt around along both sides of transport road. This will help in improving biological environment of the area.

### **Impact on Socio-economic Environment**

There is no habitat in the lease hold area as well as within 500 m from lease boundary. There will be no adverse impact of mining but up to some extent socio-economic environment of the area will improve as, the mining activity and green belt development will create new job opportunities for the local people. The pit pond after mine closure shall be used for agricultural purpose, growing of fish, drinking water for animal and other domestic uses. Further, applicant will provide the occupational health and safety by providing regular medical check-up and medicine distribution. Mining operation will improve the financial status of the local people.

### **Impact on Agriculture**

Some form of agricultural use may be possible in sites that are adjacent to farmland provided the soil and topography are favorable. Agricultural and horticultural crops can be grown in a variety of materials. The range of possibilities include arable cropping, grazing in either productive low land or over upland pasture. The only constraint apart from the site is that there must be some integration into the local rural agricultural pattern. But it would be inappropriate to establish pasture in an area of arable cropping, even though the grazed pasture would recreate the soil structure more rapidly.





## **24. REMEDIAL MEASURES TO MITIGATE THE IMPACT OF MINING ON THE ENVIRONMENT**

### **23.1 Remedial Measures for other than Sand Mining:**

#### **▪ Remedial Measures for Air Pollution:**

- All machineries and transport vehicles will be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kuccha' road shall be done.
- Water sprinkling at loading area.
- Tree plantation along the haul roads & approach road will be done. Plantation along the mine boundary shall be done with tree density of 2000 trees per Hectare as per the norms of MoEF & CC, to control dust & noise.
- Use of personal protective equipment like dust mask.
- Ambient air pollution monitoring will be carried out.

#### **▪ Remedial Measures for Water Pollution:**

- Mining is proposed to plan above the ground water table. Therefore, pumping of ground water from mine pit does not arise in this mine. The rain water during rainy season is proposed to settle in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system.
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.

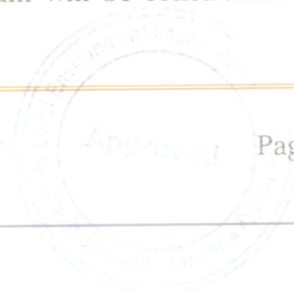
#### **▪ Remedial Measures for Noise Pollution:**

- Diesel powered machineries, which is major source of noise in open cast mining shall be properly maintained. Attention shall be paid towards rigorous maintenance of the silencer of the diesel engines.
- Protective devices shall be provided for use of persons employed in the vicinity of high noise areas.
- With the adoption of controlled blasting techniques, the ground vibrations will be minimized.
- Plantation around the lease boundary will cut the noise levels.

#### **▪ Remedial Measures for Land Environment:**

Some of the measures followed to minimize the impacts are as follows:

- The mining activities will be restricted within the lease area only.
- The waste material will be utilized for the construction of road and also will be used by the local people for construction work.
- The surface run off from the lease area will be retain within the lease and used for plantation, dust suppression and block cutting. So, there will be no soil erosion from the lease area and its surrounding due to mining activity.
- The dump will have inward slope with catch drains at inward side of the terrace and the catch drain of the individual terrace will be connected to the garland drain outside the periphery of the dump. Retaining wall and garland drain will be constructed around the





dumps and the surface runoff water pass through the garland drain and finally settled in a settling pit before released outside.

- Retaining wall and garland drains for the proposed waste dump will be constructed to arrest wash offs from the dump.
- Maintenance/repair of vehicles and machineries will not be inside the mining area. However, steel trays will be used for any emergency repair and sudden leakage of oil.

▪ **Remedial Measures for Waste Management:**

The solid waste shall be dumped systematically with proper repose angle and stabilization as follows:

- Gradation of dump shall be done automatically as coarser materials go to the bottom and finer at the top and therefore drain of rain water flow freely to the bottom without endangering the stability of dump.
- Stabilization of dump with top soil and tree plantation shall make the dump more stable on long. Dump should be terraced for every 5 m height and stabilized
- 1m height parapet shall be constructed for dumps more than 6m height along the toe to prevent and control wash out from dumps entering into natural system through rain water.
- Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.

▪ **Remedial Measures for Flora and Fauna:**

Extensive plantation comprising of pollutant resistant trees will be undertaken, which will serve not only as pollution sink but also as a noise barrier. It is proposed to include azadirachta Indica, and ficus Religiosa in the plantation program as they serve as sinks for gaseous emissions.

The impact on the fauna due to the mining activity will be insignificant. The progressive plantation over a period of time will reduce the impact, if any, on the fauna.





## 25. RECLAMATION OF MINED-OUT AREA

### 24.1 Reclamation of Mined out area (best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan);

#### Reclamation of mined-out area:

##### Importance

It is necessary to reclaim the land affected by mining due to following reasons:

- To put the land into productive use like agriculture, forestry or recreational purposes.
- To check soil erosion from dump leading to destruction of watersheds and siltation of river.
- Accumulation of huge quantity of water in worked out pits may pose threat to life and property.
- To combat adverse visual impact.

This requires two stage planning i.e. pre mining planning and post mining land use and monitoring. First stage considers all necessary measures to be taken for making second stage effective. This requires Environmental Impact Assessment (EIA) to be prepared. This should clearly bring out the likely impact of mining on environment, both biotic and a biotic and the likely extent of degradation, which may occur to the environment in the absence of any abatement measures. And to prepare this statement baseline information are required which includes geology/geomorphology, climate, hydrology/hydrogeology, hydro geochemistry and soil. Generation of information may also be required on quality of water, air and noise level, topography, land use pattern, demography of the area etc.

##### Components

For successful reclamation following points are to be considered

- Listing inventory of pre mining condition.
- Monitoring flexibility of mining programme in the light of efficient land reclamation.
- Evaluation of the post mining requirements of the region and to decide on the needs and desire of the affected ground.
- To make reclamation planning suitable to techno-economical and socio political environment.
- To assess the physio-chemical characteristics of overburden.
- Extra cost of preservation, re-handling, spreading and levelling of subsoil and topsoil.
- Knowledge of hydrogeological/geomorphological conditions. Aesthetic and/or historic value of land.





## **26. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN**

The area is hilly area. No possibility to flooding the area. Since, the pits are developed on the hard compact and medium grain rocks hence, there are no possibilities of slope failure. The Risk Assessment & Risk Management Plan will be prepared for safety of man & machinery deployed in the mining activities as per Mining Act, Rules, and Regulations & DGMS circulars.

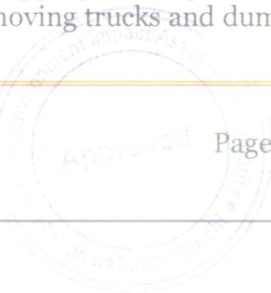
Mining activity because of the very nature of the operation, complexity of the systems, procedures and methods always involves some amount of hazards. Hazard identification and risk analysis is carried for identification of undesirable events that can leads to a hazard, the analysis of hazard mechanism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

Explosives by nature have the potential for the most serious and catastrophic accident. Planning of round of shots, holes correctly drilled, direction logged, weight of explosive suitable for good fragmentation are the few of the steps necessary to ensure its safe use and if the shots are not properly designed can result in misfires, early ignition and flying rocks. No person is allowed to use explosives without being properly trained in its handling.

In the mine a large numbers of heavy vehicles were in operation and the roads were not proper for haulage purpose. The haulage roads were not even and were not wide enough for the crossing purpose and hence the chances of hazards are very high. The main hazards arising from the use large earth moving vehicles are incompetent drivers, brake failure, lack of all-around visibility from the driver position, vehicle movements particularly reversing, roll over, and maintenance. Those most at risk are the driver and pedestrians likely to be struck by the vehicle, and drivers of smaller vehicles, which cannot be seen from the cabs of large vehicles. Edge protection is always necessary to prevent inadvertent movement over the edge of roadway or a bench. Seatbelt will protect driver in case of roll. Good maintenance and regular testing are necessary to reduce the possibility of brake failure. Access to the vehicles should always be restricted to those people necessary for the work in hand. The use of personal protective equipment and proper arrangements to check if the person is wearing a personal protective equipment or not is essential. The personal protective equipment includes helmet, non-skid safety boots, safety glasses, earmuffs etc.

The required personal protective equipment should be provided and used in a manner that protects the individual from injury. Few minor injuries which can be prevented are slip, trip or fall hazards; hazards due to rock falls and collapse of unstable rocks, atmosphere containing toxic or combustible gases; protects from chemical or hazardous material etc.

A disaster management plan should be prepared for taking care of for any disaster. Other risk which are included in this category are noise, as it occurs and it can lead to permanent disability. There are problems related to road traffic in and out issuers; inappropriate exposure of moving machines; mechanical failure and because of large number of moving trucks and dumpers there





is large quantity of dust present in roadways which affects the operators and can lead to accidents causing injury. They are in acceptable range because of precautions measures taken but no step is taken it can cause hazard. Hence, the steps should be taken to reduce the hazards such as for dust suppression system should be installed.

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

The responsible person should be familiar with his responsibility during the mock drills. One or two standby should be there to replace the person in Emergency situation. Rescue operations should not include the survivors for any assistance. First Information of Disaster/Emergency should go to the attendance clerk on duty. Duties of attendance Clerk (Emergency Siren) the attendance clerk or other designated person should on getting information of major accident, sound a hotter or a siren immediately declaring a state of emergency at the mine and then to contact the manager and on his advice to call key personnel using the information listed in the Emergency Organization Chart. It is important that all telephone calls are recorded in a telephone log book. Duties of Other Officials should be displayed and handed over to all concerned. Copy the same should be kept at Manager's Office for ready reference. Establishment of Control Room at Unit Level, Area Level and Company Level is essential. Control Room should keep the contact information about –

- Company Manager
- Company Owner/Administrative Officer
- District Administration
- Govt. Hospitals in nearby localities
- Private Nursing Homes of localities





## **27. DETAILS OF THE OCCUPATIONAL HEALTH ISSUES IN THE DISTRICT**

**26.1 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);**

### **Occupational Health Hazard and Remedial Measures**

The persons employed in the mines are exposed to a number of hazards at work which adversely affect their health. Some of the important ones are dust, noise, heat, humidity, vibration etc. In recent times, there has been increasing awareness among mining industry and the workers about occupational diseases such as Coal Worker's Pneumoconiosis, Silicosis, Manganese Poisoning, Hearing Impairment etc. caused by exposure to health hazards at work. Almost all occupational diseases are known to cause permanent disablement and there is no effective treatment. However, most of the occupational diseases can be prevented by adopting proper occupational health measures and engineering control on airborne dust at workplace. Following diseases have been notified as the diseases connected with mining operations for the purpose of sub-section (1) of Section 25 of the Mines Act, 1952:

S.R.O. 1306 dated the 21<sup>st</sup> July, 1952

1. Silicosis
2. Pneumoconiosis

S.R. O. 2521 dated the 26<sup>th</sup> June, 1986

Cancer of lung or the stomach or the pleura and peritoneum (i.e. mesothelioma)

25 S.O. 399(E) dated 21<sup>st</sup> February, 2011

1. Noise Induced Hearing Loss
2. Contact Dermatitis caused by direct contact with chemical.
3. Pathological manifestations due to radium or radioactive substances

### **System of Detection of Occupational Diseases in Mines**

In order to detect occupational diseases, the industry is required to conduct medical examinations and health surveillance of workers as per the provisions of Mines Act. The present efforts of mines management are concentrated on detection of silicosis, Pneumoconiosis and other notified diseases. Very little attention is paid to other occupational diseases. The essential features of health surveillance programme required to be carried out in mines are:

- (a) Initial Medical Examination of persons to be employed in mines.
- (b) Periodic Medical Examination once every five years. General physical examination, chest radiographs, lung function tests and audiometric.
- (c) Classification of chest radiographs of workers as per ILO Classification.
- (d) Medical examination within one year of superannuation.
- (e) Evaluation of all cases of suspected pneumoconiosis by Pneumoconiosis Medical Board.
- (f) Maintenance of medical records till the person is in service and 10 years thereafter. The cases of silicosis detected during health surveillance programme are referred to Pneumoconiosis Medical Board of the mining companies for evaluation and certification. If certified, the case is notified to the enforcement authority and evaluated for disability and payment of compensation. Many cases of silicosis and other pneumoconiosis go undetected and a large number of cases of silicosis are misdiagnosed due to lack of training of medical professionals.

**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



As discussion with Godda District Civil Surgeon Office, there are not any cases of Silicosis & Tuberculosis, due to stone mining activity in last five-years in Godda district and further the data of number of patients of Silicosis & Tuberculosis, due to stone mining activity are not found.





## **28. PLANTATION AND GREEN BELT DEVELOPMENT**

### **27.1 Plantation and Green Belt Development in respect of leases already granted in the District;**

Green belt along lease boundary and both sides of transportation road shall be developed in almost all the existing leases in the district. Maximum numbers of plants shall be planted in each year around the lease boundary and both sides of transportation road as mentioned in mining plan. Some mine owner also planted a large number of plants outside the lease area to develop green belt in the district. Neem, Sheesham, Aam, Sal, Arjun, Teak, Mahua, Ashoka, Jamun, Pipal, Banyan etc. are some important plants commonly planted in mine site of Godda district.

It is proposed to have a detailed record of plantation to be kept by the respective owner/agent/manager of the mine every year, which has been planted in the safety zone area and transport rout, which is statutorily required. As per the norms of the forest department, the plantation has to be carried out at the rate of 2500 local plants per hectare and along the road side, at an interval of 2 meters in the zig-zag manner in both sides.





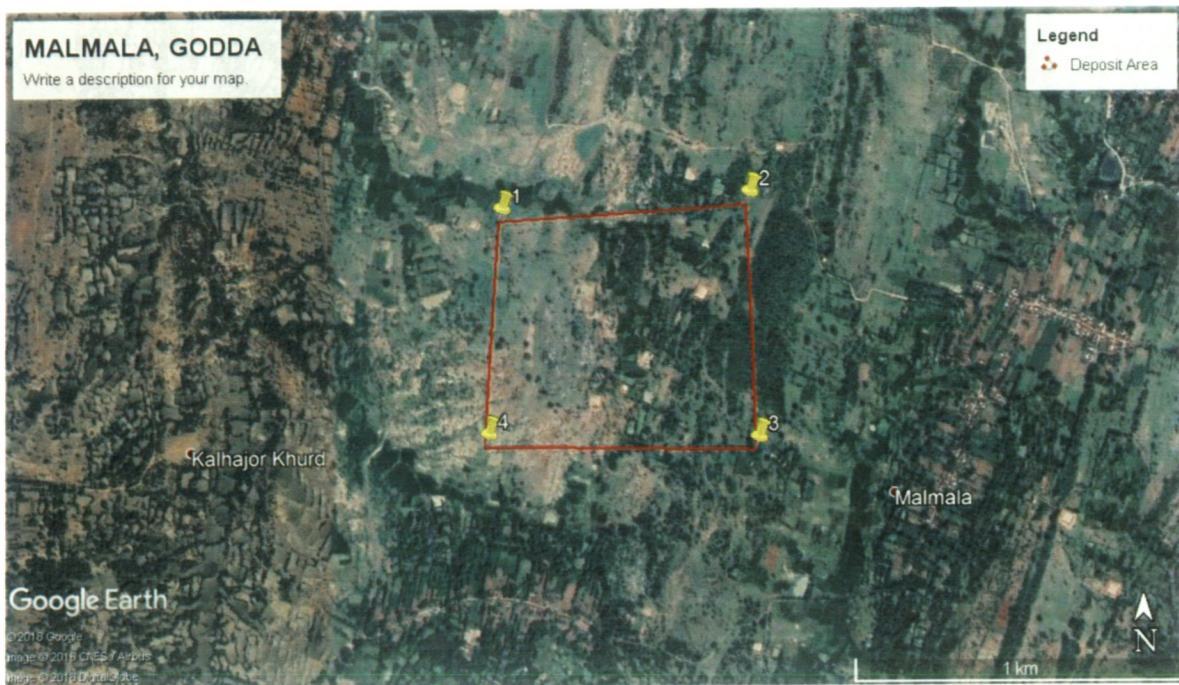
## 29. ADDITIONAL INFORMATION

### 29.1 Details of identified Potential Stone Deposits in Godda District of Jharkhand State:

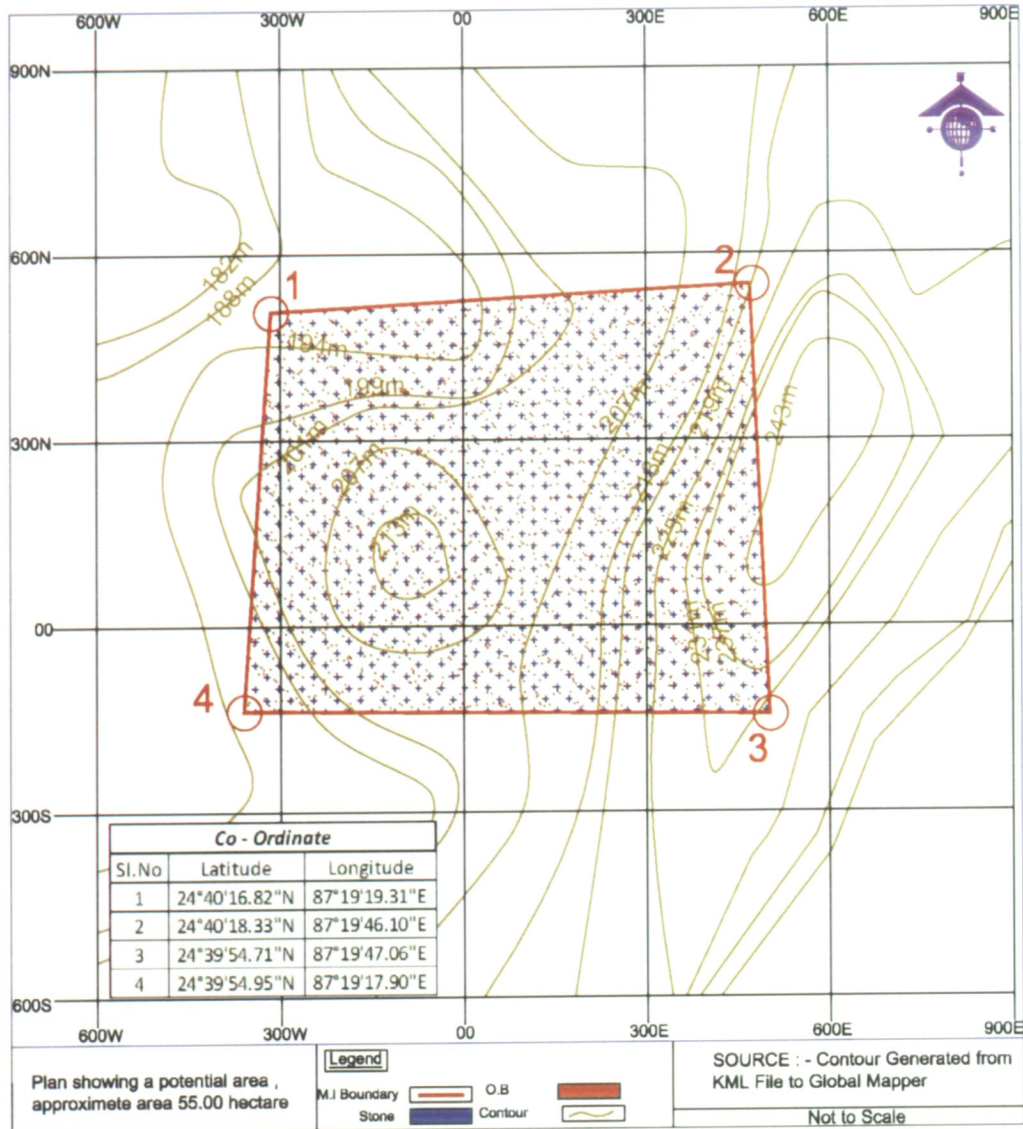
#### POTENTIAL BLOCK 1:

#### Geological Observation of the field:

The country rock is Granite Gneiss. Two mounds of hill tops at an altitude of 220m was studied. On the spot, very dark, hard, massive looking dyke rock appears to be dolerite dyke trending almost north-south. The mound is about 100m wide and strike length is approximately 1km. It has been cutting across the massive granite gneiss, but due to its massiveness, no foliation could be seen, but it's extension is almost east-west. On the surface, where it is not exposed, the overburden is about 2m to 3m. The dolerite dyke is mineable, though the width of the exposure is about 100m. On reconnaissance of the geomorphology along the direction of the rocks, it is presumed that dolerite dyke is extending further north and south.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



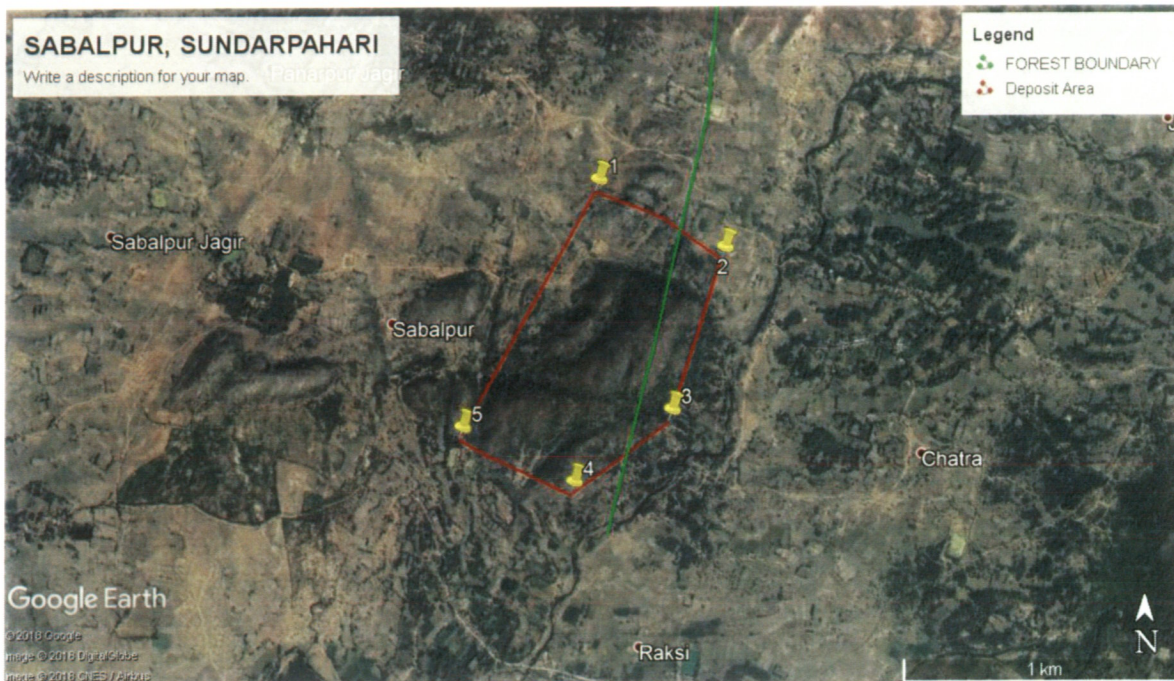
|   |   |                                   |
|---|---|-----------------------------------|
| CIRCLE  | Godda   |                                   |
| MOUZA   | Malmala & Jamkudar                            |                                   |
| ROCK TYPE   | Porphyritic Granite Gneiss with Dolerite Dyke |                                   |
| PROPOSED DEPTH OF ORE BODY (Meters)   | 20  |                                   |
| AREA AS PER GEO-REFERENCE (Hectare)   | 55  |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA   | 195m to 223m                                  |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES (Volume in m <sup>3</sup> , Recovery Factor 60%) | 6600000                                       |                                   |
| APPROX. MINEABLE RESOURCE IN MT (Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 17.82   |                                   |
| Geo Location  | Latitude (Max-Min)                            | Longitude (Max-Min)               |
|   | 24°39'54.71"N<br>to 24°40'18.33"N             | 87°19'17.90"E<br>to 87°19'46.10"E |



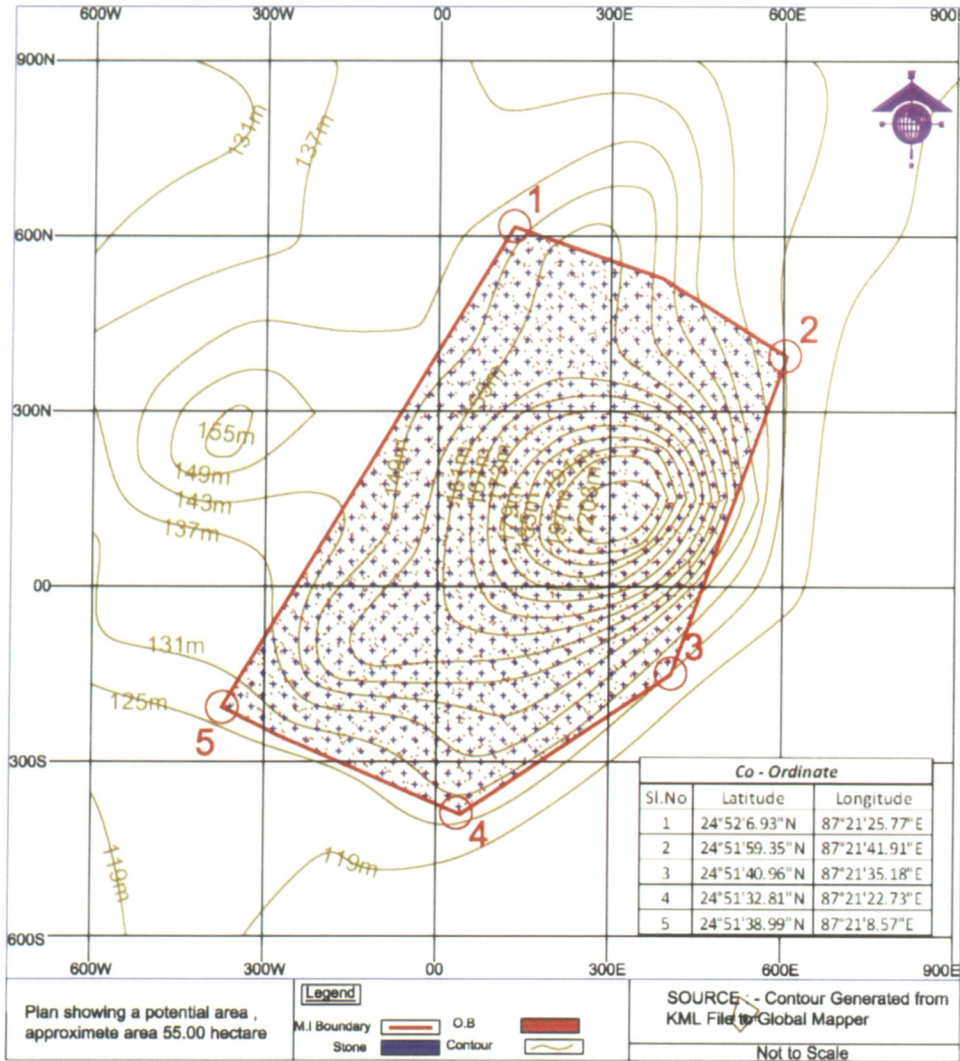
**POTENTIAL BLOCK 2:**

**Geological Observation of the field:**

During the study, it was observed that the village is situated in the Granite Gneiss, as some exposures were seen in the village itself. The area 500m away from the village boundary was taken into consideration. Tentative width (extension) of the deposit of Granite Gneiss is 500m and the strike length is 1 Km running north to south. The southern mound in the same direction falls in the forest area as forest pillars were observed. Keeping in view the forest land, a distance of 300m has been maintained. The overburden varies from 1m to 3m.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



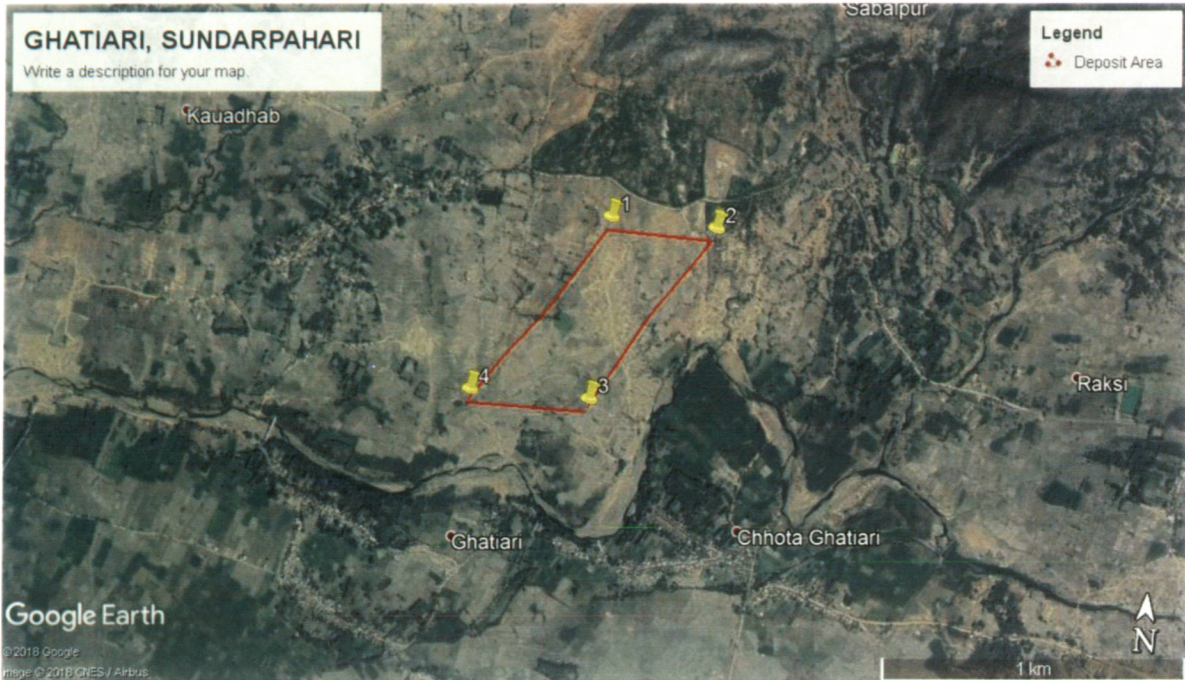
|  |  |                                  |
|--|--|----------------------------------|
| CIRCLE   | Sundarpahari                                 |                                  |
| MOUZA  | Sabalpur                                     |                                  |
| ROCK TYPE  | Basalt/ Sedimentary intratrappen beds-cherts |                                  |
| PROPOSED DEPTH OF ORE BODY (metres)  | 20   |                                  |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)   | 55   |                                  |
| MIN & MAX RL WITHIN PROPOSED AREA  | 130m to 220m                                 |                                  |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 6600000                                      |                                  |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 17.82  |                                  |
| Geo Location   | Latitude (Max-Min)                           | Longitude (Max-Min)              |
|  | 24°51'32.81"N<br>to 24°52'6.93"N             | 87°21'8.57"E<br>to 87°21'41.91"E |



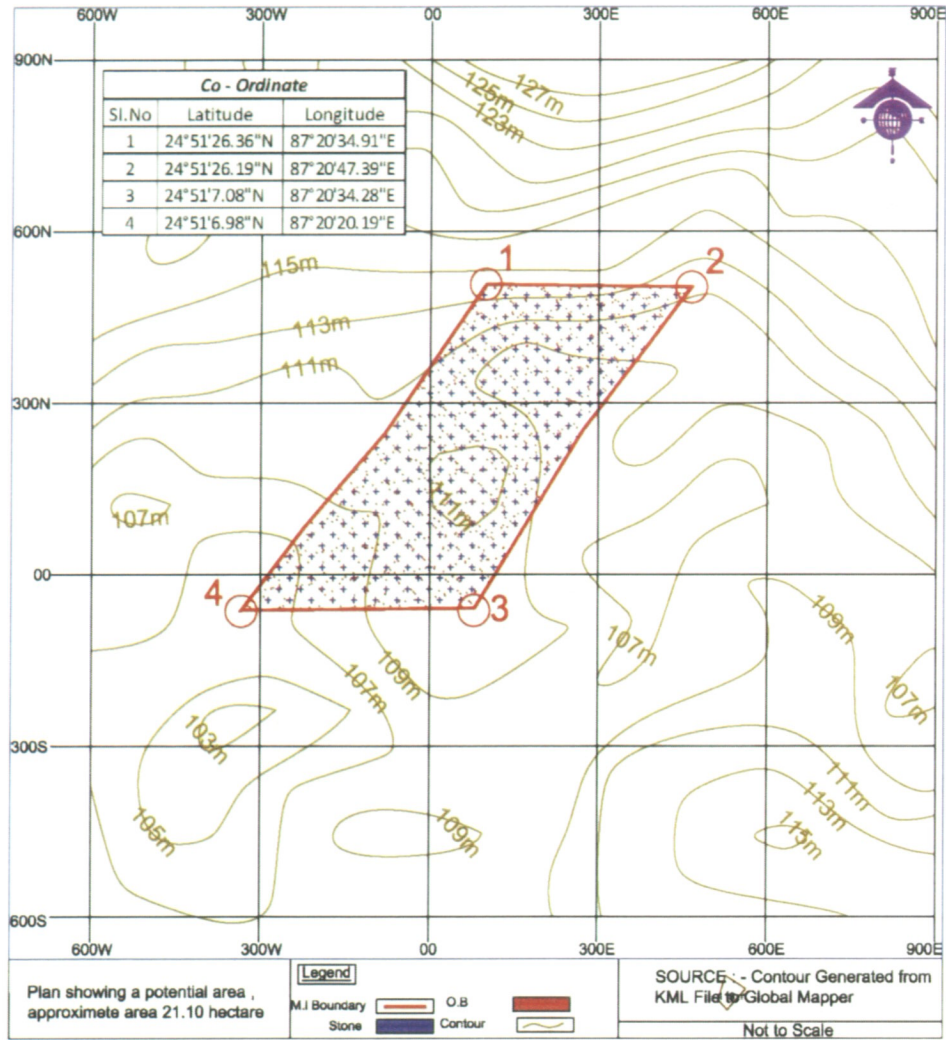
**POTENTIAL BLOCK 3:**

**Geological Observation of the field:**

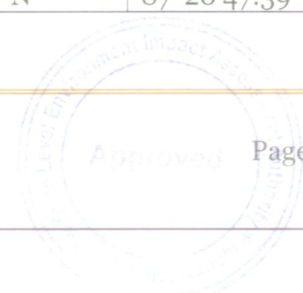
The area is surrounded by Ghatiari habitation. The rocks are exposed in the area with same geological setup observed in Potential Block 2, the exposures are rare in the periphery of the village.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |  |                                   |
|--|--|-----------------------------------|
| CIRCLE   | Sundarpahari   |                                   |
| MOUZA  | Ghatiari   |                                   |
| ROCK TYPE  | Basalt/Sedimentary intra-trappen beds-cherts<br>(Granite Gneiss) |                                   |
| PROPOSED DEPTH OF ORE BODY (meters)  | 20   |                                   |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)   | 21   |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA  | 107m to 113m   |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 2520000  |                                   |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 6.80   |                                   |
| Geo Location   | Latitude (Max-Min)   | Longitude (Max-Min)               |
|  | 24°51'6.98"N to<br>24°51'26.36"N                                 | 87°20'20.19"E to<br>87°20'47.39"E |

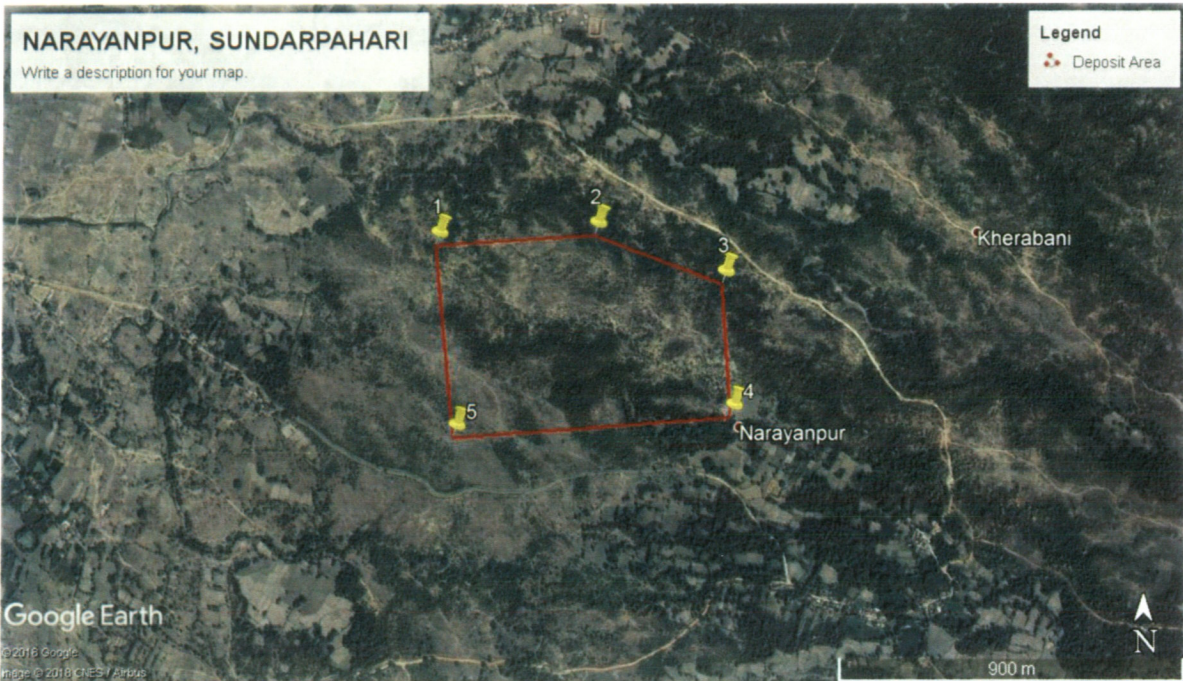




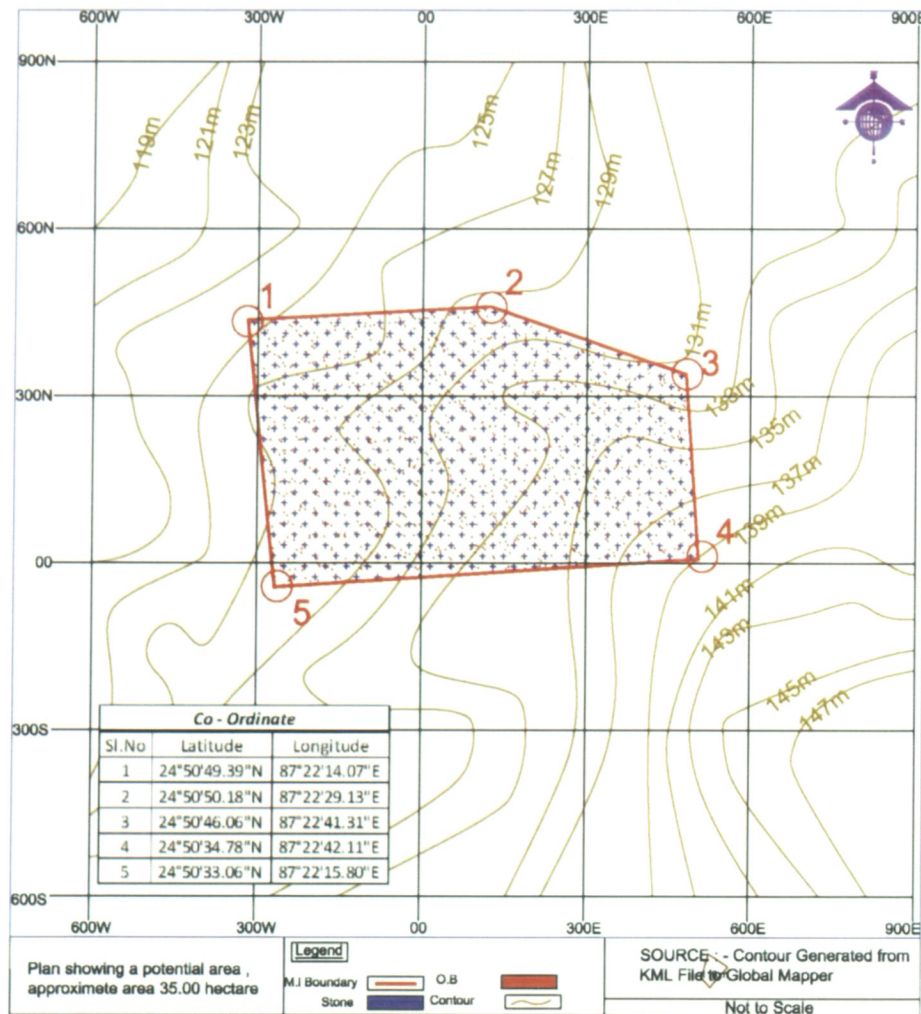
**POTENTIAL BLOCK 4:**

**Geological Observation of the field:**

Geological study around the area indicates old channel of a nala flowing south to north, which is flowing through Granitic granite for about 5 km on both sides of nala, rounded and sub-rounded Quartz pebbles of white and grey color is seen. The pebble size indicates a far distance of transport as most of the pebbles were rounded and small in size. However, a small vein of weathered Quartz/Quartzite about 50m discontinuous patches, which are medium grained rocks seen traversing north 60 west, south 60 east.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |  |                                   |
|--|--|-----------------------------------|
| CIRCLE   | Sundarpahari   |                                   |
| MOUZA  | Narayanpur   |                                   |
| ROCK TYPE  | Basalt/Sedimentary intra-trappen beds-cherts<br>(Granite Gneiss) |                                   |
| PROPOSED DEPTH OF ORE BODY (metres)  | 20   |                                   |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)   | 35   |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA  | 126m to 139m   |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 4200000  |                                   |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 11.34  |                                   |
| Geo Location   | Latitude (Max-Min)   | Longitude (Max-Min)               |
|  | 24°50'33.06"N<br>to 24°50'50.18"N                                | 87°22'14.07"E<br>to 87°22'42.11"E |

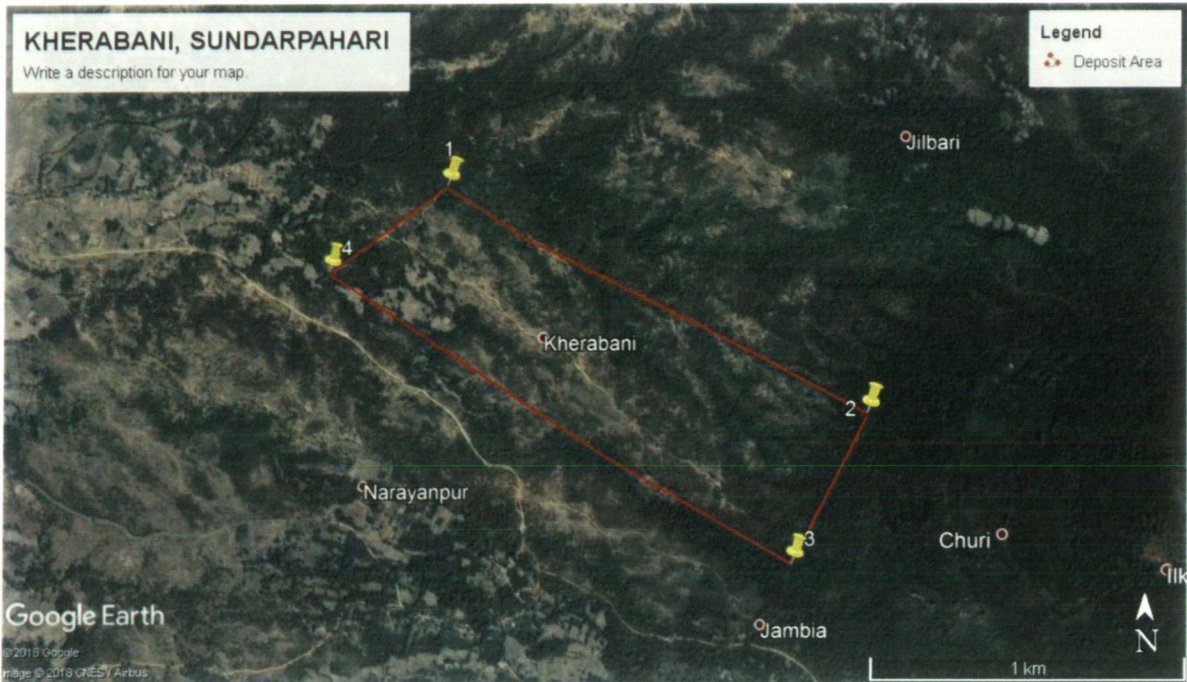




**POTENTIAL BLOCK 5:**

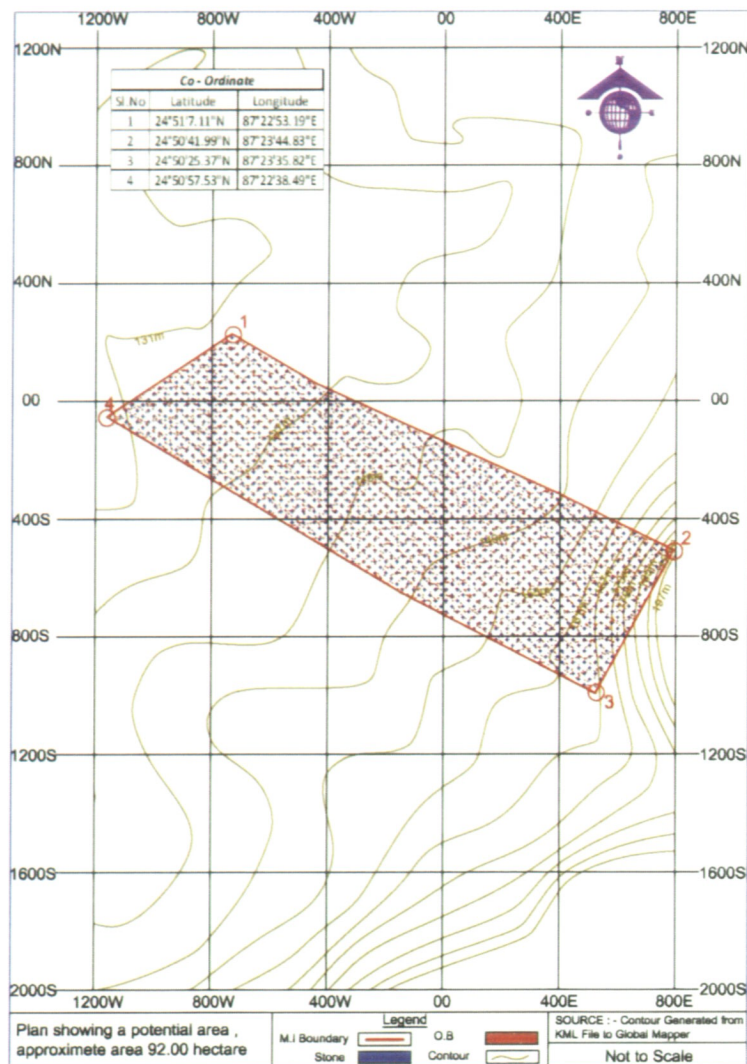
**Geological Observation of the field:**

At this location, RL varies from 130m to 190 m with discontinuous exposure of weathered basic rock appears to be Amphibolite with spheroidal weathering. The Amphibolites may be the undigested part during magmatism. The Amphibolite trends north 50 degree west, south 50 degrees east. Further study along the strike and across the strike indicates Granite Gneiss trending east-west direction and dips 70° towards west. The area with discontinuous exposures of Granite Gneiss is approximately 1 km by 500 m. The overburden varies from 1 m to 5 m.



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# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |                                  |                                   |
|--|----------------------------------|-----------------------------------|
| CIRCLE   | Sundarpahari                     |                                   |
| MOUZA  | Kherabani                        |                                   |
| ROCK TYPE  | Amphibolite                      |                                   |
| PROPOSED DEPTH OF ORE BODY (meters)  | 20                               |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA  | 130m TO 190m                     |                                   |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)   | 92                               |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 11040000                         |                                   |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 29.81                            |                                   |
| Geo Location   | Latitude (Max-Min)               | Longitude (Max-Min)               |
|  | 24°50'25.37"N<br>to 24°51'7.11"N | 87°22'38.49"E<br>to 87°23'44.83"E |

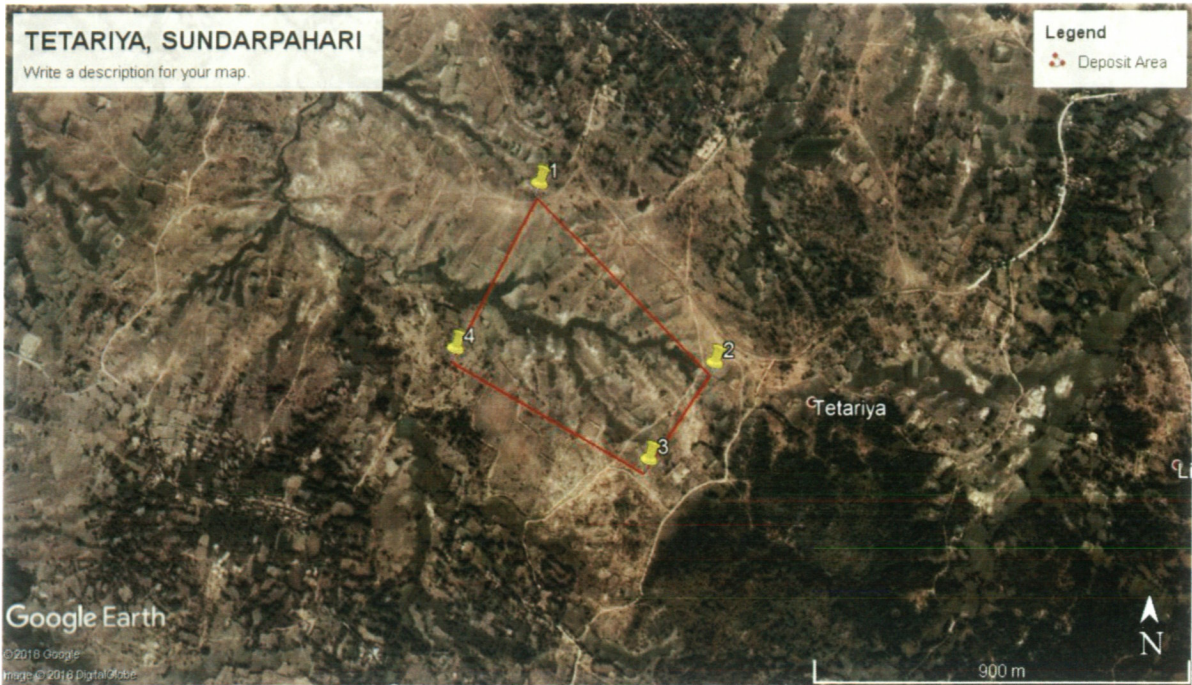




**POTENTIAL BLOCK 6:**

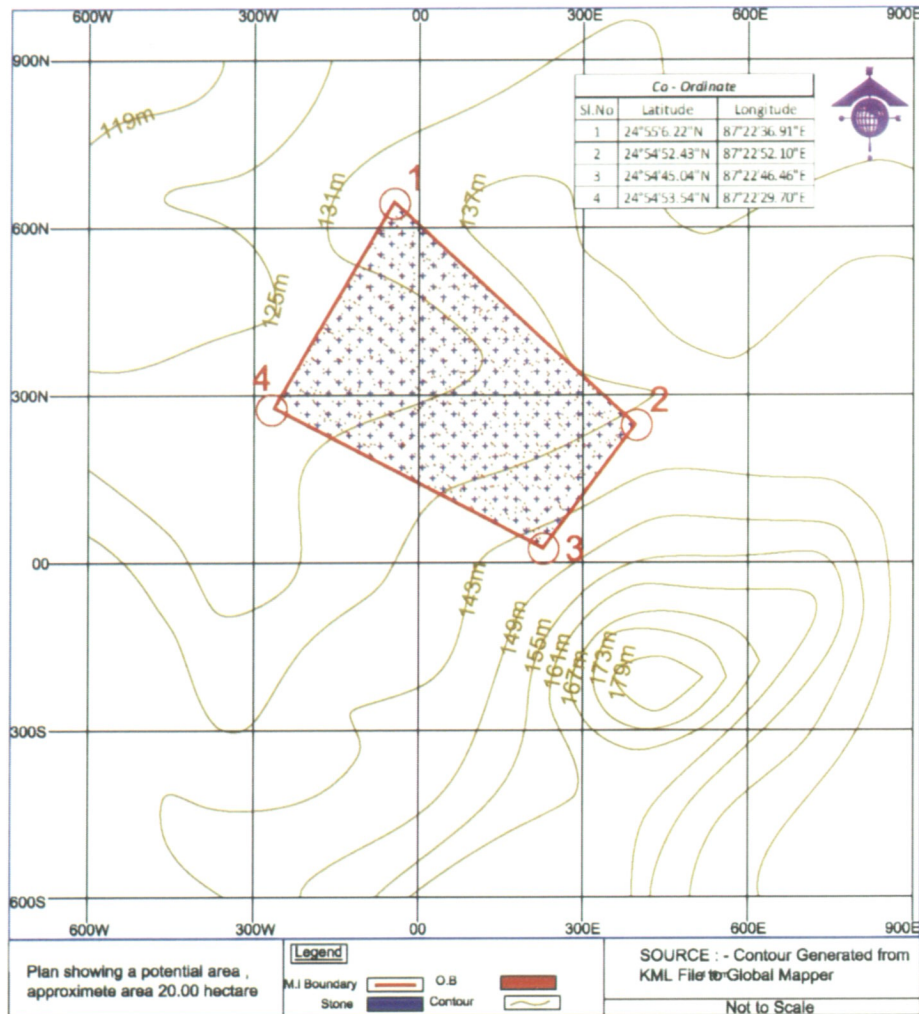
**Geological Observation of the field:**

West of the village, medium grained massive quartz biotite gneiss is exposed in discontinuous patches trending north 80 degree east, south 80 degrees west, dipping 75 degrees westerly. Further study of the area, the rock exposed which is Augen Gneiss also. The width of exposure on the surface is 150m and continuous about 1 km long.



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# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|   |   |                                   |
|---|---|-----------------------------------|
| CIRCLE  | Sundarpahari                                      |                                   |
| MOUZA   | Tetariya  |                                   |
| ROCK TYPE   | Augen gneiss well foliated with Augen of Feldspar |                                   |
| PROPOSED DEPTH OF ORE BODY (meters)   | 20  |                                   |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)  | 20  |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA   | 128m to 144m                                      |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES (Volume in m <sup>3</sup> , Recovery Factor 60%) | 2400000   |                                   |
| APPROX. MINEABLE RESOURCE IN MT (Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 6.48  |                                   |
| Geo Location  | Latitude (Max-Min)                                | Longitude (Max-Min)               |
|   | 24°54'45.04"N<br>to 24°55'6.22"N                  | 87°22'29.70"E<br>to 87°22'52.10"E |

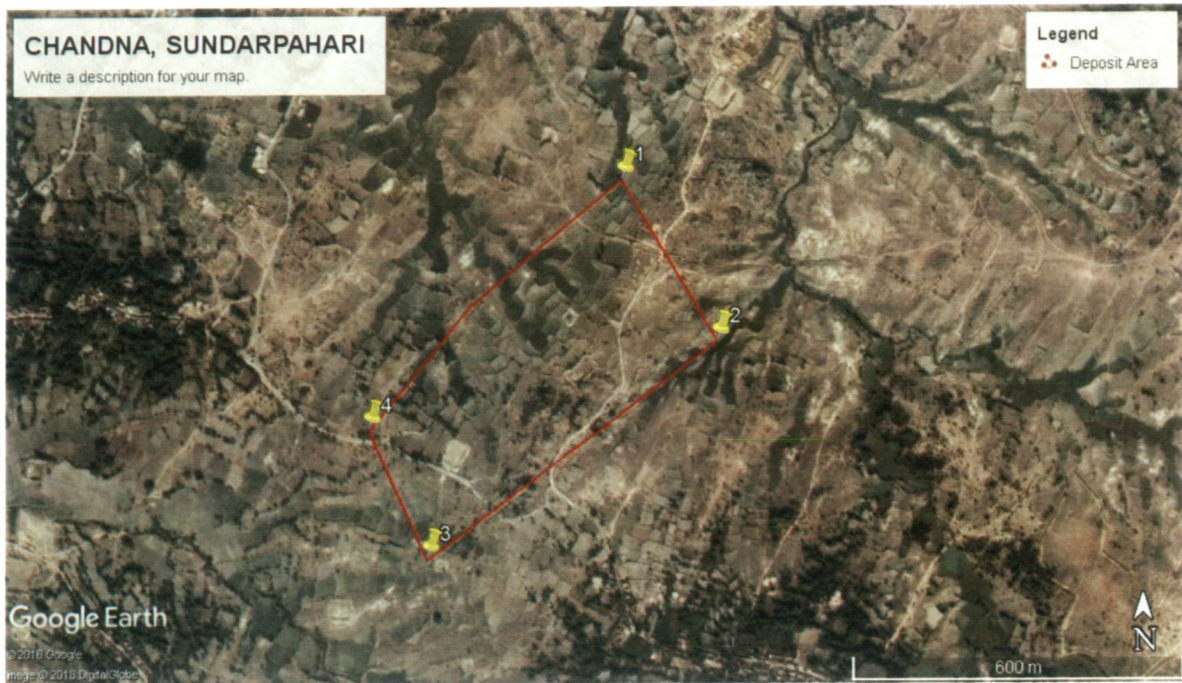




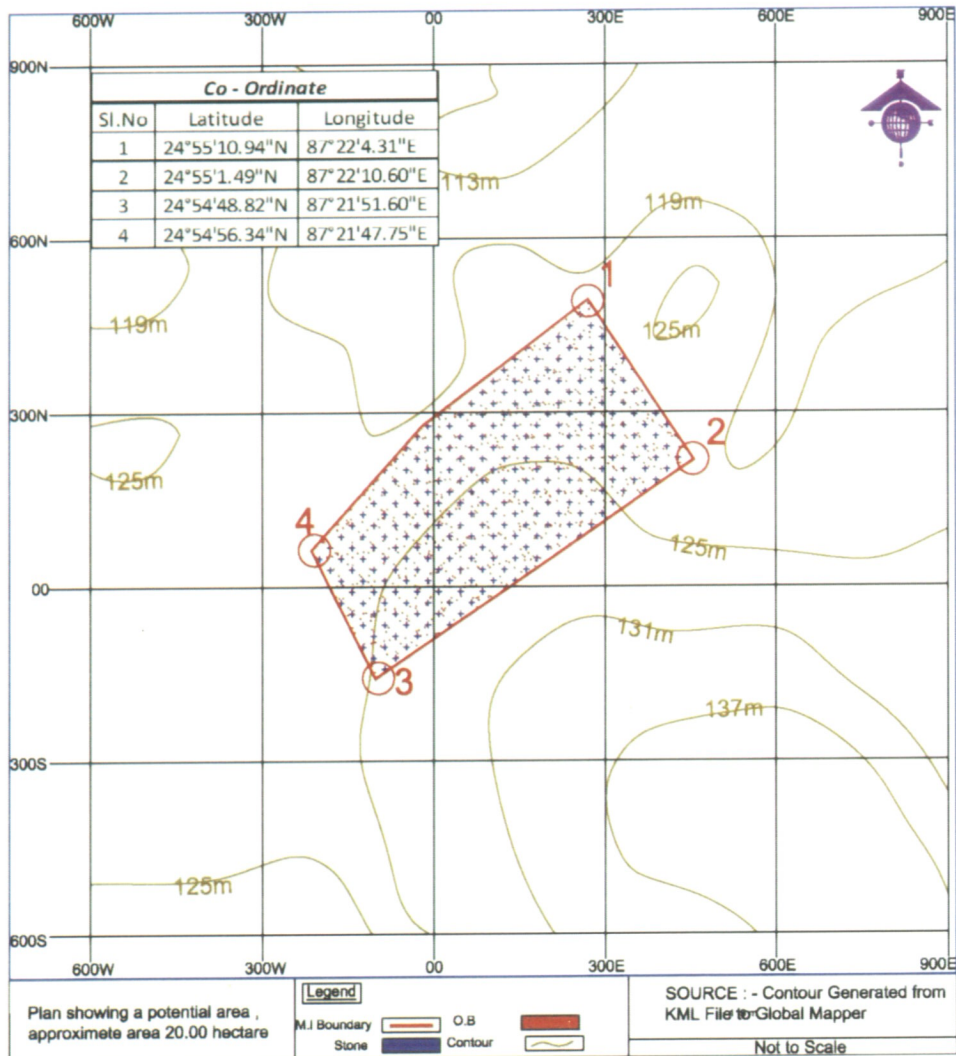
**POTENTIAL BLOCK 7:**

**Geological Observation of the field:**

East of Chandna village, adjacent to Potential Block 6, mentioned previously, similar type of geomorphology with well exposed augen gneisses well foliated with augen of feldspar was observed at both side of the road trending north 20° east, south 20° west. The dips varies from 70 degrees to 80 degrees towards west. The main rock type is biotite gneiss with feldspar augen. The rock is having 2 sets of well-developed joints, 1. Foliation Joint trending north 20 degree east, south 20 west; dipping 70 degrees west. 2. Oblique to the foliation and trends north 70 degree east, south 70 degrees west and it is vertical. Tentatively the zone is 100m wide and continues for 2 Km in the western side of the road.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |   |                                   |
|--|---|-----------------------------------|
| CIRCLE   | Sundarpahari                                      |                                   |
| MOUZA  | Chandana  |                                   |
| ROCK TYPE  | Augen Gneiss well foliated with Augen of Feldspar |                                   |
| PROPOSED DEPTH OF ORE BODY (meters)  | 20  |                                   |
| APPROX AREA AS PER GEO-REFERENCE (Ha.)   | 20  |                                   |
| MIN & MAX RL WITHIN PROPOSED AREA  | 120m To 125m                                      |                                   |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 2400000   |                                   |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 6.48  |                                   |
| Geo Location   | Latitude (Max-Min)                                | Longitude (Max-Min)               |
|  | 24°54'48.82"N<br>to 24°55'10.94"N                 | 87°21'47.75"E<br>to 87°22'10.60"E |

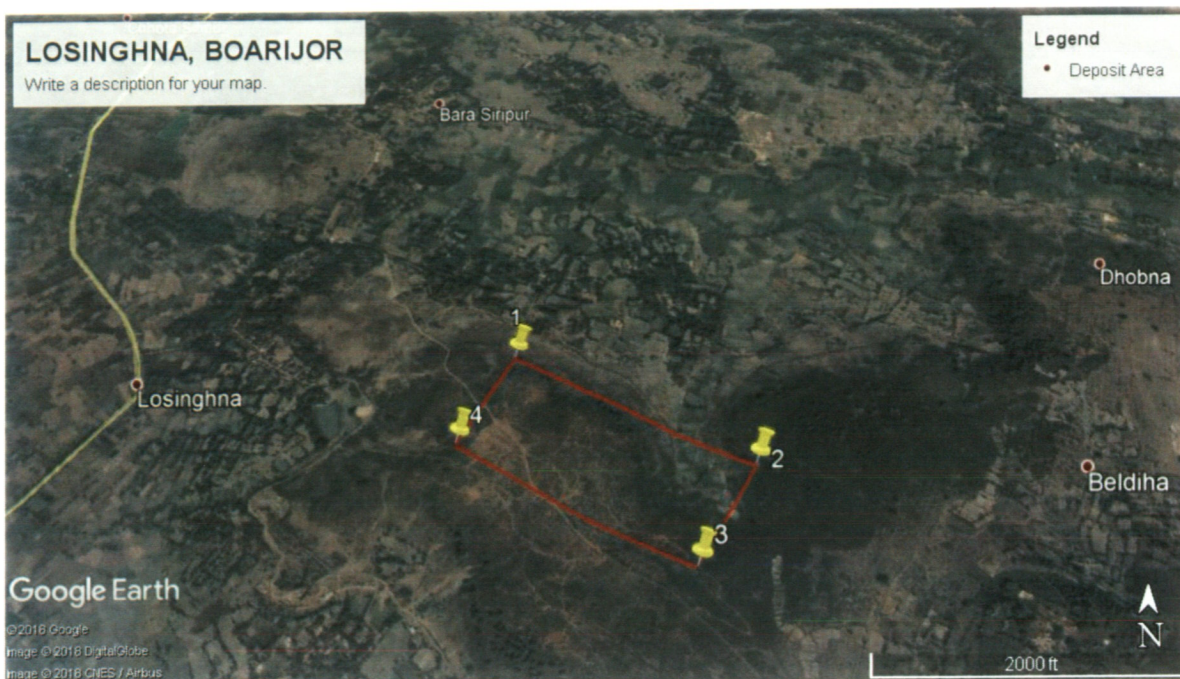




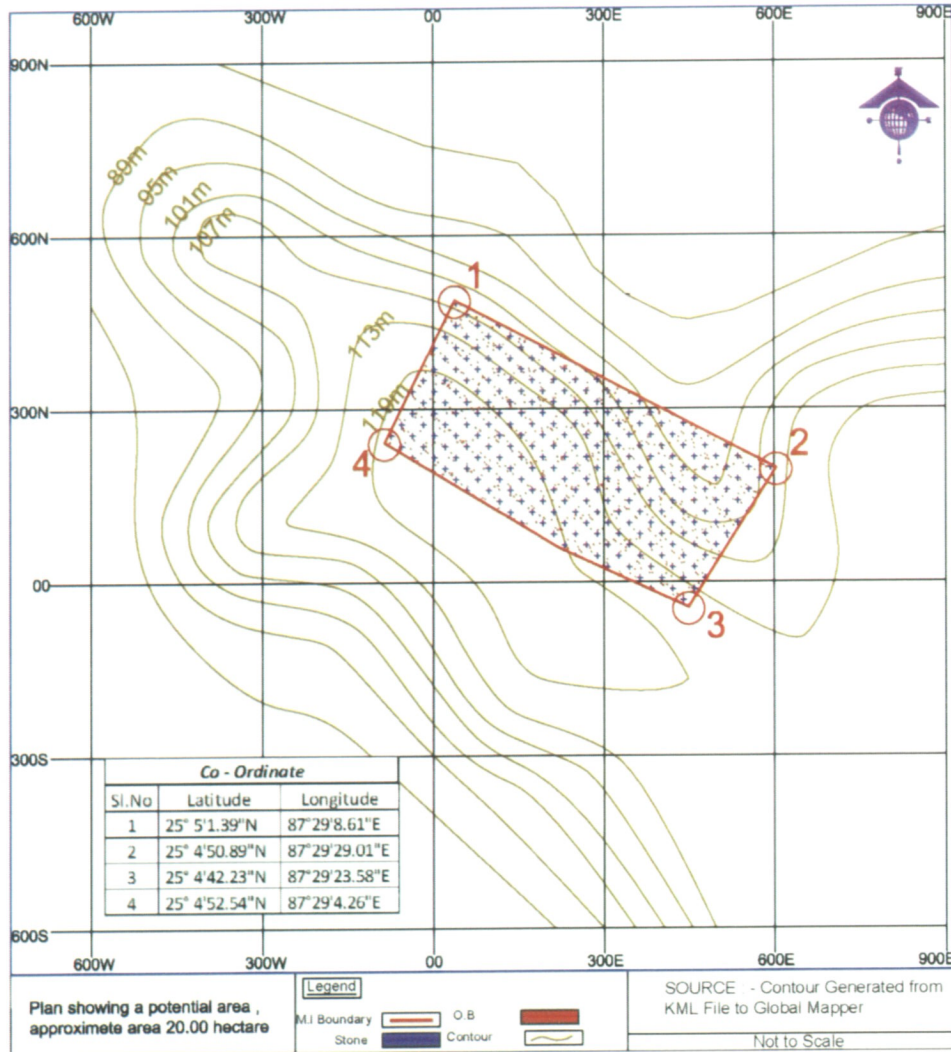
**POTENTIAL BLOCK 8:**

**Geological Observation of the field:**

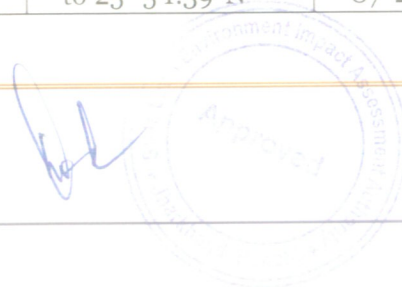
The rock type is Basalt, there are thin patches of Biotite Gneiss at places. In some exposers, crudely developed Migmatites are also seen. The rock has variable grain size with course to medium grain. On the surface, as it falls in the top of the exposers in the form of mound. There is no over burden, however, in the foothill of mound, overburden varies from 1m to 5m as it touches the cultivated lands. On the surface, all the exposed rocks are weathered.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |                                  |                                  |
|--|----------------------------------|----------------------------------|
| CIRCLE   | Boarijor                         |                                  |
| MOUZA  | Losinghna & Kandaniya            |                                  |
| ROCK TYPE  | Basalt                           |                                  |
| PROPOSED DEPTH OF ORE BODY (meters)  | 20                               |                                  |
| APPROX. AREA AS PER GEO-REFERENCE (Ha.)  | 20                               |                                  |
| MIN & MAX RL WITHIN PROPOSED AREA  | 92m to 121m                      |                                  |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 2400000                          |                                  |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 6.48                             |                                  |
| Geo Location   | Latitude (Max-Min)               | Longitude (Max-Min)              |
|  | 25° 4'42.23"N<br>to 25° 5'1.39"N | 87°29'4.26"E to<br>87°29'29.01"E |

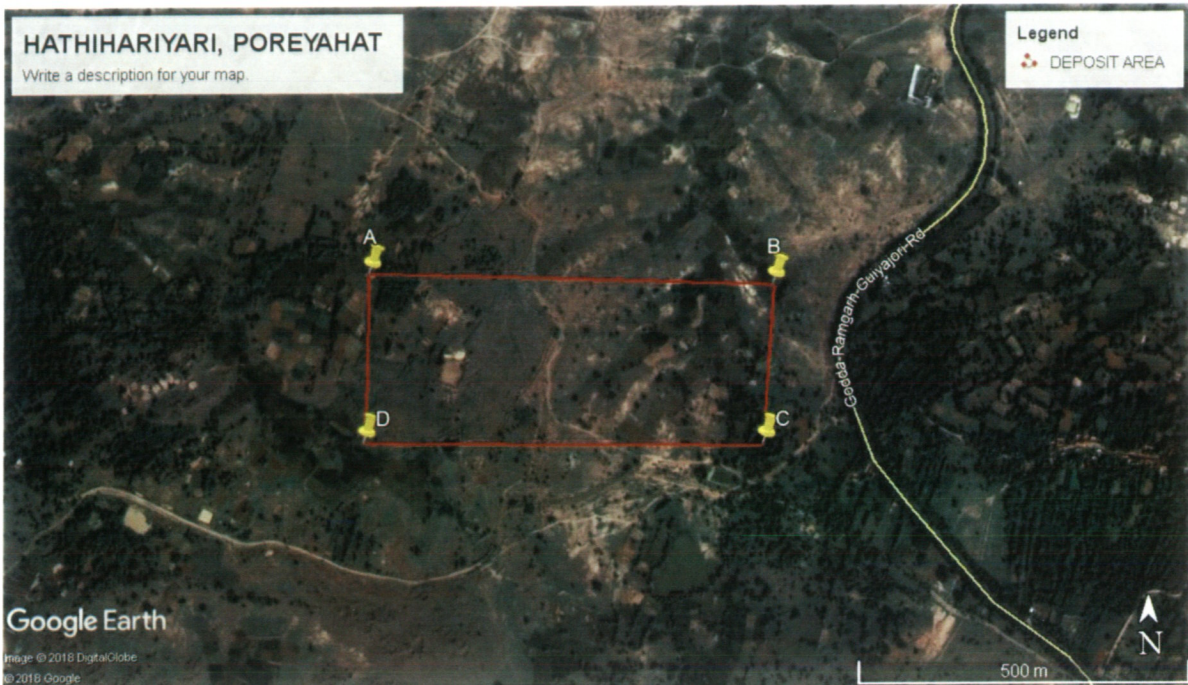




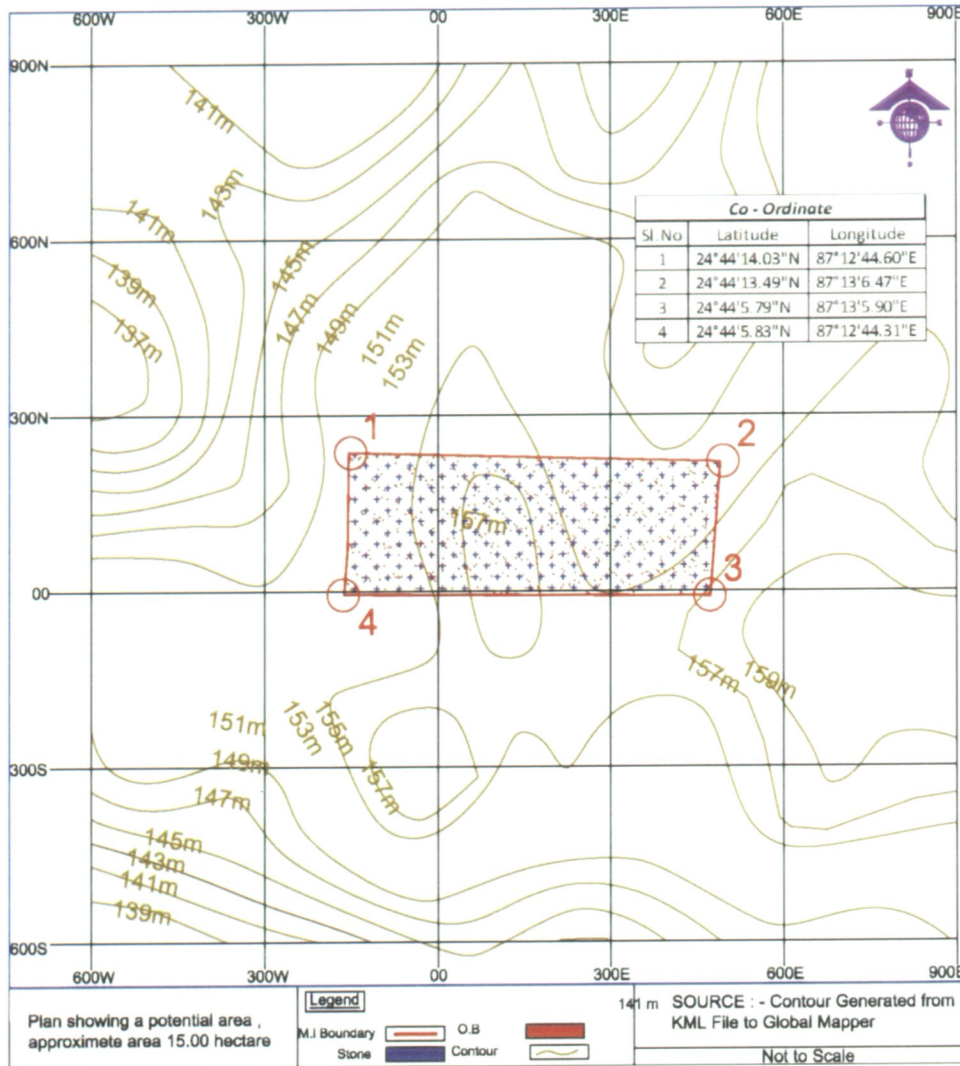
**POTENTIAL BLOCK 9:**

**Geological Observation of the field:**

East of the village, medium grained massive Quartz Biotite Gneiss is exposed in discontinuous patches trending north 80 degree east, south 80 degrees west, dipping 75 degrees westerly. Further study of the area, the rock exposed which is Augen Gneiss also. The width of exposure on the surface is 150m and continuous about 1 km long.



# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|  |                                  |                                  |
|--|----------------------------------|----------------------------------|
| CIRCLE   | Poraiyahat                       |                                  |
| MOUZA  | Hathi Hariyari                   |                                  |
| ROCK TYPE  | Quartz Biotite Gneiss            |                                  |
| PROPOSED DEPTH OF ORE BODY (meters)  | 20                               |                                  |
| APPROX. AREA AS PER GEO-REFERENCE (Ha.)  | 15                               |                                  |
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 1800000                          |                                  |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 4.86                             |                                  |
| Geo Location   | Latitude (Max-Min)               | Longitude (Max-Min)              |
|  | 24°44'5.79"N<br>to 24°44'14.03"N | 87°12'44.31"E<br>to 87°13'6.47"E |

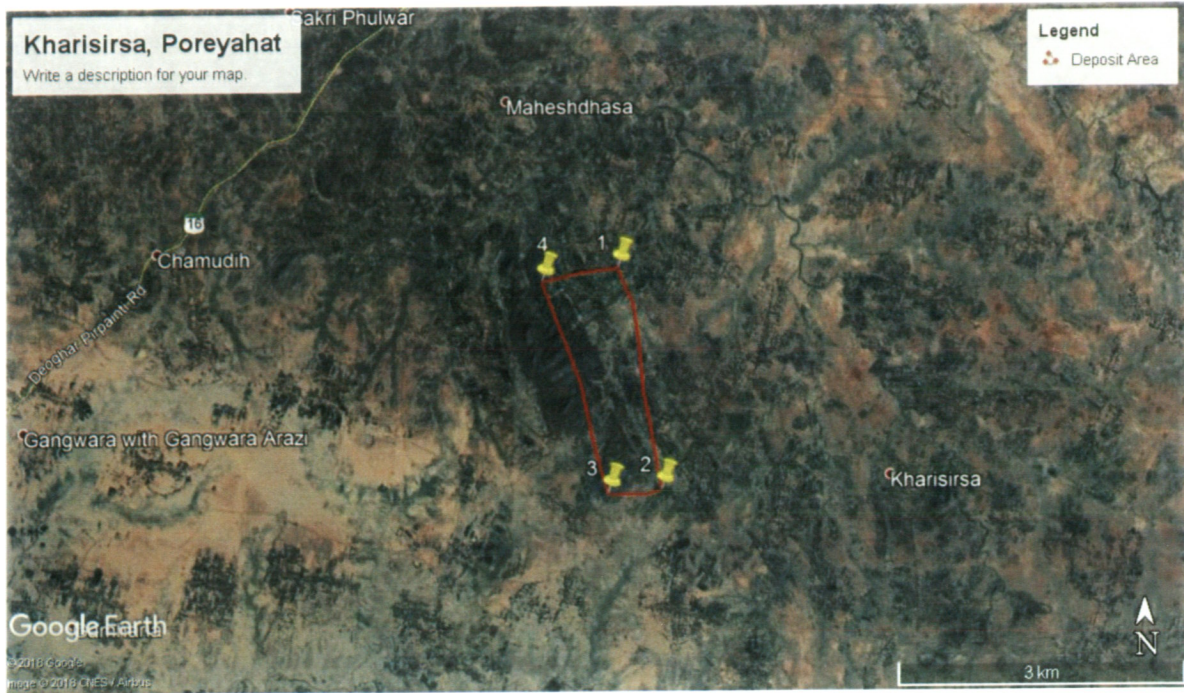




**POTENTIAL BLOCK 10:**

**Geological Observation of the field:**

As per District Mineral Resource Map of GSI, in the Poreyahat block, in the South-West side in village Kharisirsā, there is a deposit of Dolerite, which is medium grained Basalt, which can be used as road & building material. The proposed area is 500m away from the habitation in South and East direction. The hillock in west side falls within the 500m periphery of the habitation, hence, that part has been left out.



**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**

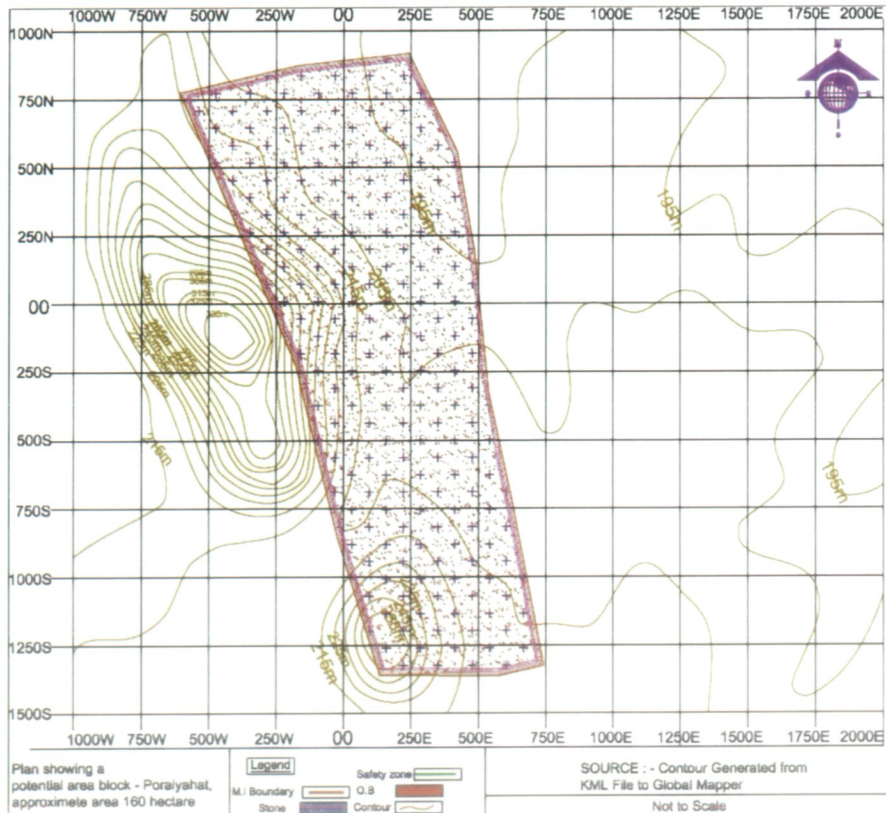


**Block - Poreyahat, Mineral Type: Dolerite, Area – 161 Ha.**



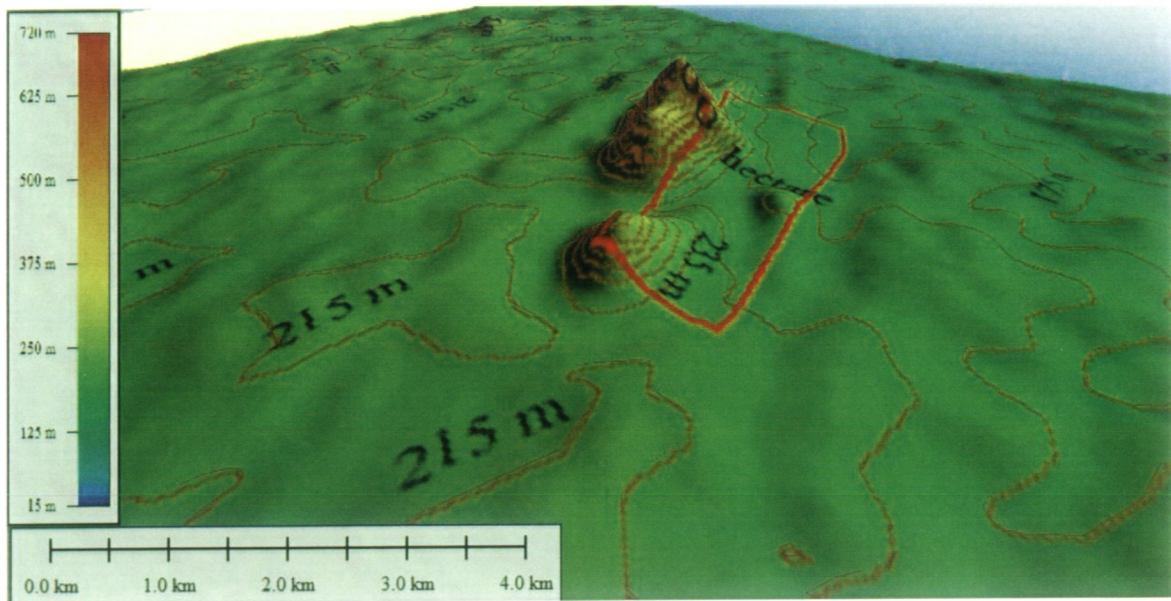
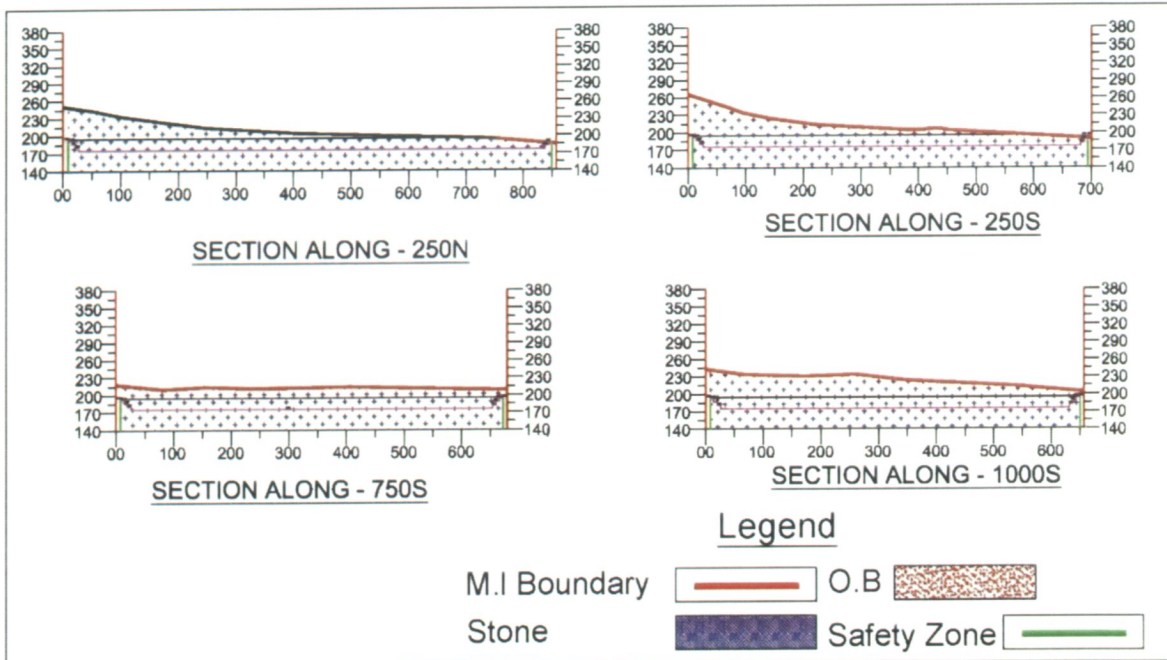
Villages falling under the potential area:

Dadughutu, Paharpur, Panch Pahari, Karam Tola, Akasi, Durjapani.



*[Handwritten signature]*

# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



Map showing 3D Topographic View of the Potential Area

|   |            |
|---|------------|
| CIRCLE                                  | Poreyahat  |
| MOUZA                                   | Kharisirsa |
| ROCK TYPE                               | Dolerite   |
| CONSIDERED DEPTH OF ORE BODY (metres)   | 20         |
| APPROX. AREA AS PER GEO-REFERENCE (Ha.) | 161        |

**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



|  |                                  |                                   |
|--|----------------------------------|-----------------------------------|
| APPROX. IN-SITU MINEABLE RESOURCES<br>(Volume in m <sup>3</sup> , Recovery Factor 60%) | 19320000                         |                                   |
| APPROX. MINEABLE RESOURCE IN MT<br>(Density of Rock = 2.7 Ton/m <sup>3</sup> )         | 52.164                           |                                   |
| Geo Location   | Latitude (Max-Min)               | Longitude (Max-Min)               |
|  | 24°36'45.62"N<br>to 24°38'1.08"N | 87°10'48.95"E<br>to 87°10'52.59"E |

**29.2 Few other areas identified as Potential Stone Deposit in Godda District:**

| Sl. No. | Mineral | Address   | Geo Location   | Approx. Area |
|---------|---------|---|--|--------------|
| 1       | Stone   | Mouza – Mahua Bathan, Block – Boarijore<br>Plot No. – 491, 492, 495, 496, 498 to 501                        | 24° 58' 00.79" N to 24° 57' 49.43" N<br>87° 24' 59.81"E to 87° 24' 01.24"E | 2.22 Ha.     |
| 2       | Stone   | Mouza – Loha Tamba, Block – Boarijore<br>Plot No. – 757, 760, 765 to 768                                    | 24°57'52.94" N to 24°57'58.43" N<br>87°25'42.72"E to 87°25'50.83"E         | 2.76 Ha.     |
| 3       | Stone   | Mouza – Loha Tamba, Block – Boarijore<br>Plot No. - 539, 541 to 545, 564-583                                | 24°58'12.59"N to 24°58'04.56"N<br>87°24'35.82"E to 87°24'44.36"E           | 3.00 Ha.     |
| 4       | Stone   | Mouza – Shear Katiya, Block – Godda<br>Khata No. - 54, Plot No. – 1057<br>Thana No. - 190                   | 24° 38'15.4" N to 24° 38'08.5" N<br>87° 19' 25.8" E to 87° 19' 29.2" E     | 4.00 Acres   |
| 5       | Stone   | Mouza – Thakur Nahan, Block – Poreyahat<br>Khata No. – 805, 810-815, 790, 792, 794,<br>789, 887, 889, 7, 58 | 24° 39' 40.4" N to 24° 39' 46.9" N<br>87° 03' 13.9"E to 87° 03' 22.6"E     | 10.00 Acres  |
| 6       | Stone   | Mouza – Bara Kotha, Block – Boarijore<br>Plot No. – 295, 296, 302, 303                                      | 25° 02' 00.5" N to 25° 02' 06.3" N<br>87° 24' 23.1"E to 87° 24' 26.3"E     | 2.00 Ha.     |
| 7       | Stone   | Mouza – Lohatamba, Block - Boarijore<br>Plot No. 237, 239 to 242  | 24°57'26.61"N to 24°57'34.72"N<br>87°25'50.24"E to 87°26'00.82"E           | 3.80 Ha.     |
| 8       | Stone   | Mouza – Mopahari, Block – Thakurgangti<br>Plot No. 29   | 25°10'35.82"N to 25°11'0.89"N<br>87°26'51.94"E to 87°27'07.27"E            | 20.00 Ha.    |
| 9       | Stone   | Mouza – Charkatanr, Block - Poreyahat<br>Plot No. 26  | 24°38'25.16"N to 24°38'22.59"N<br>87° 5'13.20"E to 87° 5'10.97"E           | 1.5 Ha.      |
| 10      | Stone   | Mouza – Bara Bohraro, Block - Boarijore<br>Plot No. 341, 350  | 24°57'42.75"N to 24°57'31.58"N<br>87°25'30.25"E to 87°25'25.73"E           | 2.60 Ha.     |
| 11      | Stone   | Mouza – Malmala, Block - Godda<br>Plot No. 180, 181, 184  | 24°39'54.55"N to 24°39'42.97"N<br>87°19'47.38"E to 87°19'40.60"E           | 2.75 Ha.     |
| 12      | Stone   | Mouza – Simrakola, Block - Poreyahat<br>Plot No. 387, 401   | 24°38'24.14"N to 24°38'21.08"N<br>87° 5'10.34"E to 87° 5'06.75"E           | 1.30 Ha      |
| 13      | Stone   | Mouza – Charkatanr, JL No. 12, Block -<br>Poriyahat<br>Plot No. 26  | 24° 38' 22.9"N to 24° 38' 24.8"N<br>87° 05' 11.3"E to 87° 05' 13.3"E       | 3.69 Acres   |
| 14      | Stone   | Mouza – Bamangama, Revenue Circle –<br>Rajabhita<br>Plot No. 142  | 24° 57' 58.38"N to 24° 58' 10.62"N<br>87° 25' 51.69"E to 87° 26' 03.96"E   | 4.85 Acres   |
| 15      | Stone   | Mouza- Akashi (151), Circle – Poreyahat,<br>P.S. – Poreyahat<br>JB No. – 95                                 |  | 3.59 Acres   |



**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



|    |       |  |  |             |
|----|-------|--|--|-------------|
|    |       | Plot No. – 1089, 1079, 1069, 1101, 1088, 1074, 1094, 1066, 1075, 1069, 1096, 1072, 1067, 1095 & 1065   |  |             |
| 16 | Stone | Mouza- Akashi (151), Circle – Poreyahat, P.S. – Poreyahat<br>JB No. – 105/2<br>Plot No. - 1097<br>JB No. – 36<br>Plot No. – 1099, 1103, 1104<br>JB No. – 56<br>Plot No. – 1064             | -  | 2.80 Acres  |
| 17 | Stone | Mouza – Birbal Tola (No. 551), Circle – Godda, P.S. – Muffasil<br>JB No. – 15<br>Plot No. – 142, 143, 145, 147, 148, 223, 224, 226, 227, 228, 230, 231, 233, 234, 235, 236, 240, 241 & 243 | -  | 6.75 Acres  |
| 18 | Stone | Mouza – Dadu Ghutu, Paharpur No. – 117, Circle – Poreyahat, P.S. - Poreyahat<br>JB No. – 8<br>Plot No. – 206, 308<br>JB No. – 26<br>Plot No. – 307   | -  | 3.40 Acres  |
| 19 | Stone | Mouza – Beldiha No. – 54, Circle + P. S. – Boarijore<br>JB No. – 3<br>Plot No. – 56, 57, 58, 66, 67 & 68   | -  | 6.22 Acres  |
| 20 | Stone | Mouza – Malmala No. – 567<br>Plot Nos. – 31, 69, 133, 172, 175, 370  | -  | 46.4 Acres  |
| 21 | Stone | Mouza – Sahari No. – 565<br>Plot Nos. – 10, 645  | -  | 21.89 Acres |
| 22 | Stone | Mouza – Damma No. – 566<br>Plot Nos. – 1, 139, 208   | -  | 34.85 Acres |
| 23 | Stone | Mouza – Jamkundar No. 570<br>Plot Nos. – 763, 771  | -  | 11.89 Acres |
| 24 | Stone | Mouza – Chhota Chapari No. – 52<br>J.B. No. – 18<br>Plot Nos. - 12, 15, 16   | -  | 6.22 Acres  |
| 25 | Stone | Mouza – Lohatamba (Agaiya) No. – 7<br>J. B. Nos. – 8, 23, 35, 27<br>Plot Nos. – 544, 545, 539, 541, 542, 543, 538, 575   | -  | 2.99 Acres  |
| 26 | Stone | Baghmara Stone Block<br>Mouza – Baghmara-Kendua-Ambadih  | 24° 37' 26.18"N to 24° 37' 34.16"N<br>87° 16' 39.18"E to 87° 17' 05.88"E | 13.00 Ha.   |
| 27 | Stone | Amjor Stone Block<br>Mouza – Amjor   | 24° 41' 39.41"N to 24° 41' 51.83"N<br>87° 18' 56.47"E to 87° 19' 07.62"E | 11.00 Ha.   |
| 28 | Stone | Banshipur Stone Block<br>Mouza – Banshipur   | 24° 57' 56.83"N to 24° 58' 08.32"N<br>87° 12' 50.98"E to 87° 13' 02.63"E | 10.00 Ha.   |

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DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND  
MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



|    |       |  |  |           |
|----|-------|--|--|-----------|
| 29 | Stone | Debipur Stone Block<br>Mouza – Debipur                           | 24° 55' 08.32"N to 24° 55' 19.64"N<br>87° 22' 05.81"E to 87° 22' 17.14"E | 10.00 Ha. |
| 30 | Stone | Kundapani & Hilaljor Stone Block<br>Mouza – Kundapani & Hilaljor | 24° 41' 39.84"N to 24° 41' 59.96"N<br>87° 17' 39.52"E to 87° 17' 49.33"E | 15.00 Ha. |

**Note:** Any other area which may be found feasible for Stone mining shall be included in the DSR prospectively.



### 29.3 Site Photographs of the Potential Areas:



Photograph showing Potential Stone Deposit at Chandana, Sundarpahari



Photograph showing Potential Stone Deposit at Ghatiyari, Sundarpahari

DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



Photographs showing Potential Stone Deposit at Chandana, Sundarpahari



**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



**Photographs showing Potential Stone Deposit at Tasria, Sundarpahari**



DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



Chandana, Sundarpahari



Tetria, Boarijor



Kharisirsa, Poreyahat





### References:

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*[Handwritten signature]*

## LETTER OF INTENT – REPORTS

जिला खनन कार्यालय, गोड्डा।

जापाक : ३२४ /एम० दिनांक : १२- माच २१  
आशय का पत्र (Letter of Intent)

परिपत्र

एम. एन. इन्टरप्राइज,  
प्रो० श्री हृदय नारायण सिंह,  
ग्राम- सदर गंगटी,  
पो०+था० ठाकुर गंगटी, जिला गोड्डा,  
झारखण्ड 813208

विषय : गोड्डा जिला के बोआरीजोर अंचल अन्तर्गत मौजा लोहाताम्बा (अगैया) के प्लॉट संख्या- 849 एवं 848, रकबा 4.09 एकड़ क्षेत्र पर दाखिल आवेदन दिनांक 27.01.2021 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के संबंध में।  
उपरोक्त विषय के संबंध में सूचित करना है कि आपके द्वारा दिनांक 27.01.2021 का पत्थर खनन पट्टा प्राप्ति हेतु आवेदन पत्र जिसका विवरण निचे उल्लिखित है, पर स्वीकृति का मेडिकल महामात्र उपायुक्त, गोड्डा के आदेश दिनांक 10.03.2021 के आलाक में झारखण्ड लघु खनिज समनुदान सशोधन नियमावली, 2014 के नियम 11(क) के तहत प्रदान की जाती है।

1. आवेदक का नाम : एम. एन. इन्टरप्राइज  
प्रो० श्री हृदय नारायण सिंह,  
ग्राम- सदर गंगटी,  
पो०+था० ठाकुर गंगटी, जिला गोड्डा,  
झारखण्ड 813208
2. मौजा : लोहाताम्बा (अगैया),
3. खनिज : पत्थर,
4. रकबा : 4.09 एकड़
5. प्लॉट संख्या : 849 एवं 848
6. अंचल : बोआरीजोर,
7. थाना : गजार्भाठा
8. जिला : गोड्डा
9. आवेदन की तिथि : 27.01.2021
10. शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि नियमों एवं शर्तों का अनुपालन नहीं करने एवं प्रतिवेदन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जायेगा।

आप अनुमोदित खनन योजना (Mining Plan) तथा सक्षम प्राधिकार से प्रदान पर्यावरणगत स्वच्छता प्रमाण पत्र यथासाध्य दाखिल करें, जिसमें कि पत्थर खनन पट्टा का स्वीकृति प्रदान की जा सके।

जिला खनन पदाधिकारी  
गोड्डा

जापाक : ३२४ /एम० दिनांक : १२- माच २१  
परिपत्र : उप निदेशक खनिज संधान परमाणु अंचल, उपका के कक्ष पर्यावरण संधान

जिला खनन पदाधिकारी  
गोड्डा

# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



जिला खनन कार्यालय, गोड्डा।

जापानक : १३९ /एम० दिनांक : १२ मार्च २०२१  
आशय का पत्र (Letter of Intent)

पापित

एम. एन. इन्टरप्राईज,  
प्रो० श्री हृदय नारायण सिंह,  
ग्राम- सदर गंगटी,  
पो०+था०- ठाकुर गंगटी, जिला- गोड्डा,  
झारखण्ड 813208

विषय : गोड्डा जिला के बोआरीजोर अंचल अन्तर्गत मौजा लाहाताम्बा (अगैया) के प्लॉट संख्या- 568, 574, 582, 569, 570, 571, 578, 566, 581, 576, 577, 580, 565 अंश, 567, 572, 573 एवं 579, रकबा 7.30 एकड़ क्षेत्र पर दाखिल आवेदन दिनांक 27.01.2021 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के संबंध में।

उपर्युक्त विषय के संबंध में सूचित करना है कि आपक द्वारा दिनांक 27.01.2021 का पत्थर खनन पट्टा प्राप्त हेतु आवेदन पत्र जिसका विवरण निचे उल्लेखित है पर स्वीकृति का मेडिकल महामति उपायुक्त, गोड्डा के आदेश दिनांक 10.03.2021 के आलाक में झारखण्ड लघु खनिज समनुदान संशासन नियमावली, 2014 के नियम 11(क) के तहत प्रदान की जाती है।

1. आवेदक का नाम : एम. एन. इन्टरप्राईज  
प्रो० श्री हृदय नारायण सिंह,  
ग्राम- सदर गंगटी,  
पो०+था०- ठाकुर गंगटी, जिला- गोड्डा,  
झारखण्ड 813208
2. मौजा : लाहाताम्बा (अगैया),
3. खनिज : पत्थर,
4. रकबा : 7.30 एकड़
5. प्लॉट संख्या : 568, 574, 582, 569, 570, 571, 578, 566, 581, 576, 577, 580,  
565 अंश 567, 572, 573 एवं 579
6. अंचल : बोआरीजोर,
7. थाना : राजाभीठा
8. जिला : गोड्डा
9. आवेदन की तिथि : 27.01.2021
10. शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि नियमों एवं शर्तों का अनुपालन नहीं करने एवं प्रतिवेदन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जाएगा।

आप अनुमोदित खनन योजना (Mining Plan) तथा सक्षम प्राधिकार से प्रदान पर्यावरणयुक्त स्वच्छता प्रमाण पत्र यथाशक्ति दाखिल करें जिससे कि पत्थर खनन पट्टा का स्वीकृति प्रदान की जा सके।

जिला खनन पट्टा अधिकारी  
गोड्डा

जापानक : १३९ /एम० दिनांक : १२ मार्च २०२१

प्रतिवेदन : १० विदेशक खान संचालन परमाणु अंचल (मसक) के कार्य संचालन दिशिका

जिला खनन पट्टा अधिकारी  
गोड्डा



**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



जिला खनन कार्यालय, गोड्डा।

जापाक : 17एम0 दिनांक : मार्च 21  
आशय का पत्र (Letter of Intent)

पॉषत

एम. एन. इन्टरप्राईज,  
प्री0- श्री हृदय नारायण सिंह,  
ग्राम सदर गंगटी,  
प्री0+थी0 ठाकुर गंगटी, जिला- गोड्डा,  
झारखण्ड- 813208

विषय : गोड्डा जिला के बीआरीजोर अंचल अन्तर्गत मौजा लोहाताम्बा (अगैया) के प्लट संख्या- 760, 768, 757 अंश, 765, 766 एवं 767, रकबा 6.83 एकड़ क्षेत्र पर दाखिल आवेदन दिनांक 27.01.2021 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के संबंध में।

उपर्युक्त विषय के संबंध में सूचित करना है कि आपके द्वारा दिनांक 27.01.2021 का पत्थर खनन पट्टा प्राप्ति हेतु आवेदन पत्र जिसका विवरण निचे उल्लिखित है, पर स्वीकृति को मैट्रिक सहमान उपायुक्त, गोड्डा के आदेश दिनांक 10.03.2021 के आलाक में झारखण्ड लघु खनिज समनुदान सशाभन नियमावली, 2014 के नियम 11(क) के तहत प्रदान की जाती है।

1. आवेदक का नाम : एम. एन. इन्टरप्राईज  
प्री0 श्री हृदय नारायण सिंह,  
ग्राम सदर गंगटी,  
प्री0+थी0 ठाकुर गंगटी, जिला- गोड्डा,  
झारखण्ड- 813208
2. मौजा : लोहाताम्बा (अगैया),
3. खनिज : पत्थर,
4. रकबा : 6.83 एकड़
5. प्लट संख्या : 760, 768, 757 अंश, 765, 766 एवं 767
6. अंचल : बीआरीजोर,
7. थाना : राजाभीठा
8. जिला : गोड्डा
9. आवेदन की तिथि : 27.01.2021
10. शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि नियमों एवं शर्तों का अनुपालन नहीं करने एवं प्रतिवेदन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जायगा।

आप अनुमोदित खनन योजना (Mining Plan) तथा सक्षम प्राधिकार से प्रदान पर्यावरणय म्वच्छता प्रमाण पत्र यथाशोघ दाखिल करें, जिसमें कि पत्थर खनन पट्टा की स्वीकृति प्रदान की जा सके।

जिला खनन प्रदाधिकार  
गोड्डा

जापाक : 17एम0 दिनांक : 17/03/21 मार्च 21  
प्राजालय : रा. निदेशक खनन सशाभन परगना अंचल, दुमका की कक्षा, मुंबनगरी, राँची

प्राप्त  
दिनांक 17/03/21



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# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



जिला खनन कार्यालय, गोड्डा।

क्रमांक : 254 तम्र सं. दिनांक : 24 फरवरी 2020  
आशय का पत्र (Letter of Intent)

प्राप्त

1. श्री अजीत आनन्द,  
पिता श्री प्रमोद भगत,  
ग्राम-पो0-धाना- महागामा,  
जिला- गोड्डा, झारखण्ड- 814154 एवं
2. श्री जट्टु पहाड़िया,  
पिता स्व0 सुर्यनारायण पहाड़िया,  
ग्राम- बड़ा कोठा, पो0- लोहाड़िया बाजार,  
जिला- गोड्डा, झारखण्ड- 814165

**विषय :** गोड्डा जिला के बोआरीजोर अंचल अन्तर्गत मौजा बड़ाकाठा के प्लॉट संख्या 295, 296, 302 एवं 303, रकबा 2.49 एकड़ क्षेत्र पर दाखिल आवदन दिनांक 28.01.2020 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के सम्बन्ध में।

उपरोक्त विषय के संबंध में सूचित करना है कि आपके द्वारा दिनांक 28.01.2020 को पत्र खनन पट्टा प्राप्त हेतु आवदन पत्र जिसका विवरण निम्न उल्लेखित है पर स्वाकॉन का गैरआवधिक संस्था उपरोक्त, गोड्डा के आदेश दिनांक 24.02.2020 के आलाक में झारखण्ड जल संधारण समन्वय संस्थान नियमावली, 2014 के नियम 11(क) के तहत प्रदान की जाता है।

|                 |   |  |
|-----------------|---|--|
| 1. आवेदक का नाम | : | 1. श्री अजीत आनन्द,<br>पिता श्री प्रमोद भगत एवं          |
|                 |   | 2. श्री जट्टु पहाड़िया<br>पिता स्व० सुर्यनारायण पहाड़िया |
| 2. मौजा         | : | बड़ाकाठा   |
| 3. खनिज         | : | पत्थर  |
| 4. रकबा         | : | 2.49 एकड़  |
| 5. प्लॉट संख्या | : | 295, 296, 302 एवं 303                                    |
| 6. अंचल         | : | बोआरीजोर   |
| 7. थाना         | : | ललमोटिया   |
| 8. जिला         | : | गोड्डा   |
| 9. आवदन का तिथि | : | 28.01.2020   |

10. शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि निम्नी एवं शर्ती की अनुपालना करें एवं एवं पंजीयन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जाएगा।

आप अनुमोदन खनन योजना (Mining Plan) तथा संलग्न दस्तावेजों को प्राप्त करने के बाद स्वच्छता प्रमाण पत्र पेशनामाद जमाकर करें जिसमें कि पत्र खनन पट्टा की आवश्यकता पड़ेगी की जायेगी।

*श्री श्री प्रमोद भगत  
Ajit Kumar*

*Handwritten signature*

क्रमांक : 254 तम्र सं. दिनांक : 24 फरवरी 2020  
प्रमाणित : श्री झारखण्ड जल संधारण समन्वय संस्थान, पत्र सं. 24 दिनांक 24.02.2020



DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND  
MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



जिला खनन कार्यालय, गोड्डा।

जापाक : 7357एम0 दिनांक : 11 मई, 2020

आशय का पत्र (Letter of Intent)

प्राप्त

राजवीर कन्सट्रक्शन प्रा0 लि0

निदेशक-

- श्री विमल कुमार अग्रवाल,  
पिता- बीर कुमार अग्रवाल एवं
  - श्री बीर कुमार अग्रवाल,  
पिता- स्व0 रामधारी लाल अग्रवाल,  
मोहल्ला- 614, हरिओम टावर,  
सर्कुलर रोड, राँची, झारखण्ड- 834001
- प्रतिनिधि- इमरान खान,  
पिता- स्व. इमाम बक्स,  
आसनबनी, थाना- रानेश्वर,  
जिला- दुमका, झारखण्ड- 816118

विषय : गोड्डा जिला के पाईयाहाट अंचल अन्तर्गत मौजा सिमराकोल के प्लॉट संख्या- 387 एवं 401, रकबा- 3.14 एकड़ क्षेत्र पर दाखिल आवेदन दिनांक 28.01.2020 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के सम्बन्ध में।

उपर्युक्त विषय के संबंध में सूचित करना है कि आपके द्वारा दिनांक 28.01.2020 को पत्थर खनन पट्टा प्राप्त हेतु आवेदन पत्र जिसका विवरण निचे उल्लेखित है, पर स्विकृति को मेडानिक महामां उपायुक्त, गोड्डा के आदेश दिनांक 09.05.2020 के आलाक में झारखण्ड लघु खनिज समनुदान सशाधन नियमावली, 2014 के नियम 11(क) के तहत प्रदान की जाता है।

- आवेदक का नाम : राजवीर कन्सट्रक्शन प्रा0 लि0  
निदेशक-
  - श्री विमल कुमार अग्रवाल  
पिता- बीर कुमार अग्रवाल एवं
  - श्री बीर कुमार अग्रवाल  
पिता- स्व0 रामधारी लाल अग्रवाल  
मोहल्ला- 614, हरिओम टावर,  
सर्कुलर रोड, राँची, झारखण्ड- 834001प्रतिनिधि- इमरान खान,  
पिता- स्व. इमाम बक्स,  
आसनबनी, थाना- रानेश्वर,  
जिला- दुमका, झारखण्ड- 816118
- मौजा : सिमराकोल
- खनिज : पत्थर
- रकबा : 3.14 एकड़
- प्लॉट संख्या : 387 एवं 401
- अंचल : पाईयाहाट
- थाना : पाईयाहाट
- जिला : गोड्डा
- आवेदन का तिथि : 28.01.2020

Received  
11/05/2020



**DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND  
MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND**



10. शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि नियमों एवं शर्तों का अनुपालन नहीं करने एवं पतितवदन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जायेगा।  
आप अनुमोदित खनन योजना (Mining Plan) तथा सक्षम प्राधिकार से पदतन पर्यावरणोपय  
स्वच्छता प्रमाण पत्र यथाशीघ्र दाखिल करें जिसमें कि पत्थर खनन पट्टा की स्वीकृति प्रदान की जा सके।

जिला खनन पदाधिकारी  
गाइडा।

जायांक : 755 /एम0. दिनांक : 11 मई, 2020

प्रतिनिधि : उप निदेशक, खान, सखाल परगना अंचल, दुमका को कृपया सूचनाथ प्राप्त।

जिला खनन पदाधिकारी,  
गाइडा।



*(Handwritten signature)*

# DISTRICT SURVEY REPORT OF MINOR MINERAL (STONE) OTHER THAN SAND MINING OR RIVER-BED MINING FOR GODDA DISTRICT OF JHARKHAND



जिला खनन कार्यालय, गोड्डा।

आपक : 1754 नामर दिनांक : 16 अक्टूबर 2019  
आशय का पत्र (Letter of Intent)

पान

वरुण सिंह मिसौरिया प्रा0 लि0,

- निर्देशक 1. वरुण सिंह, पिता श्री कुमार भरत एवं  
2. श्रीमती यशामति कुमारी, पति श्री कुमार भरत,  
मकान सं0 12, किशोर भवन, जस्टीश मंडल पथ,  
पटना 800023

विषय : गोड्डा जिला के बोआरोजोर अंचल अन्तर्गत मौजा बड़ा बरारा के प्लॉट संख्या 341 एवं 350, रकबा 6.31 एकड़ क्षेत्र पर दाखिल आवदन दिनांक 19.09.2019 के लिए आशय का पत्र (Letter of Intent) निर्गत करने के सम्बन्ध में।

उपरोक्त विषय के संबंध में सूचित करना है कि आपक द्वारा दिनांक 19.09.2019 का पत्थर खनन पदा धोपन हेतु आवदन पर जिसका विवरण निचे उल्लिखित है पर म्याक्ति का सहायक महामान उपायुक्त गोड्डा के आदेश दिनांक 15.10.2019 के अलावा में डायरेक्टर लघु खानेक समन्वयन मंत्रालय निवर्तमान 2014 के नियम (आक) के तहत पदान को जाता है।

1. आवदक का नाम : वरुण सिंह मिसौरिया प्रा0 लि0 निर्देशक : 1. वरुण सिंह  
पिता श्री कुमार भरत एवं 2. श्रीमती यशामति कुमारी  
पति श्री कुमार भरत

2. पता : बड़ा बरारा

3. खानेक : पत्थर

4. रकबा : 6.31 एकड़

5. प्लॉट संख्या : 341 एवं 350

6. अंचल : बोआरोजोर

7. थाना : राजाभाड़ा

8. जिला : गोड्डा

9. आवदन का तिथि : 19.09.2019

शर्त : आशय का पत्र इस शर्त पर अनुमोदन किया गया है कि नियमों एवं शर्तों का अनुपालन नहीं करने एवं पतिवदन में भिन्नता पाये जाने की स्थिति में आशय का पत्र रद्द माना जायगा।

आप अनुमोदन खनन योजना (Mining Plan) तथा मध्यम प्राधिकार से पत्थर पदाधरण के अन्तर्गत पत्थर खनन पदा धोपन हेतु आवदन पर पत्थर खनन पदा को सहायक महामान उपायुक्त गोड्डा के आदेश दिनांक 15.10.2019 के अलावा में डायरेक्टर लघु खानेक समन्वयन मंत्रालय निवर्तमान 2014 के नियम (आक) के तहत पदान को जाता है।

वरुण सिंह  
आवदक

आपक : 1754 नामर दिनांक : 16 अक्टूबर 2019  
आशय का पत्र (Letter of Intent)

